

EXHIBIT F – TRAFFIC STUDY (DRAFT)

Engine Company 115 Fire Station Traffic Impact Study

119th St and Morgan St

Chicago, Illinois, 60643

Draft Report

Prepared By:



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Engine Company 115 Fire Station Traffic Study

SECTION I – EXECUTIVE SUMMARY

A new fire station is proposed at the northwest corner of the 119th St and Morgan St in the Chicago, Illinois. The proposed development will have approximately 26,000 gross square foot area including the new fire station and district offices.

Existing traffic volume data was collected along 119th St on intersections that would be directly and indirectly affected by the fire department. Turning movement data was collected from 6:00am to 9:00am and from 4:00pm to 7:00pm on October 25th, 2018 to observe the typical traffic peak hours. The data was collected at five intersections along 119th St and the peak hour for each intersection was determined from the collected data.

Traffic projections for the site were generated using the standards provided in the Institute of Transportation Engineers (ITE) “*Trip Generation Manual*” and based on the site data provided. The land use code for Fire and Rescue Station (575) was chosen for developing the new trips. Since there were only three similar studies with vehicle trip data, trips were extrapolated from the study that produced the greatest number of trips for the least amount of gross square feet. These site generated trips were added to the existing traffic to get new proposed volumes and modeled. The results of the opening day model showed no significant changes from the existing traffic operations.

A future horizon was also evaluated for the site based on 2024 traffic. To generate this projected traffic, the existing traffic was projected six years in the future using a growth rate of 0.5% per year. These volumes were modeled as both a Future “No-build” condition, and then the site generated trips were added to the 2024 horizon and modeled as a Future Build condition. Again, the results shown in the traffic models show similar levels of service with little to no change from the existing conditions.

New entrances to the proposed site are proposed to the employee parking and for emergency vehicles to enter the site from Morgan St. Additionally, an exit for emergency vehicles is proposed on 119th St. The fire station exit may need to consider installation of a new signal mast arm to stop eastbound traffic coming towards the site, and the ability for the fire station to control the traffic signals on 119th and Morgan St. to change the indications to all red and allow emergency vehicles to leave the fire station can safely and quickly. This may require a new signal controller, signal wiring and other changes to the existing signal at 119th St. and Morgan St.

SECTION II – INTRODUCTION/BACKGROUND OF SITE

TERRA Engineering has been asked to evaluate the traffic impacts of the proposed fire station for Engine Company 115 to be constructed in Chicago, Illinois. The development is proposed to be built near the corner of 119th St and Morgan St. At the origin of this study there were two sites being considered on the northwest and southeast corners of the intersections which both are currently abandoned lots. It appears that the northwest corner site has been chosen for further study, however the traffic impacts on existing traffic in the area would likely be roughly the same for either location.

The proposed building will have approximately 26,000 gross square foot area per the program area analysis which was provided to TERRA for the project. The facilities would include the new fire station with truck and ambulance bays within the site. The building would contain typical amenities including officer quarters, locker rooms, kitchen and dining areas, common spaces and similar facilities. In addition, this location is expected to contain additional district offices with a training room.

The current proposed layout places the main building along 119th Street with a driveway exit for the emergency vehicles onto 119th and entrances to both the fire truck bays and the staff parking to be situated along Morgan Street north on 119th Street.

SECTION III – STUDY AREA

As mentioned above, the proposed site lies in the northwest corner of 119th St and Morgan St in what is currently an abandoned lot in Chicago, Illinois. Currently, the intersection of 119th St and Morgan St is signalized. The proposed site location and adjacent street network and study intersections are provided in Figure 1.

Traffic data was collected at several locations around the proposed site including at the following intersections:

- 119th St and Loomis St (signalized)
- 119th St and Morgan St (signalized)
- 119th St and Sangamon St (unsignalized)
- 119th St and Peoria St (unsignalized)
- 119th St and Halsted St (signalized)

119th St is a four-lane minor arterial road (two lanes in each direction) that runs east-west. It services residential neighborhoods to the north and south. 119th Street connects to Interstate 57 west of the study area, and Halsted St. (IL Route 1) on the east side of the study area. The posted speed limit is 30 miles per hour (mph). Sidewalks exist on both sides of 119th St, and on-street parking is allowed when there is less than 2 inches of snow. The Ray and Joan Kroc Corps Community center lies on the north side of 119th between Loomis St and Morgan St, and there are two entrances to enter the community center. There CTA 119 Bus Route runs along this portion of 119th with several bus stops near the project site, including on Loomis St, Morgan St, Peoria St, Ada St, and Halsted St.

Loomis St is a one-way and one-lane roadway that runs in the northbound direction to the north of 119th Street, serving a residential area. On-street parking is allowed on both sides

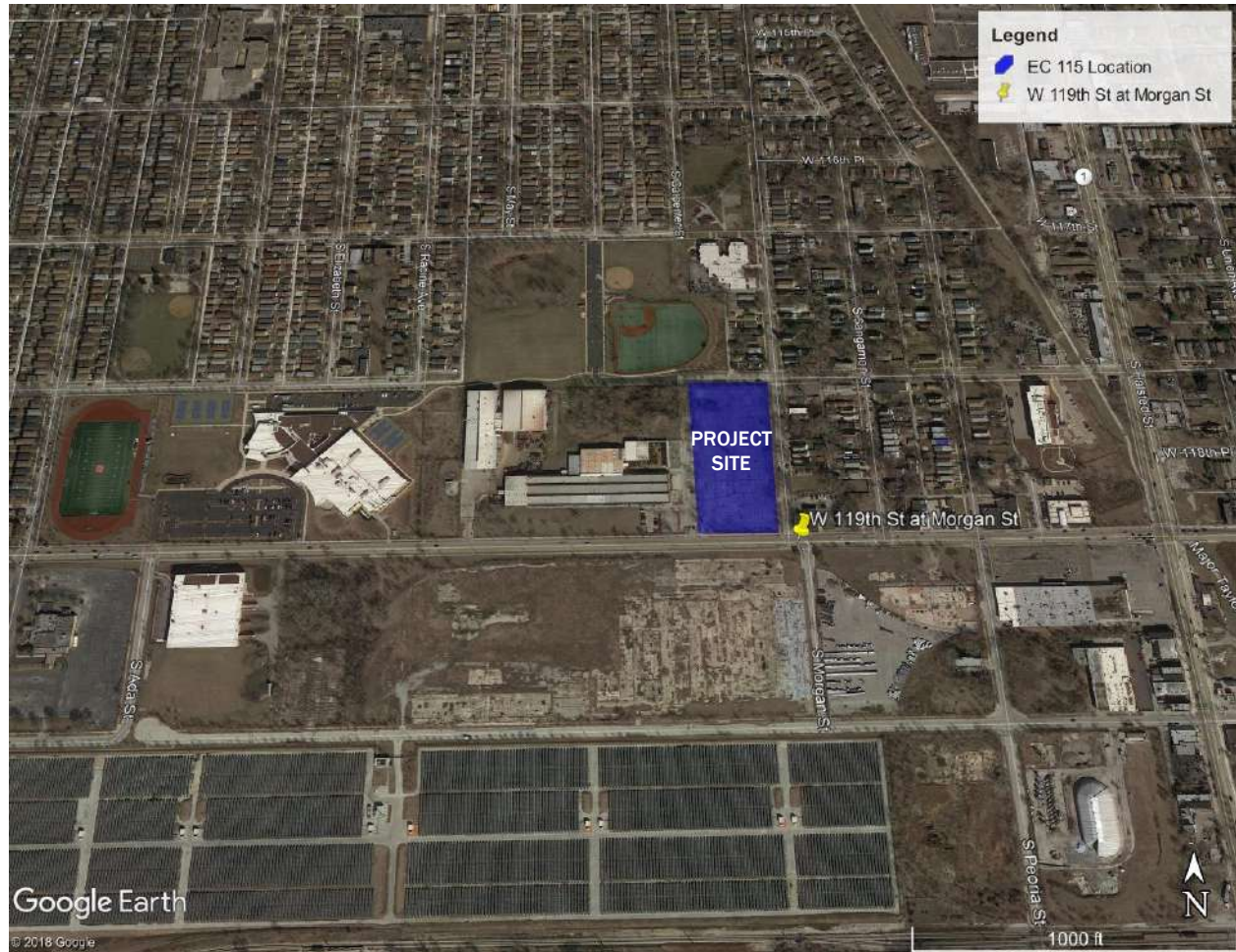


Figure 1 - Study Area Map

of this segment of roadway. On the south side the street is interrupted by a large parking area which serves Johnnie Coleman Academy and another business with large parking areas. This entrance creates a 4-way intersection at this location which is signalized. The assumed speed limit is 30 mph with the north leg being one-way away from the intersection.

Morgan St is a two-lane road running in the north-south direction and provides two-way traffic flow. On-street parking is allowed on both sides of the street. North of 119th St, Morgan St serves a residential area and connects to several adjacent parks in the neighborhood. South of 119th St, Morgan St continues for 650 feet before ending at 120th Street where there is a large solar power farm and several currently abandoned lots. The assumed speed limit is 30 mph.

Sangamon St is a one-way street running in the southbound direction providing egress from a residential area to 119th Street. On-street parking is allowed on both sides of the street. Sangamon St ends at 119th St, forming an unsignalized T-intersection.

Peoria St is a roadway that extends 1,300 feet north of 119th serving a residential area before being cut-off by a roadway barrier at 117th Street and provides ingress into the neighborhood. Peoria Street also extends to the south of 119th St serving several

businesses before coming to a dead-end south of the train tracks. North of 119th St, Peoria St is a one-way road running northbound away from 119th St. Side street parking is allowed. South of 119th St, Peoria St is a two-way, two-lane road running in the north-south direction. It appears that south of 120th Street, Peoria Street would allow for pedestrian access to the West Pullman station on the Metra Electric line.

Halsted St is also known as Illinois Route 1. It is a four-lane major arterial road running in the north-south direction, with two lanes in each direction separated by a median. The northbound and southbound directions have an additional lane for left turns at the intersection with 119th St. Halsted St intersects with Interstate 57 to the north of 119th, and Route 83 to the south. It serves many residential areas and there are many businesses along it. On-street parking is allowed on some segments of Halsted St without reducing the travel lanes. The posted speed limit is 30 miles per hour (mph).

SECTION IV – EXISTING ROADWAY TRAFFIC CONDITIONS

Existing traffic data was collected on October 25th, 2018 at the five study area intersections. Counts were collected from 6:00 AM to 9:00 AM to consider the AM peak hour, and again from 4:00 PM to 7:00 PM to consider the PM peak hour.

The AM and PM peak hour for Morgan St, Peoria St, and Halsted St occurred at the same time, from 7:15 AM to 8:15 AM and from 4:45 PM to 5:45 PM. Because Sangamon St is close in proximity between Morgan St and Peoria St, and Morgan St and Peoria St had matching peak hours, it was assumed that the peak hours for Sangamon St would also be from 7:15 AM to 8:15 AM, and from 4:45 PM to 5:45 PM. The vehicle turning movements for Sangamon St were counted during the assumed peak hours to generate existing traffic data on Sangamon St.

The PM peak hour at 199th and Loomis St coincided with the PM peak hour for the other intersections, however the AM peak hour on Loomis St occurred between 7:30 AM and 8:30 AM which was slightly later. Though the AM peak on Loomis does not coincide with the AM peaks on the other intersections, the turning movement data during the 7:30-8:30 AM peak was used to provide a worst-case calculation. Using the highest observed data at each intersection provides a slightly more conservative calculation for traffic volumes. The resulting AM and PM peak hour volumes are provided in Figure 2.

Engine Company 115 Fire Station - Existing Traffic Volumes - AM (PM)
 Chicago, Illinois

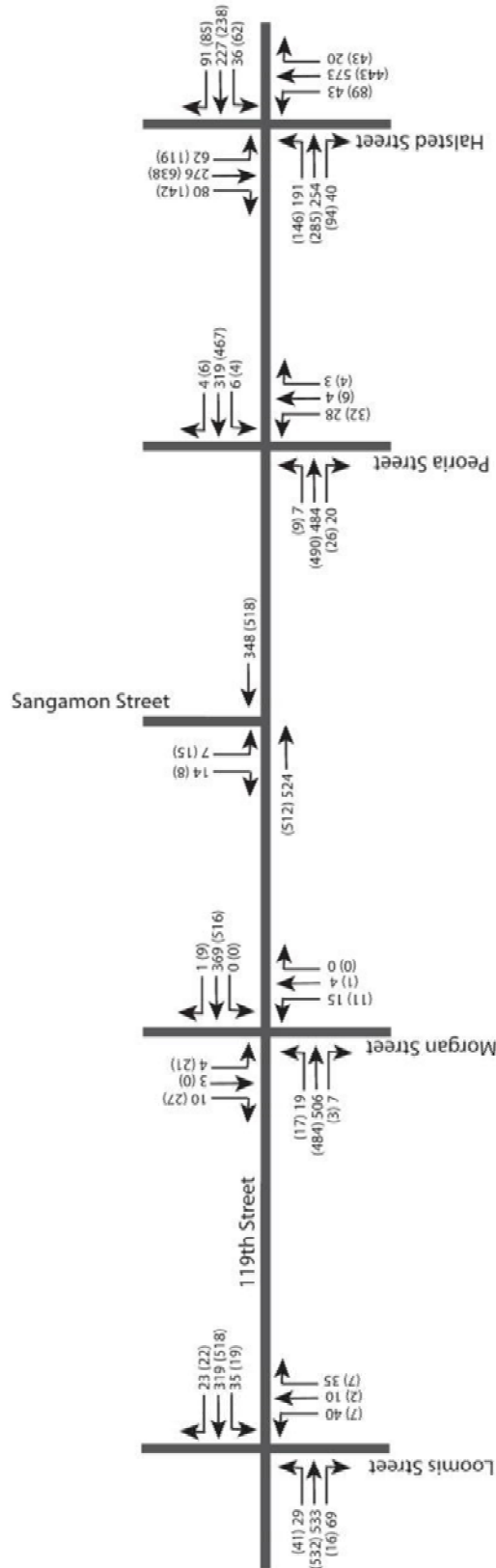


Figure 2 – 2018 Existing AM (PM) Peak Hour Traffic Volumes



Map Not to Scale

Level of Service and Delay

Delay is one of the main components of measuring the service of an interrupted flow roadway. The principal measure of this delay is control delay which is defined by the Highway Capacity Manual as “a quantitative stratification of a performance measure or measures representing quality of service”. The LOS is measured on an A-F scale, where “LOS A represents the best operating conditions from the traveler’s perspective and LOS F the worst. For cost, environmental impact, and other reasons, roadways are typically designed not to provide LOS A conditions during peak periods but instead to provide some lower LOS that balances individual travelers’ desires against society’s desires and financial resources”.

The LOS designation was created as a tool to help laypersons and decision makers determine the difference in operating conditions for a particular location. There are six representative levels of service defined for each type of facility which can be analyzed, and they are designated using letters A through F. These letters are an attempt to translate “complex numerical performance results into a simple A-F system representative of travelers’ perceptions of the quality of service”. LOS calculations are provided for different modes of travel such as motorized vehicle, pedestrian, bicycle and transit modes. Safety of the intersection is not included in the analysis of LOS. Level of Service is defined separately for signalized and unsignalized intersections as shown in the Table 1.

| Table 1 – Level of Service Thresholds for Control Delay (seconds/vehicle) | | |
|---|-------------------------------------|--------------|
| Level of Service | Control Delay per Vehicle (sec/veh) | |
| | Signalized | Unsignalized |
| A | 0-10 sec | 0-10 sec |
| B | > 10-20 sec | > 10-15 sec |
| C | > 20-35 sec | > 15-25 sec |
| D | > 35-55 sec | > 25-35 sec |
| E | > 55-80 sec | > 35-50 sec |
| F | > 80 sec | > 50 sec |

LOS is a measure of the acceptability of the amount of delay, therefore it is considered slightly subjective as what is acceptable in a major metropolitan area may not be acceptable in a smaller city or rural area. These delays are computed as the average control delay per vehicle arriving at the intersection. For signalized intersections, delays are evaluated for the overall intersection, while on streets which are unsignalized; delay is analyzed for each movement separately and only includes side street traffic and left turns from the major street.

Another factor evaluated when determining traffic operations at an intersection is the volume to capacity (v/c) ratio of the critical lane group. This ratio compares the rate of flow to the available capacity of the intersection and is considered a measure of the degree of saturation. Sustainable values of a v/c ratio range from 0.0 to 1.0. Values in excess of 1.0 indicate a possible excess of demand and are considered to be LOS F.

In a dense urban area, it is generally acceptable to provide LOS D in all areas but consider LOS E in certain situations where traffic demand is very high on major arterial routes.

Occasionally side streets will be allowed to operate at LOS F when volume and demand on the side street is considered very low and servicing these vehicles would cause a greater negative impact on the progression of through traffic on the main route.

The existing traffic data collected was modeled in Synchro 10 traffic modeling software for analysis of the street network surrounding the proposed fire station site. The analysis was performed for the existing traffic during the peak period in the morning and again in the afternoon. As noted previously, the peak for each individual intersection was utilized. Each of the intersections was then evaluated on an individual basis to determine the control delay at the intersection. There are three signalized intersections in the study area. The other two intersections are both two-way stop controlled, with the major route (119th St) being allowed to free flow and the side street required to stop.

Signal timings were provided for this analysis from the City of Chicago Department of Transportation (CDOT). The existing traffic analysis performance data is provided in Table 2 for the AM and PM periods and the Synchro output from the existing analysis is provided in Appendix B.

| Table 2 – Existing Traffic Analysis | | | | | | |
|--|------------|-------|------|-----------------|-------|------|
| | Weekday AM | | | Weekday PM Peak | | |
| | LOS | Delay | v/c | LOS | Delay | v/c |
| S Loomis St & W 119 th St <i>Signalized Intersection</i> | A | 8.6 | 0.35 | A | 8.5 | 0.34 |
| S Morgan St & W 119 th St <i>Signalized Intersection</i> | A | 7.8 | 0.31 | A | 7.9 | 0.29 |
| W 119 th St & S Sangamon St <i>Unsignalized Intersection – Southbound</i> | B | 11.2 | 0.04 | C | 15.2 | 0.07 |
| S Peoria St & W 119 th St <i>Unsignalized Intersection – Northbound Left</i> | C | 16.1 | 0.11 | C | 17.9 | 0.14 |
| <i>Eastbound Left</i> | A | 8.0 | 0.01 | A | 8.5 | 0.01 |
| <i>Westbound Left</i> | A | 8.6 | 0.01 | A | 8.6 | 0.01 |
| S Halsted St & W 119 th St <i>Signalized Intersection</i> | C | 20.7 | 0.48 | C | 21.8 | 0.64 |

All the intersections and turning movements appear to perform at a LOS C or better in the existing condition, which is considered acceptable. The largest delay is experienced at the signalized intersection of Halsted St and 119th St, which experiences a delay of 20.7 seconds during the AM peak hour and 21.8 seconds during the PM peak hour. Based on the existing traffic flows, LOS and delays it appears that traffic in the area functions well on an average daily basis.

SECTION V – COMPUTATION OF BACKGROUND TRAFFIC

Often when projecting traffic for a new development with a future opening date, it is necessary to project an increase in the existing traffic due to background growth. This growth is generally created by other sources including new developments and overall growth of the area. While much of the residential portion of the area is built out, there does

appear to be some room for further developments in the area in locations which are currently vacant or abandoned which could bring additional traffic. A 0.5% growth rate for traffic in the area was assumed for the purposes of this study. As this development would be planned for a 2019 opening at the earliest, it will be necessary to increase the opening day background traffic for a period of one year to a 2019 date for the opening day analysis. TERRA also analyzed the traffic 5 years after opening day, which means a 5-year design horizon becomes a six-year horizon for future analysis in 2024.

The existing traffic data collected was adjusted by the corresponding factors to both 2019 and 2024 traffic volumes. The calculations to adjust these traffic volumes are provided in Appendix C.

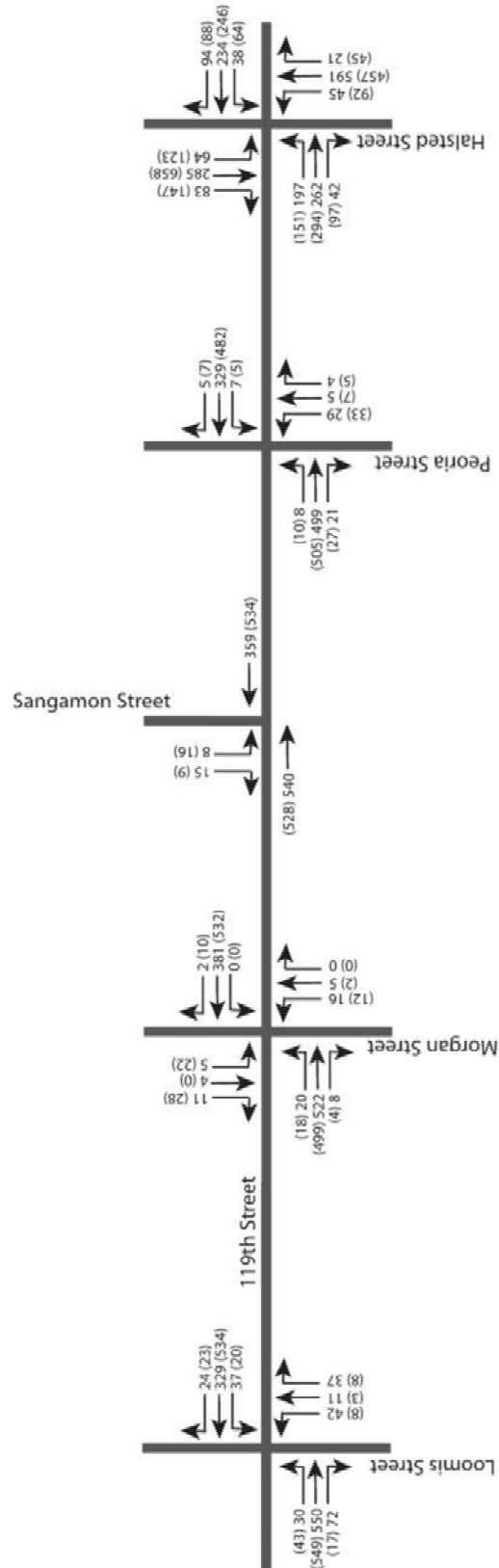
The next step was to create a model for the 2024 traffic showing a no-build condition for establishing the future background traffic without the development. The “Future No-Build” traffic was developed and is shown in Figure 3.

These new volumes are considered a no-build condition and are representative of what the expected traffic levels would be in 6 years if the fire station were not built. These values were modeled in Synchro as the “Future No-Build” condition to provide a frame of reference for the future analysis to help show what is attributable to the new site and what is due to other factors not created by the new project site traffic. The results of the updated analysis for the 2024 no-build condition are provided in Table 3 with the full synchro results provided in Appendix D.

| Table 3 – 2024 Future No-Build Traffic Analysis | | | | | | | |
|--|-----------------------|-------|------|-----------------|-------|------|------|
| | Weekday AM | | | Weekday PM Peak | | | |
| | LOS | Delay | v/c | LOS | Delay | v/c | |
| S Loomis St & W 119 th St <i>Signalized Intersection</i> | A | 8.7 | 0.36 | A | 8.6 | 0.35 | |
| S Morgan St & W 119 th St <i>Signalized Intersection</i> | A | 7.8 | 0.32 | A | 7.9 | 0.30 | |
| W 119 th St & S Sangamon St <i>Unsignalized Intersection – Southbound Left</i> | B | 11.4 | 0.04 | C | 15.2 | 0.07 | |
| S Peoria St & W 119 th St <i>Unsignalized Intersection – Northbound Left</i> | C | 16.5 | 0.12 | C | 18.2 | 0.15 | |
| | <i>Eastbound Left</i> | A | 8.0 | 0.01 | A | 8.5 | 0.01 |
| | <i>Westbound Left</i> | A | 8.6 | 0.01 | A | 8.6 | 0.01 |
| S Halsted St & W 119 th St <i>Signalized Intersection</i> | C | 20.9 | 0.50 | C | 21.9 | 0.65 | |

Like the evaluations of the existing traffic, the 2024 projected no-build traffic operates within what is typically considered acceptable from a LOS standpoint. The traffic caused by a 0.5% traffic growth produces negligible changes in the LOS or days at each intersection when compared to existing data.

Engine Company 115 Fire Station - Future No-Build Traffic - AM (PM)
 Chicago, Illinois



Map Not to Scale

Figure 3 - 2024 Future No-Build AM (PM) Volumes



SECTION VI – SITE LAYOUT

The proposed new fire station for Engine Company 115 is to be located on the northwest corner of 119th St and Morgan St on what is currently a vacant lot. The site plan calls for two driveways along Morgan St, and one along 119th St.

Along Morgan St, a northern driveway for employees and visitors is proposed which will contain 61 parking spaces. This northern entrance will be located approximately mid-way between 119th St. and 118th St. and will provide all of the on-site parking access for personal vehicles both for fire station staff, district staff and visitors to the site. It appears this entrance and another internal entrance within the parking area may include fencing and a lockable gate.

A southern entrance along Morgan St is also proposed for fire trucks to enter the fire station hangar and garage area. It appears this entrance for the trucks and emergency vehicles to enter the garage bays appears to be located about 50 feet from the intersection with 119th Street. Based on the existing traffic volumes collected, it is not expected that southbound Morgan Street traffic which is relatively low, would block the trucks from turning into the parking area. This driveway is meant to be an entrance only into the site and would be considered “one-way” into the site.

The egress driveway meant for fire trucks leaving the site from the fire station hangar is proposed to access 119th Street directly approximately 200 feet west of the intersection. For fire trucks to safely and quickly leave the station in the event of an emergency, a new fire station signal will be needed by the driveway on 119th St to stop eastbound vehicles. This signal, along with the Morgan Street and 119th Street signal will need to be wired to allow for emergency preemption by calls to the station. Essentially, the ability for the fire station the change all the signal lights on 119th St and Morgan St to all-red to stop westbound vehicles on 119th Street and all vehicles on Morgan Street at the currently existing signal and the eastbound 119th traffic at the new fire station signal. This will require modification of the existing signals on 119th St and Morgan St which will likely include additional wiring, a new signal controller and other amenities to allow the fire station to control it on an as-needed basis, and the installation of new mast arms on 119th St near by the new proposed driveway.

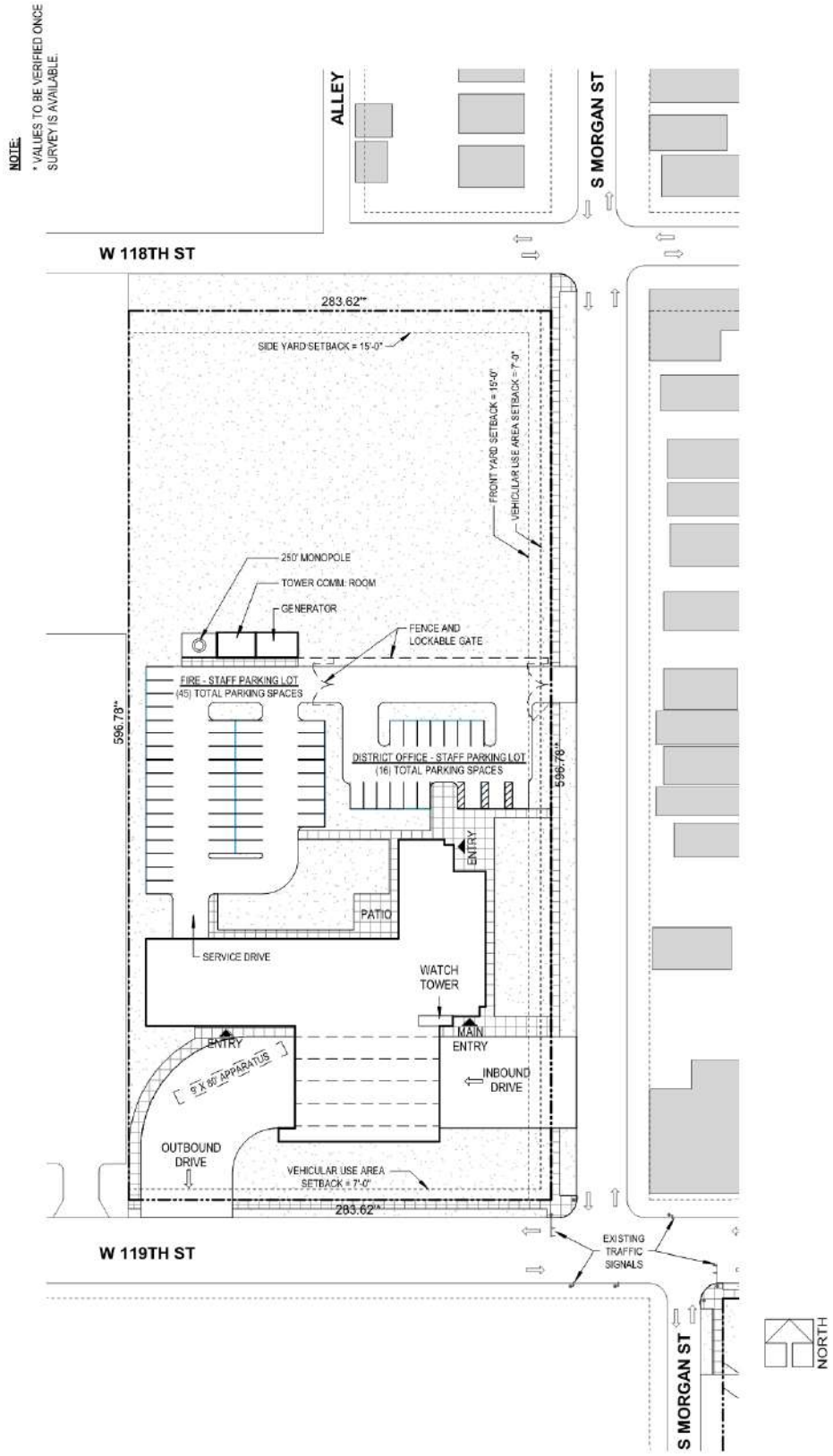


Figure 4 - Proposed Fire Station Site Plan

SECTION VII – TRIP GENERATION

When evaluating proposed traffic at a new development, it is necessary to estimate the number of new vehicle trips which will be created by the new uses at the site. This estimation of trips is generated using data obtained from traffic counts at other similar locations or by using the Institute of Transportation Engineers (ITE) Trip Generation Manual. The ITE Manual collects data at existing sites for all types of uses such as hotels, shopping centers, apartment complexes, subdivisions, offices, etc. and compiles it into book form as a reference for designers. The data in the 10th edition is based on more than 5,000 trip generation studies which have been collected over several decades by transportation professionals. For this analysis, the land use codes used for the calculations are Fire and Rescue Station (575).

The description for Fire and Rescue Station is as follows: “A fire and rescue station is building [sic] that houses emergency services firefighting apparatus, and the individuals that provide emergency firefighting services. Other services sometimes offered through fire and rescue stations include emergency medical, hazardous materials, rescue, safety training, and fire prevention services.”

For most land uses, the collected data is broken into many different types of subsets which can be used to perform the calculations, including comparing the number of trips to the gross floor area, or comparing the number of trips to the number of employees. Calculations can also be completed for an entire weekday, the traditional peak hours of traffic, the peak hour of activity for the use type, Saturday traffic, or Sunday traffic. However, for the Fire and Rescue Station land use, only three studies have been conducted, which measured the gross square footage of the building or the number of employees versus vehicle trips. These studies were conducted on a weekday during the hours between 4:00 PM and 6:00 PM, and the gross area of each studied fire station was less than 12,000 square feet. The proposed EC 115 fire station has a gross area of 25,743 square feet which is much larger than the study locations.

To generate trips, TERRA analyzed the trip generation study in the ITE manual that produced the greatest number of trips for the least amount of gross area. For a conservative estimate, it was estimated the fire station in the ITE Manual had a gross area of 7,500 square feet and generated 9 total trips (entering and exiting). If a linear relationship between gross area and trips was assumed, it follows that a fire station with a gross area 25,743 square feet would generate 31 total trips in and out of the site. In the three studies submitted to the ITE, it was found during the PM peak hour of adjacent street traffic, 29% of vehicles were entering the Fire and Rescue Station, and 71% were exiting. There is no data on the distribution of vehicles the AM peak hour of traffic, so to be conservative, TERRA assumed for both the AM and PM that a potential shift change would create the peak vehicle traffic at the site and would include the same number of entering and exiting vehicles (50%/50% split) instead of using the ITE split.

A 30% increase in the calculated 31 trips will be assumed to be both entering and leaving the site to account for the district offices. It will be estimated then, during the AM peak hour and PM peak hour of traffic, 22 vehicles will enter the fire station, and 22 vehicles will exit the fire station, which is a very conservative estimate of traffic for both evaluations.

SECTION VIII – TRIP ASSIGNMENTS

The calculated trips for the new development need to then be assigned to the network to evaluate the future traffic created by the senior living facility. To begin this process, TERRA evaluated the existing traffic patterns to gain an overall perception of how drivers in the current roadway system utilize the network. This process began by taking the existing traffic volumes recorded at each intersection and dividing the volume for each movement by the total entering traffic on each leg. This gave the percentages of left, through and right turning traffic for each leg.

The next step TERRA performed was to sum the traffic volume entering and exiting each intersection along 119th St and calculating the proportion of vehicles entering each leg of each intersection. This helped to determine the east/west directionality of the overall trips through the study area based on the recorded peak hours of traffic. This helps to provide a possible approximation for what the generated traffic might be expected to do coming to and from the site. It was assumed that traffic leaving the site via 119th Street would not turn right onto Loomis St or turn left onto Peoria St, because it would be easier to go north on Morgan St from the new proposed driveway if they wished to enter the neighborhood.

It was assumed that of the vehicles entering the site, 90% would come from 119th St, and 10% would come through the neighborhood north of the site, entering from southbound Morgan St. Similarly, of the vehicles leaving the site, it was assumed 90% would turn right towards 119th St, and 10% would turn left to head north on Morgan Street into the neighborhood.

On 119th St and Morgan St, it was observed that of all the vehicles using 119th St during the AM peak hour, 59% were traveling eastbound and 41% were traveling westbound. During the PM peak hour, the splits showed 49% were traveling eastbound and 51% were traveling westbound. These percentages were then used to estimate which direction vehicles exiting the fire station were likely to turn when reaching 119th St. It is assumed there would be no through movements on Morgan St as there is not much to attract trips in that direction and because only three vehicles were observed making through movements on southbound Morgan St during the AM peak hour, and zero vehicles were observed in the PM peak hour. In addition, only four vehicles were observed making northbound through movements on Morgan St during the AM peak hour, and only one vehicle was observed making a northbound through movement during the PM peak hour so no northbound through traffic was assumed for the study.

Table 4 – Trip Assignment Percentages

| | AM Peak | | PM Peak | |
|--|----------|---------|----------|---------|
| | Entering | Exiting | Entering | Exiting |
| Morgan Street | | | | |
| Approaching new Driveway To/From North | 10% | 10% | 10% | 10% |
| Approaching new Driveway To/From South | 90% | 90% | 90% | 90% |
| 119th Street | | | | |
| Approaching Morgan Street To/From East | 41% | 59% | 51% | 49% |
| Approaching Morgan Street To/From West | 59% | 41% | 49% | 51% |

The next step of the process was to assign the generated trips into the roadway network. It was assumed during both the AM peak hour and the PM peak hour, that 22 vehicles will enter the site and 22 vehicles will exit the site. The assignment of trips was completed using the percentages shown in Table 4 for the vehicles entering and exiting the site with a majority leaving the site south on Morgan Street to 119th Street.

In addition to the new driveway which provides access to the parking area for employees, there are additional driveways in and out of the proposed site which provide the access for the emergency vehicles. These driveways will also generate some traffic when emergency calls are placed, and the first responders need to leave and return to the site. The driveway to enter the site will be provided off of Morgan Street, while the driveway for vehicles to exit the site will access 119th Street directly.

These trips will vary according to need and are impossible to predict with any reasonable accuracy. For the purposes of the study it was assumed that during a busy hour, these trips would be 5 vehicles per hour or less. To account for the possibility of these trips and evaluate their impact 5 trips in and out of the driveways were assumed for both the Am and PM peak hours.

The resulting trip assignments for the EC 115 Fire Station are provided in Figure 5 for the newly generated trips.

SECTION IX – OPENING DAY ANALYSIS

The next step in the process was to complete an analysis for potential opening day traffic to compare to the existing data to determine the impact. As the fire station will not be completed in 2018, it was necessary to assume at least one year of background growth for the existing traffic. These background traffic projections for opening day were completed using the same 0.5% per year growth used for the no-build condition. The trips generated by the fire station were then added to the 2019 projections at 0.5% to determine the “Opening Day” traffic volumes. The combined volumes are provided in Figure 6.

The new volumes were inserted into a traffic model to determine the proposed conditions with the additional development traffic around the site. It was assumed for the initial analysis that the existing streets and signal timings were to remain in the same geometric configuration with no change to traffic control methods. Changes to the model included inserting two new driveways on the west side of Morgan St where the proposed parking lot and entrance to the emergency vehicle bays will be located and a new driveway along 119th for the emergency vehicle exit. The Morgan Street driveway was inserted as an unsignalized side street stop for the employee parking area. The emergency vehicle entrance is one way entering and has no traffic control and a actuated traffic signal was assumed for the exit driveway to allow for quick exit of the emergency vehicles.

Engine Company 115 Fire Station - Opening Day Trip Assignments - AM (PM)
 Chicago, Illinois

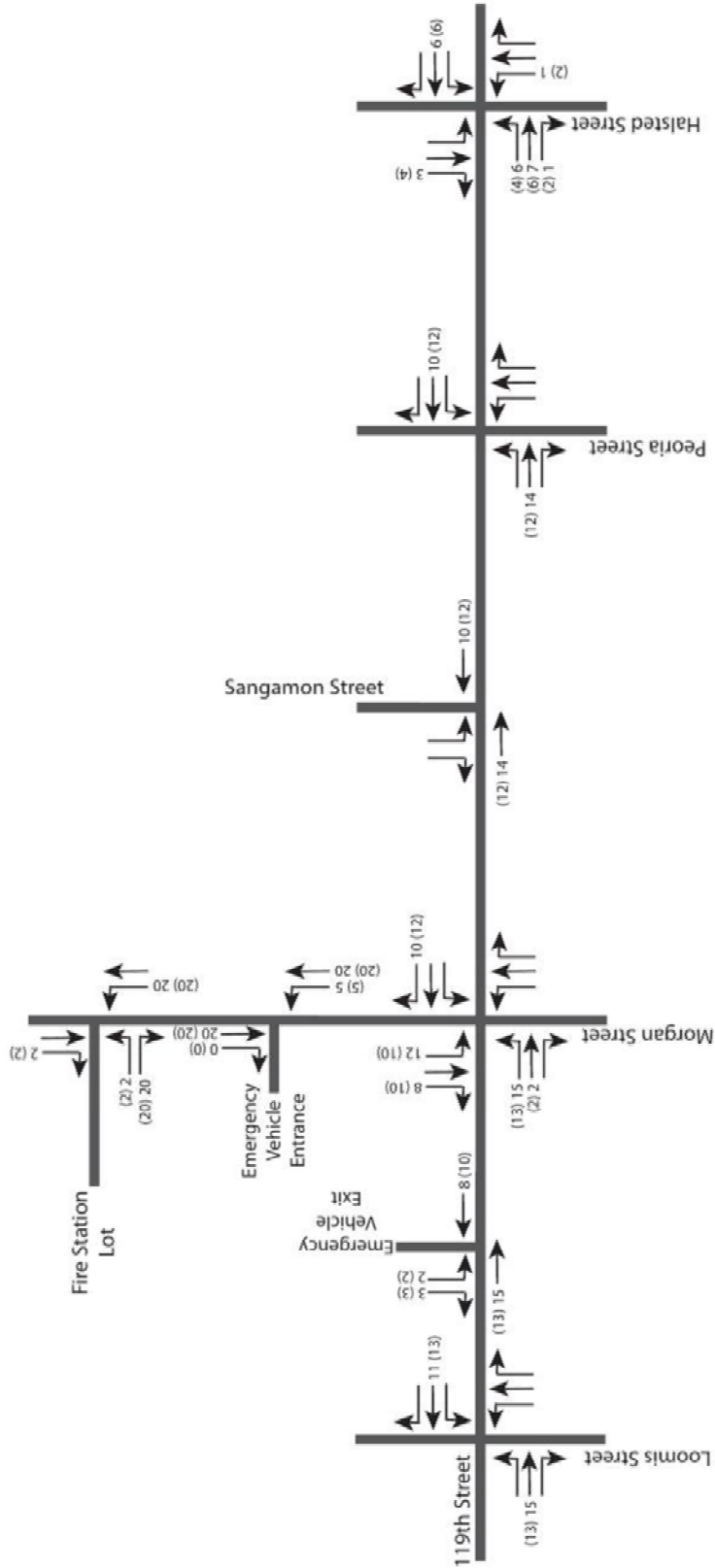


Figure 5 – Opening Day Site Generated Trip Assignments



Map Not to Scale

Engine Company 115 Fire Station - Opening Day Traffic - AM (PM)
 Chicago, Illinois

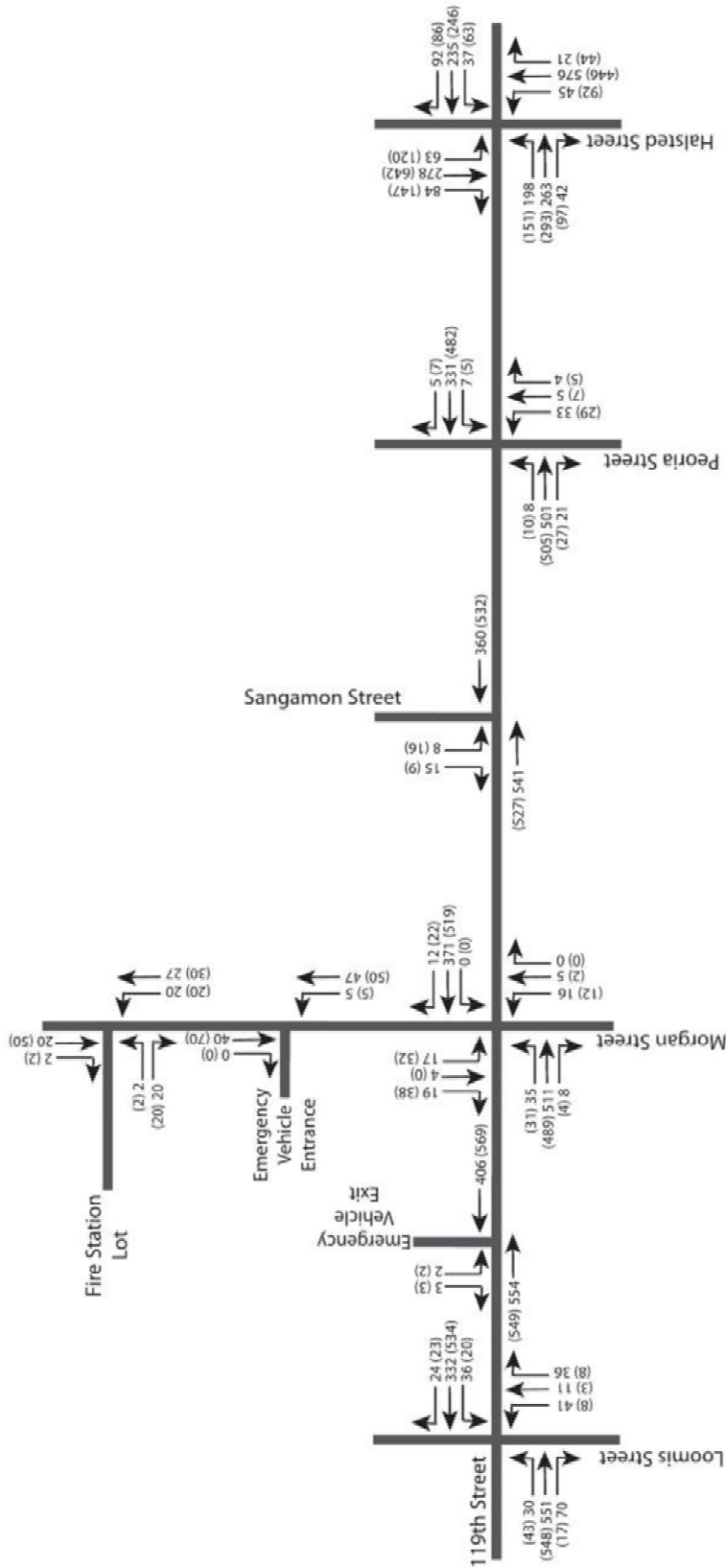


Figure 6 – Opening Day Traffic AM(PM)



Map Not to Scale

| Table 5 – Opening Day Traffic Analysis | | | | | | |
|---|------------|-------|------|-----------------|-------|------|
| | Weekday AM | | | Weekday PM Peak | | |
| | LOS | Delay | v/c | LOS | Delay | v/c |
| S Loomis St & W 119 th St <i>Signalized Intersection</i> | A | 8.7 | 0.36 | A | 8.6 | 0.35 |
| S Morgan St & W 119 th St <i>Signalized Intersection</i> | A | 8.4 | 0.33 | A | 8.4 | 0.31 |
| W 119 th St & S Sangamon St <i>Unsignalized Intersection – Southbound</i> | B | 11.4 | 0.04 | C | 15.5 | 0.07 |
| S Peoria St & W 119 th St <i>Unsignalized Intersection – Northbound</i> | C | 16.6 | 0.12 | C | 18.6 | 0.16 |
| <i>Eastbound Left</i> | A | 8.0 | 0.01 | A | 8.5 | 0.01 |
| <i>Westbound Left</i> | A | 8.6 | 0.01 | A | 8.6 | 0.01 |
| S Halsted St & W 119 th St <i>Signalized Intersection</i> | C | 20.8 | 0.50 | C | 22.0 | 0.65 |
| W 119 th St & Fire Station Exit <i>Signalized Intersection</i> | A | 7.2 | 0.45 | A | 7.5 | 0.45 |
| S Morgan St & EC 115 Parking <i>Unsignalized – Northbound Left</i> | A | 7.3 | 0.01 | A | 7.4 | 0.01 |
| <i>Eastbound</i> | A | 8.6 | 0.02 | A | 8.7 | 0.02 |

Comparing the traffic analysis for Opening Day and the Existing Traffic analysis performed earlier, the difference in delays at any intersection or turning movement is less than one (1) second for all movements. The LOS for all intersections and turning movements remain the same. Based on the simulation, it is predicted drivers will not notice any changes in traffic flow after the fire station has been constructed due to the traffic generated by the fire station.

To evaluate the location of the emergency driveway entrance, the simulation done by Synchro predicted the vehicle queue length on southbound Morgan St on a typical day at the 119th Street signal. The 95th percentile queue would be at most 26 feet during the AM peak hour and 37 feet during the PM peak hour, measured from the stop bar to the end of the last vehicle in the queue. The length from the north edge of the sidewalk on the north side of 119th St, to the proposed driveway is 48 feet. Therefore, it is unlikely that the queue on southbound Morgan St will interfere with vehicles turning into the driveway to the hangar unless some unusual circumstances are encountered.

SECTION X – FUTURE BUILD CONDITION

The City of Chicago has also requested that the study investigate the future traffic scenario five years after the opening day (2019) which would be in 2024. To develop this condition, it will be necessary to use the projected traffic increases for the Future No-Build condition as the base for the traffic volumes and add in the values from the development for analysis. The resulting map which adds the trip assignments caused by the fire station with the increase in traffic caused by a 0.05% growth in population over 6 years is shown in Figure 7.

These volumes were then placed into the modeling software for analysis and the results of the model are provided in Table 6 and the Synchro output from the analysis is provided in Appendix F.

| Table 6 – Future Build Traffic Analysis | | | | | | |
|---|------------|-------|------|-----------------|-------|------|
| | Weekday AM | | | Weekday PM Peak | | |
| | LOS | Delay | v/c | LOS | Delay | v/c |
| S Loomis St & W 119 th St <i>Signalized Intersection</i> | A | 8.7 | 0.37 | A | 8.7 | 0.36 |
| S Morgan St & W 119 th St <i>Signalized Intersection</i> | A | 8.5 | 0.34 | A | 8.5 | 0.32 |
| W 119 th St & S Sangamon St <i>Unsignalized Intersection – Southbound</i> | B | 11.6 | 0.04 | C | 15.8 | 0.08 |
| S Peoria St & W 119 th St <i>Unsignalized Intersection – Northbound</i> | C | 16.9 | 0.12 | C | 19.1 | 0.16 |
| <i>Eastbound Left</i> | A | 8.1 | 0.01 | A | 8.6 | 0.01 |
| <i>Westbound Left</i> | A | 8.7 | 0.01 | A | 8.7 | 0.01 |
| S Halsted St & W 119 th St <i>Signalized Intersection</i> | C | 21.0 | 0.52 | C | 22.2 | 0.67 |
| W 119 th St & Fire Station Exit <i>Signalized Intersection</i> | A | 7.2 | 0.45 | A | 7.4 | 0.46 |
| S Morgan St & EC 115 Parking <i>Unsignalized – Northbound Left</i> | A | 7.3 | 0.01 | A | 7.4 | 0.01 |
| <i>Eastbound</i> | A | 8.6 | 0.02 | A | 8.7 | 0.02 |

This final analysis returns results which are very similar to all the other scenarios considered. The LOS for all movements match those observed in the other conditions which implies that to the average driver there will be no difference in perception about how the new development will affect their daily commute during peak hours. Comparing the Future Build model to the Existing model, the increase in delay in any intersection or turning movement is less than one second, except for the northbound left movement at Peoria St and 119th St during the PM peak hour, which has an increased delay of 1.2 seconds.

Engine Company 115 Fire Station - Future Build Traffic - AM (PM)
 Chicago, Illinois



Figure 7 – 2024 Future Build Traffic AM(PM)



Map Not to Scale

The delay at 119th St and the fire station exit decreases by 0.1 seconds during the PM peak hour. This may be counter-intuitive, as many would assume the increase in vehicles should also increase delay. The signal at 119th and the fire station exit is actuated, meaning it is always green unless a fire truck needs to exit for an emergency. Because there are the same number of assumed emergency calls in both scenarios the amount of traffic at the fire station places the same number of calls to the signal. This means more vehicles free flow through the fire station signal along 119th Street on a green signal indication in the Future Build model than the Opening Day model. These additional vehicles experience little to no delay from the signal, so the delay is lower when the delay of all vehicles is averaged.

Like in the Opening Day analysis, the simulation done by Synchro predicted the vehicle queue length on southbound Morgan St on a typical day would be approximately 26 feet during the AM peak hour and 37 feet during the PM peak hour. The length from the north edge of the sidewalk on the north side of 119th St, to the proposed driveway is 48 feet. The queue length remains unchanged and is unlikely to interfere with fire trucks entering the driveway to the hangar.

SECTION XI – SUMMARY AND CONCLUSIONS

This study was undertaken to determine the impact of the proposed fire station development proposed for the northwest corner of 119th St and Morgan St in Chicago, IL. The will have a 25,743 gross square foot area and contain 61 parking spaces. This development will generate new vehicle trips in the area.

Traffic and pedestrian data were collected around the proposed site on October 25th, 2018 to get a better understanding of the existing traffic flow on a typical weekday. This included five intersections near the site which might be directly or indirectly impacted by the development. The existing data collected was modeled using Synchro 10 traffic modeling analysis software. It was noted that in the existing conditions the model showed overall very good operation with LOS of C or better in the morning peak and afternoon peak for all locations.

The vehicle trips for the new site were estimated based on the proposed site plan provided and also a study provided in the ITE [Trip Generation Manual](#). Only three studies were provided in the [Trip Generation Manual](#) for Fire and Rescue Station, so trips were extrapolated from the study that produced the greatest number of trips for the least amount of gross square feet. The trips were then assigned to the traffic network based on several factors including the existing traffic patterns.

TERRA has reviewed the traffic model output from the Synchro analysis for the existing, 2024 no-build, 2019 opening day and 2024 future build conditions and has found the operating conditions at the study area intersections to be very similar in all conditions to the existing condition. No geometric changes would be necessary to accommodate the traffic from the new development, but a new signal arm mast to stop eastbound traffic coming towards the site should be installed so fire trucks may safely and quickly leave the station to respond to an emergency. In addition, the fire station may require the ability to set all

signals on 119th St and Morgan St to red during these emergency calls. It would be expected that this will require changes to the traffic signal controller and wiring to allow this preemption to occur and will need to be designed in conjunction with the new Fire Station signal to be installed west of the intersection near the proposed EC 115 driveway onto 119th Street for eastbound traffic.

In the opening day and future build analysis, the queues during the peak hours on southbound Morgan St are not long enough to obstruct the entrance to the fire station driveway on Morgan St. Overall it is expected that the increase in traffic created by the site will have a minimal impact on the traffic flow in this area around the proposed site.

Appendix A

Existing Traffic Volumes



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Count Name: S Loomis St and W 119th St
Site Code:
Start Date: 10/25/2018
Page No: 1

Turning Movement Data

| Start Time | Loomis St Southbound | | | | | | 119th St Westbound | | | | | | Loomis St Northbound | | | | | | 119th St Eastbound | | | | | | Int. Total |
|---------------|----------------------|-------|-------|--------|------|------------|--------------------|------|-------|--------|------|------------|----------------------|-------|-------|--------|------|------------|--------------------|------|-------|--------|------|------------|------------|
| | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | |
| 6:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 37 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 64 | 0 | 0 | 0 | 67 | 104 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 58 | 3 | 0 | 0 | 62 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 87 | 1 | 0 | 0 | 93 | 155 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 49 | 3 | 0 | 0 | 52 | 2 | 0 | 0 | 0 | 0 | 2 | 2 | 76 | 2 | 0 | 0 | 80 | 134 |
| 6:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 51 | 2 | 0 | 1 | 54 | 0 | 1 | 0 | 0 | 0 | 1 | 7 | 95 | 0 | 0 | 0 | 102 | 157 |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 195 | 8 | 0 | 1 | 205 | 2 | 1 | 0 | 0 | 0 | 3 | 17 | 322 | 3 | 0 | 0 | 342 | 550 |
| 7:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 60 | 0 | 0 | 0 | 60 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 112 | 6 | 0 | 2 | 124 | 184 |
| 7:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 77 | 2 | 0 | 2 | 81 | 1 | 0 | 0 | 0 | 1 | 1 | 4 | 131 | 8 | 0 | 1 | 143 | 225 |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 99 | 4 | 0 | 1 | 115 | 4 | 2 | 7 | 0 | 0 | 13 | 6 | 137 | 21 | 0 | 0 | 164 | 292 |
| 7:45 AM | 0 | 0 | 0 | 0 | 3 | 0 | 20 | 77 | 5 | 0 | 0 | 102 | 30 | 7 | 20 | 0 | 0 | 57 | 6 | 123 | 36 | 0 | 6 | 165 | 324 |
| Hourly Total | 0 | 0 | 0 | 0 | 5 | 0 | 34 | 313 | 11 | 0 | 3 | 358 | 35 | 9 | 27 | 0 | 1 | 71 | 22 | 503 | 71 | 0 | 9 | 596 | 1025 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 70 | 8 | 0 | 0 | 81 | 4 | 1 | 6 | 0 | 1 | 11 | 5 | 134 | 9 | 0 | 0 | 148 | 240 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 6 | 0 | 0 | 79 | 2 | 0 | 2 | 0 | 0 | 4 | 12 | 139 | 3 | 0 | 0 | 154 | 237 |
| 8:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 5 | 0 | 0 | 78 | 1 | 0 | 0 | 0 | 1 | 1 | 9 | 89 | 1 | 0 | 1 | 99 | 178 |
| 8:45 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 88 | 6 | 0 | 0 | 94 | 1 | 0 | 1 | 0 | 0 | 2 | 10 | 117 | 2 | 0 | 0 | 129 | 225 |
| Hourly Total | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 304 | 25 | 0 | 0 | 332 | 8 | 1 | 9 | 0 | 2 | 18 | 36 | 479 | 15 | 0 | 1 | 530 | 880 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4:00 PM | 0 | 1 | 1 | 0 | 0 | 2 | 1 | 140 | 9 | 0 | 0 | 150 | 2 | 0 | 0 | 0 | 0 | 2 | 10 | 104 | 0 | 0 | 0 | 114 | 268 |
| 4:15 PM | 1 | 0 | 0 | 0 | 2 | 1 | 4 | 95 | 4 | 0 | 0 | 103 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 117 | 2 | 0 | 1 | 126 | 230 |
| 4:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 5 | 114 | 9 | 0 | 0 | 128 | 1 | 0 | 0 | 0 | 0 | 1 | 10 | 134 | 5 | 0 | 0 | 149 | 278 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 127 | 4 | 0 | 0 | 136 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 132 | 3 | 0 | 0 | 148 | 284 |
| Hourly Total | 1 | 1 | 1 | 0 | 4 | 3 | 15 | 476 | 26 | 0 | 0 | 517 | 3 | 0 | 0 | 0 | 0 | 3 | 40 | 487 | 10 | 0 | 1 | 537 | 1060 |
| 5:00 PM | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 141 | 5 | 0 | 0 | 150 | 1 | 0 | 1 | 0 | 0 | 2 | 10 | 142 | 4 | 0 | 3 | 156 | 308 |
| 5:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 126 | 4 | 0 | 4 | 136 | 3 | 0 | 3 | 0 | 0 | 6 | 9 | 109 | 6 | 0 | 0 | 124 | 266 |
| 5:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 124 | 9 | 0 | 1 | 137 | 3 | 2 | 3 | 0 | 0 | 8 | 9 | 149 | 3 | 0 | 0 | 161 | 306 |
| 5:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 102 | 3 | 0 | 0 | 106 | 2 | 4 | 7 | 0 | 0 | 13 | 9 | 110 | 2 | 0 | 0 | 121 | 240 |
| Hourly Total | 0 | 0 | 0 | 0 | 4 | 0 | 15 | 493 | 21 | 0 | 5 | 529 | 9 | 6 | 14 | 0 | 0 | 29 | 37 | 510 | 15 | 0 | 3 | 562 | 1120 |
| 6:00 PM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 108 | 3 | 0 | 0 | 112 | 5 | 5 | 11 | 0 | 0 | 21 | 10 | 133 | 0 | 0 | 0 | 143 | 276 |
| 6:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 89 | 2 | 0 | 0 | 91 | 13 | 1 | 10 | 0 | 0 | 24 | 11 | 114 | 0 | 0 | 0 | 125 | 240 |
| 6:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 88 | 4 | 0 | 0 | 92 | 5 | 0 | 2 | 0 | 0 | 7 | 8 | 105 | 2 | 0 | 0 | 115 | 214 |
| 6:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 104 | 4 | 0 | 0 | 109 | 1 | 0 | 0 | 0 | 0 | 1 | 6 | 117 | 4 | 0 | 2 | 127 | 237 |
| Hourly Total | 0 | 0 | 0 | 0 | 3 | 0 | 2 | 389 | 13 | 0 | 0 | 404 | 24 | 6 | 23 | 0 | 0 | 53 | 35 | 469 | 6 | 0 | 2 | 510 | 967 |
| Grand Total | 1 | 1 | 1 | 0 | 16 | 3 | 71 | 2170 | 104 | 0 | 9 | 2345 | 81 | 23 | 73 | 0 | 3 | 177 | 187 | 2770 | 120 | 0 | 16 | 3077 | 5602 |
| Approach % | 33.3 | 33.3 | 33.3 | 0.0 | - | - | 3.0 | 92.5 | 4.4 | 0.0 | - | - | 45.8 | 13.0 | 41.2 | 0.0 | - | - | 6.1 | 90.0 | 3.9 | 0.0 | - | - | - |
| Total % | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.1 | 1.3 | 38.7 | 1.9 | 0.0 | - | 41.9 | 1.4 | 0.4 | 1.3 | 0.0 | - | 3.2 | 3.3 | 49.4 | 2.1 | 0.0 | - | 54.9 | - |
| Lights | 0 | 1 | 1 | 0 | - | 2 | 71 | 2089 | 95 | 0 | - | 2255 | 81 | 23 | 72 | 0 | - | 176 | 184 | 2674 | 118 | 0 | - | 2976 | 5409 |
| % Lights | 0.0 | 100.0 | 100.0 | - | - | 66.7 | 100.0 | 96.3 | 91.3 | - | - | 96.2 | 100.0 | 100.0 | 98.6 | - | - | 99.4 | 98.4 | 96.5 | 98.3 | - | - | 96.7 | 96.6 |
| Buses | 0 | 0 | 0 | 0 | - | 0 | 0 | 41 | 5 | 0 | - | 46 | 0 | 0 | 0 | 0 | - | 0 | 2 | 50 | 0 | 0 | - | 52 | 98 |

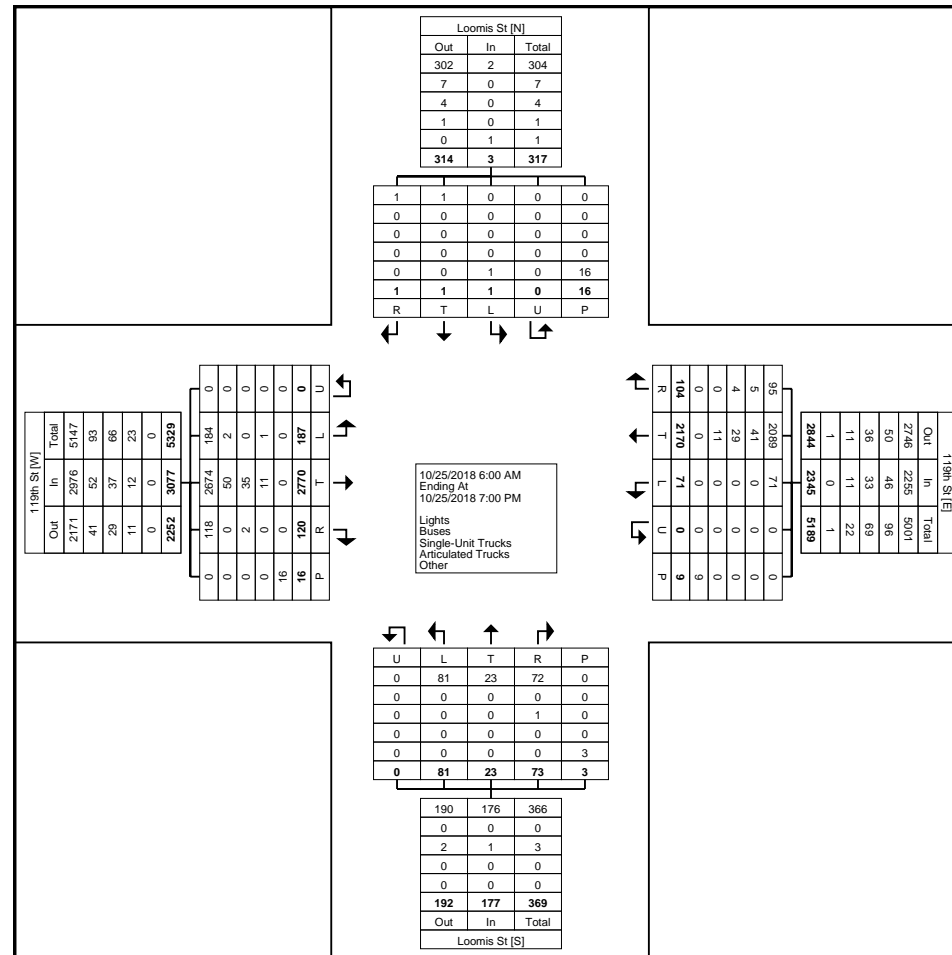
| | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|-------|-----|-----|---|-------|------|-----|-----|-----|---|-------|-----|-----|-----|-----|-------|---|-----|-----|-----|-----|---|-------|-----|-----|
| % Buses | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 1.9 | 4.8 | - | - | 2.0 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 1.1 | 1.8 | 0.0 | - | - | 1.7 | 1.7 |
| Single-Unit Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 29 | 4 | 0 | - | 33 | 0 | 0 | 1 | 0 | - | 1 | 0 | 35 | 2 | 0 | - | 37 | 71 |
| % Single-Unit Trucks | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 1.3 | 3.8 | - | - | 1.4 | 0.0 | 0.0 | 1.4 | - | - | 0.6 | 0.0 | 1.3 | 1.7 | - | - | 1.2 | 1.3 |
| Articulated Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 11 | 0 | 0 | - | 11 | 0 | 0 | 0 | 0 | - | 0 | 1 | 11 | 0 | 0 | - | 12 | 23 |
| % Articulated Trucks | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.5 | 0.0 | - | - | 0.5 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.5 | 0.4 | 0.0 | - | - | 0.4 | 0.4 |
| Bicycles on Road | 1 | 0 | 0 | 0 | - | 1 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 1 |
| % Bicycles on Road | 100.0 | 0.0 | 0.0 | - | - | 33.3 | 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 Crosswalk | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | 0.0 | - | - | - | - | - | 0.0 | - | - | - | - | 0.0 | - | - | - | - | - | - | 0.0 | - | - |
| Pedestrians | - | - | - | - | 16 | - | - | - | - | - | 9 | - | - | - | - | 3 | - | - | - | - | - | - | 16 | - | - |
| % Pedestrians | - | - | - | - | 100.0 | - | - | - | - | - | 100.0 | - | - | - | - | 100.0 | - | - | - | - | - | - | 100.0 | - | - |



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Site Code:
Start Date: 10/25/2018
Page No: 3



Turning Movement Data Plot



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Count Name: S Loomis St and W 119th St
Site Code:
Start Date: 10/25/2018
Page No: 4

Turning Movement Peak Hour Data (7:30 AM)

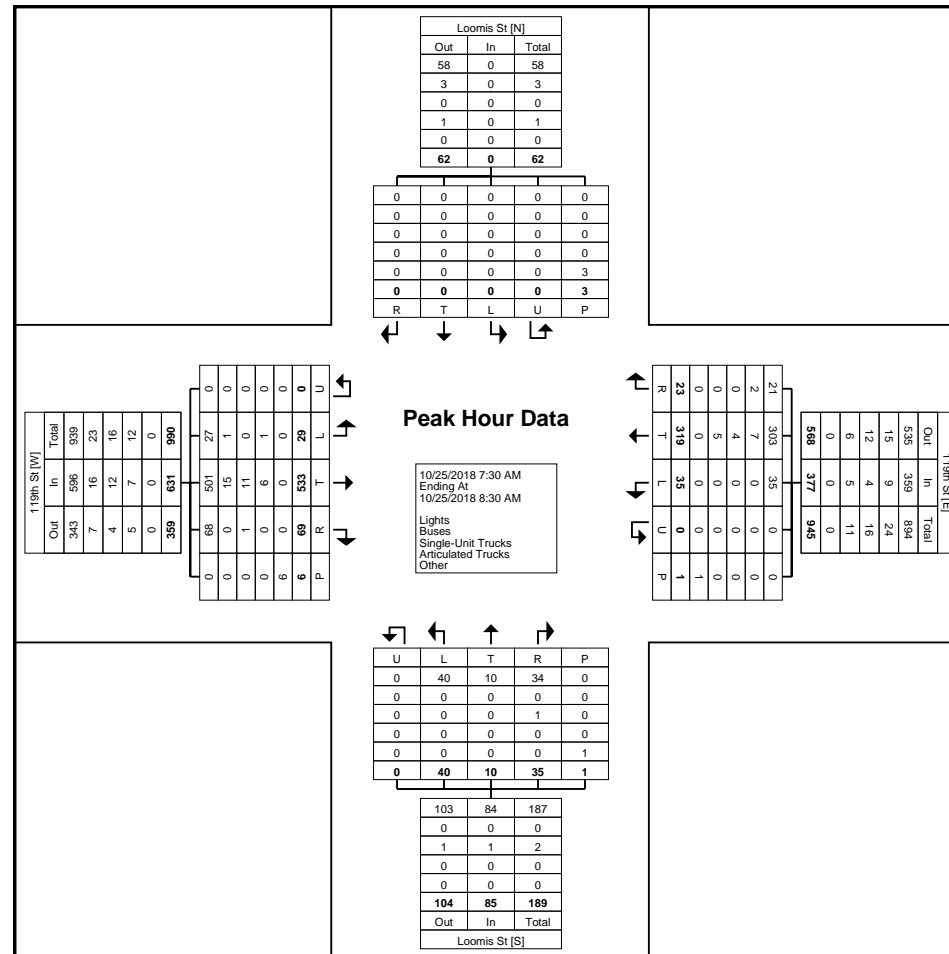
| Start Time | Loomis St Southbound | | | | | | 119th St Westbound | | | | | | Loomis St Northbound | | | | | | 119th St Eastbound | | | | | | Int. Total |
|-------------------------|----------------------|-------|-------|--------|-------|------------|--------------------|-------|-------|--------|-------|------------|----------------------|-------|-------|--------|-------|------------|--------------------|-------|-------|--------|-------|------------|------------|
| | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | |
| 7:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 99 | 4 | 0 | 1 | 115 | 4 | 2 | 7 | 0 | 0 | 13 | 6 | 137 | 21 | 0 | 0 | 164 | 292 |
| 7:45 AM | 0 | 0 | 0 | 0 | 3 | 0 | 20 | 77 | 5 | 0 | 0 | 102 | 30 | 7 | 20 | 0 | 0 | 57 | 6 | 123 | 36 | 0 | 6 | 165 | 324 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 70 | 8 | 0 | 0 | 81 | 4 | 1 | 6 | 0 | 1 | 11 | 5 | 134 | 9 | 0 | 0 | 148 | 240 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 6 | 0 | 0 | 79 | 2 | 0 | 2 | 0 | 0 | 4 | 12 | 139 | 3 | 0 | 0 | 154 | 237 |
| Total | 0 | 0 | 0 | 0 | 3 | 0 | 35 | 319 | 23 | 0 | 1 | 377 | 40 | 10 | 35 | 0 | 1 | 85 | 29 | 533 | 69 | 0 | 6 | 631 | 1093 |
| Approach % | 0.0 | 0.0 | 0.0 | 0.0 | - | - | 9.3 | 84.6 | 6.1 | 0.0 | - | - | 47.1 | 11.8 | 41.2 | 0.0 | - | - | 4.6 | 84.5 | 10.9 | 0.0 | - | - | - |
| Total % | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 3.2 | 29.2 | 2.1 | 0.0 | - | 34.5 | 3.7 | 0.9 | 3.2 | 0.0 | - | 7.8 | 2.7 | 48.8 | 6.3 | 0.0 | - | 57.7 | - |
| PHF | 0.000 | 0.000 | 0.000 | 0.000 | - | 0.000 | 0.438 | 0.806 | 0.719 | 0.000 | - | 0.820 | 0.333 | 0.357 | 0.438 | 0.000 | - | 0.373 | 0.604 | 0.959 | 0.479 | 0.000 | - | 0.956 | 0.843 |
| Lights | 0 | 0 | 0 | 0 | - | 0 | 35 | 303 | 21 | 0 | - | 359 | 40 | 10 | 34 | 0 | - | 84 | 27 | 501 | 68 | 0 | - | 596 | 1039 |
| % Lights | - | - | - | - | - | - | 100.0 | 95.0 | 91.3 | - | - | 95.2 | 100.0 | 100.0 | 97.1 | - | - | 98.8 | 93.1 | 94.0 | 98.6 | - | - | 94.5 | 95.1 |
| Buses | 0 | 0 | 0 | 0 | - | 0 | 0 | 7 | 2 | 0 | - | 9 | 0 | 0 | 0 | 0 | - | 0 | 1 | 15 | 0 | 0 | - | 16 | 25 |
| % Buses | - | - | - | - | - | - | 0.0 | 2.2 | 8.7 | - | - | 2.4 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 3.4 | 2.8 | 0.0 | - | - | 2.5 | 2.3 |
| Single-Unit Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 4 | 0 | 0 | - | 4 | 0 | 0 | 1 | 0 | - | 1 | 0 | 11 | 1 | 0 | - | 12 | 17 |
| % Single-Unit Trucks | - | - | - | - | - | - | 0.0 | 1.3 | 0.0 | - | - | 1.1 | 0.0 | 0.0 | 2.9 | - | - | 1.2 | 0.0 | 2.1 | 1.4 | - | - | 1.9 | 1.6 |
| Articulated Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 5 | 0 | 0 | - | 5 | 0 | 0 | 0 | 0 | - | 0 | 1 | 6 | 0 | 0 | - | 7 | 12 |
| % Articulated Trucks | - | - | - | - | - | - | 0.0 | 1.6 | 0.0 | - | - | 1.3 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 3.4 | 1.1 | 0.0 | - | - | 1.1 | 1.1 |
| Bicycles on Road | 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 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | 0.0 | - | - | - | - | - | 0.0 | - | - | - | - | - | 0.0 | - | - | - | - | - | 0.0 | - | - |
| Pedestrians | - | - | - | - | 3 | - | - | - | - | - | 1 | - | - | - | - | - | 1 | - | - | - | - | - | 6 | - | - |
| % Pedestrians | - | - | - | - | 100.0 | - | - | - | - | - | 100.0 | - | - | - | - | - | 100.0 | - | - | - | - | - | 100.0 | - | - |



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Count Name: S Loomis St and W 119th St
Site Code:
Start Date: 10/25/2018
Page No: 5



Turning Movement Peak Hour Data Plot (7:30 AM)



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314-395-9899 song@terraengineering.com

Count Name: S Loomis St and W 119th St
Site Code:
Start Date: 10/25/2018
Page No: 6

Turning Movement Peak Hour Data (4:45 PM)

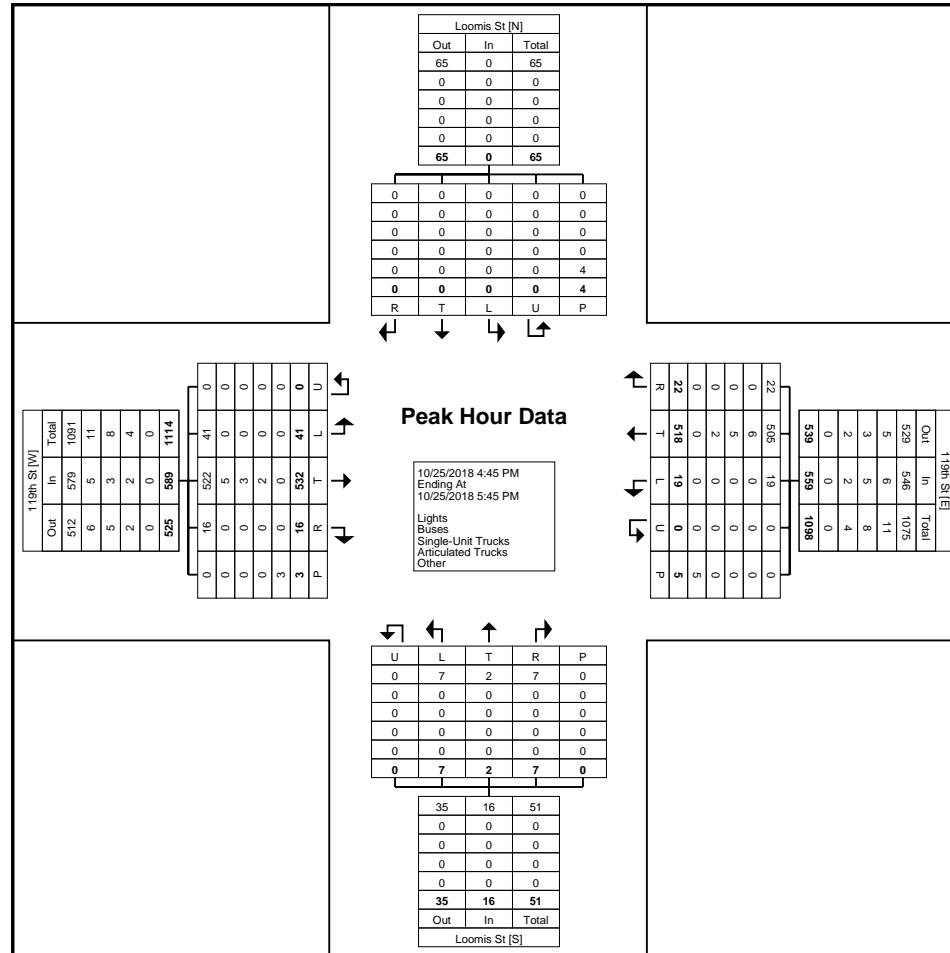
| Start Time | Loomis St Southbound | | | | | | 119th St Westbound | | | | | | Loomis St Northbound | | | | | | 119th St Eastbound | | | | | | Int. Total |
|-------------------------|----------------------|-------|-------|--------|-------|------------|--------------------|-------|-------|--------|-------|------------|----------------------|-------|-------|--------|------|------------|--------------------|-------|-------|--------|-------|------------|------------|
| | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 127 | 4 | 0 | 0 | 136 | 0 | 0 | 0 | 0 | 0 | 0 | 13 | 132 | 3 | 0 | 0 | 148 | 284 |
| 5:00 PM | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 141 | 5 | 0 | 0 | 150 | 1 | 0 | 1 | 0 | 0 | 2 | 10 | 142 | 4 | 0 | 3 | 156 | 308 |
| 5:15 PM | 0 | 0 | 0 | 0 | 1 | 0 | 6 | 126 | 4 | 0 | 4 | 136 | 3 | 0 | 3 | 0 | 0 | 6 | 9 | 109 | 6 | 0 | 0 | 124 | 266 |
| 5:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 124 | 9 | 0 | 1 | 137 | 3 | 2 | 3 | 0 | 0 | 8 | 9 | 149 | 3 | 0 | 0 | 161 | 306 |
| Total | 0 | 0 | 0 | 0 | 4 | 0 | 19 | 518 | 22 | 0 | 5 | 559 | 7 | 2 | 7 | 0 | 0 | 16 | 41 | 532 | 16 | 0 | 3 | 589 | 1164 |
| Approach % | 0.0 | 0.0 | 0.0 | 0.0 | - | - | 3.4 | 92.7 | 3.9 | 0.0 | - | - | 43.8 | 12.5 | 43.8 | 0.0 | - | - | 7.0 | 90.3 | 2.7 | 0.0 | - | - | - |
| Total % | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 1.6 | 44.5 | 1.9 | 0.0 | - | 48.0 | 0.6 | 0.2 | 0.6 | 0.0 | - | 1.4 | 3.5 | 45.7 | 1.4 | 0.0 | - | 50.6 | - |
| PHF | 0.000 | 0.000 | 0.000 | 0.000 | - | 0.000 | 0.792 | 0.918 | 0.611 | 0.000 | - | 0.932 | 0.583 | 0.250 | 0.583 | 0.000 | - | 0.500 | 0.788 | 0.893 | 0.667 | 0.000 | - | 0.915 | 0.945 |
| Lights | 0 | 0 | 0 | 0 | - | 0 | 19 | 505 | 22 | 0 | - | 546 | 7 | 2 | 7 | 0 | - | 16 | 41 | 522 | 16 | 0 | - | 579 | 1141 |
| % Lights | - | - | - | - | - | - | 100.0 | 97.5 | 100.0 | - | - | 97.7 | 100.0 | 100.0 | 100.0 | - | - | 100.0 | 100.0 | 98.1 | 100.0 | - | - | 98.3 | 98.0 |
| Buses | 0 | 0 | 0 | 0 | - | 0 | 0 | 6 | 0 | 0 | - | 6 | 0 | 0 | 0 | 0 | - | 0 | 0 | 5 | 0 | 0 | - | 5 | 11 |
| % Buses | - | - | - | - | - | - | 0.0 | 1.2 | 0.0 | - | - | 1.1 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.9 | 0.0 | - | - | 0.8 | 0.9 |
| Single-Unit Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 5 | 0 | 0 | - | 5 | 0 | 0 | 0 | 0 | - | 0 | 0 | 3 | 0 | 0 | - | 3 | 8 |
| % Single-Unit Trucks | - | - | - | - | - | - | 0.0 | 1.0 | 0.0 | - | - | 0.9 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.6 | 0.0 | - | - | 0.5 | 0.7 |
| Articulated Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 2 | 0 | 0 | - | 2 | 0 | 0 | 0 | 0 | - | 0 | 0 | 2 | 0 | 0 | - | 2 | 4 |
| % Articulated Trucks | - | - | - | - | - | - | 0.0 | 0.4 | 0.0 | - | - | 0.4 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.4 | 0.0 | - | - | 0.3 | 0.3 |
| Bicycles on Road | 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 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | 0.0 | - | - | - | - | - | 0.0 | - | - | - | - | - | - | - | - | - | - | - | 0.0 | - | - |
| Pedestrians | - | - | - | - | 4 | - | - | - | - | - | 5 | - | - | - | - | - | 0 | - | - | - | - | - | 3 | - | - |
| % Pedestrians | - | - | - | - | 100.0 | - | - | - | - | - | 100.0 | - | - | - | - | - | - | - | - | - | - | - | 100.0 | - | - |



Terra Engineering
1804 Borman Circle Drive

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Count Name: S Loomis St and W 119th St
Site Code:
Start Date: 10/25/2018
Page No: 7



Turning Movement Peak Hour Data Plot (4:45 PM)



Terra Engineering
1804 Borman Circle Drive

Saint Louis, Missouri, United States 63146
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Count Name: 119th St & Morgan St
Site Code:
Start Date: 10/25/2018
Page No: 1

Turning Movement Data

| Start Time | Morgan St Southbound | | | | | | 119th St Westbound | | | | | | Morgan St Northbound | | | | | | 119th St Eastbound | | | | | | Int. Total | |
|---------------|----------------------|-------|-------|--------|------|------------|--------------------|------|-------|--------|------|------------|----------------------|------|-------|--------|------|------------|--------------------|------|-------|--------|------|------------|------------|------|
| | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | | |
| 6:00 AM | 1 | 0 | 2 | 0 | 0 | 3 | 0 | 37 | 1 | 0 | 0 | 38 | 1 | 0 | 1 | 0 | 0 | 2 | 2 | 55 | 1 | 0 | 0 | 0 | 58 | 101 |
| 6:15 AM | 2 | 1 | 2 | 0 | 0 | 5 | 0 | 63 | 1 | 0 | 0 | 64 | 2 | 0 | 0 | 0 | 0 | 2 | 1 | 80 | 0 | 0 | 0 | 0 | 81 | 152 |
| 6:30 AM | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 48 | 1 | 0 | 0 | 49 | 0 | 1 | 0 | 0 | 0 | 1 | 2 | 75 | 0 | 0 | 0 | 0 | 77 | 128 |
| 6:45 AM | 3 | 0 | 2 | 0 | 0 | 5 | 0 | 65 | 1 | 0 | 0 | 66 | 1 | 0 | 0 | 0 | 0 | 1 | 3 | 88 | 2 | 0 | 0 | 0 | 93 | 165 |
| Hourly Total | 6 | 1 | 7 | 0 | 0 | 14 | 0 | 213 | 4 | 0 | 0 | 217 | 4 | 1 | 1 | 0 | 0 | 6 | 8 | 298 | 3 | 0 | 0 | 0 | 309 | 546 |
| 7:00 AM | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 58 | 0 | 0 | 0 | 58 | 4 | 0 | 0 | 0 | 0 | 4 | 2 | 107 | 1 | 0 | 0 | 0 | 110 | 174 |
| 7:15 AM | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 86 | 0 | 0 | 0 | 86 | 4 | 1 | 0 | 0 | 0 | 5 | 2 | 128 | 3 | 0 | 0 | 0 | 133 | 226 |
| 7:30 AM | 1 | 0 | 4 | 0 | 0 | 5 | 0 | 118 | 0 | 0 | 0 | 118 | 3 | 0 | 0 | 0 | 0 | 3 | 2 | 136 | 1 | 0 | 0 | 0 | 139 | 265 |
| 7:45 AM | 1 | 1 | 3 | 0 | 1 | 5 | 0 | 88 | 0 | 0 | 0 | 88 | 6 | 1 | 0 | 0 | 0 | 7 | 4 | 124 | 3 | 0 | 0 | 0 | 131 | 231 |
| Hourly Total | 3 | 2 | 9 | 0 | 1 | 14 | 0 | 350 | 0 | 0 | 0 | 350 | 17 | 2 | 0 | 0 | 0 | 19 | 10 | 495 | 8 | 0 | 0 | 0 | 513 | 896 |
| 8:00 AM | 1 | 1 | 3 | 0 | 0 | 5 | 0 | 77 | 1 | 0 | 0 | 78 | 2 | 2 | 0 | 0 | 1 | 4 | 11 | 118 | 0 | 0 | 0 | 0 | 129 | 216 |
| 8:15 AM | 3 | 0 | 5 | 0 | 2 | 8 | 0 | 63 | 7 | 0 | 1 | 70 | 1 | 0 | 0 | 0 | 0 | 1 | 9 | 125 | 2 | 0 | 0 | 0 | 136 | 215 |
| 8:30 AM | 2 | 0 | 3 | 0 | 0 | 5 | 0 | 77 | 3 | 0 | 0 | 80 | 2 | 0 | 0 | 0 | 1 | 2 | 9 | 78 | 1 | 0 | 0 | 0 | 88 | 175 |
| 8:45 AM | 3 | 0 | 4 | 0 | 2 | 7 | 0 | 88 | 2 | 0 | 0 | 90 | 5 | 0 | 0 | 0 | 1 | 5 | 5 | 105 | 2 | 0 | 0 | 0 | 112 | 214 |
| Hourly Total | 9 | 1 | 15 | 0 | 4 | 25 | 0 | 305 | 13 | 0 | 1 | 318 | 10 | 2 | 0 | 0 | 3 | 12 | 34 | 426 | 5 | 0 | 0 | 0 | 465 | 820 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4:00 PM | 1 | 1 | 5 | 0 | 0 | 7 | 0 | 132 | 7 | 0 | 0 | 139 | 5 | 0 | 0 | 0 | 0 | 5 | 6 | 89 | 0 | 0 | 0 | 0 | 95 | 246 |
| 4:15 PM | 1 | 0 | 13 | 0 | 2 | 14 | 0 | 101 | 2 | 0 | 0 | 103 | 5 | 0 | 0 | 0 | 0 | 5 | 7 | 113 | 1 | 0 | 0 | 0 | 121 | 243 |
| 4:30 PM | 2 | 0 | 2 | 0 | 0 | 4 | 0 | 107 | 3 | 0 | 1 | 110 | 3 | 2 | 0 | 0 | 0 | 5 | 7 | 118 | 2 | 0 | 0 | 0 | 127 | 246 |
| 4:45 PM | 7 | 0 | 9 | 0 | 2 | 16 | 0 | 114 | 1 | 0 | 0 | 115 | 5 | 1 | 0 | 0 | 1 | 6 | 4 | 118 | 2 | 0 | 1 | 1 | 124 | 261 |
| Hourly Total | 11 | 1 | 29 | 0 | 4 | 41 | 0 | 454 | 13 | 0 | 1 | 467 | 18 | 3 | 0 | 0 | 1 | 21 | 24 | 438 | 5 | 0 | 1 | 1 | 467 | 996 |
| 5:00 PM | 8 | 0 | 10 | 0 | 0 | 18 | 0 | 142 | 2 | 0 | 0 | 144 | 3 | 0 | 0 | 0 | 0 | 3 | 4 | 128 | 0 | 0 | 0 | 0 | 132 | 297 |
| 5:15 PM | 3 | 0 | 5 | 0 | 0 | 8 | 0 | 128 | 4 | 0 | 0 | 132 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 99 | 1 | 0 | 1 | 1 | 105 | 245 |
| 5:30 PM | 3 | 0 | 3 | 0 | 0 | 6 | 0 | 132 | 2 | 0 | 0 | 134 | 3 | 0 | 0 | 0 | 0 | 3 | 4 | 139 | 0 | 0 | 0 | 0 | 143 | 286 |
| 5:45 PM | 4 | 0 | 6 | 0 | 0 | 10 | 0 | 92 | 3 | 0 | 0 | 95 | 0 | 0 | 0 | 0 | 0 | 0 | 6 | 105 | 2 | 0 | 0 | 0 | 113 | 218 |
| Hourly Total | 18 | 0 | 24 | 0 | 0 | 42 | 0 | 494 | 11 | 0 | 0 | 505 | 6 | 0 | 0 | 0 | 1 | 6 | 19 | 471 | 3 | 0 | 1 | 1 | 493 | 1046 |
| 6:00 PM | 2 | 0 | 5 | 0 | 0 | 7 | 0 | 97 | 3 | 0 | 0 | 100 | 3 | 2 | 0 | 0 | 0 | 5 | 6 | 127 | 2 | 0 | 0 | 0 | 135 | 247 |
| 6:15 PM | 1 | 0 | 5 | 0 | 1 | 6 | 0 | 90 | 1 | 0 | 0 | 91 | 3 | 0 | 0 | 0 | 0 | 3 | 2 | 109 | 1 | 0 | 0 | 0 | 112 | 212 |
| 6:30 PM | 1 | 0 | 5 | 0 | 2 | 6 | 0 | 79 | 3 | 0 | 0 | 82 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 97 | 2 | 0 | 1 | 1 | 102 | 190 |
| 6:45 PM | 2 | 0 | 4 | 0 | 0 | 6 | 0 | 93 | 2 | 0 | 0 | 95 | 4 | 0 | 0 | 0 | 0 | 4 | 8 | 97 | 1 | 0 | 0 | 0 | 106 | 211 |
| Hourly Total | 6 | 0 | 19 | 0 | 3 | 25 | 0 | 359 | 9 | 0 | 0 | 368 | 10 | 2 | 0 | 0 | 0 | 12 | 19 | 430 | 6 | 0 | 1 | 1 | 455 | 860 |
| Grand Total | 53 | 5 | 103 | 0 | 12 | 161 | 0 | 2175 | 50 | 0 | 2 | 2225 | 65 | 10 | 1 | 0 | 5 | 76 | 114 | 2558 | 30 | 0 | 3 | 3 | 2702 | 5164 |
| Approach % | 32.9 | 3.1 | 64.0 | 0.0 | - | - | 0.0 | 97.8 | 2.2 | 0.0 | - | - | 85.5 | 13.2 | 1.3 | 0.0 | - | - | 4.2 | 94.7 | 1.1 | 0.0 | - | - | - | - |
| Total % | 1.0 | 0.1 | 2.0 | 0.0 | - | 3.1 | 0.0 | 42.1 | 1.0 | 0.0 | - | 43.1 | 1.3 | 0.2 | 0.0 | 0.0 | - | 1.5 | 2.2 | 49.5 | 0.6 | 0.0 | - | - | 52.3 | - |
| Lights | 52 | 5 | 101 | 0 | - | 158 | 0 | 2092 | 48 | 0 | - | 2140 | 62 | 9 | 1 | 0 | - | 72 | 111 | 2474 | 26 | 0 | - | - | 2611 | 4981 |
| % Lights | 98.1 | 100.0 | 98.1 | - | - | 98.1 | - | 96.2 | 96.0 | - | - | 96.2 | 95.4 | 90.0 | 100.0 | - | - | 94.7 | 97.4 | 96.7 | 86.7 | - | - | - | 96.6 | 96.5 |
| Buses | 1 | 0 | 0 | 0 | - | 1 | 0 | 45 | 1 | 0 | - | 46 | 0 | 0 | 0 | 0 | - | 0 | 2 | 47 | 1 | 0 | - | - | 50 | 97 |

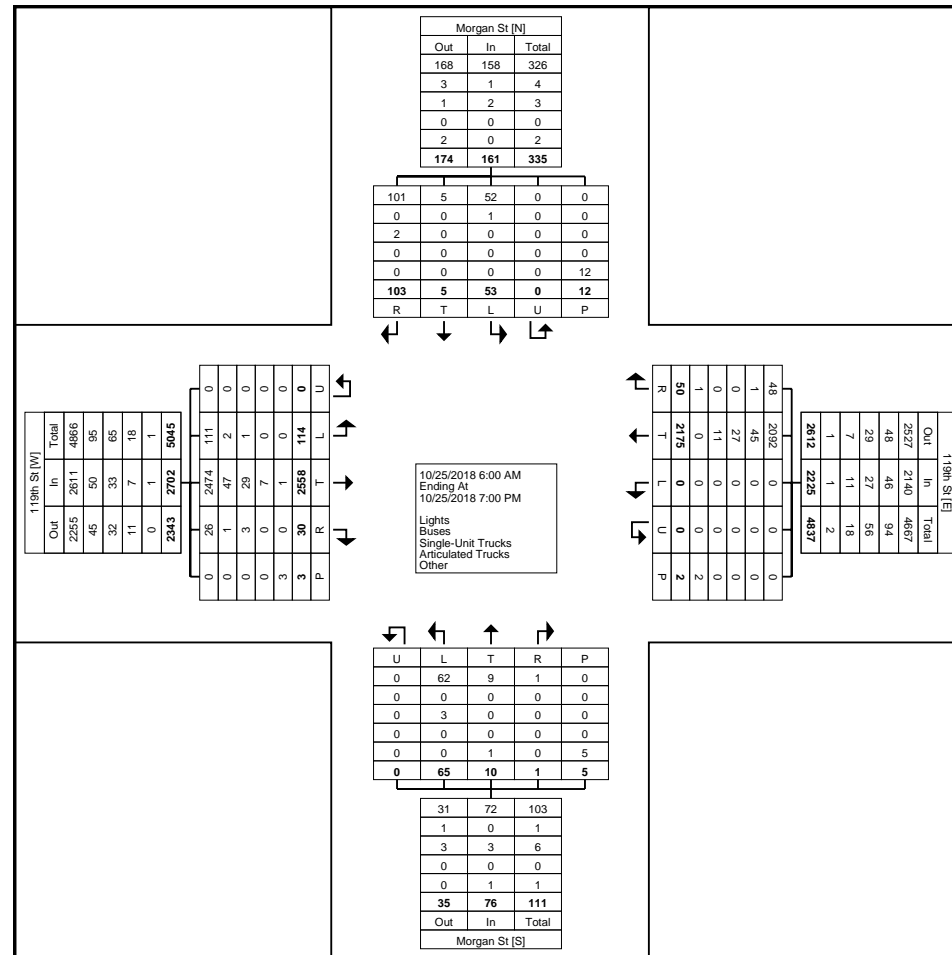
| | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|-----|-----|-----|---|-------|-----|---|-----|-----|-------|---|-----|-----|------|-----|-----|-------|-----|-----|-----|------|---|-------|-----|-----|
| % Buses | 1.9 | 0.0 | 0.0 | - | - | 0.6 | - | 2.1 | 2.0 | - | - | 2.1 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 1.8 | 1.8 | 3.3 | - | - | 1.9 | 1.9 |
| Single-Unit Trucks | 0 | 0 | 2 | 0 | - | 2 | 0 | 27 | 0 | 0 | - | 27 | 3 | 0 | 0 | 0 | - | 3 | 1 | 29 | 3 | 0 | - | 33 | 65 |
| % Single-Unit Trucks | 0.0 | 0.0 | 1.9 | - | - | 1.2 | - | 1.2 | 0.0 | - | - | 1.2 | 4.6 | 0.0 | 0.0 | - | - | 3.9 | 0.9 | 1.1 | 10.0 | - | - | 1.2 | 1.3 |
| Articulated Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 11 | 0 | 0 | - | 11 | 0 | 0 | 0 | 0 | - | 0 | 0 | 7 | 0 | 0 | - | 7 | 18 |
| % Articulated Trucks | 0.0 | 0.0 | 0.0 | - | - | 0.0 | - | 0.5 | 0.0 | - | - | 0.5 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.3 | 0.0 | - | - | 0.3 | 0.3 |
| Bicycles on Road | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 1 | 0 | - | 1 | 0 | 1 | 0 | 0 | - | 1 | 0 | 1 | 0 | 0 | - | 1 | 3 |
| % Bicycles on Road | 0.0 | 0.0 | 0.0 | - | - | 0.0 | - | 0.0 | 2.0 | - | - | 0.0 | 0.0 | 10.0 | 0.0 | - | - | 1.3 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.1 |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | 0.0 | - | - | - | - | 0.0 | - | - | - | - | - | 0.0 | - | - | - | - | - | - | 0.0 | - | - |
| Pedestrians | - | - | - | - | 12 | - | - | - | - | 2 | - | - | - | - | - | - | 5 | - | - | - | - | - | 3 | - | - |
| % Pedestrians | - | - | - | - | 100.0 | - | - | - | - | 100.0 | - | - | - | - | - | - | 100.0 | - | - | - | - | - | 100.0 | - | - |



Terra Engineering
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Count Name: 119th St & Morgan St
Site Code:
Start Date: 10/25/2018
Page No: 3



Turning Movement Data Plot



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Count Name: 119th St & Morgan St
Site Code:
Start Date: 10/25/2018
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Turning Movement Peak Hour Data (7:15 AM)

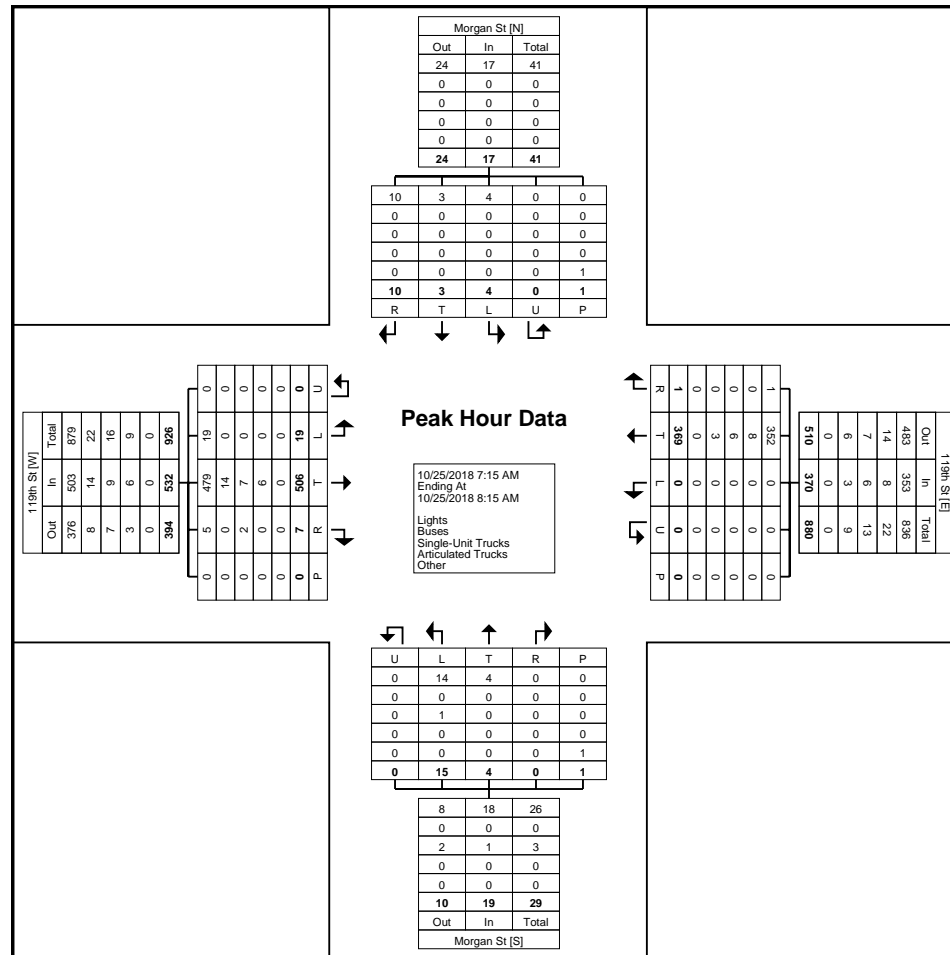
| Start Time | Morgan St Southbound | | | | | | 119th St Westbound | | | | | | Morgan St Northbound | | | | | | 119th St Eastbound | | | | | | Int. Total |
|-------------------------|----------------------|----------|-----------|----------|----------|------------|--------------------|------------|----------|----------|----------|------------|----------------------|----------|----------|----------|----------|------------|--------------------|------------|----------|----------|----------|------------|------------|
| | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | |
| 7:15 AM | 1 | 1 | 0 | 0 | 0 | 2 | 0 | 86 | 0 | 0 | 0 | 86 | 4 | 1 | 0 | 0 | 0 | 5 | 2 | 128 | 3 | 0 | 0 | 133 | 226 |
| 7:30 AM | 1 | 0 | 4 | 0 | 0 | 5 | 0 | 118 | 0 | 0 | 0 | 118 | 3 | 0 | 0 | 0 | 0 | 3 | 2 | 136 | 1 | 0 | 0 | 139 | 265 |
| 7:45 AM | 1 | 1 | 3 | 0 | 1 | 5 | 0 | 88 | 0 | 0 | 0 | 88 | 6 | 1 | 0 | 0 | 0 | 7 | 4 | 124 | 3 | 0 | 0 | 131 | 231 |
| 8:00 AM | 1 | 1 | 3 | 0 | 0 | 5 | 0 | 77 | 1 | 0 | 0 | 78 | 2 | 2 | 0 | 0 | 1 | 4 | 11 | 118 | 0 | 0 | 0 | 129 | 216 |
| Total | 4 | 3 | 10 | 0 | 1 | 17 | 0 | 369 | 1 | 0 | 0 | 370 | 15 | 4 | 0 | 0 | 1 | 19 | 19 | 506 | 7 | 0 | 0 | 532 | 938 |
| Approach % | 23.5 | 17.6 | 58.8 | 0.0 | - | - | 0.0 | 99.7 | 0.3 | 0.0 | - | - | 78.9 | 21.1 | 0.0 | 0.0 | - | - | 3.6 | 95.1 | 1.3 | 0.0 | - | - | - |
| Total % | 0.4 | 0.3 | 1.1 | 0.0 | - | 1.8 | 0.0 | 39.3 | 0.1 | 0.0 | - | 39.4 | 1.6 | 0.4 | 0.0 | 0.0 | - | 2.0 | 2.0 | 53.9 | 0.7 | 0.0 | - | 56.7 | - |
| PHF | 1.000 | 0.750 | 0.625 | 0.000 | - | 0.850 | 0.000 | 0.782 | 0.250 | 0.000 | - | 0.784 | 0.625 | 0.500 | 0.000 | 0.000 | - | 0.679 | 0.432 | 0.930 | 0.583 | 0.000 | - | 0.957 | 0.885 |
| Lights | 4 | 3 | 10 | 0 | - | 17 | 0 | 352 | 1 | 0 | - | 353 | 14 | 4 | 0 | 0 | - | 18 | 19 | 479 | 5 | 0 | - | 503 | 891 |
| % Lights | 100.0 | 100.0 | 100.0 | - | - | 100.0 | - | 95.4 | 100.0 | - | - | 95.4 | 93.3 | 100.0 | - | - | - | 94.7 | 100.0 | 94.7 | 71.4 | - | - | 94.5 | 95.0 |
| Buses | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | - | 8 | 0 | 0 | 0 | 0 | - | 0 | 0 | 14 | 0 | 0 | - | 14 | 22 |
| % Buses | 0.0 | 0.0 | 0.0 | - | - | 0.0 | - | 2.2 | 0.0 | - | - | 2.2 | 0.0 | 0.0 | - | - | - | 0.0 | 0.0 | 2.8 | 0.0 | - | - | 2.6 | 2.3 |
| Single-Unit Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 6 | 0 | 0 | - | 6 | 1 | 0 | 0 | 0 | - | 1 | 0 | 7 | 2 | 0 | - | 9 | 16 |
| % Single-Unit Trucks | 0.0 | 0.0 | 0.0 | - | - | 0.0 | - | 1.6 | 0.0 | - | - | 1.6 | 6.7 | 0.0 | - | - | - | 5.3 | 0.0 | 1.4 | 28.6 | - | - | 1.7 | 1.7 |
| Articulated Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 3 | 0 | 0 | - | 3 | 0 | 0 | 0 | 0 | - | 0 | 0 | 6 | 0 | 0 | - | 6 | 9 |
| % Articulated Trucks | 0.0 | 0.0 | 0.0 | - | - | 0.0 | - | 0.8 | 0.0 | - | - | 0.8 | 0.0 | 0.0 | - | - | - | 0.0 | 0.0 | 1.2 | 0.0 | - | - | 1.1 | 1.0 |
| Bicycles on Road | 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 | - | - | 0.0 | 0.0 | 0.0 | - | - | - | 0.0 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | 0.0 | - | - | - | - | - | - | - | - | - | - | - | 0.0 | - | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | - | 1 | - | - | - | - | - | 0 | - | - | - | - | - | 1 | - | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | - | 100.0 | - | - | - | - | - | - | - | - | - | - | - | 100.0 | - | - | - | - | - | - | - | - |



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Page No: 5



Turning Movement Peak Hour Data Plot (7:15 AM)



Terra Engineering
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Count Name: 119th St & Morgan St
Site Code:
Start Date: 10/25/2018
Page No: 6

Turning Movement Peak Hour Data (4:45 PM)

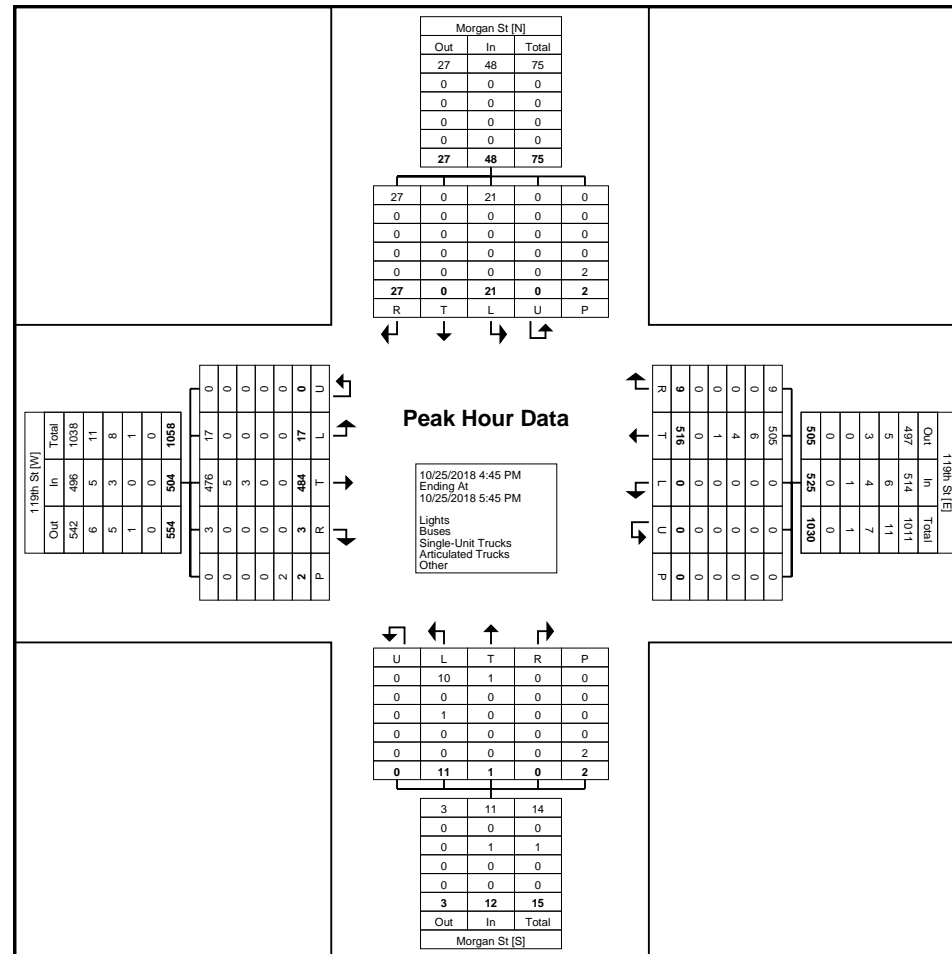
| Start Time | Morgan St Southbound | | | | | | 119th St Westbound | | | | | | Morgan St Northbound | | | | | | 119th St Eastbound | | | | | | Int. Total |
|-------------------------|----------------------|----------|-----------|----------|----------|------------|--------------------|------------|----------|----------|----------|------------|----------------------|----------|----------|----------|----------|------------|--------------------|------------|----------|----------|----------|------------|-------------|
| | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | |
| 4:45 PM | 7 | 0 | 9 | 0 | 2 | 16 | 0 | 114 | 1 | 0 | 0 | 115 | 5 | 1 | 0 | 0 | 1 | 6 | 4 | 118 | 2 | 0 | 1 | 124 | 261 |
| 5:00 PM | 8 | 0 | 10 | 0 | 0 | 18 | 0 | 142 | 2 | 0 | 0 | 144 | 3 | 0 | 0 | 0 | 0 | 3 | 4 | 128 | 0 | 0 | 0 | 132 | 297 |
| 5:15 PM | 3 | 0 | 5 | 0 | 0 | 8 | 0 | 128 | 4 | 0 | 0 | 132 | 0 | 0 | 0 | 0 | 1 | 0 | 5 | 99 | 1 | 0 | 1 | 105 | 245 |
| 5:30 PM | 3 | 0 | 3 | 0 | 0 | 6 | 0 | 132 | 2 | 0 | 0 | 134 | 3 | 0 | 0 | 0 | 0 | 3 | 4 | 139 | 0 | 0 | 0 | 143 | 286 |
| Total | 21 | 0 | 27 | 0 | 2 | 48 | 0 | 516 | 9 | 0 | 0 | 525 | 11 | 1 | 0 | 0 | 2 | 12 | 17 | 484 | 3 | 0 | 2 | 504 | 1089 |
| Approach % | 43.8 | 0.0 | 56.3 | 0.0 | - | - | 0.0 | 98.3 | 1.7 | 0.0 | - | - | 91.7 | 8.3 | 0.0 | 0.0 | - | - | 3.4 | 96.0 | 0.6 | 0.0 | - | - | - |
| Total % | 1.9 | 0.0 | 2.5 | 0.0 | - | 4.4 | 0.0 | 47.4 | 0.8 | 0.0 | - | 48.2 | 1.0 | 0.1 | 0.0 | 0.0 | - | 1.1 | 1.6 | 44.4 | 0.3 | 0.0 | - | 46.3 | - |
| PHF | 0.656 | 0.000 | 0.675 | 0.000 | - | 0.667 | 0.000 | 0.908 | 0.563 | 0.000 | - | 0.911 | 0.550 | 0.250 | 0.000 | 0.000 | - | 0.500 | 0.850 | 0.871 | 0.375 | 0.000 | - | 0.881 | 0.917 |
| Lights | 21 | 0 | 27 | 0 | - | 48 | 0 | 505 | 9 | 0 | - | 514 | 10 | 1 | 0 | 0 | - | 11 | 17 | 476 | 3 | 0 | - | 496 | 1069 |
| % Lights | 100.0 | - | 100.0 | - | - | 100.0 | - | 97.9 | 100.0 | - | - | 97.9 | 90.9 | 100.0 | - | - | - | 91.7 | 100.0 | 98.3 | 100.0 | - | - | 98.4 | 98.2 |
| Buses | 0 | 0 | 0 | 0 | - | 0 | 0 | 6 | 0 | 0 | - | 6 | 0 | 0 | 0 | 0 | - | 0 | 0 | 5 | 0 | 0 | - | 5 | 11 |
| % Buses | 0.0 | - | 0.0 | - | - | 0.0 | - | 1.2 | 0.0 | - | - | 1.1 | 0.0 | 0.0 | - | - | - | 0.0 | 0.0 | 1.0 | 0.0 | - | - | 1.0 | 1.0 |
| Single-Unit Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 4 | 0 | 0 | - | 4 | 1 | 0 | 0 | 0 | - | 1 | 0 | 3 | 0 | 0 | - | 3 | 8 |
| % Single-Unit Trucks | 0.0 | - | 0.0 | - | - | 0.0 | - | 0.8 | 0.0 | - | - | 0.8 | 9.1 | 0.0 | - | - | - | 8.3 | 0.0 | 0.6 | 0.0 | - | - | 0.6 | 0.7 |
| Articulated Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 1 | 0 | 0 | - | 1 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 1 |
| % Articulated Trucks | 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 |
| Bicycles on Road | 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 | 0.0 | 0.0 | - | - | - | 0.0 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | 0.0 | - | - | - | - | - | - | - | - | - | - | - | 0.0 | - | - | - | - | - | 0.0 | - | - |
| Pedestrians | - | - | - | - | 2 | - | - | - | - | - | 0 | - | - | - | - | - | 2 | - | - | - | - | - | 2 | - | - |
| % Pedestrians | - | - | - | - | 100.0 | - | - | - | - | - | - | - | - | - | - | - | 100.0 | - | - | - | - | - | 100.0 | - | - |



Terra Engineering
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Count Name: 119th St & Morgan St
Site Code:
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Page No: 7



Turning Movement Peak Hour Data Plot (4:45 PM)



Terra Engineering
1804 Borman Circle Drive

Saint Louis, Missouri, United States 63146
314-395-9899 song@terraengineering.com

Count Name: W 119th St and Sangamon St
Site Code:
Start Date: 10/25/2018
Page No: 1

Turning Movement Data

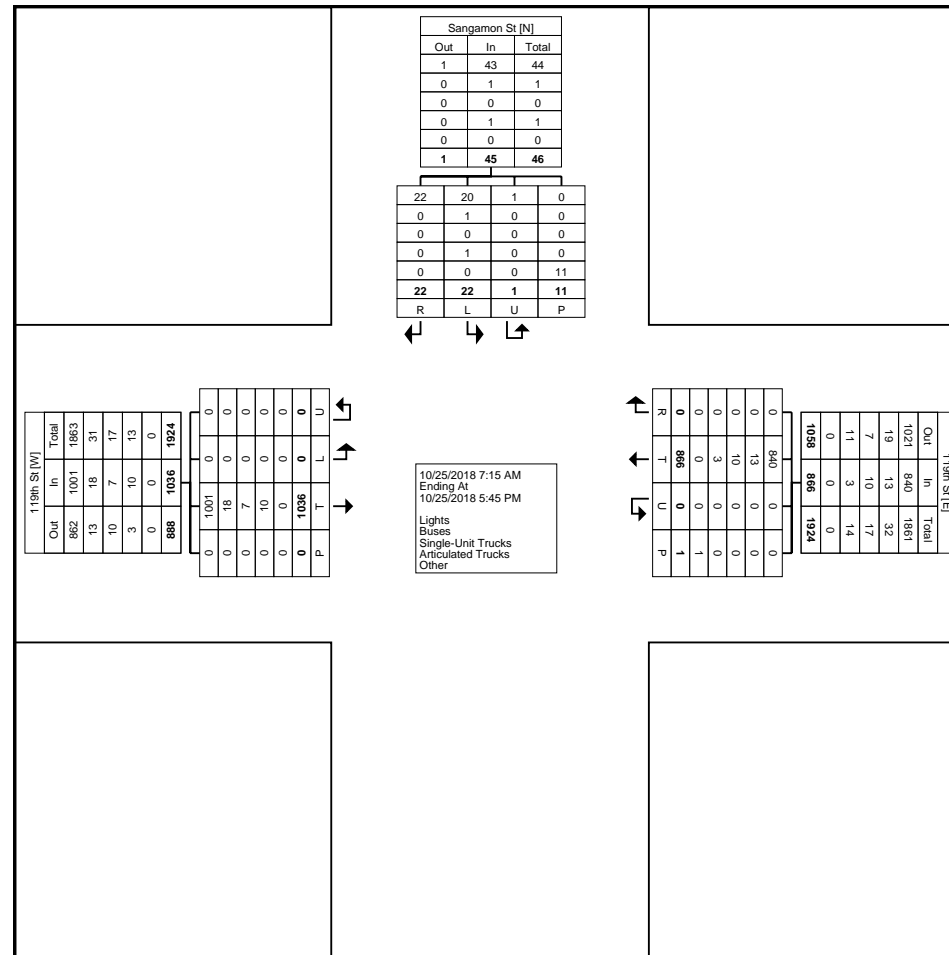
| Start Time | Sangamon St Southbound | | | | | 119th St Westbound | | | | | 119th St Eastbound | | | | | Int. Total |
|-------------------------|---------------------------|-------|--------|-------|------------|-----------------------|-------|--------|-------|------------|-----------------------|-------|--------|------|------------|------------|
| | Left | Right | U-Turn | Peds | App. Total | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | U-Turn | Peds | App. Total | |
| 7:15 AM | 3 | 3 | 1 | 1 | 7 | 81 | 0 | 0 | 1 | 81 | 0 | 136 | 0 | 0 | 136 | 224 |
| 7:30 AM | 1 | 5 | 0 | 1 | 6 | 107 | 0 | 0 | 0 | 107 | 0 | 134 | 0 | 0 | 134 | 247 |
| 7:45 AM | 3 | 3 | 0 | 1 | 6 | 84 | 0 | 0 | 0 | 84 | 0 | 134 | 0 | 0 | 134 | 224 |
| Hourly Total | 7 | 11 | 1 | 3 | 19 | 272 | 0 | 0 | 1 | 272 | 0 | 404 | 0 | 0 | 404 | 695 |
| 8:00 AM | 0 | 3 | 0 | 0 | 3 | 76 | 0 | 0 | 0 | 76 | 0 | 120 | 0 | 0 | 120 | 199 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Hourly Total | 0 | 3 | 0 | 0 | 3 | 76 | 0 | 0 | 0 | 76 | 0 | 120 | 0 | 0 | 120 | 199 |
| 4:45 PM | 3 | 2 | 0 | 1 | 5 | 116 | 0 | 0 | 0 | 116 | 0 | 124 | 0 | 0 | 124 | 245 |
| Hourly Total | 3 | 2 | 0 | 1 | 5 | 116 | 0 | 0 | 0 | 116 | 0 | 124 | 0 | 0 | 124 | 245 |
| 5:00 PM | 5 | 3 | 0 | 0 | 8 | 144 | 0 | 0 | 0 | 144 | 0 | 143 | 0 | 0 | 143 | 295 |
| 5:15 PM | 0 | 2 | 0 | 3 | 2 | 126 | 0 | 0 | 0 | 126 | 0 | 100 | 0 | 0 | 100 | 228 |
| 5:30 PM | 7 | 1 | 0 | 4 | 8 | 132 | 0 | 0 | 0 | 132 | 0 | 145 | 0 | 0 | 145 | 285 |
| Grand Total | 22 | 22 | 1 | 11 | 45 | 866 | 0 | 0 | 1 | 866 | 0 | 1036 | 0 | 0 | 1036 | 1947 |
| Approach % | 48.9 | 48.9 | 2.2 | - | - | 100.0 | 0.0 | 0.0 | - | - | 0.0 | 100.0 | 0.0 | - | - | - |
| Total % | 1.1 | 1.1 | 0.1 | - | 2.3 | 44.5 | 0.0 | 0.0 | - | 44.5 | 0.0 | 53.2 | 0.0 | - | 53.2 | - |
| Lights | 20 | 22 | 1 | - | 43 | 840 | 0 | 0 | - | 840 | 0 | 1001 | 0 | - | 1001 | 1884 |
| % Lights | 90.9 | 100.0 | 100.0 | - | 95.6 | 97.0 | - | - | - | 97.0 | - | 96.6 | - | - | 96.6 | 96.8 |
| Buses | 1 | 0 | 0 | - | 1 | 13 | 0 | 0 | - | 13 | 0 | 18 | 0 | - | 18 | 32 |
| % Buses | 4.5 | 0.0 | 0.0 | - | 2.2 | 1.5 | - | - | - | 1.5 | - | 1.7 | - | - | 1.7 | 1.6 |
| Single-Unit Trucks | 0 | 0 | 0 | - | 0 | 10 | 0 | 0 | - | 10 | 0 | 7 | 0 | - | 7 | 17 |
| % Single-Unit Trucks | 0.0 | 0.0 | 0.0 | - | 0.0 | 1.2 | - | - | - | 1.2 | - | 0.7 | - | - | 0.7 | 0.9 |
| Articulated Trucks | 1 | 0 | 0 | - | 1 | 3 | 0 | 0 | - | 3 | 0 | 10 | 0 | - | 10 | 14 |
| % Articulated Trucks | 4.5 | 0.0 | 0.0 | - | 2.2 | 0.3 | - | - | - | 0.3 | - | 1.0 | - | - | 1.0 | 0.7 |
| Bicycles on Road | 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 | - | 0.0 | - | - | 0.0 | 0.0 |
| Bicycles on Crosswalk | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | 0.0 | - | - | - | - | 0.0 | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | 11 | - | - | - | - | 1 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | 100.0 | - | - | - | - | 100.0 | - | - | - | - | - | - | - |



Terra Engineering
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Count Name: W 119th St and Sangamon St
Site Code:
Start Date: 10/25/2018
Page No: 2



Turning Movement Data Plot



Terra Engineering
1804 Borman Circle Drive

Saint Louis, Missouri, United States 63146
314-395-9899 song@terraengineering.com

Count Name: W 119th St and Sangamon St
Site Code:
Start Date: 10/25/2018
Page No: 3

Turning Movement Peak Hour Data (7:15 AM)

| Start Time | Sangamon St Southbound | | | | | 119th St Westbound | | | | | 119th St Eastbound | | | | | Int. Total |
|-------------------------|------------------------|-------|--------|-------|------------|--------------------|-------|--------|-------|------------|--------------------|-------|--------|------|------------|------------|
| | Left | Right | U-Turn | Peds | App. Total | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | U-Turn | Peds | App. Total | |
| 7:15 AM | 3 | 3 | 1 | 1 | 7 | 81 | 0 | 0 | 1 | 81 | 0 | 136 | 0 | 0 | 136 | 224 |
| 7:30 AM | 1 | 5 | 0 | 1 | 6 | 107 | 0 | 0 | 0 | 107 | 0 | 134 | 0 | 0 | 134 | 247 |
| 7:45 AM | 3 | 3 | 0 | 1 | 6 | 84 | 0 | 0 | 0 | 84 | 0 | 134 | 0 | 0 | 134 | 224 |
| 8:00 AM | 0 | 3 | 0 | 0 | 3 | 76 | 0 | 0 | 0 | 76 | 0 | 120 | 0 | 0 | 120 | 199 |
| Total | 7 | 14 | 1 | 3 | 22 | 348 | 0 | 0 | 1 | 348 | 0 | 524 | 0 | 0 | 524 | 894 |
| Approach % | 31.8 | 63.6 | 4.5 | - | - | 100.0 | 0.0 | 0.0 | - | - | 0.0 | 100.0 | 0.0 | - | - | - |
| Total % | 0.8 | 1.6 | 0.1 | - | 2.5 | 38.9 | 0.0 | 0.0 | - | 38.9 | 0.0 | 58.6 | 0.0 | - | 58.6 | - |
| PHF | 0.583 | 0.700 | 0.250 | - | 0.786 | 0.813 | 0.000 | 0.000 | - | 0.813 | 0.000 | 0.963 | 0.000 | - | 0.963 | 0.905 |
| Lights | 6 | 14 | 1 | - | 21 | 333 | 0 | 0 | - | 333 | 0 | 497 | 0 | - | 497 | 851 |
| % Lights | 85.7 | 100.0 | 100.0 | - | 95.5 | 95.7 | - | - | - | 95.7 | - | 94.8 | - | - | 94.8 | 95.2 |
| Buses | 1 | 0 | 0 | - | 1 | 7 | 0 | 0 | - | 7 | 0 | 13 | 0 | - | 13 | 21 |
| % Buses | 14.3 | 0.0 | 0.0 | - | 4.5 | 2.0 | - | - | - | 2.0 | - | 2.5 | - | - | 2.5 | 2.3 |
| Single-Unit Trucks | 0 | 0 | 0 | - | 0 | 6 | 0 | 0 | - | 6 | 0 | 7 | 0 | - | 7 | 13 |
| % Single-Unit Trucks | 0.0 | 0.0 | 0.0 | - | 0.0 | 1.7 | - | - | - | 1.7 | - | 1.3 | - | - | 1.3 | 1.5 |
| Articulated Trucks | 0 | 0 | 0 | - | 0 | 2 | 0 | 0 | - | 2 | 0 | 7 | 0 | - | 7 | 9 |
| % Articulated Trucks | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.6 | - | - | - | 0.6 | - | 1.3 | - | - | 1.3 | 1.0 |
| Bicycles on Road | 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 | - | 0.0 | - | - | 0.0 | 0.0 |
| Bicycles on Crosswalk | - | - | - | 0 | - | - | - | - | 0 | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | 0.0 | - | - | - | - | 0.0 | - | - | - | - | - | - | - |
| Pedestrians | - | - | - | 3 | - | - | - | - | 1 | - | - | - | - | 0 | - | - |
| % Pedestrians | - | - | - | 100.0 | - | - | - | - | 100.0 | - | - | - | - | - | - | - |



Terra Engineering
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Count Name: 119th St & Peoria St
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Start Date: 10/25/2018
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Turning Movement Data

| Start Time | Peoria St Southbound | | | | | | 119th St Westbound | | | | | | Peoria St Northbound | | | | | | 119th St Eastbound | | | | | | Int. Total |
|---------------|----------------------|------|-------|--------|------|------------|--------------------|------|-------|--------|------|------------|----------------------|------|-------|--------|------|------------|--------------------|------|-------|--------|------|------------|------------|
| | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | |
| 6:00 AM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 34 | 0 | 0 | 0 | 34 | 3 | 0 | 0 | 1 | 0 | 4 | 1 | 53 | 5 | 0 | 0 | 59 | 97 |
| 6:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 59 | 0 | 0 | 0 | 61 | 3 | 0 | 2 | 0 | 0 | 5 | 0 | 75 | 5 | 0 | 0 | 80 | 146 |
| 6:30 AM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 44 | 0 | 0 | 0 | 44 | 4 | 0 | 0 | 0 | 0 | 4 | 1 | 78 | 1 | 0 | 0 | 80 | 128 |
| 6:45 AM | 0 | 0 | 0 | 0 | 2 | 0 | 2 | 59 | 0 | 0 | 0 | 61 | 7 | 1 | 0 | 0 | 0 | 8 | 2 | 77 | 1 | 0 | 0 | 80 | 149 |
| Hourly Total | 0 | 0 | 0 | 0 | 3 | 0 | 4 | 196 | 0 | 0 | 0 | 200 | 17 | 1 | 2 | 1 | 0 | 21 | 4 | 283 | 12 | 0 | 0 | 299 | 520 |
| 7:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 47 | 1 | 0 | 0 | 49 | 5 | 0 | 0 | 0 | 0 | 5 | 2 | 100 | 9 | 0 | 0 | 111 | 165 |
| 7:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 76 | 2 | 0 | 0 | 80 | 4 | 1 | 0 | 0 | 0 | 5 | 4 | 130 | 1 | 0 | 1 | 135 | 220 |
| 7:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 101 | 0 | 0 | 0 | 102 | 8 | 1 | 1 | 0 | 0 | 10 | 0 | 126 | 4 | 0 | 0 | 130 | 242 |
| 7:45 AM | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 74 | 0 | 1 | 1 | 76 | 10 | 0 | 1 | 0 | 0 | 11 | 2 | 127 | 7 | 0 | 0 | 136 | 223 |
| Hourly Total | 0 | 0 | 0 | 0 | 5 | 0 | 5 | 298 | 3 | 1 | 1 | 307 | 27 | 2 | 2 | 0 | 0 | 31 | 8 | 483 | 21 | 0 | 1 | 512 | 850 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 68 | 2 | 0 | 0 | 72 | 6 | 2 | 1 | 0 | 1 | 9 | 1 | 101 | 8 | 0 | 1 | 110 | 191 |
| 8:15 AM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 57 | 1 | 0 | 0 | 59 | 10 | 2 | 2 | 0 | 2 | 14 | 5 | 114 | 2 | 0 | 2 | 121 | 194 |
| 8:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 77 | 2 | 0 | 0 | 81 | 2 | 2 | 3 | 0 | 1 | 7 | 1 | 68 | 9 | 0 | 1 | 78 | 166 |
| 8:45 AM | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 73 | 1 | 0 | 1 | 75 | 9 | 2 | 0 | 0 | 0 | 11 | 2 | 97 | 6 | 0 | 1 | 105 | 191 |
| Hourly Total | 0 | 0 | 0 | 0 | 6 | 0 | 6 | 275 | 6 | 0 | 1 | 287 | 27 | 8 | 6 | 0 | 4 | 41 | 9 | 380 | 25 | 0 | 5 | 414 | 742 |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4:00 PM | 0 | 0 | 0 | 0 | 2 | 0 | 4 | 120 | 1 | 0 | 0 | 125 | 11 | 1 | 4 | 0 | 0 | 16 | 2 | 88 | 2 | 0 | 0 | 92 | 233 |
| 4:15 PM | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 100 | 1 | 0 | 7 | 101 | 5 | 1 | 1 | 0 | 0 | 7 | 4 | 103 | 10 | 0 | 0 | 117 | 225 |
| 4:30 PM | 0 | 0 | 0 | 0 | 4 | 0 | 1 | 107 | 1 | 0 | 4 | 109 | 7 | 1 | 2 | 0 | 0 | 10 | 2 | 120 | 3 | 0 | 0 | 125 | 244 |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 109 | 2 | 0 | 1 | 113 | 7 | 0 | 1 | 0 | 2 | 8 | 1 | 119 | 6 | 0 | 0 | 126 | 247 |
| Hourly Total | 0 | 0 | 0 | 0 | 6 | 0 | 7 | 436 | 5 | 0 | 12 | 448 | 30 | 3 | 8 | 0 | 2 | 41 | 9 | 430 | 21 | 0 | 0 | 460 | 949 |
| 5:00 PM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 131 | 2 | 0 | 2 | 134 | 8 | 0 | 1 | 0 | 2 | 9 | 6 | 133 | 7 | 0 | 1 | 146 | 289 |
| 5:15 PM | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 113 | 0 | 0 | 3 | 113 | 10 | 3 | 1 | 0 | 1 | 14 | 0 | 98 | 3 | 0 | 0 | 101 | 228 |
| 5:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 114 | 2 | 0 | 1 | 117 | 7 | 3 | 1 | 0 | 1 | 11 | 2 | 140 | 10 | 0 | 1 | 152 | 280 |
| 5:45 PM | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 86 | 3 | 0 | 1 | 90 | 4 | 1 | 3 | 0 | 0 | 8 | 2 | 107 | 3 | 0 | 0 | 112 | 210 |
| Hourly Total | 0 | 0 | 0 | 0 | 8 | 0 | 3 | 444 | 7 | 0 | 7 | 454 | 29 | 7 | 6 | 0 | 4 | 42 | 10 | 478 | 23 | 0 | 2 | 511 | 1007 |
| 6:00 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 88 | 2 | 0 | 3 | 92 | 9 | 1 | 0 | 0 | 0 | 10 | 3 | 122 | 6 | 0 | 0 | 131 | 233 |
| 6:15 PM | 0 | 0 | 0 | 0 | 5 | 0 | 1 | 80 | 2 | 0 | 0 | 83 | 8 | 0 | 0 | 0 | 1 | 8 | 2 | 99 | 5 | 0 | 0 | 106 | 197 |
| 6:30 PM | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 76 | 2 | 0 | 1 | 79 | 5 | 1 | 2 | 0 | 1 | 8 | 1 | 96 | 9 | 0 | 0 | 106 | 193 |
| 6:45 PM | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 77 | 3 | 0 | 1 | 80 | 11 | 0 | 3 | 0 | 0 | 14 | 3 | 85 | 11 | 0 | 0 | 99 | 193 |
| Hourly Total | 0 | 0 | 0 | 0 | 6 | 0 | 4 | 321 | 9 | 0 | 5 | 334 | 33 | 2 | 5 | 0 | 2 | 40 | 9 | 402 | 31 | 0 | 0 | 442 | 816 |
| Grand Total | 0 | 0 | 0 | 0 | 34 | 0 | 29 | 1970 | 30 | 1 | 26 | 2030 | 163 | 23 | 29 | 1 | 12 | 216 | 49 | 2456 | 133 | 0 | 8 | 2638 | 4884 |
| Approach % | 0.0 | 0.0 | 0.0 | 0.0 | - | - | 1.4 | 97.0 | 1.5 | 0.0 | - | - | 75.5 | 10.6 | 13.4 | 0.5 | - | - | 1.9 | 93.1 | 5.0 | 0.0 | - | - | - |
| Total % | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.6 | 40.3 | 0.6 | 0.0 | - | 41.6 | 3.3 | 0.5 | 0.6 | 0.0 | - | 4.4 | 1.0 | 50.3 | 2.7 | 0.0 | - | 54.0 | - |
| Lights | 0 | 0 | 0 | 0 | - | 0 | 5 | 1892 | 29 | 1 | - | 1927 | 159 | 21 | 27 | 1 | - | 208 | 48 | 2371 | 133 | 0 | - | 2552 | 4687 |
| % Lights | - | - | - | - | - | - | 17.2 | 96.0 | 96.7 | 100.0 | - | 94.9 | 97.5 | 91.3 | 93.1 | 100.0 | - | 96.3 | 98.0 | 96.5 | 100.0 | - | - | 96.7 | 96.0 |
| Buses | 0 | 0 | 0 | 0 | - | 0 | 24 | 41 | 1 | 0 | - | 66 | 1 | 1 | 0 | 0 | - | 2 | 0 | 49 | 0 | 0 | - | 49 | 117 |

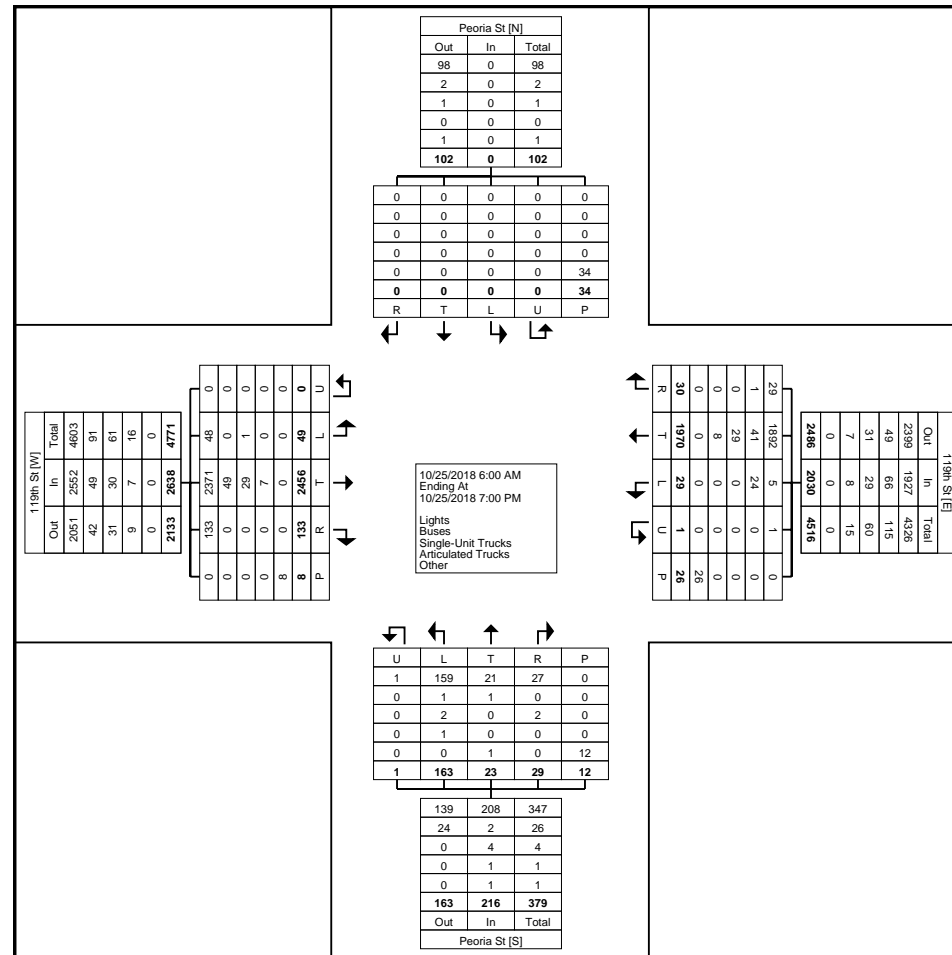
| | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|---|---|---|---|-------|---|------|-----|-----|-----|-------|-----|-----|-----|-----|-----|-------|-----|-----|-----|-----|---|-------|-----|-----|
| % Buses | - | - | - | - | - | - | 82.8 | 2.1 | 3.3 | 0.0 | - | 3.3 | 0.6 | 4.3 | 0.0 | 0.0 | - | 0.9 | 0.0 | 2.0 | 0.0 | - | - | 1.9 | 2.4 |
| Single-Unit Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 29 | 0 | 0 | - | 29 | 2 | 0 | 2 | 0 | - | 4 | 1 | 29 | 0 | 0 | - | 30 | 63 |
| % Single-Unit Trucks | - | - | - | - | - | - | 0.0 | 1.5 | 0.0 | 0.0 | - | 1.4 | 1.2 | 0.0 | 6.9 | 0.0 | - | 1.9 | 2.0 | 1.2 | 0.0 | - | - | 1.1 | 1.3 |
| Articulated Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 8 | 0 | 0 | - | 8 | 1 | 0 | 0 | 0 | - | 1 | 0 | 7 | 0 | 0 | - | 7 | 16 |
| % Articulated Trucks | - | - | - | - | - | - | 0.0 | 0.4 | 0.0 | 0.0 | - | 0.4 | 0.6 | 0.0 | 0.0 | 0.0 | - | 0.5 | 0.0 | 0.3 | 0.0 | - | - | 0.3 | 0.3 |
| Bicycles on Road | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 1 | 0 | 0 | - | 1 | 0 | 0 | 0 | 0 | - | 0 | 1 |
| % Bicycles on Road | - | - | - | - | - | - | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 4.3 | 0.0 | 0.0 | - | 0.5 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | 0.0 | - | - | - | - | - | 0.0 | - | - | - | - | - | 0.0 | - | - | - | - | - | 0.0 | - | - |
| Pedestrians | - | - | - | - | 34 | - | - | - | - | - | 26 | - | - | - | - | - | 12 | - | - | - | - | - | 8 | - | - |
| % Pedestrians | - | - | - | - | 100.0 | - | - | - | - | - | 100.0 | - | - | - | - | - | 100.0 | - | - | - | - | - | 100.0 | - | - |



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Page No: 3



Turning Movement Data Plot



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Count Name: 119th St & Peoria St
Site Code:
Start Date: 10/25/2018
Page No: 4

Turning Movement Peak Hour Data (7:15 AM)

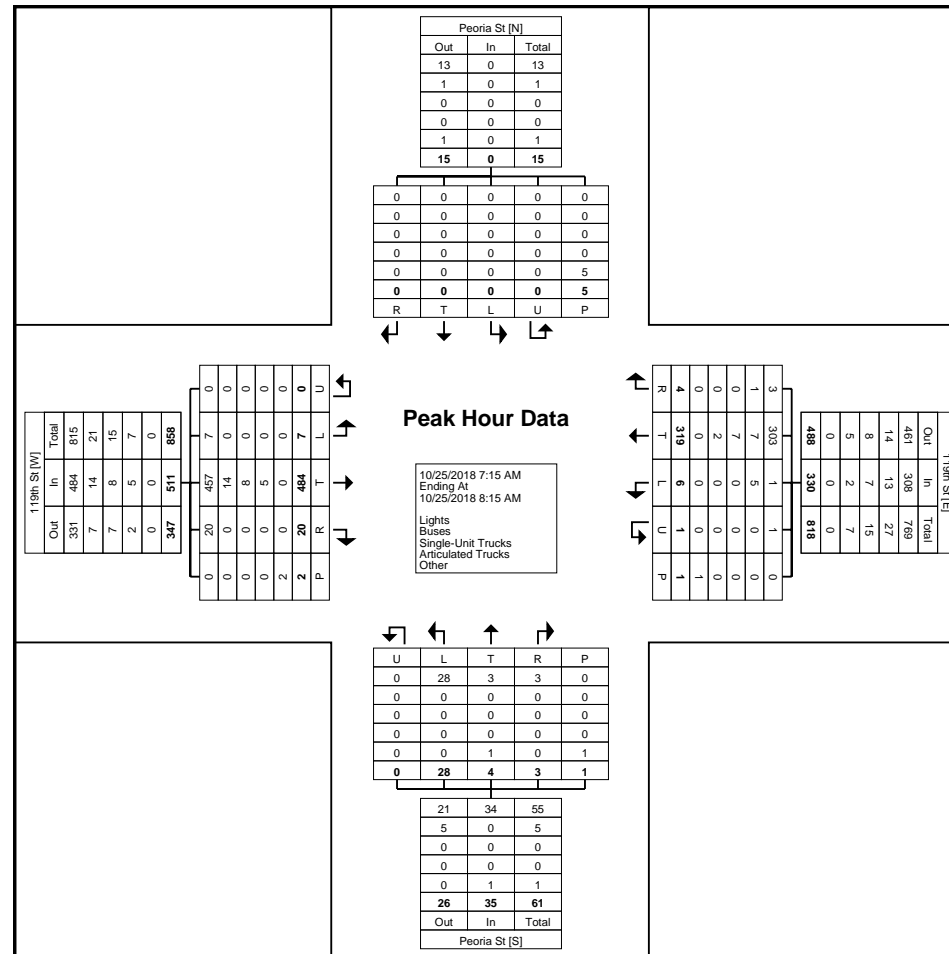
| Start Time | Peoria St Southbound | | | | | | 119th St Westbound | | | | | | Peoria St Northbound | | | | | | 119th St Eastbound | | | | | | Int. Total |
|-------------------------|----------------------|-------|-------|--------|-------|------------|--------------------|-------|-------|--------|-------|------------|----------------------|-------|-------|--------|-------|------------|--------------------|-------|-------|--------|-------|------------|------------|
| | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | |
| 7:15 AM | 0 | 0 | 0 | 0 | 1 | 0 | 2 | 76 | 2 | 0 | 0 | 80 | 4 | 1 | 0 | 0 | 0 | 5 | 4 | 130 | 1 | 0 | 1 | 135 | 220 |
| 7:30 AM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 101 | 0 | 0 | 0 | 102 | 8 | 1 | 1 | 0 | 0 | 10 | 0 | 126 | 4 | 0 | 0 | 130 | 242 |
| 7:45 AM | 0 | 0 | 0 | 0 | 3 | 0 | 1 | 74 | 0 | 1 | 1 | 76 | 10 | 0 | 1 | 0 | 0 | 11 | 2 | 127 | 7 | 0 | 0 | 136 | 223 |
| 8:00 AM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 68 | 2 | 0 | 0 | 72 | 6 | 2 | 1 | 0 | 1 | 9 | 1 | 101 | 8 | 0 | 1 | 110 | 191 |
| Total | 0 | 0 | 0 | 0 | 5 | 0 | 6 | 319 | 4 | 1 | 1 | 330 | 28 | 4 | 3 | 0 | 1 | 35 | 7 | 484 | 20 | 0 | 2 | 511 | 876 |
| Approach % | 0.0 | 0.0 | 0.0 | 0.0 | - | - | 1.8 | 96.7 | 1.2 | 0.3 | - | - | 80.0 | 11.4 | 8.6 | 0.0 | - | - | 1.4 | 94.7 | 3.9 | 0.0 | - | - | - |
| Total % | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.7 | 36.4 | 0.5 | 0.1 | - | 37.7 | 3.2 | 0.5 | 0.3 | 0.0 | - | 4.0 | 0.8 | 55.3 | 2.3 | 0.0 | - | 58.3 | - |
| PHF | 0.000 | 0.000 | 0.000 | 0.000 | - | 0.000 | 0.750 | 0.790 | 0.500 | 0.250 | - | 0.809 | 0.700 | 0.500 | 0.750 | 0.000 | - | 0.795 | 0.438 | 0.931 | 0.625 | 0.000 | - | 0.939 | 0.905 |
| Lights | 0 | 0 | 0 | 0 | - | 0 | 1 | 303 | 3 | 1 | - | 308 | 28 | 3 | 3 | 0 | - | 34 | 7 | 457 | 20 | 0 | - | 484 | 826 |
| % Lights | - | - | - | - | - | - | 16.7 | 95.0 | 75.0 | 100.0 | - | 93.3 | 100.0 | 75.0 | 100.0 | - | - | 97.1 | 100.0 | 94.4 | 100.0 | - | - | 94.7 | 94.3 |
| Buses | 0 | 0 | 0 | 0 | - | 0 | 5 | 7 | 1 | 0 | - | 13 | 0 | 0 | 0 | 0 | - | 0 | 0 | 14 | 0 | 0 | - | 14 | 27 |
| % Buses | - | - | - | - | - | - | 83.3 | 2.2 | 25.0 | 0.0 | - | 3.9 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 2.9 | 0.0 | - | - | 2.7 | 3.1 |
| Single-Unit Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 7 | 0 | 0 | - | 7 | 0 | 0 | 0 | 0 | - | 0 | 0 | 8 | 0 | 0 | - | 8 | 15 |
| % Single-Unit Trucks | - | - | - | - | - | - | 0.0 | 2.2 | 0.0 | 0.0 | - | 2.1 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 1.7 | 0.0 | - | - | 1.6 | 1.7 |
| Articulated Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 2 | 0 | 0 | - | 2 | 0 | 0 | 0 | 0 | - | 0 | 0 | 5 | 0 | 0 | - | 5 | 7 |
| % Articulated Trucks | - | - | - | - | - | - | 0.0 | 0.6 | 0.0 | 0.0 | - | 0.6 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 1.0 | 0.0 | - | - | 1.0 | 0.8 |
| Bicycles on Road | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 1 | 0 | 0 | - | 1 | 0 | 0 | 0 | 0 | - | 0 | 1 |
| % Bicycles on Road | - | - | - | - | - | - | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.0 | 25.0 | 0.0 | - | - | 2.9 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.1 |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | 0.0 | - | - | - | - | - | 0.0 | - | - | - | - | - | 0.0 | - | - | - | - | - | 0.0 | - | - |
| Pedestrians | - | - | - | - | 5 | - | - | - | - | - | 1 | - | - | - | - | - | 1 | - | - | - | - | - | 2 | - | - |
| % Pedestrians | - | - | - | - | 100.0 | - | - | - | - | - | 100.0 | - | - | - | - | - | 100.0 | - | - | - | - | - | 100.0 | - | - |



Terra Engineering
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Count Name: 119th St & Peoria St
Site Code:
Start Date: 10/25/2018
Page No: 5



Turning Movement Peak Hour Data Plot (7:15 AM)



Terra Engineering
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Count Name: 119th St & Peoria St
Site Code:
Start Date: 10/25/2018
Page No: 6

Turning Movement Peak Hour Data (4:45 PM)

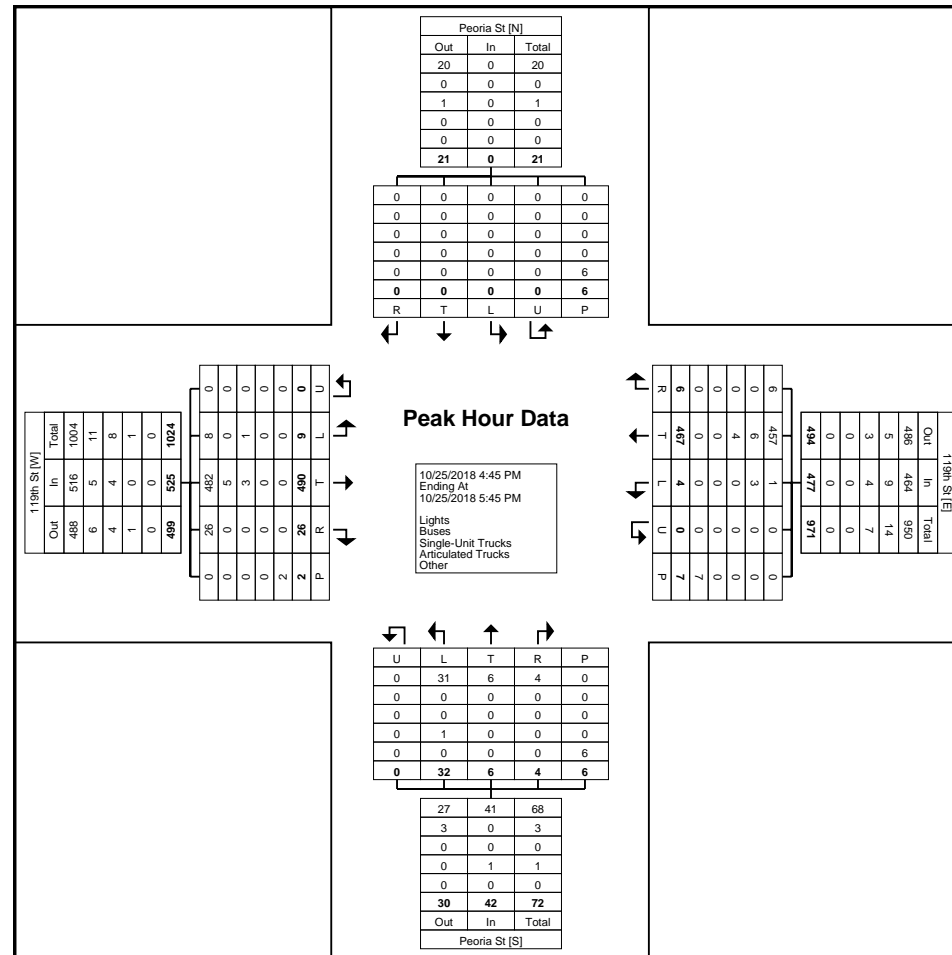
| Start Time | Peoria St Southbound | | | | | | 119th St Westbound | | | | | | Peoria St Northbound | | | | | | 119th St Eastbound | | | | | | Int. Total |
|-------------------------|----------------------|-------|-------|--------|-------|------------|--------------------|-------|-------|--------|-------|------------|----------------------|-------|-------|--------|-------|------------|--------------------|-------|-------|--------|-------|------------|------------|
| | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | |
| 4:45 PM | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 109 | 2 | 0 | 1 | 113 | 7 | 0 | 1 | 0 | 2 | 8 | 1 | 119 | 6 | 0 | 0 | 126 | 247 |
| 5:00 PM | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 131 | 2 | 0 | 2 | 134 | 8 | 0 | 1 | 0 | 2 | 9 | 6 | 133 | 7 | 0 | 1 | 146 | 289 |
| 5:15 PM | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 113 | 0 | 0 | 3 | 113 | 10 | 3 | 1 | 0 | 1 | 14 | 0 | 98 | 3 | 0 | 0 | 101 | 228 |
| 5:30 PM | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 114 | 2 | 0 | 1 | 117 | 7 | 3 | 1 | 0 | 1 | 11 | 2 | 140 | 10 | 0 | 1 | 152 | 280 |
| Total | 0 | 0 | 0 | 0 | 6 | 0 | 4 | 467 | 6 | 0 | 7 | 477 | 32 | 6 | 4 | 0 | 6 | 42 | 9 | 490 | 26 | 0 | 2 | 525 | 1044 |
| Approach % | 0.0 | 0.0 | 0.0 | 0.0 | - | - | 0.8 | 97.9 | 1.3 | 0.0 | - | - | 76.2 | 14.3 | 9.5 | 0.0 | - | - | 1.7 | 93.3 | 5.0 | 0.0 | - | - | - |
| Total % | 0.0 | 0.0 | 0.0 | 0.0 | - | 0.0 | 0.4 | 44.7 | 0.6 | 0.0 | - | 45.7 | 3.1 | 0.6 | 0.4 | 0.0 | - | 4.0 | 0.9 | 46.9 | 2.5 | 0.0 | - | 50.3 | - |
| PHF | 0.000 | 0.000 | 0.000 | 0.000 | - | 0.000 | 0.500 | 0.891 | 0.750 | 0.000 | - | 0.890 | 0.800 | 0.500 | 1.000 | 0.000 | - | 0.750 | 0.375 | 0.875 | 0.650 | 0.000 | - | 0.863 | 0.903 |
| Lights | 0 | 0 | 0 | 0 | - | 0 | 1 | 457 | 6 | 0 | - | 464 | 31 | 6 | 4 | 0 | - | 41 | 8 | 482 | 26 | 0 | - | 516 | 1021 |
| % Lights | - | - | - | - | - | - | 25.0 | 97.9 | 100.0 | - | - | 97.3 | 96.9 | 100.0 | 100.0 | - | - | 97.6 | 88.9 | 98.4 | 100.0 | - | - | 98.3 | 97.8 |
| Buses | 0 | 0 | 0 | 0 | - | 0 | 3 | 6 | 0 | 0 | - | 9 | 0 | 0 | 0 | 0 | - | 0 | 0 | 5 | 0 | 0 | - | 5 | 14 |
| % Buses | - | - | - | - | - | - | 75.0 | 1.3 | 0.0 | - | - | 1.9 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 1.0 | 0.0 | - | - | 1.0 | 1.3 |
| Single-Unit Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 4 | 0 | 0 | - | 4 | 0 | 0 | 0 | 0 | - | 0 | 1 | 3 | 0 | 0 | - | 4 | 8 |
| % Single-Unit Trucks | - | - | - | - | - | - | 0.0 | 0.9 | 0.0 | - | - | 0.8 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 11.1 | 0.6 | 0.0 | - | - | 0.8 | 0.8 |
| Articulated Trucks | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 1 | 0 | 0 | 0 | - | 1 | 0 | 0 | 0 | 0 | - | 0 | 1 |
| % Articulated Trucks | - | - | - | - | - | - | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 3.1 | 0.0 | 0.0 | - | - | 2.4 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.1 |
| Bicycles on Road | 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 | 0.0 | - | - | 0.0 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 |
| Bicycles on Crosswalk | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | 0.0 | - | - | - | - | - | 0.0 | - | - | - | - | - | 0.0 | - | - | - | - | - | 0.0 | - | - |
| Pedestrians | - | - | - | - | 6 | - | - | - | - | - | 7 | - | - | - | - | - | 6 | - | - | - | - | - | 2 | - | - |
| % Pedestrians | - | - | - | - | 100.0 | - | - | - | - | - | 100.0 | - | - | - | - | - | 100.0 | - | - | - | - | - | 100.0 | - | - |



Terra Engineering
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Site Code:
Start Date: 10/25/2018
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Turning Movement Peak Hour Data Plot (4:45 PM)



Terra Engineering
1804 Borman Circle Drive

Saint Louis, Missouri, United States 63146
314-395-9899 song@terraengineering.com

Count Name: Halstead St & W 119th St
Site Code:
Start Date: 10/25/2018
Page No: 1

Turning Movement Data

| Start Time | Halstead St Southbound | | | | | | 119th St Westbound | | | | | | Halstead St Northbound | | | | | | 119th St Eastbound | | | | | | Int. Total | |
|---------------|------------------------|------|-------|--------|------|------------|--------------------|------|-------|--------|------|------------|------------------------|------|-------|--------|------|------------|--------------------|------|-------|--------|------|------------|------------|---|
| | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | | |
| 6:00 AM | 2 | 25 | 4 | 0 | 2 | 31 | 2 | 23 | 5 | 0 | 2 | 30 | 4 | 77 | 3 | 0 | 3 | 84 | 18 | 26 | 5 | 0 | 1 | 49 | 194 | |
| 6:15 AM | 6 | 33 | 17 | 0 | 3 | 56 | 4 | 38 | 12 | 0 | 0 | 54 | 6 | 95 | 6 | 0 | 0 | 107 | 29 | 44 | 8 | 0 | 2 | 81 | 298 | |
| 6:30 AM | 6 | 26 | 9 | 0 | 3 | 41 | 7 | 33 | 13 | 0 | 1 | 53 | 4 | 120 | 6 | 0 | 2 | 130 | 31 | 37 | 10 | 0 | 3 | 78 | 302 | |
| 6:45 AM | 11 | 44 | 17 | 0 | 1 | 72 | 8 | 35 | 7 | 0 | 4 | 50 | 10 | 141 | 5 | 0 | 3 | 156 | 20 | 41 | 18 | 0 | 2 | 79 | 357 | |
| Hourly Total | 25 | 128 | 47 | 0 | 9 | 200 | 21 | 129 | 37 | 0 | 7 | 187 | 24 | 433 | 20 | 0 | 8 | 477 | 98 | 148 | 41 | 0 | 8 | 287 | 1151 | |
| 7:00 AM | 12 | 30 | 14 | 0 | 8 | 56 | 7 | 35 | 20 | 0 | 4 | 62 | 2 | 153 | 9 | 0 | 2 | 164 | 39 | 47 | 12 | 0 | 8 | 98 | 380 | |
| 7:15 AM | 9 | 45 | 17 | 0 | 6 | 71 | 9 | 57 | 18 | 0 | 6 | 84 | 8 | 165 | 3 | 0 | 0 | 176 | 67 | 54 | 6 | 0 | 3 | 127 | 458 | |
| 7:30 AM | 15 | 61 | 33 | 0 | 4 | 109 | 10 | 63 | 27 | 0 | 0 | 100 | 12 | 131 | 5 | 1 | 0 | 149 | 46 | 64 | 11 | 0 | 6 | 121 | 479 | |
| 7:45 AM | 17 | 75 | 14 | 0 | 2 | 106 | 6 | 59 | 20 | 0 | 1 | 85 | 9 | 135 | 6 | 0 | 0 | 150 | 45 | 69 | 17 | 0 | 3 | 131 | 472 | |
| Hourly Total | 53 | 211 | 78 | 0 | 20 | 342 | 32 | 214 | 85 | 0 | 11 | 331 | 31 | 584 | 23 | 1 | 2 | 639 | 197 | 234 | 46 | 0 | 20 | 477 | 1789 | |
| 8:00 AM | 21 | 95 | 16 | 0 | 3 | 132 | 11 | 48 | 26 | 0 | 6 | 85 | 14 | 142 | 6 | 0 | 2 | 162 | 33 | 67 | 6 | 0 | 4 | 106 | 485 | |
| 8:15 AM | 19 | 81 | 27 | 0 | 1 | 127 | 7 | 33 | 27 | 0 | 1 | 67 | 12 | 110 | 4 | 0 | 1 | 126 | 43 | 51 | 14 | 0 | 7 | 108 | 428 | |
| 8:30 AM | 18 | 83 | 21 | 0 | 8 | 122 | 11 | 48 | 28 | 0 | 0 | 87 | 23 | 114 | 6 | 0 | 3 | 143 | 30 | 35 | 10 | 0 | 10 | 75 | 427 | |
| 8:45 AM | 19 | 79 | 23 | 0 | 5 | 121 | 11 | 44 | 27 | 0 | 4 | 82 | 16 | 139 | 11 | 0 | 1 | 166 | 26 | 52 | 18 | 0 | 3 | 96 | 465 | |
| Hourly Total | 77 | 338 | 87 | 0 | 17 | 502 | 40 | 173 | 108 | 0 | 11 | 321 | 65 | 505 | 27 | 0 | 7 | 597 | 132 | 205 | 48 | 0 | 24 | 385 | 1805 | |
| *** BREAK *** | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4:00 PM | 19 | 166 | 53 | 0 | 6 | 238 | 21 | 55 | 20 | 0 | 5 | 96 | 30 | 108 | 3 | 0 | 4 | 141 | 25 | 55 | 19 | 0 | 11 | 99 | 574 | |
| 4:15 PM | 37 | 140 | 36 | 0 | 5 | 213 | 13 | 57 | 20 | 0 | 1 | 90 | 19 | 134 | 4 | 0 | 1 | 157 | 37 | 72 | 15 | 0 | 8 | 124 | 584 | |
| 4:30 PM | 31 | 154 | 38 | 0 | 7 | 223 | 12 | 51 | 13 | 0 | 5 | 76 | 16 | 110 | 5 | 0 | 6 | 131 | 38 | 53 | 20 | 0 | 18 | 111 | 541 | |
| 4:45 PM | 39 | 179 | 48 | 1 | 7 | 267 | 21 | 52 | 18 | 0 | 3 | 91 | 19 | 123 | 14 | 0 | 8 | 156 | 30 | 67 | 23 | 0 | 13 | 120 | 634 | |
| Hourly Total | 126 | 639 | 175 | 1 | 25 | 941 | 67 | 215 | 71 | 0 | 14 | 353 | 84 | 475 | 26 | 0 | 19 | 585 | 130 | 247 | 77 | 0 | 50 | 454 | 2333 | |
| 5:00 PM | 28 | 146 | 34 | 0 | 4 | 208 | 14 | 62 | 25 | 0 | 4 | 101 | 19 | 103 | 8 | 0 | 3 | 130 | 42 | 71 | 29 | 0 | 7 | 142 | 581 | |
| 5:15 PM | 27 | 174 | 32 | 0 | 1 | 233 | 14 | 59 | 21 | 0 | 3 | 94 | 22 | 115 | 7 | 0 | 7 | 144 | 30 | 60 | 22 | 0 | 6 | 112 | 583 | |
| 5:30 PM | 25 | 139 | 28 | 0 | 7 | 192 | 13 | 65 | 21 | 0 | 2 | 99 | 29 | 102 | 14 | 0 | 6 | 145 | 44 | 87 | 20 | 0 | 8 | 151 | 587 | |
| 5:45 PM | 37 | 145 | 33 | 0 | 11 | 215 | 19 | 38 | 21 | 0 | 1 | 78 | 16 | 107 | 5 | 0 | 1 | 128 | 26 | 60 | 30 | 0 | 9 | 116 | 537 | |
| Hourly Total | 117 | 604 | 127 | 0 | 23 | 848 | 60 | 224 | 88 | 0 | 10 | 372 | 86 | 427 | 34 | 0 | 17 | 547 | 142 | 278 | 101 | 0 | 30 | 521 | 2288 | |
| 6:00 PM | 28 | 116 | 29 | 0 | 6 | 173 | 19 | 48 | 24 | 0 | 0 | 91 | 15 | 89 | 9 | 0 | 5 | 113 | 40 | 64 | 24 | 0 | 6 | 128 | 505 | |
| 6:15 PM | 27 | 132 | 23 | 0 | 4 | 182 | 16 | 38 | 21 | 0 | 4 | 75 | 23 | 100 | 4 | 0 | 0 | 127 | 27 | 50 | 28 | 0 | 8 | 105 | 489 | |
| 6:30 PM | 34 | 121 | 32 | 0 | 1 | 187 | 19 | 33 | 9 | 0 | 7 | 61 | 14 | 84 | 9 | 0 | 1 | 107 | 31 | 48 | 19 | 0 | 5 | 98 | 453 | |
| 6:45 PM | 16 | 113 | 16 | 0 | 4 | 145 | 12 | 42 | 17 | 0 | 1 | 71 | 22 | 79 | 6 | 0 | 2 | 107 | 25 | 55 | 21 | 0 | 5 | 101 | 424 | |
| Hourly Total | 105 | 482 | 100 | 0 | 15 | 687 | 66 | 161 | 71 | 0 | 12 | 298 | 74 | 352 | 28 | 0 | 8 | 454 | 123 | 217 | 92 | 0 | 24 | 432 | 1871 | |
| Grand Total | 503 | 2402 | 614 | 1 | 109 | 3520 | 286 | 1116 | 460 | 0 | 65 | 1862 | 364 | 2776 | 158 | 1 | 61 | 3299 | 822 | 1329 | 405 | 0 | 156 | 2556 | 11237 | |
| Approach % | 14.3 | 68.2 | 17.4 | 0.0 | - | - | 15.4 | 59.9 | 24.7 | 0.0 | - | - | 11.0 | 84.1 | 4.8 | 0.0 | - | - | 32.2 | 52.0 | 15.8 | 0.0 | - | - | - | |
| Total % | 4.5 | 21.4 | 5.5 | 0.0 | - | 31.3 | 2.5 | 9.9 | 4.1 | 0.0 | - | 16.6 | 3.2 | 24.7 | 1.4 | 0.0 | - | 29.4 | 7.3 | 11.8 | 3.6 | 0.0 | - | 22.7 | - | |
| Lights | 486 | 2293 | 572 | 1 | - | 3352 | 279 | 1066 | 448 | 0 | - | 1793 | 352 | 2618 | 152 | 1 | - | 3123 | 802 | 1267 | 399 | 0 | - | 2468 | 10736 | |
| % Lights | 96.6 | 95.5 | 93.2 | 100.0 | - | 95.2 | 97.6 | 95.5 | 97.4 | - | - | 96.3 | 96.7 | 94.3 | 96.2 | 100.0 | - | 94.7 | 97.6 | 95.3 | 98.5 | - | - | 96.6 | 95.5 | |
| Buses | 7 | 83 | 27 | 0 | - | 117 | 2 | 37 | 7 | 0 | - | 46 | 2 | 114 | 4 | 0 | - | 120 | 8 | 37 | 2 | 0 | - | 47 | 330 | |

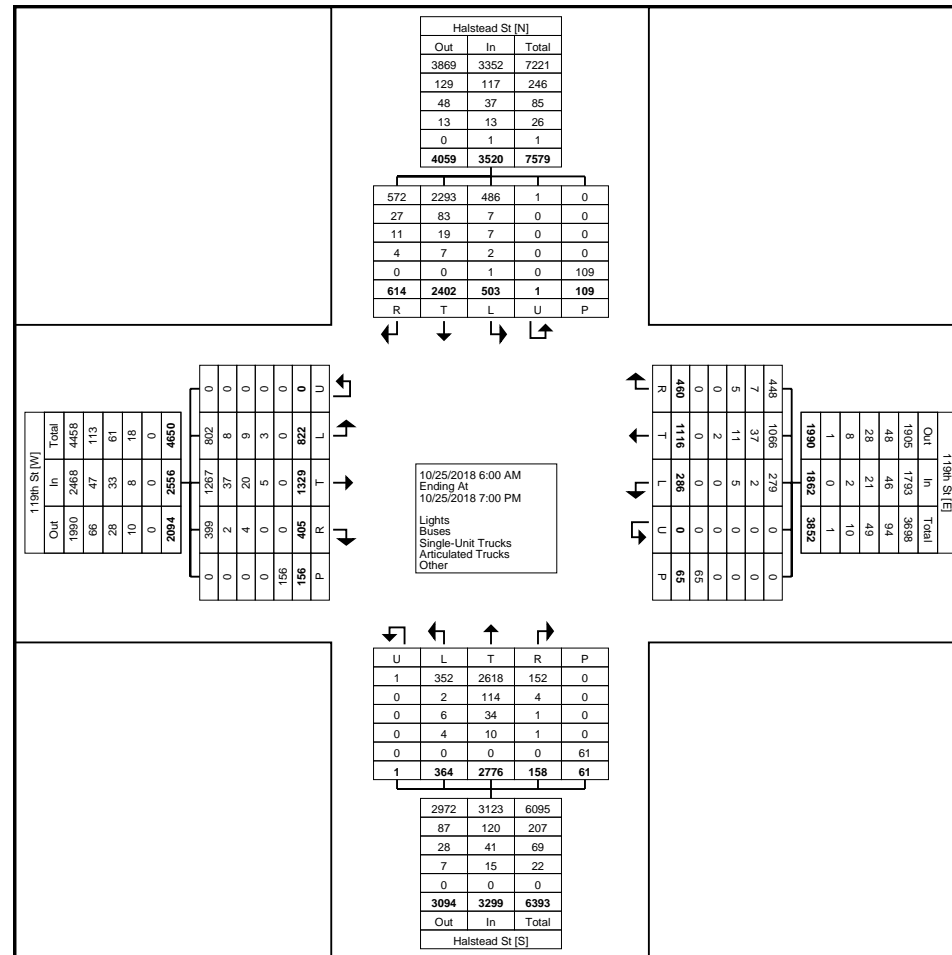
| | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------------------|-----|-----|-----|-----|---|------|-----|-----|-----|---|---|------|-----|-----|-----|-----|---|------|-----|-----|-----|---|---|------|-----|
| % Buses | 1.4 | 3.5 | 4.4 | 0.0 | - | 3.3 | 0.7 | 3.3 | 1.5 | - | - | 2.5 | 0.5 | 4.1 | 2.5 | 0.0 | - | 3.6 | 1.0 | 2.8 | 0.5 | - | - | 1.8 | 2.9 |
| Single-Unit Trucks | 7 | 19 | 11 | 0 | - | 37 | 5 | 11 | 5 | 0 | - | 21 | 6 | 34 | 1 | 0 | - | 41 | 9 | 20 | 4 | 0 | - | 33 | 132 |
| % Single-Unit Trucks | 1.4 | 0.8 | 1.8 | 0.0 | - | 1.1 | 1.7 | 1.0 | 1.1 | - | - | 1.1 | 1.6 | 1.2 | 0.6 | 0.0 | - | 1.2 | 1.1 | 1.5 | 1.0 | - | - | 1.3 | 1.2 |
| Articulated Trucks | 2 | 7 | 4 | 0 | - | 13 | 0 | 2 | 0 | 0 | - | 2 | 4 | 10 | 1 | 0 | - | 15 | 3 | 5 | 0 | 0 | - | 8 | 38 |
| % Articulated Trucks | 0.4 | 0.3 | 0.7 | 0.0 | - | 0.4 | 0.0 | 0.2 | 0.0 | - | - | 0.1 | 1.1 | 0.4 | 0.6 | 0.0 | - | 0.5 | 0.4 | 0.4 | 0.0 | - | - | 0.3 | 0.3 |
| Bicycles on Road | 1 | 0 | 0 | 0 | - | 1 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 1 |
| % Bicycles on Road | 0.2 | 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 | 0.0 |
| Bicycles on Crosswalk | - | - | - | - | - | 3 | - | - | - | - | - | 5 | - | - | - | - | - | 3 | - | - | - | - | - | 4 | - |
| % Bicycles on Crosswalk | - | - | - | - | - | 2.8 | - | - | - | - | - | 7.7 | - | - | - | - | - | 4.9 | - | - | - | - | - | 2.6 | - |
| Pedestrians | - | - | - | - | - | 106 | - | - | - | - | - | 60 | - | - | - | - | - | 58 | - | - | - | - | - | 152 | - |
| % Pedestrians | - | - | - | - | - | 97.2 | - | - | - | - | - | 92.3 | - | - | - | - | - | 95.1 | - | - | - | - | - | 97.4 | - |



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Turning Movement Data Plot



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Count Name: Halstead St & W 119th St
Site Code:
Start Date: 10/25/2018
Page No: 4

Turning Movement Peak Hour Data (7:15 AM)

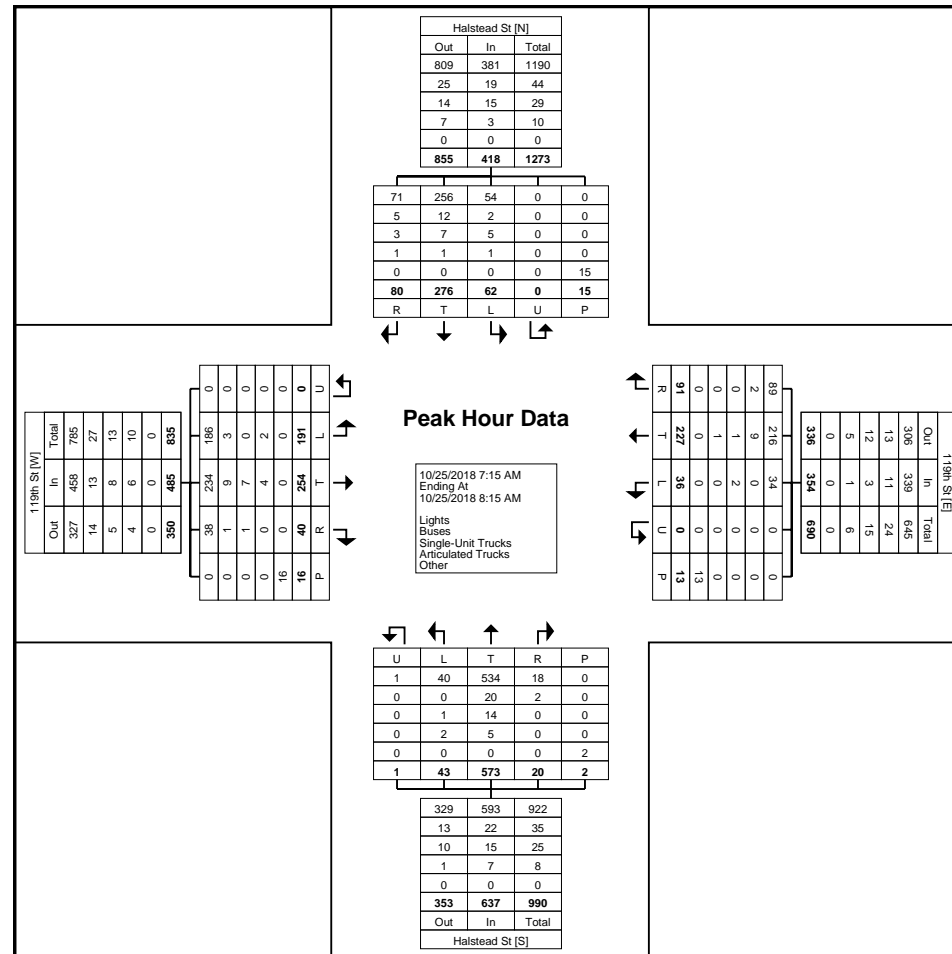
| Start Time | Halstead St Southbound | | | | | | 119th St Westbound | | | | | | Halstead St Northbound | | | | | | 119th St Eastbound | | | | | | Int. Total |
|-------------------------|------------------------|------------|-----------|----------|-----------|------------|--------------------|------------|-----------|----------|-----------|------------|------------------------|------------|-----------|----------|----------|------------|--------------------|------------|-----------|----------|-----------|------------|-------------|
| | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | |
| 7:15 AM | 9 | 45 | 17 | 0 | 6 | 71 | 9 | 57 | 18 | 0 | 6 | 84 | 8 | 165 | 3 | 0 | 0 | 176 | 67 | 54 | 6 | 0 | 3 | 127 | 458 |
| 7:30 AM | 15 | 61 | 33 | 0 | 4 | 109 | 10 | 63 | 27 | 0 | 0 | 100 | 12 | 131 | 5 | 1 | 0 | 149 | 46 | 64 | 11 | 0 | 6 | 121 | 479 |
| 7:45 AM | 17 | 75 | 14 | 0 | 2 | 106 | 6 | 59 | 20 | 0 | 1 | 85 | 9 | 135 | 6 | 0 | 0 | 150 | 45 | 69 | 17 | 0 | 3 | 131 | 472 |
| 8:00 AM | 21 | 95 | 16 | 0 | 3 | 132 | 11 | 48 | 26 | 0 | 6 | 85 | 14 | 142 | 6 | 0 | 2 | 162 | 33 | 67 | 6 | 0 | 4 | 106 | 485 |
| Total | 62 | 276 | 80 | 0 | 15 | 418 | 36 | 227 | 91 | 0 | 13 | 354 | 43 | 573 | 20 | 1 | 2 | 637 | 191 | 254 | 40 | 0 | 16 | 485 | 1894 |
| Approach % | 14.8 | 66.0 | 19.1 | 0.0 | - | - | 10.2 | 64.1 | 25.7 | 0.0 | - | - | 6.8 | 90.0 | 3.1 | 0.2 | - | - | 39.4 | 52.4 | 8.2 | 0.0 | - | - | - |
| Total % | 3.3 | 14.6 | 4.2 | 0.0 | - | 22.1 | 1.9 | 12.0 | 4.8 | 0.0 | - | 18.7 | 2.3 | 30.3 | 1.1 | 0.1 | - | 33.6 | 10.1 | 13.4 | 2.1 | 0.0 | - | 25.6 | - |
| PHF | 0.738 | 0.726 | 0.606 | 0.000 | - | 0.792 | 0.818 | 0.901 | 0.843 | 0.000 | - | 0.885 | 0.768 | 0.868 | 0.833 | 0.250 | - | 0.905 | 0.713 | 0.920 | 0.588 | 0.000 | - | 0.926 | 0.976 |
| Lights | 54 | 256 | 71 | 0 | - | 381 | 34 | 216 | 89 | 0 | - | 339 | 40 | 534 | 18 | 1 | - | 593 | 186 | 234 | 38 | 0 | - | 458 | 1771 |
| % Lights | 87.1 | 92.8 | 88.8 | - | - | 91.1 | 94.4 | 95.2 | 97.8 | - | - | 95.8 | 93.0 | 93.2 | 90.0 | 100.0 | - | 93.1 | 97.4 | 92.1 | 95.0 | - | - | 94.4 | 93.5 |
| Buses | 2 | 12 | 5 | 0 | - | 19 | 0 | 9 | 2 | 0 | - | 11 | 0 | 20 | 2 | 0 | - | 22 | 3 | 9 | 1 | 0 | - | 13 | 65 |
| % Buses | 3.2 | 4.3 | 6.3 | - | - | 4.5 | 0.0 | 4.0 | 2.2 | - | - | 3.1 | 0.0 | 3.5 | 10.0 | 0.0 | - | 3.5 | 1.6 | 3.5 | 2.5 | - | - | 2.7 | 3.4 |
| Single-Unit Trucks | 5 | 7 | 3 | 0 | - | 15 | 2 | 1 | 0 | 0 | - | 3 | 1 | 14 | 0 | 0 | - | 15 | 0 | 7 | 1 | 0 | - | 8 | 41 |
| % Single-Unit Trucks | 8.1 | 2.5 | 3.8 | - | - | 3.6 | 5.6 | 0.4 | 0.0 | - | - | 0.8 | 2.3 | 2.4 | 0.0 | 0.0 | - | 2.4 | 0.0 | 2.8 | 2.5 | - | - | 1.6 | 2.2 |
| Articulated Trucks | 1 | 1 | 1 | 0 | - | 3 | 0 | 1 | 0 | 0 | - | 1 | 2 | 5 | 0 | 0 | - | 7 | 2 | 4 | 0 | 0 | - | 6 | 17 |
| % Articulated Trucks | 1.6 | 0.4 | 1.3 | - | - | 0.7 | 0.0 | 0.4 | 0.0 | - | - | 0.3 | 4.7 | 0.9 | 0.0 | 0.0 | - | 1.1 | 1.0 | 1.6 | 0.0 | - | - | 1.2 | 0.9 |
| Bicycles on Road | 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 | 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 Crosswalk | - | - | - | - | 1 | - | - | - | - | - | 1 | - | - | - | - | - | 0 | - | - | - | - | - | 2 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | 6.7 | - | - | - | - | - | 7.7 | - | - | - | - | - | 0.0 | - | - | - | - | - | 12.5 | - | - |
| Pedestrians | - | - | - | - | 14 | - | - | - | - | - | 12 | - | - | - | - | - | 2 | - | - | - | - | - | 14 | - | - |
| % Pedestrians | - | - | - | - | 93.3 | - | - | - | - | - | 92.3 | - | - | - | - | - | 100.0 | - | - | - | - | - | 87.5 | - | - |



Terra Engineering
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Count Name: Halstead St & W 119th St
Site Code:
Start Date: 10/25/2018
Page No: 5



Turning Movement Peak Hour Data Plot (7:15 AM)



Terra Engineering
1804 Borman Circle Drive

Saint Louis, Missouri, United States 63146
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Count Name: Halstead St & W 119th St
Site Code:
Start Date: 10/25/2018
Page No: 6

Turning Movement Peak Hour Data (4:45 PM)

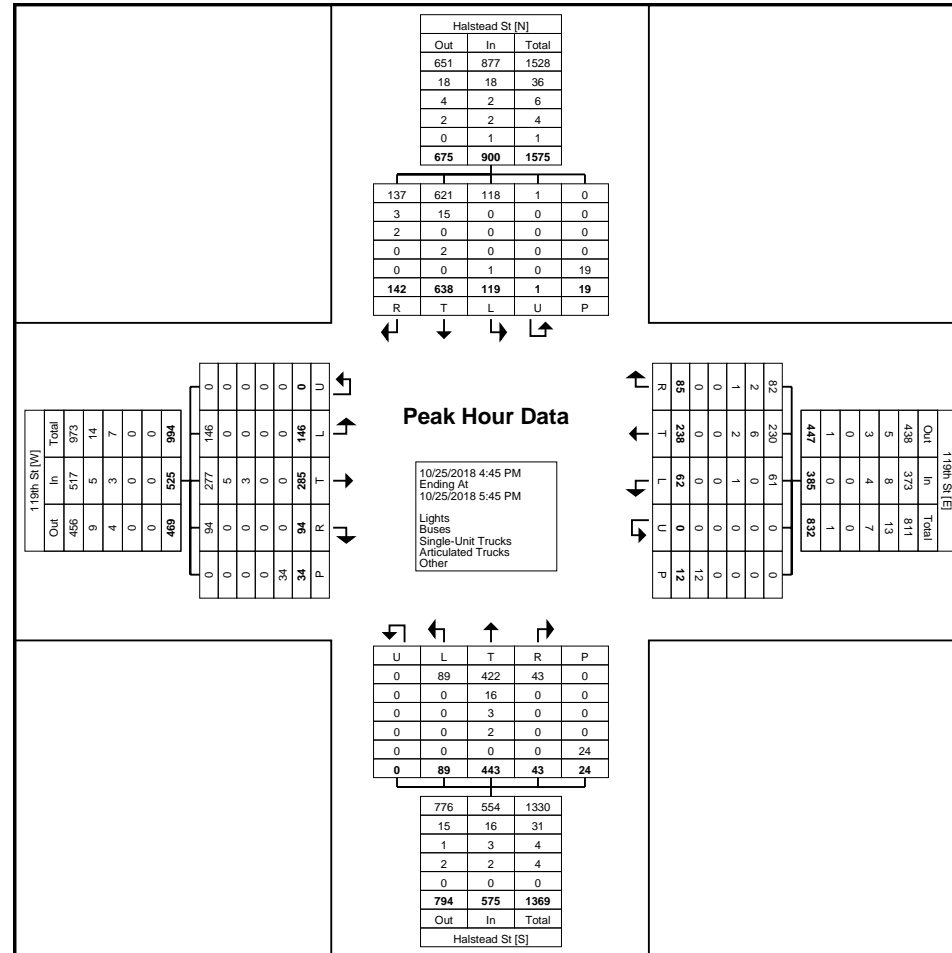
| Start Time | Halstead St Southbound | | | | | | 119th St Westbound | | | | | | Halstead St Northbound | | | | | | 119th St Eastbound | | | | | | Int. Total |
|-------------------------|------------------------|------------|------------|----------|-----------|------------|--------------------|------------|-----------|----------|-----------|------------|------------------------|------------|-----------|----------|-----------|------------|--------------------|------------|-----------|----------|-----------|------------|-------------|
| | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | Left | Thru | Right | U-Turn | Peds | App. Total | |
| 4:45 PM | 39 | 179 | 48 | 1 | 7 | 267 | 21 | 52 | 18 | 0 | 3 | 91 | 19 | 123 | 14 | 0 | 8 | 156 | 30 | 67 | 23 | 0 | 13 | 120 | 634 |
| 5:00 PM | 28 | 146 | 34 | 0 | 4 | 208 | 14 | 62 | 25 | 0 | 4 | 101 | 19 | 103 | 8 | 0 | 3 | 130 | 42 | 71 | 29 | 0 | 7 | 142 | 581 |
| 5:15 PM | 27 | 174 | 32 | 0 | 1 | 233 | 14 | 59 | 21 | 0 | 3 | 94 | 22 | 115 | 7 | 0 | 7 | 144 | 30 | 60 | 22 | 0 | 6 | 112 | 583 |
| 5:30 PM | 25 | 139 | 28 | 0 | 7 | 192 | 13 | 65 | 21 | 0 | 2 | 99 | 29 | 102 | 14 | 0 | 6 | 145 | 44 | 87 | 20 | 0 | 8 | 151 | 587 |
| Total | 119 | 638 | 142 | 1 | 19 | 900 | 62 | 238 | 85 | 0 | 12 | 385 | 89 | 443 | 43 | 0 | 24 | 575 | 146 | 285 | 94 | 0 | 34 | 525 | 2385 |
| Approach % | 13.2 | 70.9 | 15.8 | 0.1 | - | - | 16.1 | 61.8 | 22.1 | 0.0 | - | - | 15.5 | 77.0 | 7.5 | 0.0 | - | - | 27.8 | 54.3 | 17.9 | 0.0 | - | - | - |
| Total % | 5.0 | 26.8 | 6.0 | 0.0 | - | 37.7 | 2.6 | 10.0 | 3.6 | 0.0 | - | 16.1 | 3.7 | 18.6 | 1.8 | 0.0 | - | 24.1 | 6.1 | 11.9 | 3.9 | 0.0 | - | 22.0 | - |
| PHF | 0.763 | 0.891 | 0.740 | 0.250 | - | 0.843 | 0.738 | 0.915 | 0.850 | 0.000 | - | 0.953 | 0.767 | 0.900 | 0.768 | 0.000 | - | 0.921 | 0.830 | 0.819 | 0.810 | 0.000 | - | 0.869 | 0.940 |
| Lights | 118 | 621 | 137 | 1 | - | 877 | 61 | 230 | 82 | 0 | - | 373 | 89 | 422 | 43 | 0 | - | 554 | 146 | 277 | 94 | 0 | - | 517 | 2321 |
| % Lights | 99.2 | 97.3 | 96.5 | 100.0 | - | 97.4 | 98.4 | 96.6 | 96.5 | - | - | 96.9 | 100.0 | 95.3 | 100.0 | - | - | 96.3 | 100.0 | 97.2 | 100.0 | - | - | 98.5 | 97.3 |
| Buses | 0 | 15 | 3 | 0 | - | 18 | 0 | 6 | 2 | 0 | - | 8 | 0 | 16 | 0 | 0 | - | 16 | 0 | 5 | 0 | 0 | - | 5 | 47 |
| % Buses | 0.0 | 2.4 | 2.1 | 0.0 | - | 2.0 | 0.0 | 2.5 | 2.4 | - | - | 2.1 | 0.0 | 3.6 | 0.0 | - | - | 2.8 | 0.0 | 1.8 | 0.0 | - | - | 1.0 | 2.0 |
| Single-Unit Trucks | 0 | 0 | 2 | 0 | - | 2 | 1 | 2 | 1 | 0 | - | 4 | 0 | 3 | 0 | 0 | - | 3 | 0 | 3 | 0 | 0 | - | 3 | 12 |
| % Single-Unit Trucks | 0.0 | 0.0 | 1.4 | 0.0 | - | 0.2 | 1.6 | 0.8 | 1.2 | - | - | 1.0 | 0.0 | 0.7 | 0.0 | - | - | 0.5 | 0.0 | 1.1 | 0.0 | - | - | 0.6 | 0.5 |
| Articulated Trucks | 0 | 2 | 0 | 0 | - | 2 | 0 | 0 | 0 | 0 | - | 0 | 0 | 2 | 0 | 0 | - | 2 | 0 | 0 | 0 | 0 | - | 0 | 4 |
| % Articulated Trucks | 0.0 | 0.3 | 0.0 | 0.0 | - | 0.2 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.0 | 0.5 | 0.0 | - | - | 0.3 | 0.0 | 0.0 | 0.0 | - | - | 0.0 | 0.2 |
| Bicycles on Road | 1 | 0 | 0 | 0 | - | 1 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 0 | 0 | 0 | 0 | - | 0 | 1 |
| % Bicycles on Road | 0.8 | 0.0 | 0.0 | 0.0 | - | 0.1 | 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 Crosswalk | - | - | - | - | 1 | - | - | - | - | - | 1 | - | - | - | - | - | 2 | - | - | - | - | - | 0 | - | - |
| % Bicycles on Crosswalk | - | - | - | - | 5.3 | - | - | - | - | - | 8.3 | - | - | - | - | - | 8.3 | - | - | - | - | - | 0.0 | - | - |
| Pedestrians | - | - | - | - | 18 | - | - | - | - | - | 11 | - | - | - | - | - | 22 | - | - | - | - | - | 34 | - | - |
| % Pedestrians | - | - | - | - | 94.7 | - | - | - | - | - | 91.7 | - | - | - | - | - | 91.7 | - | - | - | - | - | 100.0 | - | - |



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Turning Movement Peak Hour Data Plot (4:45 PM)

Appendix B

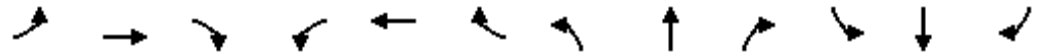
Existing Synchro Output

Lanes, Volumes, Timings
3: S Loomis St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---------------------------|-------|-------|------|-------|-------|------|-------|-------|------|------|------|------|
| Lane Configurations | | ⇄ | | | ⇄ | | | ⇄ | | | | |
| Traffic Volume (vph) | 29 | 533 | 69 | 35 | 319 | 23 | 40 | 10 | 35 | 0 | 0 | 0 |
| Future Volume (vph) | 29 | 533 | 69 | 35 | 319 | 23 | 40 | 10 | 35 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.984 | | | 0.991 | | | 0.944 | | | | |
| Fl _t Protected | | 0.998 | | | 0.995 | | | 0.977 | | | | |
| Satd. Flow (prot) | 0 | 3476 | 0 | 0 | 3490 | 0 | 0 | 1718 | 0 | 0 | 0 | 0 |
| Fl _t Permitted | | 0.923 | | | 0.860 | | | 0.977 | | | | |
| Satd. Flow (perm) | 0 | 3214 | 0 | 0 | 3016 | 0 | 0 | 1718 | 0 | 0 | 0 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 29 | | | 14 | | | 38 | | | | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | | 30 |
| Link Distance (ft) | | 261 | | | 2694 | | | 191 | | | | 877 |
| Travel Time (s) | | 5.9 | | | 61.2 | | | 4.3 | | | | 19.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 32 | 579 | 75 | 38 | 347 | 25 | 43 | 11 | 38 | 0 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 686 | 0 | 0 | 410 | 0 | 0 | 92 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | | | |
| Minimum Split (s) | 56.0 | 56.0 | | 56.0 | 56.0 | | 29.0 | 29.0 | | | | |
| Total Split (s) | 56.0 | 56.0 | | 56.0 | 56.0 | | 29.0 | 29.0 | | | | |
| Total Split (%) | 65.9% | 65.9% | | 65.9% | 65.9% | | 34.1% | 34.1% | | | | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | | | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | | | 0.0 | | | | |
| Total Lost Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 52.0 | | | 52.0 | | | 25.0 | | | | |
| Actuated g/C Ratio | | 0.61 | | | 0.61 | | | 0.29 | | | | |
| v/c Ratio | | 0.35 | | | 0.22 | | | 0.17 | | | | |
| Control Delay | | 8.3 | | | 7.5 | | | 15.2 | | | | |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | | |
| Total Delay | | 8.3 | | | 7.5 | | | 15.2 | | | | |
| LOS | | A | | | A | | | B | | | | |
| Approach Delay | | 8.3 | | | 7.5 | | | 15.2 | | | | |
| Approach LOS | | A | | | A | | | B | | | | |
| Stops (vph) | | 275 | | | 150 | | | 40 | | | | |
| Fuel Used(gal) | | 4 | | | 9 | | | 1 | | | | |
| CO Emissions (g/hr) | | 271 | | | 652 | | | 43 | | | | |
| NOx Emissions (g/hr) | | 53 | | | 127 | | | 8 | | | | |
| VOC Emissions (g/hr) | | 63 | | | 151 | | | 10 | | | | |
| Dilemma Vehicles (#) | | 0 | | | 0 | | | 0 | | | | |
| Queue Length 50th (ft) | | 81 | | | 45 | | | 21 | | | | |
| Queue Length 95th (ft) | | 113 | | | 66 | | | 56 | | | | |
| Internal Link Dist (ft) | | 181 | | | 2614 | | | 111 | | | | 797 |

Lanes, Volumes, Timings
 3: S Loomis St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|-----|-----|
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 1977 | | | 1850 | | | 532 | | | | |
| Starvation Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Spillback Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Storage Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Reduced v/c Ratio | | 0.35 | | | 0.22 | | | 0.17 | | | | |

Intersection Summary

| | |
|-----------------------------------|---|
| Area Type: | Other |
| Cycle Length: | 85 |
| Actuated Cycle Length: | 85 |
| Offset: | 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green |
| Natural Cycle: | 85 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.35 |
| Intersection Signal Delay: | 8.6 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 57.9% |
| ICU Level of Service | B |
| Analysis Period (min) | 15 |

Splits and Phases: 3: S Loomis St & W 119th St



Lanes, Volumes, Timings
5: S Halstead St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | | | | | | | | | | | | |
| Traffic Volume (vph) | 191 | 254 | 40 | 36 | 227 | 91 | 43 | 573 | 20 | 62 | 276 | 80 |
| Future Volume (vph) | 191 | 254 | 40 | 36 | 227 | 91 | 43 | 573 | 20 | 62 | 276 | 80 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 135 | | 0 | 115 | | 0 | 120 | | 0 | 120 | | 0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.980 | | | 0.957 | | | 0.995 | | | 0.966 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1770 | 3468 | 0 | 1770 | 3387 | 0 | 1770 | 3522 | 0 | 1770 | 3419 | 0 |
| Flt Permitted | 0.502 | | | 0.528 | | | 0.475 | | | 0.299 | | |
| Satd. Flow (perm) | 935 | 3468 | 0 | 984 | 3387 | 0 | 885 | 3522 | 0 | 557 | 3419 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 20 | | | 68 | | | 4 | | | 48 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 665 | | | 675 | | | 757 | | | 907 | |
| Travel Time (s) | | 15.1 | | | 15.3 | | | 17.2 | | | 20.6 | |
| 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 |
| Adj. Flow (vph) | 208 | 276 | 43 | 39 | 247 | 99 | 47 | 623 | 22 | 67 | 300 | 87 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 208 | 319 | 0 | 39 | 346 | 0 | 47 | 645 | 0 | 67 | 387 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 10.0 | 38.0 | | 10.0 | 38.0 | |
| Total Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 10.0 | 38.0 | | 10.0 | 38.0 | |
| Total Split (%) | 11.1% | 35.6% | | 11.1% | 35.6% | | 11.1% | 42.2% | | 11.1% | 42.2% | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 0.0 | 2.0 | | 0.0 | 2.0 | | 0.0 | 1.0 | | 0.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 3.0 | 5.0 | | 3.0 | 5.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Act Effect Green (s) | 36.0 | 27.0 | | 36.0 | 27.0 | | 42.0 | 34.0 | | 42.0 | 34.0 | |
| Actuated g/C Ratio | 0.40 | 0.30 | | 0.40 | 0.30 | | 0.47 | 0.38 | | 0.47 | 0.38 | |
| v/c Ratio | 0.47 | 0.30 | | 0.09 | 0.33 | | 0.10 | 0.48 | | 0.19 | 0.29 | |
| Control Delay | 21.1 | 23.6 | | 15.4 | 20.4 | | 12.2 | 22.7 | | 13.1 | 17.7 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 21.1 | 23.6 | | 15.4 | 20.4 | | 12.2 | 22.7 | | 13.1 | 17.7 | |
| LOS | C | C | | B | C | | B | C | | B | B | |
| Approach Delay | | 22.6 | | | 19.9 | | | 22.0 | | | 17.1 | |
| Approach LOS | | C | | | B | | | C | | | B | |
| Stops (vph) | 127 | 204 | | 21 | 191 | | 22 | 431 | | 31 | 209 | |
| Fuel Used(gal) | 3 | 4 | | 0 | 4 | | 0 | 9 | | 1 | 5 | |
| CO Emissions (g/hr) | 176 | 283 | | 29 | 283 | | 34 | 603 | | 54 | 347 | |
| NOx Emissions (g/hr) | 34 | 55 | | 6 | 55 | | 7 | 117 | | 11 | 67 | |
| VOC Emissions (g/hr) | 41 | 66 | | 7 | 66 | | 8 | 140 | | 13 | 80 | |
| Dilemma Vehicles (#) | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |

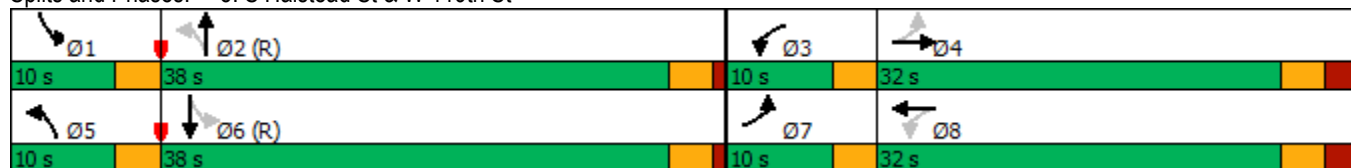


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|-----|------|------|-----|------|------|-----|------|------|-----|
| Queue Length 50th (ft) | 74 | 68 | | 13 | 63 | | 13 | 143 | | 19 | 68 | |
| Queue Length 95th (ft) | 123 | 103 | | 31 | 100 | | 31 | 193 | | 40 | 103 | |
| Internal Link Dist (ft) | | 585 | | | 595 | | | 677 | | | 827 | |
| Turn Bay Length (ft) | 135 | | | 115 | | | 120 | | | 120 | | |
| Base Capacity (vph) | 438 | 1054 | | 454 | 1063 | | 481 | 1333 | | 354 | 1321 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.47 | 0.30 | | 0.09 | 0.33 | | 0.10 | 0.48 | | 0.19 | 0.29 | |

Intersection Summary

| | |
|-----------------------------------|---|
| Area Type: | Other |
| Cycle Length: | 90 |
| Actuated Cycle Length: | 90 |
| Offset: | 79.5 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |
| Natural Cycle: | 90 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.48 |
| Intersection Signal Delay: | 20.7 |
| Intersection LOS: | C |
| Intersection Capacity Utilization | 56.2% |
| ICU Level of Service | B |
| Analysis Period (min) | 15 |

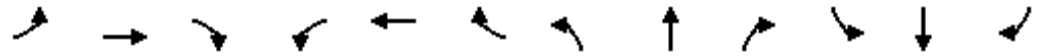
Splits and Phases: 5: S Halstead St & W 119th St



Lanes, Volumes, Timings
11: S Morgan St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|-------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | | ↕ | | | ↕ | |
| Traffic Volume (vph) | 19 | 506 | 7 | 0 | 369 | 1 | 15 | 4 | 0 | 4 | 3 | 10 |
| Future Volume (vph) | 19 | 506 | 7 | 0 | 369 | 1 | 15 | 4 | 0 | 4 | 3 | 10 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.998 | | | | | | | | | | 0.917 |
| Fl _t Protected | | 0.998 | | | | | | 0.962 | | | | 0.989 |
| Satd. Flow (prot) | 0 | 3525 | 0 | 0 | 3539 | 0 | 0 | 1792 | 0 | 0 | 1689 | 0 |
| Fl _t Permitted | | 0.936 | | | | | | 0.872 | | | | 0.971 |
| Satd. Flow (perm) | 0 | 3306 | 0 | 0 | 3539 | 0 | 0 | 1624 | 0 | 0 | 1659 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 3 | | | 1 | | | | | | | 11 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | | 30 |
| Link Distance (ft) | | 2694 | | | 317 | | | 449 | | | | 789 |
| Travel Time (s) | | 61.2 | | | 7.2 | | | 10.2 | | | | 17.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 21 | 550 | 8 | 0 | 401 | 1 | 16 | 4 | 0 | 4 | 3 | 11 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 579 | 0 | 0 | 402 | 0 | 0 | 20 | 0 | 0 | 18 | 0 |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | | 6 |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 41.0 | 41.0 | | 41.0 | 41.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (s) | 41.0 | 41.0 | | 41.0 | 41.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (%) | 63.1% | 63.1% | | 63.1% | 63.1% | | 36.9% | 36.9% | | 36.9% | 36.9% | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 37.0 | | | 37.0 | | | 20.0 | | | | 20.0 |
| Actuated g/C Ratio | | 0.57 | | | 0.57 | | | 0.31 | | | | 0.31 |
| v/c Ratio | | 0.31 | | | 0.20 | | | 0.04 | | | | 0.03 |
| Control Delay | | 7.8 | | | 7.1 | | | 16.2 | | | | 11.2 |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | | 0.0 |
| Total Delay | | 7.8 | | | 7.1 | | | 16.2 | | | | 11.2 |
| LOS | | A | | | A | | | B | | | | B |
| Approach Delay | | 7.8 | | | 7.1 | | | 16.2 | | | | 11.2 |
| Approach LOS | | A | | | A | | | B | | | | B |
| Stops (vph) | | 252 | | | 163 | | | 14 | | | | 9 |
| Fuel Used(gal) | | 13 | | | 2 | | | 0 | | | | 0 |
| CO Emissions (g/hr) | | 939 | | | 164 | | | 14 | | | | 13 |
| NOx Emissions (g/hr) | | 183 | | | 32 | | | 3 | | | | 3 |
| VOC Emissions (g/hr) | | 218 | | | 38 | | | 3 | | | | 3 |
| Dilemma Vehicles (#) | | 0 | | | 0 | | | 0 | | | | 0 |
| Queue Length 50th (ft) | | 56 | | | 36 | | | 5 | | | | 2 |
| Queue Length 95th (ft) | | 83 | | | 55 | | | 19 | | | | 15 |
| Internal Link Dist (ft) | | 2614 | | | 237 | | | 369 | | | | 709 |

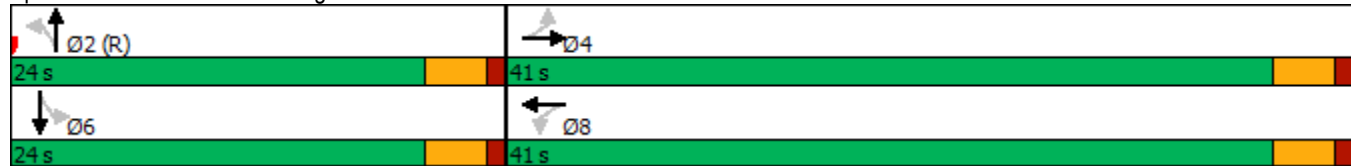


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 1883 | | | 2014 | | | 499 | | | 518 | |
| 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 | | 0.31 | | | 0.20 | | | 0.04 | | | 0.03 | |

Intersection Summary

| | |
|-----------------------------------|--|
| Area Type: | Other |
| Cycle Length: | 65 |
| Actuated Cycle Length: | 65 |
| Offset: | 32 (49%), Referenced to phase 2:NBTL, Start of Green |
| Natural Cycle: | 65 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.31 |
| Intersection Signal Delay: | 7.8 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 41.4% |
| ICU Level of Service | A |
| Analysis Period (min) | 15 |

Splits and Phases: 11: S Morgan St & W 119th St



| 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 | 7 | 484 | 20 | 6 | 319 | 4 | 28 | 4 | 3 | 0 | 0 | 0 |
| Future Vol, veh/h | 7 | 484 | 20 | 6 | 319 | 4 | 28 | 4 | 3 | 0 | 0 | 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 | - | - | 0 | - | - | 0 | - | - | 16965 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 8 | 526 | 22 | 7 | 347 | 4 | 30 | 4 | 3 | 0 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|----------------------|--------|---|---|--------|---|---|--------|------|------|
| Conflicting Flow All | 351 | 0 | 0 | 548 | 0 | 0 | 741 | 918 | 274 |
| Stage 1 | - | - | - | - | - | - | 553 | 553 | - |
| Stage 2 | - | - | - | - | - | - | 188 | 365 | - |
| Critical Hdwy | 4.14 | - | - | 4.14 | - | - | 6.84 | 6.54 | 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.84 | 5.54 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.84 | 5.54 | - |
| Follow-up Hdwy | 2.22 | - | - | 2.22 | - | - | 3.52 | 4.02 | 3.32 |
| Pot Cap-1 Maneuver | 1204 | - | - | 1018 | - | - | 352 | 270 | 724 |
| Stage 1 | - | - | - | - | - | - | 540 | 513 | - |
| Stage 2 | - | - | - | - | - | - | 825 | 622 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 1204 | - | - | 1018 | - | - | 345 | 0 | 724 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 345 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 530 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 825 | 0 | - |

| Approach | EB | | | WB | | | NB | | |
|----------------------|-----|--|--|-----|--|--|------|--|--|
| HCM Control Delay, s | 0.1 | | | 0.2 | | | 16.1 | | |
| HCM LOS | | | | | | | C | | |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|
| Capacity (veh/h) | 363 | 1204 | - | - | 1018 | - | - |
| HCM Lane V/C Ratio | 0.105 | 0.006 | - | - | 0.006 | - | - |
| HCM Control Delay (s) | 16.1 | 8 | 0 | - | 8.6 | 0 | - |
| HCM Lane LOS | C | A | A | - | A | A | - |
| HCM 95th %tile Q(veh) | 0.3 | 0 | - | - | 0 | - | - |

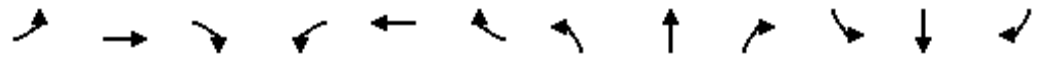
| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.3 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | ↑↑ | ↑↑ | | ↓ | |
| Traffic Vol, veh/h | 0 | 524 | 348 | 0 | 7 | 14 |
| Future Vol, veh/h | 0 | 524 | 348 | 0 | 7 | 14 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 570 | 378 | 0 | 8 | 15 |

| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|---|-----------|
| Conflicting Flow All | - | 0 | - | 0 | 663 189 |
| Stage 1 | - | - | - | - | 378 - |
| Stage 2 | - | - | - | - | 285 - |
| Critical Hdwy | - | - | - | - | 6.84 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.84 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.84 - |
| Follow-up Hdwy | - | - | - | - | 3.52 3.32 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 394 821 |
| Stage 1 | 0 | - | - | 0 | 663 - |
| Stage 2 | 0 | - | - | 0 | 738 - |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | - | - | 394 821 |
| Mov Cap-2 Maneuver | - | - | - | - | 394 - |
| Stage 1 | - | - | - | - | 663 - |
| Stage 2 | - | - | - | - | 738 - |

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

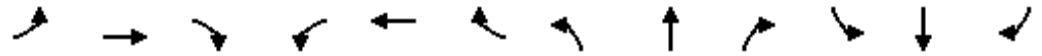
| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|-----------------------|-----|-----|-------|
| Capacity (veh/h) | - | - | 603 |
| HCM Lane V/C Ratio | - | - | 0.038 |
| HCM Control Delay (s) | - | - | 11.2 |
| HCM Lane LOS | - | - | B |
| HCM 95th %tile Q(veh) | - | - | 0.1 |

Lanes, Volumes, Timings
3: S Loomis St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---------------------------|-------|-------|------|-------|-------|------|-------|-------|------|------|------|------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | | ↕ | | | | |
| Traffic Volume (vph) | 41 | 532 | 16 | 19 | 518 | 22 | 7 | 2 | 7 | 0 | 0 | 0 |
| Future Volume (vph) | 41 | 532 | 16 | 19 | 518 | 22 | 7 | 2 | 7 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.996 | | | 0.994 | | | 0.940 | | | | |
| Fl _t Protected | | 0.996 | | | 0.998 | | | 0.978 | | | | |
| Satd. Flow (prot) | 0 | 3511 | 0 | 0 | 3511 | 0 | 0 | 1712 | 0 | 0 | 0 | 0 |
| Fl _t Permitted | | 0.879 | | | 0.925 | | | 0.978 | | | | |
| Satd. Flow (perm) | 0 | 3099 | 0 | 0 | 3254 | 0 | 0 | 1712 | 0 | 0 | 0 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 6 | | | 9 | | | 8 | | | | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | | 30 |
| Link Distance (ft) | | 261 | | | 2694 | | | 191 | | | | 877 |
| Travel Time (s) | | 5.9 | | | 61.2 | | | 4.3 | | | | 19.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 45 | 578 | 17 | 21 | 563 | 24 | 8 | 2 | 8 | 0 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 640 | 0 | 0 | 608 | 0 | 0 | 18 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | | | |
| Minimum Split (s) | 56.0 | 56.0 | | 56.0 | 56.0 | | 29.0 | 29.0 | | | | |
| Total Split (s) | 56.0 | 56.0 | | 56.0 | 56.0 | | 29.0 | 29.0 | | | | |
| Total Split (%) | 65.9% | 65.9% | | 65.9% | 65.9% | | 34.1% | 34.1% | | | | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | | | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | | | 0.0 | | | | |
| Total Lost Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 52.0 | | | 52.0 | | | 25.0 | | | | |
| Actuated g/C Ratio | | 0.61 | | | 0.61 | | | 0.29 | | | | |
| v/c Ratio | | 0.34 | | | 0.30 | | | 0.04 | | | | |
| Control Delay | | 8.6 | | | 8.2 | | | 16.1 | | | | |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | | |
| Total Delay | | 8.6 | | | 8.2 | | | 16.1 | | | | |
| LOS | | A | | | A | | | B | | | | |
| Approach Delay | | 8.6 | | | 8.2 | | | 16.1 | | | | |
| Approach LOS | | A | | | A | | | B | | | | |
| Stops (vph) | | 265 | | | 243 | | | 9 | | | | |
| Fuel Used(gal) | | 4 | | | 14 | | | 0 | | | | |
| CO Emissions (g/hr) | | 258 | | | 980 | | | 9 | | | | |
| NOx Emissions (g/hr) | | 50 | | | 191 | | | 2 | | | | |
| VOC Emissions (g/hr) | | 60 | | | 227 | | | 2 | | | | |
| Dilemma Vehicles (#) | | 0 | | | 0 | | | 0 | | | | |
| Queue Length 50th (ft) | | 78 | | | 72 | | | 4 | | | | |
| Queue Length 95th (ft) | | 108 | | | 100 | | | 19 | | | | |
| Internal Link Dist (ft) | | 181 | | | 2614 | | | 111 | | | | 797 |

Lanes, Volumes, Timings
 3: S Loomis St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|-----|-----|
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 1898 | | | 1994 | | | 509 | | | | |
| Starvation Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Spillback Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Storage Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Reduced v/c Ratio | | 0.34 | | | 0.30 | | | 0.04 | | | | |

Intersection Summary

| | |
|-----------------------------------|---|
| Area Type: | Other |
| Cycle Length: | 85 |
| Actuated Cycle Length: | 85 |
| Offset: | 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green |
| Natural Cycle: | 85 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.34 |
| Intersection Signal Delay: | 8.5 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 65.7% |
| ICU Level of Service | C |
| Analysis Period (min) | 15 |

Splits and Phases: 3: S Loomis St & W 119th St



Lanes, Volumes, Timings
5: S Halstead St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | ↖ | ↖↗ | | ↖ | ↖↗ | | ↖ | ↖↗ | | ↖ | ↖↗ | |
| Traffic Volume (vph) | 146 | 285 | 94 | 62 | 238 | 85 | 89 | 443 | 43 | 119 | 638 | 142 |
| Future Volume (vph) | 146 | 285 | 94 | 62 | 238 | 85 | 89 | 443 | 43 | 119 | 638 | 142 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 135 | | 0 | 115 | | 0 | 120 | | 0 | 120 | | 0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.963 | | | 0.961 | | | 0.987 | | | 0.973 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1770 | 3408 | 0 | 1770 | 3401 | 0 | 1770 | 3493 | 0 | 1770 | 3444 | 0 |
| Flt Permitted | 0.497 | | | 0.442 | | | 0.192 | | | 0.372 | | |
| Satd. Flow (perm) | 926 | 3408 | 0 | 823 | 3401 | 0 | 358 | 3493 | 0 | 693 | 3444 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 51 | | | 57 | | | 13 | | | 34 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 665 | | | 675 | | | 757 | | | 907 | |
| Travel Time (s) | | 15.1 | | | 15.3 | | | 17.2 | | | 20.6 | |
| 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 |
| Adj. Flow (vph) | 159 | 310 | 102 | 67 | 259 | 92 | 97 | 482 | 47 | 129 | 693 | 154 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 159 | 412 | 0 | 67 | 351 | 0 | 97 | 529 | 0 | 129 | 847 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 10.0 | 38.0 | | 10.0 | 38.0 | |
| Total Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 10.0 | 38.0 | | 10.0 | 38.0 | |
| Total Split (%) | 11.1% | 35.6% | | 11.1% | 35.6% | | 11.1% | 42.2% | | 11.1% | 42.2% | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 0.0 | 2.0 | | 0.0 | 2.0 | | 0.0 | 1.0 | | 0.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 3.0 | 5.0 | | 3.0 | 5.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Act Effect Green (s) | 36.0 | 27.0 | | 36.0 | 27.0 | | 42.0 | 34.0 | | 42.0 | 34.0 | |
| Actuated g/C Ratio | 0.40 | 0.30 | | 0.40 | 0.30 | | 0.47 | 0.38 | | 0.47 | 0.38 | |
| v/c Ratio | 0.36 | 0.39 | | 0.17 | 0.33 | | 0.35 | 0.40 | | 0.32 | 0.64 | |
| Control Delay | 18.8 | 23.0 | | 16.2 | 21.3 | | 15.7 | 21.1 | | 14.5 | 24.7 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 18.8 | 23.0 | | 16.2 | 21.3 | | 15.7 | 21.1 | | 14.5 | 24.7 | |
| LOS | B | C | | B | C | | B | C | | B | C | |
| Approach Delay | | 21.8 | | | 20.5 | | | 20.2 | | | 23.3 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Stops (vph) | 91 | 253 | | 36 | 202 | | 46 | 334 | | 63 | 595 | |
| Fuel Used(gal) | 2 | 5 | | 1 | 4 | | 1 | 7 | | 2 | 13 | |
| CO Emissions (g/hr) | 127 | 359 | | 51 | 295 | | 74 | 476 | | 108 | 889 | |
| NOx Emissions (g/hr) | 25 | 70 | | 10 | 57 | | 14 | 93 | | 21 | 173 | |
| VOC Emissions (g/hr) | 29 | 83 | | 12 | 68 | | 17 | 110 | | 25 | 206 | |
| Dilemma Vehicles (#) | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |

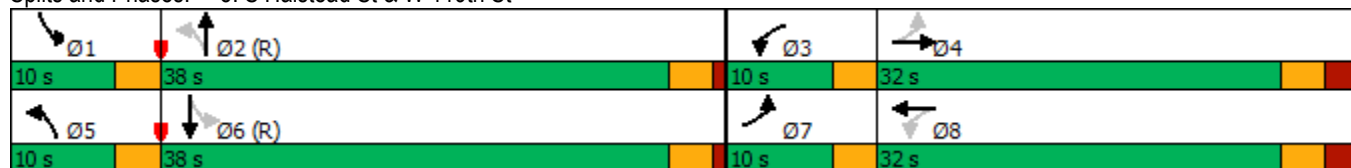


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|-----|------|------|-----|------|------|-----|------|------|-----|
| Queue Length 50th (ft) | 55 | 84 | | 22 | 66 | | 28 | 110 | | 38 | 196 | |
| Queue Length 95th (ft) | 96 | 125 | | 46 | 104 | | 54 | 154 | | 69 | 260 | |
| Internal Link Dist (ft) | | 585 | | | 595 | | | 677 | | | 827 | |
| Turn Bay Length (ft) | 135 | | | 115 | | | 120 | | | 120 | | |
| Base Capacity (vph) | 436 | 1058 | | 402 | 1060 | | 276 | 1327 | | 407 | 1322 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.36 | 0.39 | | 0.17 | 0.33 | | 0.35 | 0.40 | | 0.32 | 0.64 | |

















Intersection Summary

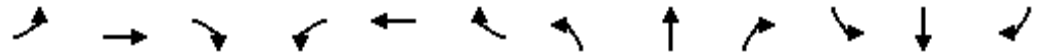
| | |
|-----------------------------------|---|
| Area Type: | Other |
| Cycle Length: | 90 |
| Actuated Cycle Length: | 90 |
| Offset: | 79.5 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |
| Natural Cycle: | 90 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.64 |
| Intersection Signal Delay: | 21.8 |
| Intersection LOS: | C |
| Intersection Capacity Utilization | 59.6% |
| ICU Level of Service | B |
| Analysis Period (min) | 15 |

Splits and Phases: 5: S Halstead St & W 119th St



Lanes, Volumes, Timings
11: S Morgan St & W 119th St

| |  |  |  |  |  |  |  |  |  |  |  |  |
|---------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Traffic Volume (vph) | 17 | 484 | 3 | 0 | 516 | 9 | 11 | 1 | 0 | 21 | 0 | 27 |
| Future Volume (vph) | 17 | 484 | 3 | 0 | 516 | 9 | 11 | 1 | 0 | 21 | 0 | 27 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.999 | | | 0.997 | | | | | | | 0.925 |
| Fl _t Protected | | 0.998 | | | | | | 0.956 | | | | 0.978 |
| Satd. Flow (prot) | 0 | 3529 | 0 | 0 | 3529 | 0 | 0 | 1781 | 0 | 0 | 1685 | 0 |
| Fl _t Permitted | | 0.933 | | | | | | 0.858 | | | | 0.912 |
| Satd. Flow (perm) | 0 | 3299 | 0 | 0 | 3529 | 0 | 0 | 1598 | 0 | 0 | 1571 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 1 | | | 4 | | | | | | | 29 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | | 30 |
| Link Distance (ft) | | 2694 | | | 317 | | | 449 | | | | 789 |
| Travel Time (s) | | 61.2 | | | 7.2 | | | 10.2 | | | | 17.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 18 | 526 | 3 | 0 | 561 | 10 | 12 | 1 | 0 | 23 | 0 | 29 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 547 | 0 | 0 | 571 | 0 | 0 | 13 | 0 | 0 | 52 | 0 |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | | 6 |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 41.0 | 41.0 | | 41.0 | 41.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (s) | 41.0 | 41.0 | | 41.0 | 41.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (%) | 63.1% | 63.1% | | 63.1% | 63.1% | | 36.9% | 36.9% | | 36.9% | 36.9% | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 37.0 | | | 37.0 | | | 20.0 | | | | 20.0 |
| Actuated g/C Ratio | | 0.57 | | | 0.57 | | | 0.31 | | | | 0.31 |
| v/c Ratio | | 0.29 | | | 0.28 | | | 0.03 | | | | 0.10 |
| Control Delay | | 7.7 | | | 7.6 | | | 16.0 | | | | 10.2 |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | | 0.0 |
| Total Delay | | 7.7 | | | 7.6 | | | 16.0 | | | | 10.2 |
| LOS | | A | | | A | | | B | | | | B |
| Approach Delay | | 7.7 | | | 7.6 | | | 16.0 | | | | 10.2 |
| Approach LOS | | A | | | A | | | B | | | | B |
| Stops (vph) | | 236 | | | 244 | | | 11 | | | | 21 |
| Fuel Used(gal) | | 13 | | | 3 | | | 0 | | | | 1 |
| CO Emissions (g/hr) | | 885 | | | 242 | | | 10 | | | | 36 |
| NOx Emissions (g/hr) | | 172 | | | 47 | | | 2 | | | | 7 |
| VOC Emissions (g/hr) | | 205 | | | 56 | | | 2 | | | | 8 |
| Dilemma Vehicles (#) | | 0 | | | 0 | | | 0 | | | | 0 |
| Queue Length 50th (ft) | | 52 | | | 54 | | | 4 | | | | 6 |
| Queue Length 95th (ft) | | 77 | | | 79 | | | 14 | | | | 28 |
| Internal Link Dist (ft) | | 2614 | | | 237 | | | 369 | | | | 709 |

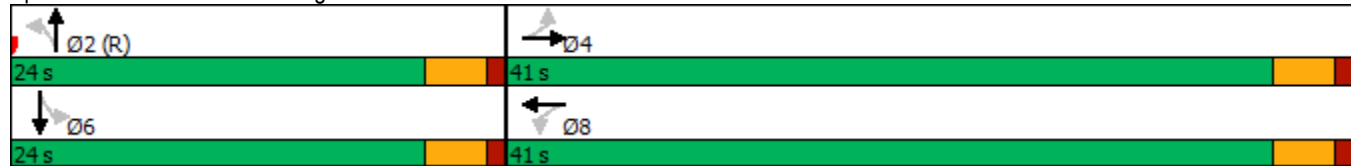


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 1878 | | | 2010 | | | 491 | | | 503 | |
| 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 | | 0.29 | | | 0.28 | | | 0.03 | | | 0.10 | |

Intersection Summary

| | |
|-----------------------------------|--|
| Area Type: | Other |
| Cycle Length: | 65 |
| Actuated Cycle Length: | 65 |
| Offset: | 32 (49%), Referenced to phase 2:NBTL, Start of Green |
| Natural Cycle: | 65 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.29 |
| Intersection Signal Delay: | 7.9 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 39.2% |
| ICU Level of Service | A |
| Analysis Period (min) | 15 |

Splits and Phases: 11: S Morgan St & W 119th St



| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|-------|------|
| Int Delay, s/veh | 0.9 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | ↔↔ | | | ↔↔ | | | ↔ | | | | |
| Traffic Vol, veh/h | 9 | 490 | 26 | 4 | 467 | 6 | 32 | 6 | 4 | 0 | 0 | 0 |
| Future Vol, veh/h | 9 | 490 | 26 | 4 | 467 | 6 | 32 | 6 | 4 | 0 | 0 | 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 | - | - | 0 | - | - | 0 | - | - | 16965 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 10 | 533 | 28 | 4 | 508 | 7 | 35 | 7 | 4 | 0 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|----------------------|--------|---|---|--------|---|---|--------|------|------|
| Conflicting Flow All | 515 | 0 | 0 | 561 | 0 | 0 | 829 | 1090 | 281 |
| Stage 1 | - | - | - | - | - | - | 567 | 567 | - |
| Stage 2 | - | - | - | - | - | - | 262 | 523 | - |
| Critical Hdwy | 4.14 | - | - | 4.14 | - | - | 6.84 | 6.54 | 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.84 | 5.54 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.84 | 5.54 | - |
| Follow-up Hdwy | 2.22 | - | - | 2.22 | - | - | 3.52 | 4.02 | 3.32 |
| Pot Cap-1 Maneuver | 1047 | - | - | 1006 | - | - | 309 | 214 | 716 |
| Stage 1 | - | - | - | - | - | - | 531 | 505 | - |
| Stage 2 | - | - | - | - | - | - | 758 | 529 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 1047 | - | - | 1006 | - | - | 303 | 0 | 716 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 303 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 520 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 758 | 0 | - |

| Approach | EB | | | WB | | | NB | | |
|----------------------|-----|--|--|-----|--|--|------|--|--|
| HCM Control Delay, s | 0.2 | | | 0.1 | | | 17.9 | | |
| HCM LOS | | | | | | | C | | |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|
| Capacity (veh/h) | 324 | 1047 | - | - | 1006 | - | - |
| HCM Lane V/C Ratio | 0.141 | 0.009 | - | - | 0.004 | - | - |
| HCM Control Delay (s) | 17.9 | 8.5 | 0.1 | - | 8.6 | 0 | - |
| HCM Lane LOS | C | A | A | - | A | A | - |
| HCM 95th %tile Q(veh) | 0.5 | 0 | - | - | 0 | - | - |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.3 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | ↑↑ | ↑↑ | | ⚡ | |
| Traffic Vol, veh/h | 0 | 512 | 518 | 0 | 15 | 8 |
| Future Vol, veh/h | 0 | 512 | 518 | 0 | 15 | 8 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 557 | 563 | 0 | 16 | 9 |

| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|---|-----------|
| Conflicting Flow All | - | 0 | - | 0 | 842 282 |
| Stage 1 | - | - | - | - | 563 - |
| Stage 2 | - | - | - | - | 279 - |
| Critical Hdwy | - | - | - | - | 6.84 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.84 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.84 - |
| Follow-up Hdwy | - | - | - | - | 3.52 3.32 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 303 715 |
| Stage 1 | 0 | - | - | 0 | 534 - |
| Stage 2 | 0 | - | - | 0 | 743 - |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | - | - | 303 715 |
| Mov Cap-2 Maneuver | - | - | - | - | 303 - |
| Stage 1 | - | - | - | - | 534 - |
| Stage 2 | - | - | - | - | 743 - |

| Approach | EB | WB | SB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 15.2 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|-----------------------|-----|-----|-------|
| Capacity (veh/h) | - | - | 379 |
| HCM Lane V/C Ratio | - | - | 0.066 |
| HCM Control Delay (s) | - | - | 15.2 |
| HCM Lane LOS | - | - | C |
| HCM 95th %tile Q(veh) | - | - | 0.2 |

Appendix C

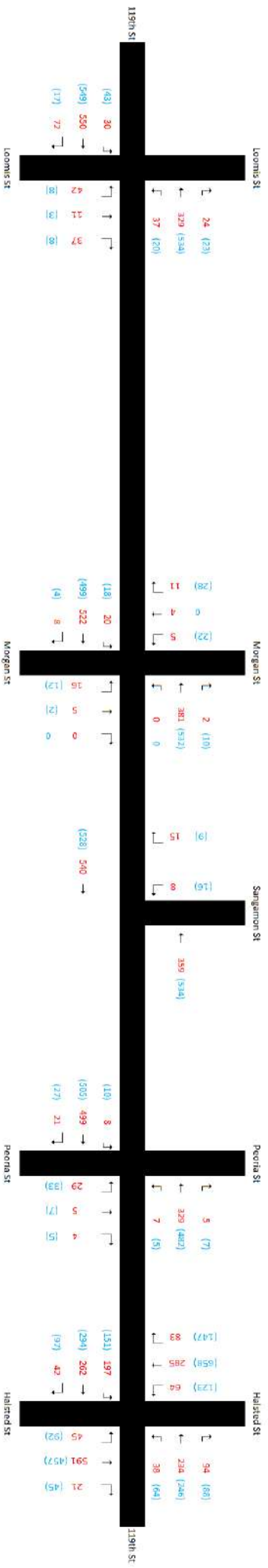
Traffic Growth Calculations

2024 No-Build, 0.5% Growth

Growth Multiplier = $(1+r)^n$

where r = assumed growth rate, n = number of years.

Each existing volume is multiplied by growth multiplier.



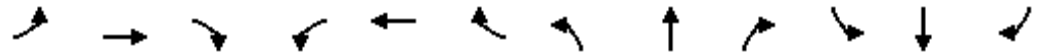
Appendix D

2023 Future No-Build Synchro Output

Lanes, Volumes, Timings
3: S Loomis St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---------------------------|-------|-------|------|-------|-------|------|-------|-------|------|------|------|------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | | ↕ | | | | |
| Traffic Volume (vph) | 30 | 550 | 72 | 37 | 329 | 24 | 42 | 11 | 37 | 0 | 0 | 0 |
| Future Volume (vph) | 30 | 550 | 72 | 37 | 329 | 24 | 42 | 11 | 37 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.983 | | | 0.991 | | | 0.945 | | | | |
| Fl _t Protected | | 0.998 | | | 0.995 | | | 0.977 | | | | |
| Satd. Flow (prot) | 0 | 3472 | 0 | 0 | 3490 | 0 | 0 | 1720 | 0 | 0 | 0 | 0 |
| Fl _t Permitted | | 0.921 | | | 0.853 | | | 0.977 | | | | |
| Satd. Flow (perm) | 0 | 3204 | 0 | 0 | 2992 | 0 | 0 | 1720 | 0 | 0 | 0 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 29 | | | 14 | | | 40 | | | | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | | 30 |
| Link Distance (ft) | | 261 | | | 2694 | | | 191 | | | | 877 |
| Travel Time (s) | | 5.9 | | | 61.2 | | | 4.3 | | | | 19.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 33 | 598 | 78 | 40 | 358 | 26 | 46 | 12 | 40 | 0 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 709 | 0 | 0 | 424 | 0 | 0 | 98 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | | | |
| Minimum Split (s) | 56.0 | 56.0 | | 56.0 | 56.0 | | 29.0 | 29.0 | | | | |
| Total Split (s) | 56.0 | 56.0 | | 56.0 | 56.0 | | 29.0 | 29.0 | | | | |
| Total Split (%) | 65.9% | 65.9% | | 65.9% | 65.9% | | 34.1% | 34.1% | | | | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | | | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | | | 0.0 | | | | |
| Total Lost Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 52.0 | | | 52.0 | | | 25.0 | | | | |
| Actuated g/C Ratio | | 0.61 | | | 0.61 | | | 0.29 | | | | |
| v/c Ratio | | 0.36 | | | 0.23 | | | 0.18 | | | | |
| Control Delay | | 8.5 | | | 7.6 | | | 15.2 | | | | |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | | |
| Total Delay | | 8.5 | | | 7.6 | | | 15.2 | | | | |
| LOS | | A | | | A | | | B | | | | |
| Approach Delay | | 8.5 | | | 7.6 | | | 15.2 | | | | |
| Approach LOS | | A | | | A | | | B | | | | |
| Stops (vph) | | 287 | | | 157 | | | 41 | | | | |
| Fuel Used(gal) | | 4 | | | 10 | | | 1 | | | | |
| CO Emissions (g/hr) | | 282 | | | 675 | | | 45 | | | | |
| NOx Emissions (g/hr) | | 55 | | | 131 | | | 9 | | | | |
| VOC Emissions (g/hr) | | 65 | | | 157 | | | 10 | | | | |
| Dilemma Vehicles (#) | | 0 | | | 0 | | | 0 | | | | |
| Queue Length 50th (ft) | | 85 | | | 46 | | | 23 | | | | |
| Queue Length 95th (ft) | | 117 | | | 68 | | | 59 | | | | |
| Internal Link Dist (ft) | | 181 | | | 2614 | | | 111 | | | | 797 |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|-----|-----|
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 1971 | | | 1835 | | | 534 | | | | |
| Starvation Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Spillback Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Storage Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Reduced v/c Ratio | | 0.36 | | | 0.23 | | | 0.18 | | | | |





















Intersection Summary

| | |
|-----------------------------------|---|
| Area Type: | Other |
| Cycle Length: | 85 |
| Actuated Cycle Length: | 85 |
| Offset: | 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green |
| Natural Cycle: | 85 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.36 |
| Intersection Signal Delay: | 8.7 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 59.2% |
| ICU Level of Service | B |
| Analysis Period (min) | 15 |

Splits and Phases: 3: S Loomis St & W 119th St



Lanes, Volumes, Timings
5: S Halstead St & W 119th St

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  | |  |  | |  |  | |
| Traffic Volume (vph) | 197 | 262 | 42 | 38 | 234 | 94 | 45 | 591 | 21 | 64 | 285 | 83 |
| Future Volume (vph) | 197 | 262 | 42 | 38 | 234 | 94 | 45 | 591 | 21 | 64 | 285 | 83 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 135 | | 0 | 115 | | 0 | 120 | | 0 | 120 | | 0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.979 | | | 0.957 | | | 0.995 | | | 0.966 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1770 | 3465 | 0 | 1770 | 3387 | 0 | 1770 | 3522 | 0 | 1770 | 3419 | 0 |
| Flt Permitted | 0.493 | | | 0.516 | | | 0.464 | | | 0.287 | | |
| Satd. Flow (perm) | 918 | 3465 | 0 | 961 | 3387 | 0 | 864 | 3522 | 0 | 535 | 3419 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 21 | | | 69 | | | 5 | | | 48 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 665 | | | 675 | | | 757 | | | 907 | |
| Travel Time (s) | | 15.1 | | | 15.3 | | | 17.2 | | | 20.6 | |
| 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 |
| Adj. Flow (vph) | 214 | 285 | 46 | 41 | 254 | 102 | 49 | 642 | 23 | 70 | 310 | 90 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 214 | 331 | 0 | 41 | 356 | 0 | 49 | 665 | 0 | 70 | 400 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 10.0 | 38.0 | | 10.0 | 38.0 | |
| Total Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 10.0 | 38.0 | | 10.0 | 38.0 | |
| Total Split (%) | 11.1% | 35.6% | | 11.1% | 35.6% | | 11.1% | 42.2% | | 11.1% | 42.2% | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 0.0 | 2.0 | | 0.0 | 2.0 | | 0.0 | 1.0 | | 0.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 3.0 | 5.0 | | 3.0 | 5.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Act Effect Green (s) | 36.0 | 27.0 | | 36.0 | 27.0 | | 42.0 | 34.0 | | 42.0 | 34.0 | |
| Actuated g/C Ratio | 0.40 | 0.30 | | 0.40 | 0.30 | | 0.47 | 0.38 | | 0.47 | 0.38 | |
| v/c Ratio | 0.49 | 0.31 | | 0.09 | 0.33 | | 0.10 | 0.50 | | 0.20 | 0.30 | |
| Control Delay | 21.6 | 23.7 | | 15.5 | 20.6 | | 12.2 | 22.9 | | 13.3 | 17.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 21.6 | 23.7 | | 15.5 | 20.6 | | 12.2 | 22.9 | | 13.3 | 17.9 | |
| LOS | C | C | | B | C | | B | C | | B | B | |
| Approach Delay | | 22.9 | | | 20.0 | | | 22.2 | | | 17.2 | |
| Approach LOS | | C | | | C | | | C | | | B | |
| Stops (vph) | 133 | 214 | | 23 | 198 | | 24 | 447 | | 32 | 218 | |
| Fuel Used(gal) | 3 | 4 | | 0 | 4 | | 1 | 9 | | 1 | 5 | |
| CO Emissions (g/hr) | 183 | 296 | | 31 | 293 | | 36 | 625 | | 56 | 360 | |
| NOx Emissions (g/hr) | 36 | 58 | | 6 | 57 | | 7 | 122 | | 11 | 70 | |
| VOC Emissions (g/hr) | 43 | 69 | | 7 | 68 | | 8 | 145 | | 13 | 83 | |
| Dilemma Vehicles (#) | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |

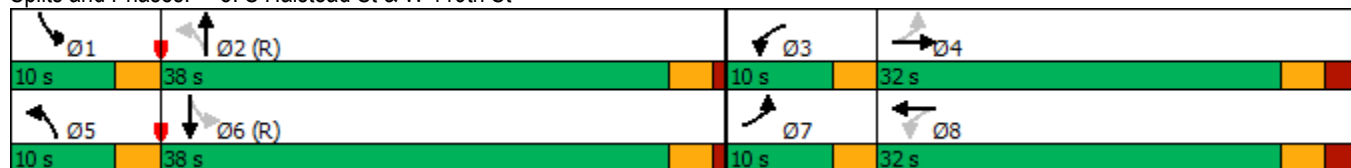


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|-----|------|------|-----|------|------|-----|------|------|-----|
| Queue Length 50th (ft) | 76 | 71 | | 13 | 65 | | 14 | 148 | | 20 | 71 | |
| Queue Length 95th (ft) | 126 | 107 | | 32 | 102 | | 32 | 200 | | 42 | 107 | |
| Internal Link Dist (ft) | | 585 | | | 595 | | | 677 | | | 827 | |
| Turn Bay Length (ft) | 135 | | | 115 | | | 120 | | | 120 | | |
| Base Capacity (vph) | 433 | 1054 | | 447 | 1064 | | 473 | 1333 | | 345 | 1321 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.49 | 0.31 | | 0.09 | 0.33 | | 0.10 | 0.50 | | 0.20 | 0.30 | |

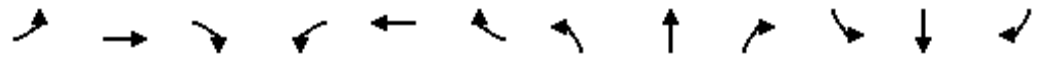
Intersection Summary

| | |
|-----------------------------------|---|
| Area Type: | Other |
| Cycle Length: | 90 |
| Actuated Cycle Length: | 90 |
| Offset: | 79.5 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |
| Natural Cycle: | 90 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.50 |
| Intersection Signal Delay: | 20.9 |
| Intersection LOS: | C |
| Intersection Capacity Utilization | 57.4% |
| ICU Level of Service | B |
| Analysis Period (min) | 15 |

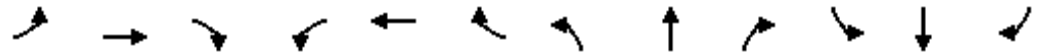
Splits and Phases: 5: S Halstead St & W 119th St



Lanes, Volumes, Timings
11: S Morgan St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|-------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | | ↕ | | | ↕ | |
| Traffic Volume (vph) | 20 | 522 | 8 | 0 | 381 | 2 | 16 | 5 | 0 | 5 | 4 | 11 |
| Future Volume (vph) | 20 | 522 | 8 | 0 | 381 | 2 | 16 | 5 | 0 | 5 | 4 | 11 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.998 | | | 0.999 | | | | | | | 0.923 |
| Fl _t Protected | | 0.998 | | | | | | 0.963 | | | | 0.988 |
| Satd. Flow (prot) | 0 | 3525 | 0 | 0 | 3536 | 0 | 0 | 1794 | 0 | 0 | 1699 | 0 |
| Fl _t Permitted | | 0.935 | | | | | | 0.872 | | | | 0.967 |
| Satd. Flow (perm) | 0 | 3303 | 0 | 0 | 3536 | 0 | 0 | 1624 | 0 | 0 | 1663 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 1 | | | | | | | 12 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | | 30 |
| Link Distance (ft) | | 2694 | | | 317 | | | 449 | | | | 789 |
| Travel Time (s) | | 61.2 | | | 7.2 | | | 10.2 | | | | 17.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 22 | 567 | 9 | 0 | 414 | 2 | 17 | 5 | 0 | 5 | 4 | 12 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 598 | 0 | 0 | 416 | 0 | 0 | 22 | 0 | 0 | 21 | 0 |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | | 6 |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 41.0 | 41.0 | | 41.0 | 41.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (s) | 41.0 | 41.0 | | 41.0 | 41.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (%) | 63.1% | 63.1% | | 63.1% | 63.1% | | 36.9% | 36.9% | | 36.9% | 36.9% | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 37.0 | | | 37.0 | | | 20.0 | | | | 20.0 |
| Actuated g/C Ratio | | 0.57 | | | 0.57 | | | 0.31 | | | | 0.31 |
| v/c Ratio | | 0.32 | | | 0.21 | | | 0.04 | | | | 0.04 |
| Control Delay | | 7.9 | | | 7.1 | | | 16.2 | | | | 11.2 |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | | 0.0 |
| Total Delay | | 7.9 | | | 7.1 | | | 16.2 | | | | 11.2 |
| LOS | | A | | | A | | | B | | | | B |
| Approach Delay | | 7.9 | | | 7.1 | | | 16.2 | | | | 11.2 |
| Approach LOS | | A | | | A | | | B | | | | B |
| Stops (vph) | | 261 | | | 169 | | | 16 | | | | 11 |
| Fuel Used(gal) | | 14 | | | 2 | | | 0 | | | | 0 |
| CO Emissions (g/hr) | | 970 | | | 170 | | | 16 | | | | 15 |
| NOx Emissions (g/hr) | | 189 | | | 33 | | | 3 | | | | 3 |
| VOC Emissions (g/hr) | | 225 | | | 39 | | | 4 | | | | 4 |
| Dilemma Vehicles (#) | | 0 | | | 0 | | | 0 | | | | 0 |
| Queue Length 50th (ft) | | 58 | | | 37 | | | 6 | | | | 2 |
| Queue Length 95th (ft) | | 85 | | | 57 | | | 20 | | | | 16 |
| Internal Link Dist (ft) | | 2614 | | | 237 | | | 369 | | | | 709 |

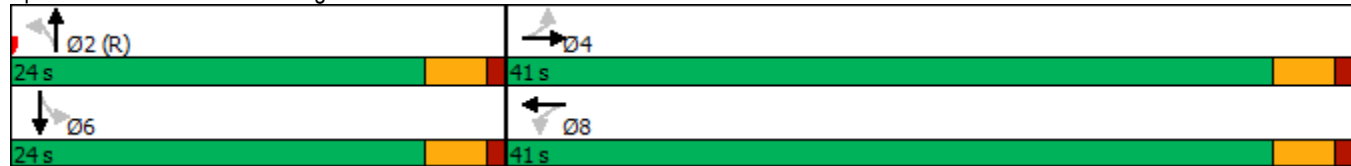


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 1881 | | | 2013 | | | 499 | | | 520 | |
| 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 | | 0.32 | | | 0.21 | | | 0.04 | | | 0.04 | |

Intersection Summary

| | |
|-----------------------------------|--|
| Area Type: | Other |
| Cycle Length: | 65 |
| Actuated Cycle Length: | 65 |
| Offset: | 32 (49%), Referenced to phase 2:NBTL, Start of Green |
| Natural Cycle: | 65 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.32 |
| Intersection Signal Delay: | 7.8 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 42.5% |
| ICU Level of Service | A |
| Analysis Period (min) | 15 |

Splits and Phases: 11: S Morgan St & W 119th St



| 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 | 8 | 499 | 21 | 7 | 329 | 5 | 29 | 5 | 4 | 0 | 0 | 0 |
| Future Vol, veh/h | 8 | 499 | 21 | 7 | 329 | 5 | 29 | 5 | 4 | 0 | 0 | 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 | - | - | 0 | - | - | 0 | - | - | 16965 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 9 | 542 | 23 | 8 | 358 | 5 | 32 | 5 | 4 | 0 | 0 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor1 | | | |
|----------------------|--------|---|--------|------|--------|---|------|-----------|
| Conflicting Flow All | 363 | 0 | 0 | 565 | 0 | 0 | 767 | 951 283 |
| Stage 1 | - | - | - | - | - | - | 572 | 572 - |
| Stage 2 | - | - | - | - | - | - | 195 | 379 - |
| Critical Hdwy | 4.14 | - | - | 4.14 | - | - | 6.84 | 6.54 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.84 | 5.54 - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.84 | 5.54 - |
| Follow-up Hdwy | 2.22 | - | - | 2.22 | - | - | 3.52 | 4.02 3.32 |
| Pot Cap-1 Maneuver | 1192 | - | - | 1003 | - | - | 339 | 258 714 |
| Stage 1 | - | - | - | - | - | - | 528 | 502 - |
| Stage 2 | - | - | - | - | - | - | 819 | 613 - |
| Platoon blocked, % | | - | - | | - | - | | |
| Mov Cap-1 Maneuver | 1192 | - | - | 1003 | - | - | 332 | 0 714 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 332 | 0 - |
| Stage 1 | - | - | - | - | - | - | 517 | 0 - |
| Stage 2 | - | - | - | - | - | - | 819 | 0 - |

| Approach | EB | WB | NB |
|----------------------|-----|-----|------|
| HCM Control Delay, s | 0.1 | 0.2 | 16.5 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|
| Capacity (veh/h) | 355 | 1192 | - | - | 1003 | - | - |
| HCM Lane V/C Ratio | 0.116 | 0.007 | - | - | 0.008 | - | - |
| HCM Control Delay (s) | 16.5 | 8 | 0 | - | 8.6 | 0 | - |
| HCM Lane LOS | C | A | A | - | A | A | - |
| HCM 95th %tile Q(veh) | 0.4 | 0 | - | - | 0 | - | - |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.3 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | ↑↑ | ↑↑ | | ↑ | |
| Traffic Vol, veh/h | 0 | 540 | 359 | 0 | 8 | 15 |
| Future Vol, veh/h | 0 | 540 | 359 | 0 | 8 | 15 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 587 | 390 | 0 | 9 | 16 |

| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|---|-----------|
| Conflicting Flow All | - | 0 | - | 0 | 684 195 |
| Stage 1 | - | - | - | - | 390 - |
| Stage 2 | - | - | - | - | 294 - |
| Critical Hdwy | - | - | - | - | 6.84 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.84 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.84 - |
| Follow-up Hdwy | - | - | - | - | 3.52 3.32 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 382 814 |
| Stage 1 | 0 | - | - | 0 | 653 - |
| Stage 2 | 0 | - | - | 0 | 730 - |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | - | - | 382 814 |
| Mov Cap-2 Maneuver | - | - | - | - | 382 - |
| Stage 1 | - | - | - | - | 653 - |
| Stage 2 | - | - | - | - | 730 - |

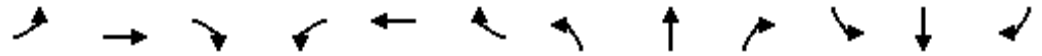
| Approach | EB | WB | SB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 11.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|-----------------------|-----|-----|-------|
| Capacity (veh/h) | - | - | 584 |
| HCM Lane V/C Ratio | - | - | 0.043 |
| HCM Control Delay (s) | - | - | 11.4 |
| HCM Lane LOS | - | - | B |
| HCM 95th %tile Q(veh) | - | - | 0.1 |

Lanes, Volumes, Timings
3: S Loomis St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---------------------------|-------|-------|------|-------|-------|------|-------|-------|------|------|------|------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | | ↕ | | | | |
| Traffic Volume (vph) | 43 | 549 | 17 | 20 | 534 | 23 | 8 | 3 | 8 | 0 | 0 | 0 |
| Future Volume (vph) | 43 | 549 | 17 | 20 | 534 | 23 | 8 | 3 | 8 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.996 | | | 0.994 | | | 0.942 | | | | |
| Fl _t Protected | | 0.996 | | | 0.998 | | | 0.979 | | | | |
| Satd. Flow (prot) | 0 | 3511 | 0 | 0 | 3511 | 0 | 0 | 1718 | 0 | 0 | 0 | 0 |
| Fl _t Permitted | | 0.874 | | | 0.923 | | | 0.979 | | | | |
| Satd. Flow (perm) | 0 | 3081 | 0 | 0 | 3247 | 0 | 0 | 1718 | 0 | 0 | 0 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 6 | | | 9 | | | 9 | | | | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | | 30 |
| Link Distance (ft) | | 261 | | | 2694 | | | 191 | | | | 877 |
| Travel Time (s) | | 5.9 | | | 61.2 | | | 4.3 | | | | 19.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 47 | 597 | 18 | 22 | 580 | 25 | 9 | 3 | 9 | 0 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 662 | 0 | 0 | 627 | 0 | 0 | 21 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | | | |
| Minimum Split (s) | 56.0 | 56.0 | | 56.0 | 56.0 | | 29.0 | 29.0 | | | | |
| Total Split (s) | 56.0 | 56.0 | | 56.0 | 56.0 | | 29.0 | 29.0 | | | | |
| Total Split (%) | 65.9% | 65.9% | | 65.9% | 65.9% | | 34.1% | 34.1% | | | | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | | | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | | | 0.0 | | | | |
| Total Lost Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 52.0 | | | 52.0 | | | 25.0 | | | | |
| Actuated g/C Ratio | | 0.61 | | | 0.61 | | | 0.29 | | | | |
| v/c Ratio | | 0.35 | | | 0.32 | | | 0.04 | | | | |
| Control Delay | | 8.7 | | | 8.3 | | | 16.1 | | | | |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | | |
| Total Delay | | 8.7 | | | 8.3 | | | 16.1 | | | | |
| LOS | | A | | | A | | | B | | | | |
| Approach Delay | | 8.7 | | | 8.3 | | | 16.1 | | | | |
| Approach LOS | | A | | | A | | | B | | | | |
| Stops (vph) | | 276 | | | 253 | | | 12 | | | | |
| Fuel Used(gal) | | 4 | | | 14 | | | 0 | | | | |
| CO Emissions (g/hr) | | 269 | | | 1013 | | | 11 | | | | |
| NOx Emissions (g/hr) | | 52 | | | 197 | | | 2 | | | | |
| VOC Emissions (g/hr) | | 62 | | | 235 | | | 3 | | | | |
| Dilemma Vehicles (#) | | 0 | | | 0 | | | 0 | | | | |
| Queue Length 50th (ft) | | 82 | | | 75 | | | 5 | | | | |
| Queue Length 95th (ft) | | 113 | | | 104 | | | 21 | | | | |
| Internal Link Dist (ft) | | 181 | | | 2614 | | | 111 | | | | 797 |



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|-----|-----|
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 1887 | | | 1989 | | | 511 | | | | |
| Starvation Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Spillback Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Storage Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Reduced v/c Ratio | | 0.35 | | | 0.32 | | | 0.04 | | | | |





















Intersection Summary

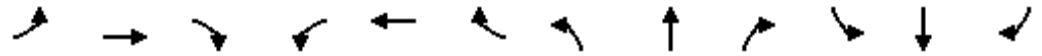
| | |
|-----------------------------------|---|
| Area Type: | Other |
| Cycle Length: | 85 |
| Actuated Cycle Length: | 85 |
| Offset: | 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green |
| Natural Cycle: | 85 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.35 |
| Intersection Signal Delay: | 8.6 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 67.7% |
| ICU Level of Service | C |
| Analysis Period (min) | 15 |

Splits and Phases: 3: S Loomis St & W 119th St



Lanes, Volumes, Timings
5: S Halstead St & W 119th St

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  | |  |  | |  |  | |
| Traffic Volume (vph) | 147 | 287 | 95 | 63 | 240 | 86 | 90 | 446 | 44 | 120 | 642 | 143 |
| Future Volume (vph) | 147 | 287 | 95 | 63 | 240 | 86 | 90 | 446 | 44 | 120 | 642 | 143 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 135 | | 0 | 115 | | 0 | 120 | | 0 | 120 | | 0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.963 | | | 0.961 | | | 0.986 | | | 0.973 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1770 | 3408 | 0 | 1770 | 3401 | 0 | 1770 | 3490 | 0 | 1770 | 3444 | 0 |
| Flt Permitted | 0.494 | | | 0.439 | | | 0.189 | | | 0.369 | | |
| Satd. Flow (perm) | 920 | 3408 | 0 | 818 | 3401 | 0 | 352 | 3490 | 0 | 687 | 3444 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 51 | | | 57 | | | 13 | | | 34 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 665 | | | 675 | | | 757 | | | 907 | |
| Travel Time (s) | | 15.1 | | | 15.3 | | | 17.2 | | | 20.6 | |
| 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 |
| Adj. Flow (vph) | 160 | 312 | 103 | 68 | 261 | 93 | 98 | 485 | 48 | 130 | 698 | 155 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 160 | 415 | 0 | 68 | 354 | 0 | 98 | 533 | 0 | 130 | 853 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 10.0 | 38.0 | | 10.0 | 38.0 | |
| Total Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 10.0 | 38.0 | | 10.0 | 38.0 | |
| Total Split (%) | 11.1% | 35.6% | | 11.1% | 35.6% | | 11.1% | 42.2% | | 11.1% | 42.2% | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 0.0 | 2.0 | | 0.0 | 2.0 | | 0.0 | 1.0 | | 0.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 3.0 | 5.0 | | 3.0 | 5.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Act Effect Green (s) | 36.0 | 27.0 | | 36.0 | 27.0 | | 42.0 | 34.0 | | 42.0 | 34.0 | |
| Actuated g/C Ratio | 0.40 | 0.30 | | 0.40 | 0.30 | | 0.47 | 0.38 | | 0.47 | 0.38 | |
| v/c Ratio | 0.37 | 0.39 | | 0.17 | 0.33 | | 0.36 | 0.40 | | 0.32 | 0.65 | |
| Control Delay | 18.9 | 23.1 | | 16.3 | 21.4 | | 15.8 | 21.1 | | 14.5 | 24.8 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 18.9 | 23.1 | | 16.3 | 21.4 | | 15.8 | 21.1 | | 14.5 | 24.8 | |
| LOS | B | C | | B | C | | B | C | | B | C | |
| Approach Delay | | 21.9 | | | 20.6 | | | 20.3 | | | 23.4 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Stops (vph) | 92 | 257 | | 37 | 204 | | 46 | 336 | | 63 | 600 | |
| Fuel Used(gal) | 2 | 5 | | 1 | 4 | | 1 | 7 | | 2 | 13 | |
| CO Emissions (g/hr) | 128 | 363 | | 52 | 298 | | 75 | 479 | | 108 | 897 | |
| NOx Emissions (g/hr) | 25 | 71 | | 10 | 58 | | 15 | 93 | | 21 | 175 | |
| VOC Emissions (g/hr) | 30 | 84 | | 12 | 69 | | 17 | 111 | | 25 | 208 | |
| Dilemma Vehicles (#) | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |

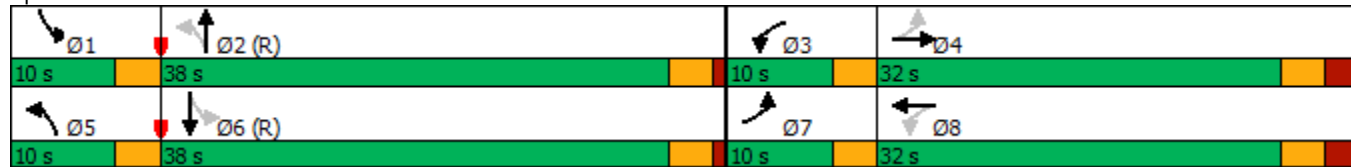


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|-----|------|------|-----|------|------|-----|------|------|-----|
| Queue Length 50th (ft) | 55 | 85 | | 22 | 67 | | 28 | 111 | | 38 | 198 | |
| Queue Length 95th (ft) | 97 | 126 | | 47 | 105 | | 55 | 155 | | 69 | 262 | |
| Internal Link Dist (ft) | | 585 | | | 595 | | | 677 | | | 827 | |
| Turn Bay Length (ft) | 135 | | | 115 | | | 120 | | | 120 | | |
| Base Capacity (vph) | 434 | 1058 | | 401 | 1060 | | 274 | 1326 | | 404 | 1322 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.37 | 0.39 | | 0.17 | 0.33 | | 0.36 | 0.40 | | 0.32 | 0.65 | |

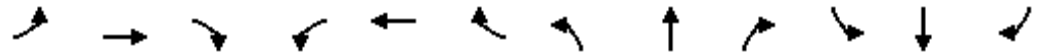
Intersection Summary

| | |
|-----------------------------------|---|
| Area Type: | Other |
| Cycle Length: | 90 |
| Actuated Cycle Length: | 90 |
| Offset: | 79.5 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |
| Natural Cycle: | 90 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.65 |
| Intersection Signal Delay: | 21.9 |
| Intersection LOS: | C |
| Intersection Capacity Utilization | 59.8% |
| ICU Level of Service | B |
| Analysis Period (min) | 15 |

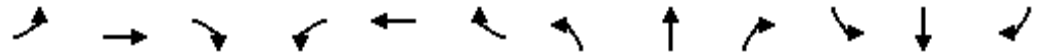
Splits and Phases: 5: S Halstead St & W 119th St



Lanes, Volumes, Timings
11: S Morgan St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|-------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | | ↕ | | | ↕ | |
| Traffic Volume (vph) | 18 | 487 | 4 | 0 | 519 | 10 | 12 | 2 | 0 | 22 | 0 | 28 |
| Future Volume (vph) | 18 | 487 | 4 | 0 | 519 | 10 | 12 | 2 | 0 | 22 | 0 | 28 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr't | | 0.999 | | | 0.997 | | | | | | | 0.925 |
| Flt Protected | | 0.998 | | | | | | 0.958 | | | | 0.978 |
| Satd. Flow (prot) | 0 | 3529 | 0 | 0 | 3529 | 0 | 0 | 1785 | 0 | 0 | 1685 | 0 |
| Flt Permitted | | 0.930 | | | | | | 0.860 | | | | 0.910 |
| Satd. Flow (perm) | 0 | 3288 | 0 | 0 | 3529 | 0 | 0 | 1602 | 0 | 0 | 1568 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 2 | | | 5 | | | | | | | 30 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | | 30 |
| Link Distance (ft) | | 2694 | | | 317 | | | 449 | | | | 789 |
| Travel Time (s) | | 61.2 | | | 7.2 | | | 10.2 | | | | 17.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 20 | 529 | 4 | 0 | 564 | 11 | 13 | 2 | 0 | 24 | 0 | 30 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 553 | 0 | 0 | 575 | 0 | 0 | 15 | 0 | 0 | 54 | 0 |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | | 6 |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 41.0 | 41.0 | | 41.0 | 41.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (s) | 41.0 | 41.0 | | 41.0 | 41.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (%) | 63.1% | 63.1% | | 63.1% | 63.1% | | 36.9% | 36.9% | | 36.9% | 36.9% | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 37.0 | | | 37.0 | | | 20.0 | | | | 20.0 |
| Actuated g/C Ratio | | 0.57 | | | 0.57 | | | 0.31 | | | | 0.31 |
| v/c Ratio | | 0.30 | | | 0.29 | | | 0.03 | | | | 0.11 |
| Control Delay | | 7.7 | | | 7.6 | | | 16.1 | | | | 10.2 |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | | 0.0 |
| Total Delay | | 7.7 | | | 7.6 | | | 16.1 | | | | 10.2 |
| LOS | | A | | | A | | | B | | | | B |
| Approach Delay | | 7.7 | | | 7.6 | | | 16.1 | | | | 10.2 |
| Approach LOS | | A | | | A | | | B | | | | B |
| Stops (vph) | | 239 | | | 246 | | | 12 | | | | 21 |
| Fuel Used(gal) | | 13 | | | 3 | | | 0 | | | | 1 |
| CO Emissions (g/hr) | | 896 | | | 244 | | | 11 | | | | 37 |
| NOx Emissions (g/hr) | | 174 | | | 47 | | | 2 | | | | 7 |
| VOC Emissions (g/hr) | | 208 | | | 56 | | | 3 | | | | 9 |
| Dilemma Vehicles (#) | | 0 | | | 0 | | | 0 | | | | 0 |
| Queue Length 50th (ft) | | 53 | | | 54 | | | 4 | | | | 7 |
| Queue Length 95th (ft) | | 78 | | | 80 | | | 16 | | | | 29 |
| Internal Link Dist (ft) | | 2614 | | | 237 | | | 369 | | | | 709 |

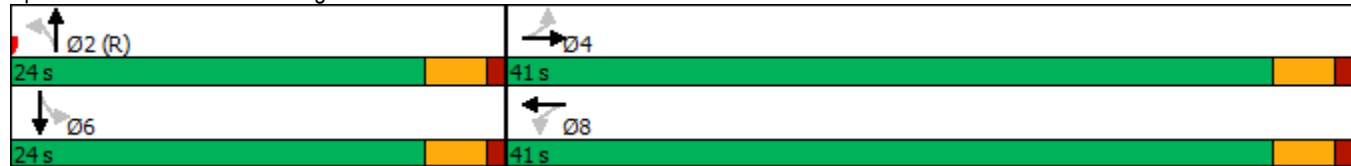


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 1872 | | | 2010 | | | 492 | | | 503 | |
| 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 | | 0.30 | | | 0.29 | | | 0.03 | | | 0.11 | |

Intersection Summary

| | |
|-----------------------------------|--|
| Area Type: | Other |
| Cycle Length: | 65 |
| Actuated Cycle Length: | 65 |
| Offset: | 32 (49%), Referenced to phase 2:NBTL, Start of Green |
| Natural Cycle: | 65 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.30 |
| Intersection Signal Delay: | 7.9 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 40.0% |
| ICU Level of Service | A |
| Analysis Period (min) | 15 |

Splits and Phases: 11: S Morgan St & W 119th St



| 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 | 10 | 493 | 27 | 5 | 470 | 7 | 33 | 7 | 5 | 0 | 0 | 0 |
| Future Vol, veh/h | 10 | 493 | 27 | 5 | 470 | 7 | 33 | 7 | 5 | 0 | 0 | 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 | - | - | 0 | - | - | 0 | - | - | 16965 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 11 | 536 | 29 | 5 | 511 | 8 | 36 | 8 | 5 | 0 | 0 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor1 | | | | |
|----------------------|--------|---|--------|------|--------|---|------|------|------|
| Conflicting Flow All | 519 | 0 | 0 | 565 | 0 | 0 | 839 | 1102 | 283 |
| Stage 1 | - | - | - | - | - | - | 573 | 573 | - |
| Stage 2 | - | - | - | - | - | - | 266 | 529 | - |
| Critical Hdwy | 4.14 | - | - | 4.14 | - | - | 6.84 | 6.54 | 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.84 | 5.54 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.84 | 5.54 | - |
| Follow-up Hdwy | 2.22 | - | - | 2.22 | - | - | 3.52 | 4.02 | 3.32 |
| Pot Cap-1 Maneuver | 1043 | - | - | 1003 | - | - | 304 | 210 | 714 |
| Stage 1 | - | - | - | - | - | - | 527 | 502 | - |
| Stage 2 | - | - | - | - | - | - | 754 | 525 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 1043 | - | - | 1003 | - | - | 297 | 0 | 714 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 297 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 515 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 754 | 0 | - |

| Approach | EB | WB | NB |
|----------------------|-----|-----|------|
| HCM Control Delay, s | 0.3 | 0.1 | 18.2 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR |
|-----------------------|-------|------|-----|-----|-------|-----|-----|
| Capacity (veh/h) | 322 | 1043 | - | - | 1003 | - | - |
| HCM Lane V/C Ratio | 0.152 | 0.01 | - | - | 0.005 | - | - |
| HCM Control Delay (s) | 18.2 | 8.5 | 0.1 | - | 8.6 | 0 | - |
| HCM Lane LOS | C | A | A | - | A | A | - |
| HCM 95th %tile Q(veh) | 0.5 | 0 | - | - | 0 | - | - |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.4 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | ↑↑ | ↑↑ | | ⚡ | |
| Traffic Vol, veh/h | 0 | 515 | 521 | 0 | 16 | 9 |
| Future Vol, veh/h | 0 | 515 | 521 | 0 | 16 | 9 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 560 | 566 | 0 | 17 | 10 |

| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|---|-----------|
| Conflicting Flow All | - | 0 | - | 0 | 846 283 |
| Stage 1 | - | - | - | - | 566 - |
| Stage 2 | - | - | - | - | 280 - |
| Critical Hdwy | - | - | - | - | 6.84 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.84 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.84 - |
| Follow-up Hdwy | - | - | - | - | 3.52 3.32 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 301 714 |
| Stage 1 | 0 | - | - | 0 | 532 - |
| Stage 2 | 0 | - | - | 0 | 742 - |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | - | - | 301 714 |
| Mov Cap-2 Maneuver | - | - | - | - | 301 - |
| Stage 1 | - | - | - | - | 532 - |
| Stage 2 | - | - | - | - | 742 - |

| Approach | EB | WB | SB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 15.2 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|-----------------------|-----|-----|-------|
| Capacity (veh/h) | - | - | 380 |
| HCM Lane V/C Ratio | - | - | 0.072 |
| HCM Control Delay (s) | - | - | 15.2 |
| HCM Lane LOS | - | - | C |
| HCM 95th %tile Q(veh) | - | - | 0.2 |

Appendix E

Trip Generation Calculations

Fire and Rescue Station (575)

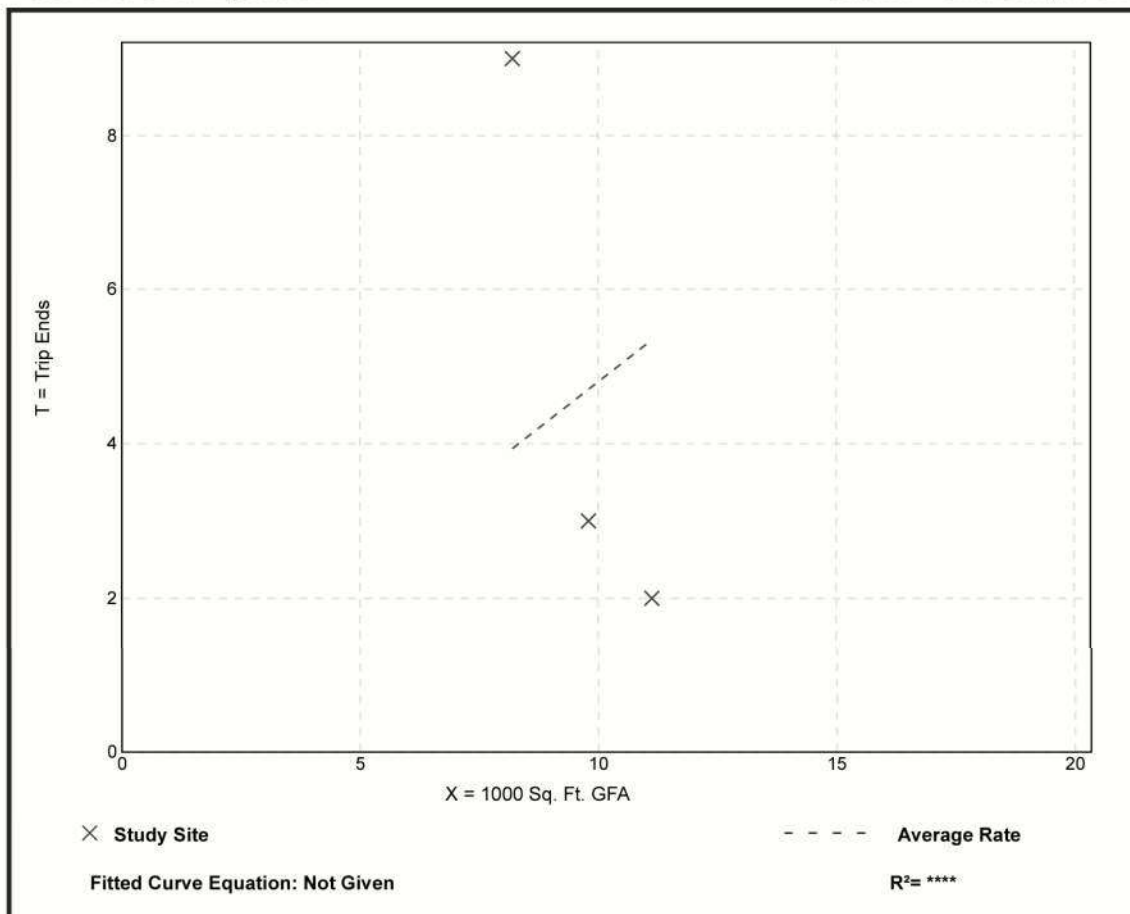
Vehicle Trip Ends vs: 1000 Sq. Ft. GFA
On a: Weekday,
 Peak Hour of Adjacent Street Traffic,
 One Hour Between 4 and 6 p.m.
Setting/Location: General Urban/Suburban
 Number of Studies: 3
 1000 Sq. Ft. GFA: 10
 Directional Distribution: 29% entering, 71% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

| Average Rate | Range of Rates | Standard Deviation |
|--------------|----------------|--------------------|
| 0.48 | 0.18 - 1.10 | 0.82 |

Data Plot and Equation

Caution – Small Sample Size

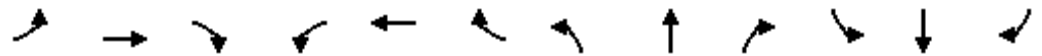


Appendix F

Opening Day Synchro Output

Lanes, Volumes, Timings
3: S Loomis St & W 119th St

EC 115 Opening Day AM Traffic.syn
11/20/2018



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---------------------------|-------|-------|------|-------|-------|------|-------|-------|------|------|------|------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | | ↕ | | | | |
| Traffic Volume (vph) | 30 | 548 | 70 | 36 | 332 | 24 | 41 | 11 | 36 | 0 | 0 | 0 |
| Future Volume (vph) | 30 | 548 | 70 | 36 | 332 | 24 | 41 | 11 | 36 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.984 | | | 0.991 | | | 0.945 | | | | |
| Fl _t Protected | | 0.998 | | | 0.995 | | | 0.977 | | | | |
| Satd. Flow (prot) | 0 | 3476 | 0 | 0 | 3490 | 0 | 0 | 1720 | 0 | 0 | 0 | 0 |
| Fl _t Permitted | | 0.921 | | | 0.857 | | | 0.977 | | | | |
| Satd. Flow (perm) | 0 | 3207 | 0 | 0 | 3006 | 0 | 0 | 1720 | 0 | 0 | 0 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 28 | | | 14 | | | 39 | | | | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | | 30 |
| Link Distance (ft) | | 261 | | | 2443 | | | 191 | | | | 877 |
| Travel Time (s) | | 5.9 | | | 55.5 | | | 4.3 | | | | 19.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 33 | 596 | 76 | 39 | 361 | 26 | 45 | 12 | 39 | 0 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 705 | 0 | 0 | 426 | 0 | 0 | 96 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | | | |
| Minimum Split (s) | 56.0 | 56.0 | | 56.0 | 56.0 | | 29.0 | 29.0 | | | | |
| Total Split (s) | 56.0 | 56.0 | | 56.0 | 56.0 | | 29.0 | 29.0 | | | | |
| Total Split (%) | 65.9% | 65.9% | | 65.9% | 65.9% | | 34.1% | 34.1% | | | | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | | | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | | | 0.0 | | | | |
| Total Lost Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 52.0 | | | 52.0 | | | 25.0 | | | | |
| Actuated g/C Ratio | | 0.61 | | | 0.61 | | | 0.29 | | | | |
| v/c Ratio | | 0.36 | | | 0.23 | | | 0.18 | | | | |
| Control Delay | | 8.5 | | | 7.6 | | | 15.3 | | | | |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | | |
| Total Delay | | 8.5 | | | 7.6 | | | 15.3 | | | | |
| LOS | | A | | | A | | | B | | | | |
| Approach Delay | | 8.5 | | | 7.6 | | | 15.3 | | | | |
| Approach LOS | | A | | | A | | | B | | | | |
| Stops (vph) | | 286 | | | 158 | | | 41 | | | | |
| Fuel Used(gal) | | 4 | | | 9 | | | 1 | | | | |
| CO Emissions (g/hr) | | 281 | | | 625 | | | 44 | | | | |
| NOx Emissions (g/hr) | | 55 | | | 122 | | | 9 | | | | |
| VOC Emissions (g/hr) | | 65 | | | 145 | | | 10 | | | | |
| Dilemma Vehicles (#) | | 0 | | | 0 | | | 0 | | | | |
| Queue Length 50th (ft) | | 84 | | | 46 | | | 22 | | | | |
| Queue Length 95th (ft) | | 116 | | | 69 | | | 58 | | | | |
| Internal Link Dist (ft) | | 181 | | | 2363 | | | 111 | | | | 797 |

Lanes, Volumes, Timings
 3: S Loomis St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|-----|-----|
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 1972 | | | 1844 | | | 533 | | | | |
| Starvation Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Spillback Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Storage Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Reduced v/c Ratio | | 0.36 | | | 0.23 | | | 0.18 | | | | |

Intersection Summary

| | |
|-----------------------------------|---|
| Area Type: | Other |
| Cycle Length: | 85 |
| Actuated Cycle Length: | 85 |
| Offset: | 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green |
| Natural Cycle: | 85 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.36 |
| Intersection Signal Delay: | 8.7 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 59.1% |
| ICU Level of Service | B |
| Analysis Period (min) | 15 |




















Splits and Phases: 3: S Loomis St & W 119th St



Lanes, Volumes, Timings
5: S Halstead St & W 119th St

EC 115 Opening Day AM Traffic.syn

11/20/2018

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  | |  |  | |  |  | |
| Traffic Volume (vph) | 198 | 263 | 42 | 37 | 235 | 92 | 45 | 576 | 21 | 63 | 278 | 84 |
| Future Volume (vph) | 198 | 263 | 42 | 37 | 235 | 92 | 45 | 576 | 21 | 63 | 278 | 84 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 135 | | 0 | 115 | | 0 | 120 | | 0 | 120 | | 0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.979 | | | 0.958 | | | 0.995 | | | 0.965 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1770 | 3465 | 0 | 1770 | 3391 | 0 | 1770 | 3522 | 0 | 1770 | 3415 | 0 |
| Flt Permitted | 0.493 | | | 0.515 | | | 0.470 | | | 0.297 | | |
| Satd. Flow (perm) | 918 | 3465 | 0 | 959 | 3391 | 0 | 875 | 3522 | 0 | 553 | 3415 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 20 | | | 66 | | | 5 | | | 50 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 665 | | | 675 | | | 757 | | | 907 | |
| Travel Time (s) | | 15.1 | | | 15.3 | | | 17.2 | | | 20.6 | |
| 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 |
| Adj. Flow (vph) | 215 | 286 | 46 | 40 | 255 | 100 | 49 | 626 | 23 | 68 | 302 | 91 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 215 | 332 | 0 | 40 | 355 | 0 | 49 | 649 | 0 | 68 | 393 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 10.0 | 38.0 | | 10.0 | 38.0 | |
| Total Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 10.0 | 38.0 | | 10.0 | 38.0 | |
| Total Split (%) | 11.1% | 35.6% | | 11.1% | 35.6% | | 11.1% | 42.2% | | 11.1% | 42.2% | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 0.0 | 2.0 | | 0.0 | 2.0 | | 0.0 | 1.0 | | 0.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 3.0 | 5.0 | | 3.0 | 5.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Act Effect Green (s) | 36.0 | 27.0 | | 36.0 | 27.0 | | 42.0 | 34.0 | | 42.0 | 34.0 | |
| Actuated g/C Ratio | 0.40 | 0.30 | | 0.40 | 0.30 | | 0.47 | 0.38 | | 0.47 | 0.38 | |
| v/c Ratio | 0.50 | 0.32 | | 0.09 | 0.33 | | 0.10 | 0.49 | | 0.19 | 0.30 | |
| Control Delay | 21.7 | 23.8 | | 15.5 | 20.8 | | 12.2 | 22.7 | | 13.2 | 17.7 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 21.7 | 23.8 | | 15.5 | 20.8 | | 12.2 | 22.7 | | 13.2 | 17.7 | |
| LOS | C | C | | B | C | | B | C | | B | B | |
| Approach Delay | | 23.0 | | | 20.2 | | | 22.0 | | | 17.0 | |
| Approach LOS | | C | | | C | | | C | | | B | |
| Stops (vph) | 134 | 213 | | 21 | 200 | | 24 | 434 | | 32 | 212 | |
| Fuel Used(gal) | 3 | 4 | | 0 | 4 | | 1 | 9 | | 1 | 5 | |
| CO Emissions (g/hr) | 185 | 296 | | 30 | 294 | | 36 | 607 | | 55 | 352 | |
| NOx Emissions (g/hr) | 36 | 58 | | 6 | 57 | | 7 | 118 | | 11 | 69 | |
| VOC Emissions (g/hr) | 43 | 69 | | 7 | 68 | | 8 | 141 | | 13 | 82 | |
| Dilemma Vehicles (#) | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |

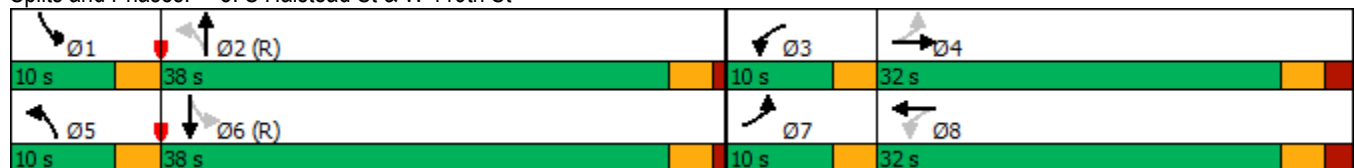


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|-----|------|------|-----|------|------|-----|------|------|-----|
| Queue Length 50th (ft) | 77 | 71 | | 13 | 65 | | 14 | 144 | | 19 | 69 | |
| Queue Length 95th (ft) | 128 | 107 | | 31 | 103 | | 32 | 194 | | 41 | 104 | |
| Internal Link Dist (ft) | | 585 | | | 595 | | | 677 | | | 827 | |
| Turn Bay Length (ft) | 135 | | | 115 | | | 120 | | | 120 | | |
| Base Capacity (vph) | 433 | 1053 | | 446 | 1063 | | 477 | 1333 | | 352 | 1321 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.50 | 0.32 | | 0.09 | 0.33 | | 0.10 | 0.49 | | 0.19 | 0.30 | |

Intersection Summary

| | |
|-----------------------------------|---|
| Area Type: | Other |
| Cycle Length: | 90 |
| Actuated Cycle Length: | 90 |
| Offset: | 79.5 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |
| Natural Cycle: | 90 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.50 |
| Intersection Signal Delay: | 20.8 |
| Intersection LOS: | C |
| Intersection Capacity Utilization | 57.0% |
| ICU Level of Service | B |
| Analysis Period (min) | 15 |

Splits and Phases: 5: S Halstead St & W 119th St



Lanes, Volumes, Timings
11: S Morgan St & W 119th St

EC 115 Opening Day AM Traffic.syn
11/20/2018



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|-------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | | ↕ | | | ↕ | |
| Traffic Volume (vph) | 35 | 511 | 8 | 0 | 371 | 12 | 16 | 5 | 0 | 17 | 4 | 19 |
| Future Volume (vph) | 35 | 511 | 8 | 0 | 371 | 12 | 16 | 5 | 0 | 17 | 4 | 19 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr't | | 0.998 | | | 0.995 | | | | | | | 0.934 |
| Flt Protected | | 0.997 | | | | | | 0.963 | | | | 0.979 |
| Satd. Flow (prot) | 0 | 3522 | 0 | 0 | 3522 | 0 | 0 | 1794 | 0 | 0 | 1703 | 0 |
| Flt Permitted | | 0.912 | | | | | | 0.864 | | | | 0.920 |
| Satd. Flow (perm) | 0 | 3221 | 0 | 0 | 3522 | 0 | 0 | 1609 | 0 | 0 | 1601 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 8 | | | | | | | 21 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | | 30 |
| Link Distance (ft) | | 251 | | | 317 | | | 449 | | | | 178 |
| Travel Time (s) | | 5.7 | | | 7.2 | | | 10.2 | | | | 4.0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 38 | 555 | 9 | 0 | 403 | 13 | 17 | 5 | 0 | 18 | 4 | 21 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 602 | 0 | 0 | 416 | 0 | 0 | 22 | 0 | 0 | 43 | 0 |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | | 6 |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 41.0 | 41.0 | | 41.0 | 41.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (s) | 41.0 | 41.0 | | 41.0 | 41.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (%) | 63.1% | 63.1% | | 63.1% | 63.1% | | 36.9% | 36.9% | | 36.9% | 36.9% | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 37.0 | | | 37.0 | | | 20.0 | | | | 20.0 |
| Actuated g/C Ratio | | 0.57 | | | 0.57 | | | 0.31 | | | | 0.31 |
| v/c Ratio | | 0.33 | | | 0.21 | | | 0.04 | | | | 0.08 |
| Control Delay | | 8.0 | | | 7.0 | | | 16.2 | | | | 11.0 |
| Queue Delay | | 1.0 | | | 0.0 | | | 0.0 | | | | 0.0 |
| Total Delay | | 9.0 | | | 7.0 | | | 16.2 | | | | 11.0 |
| LOS | | A | | | A | | | B | | | | B |
| Approach Delay | | 9.0 | | | 7.0 | | | 16.2 | | | | 11.0 |
| Approach LOS | | A | | | A | | | B | | | | B |
| Stops (vph) | | 267 | | | 168 | | | 16 | | | | 20 |
| Fuel Used(gal) | | 3 | | | 2 | | | 0 | | | | 0 |
| CO Emissions (g/hr) | | 242 | | | 169 | | | 16 | | | | 18 |
| NOx Emissions (g/hr) | | 47 | | | 33 | | | 3 | | | | 3 |
| VOC Emissions (g/hr) | | 56 | | | 39 | | | 4 | | | | 4 |
| Dilemma Vehicles (#) | | 0 | | | 0 | | | 0 | | | | 0 |
| Queue Length 50th (ft) | | 58 | | | 36 | | | 6 | | | | 6 |
| Queue Length 95th (ft) | | 86 | | | 57 | | | 20 | | | | 26 |
| Internal Link Dist (ft) | | 171 | | | 237 | | | 369 | | | | 98 |

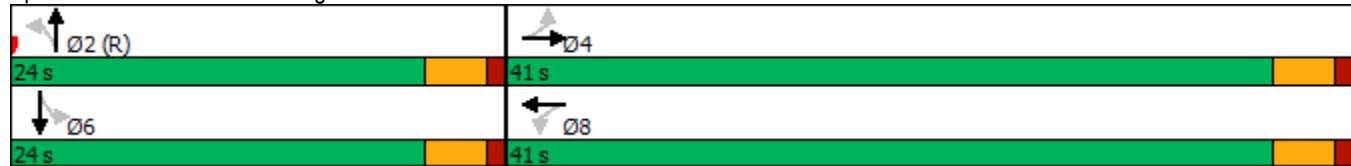


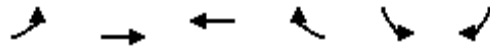
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 1835 | | | 2008 | | | 495 | | | 507 | |
| Starvation Cap Reductn | | 922 | | | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | | | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | | | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.66 | | | 0.21 | | | 0.04 | | | 0.08 | |

Intersection Summary

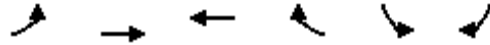
| | |
|-----------------------------------|--|
| Area Type: | Other |
| Cycle Length: | 65 |
| Actuated Cycle Length: | 65 |
| Offset: | 32 (49%), Referenced to phase 2:NBTL, Start of Green |
| Natural Cycle: | 65 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.33 |
| Intersection Signal Delay: | 8.4 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 42.7% |
| ICU Level of Service | A |
| Analysis Period (min) | 15 |

Splits and Phases: 11: S Morgan St & W 119th St





| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---------------------------|------|-------|-------|------|-------|------|
| Lane Configurations | | ↑↑ | ↑↑ | | ↘↘ | |
| Traffic Volume (vph) | 0 | 554 | 406 | 0 | 2 | 3 |
| Future Volume (vph) | 0 | 554 | 406 | 0 | 2 | 3 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 |
| Fr _t | | | | | 0.919 | |
| Fl _t Protected | | | | | 0.980 | |
| Satd. Flow (prot) | 0 | 3539 | 3539 | 0 | 1678 | 0 |
| Fl _t Permitted | | | | | 0.980 | |
| Satd. Flow (perm) | 0 | 3539 | 3539 | 0 | 1678 | 0 |
| Right Turn on Red | | | | Yes | | Yes |
| Satd. Flow (RTOR) | | | | | 3 | |
| Link Speed (mph) | | 30 | 30 | | 30 | |
| Link Distance (ft) | | 2443 | 251 | | 158 | |
| Travel Time (s) | | 55.5 | 5.7 | | 3.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 602 | 441 | 0 | 2 | 3 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 602 | 441 | 0 | 5 | 0 |
| Turn Type | | NA | NA | | Prot | |
| Protected Phases | | 4 | 8 | | 6 | |
| Permitted Phases | | | | | | |
| Detector Phase | | 4 | 8 | | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | | 5.0 | 5.0 | | 10.0 | |
| Minimum Split (s) | | 22.5 | 22.5 | | 13.0 | |
| Total Split (s) | | 30.0 | 30.0 | | 30.0 | |
| Total Split (%) | | 50.0% | 50.0% | | 50.0% | |
| Yellow Time (s) | | 3.5 | 3.5 | | 2.0 | |
| All-Red Time (s) | | 1.0 | 1.0 | | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | 0.0 | | 0.0 | |
| Total Lost Time (s) | | 4.5 | 4.5 | | 3.0 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Recall Mode | | None | None | | Min | |
| Act Effct Green (s) | | 10.9 | 10.9 | | 10.1 | |
| Actuated g/C Ratio | | 0.38 | 0.38 | | 0.35 | |
| v/c Ratio | | 0.45 | 0.33 | | 0.01 | |
| Control Delay | | 7.5 | 6.7 | | 6.2 | |
| Queue Delay | | 0.0 | 0.0 | | 0.0 | |
| Total Delay | | 7.5 | 6.7 | | 6.2 | |
| LOS | | A | A | | A | |
| Approach Delay | | 7.5 | 6.7 | | 6.2 | |
| Approach LOS | | A | A | | A | |
| Stops (vph) | | 327 | 226 | | 5 | |
| Fuel Used(gal) | | 13 | 3 | | 0 | |
| CO Emissions (g/hr) | | 923 | 182 | | 3 | |
| NOx Emissions (g/hr) | | 180 | 35 | | 1 | |
| VOC Emissions (g/hr) | | 214 | 42 | | 1 | |

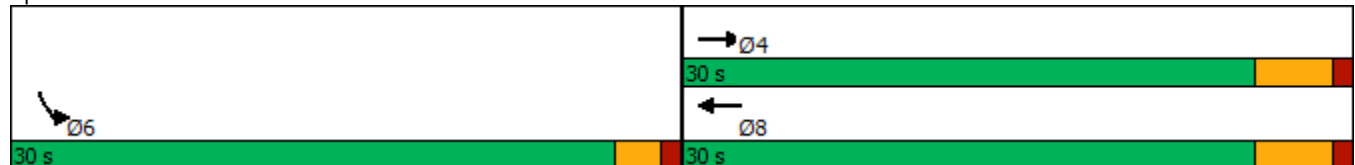


| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|-----|------|------|-----|------|-----|
| Dilemma Vehicles (#) | | 0 | 0 | | 0 | |
| Queue Length 50th (ft) | | 30 | 21 | | 0 | |
| Queue Length 95th (ft) | | 50 | 36 | | 4 | |
| Internal Link Dist (ft) | | 2363 | 171 | | 78 | |
| Turn Bay Length (ft) | | | | | | |
| Base Capacity (vph) | | 3177 | 3177 | | 1575 | |
| Starvation Cap Reductn | | 0 | 73 | | 0 | |
| Spillback Cap Reductn | | 0 | 0 | | 0 | |
| Storage Cap Reductn | | 0 | 0 | | 0 | |
| Reduced v/c Ratio | | 0.19 | 0.14 | | 0.00 | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 60 |
| Actuated Cycle Length: | 28.5 |
| Natural Cycle: | 40 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.45 |
| Intersection Signal Delay: | 7.2 |
| Intersection LOS: | A |
| Intersection Capacity Utilization: | 30.7% |
| ICU Level of Service: | A |
| Analysis Period (min): | 15 |

Splits and Phases: 21: W 119th St & Fire Station Exit



| 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 | 8 | 502 | 21 | 7 | 331 | 5 | 29 | 5 | 4 | 0 | 0 | 0 |
| Future Vol, veh/h | 8 | 502 | 21 | 7 | 331 | 5 | 29 | 5 | 4 | 0 | 0 | 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 | - | - | 0 | - | - | 0 | - | - | 16965 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 9 | 546 | 23 | 8 | 360 | 5 | 32 | 5 | 4 | 0 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|----------------------|--------|---|---|--------|---|---|--------|------|------|
| Conflicting Flow All | 365 | 0 | 0 | 569 | 0 | 0 | 772 | 957 | 285 |
| Stage 1 | - | - | - | - | - | - | 576 | 576 | - |
| Stage 2 | - | - | - | - | - | - | 196 | 381 | - |
| Critical Hdwy | 4.14 | - | - | 4.14 | - | - | 6.84 | 6.54 | 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.84 | 5.54 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.84 | 5.54 | - |
| Follow-up Hdwy | 2.22 | - | - | 2.22 | - | - | 3.52 | 4.02 | 3.32 |
| Pot Cap-1 Maneuver | 1190 | - | - | 999 | - | - | 336 | 256 | 712 |
| Stage 1 | - | - | - | - | - | - | 525 | 500 | - |
| Stage 2 | - | - | - | - | - | - | 818 | 612 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 1190 | - | - | 999 | - | - | 329 | 0 | 712 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 329 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 514 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 818 | 0 | - |

| Approach | EB | | | WB | | | NB | | |
|----------------------|-----|--|--|-----|--|--|------|--|--|
| HCM Control Delay, s | 0.1 | | | 0.2 | | | 16.6 | | |
| HCM LOS | | | | | | | C | | |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|
| Capacity (veh/h) | 352 | 1190 | - | - | 999 | - | - |
| HCM Lane V/C Ratio | 0.117 | 0.007 | - | - | 0.008 | - | - |
| HCM Control Delay (s) | 16.6 | 8 | 0 | - | 8.6 | 0 | - |
| HCM Lane LOS | C | A | A | - | A | A | - |
| HCM 95th %tile Q(veh) | 0.4 | 0 | - | - | 0 | - | - |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.3 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | ↑↑ | ↑↑ | | ↑ | |
| Traffic Vol, veh/h | 0 | 541 | 360 | 0 | 8 | 15 |
| Future Vol, veh/h | 0 | 541 | 360 | 0 | 8 | 15 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 588 | 391 | 0 | 9 | 16 |

| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|---|-----------|
| Conflicting Flow All | - | 0 | - | 0 | 685 196 |
| Stage 1 | - | - | - | - | 391 - |
| Stage 2 | - | - | - | - | 294 - |
| Critical Hdwy | - | - | - | - | 6.84 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.84 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.84 - |
| Follow-up Hdwy | - | - | - | - | 3.52 3.32 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 382 812 |
| Stage 1 | 0 | - | - | 0 | 653 - |
| Stage 2 | 0 | - | - | 0 | 730 - |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | - | - | 382 812 |
| Mov Cap-2 Maneuver | - | - | - | - | 382 - |
| Stage 1 | - | - | - | - | 653 - |
| Stage 2 | - | - | - | - | 730 - |

| Approach | EB | WB | SB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 11.4 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|-----------------------|-----|-----|-------|
| Capacity (veh/h) | - | - | 584 |
| HCM Lane V/C Ratio | - | - | 0.043 |
| HCM Control Delay (s) | - | - | 11.4 |
| HCM Lane LOS | - | - | B |
| HCM 95th %tile Q(veh) | - | - | 0.1 |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 3.7 | | | | | |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | T | | | T | | T |
| Traffic Vol, veh/h | 2 | 20 | 20 | 27 | 20 | 2 |
| Future Vol, veh/h | 2 | 20 | 20 | 27 | 20 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 2 | 22 | 22 | 29 | 22 | 2 |

| Major/Minor | Minor2 | Major1 | | Major2 | |
|----------------------|--------|--------|-------|--------|---|
| Conflicting Flow All | 96 | 23 | 24 | 0 | 0 |
| Stage 1 | 23 | - | - | - | - |
| Stage 2 | 73 | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - |
| Pot Cap-1 Maneuver | 903 | 1054 | 1591 | - | - |
| Stage 1 | 1000 | - | - | - | - |
| Stage 2 | 950 | - | - | - | - |
| Platoon blocked, % | | | | - | - |
| Mov Cap-1 Maneuver | 890 | 1054 | 1591 | - | - |
| Mov Cap-2 Maneuver | 890 | - | - | - | - |
| Stage 1 | 986 | - | - | - | - |
| Stage 2 | 950 | - | - | - | - |

| Approach | EB | NB | SB |
|----------------------|-----|-----|----|
| HCM Control Delay, s | 8.6 | 3.1 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h) | 1591 | - | 1037 | - | - |
| HCM Lane V/C Ratio | 0.014 | - | 0.023 | - | - |
| HCM Control Delay (s) | 7.3 | 0 | 8.6 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.1 | - | - |

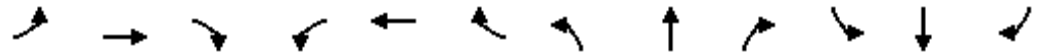
Lanes, Volumes, Timings
3: S Loomis St & W 119th St

EC 115 Opening Day PM Traffic.syn
11/20/2018



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---------------------------|-------|-------|------|-------|-------|------|-------|-------|------|------|------|------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | | ↕ | | | | |
| Traffic Volume (vph) | 42 | 548 | 17 | 20 | 534 | 23 | 8 | 3 | 8 | 0 | 0 | 0 |
| Future Volume (vph) | 42 | 548 | 17 | 20 | 534 | 23 | 8 | 3 | 8 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.996 | | | 0.994 | | | 0.942 | | | | |
| Fl _t Protected | | 0.997 | | | 0.998 | | | 0.979 | | | | |
| Satd. Flow (prot) | 0 | 3514 | 0 | 0 | 3511 | 0 | 0 | 1718 | 0 | 0 | 0 | 0 |
| Fl _t Permitted | | 0.876 | | | 0.923 | | | 0.979 | | | | |
| Satd. Flow (perm) | 0 | 3088 | 0 | 0 | 3247 | 0 | 0 | 1718 | 0 | 0 | 0 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 6 | | | 9 | | | 9 | | | | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | | 30 |
| Link Distance (ft) | | 261 | | | 2443 | | | 191 | | | | 877 |
| Travel Time (s) | | 5.9 | | | 55.5 | | | 4.3 | | | | 19.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 46 | 596 | 18 | 22 | 580 | 25 | 9 | 3 | 9 | 0 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 660 | 0 | 0 | 627 | 0 | 0 | 21 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | | | |
| Minimum Split (s) | 56.0 | 56.0 | | 56.0 | 56.0 | | 29.0 | 29.0 | | | | |
| Total Split (s) | 56.0 | 56.0 | | 56.0 | 56.0 | | 29.0 | 29.0 | | | | |
| Total Split (%) | 65.9% | 65.9% | | 65.9% | 65.9% | | 34.1% | 34.1% | | | | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | | | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | | | 0.0 | | | | |
| Total Lost Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 52.0 | | | 52.0 | | | 25.0 | | | | |
| Actuated g/C Ratio | | 0.61 | | | 0.61 | | | 0.29 | | | | |
| v/c Ratio | | 0.35 | | | 0.32 | | | 0.04 | | | | |
| Control Delay | | 8.7 | | | 8.3 | | | 16.1 | | | | |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | | |
| Total Delay | | 8.7 | | | 8.3 | | | 16.1 | | | | |
| LOS | | A | | | A | | | B | | | | |
| Approach Delay | | 8.7 | | | 8.3 | | | 16.1 | | | | |
| Approach LOS | | A | | | A | | | B | | | | |
| Stops (vph) | | 275 | | | 253 | | | 12 | | | | |
| Fuel Used(gal) | | 4 | | | 13 | | | 0 | | | | |
| CO Emissions (g/hr) | | 268 | | | 934 | | | 11 | | | | |
| NOx Emissions (g/hr) | | 52 | | | 182 | | | 2 | | | | |
| VOC Emissions (g/hr) | | 62 | | | 217 | | | 3 | | | | |
| Dilemma Vehicles (#) | | 0 | | | 0 | | | 0 | | | | |
| Queue Length 50th (ft) | | 82 | | | 75 | | | 5 | | | | |
| Queue Length 95th (ft) | | 113 | | | 104 | | | 21 | | | | |
| Internal Link Dist (ft) | | 181 | | | 2363 | | | 111 | | | | 797 |

Lanes, Volumes, Timings
 3: S Loomis St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|-----|-----|
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 1891 | | | 1989 | | | 511 | | | | |
| Starvation Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Spillback Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Storage Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Reduced v/c Ratio | | 0.35 | | | 0.32 | | | 0.04 | | | | |

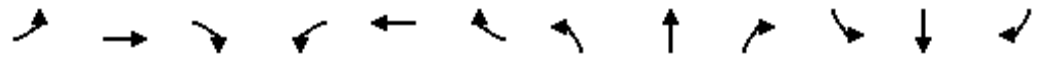
Intersection Summary

| | |
|-----------------------------------|---|
| Area Type: | Other |
| Cycle Length: | 85 |
| Actuated Cycle Length: | 85 |
| Offset: | 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green |
| Natural Cycle: | 85 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.35 |
| Intersection Signal Delay: | 8.6 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 66.9% |
| ICU Level of Service | C |
| Analysis Period (min) | 15 |

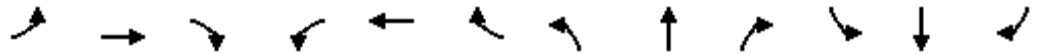
Splits and Phases: 3: S Loomis St & W 119th St



Lanes, Volumes, Timings
5: S Halstead St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | ↖ | ↖↗ | | ↖ | ↖↗ | | ↖ | ↖↗ | | ↖ | ↖↗ | |
| Traffic Volume (vph) | 151 | 293 | 97 | 63 | 246 | 86 | 92 | 446 | 44 | 120 | 642 | 147 |
| Future Volume (vph) | 151 | 293 | 97 | 63 | 246 | 86 | 92 | 446 | 44 | 120 | 642 | 147 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 135 | | 0 | 115 | | 0 | 120 | | 0 | 120 | | 0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.963 | | | 0.961 | | | 0.986 | | | 0.972 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1770 | 3408 | 0 | 1770 | 3401 | 0 | 1770 | 3490 | 0 | 1770 | 3440 | 0 |
| Flt Permitted | 0.489 | | | 0.432 | | | 0.187 | | | 0.369 | | |
| Satd. Flow (perm) | 911 | 3408 | 0 | 805 | 3401 | 0 | 348 | 3490 | 0 | 687 | 3440 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 51 | | | 55 | | | 13 | | | 35 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 665 | | | 675 | | | 757 | | | 907 | |
| Travel Time (s) | | 15.1 | | | 15.3 | | | 17.2 | | | 20.6 | |
| 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 |
| Adj. Flow (vph) | 164 | 318 | 105 | 68 | 267 | 93 | 100 | 485 | 48 | 130 | 698 | 160 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 164 | 423 | 0 | 68 | 360 | 0 | 100 | 533 | 0 | 130 | 858 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 10.0 | 38.0 | | 10.0 | 38.0 | |
| Total Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 10.0 | 38.0 | | 10.0 | 38.0 | |
| Total Split (%) | 11.1% | 35.6% | | 11.1% | 35.6% | | 11.1% | 42.2% | | 11.1% | 42.2% | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 0.0 | 2.0 | | 0.0 | 2.0 | | 0.0 | 1.0 | | 0.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 3.0 | 5.0 | | 3.0 | 5.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Act Effect Green (s) | 36.0 | 27.0 | | 36.0 | 27.0 | | 42.0 | 34.0 | | 42.0 | 34.0 | |
| Actuated g/C Ratio | 0.40 | 0.30 | | 0.40 | 0.30 | | 0.47 | 0.38 | | 0.47 | 0.38 | |
| v/c Ratio | 0.38 | 0.40 | | 0.17 | 0.34 | | 0.37 | 0.40 | | 0.32 | 0.65 | |
| Control Delay | 19.1 | 23.2 | | 16.3 | 21.7 | | 16.0 | 21.1 | | 14.5 | 24.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 19.1 | 23.2 | | 16.3 | 21.7 | | 16.0 | 21.1 | | 14.5 | 24.9 | |
| LOS | B | C | | B | C | | B | C | | B | C | |
| Approach Delay | | 22.1 | | | 20.8 | | | 20.3 | | | 23.5 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Stops (vph) | 95 | 262 | | 37 | 211 | | 48 | 336 | | 63 | 604 | |
| Fuel Used(gal) | 2 | 5 | | 1 | 4 | | 1 | 7 | | 2 | 13 | |
| CO Emissions (g/hr) | 132 | 371 | | 52 | 305 | | 77 | 479 | | 108 | 903 | |
| NOx Emissions (g/hr) | 26 | 72 | | 10 | 59 | | 15 | 93 | | 21 | 176 | |
| VOC Emissions (g/hr) | 31 | 86 | | 12 | 71 | | 18 | 111 | | 25 | 209 | |
| Dilemma Vehicles (#) | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |

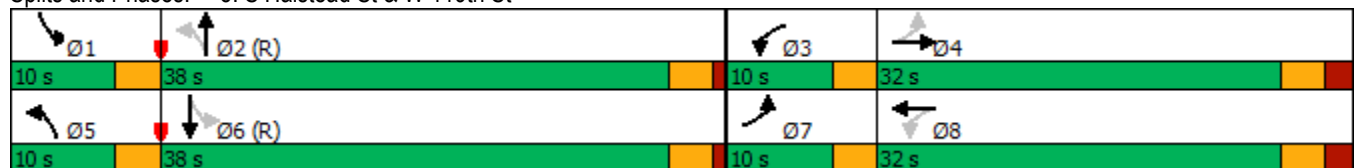


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|-----|------|------|-----|------|------|-----|------|------|-----|
| Queue Length 50th (ft) | 57 | 87 | | 22 | 70 | | 29 | 111 | | 38 | 199 | |
| Queue Length 95th (ft) | 98 | 129 | | 47 | 107 | | 56 | 155 | | 69 | 264 | |
| Internal Link Dist (ft) | | 585 | | | 595 | | | 677 | | | 827 | |
| Turn Bay Length (ft) | 135 | | | 115 | | | 120 | | | 120 | | |
| Base Capacity (vph) | 431 | 1058 | | 397 | 1058 | | 273 | 1326 | | 404 | 1321 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.38 | 0.40 | | 0.17 | 0.34 | | 0.37 | 0.40 | | 0.32 | 0.65 | |

Intersection Summary

















| | |
|------------------------------------|---|
| Area Type: | Other |
| Cycle Length: | 90 |
| Actuated Cycle Length: | 90 |
| Offset: | 79.5 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |
| Natural Cycle: | 90 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.65 |
| Intersection Signal Delay: | 22.0 |
| Intersection LOS: | C |
| Intersection Capacity Utilization: | 60.4% |
| ICU Level of Service: | B |
| Analysis Period (min): | 15 |

Splits and Phases: 5: S Halstead St & W 119th St



Lanes, Volumes, Timings
11: S Morgan St & W 119th St

EC 115 Opening Day PM Traffic.syn
11/20/2018

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|--|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | |  | | |  | | |  | | |  | |
| Traffic Volume (vph) | 31 | 489 | 4 | 0 | 519 | 22 | 12 | 2 | 0 | 32 | 0 | 38 |
| Future Volume (vph) | 31 | 489 | 4 | 0 | 519 | 22 | 12 | 2 | 0 | 32 | 0 | 38 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr't | | 0.999 | | | 0.994 | | | | | | | 0.927 |
| Flt Protected | | 0.997 | | | | | | 0.958 | | | | 0.977 |
| Satd. Flow (prot) | 0 | 3525 | 0 | 0 | 3518 | 0 | 0 | 1785 | 0 | 0 | 1687 | 0 |
| Flt Permitted | | 0.904 | | | | | | 0.853 | | | | 0.896 |
| Satd. Flow (perm) | 0 | 3196 | 0 | 0 | 3518 | 0 | 0 | 1589 | 0 | 0 | 1547 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 2 | | | 11 | | | | | | | 41 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | | 30 |
| Link Distance (ft) | | 251 | | | 317 | | | 449 | | | | 178 |
| Travel Time (s) | | 5.7 | | | 7.2 | | | 10.2 | | | | 4.0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 34 | 532 | 4 | 0 | 564 | 24 | 13 | 2 | 0 | 35 | 0 | 41 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 570 | 0 | 0 | 588 | 0 | 0 | 15 | 0 | 0 | 76 | 0 |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | | 6 |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 41.0 | 41.0 | | 41.0 | 41.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (s) | 41.0 | 41.0 | | 41.0 | 41.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (%) | 63.1% | 63.1% | | 63.1% | 63.1% | | 36.9% | 36.9% | | 36.9% | 36.9% | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 37.0 | | | 37.0 | | | 20.0 | | | | 20.0 |
| Actuated g/C Ratio | | 0.57 | | | 0.57 | | | 0.31 | | | | 0.31 |
| v/c Ratio | | 0.31 | | | 0.29 | | | 0.03 | | | | 0.15 |
| Control Delay | | 7.9 | | | 7.6 | | | 16.1 | | | | 10.2 |
| Queue Delay | | 0.9 | | | 0.0 | | | 0.0 | | | | 0.0 |
| Total Delay | | 8.8 | | | 7.6 | | | 16.1 | | | | 10.2 |
| LOS | | A | | | A | | | B | | | | B |
| Approach Delay | | 8.8 | | | 7.6 | | | 16.1 | | | | 10.2 |
| Approach LOS | | A | | | A | | | B | | | | B |
| Stops (vph) | | 249 | | | 249 | | | 12 | | | | 29 |
| Fuel Used(gal) | | 3 | | | 4 | | | 0 | | | | 0 |
| CO Emissions (g/hr) | | 227 | | | 248 | | | 11 | | | | 28 |
| NOx Emissions (g/hr) | | 44 | | | 48 | | | 2 | | | | 5 |
| VOC Emissions (g/hr) | | 53 | | | 57 | | | 3 | | | | 7 |
| Dilemma Vehicles (#) | | 0 | | | 0 | | | 0 | | | | 0 |
| Queue Length 50th (ft) | | 55 | | | 55 | | | 4 | | | | 10 |
| Queue Length 95th (ft) | | 82 | | | 81 | | | 16 | | | | 37 |
| Internal Link Dist (ft) | | 171 | | | 237 | | | 369 | | | | 98 |

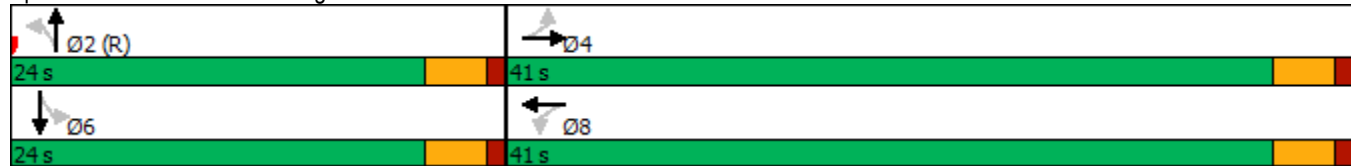


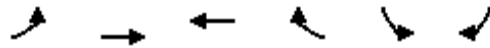
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 1820 | | | 2007 | | | 488 | | | 504 | |
| Starvation Cap Reductn | | 922 | | | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | | | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | | | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.63 | | | 0.29 | | | 0.03 | | | 0.15 | |

Intersection Summary

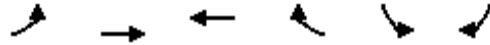
| | |
|-----------------------------------|--|
| Area Type: | Other |
| Cycle Length: | 65 |
| Actuated Cycle Length: | 65 |
| Offset: | 32 (49%), Referenced to phase 2:NBTL, Start of Green |
| Natural Cycle: | 65 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.31 |
| Intersection Signal Delay: | 8.4 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 46.3% |
| ICU Level of Service | A |
| Analysis Period (min) | 15 |

Splits and Phases: 11: S Morgan St & W 119th St





| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---------------------------|------|-------|-------|------|-------|------|
| Lane Configurations | | ↑↑ | ↑↑ | | ↘↘ | |
| Traffic Volume (vph) | 0 | 549 | 569 | 0 | 2 | 3 |
| Future Volume (vph) | 0 | 549 | 569 | 0 | 2 | 3 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 |
| Fr _t | | | | | 0.919 | |
| Fl _t Protected | | | | | 0.980 | |
| Satd. Flow (prot) | 0 | 3539 | 3539 | 0 | 1678 | 0 |
| Fl _t Permitted | | | | | 0.980 | |
| Satd. Flow (perm) | 0 | 3539 | 3539 | 0 | 1678 | 0 |
| Right Turn on Red | | | | Yes | | Yes |
| Satd. Flow (RTOR) | | | | | 3 | |
| Link Speed (mph) | | 30 | 30 | | 30 | |
| Link Distance (ft) | | 2443 | 251 | | 158 | |
| Travel Time (s) | | 55.5 | 5.7 | | 3.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 597 | 618 | 0 | 2 | 3 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 597 | 618 | 0 | 5 | 0 |
| Turn Type | | NA | NA | | Prot | |
| Protected Phases | | 4 | 8 | | 6 | |
| Permitted Phases | | | | | | |
| Detector Phase | | 4 | 8 | | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | | 5.0 | 5.0 | | 10.0 | |
| Minimum Split (s) | | 22.5 | 22.5 | | 13.0 | |
| Total Split (s) | | 30.0 | 30.0 | | 30.0 | |
| Total Split (%) | | 50.0% | 50.0% | | 50.0% | |
| Yellow Time (s) | | 3.5 | 3.5 | | 2.0 | |
| All-Red Time (s) | | 1.0 | 1.0 | | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | 0.0 | | 0.0 | |
| Total Lost Time (s) | | 4.5 | 4.5 | | 3.0 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Recall Mode | | None | None | | Min | |
| Act Effct Green (s) | | 11.1 | 11.1 | | 10.1 | |
| Actuated g/C Ratio | | 0.39 | 0.39 | | 0.35 | |
| v/c Ratio | | 0.44 | 0.45 | | 0.01 | |
| Control Delay | | 7.5 | 7.6 | | 6.2 | |
| Queue Delay | | 0.0 | 0.0 | | 0.0 | |
| Total Delay | | 7.5 | 7.6 | | 6.2 | |
| LOS | | A | A | | A | |
| Approach Delay | | 7.5 | 7.6 | | 6.2 | |
| Approach LOS | | A | A | | A | |
| Stops (vph) | | 324 | 338 | | 5 | |
| Fuel Used(gal) | | 13 | 4 | | 0 | |
| CO Emissions (g/hr) | | 914 | 270 | | 3 | |
| NOx Emissions (g/hr) | | 178 | 52 | | 1 | |
| VOC Emissions (g/hr) | | 212 | 63 | | 1 | |

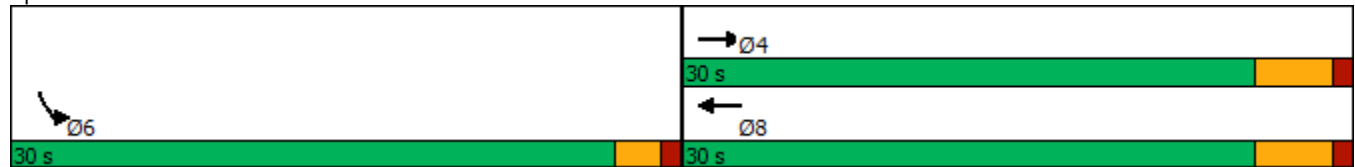


| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|-----|------|------|-----|------|-----|
| Dilemma Vehicles (#) | | 0 | 0 | | 0 | |
| Queue Length 50th (ft) | | 30 | 31 | | 0 | |
| Queue Length 95th (ft) | | 49 | 51 | | 4 | |
| Internal Link Dist (ft) | | 2363 | 171 | | 78 | |
| Turn Bay Length (ft) | | | | | | |
| Base Capacity (vph) | | 3271 | 3271 | | 1603 | |
| Starvation Cap Reductn | | 0 | 72 | | 0 | |
| Spillback Cap Reductn | | 0 | 0 | | 0 | |
| Storage Cap Reductn | | 0 | 0 | | 0 | |
| Reduced v/c Ratio | | 0.18 | 0.19 | | 0.00 | |

Intersection Summary

| | |
|------------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 60 |
| Actuated Cycle Length: | 28.7 |
| Natural Cycle: | 40 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.45 |
| Intersection Signal Delay: | 7.5 |
| Intersection LOS: | A |
| Intersection Capacity Utilization: | 31.1% |
| ICU Level of Service: | A |
| Analysis Period (min): | 15 |

Splits and Phases: 21: W 119th St & Fire Station Exit



| 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 | 10 | 505 | 27 | 5 | 482 | 7 | 33 | 7 | 5 | 0 | 0 | 0 |
| Future Vol, veh/h | 10 | 505 | 27 | 5 | 482 | 7 | 33 | 7 | 5 | 0 | 0 | 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 | - | - | 0 | - | - | 0 | - | - | 16965 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 11 | 549 | 29 | 5 | 524 | 8 | 36 | 8 | 5 | 0 | 0 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor1 | | | | |
|----------------------|--------|---|--------|------|--------|---|------|------|------|
| Conflicting Flow All | 532 | 0 | 0 | 578 | 0 | 0 | 858 | 1128 | 289 |
| Stage 1 | - | - | - | - | - | - | 586 | 586 | - |
| Stage 2 | - | - | - | - | - | - | 272 | 542 | - |
| Critical Hdwy | 4.14 | - | - | 4.14 | - | - | 6.84 | 6.54 | 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.84 | 5.54 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.84 | 5.54 | - |
| Follow-up Hdwy | 2.22 | - | - | 2.22 | - | - | 3.52 | 4.02 | 3.32 |
| Pot Cap-1 Maneuver | 1032 | - | - | 992 | - | - | 296 | 203 | 708 |
| Stage 1 | - | - | - | - | - | - | 519 | 495 | - |
| Stage 2 | - | - | - | - | - | - | 749 | 518 | - |
| Platoon blocked, % | | - | - | | - | - | | | |
| Mov Cap-1 Maneuver | 1032 | - | - | 992 | - | - | 289 | 0 | 708 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 289 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 507 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 749 | 0 | - |

| Approach | EB | WB | NB |
|----------------------|-----|-----|------|
| HCM Control Delay, s | 0.3 | 0.1 | 18.6 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|
| Capacity (veh/h) | 313 | 1032 | - | - | 992 | - | - |
| HCM Lane V/C Ratio | 0.156 | 0.011 | - | - | 0.005 | - | - |
| HCM Control Delay (s) | 18.6 | 8.5 | 0.1 | - | 8.6 | 0 | - |
| HCM Lane LOS | C | A | A | - | A | A | - |
| HCM 95th %tile Q(veh) | 0.5 | 0 | - | - | 0 | - | - |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.4 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | ↑↑ | ↑↑ | | ∩ | |
| Traffic Vol, veh/h | 0 | 527 | 533 | 0 | 16 | 9 |
| Future Vol, veh/h | 0 | 527 | 533 | 0 | 16 | 9 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 573 | 579 | 0 | 17 | 10 |

| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|---|-----------|
| Conflicting Flow All | - | 0 | - | 0 | 866 290 |
| Stage 1 | - | - | - | - | 579 - |
| Stage 2 | - | - | - | - | 287 - |
| Critical Hdwy | - | - | - | - | 6.84 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.84 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.84 - |
| Follow-up Hdwy | - | - | - | - | 3.52 3.32 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 293 707 |
| Stage 1 | 0 | - | - | 0 | 524 - |
| Stage 2 | 0 | - | - | 0 | 736 - |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | - | - | 293 707 |
| Mov Cap-2 Maneuver | - | - | - | - | 293 - |
| Stage 1 | - | - | - | - | 524 - |
| Stage 2 | - | - | - | - | 736 - |

| Approach | EB | WB | SB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 15.5 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|-----------------------|-----|-----|-------|
| Capacity (veh/h) | - | - | 371 |
| HCM Lane V/C Ratio | - | - | 0.073 |
| HCM Control Delay (s) | - | - | 15.5 |
| HCM Lane LOS | - | - | C |
| HCM 95th %tile Q(veh) | - | - | 0.2 |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 2.7 | | | | | |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 2 | 20 | 20 | 30 | 50 | 2 |
| Future Vol, veh/h | 2 | 20 | 20 | 30 | 50 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 2 | 22 | 22 | 33 | 54 | 2 |

| Major/Minor | Minor2 | Major1 | | Major2 | |
|----------------------|--------|--------|-------|--------|---|
| Conflicting Flow All | 132 | 55 | 56 | 0 | 0 |
| Stage 1 | 55 | - | - | - | - |
| Stage 2 | 77 | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - |
| Pot Cap-1 Maneuver | 862 | 1012 | 1549 | - | - |
| Stage 1 | 968 | - | - | - | - |
| Stage 2 | 946 | - | - | - | - |
| Platoon blocked, % | | | | - | - |
| Mov Cap-1 Maneuver | 850 | 1012 | 1549 | - | - |
| Mov Cap-2 Maneuver | 850 | - | - | - | - |
| Stage 1 | 954 | - | - | - | - |
| Stage 2 | 946 | - | - | - | - |

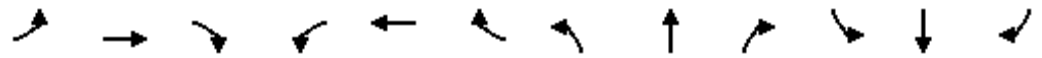
| Approach | EB | NB | SB |
|----------------------|-----|-----|----|
| HCM Control Delay, s | 8.7 | 2.9 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h) | 1549 | - | 995 | - | - |
| HCM Lane V/C Ratio | 0.014 | - | 0.024 | - | - |
| HCM Control Delay (s) | 7.4 | 0 | 8.7 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.1 | - | - |

Appendix G

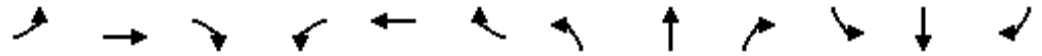
2023 Future Build Synchro Output

Lanes, Volumes, Timings
3: S Loomis St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---------------------------|-------|-------|------|-------|-------|------|-------|-------|------|------|------|------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | | ↕ | | | | |
| Traffic Volume (vph) | 30 | 565 | 72 | 37 | 340 | 24 | 42 | 11 | 37 | 0 | 0 | 0 |
| Future Volume (vph) | 30 | 565 | 72 | 37 | 340 | 24 | 42 | 11 | 37 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.984 | | | 0.991 | | | 0.945 | | | | |
| Fl _t Protected | | 0.998 | | | 0.995 | | | 0.977 | | | | |
| Satd. Flow (prot) | 0 | 3476 | 0 | 0 | 3490 | 0 | 0 | 1720 | 0 | 0 | 0 | 0 |
| Fl _t Permitted | | 0.921 | | | 0.853 | | | 0.977 | | | | |
| Satd. Flow (perm) | 0 | 3207 | 0 | 0 | 2992 | 0 | 0 | 1720 | 0 | 0 | 0 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 28 | | | 14 | | | 40 | | | | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | | 30 |
| Link Distance (ft) | | 261 | | | 2443 | | | 191 | | | | 877 |
| Travel Time (s) | | 5.9 | | | 55.5 | | | 4.3 | | | | 19.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 33 | 614 | 78 | 40 | 370 | 26 | 46 | 12 | 40 | 0 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 725 | 0 | 0 | 436 | 0 | 0 | 98 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | | | |
| Minimum Split (s) | 56.0 | 56.0 | | 56.0 | 56.0 | | 29.0 | 29.0 | | | | |
| Total Split (s) | 56.0 | 56.0 | | 56.0 | 56.0 | | 29.0 | 29.0 | | | | |
| Total Split (%) | 65.9% | 65.9% | | 65.9% | 65.9% | | 34.1% | 34.1% | | | | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | | | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | | | 0.0 | | | | |
| Total Lost Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 52.0 | | | 52.0 | | | 25.0 | | | | |
| Actuated g/C Ratio | | 0.61 | | | 0.61 | | | 0.29 | | | | |
| v/c Ratio | | 0.37 | | | 0.24 | | | 0.18 | | | | |
| Control Delay | | 8.5 | | | 7.6 | | | 15.2 | | | | |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | | |
| Total Delay | | 8.5 | | | 7.6 | | | 15.2 | | | | |
| LOS | | A | | | A | | | B | | | | |
| Approach Delay | | 8.5 | | | 7.6 | | | 15.2 | | | | |
| Approach LOS | | A | | | A | | | B | | | | |
| Stops (vph) | | 296 | | | 163 | | | 41 | | | | |
| Fuel Used(gal) | | 4 | | | 9 | | | 1 | | | | |
| CO Emissions (g/hr) | | 290 | | | 640 | | | 45 | | | | |
| NOx Emissions (g/hr) | | 56 | | | 125 | | | 9 | | | | |
| VOC Emissions (g/hr) | | 67 | | | 148 | | | 10 | | | | |
| Dilemma Vehicles (#) | | 0 | | | 0 | | | 0 | | | | |
| Queue Length 50th (ft) | | 88 | | | 48 | | | 23 | | | | |
| Queue Length 95th (ft) | | 121 | | | 71 | | | 59 | | | | |
| Internal Link Dist (ft) | | 181 | | | 2363 | | | 111 | | | | 797 |

Lanes, Volumes, Timings
 3: S Loomis St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|-----|-----|
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 1972 | | | 1835 | | | 534 | | | | |
| Starvation Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Spillback Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Storage Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Reduced v/c Ratio | | 0.37 | | | 0.24 | | | 0.18 | | | | |

Intersection Summary

| | |
|-----------------------------------|---|
| Area Type: | Other |
| Cycle Length: | 85 |
| Actuated Cycle Length: | 85 |
| Offset: | 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green |
| Natural Cycle: | 85 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.37 |
| Intersection Signal Delay: | 8.7 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 59.6% |
| ICU Level of Service | B |
| Analysis Period (min) | 15 |

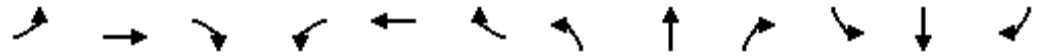
Splits and Phases: 3: S Loomis St & W 119th St



Lanes, Volumes, Timings
5: S Halstead St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|------|
| Lane Configurations | ↖ | ↖↗ | | ↖ | ↖↗ | | ↖ | ↖↗ | | ↖ | ↖↗ | |
| Traffic Volume (vph) | 203 | 269 | 43 | 38 | 240 | 94 | 46 | 591 | 21 | 64 | 285 | 86 |
| Future Volume (vph) | 203 | 269 | 43 | 38 | 240 | 94 | 46 | 591 | 21 | 64 | 285 | 86 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 135 | | 0 | 115 | | 0 | 120 | | 0 | 120 | | 0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.979 | | | 0.958 | | | 0.995 | | | 0.965 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1770 | 3465 | 0 | 1770 | 3391 | 0 | 1770 | 3522 | 0 | 1770 | 3415 | 0 |
| Flt Permitted | 0.486 | | | 0.509 | | | 0.462 | | | 0.287 | | |
| Satd. Flow (perm) | 905 | 3465 | 0 | 948 | 3391 | 0 | 861 | 3522 | 0 | 535 | 3415 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 21 | | | 65 | | | 5 | | | 50 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 665 | | | 675 | | | 757 | | | 907 | |
| Travel Time (s) | | 15.1 | | | 15.3 | | | 17.2 | | | 20.6 | |
| 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 |
| Adj. Flow (vph) | 221 | 292 | 47 | 41 | 261 | 102 | 50 | 642 | 23 | 70 | 310 | 93 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 221 | 339 | 0 | 41 | 363 | 0 | 50 | 665 | 0 | 70 | 403 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 10.0 | 38.0 | | 10.0 | 38.0 | |
| Total Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 10.0 | 38.0 | | 10.0 | 38.0 | |
| Total Split (%) | 11.1% | 35.6% | | 11.1% | 35.6% | | 11.1% | 42.2% | | 11.1% | 42.2% | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 0.0 | 2.0 | | 0.0 | 2.0 | | 0.0 | 1.0 | | 0.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 3.0 | 5.0 | | 3.0 | 5.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Act Effect Green (s) | 36.0 | 27.0 | | 36.0 | 27.0 | | 42.0 | 34.0 | | 42.0 | 34.0 | |
| Actuated g/C Ratio | 0.40 | 0.30 | | 0.40 | 0.30 | | 0.47 | 0.38 | | 0.47 | 0.38 | |
| v/c Ratio | 0.52 | 0.32 | | 0.09 | 0.34 | | 0.11 | 0.50 | | 0.20 | 0.31 | |
| Control Delay | 22.2 | 23.8 | | 15.5 | 21.0 | | 12.3 | 22.9 | | 13.3 | 17.9 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 22.2 | 23.8 | | 15.5 | 21.0 | | 12.3 | 22.9 | | 13.3 | 17.9 | |
| LOS | C | C | | B | C | | B | C | | B | B | |
| Approach Delay | | 23.2 | | | 20.5 | | | 22.1 | | | 17.2 | |
| Approach LOS | | C | | | C | | | C | | | B | |
| Stops (vph) | 138 | 218 | | 23 | 206 | | 24 | 447 | | 32 | 219 | |
| Fuel Used(gal) | 3 | 4 | | 0 | 4 | | 1 | 9 | | 1 | 5 | |
| CO Emissions (g/hr) | 191 | 303 | | 31 | 302 | | 36 | 625 | | 56 | 362 | |
| NOx Emissions (g/hr) | 37 | 59 | | 6 | 59 | | 7 | 122 | | 11 | 70 | |
| VOC Emissions (g/hr) | 44 | 70 | | 7 | 70 | | 8 | 145 | | 13 | 84 | |
| Dilemma Vehicles (#) | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |

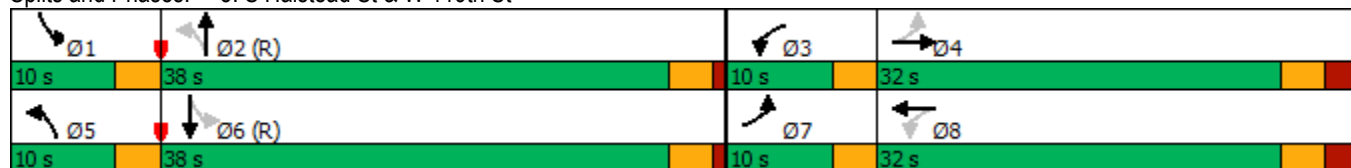


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|-----|------|------|-----|------|------|-----|------|------|-----|
| Queue Length 50th (ft) | 79 | 73 | | 13 | 67 | | 14 | 148 | | 20 | 72 | |
| Queue Length 95th (ft) | 131 | 110 | | 32 | 106 | | 32 | 200 | | 42 | 107 | |
| Internal Link Dist (ft) | | 585 | | | 595 | | | 677 | | | 827 | |
| Turn Bay Length (ft) | 135 | | | 115 | | | 120 | | | 120 | | |
| Base Capacity (vph) | 429 | 1054 | | 443 | 1062 | | 472 | 1333 | | 345 | 1321 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.52 | 0.32 | | 0.09 | 0.34 | | 0.11 | 0.50 | | 0.20 | 0.31 | |

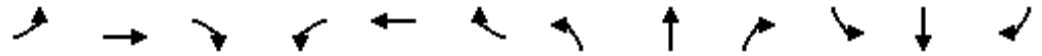
Intersection Summary

| | |
|-----------------------------------|---|
| Area Type: | Other |
| Cycle Length: | 90 |
| Actuated Cycle Length: | 90 |
| Offset: | 79.5 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |
| Natural Cycle: | 90 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.52 |
| Intersection Signal Delay: | 21.0 |
| Intersection LOS: | C |
| Intersection Capacity Utilization | 57.9% |
| ICU Level of Service | B |
| Analysis Period (min) | 15 |

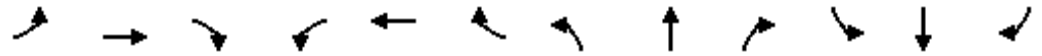
Splits and Phases: 5: S Halstead St & W 119th St



Lanes, Volumes, Timings
11: S Morgan St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|-------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | | ↕ | | | ↕ | |
| Traffic Volume (vph) | 35 | 524 | 8 | 0 | 381 | 12 | 16 | 5 | 0 | 17 | 4 | 19 |
| Future Volume (vph) | 35 | 524 | 8 | 0 | 381 | 12 | 16 | 5 | 0 | 17 | 4 | 19 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.998 | | | 0.995 | | | | | | | 0.934 |
| Fl _t Protected | | 0.997 | | | | | | 0.963 | | | | 0.979 |
| Satd. Flow (prot) | 0 | 3522 | 0 | 0 | 3522 | 0 | 0 | 1794 | 0 | 0 | 1703 | 0 |
| Fl _t Permitted | | 0.913 | | | | | | 0.864 | | | | 0.920 |
| Satd. Flow (perm) | 0 | 3225 | 0 | 0 | 3522 | 0 | 0 | 1609 | 0 | 0 | 1601 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 4 | | | 8 | | | | | | | 21 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | | 30 |
| Link Distance (ft) | | 251 | | | 317 | | | 449 | | | | 178 |
| Travel Time (s) | | 5.7 | | | 7.2 | | | 10.2 | | | | 4.0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 38 | 570 | 9 | 0 | 414 | 13 | 17 | 5 | 0 | 18 | 4 | 21 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 617 | 0 | 0 | 427 | 0 | 0 | 22 | 0 | 0 | 43 | 0 |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | | 6 |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 41.0 | 41.0 | | 41.0 | 41.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (s) | 41.0 | 41.0 | | 41.0 | 41.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (%) | 63.1% | 63.1% | | 63.1% | 63.1% | | 36.9% | 36.9% | | 36.9% | 36.9% | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 37.0 | | | 37.0 | | | 20.0 | | | | 20.0 |
| Actuated g/C Ratio | | 0.57 | | | 0.57 | | | 0.31 | | | | 0.31 |
| v/c Ratio | | 0.34 | | | 0.21 | | | 0.04 | | | | 0.08 |
| Control Delay | | 8.0 | | | 7.1 | | | 16.2 | | | | 11.0 |
| Queue Delay | | 1.0 | | | 0.0 | | | 0.0 | | | | 0.0 |
| Total Delay | | 9.1 | | | 7.1 | | | 16.2 | | | | 11.0 |
| LOS | | A | | | A | | | B | | | | B |
| Approach Delay | | 9.1 | | | 7.1 | | | 16.2 | | | | 11.0 |
| Approach LOS | | A | | | A | | | B | | | | B |
| Stops (vph) | | 273 | | | 172 | | | 16 | | | | 20 |
| Fuel Used(gal) | | 4 | | | 2 | | | 0 | | | | 0 |
| CO Emissions (g/hr) | | 248 | | | 174 | | | 16 | | | | 18 |
| NOx Emissions (g/hr) | | 48 | | | 34 | | | 3 | | | | 3 |
| VOC Emissions (g/hr) | | 58 | | | 40 | | | 4 | | | | 4 |
| Dilemma Vehicles (#) | | 0 | | | 0 | | | 0 | | | | 0 |
| Queue Length 50th (ft) | | 61 | | | 38 | | | 6 | | | | 6 |
| Queue Length 95th (ft) | | 89 | | | 58 | | | 20 | | | | 26 |
| Internal Link Dist (ft) | | 171 | | | 237 | | | 369 | | | | 98 |

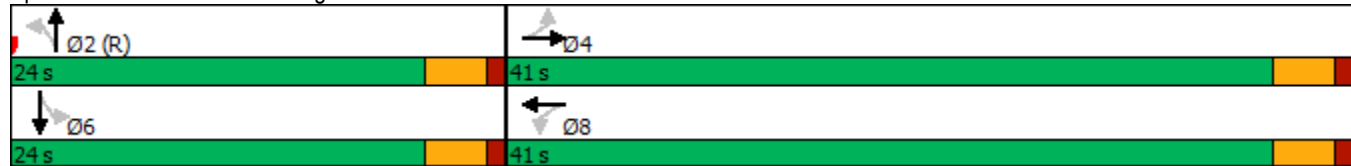


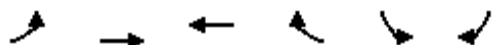
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 1837 | | | 2008 | | | 495 | | | 507 | |
| Starvation Cap Reductn | | 918 | | | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | | | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | | | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.67 | | | 0.21 | | | 0.04 | | | 0.08 | |

Intersection Summary

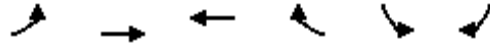
| | |
|-----------------------------------|--|
| Area Type: | Other |
| Cycle Length: | 65 |
| Actuated Cycle Length: | 65 |
| Offset: | 32 (49%), Referenced to phase 2:NBTL, Start of Green |
| Natural Cycle: | 65 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.34 |
| Intersection Signal Delay: | 8.5 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 43.3% |
| ICU Level of Service | A |
| Analysis Period (min) | 15 |

Splits and Phases: 11: S Morgan St & W 119th St





| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|----------------------------------|------|-------|-------|------|-------|------|
| Lane Configurations | | ↑↑ | ↑↑ | | ↘↘ | |
| Traffic Volume (vph) | 0 | 565 | 416 | 0 | 2 | 3 |
| Future Volume (vph) | 0 | 565 | 416 | 0 | 2 | 3 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 |
| Fr _t | | | | | 0.919 | |
| Fl _t Protected | | | | | 0.980 | |
| Satd. Flow (prot) | 0 | 3539 | 3539 | 0 | 1678 | 0 |
| Fl _t Permitted | | | | | 0.980 | |
| Satd. Flow (perm) | 0 | 3539 | 3539 | 0 | 1678 | 0 |
| Right Turn on Red | | | | Yes | | Yes |
| Satd. Flow (RTOR) | | | | | 3 | |
| Link Speed (mph) | | 30 | 30 | | 30 | |
| Link Distance (ft) | | 2443 | 251 | | 158 | |
| Travel Time (s) | | 55.5 | 5.7 | | 3.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 614 | 452 | 0 | 2 | 3 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 614 | 452 | 0 | 5 | 0 |
| Turn Type | | NA | NA | | Prot | |
| Protected Phases | | 4 | 8 | | 6 | |
| Permitted Phases | | | | | | |
| Detector Phase | | 4 | 8 | | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | | 5.0 | 5.0 | | 10.0 | |
| Minimum Split (s) | | 22.5 | 22.5 | | 13.0 | |
| Total Split (s) | | 30.0 | 30.0 | | 30.0 | |
| Total Split (%) | | 50.0% | 50.0% | | 50.0% | |
| Yellow Time (s) | | 3.5 | 3.5 | | 2.0 | |
| All-Red Time (s) | | 1.0 | 1.0 | | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | 0.0 | | 0.0 | |
| Total Lost Time (s) | | 4.5 | 4.5 | | 3.0 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Recall Mode | | None | None | | Min | |
| Act Effct Green (s) | | 11.0 | 11.0 | | 10.1 | |
| Actuated g/C Ratio | | 0.38 | 0.38 | | 0.35 | |
| v/c Ratio | | 0.45 | 0.33 | | 0.01 | |
| Control Delay | | 7.6 | 6.7 | | 6.2 | |
| Queue Delay | | 0.0 | 0.0 | | 0.0 | |
| Total Delay | | 7.6 | 6.7 | | 6.2 | |
| LOS | | A | A | | A | |
| Approach Delay | | 7.6 | 6.7 | | 6.2 | |
| Approach LOS | | A | A | | A | |
| Stops (vph) | | 334 | 231 | | 5 | |
| Fuel Used(gal) | | 13 | 3 | | 0 | |
| CO Emissions (g/hr) | | 942 | 186 | | 3 | |
| NO _x Emissions (g/hr) | | 183 | 36 | | 1 | |
| VOC Emissions (g/hr) | | 218 | 43 | | 1 | |



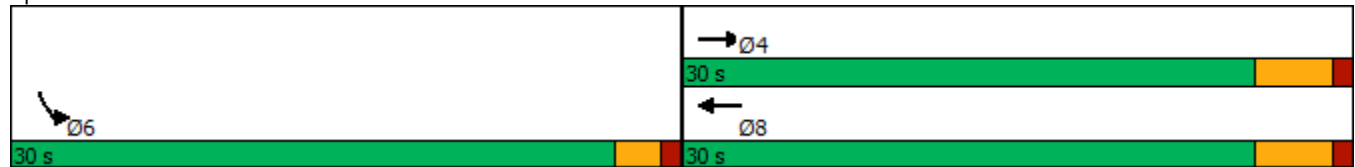
| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|-----|------|------|-----|------|-----|
| Dilemma Vehicles (#) | | 0 | 0 | | 0 | |
| Queue Length 50th (ft) | | 31 | 22 | | 0 | |
| Queue Length 95th (ft) | | 51 | 36 | | 4 | |
| Internal Link Dist (ft) | | 2363 | 171 | | 78 | |
| Turn Bay Length (ft) | | | | | | |
| Base Capacity (vph) | | 3276 | 3276 | | 1605 | |
| Starvation Cap Reductn | | 0 | 78 | | 0 | |
| Spillback Cap Reductn | | 0 | 0 | | 0 | |
| Storage Cap Reductn | | 0 | 0 | | 0 | |
| Reduced v/c Ratio | | 0.19 | 0.14 | | 0.00 | |

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 28.6
 Natural Cycle: 40
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.45
 Intersection Signal Delay: 7.2
 Intersection Capacity Utilization 31.0%
 Analysis Period (min) 15

Intersection LOS: A
 ICU Level of Service A

Splits and Phases: 21: W 119th St & Fire Station Exit



| 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 | 8 | 513 | 21 | 7 | 339 | 5 | 29 | 5 | 4 | 0 | 0 | 0 |
| Future Vol, veh/h | 8 | 513 | 21 | 7 | 339 | 5 | 29 | 5 | 4 | 0 | 0 | 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 | - | - | 0 | - | - | 0 | - | - | 16965 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 9 | 558 | 23 | 8 | 368 | 5 | 32 | 5 | 4 | 0 | 0 | 0 |

| Major/Minor | Major1 | | | Major2 | | | Minor1 | | |
|----------------------|--------|---|---|--------|---|---|--------|------|------|
| Conflicting Flow All | 373 | 0 | 0 | 581 | 0 | 0 | 788 | 977 | 291 |
| Stage 1 | - | - | - | - | - | - | 588 | 588 | - |
| Stage 2 | - | - | - | - | - | - | 200 | 389 | - |
| Critical Hdwy | 4.14 | - | - | 4.14 | - | - | 6.84 | 6.54 | 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.84 | 5.54 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.84 | 5.54 | - |
| Follow-up Hdwy | 2.22 | - | - | 2.22 | - | - | 3.52 | 4.02 | 3.32 |
| Pot Cap-1 Maneuver | 1182 | - | - | 989 | - | - | 328 | 249 | 706 |
| Stage 1 | - | - | - | - | - | - | 518 | 494 | - |
| Stage 2 | - | - | - | - | - | - | 814 | 607 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 1182 | - | - | 989 | - | - | 321 | 0 | 706 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 321 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 507 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 814 | 0 | - |

| Approach | EB | | | WB | | | NB | | |
|----------------------|-----|--|--|-----|--|--|------|--|--|
| HCM Control Delay, s | 0.1 | | | 0.2 | | | 16.9 | | |
| HCM LOS | | | | | | | C | | |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|
| Capacity (veh/h) | 344 | 1182 | - | - | 989 | - | - |
| HCM Lane V/C Ratio | 0.12 | 0.007 | - | - | 0.008 | - | - |
| HCM Control Delay (s) | 16.9 | 8.1 | 0 | - | 8.7 | 0 | - |
| HCM Lane LOS | C | A | A | - | A | A | - |
| HCM 95th %tile Q(veh) | 0.4 | 0 | - | - | 0 | - | - |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.3 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | ↑↑ | ↑↑ | | ⚡ | |
| Traffic Vol, veh/h | 0 | 554 | 369 | 0 | 8 | 15 |
| Future Vol, veh/h | 0 | 554 | 369 | 0 | 8 | 15 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 602 | 401 | 0 | 9 | 16 |

| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|---|-----------|
| Conflicting Flow All | - | 0 | - | 0 | 702 201 |
| Stage 1 | - | - | - | - | 401 - |
| Stage 2 | - | - | - | - | 301 - |
| Critical Hdwy | - | - | - | - | 6.84 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.84 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.84 - |
| Follow-up Hdwy | - | - | - | - | 3.52 3.32 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 372 806 |
| Stage 1 | 0 | - | - | 0 | 645 - |
| Stage 2 | 0 | - | - | 0 | 725 - |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | - | - | 372 806 |
| Mov Cap-2 Maneuver | - | - | - | - | 372 - |
| Stage 1 | - | - | - | - | 645 - |
| Stage 2 | - | - | - | - | 725 - |

| Approach | EB | WB | SB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 11.6 |
| HCM LOS | | | B |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|-----------------------|-----|-----|-------|
| Capacity (veh/h) | - | - | 573 |
| HCM Lane V/C Ratio | - | - | 0.044 |
| HCM Control Delay (s) | - | - | 11.6 |
| HCM Lane LOS | - | - | B |
| HCM 95th %tile Q(veh) | - | - | 0.1 |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 3.7 | | | | | |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | T | | | T | | |
| Traffic Vol, veh/h | 2 | 20 | 20 | 27 | 20 | 2 |
| Future Vol, veh/h | 2 | 20 | 20 | 27 | 20 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 2 | 22 | 22 | 29 | 22 | 2 |

| Major/Minor | Minor2 | Major1 | | Major2 | |
|----------------------|--------|--------|-------|--------|---|
| Conflicting Flow All | 96 | 23 | 24 | 0 | 0 |
| Stage 1 | 23 | - | - | - | - |
| Stage 2 | 73 | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - |
| Pot Cap-1 Maneuver | 903 | 1054 | 1591 | - | - |
| Stage 1 | 1000 | - | - | - | - |
| Stage 2 | 950 | - | - | - | - |
| Platoon blocked, % | | | | - | - |
| Mov Cap-1 Maneuver | 890 | 1054 | 1591 | - | - |
| Mov Cap-2 Maneuver | 890 | - | - | - | - |
| Stage 1 | 986 | - | - | - | - |
| Stage 2 | 950 | - | - | - | - |

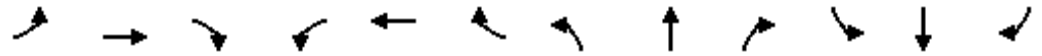
| Approach | EB | NB | SB |
|----------------------|-----|-----|----|
| HCM Control Delay, s | 8.6 | 3.1 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h) | 1591 | - | 1037 | - | - |
| HCM Lane V/C Ratio | 0.014 | - | 0.023 | - | - |
| HCM Control Delay (s) | 7.3 | 0 | 8.6 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.1 | - | - |

Lanes, Volumes, Timings
3: S Loomis St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---------------------------|-------|-------|------|-------|-------|------|-------|-------|------|------|------|------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | | ↕ | | | | |
| Traffic Volume (vph) | 43 | 562 | 17 | 20 | 547 | 23 | 8 | 3 | 8 | 0 | 0 | 0 |
| Future Volume (vph) | 43 | 562 | 17 | 20 | 547 | 23 | 8 | 3 | 8 | 0 | 0 | 0 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.996 | | | 0.994 | | | 0.942 | | | | |
| Fl _t Protected | | 0.997 | | | 0.998 | | | 0.979 | | | | |
| Satd. Flow (prot) | 0 | 3514 | 0 | 0 | 3511 | 0 | 0 | 1718 | 0 | 0 | 0 | 0 |
| Fl _t Permitted | | 0.874 | | | 0.923 | | | 0.979 | | | | |
| Satd. Flow (perm) | 0 | 3081 | 0 | 0 | 3247 | 0 | 0 | 1718 | 0 | 0 | 0 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 6 | | | 9 | | | 9 | | | | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | | 30 |
| Link Distance (ft) | | 261 | | | 2443 | | | 191 | | | | 877 |
| Travel Time (s) | | 5.9 | | | 55.5 | | | 4.3 | | | | 19.9 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 47 | 611 | 18 | 22 | 595 | 25 | 9 | 3 | 9 | 0 | 0 | 0 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 676 | 0 | 0 | 642 | 0 | 0 | 21 | 0 | 0 | 0 | 0 |
| Turn Type | Perm | NA | | Perm | NA | | Perm | NA | | | | |
| Protected Phases | | 2 | | | 6 | | | 4 | | | | |
| Permitted Phases | 2 | | | 6 | | | 4 | | | | | |
| Minimum Split (s) | 56.0 | 56.0 | | 56.0 | 56.0 | | 29.0 | 29.0 | | | | |
| Total Split (s) | 56.0 | 56.0 | | 56.0 | 56.0 | | 29.0 | 29.0 | | | | |
| Total Split (%) | 65.9% | 65.9% | | 65.9% | 65.9% | | 34.1% | 34.1% | | | | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | | | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | | | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | | | 0.0 | | | | |
| Total Lost Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 52.0 | | | 52.0 | | | 25.0 | | | | |
| Actuated g/C Ratio | | 0.61 | | | 0.61 | | | 0.29 | | | | |
| v/c Ratio | | 0.36 | | | 0.32 | | | 0.04 | | | | |
| Control Delay | | 8.8 | | | 8.4 | | | 16.1 | | | | |
| Queue Delay | | 0.0 | | | 0.0 | | | 0.0 | | | | |
| Total Delay | | 8.8 | | | 8.4 | | | 16.1 | | | | |
| LOS | | A | | | A | | | B | | | | |
| Approach Delay | | 8.8 | | | 8.4 | | | 16.1 | | | | |
| Approach LOS | | A | | | A | | | B | | | | |
| Stops (vph) | | 284 | | | 261 | | | 12 | | | | |
| Fuel Used(gal) | | 4 | | | 14 | | | 0 | | | | |
| CO Emissions (g/hr) | | 276 | | | 958 | | | 11 | | | | |
| NOx Emissions (g/hr) | | 54 | | | 186 | | | 2 | | | | |
| VOC Emissions (g/hr) | | 64 | | | 222 | | | 3 | | | | |
| Dilemma Vehicles (#) | | 0 | | | 0 | | | 0 | | | | |
| Queue Length 50th (ft) | | 84 | | | 77 | | | 5 | | | | |
| Queue Length 95th (ft) | | 116 | | | 107 | | | 21 | | | | |
| Internal Link Dist (ft) | | 181 | | | 2363 | | | 111 | | | | 797 |

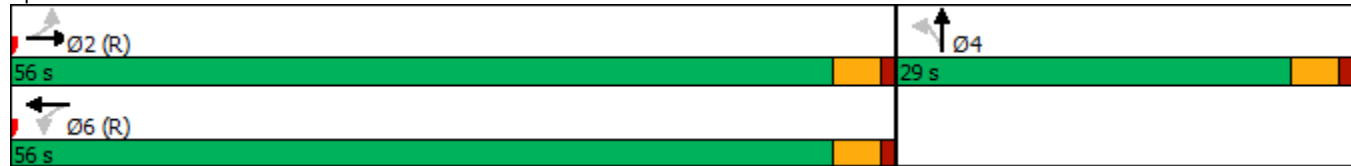


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|-----|-----|
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 1887 | | | 1989 | | | 511 | | | | |
| Starvation Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Spillback Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Storage Cap Reductn | | 0 | | | 0 | | | 0 | | | | |
| Reduced v/c Ratio | | 0.36 | | | 0.32 | | | 0.04 | | | | |





















Intersection Summary

| | |
|-----------------------------------|---|
| Area Type: | Other |
| Cycle Length: | 85 |
| Actuated Cycle Length: | 85 |
| Offset: | 0 (0%), Referenced to phase 2:EBTL and 6:WBTL, Start of Green |
| Natural Cycle: | 85 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.36 |
| Intersection Signal Delay: | 8.7 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 68.0% |
| ICU Level of Service | C |
| Analysis Period (min) | 15 |

Splits and Phases: 3: S Loomis St & W 119th St



Lanes, Volumes, Timings
5: S Halstead St & W 119th St

| |  |  |  |  |  |  |  |  |  |  |  |  |
|-------------------------|---|---|---|---|---|---|---|---|---|---|---|---|
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations |  |  | |  |  | |  |  | |  |  | |
| Traffic Volume (vph) | 155 | 300 | 99 | 64 | 252 | 88 | 94 | 457 | 45 | 123 | 658 | 151 |
| Future Volume (vph) | 155 | 300 | 99 | 64 | 252 | 88 | 94 | 457 | 45 | 123 | 658 | 151 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Storage Length (ft) | 135 | | 0 | 115 | | 0 | 120 | | 0 | 120 | | 0 |
| Storage Lanes | 1 | | 0 | 1 | | 0 | 1 | | 0 | 1 | | 0 |
| Taper Length (ft) | 25 | | | 25 | | | 25 | | | 25 | | |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 | 1.00 | 0.95 | 0.95 |
| Frt | | 0.963 | | | 0.961 | | | 0.987 | | | 0.972 | |
| Flt Protected | 0.950 | | | 0.950 | | | 0.950 | | | 0.950 | | |
| Satd. Flow (prot) | 1770 | 3408 | 0 | 1770 | 3401 | 0 | 1770 | 3493 | 0 | 1770 | 3440 | 0 |
| Flt Permitted | 0.480 | | | 0.423 | | | 0.177 | | | 0.361 | | |
| Satd. Flow (perm) | 894 | 3408 | 0 | 788 | 3401 | 0 | 330 | 3493 | 0 | 672 | 3440 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 51 | | | 55 | | | 13 | | | 35 | |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | 30 | |
| Link Distance (ft) | | 665 | | | 675 | | | 757 | | | 907 | |
| Travel Time (s) | | 15.1 | | | 15.3 | | | 17.2 | | | 20.6 | |
| 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 |
| Adj. Flow (vph) | 168 | 326 | 108 | 70 | 274 | 96 | 102 | 497 | 49 | 134 | 715 | 164 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 168 | 434 | 0 | 70 | 370 | 0 | 102 | 546 | 0 | 134 | 879 | 0 |
| Turn Type | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | | pm+pt | NA | |
| Protected Phases | 7 | 4 | | 3 | 8 | | 5 | 2 | | 1 | 6 | |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 10.0 | 38.0 | | 10.0 | 38.0 | |
| Total Split (s) | 10.0 | 32.0 | | 10.0 | 32.0 | | 10.0 | 38.0 | | 10.0 | 38.0 | |
| Total Split (%) | 11.1% | 35.6% | | 11.1% | 35.6% | | 11.1% | 42.2% | | 11.1% | 42.2% | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 0.0 | 2.0 | | 0.0 | 2.0 | | 0.0 | 1.0 | | 0.0 | 1.0 | |
| Lost Time Adjust (s) | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Lost Time (s) | 3.0 | 5.0 | | 3.0 | 5.0 | | 3.0 | 4.0 | | 3.0 | 4.0 | |
| Lead/Lag | Lead | Lag | | Lead | Lag | | Lead | Lag | | Lead | Lag | |
| Lead-Lag Optimize? | Yes | Yes | | Yes | Yes | | Yes | Yes | | Yes | Yes | |
| Act Effect Green (s) | 36.0 | 27.0 | | 36.0 | 27.0 | | 42.0 | 34.0 | | 42.0 | 34.0 | |
| Actuated g/C Ratio | 0.40 | 0.30 | | 0.40 | 0.30 | | 0.47 | 0.38 | | 0.47 | 0.38 | |
| v/c Ratio | 0.40 | 0.41 | | 0.18 | 0.35 | | 0.38 | 0.41 | | 0.34 | 0.67 | |
| Control Delay | 19.4 | 23.4 | | 16.4 | 21.9 | | 16.4 | 21.3 | | 14.7 | 25.3 | |
| Queue Delay | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | | 0.0 | 0.0 | |
| Total Delay | 19.4 | 23.4 | | 16.4 | 21.9 | | 16.4 | 21.3 | | 14.7 | 25.3 | |
| LOS | B | C | | B | C | | B | C | | B | C | |
| Approach Delay | | 22.3 | | | 21.0 | | | 20.5 | | | 23.9 | |
| Approach LOS | | C | | | C | | | C | | | C | |
| Stops (vph) | 98 | 271 | | 37 | 218 | | 49 | 347 | | 65 | 625 | |
| Fuel Used(gal) | 2 | 5 | | 1 | 5 | | 1 | 7 | | 2 | 13 | |
| CO Emissions (g/hr) | 137 | 382 | | 53 | 315 | | 80 | 493 | | 112 | 932 | |
| NOx Emissions (g/hr) | 27 | 74 | | 10 | 61 | | 15 | 96 | | 22 | 181 | |
| VOC Emissions (g/hr) | 32 | 89 | | 12 | 73 | | 18 | 114 | | 26 | 216 | |
| Dilemma Vehicles (#) | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |

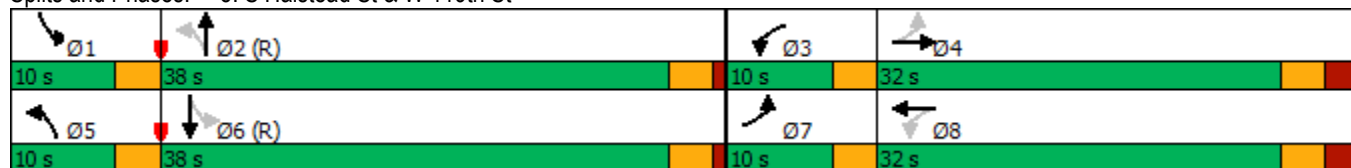


| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|-------------------------|------|------|-----|------|------|-----|------|------|-----|------|------|-----|
| Queue Length 50th (ft) | 58 | 90 | | 23 | 72 | | 29 | 115 | | 39 | 206 | |
| Queue Length 95th (ft) | 101 | 133 | | 48 | 111 | | 56 | 159 | | 71 | 272 | |
| Internal Link Dist (ft) | | 585 | | | 595 | | | 677 | | | 827 | |
| Turn Bay Length (ft) | 135 | | | 115 | | | 120 | | | 120 | | |
| Base Capacity (vph) | 425 | 1058 | | 391 | 1058 | | 266 | 1327 | | 399 | 1321 | |
| Starvation Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Spillback Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Storage Cap Reductn | 0 | 0 | | 0 | 0 | | 0 | 0 | | 0 | 0 | |
| Reduced v/c Ratio | 0.40 | 0.41 | | 0.18 | 0.35 | | 0.38 | 0.41 | | 0.34 | 0.67 | |

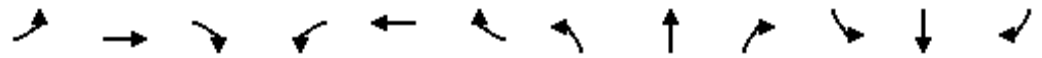
Intersection Summary

| | |
|-----------------------------------|---|
| Area Type: | Other |
| Cycle Length: | 90 |
| Actuated Cycle Length: | 90 |
| Offset: | 79.5 (88%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green |
| Natural Cycle: | 90 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.67 |
| Intersection Signal Delay: | 22.2 |
| Intersection LOS: | C |
| Intersection Capacity Utilization | 61.4% |
| ICU Level of Service | B |
| Analysis Period (min) | 15 |

Splits and Phases: 5: S Halstead St & W 119th St



Lanes, Volumes, Timings
11: S Morgan St & W 119th St



| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|---------------------------|-------|-------|------|-------|-------|------|-------|-------|------|-------|-------|-------|
| Lane Configurations | | ↕↕ | | | ↕↕ | | | ↕ | | | ↕ | |
| Traffic Volume (vph) | 31 | 501 | 4 | 0 | 532 | 22 | 12 | 2 | 0 | 32 | 0 | 38 |
| Future Volume (vph) | 31 | 501 | 4 | 0 | 532 | 22 | 12 | 2 | 0 | 32 | 0 | 38 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 | 1.00 |
| Fr _t | | 0.999 | | | 0.994 | | | | | | | 0.927 |
| Fl _t Protected | | 0.997 | | | | | | 0.958 | | | | 0.977 |
| Satd. Flow (prot) | 0 | 3525 | 0 | 0 | 3518 | 0 | 0 | 1785 | 0 | 0 | 1687 | 0 |
| Fl _t Permitted | | 0.904 | | | | | | 0.853 | | | | 0.896 |
| Satd. Flow (perm) | 0 | 3196 | 0 | 0 | 3518 | 0 | 0 | 1589 | 0 | 0 | 1547 | 0 |
| Right Turn on Red | | | Yes | | | Yes | | | Yes | | | Yes |
| Satd. Flow (RTOR) | | 2 | | | 11 | | | | | | | 41 |
| Link Speed (mph) | | 30 | | | 30 | | | 30 | | | | 30 |
| Link Distance (ft) | | 251 | | | 317 | | | 449 | | | | 178 |
| Travel Time (s) | | 5.7 | | | 7.2 | | | 10.2 | | | | 4.0 |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 34 | 545 | 4 | 0 | 578 | 24 | 13 | 2 | 0 | 35 | 0 | 41 |
| Shared Lane Traffic (%) | | | | | | | | | | | | |
| Lane Group Flow (vph) | 0 | 583 | 0 | 0 | 602 | 0 | 0 | 15 | 0 | 0 | 76 | 0 |
| Turn Type | Perm | NA | | | NA | | Perm | NA | | Perm | NA | |
| Protected Phases | | 4 | | | 8 | | | 2 | | | | 6 |
| Permitted Phases | 4 | | | 8 | | | 2 | | | 6 | | |
| Minimum Split (s) | 41.0 | 41.0 | | 41.0 | 41.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (s) | 41.0 | 41.0 | | 41.0 | 41.0 | | 24.0 | 24.0 | | 24.0 | 24.0 | |
| Total Split (%) | 63.1% | 63.1% | | 63.1% | 63.1% | | 36.9% | 36.9% | | 36.9% | 36.9% | |
| Yellow Time (s) | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | | 3.0 | 3.0 | |
| All-Red Time (s) | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | | 1.0 | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | | | 0.0 | | | 0.0 | | | 0.0 | |
| Total Lost Time (s) | | 4.0 | | | 4.0 | | | 4.0 | | | 4.0 | |
| Lead/Lag | | | | | | | | | | | | |
| Lead-Lag Optimize? | | | | | | | | | | | | |
| Act Effct Green (s) | | 37.0 | | | 37.0 | | | 20.0 | | | | 20.0 |
| Actuated g/C Ratio | | 0.57 | | | 0.57 | | | 0.31 | | | | 0.31 |
| v/c Ratio | | 0.32 | | | 0.30 | | | 0.03 | | | | 0.15 |
| Control Delay | | 8.0 | | | 7.6 | | | 16.1 | | | | 10.2 |
| Queue Delay | | 0.9 | | | 0.0 | | | 0.0 | | | | 0.0 |
| Total Delay | | 8.9 | | | 7.6 | | | 16.1 | | | | 10.2 |
| LOS | | A | | | A | | | B | | | | B |
| Approach Delay | | 8.9 | | | 7.6 | | | 16.1 | | | | 10.2 |
| Approach LOS | | A | | | A | | | B | | | | B |
| Stops (vph) | | 257 | | | 259 | | | 12 | | | | 29 |
| Fuel Used(gal) | | 3 | | | 4 | | | 0 | | | | 0 |
| CO Emissions (g/hr) | | 233 | | | 256 | | | 11 | | | | 28 |
| NOx Emissions (g/hr) | | 45 | | | 50 | | | 2 | | | | 5 |
| VOC Emissions (g/hr) | | 54 | | | 59 | | | 3 | | | | 7 |
| Dilemma Vehicles (#) | | 0 | | | 0 | | | 0 | | | | 0 |
| Queue Length 50th (ft) | | 57 | | | 57 | | | 4 | | | | 10 |
| Queue Length 95th (ft) | | 84 | | | 83 | | | 16 | | | | 37 |
| Internal Link Dist (ft) | | 171 | | | 237 | | | 369 | | | | 98 |



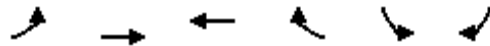
| Lane Group | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
|------------------------|-----|------|-----|-----|------|-----|-----|------|-----|-----|------|-----|
| Turn Bay Length (ft) | | | | | | | | | | | | |
| Base Capacity (vph) | | 1820 | | | 2007 | | | 488 | | | 504 | |
| Starvation Cap Reductn | | 917 | | | 0 | | | 0 | | | 0 | |
| Spillback Cap Reductn | | 0 | | | 0 | | | 0 | | | 0 | |
| Storage Cap Reductn | | 0 | | | 0 | | | 0 | | | 0 | |
| Reduced v/c Ratio | | 0.65 | | | 0.30 | | | 0.03 | | | 0.15 | |

Intersection Summary

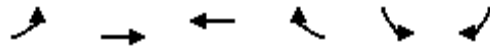
| | |
|-----------------------------------|--|
| Area Type: | Other |
| Cycle Length: | 65 |
| Actuated Cycle Length: | 65 |
| Offset: | 32 (49%), Referenced to phase 2:NBTL, Start of Green |
| Natural Cycle: | 65 |
| Control Type: | Pretimed |
| Maximum v/c Ratio: | 0.32 |
| Intersection Signal Delay: | 8.5 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 46.9% |
| ICU Level of Service | A |
| Analysis Period (min) | 15 |

Splits and Phases: 11: S Morgan St & W 119th St





| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|---------------------------|------|-------|-------|------|-------|------|
| Lane Configurations | | ↑↑ | ↑↑ | | ↘↘ | |
| Traffic Volume (vph) | 0 | 534 | 582 | 0 | 2 | 3 |
| Future Volume (vph) | 0 | 534 | 582 | 0 | 2 | 3 |
| Ideal Flow (vphpl) | 1900 | 1900 | 1900 | 1900 | 1900 | 1900 |
| Lane Util. Factor | 1.00 | 0.95 | 0.95 | 1.00 | 1.00 | 1.00 |
| Fr _t | | | | | 0.919 | |
| Fl _t Protected | | | | | 0.980 | |
| Satd. Flow (prot) | 0 | 3539 | 3539 | 0 | 1678 | 0 |
| Fl _t Permitted | | | | | 0.980 | |
| Satd. Flow (perm) | 0 | 3539 | 3539 | 0 | 1678 | 0 |
| Right Turn on Red | | | | Yes | | Yes |
| Satd. Flow (RTOR) | | | | | 3 | |
| Link Speed (mph) | | 30 | 30 | | 30 | |
| Link Distance (ft) | | 2443 | 251 | | 158 | |
| Travel Time (s) | | 55.5 | 5.7 | | 3.6 | |
| Peak Hour Factor | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 | 0.92 |
| Adj. Flow (vph) | 0 | 580 | 633 | 0 | 2 | 3 |
| Shared Lane Traffic (%) | | | | | | |
| Lane Group Flow (vph) | 0 | 580 | 633 | 0 | 5 | 0 |
| Turn Type | | NA | NA | | Prot | |
| Protected Phases | | 4 | 8 | | 6 | |
| Permitted Phases | | | | | | |
| Detector Phase | | 4 | 8 | | 6 | |
| Switch Phase | | | | | | |
| Minimum Initial (s) | | 5.0 | 5.0 | | 10.0 | |
| Minimum Split (s) | | 22.5 | 22.5 | | 13.0 | |
| Total Split (s) | | 30.0 | 30.0 | | 30.0 | |
| Total Split (%) | | 50.0% | 50.0% | | 50.0% | |
| Yellow Time (s) | | 3.5 | 3.5 | | 2.0 | |
| All-Red Time (s) | | 1.0 | 1.0 | | 1.0 | |
| Lost Time Adjust (s) | | 0.0 | 0.0 | | 0.0 | |
| Total Lost Time (s) | | 4.5 | 4.5 | | 3.0 | |
| Lead/Lag | | | | | | |
| Lead-Lag Optimize? | | | | | | |
| Recall Mode | | None | None | | Min | |
| Act Effct Green (s) | | 11.4 | 11.4 | | 10.1 | |
| Actuated g/C Ratio | | 0.39 | 0.39 | | 0.35 | |
| v/c Ratio | | 0.42 | 0.46 | | 0.01 | |
| Control Delay | | 7.2 | 7.5 | | 6.2 | |
| Queue Delay | | 0.0 | 0.0 | | 0.0 | |
| Total Delay | | 7.2 | 7.5 | | 6.2 | |
| LOS | | A | A | | A | |
| Approach Delay | | 7.2 | 7.5 | | 6.2 | |
| Approach LOS | | A | A | | A | |
| Stops (vph) | | 310 | 346 | | 5 | |
| Fuel Used(gal) | | 13 | 4 | | 0 | |
| CO Emissions (g/hr) | | 886 | 276 | | 3 | |
| NOx Emissions (g/hr) | | 172 | 54 | | 1 | |
| VOC Emissions (g/hr) | | 205 | 64 | | 1 | |

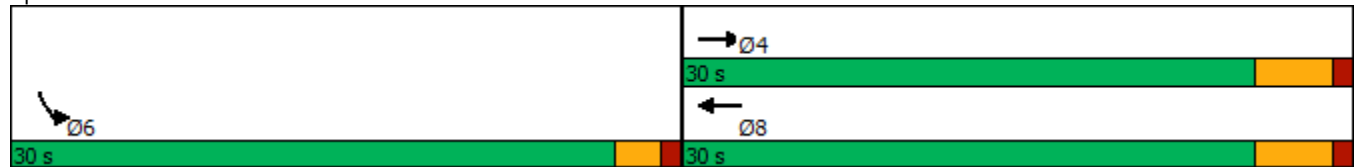


| Lane Group | EBL | EBT | WBT | WBR | SBL | SBR |
|-------------------------|-----|------|------|-----|------|-----|
| Dilemma Vehicles (#) | | 0 | 0 | | 0 | |
| Queue Length 50th (ft) | | 29 | 32 | | 0 | |
| Queue Length 95th (ft) | | 47 | 52 | | 4 | |
| Internal Link Dist (ft) | | 2363 | 171 | | 78 | |
| Turn Bay Length (ft) | | | | | | |
| Base Capacity (vph) | | 3131 | 3131 | | 1552 | |
| Starvation Cap Reductn | | 0 | 77 | | 0 | |
| Spillback Cap Reductn | | 0 | 0 | | 0 | |
| Storage Cap Reductn | | 0 | 0 | | 0 | |
| Reduced v/c Ratio | | 0.19 | 0.21 | | 0.00 | |

Intersection Summary

| | |
|-----------------------------------|------------------------|
| Area Type: | Other |
| Cycle Length: | 60 |
| Actuated Cycle Length: | 29 |
| Natural Cycle: | 40 |
| Control Type: | Actuated-Uncoordinated |
| Maximum v/c Ratio: | 0.46 |
| Intersection Signal Delay: | 7.4 |
| Intersection LOS: | A |
| Intersection Capacity Utilization | 31.5% |
| ICU Level of Service | A |
| Analysis Period (min) | 15 |

Splits and Phases: 21: W 119th St & Fire Station Exit



| Intersection | | | | | | | | | | | | |
|--------------------------|------|------|------|------|------|------|------|------|------|------|-------|------|
| Int Delay, s/veh | 0.9 | | | | | | | | | | | |
| Movement | EBL | EBT | EBR | WBL | WBT | WBR | NBL | NBT | NBR | SBL | SBT | SBR |
| Lane Configurations | | ↔ | | | ↔ | | | ↔ | | | | |
| Traffic Vol, veh/h | 10 | 517 | 27 | 5 | 494 | 7 | 33 | 7 | 5 | 0 | 0 | 0 |
| Future Vol, veh/h | 10 | 517 | 27 | 5 | 494 | 7 | 33 | 7 | 5 | 0 | 0 | 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 | - | - | 0 | - | - | 0 | - | - | 16965 | - |
| Grade, % | - | 0 | - | - | 0 | - | - | 0 | - | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 11 | 562 | 29 | 5 | 537 | 8 | 36 | 8 | 5 | 0 | 0 | 0 |

| Major/Minor | Major1 | | Major2 | | Minor1 | | | | |
|----------------------|--------|---|--------|------|--------|---|------|------|------|
| Conflicting Flow All | 545 | 0 | 0 | 591 | 0 | 0 | 878 | 1154 | 296 |
| Stage 1 | - | - | - | - | - | - | 599 | 599 | - |
| Stage 2 | - | - | - | - | - | - | 279 | 555 | - |
| Critical Hdwy | 4.14 | - | - | 4.14 | - | - | 6.84 | 6.54 | 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | - | - | 5.84 | 5.54 | - |
| Critical Hdwy Stg 2 | - | - | - | - | - | - | 5.84 | 5.54 | - |
| Follow-up Hdwy | 2.22 | - | - | 2.22 | - | - | 3.52 | 4.02 | 3.32 |
| Pot Cap-1 Maneuver | 1020 | - | - | 981 | - | - | 287 | 196 | 700 |
| Stage 1 | - | - | - | - | - | - | 511 | 489 | - |
| Stage 2 | - | - | - | - | - | - | 743 | 511 | - |
| Platoon blocked, % | - | - | - | - | - | - | - | - | - |
| Mov Cap-1 Maneuver | 1020 | - | - | 981 | - | - | 280 | 0 | 700 |
| Mov Cap-2 Maneuver | - | - | - | - | - | - | 280 | 0 | - |
| Stage 1 | - | - | - | - | - | - | 499 | 0 | - |
| Stage 2 | - | - | - | - | - | - | 743 | 0 | - |

| Approach | EB | WB | NB |
|----------------------|-----|-----|------|
| HCM Control Delay, s | 0.2 | 0.1 | 19.1 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | NBLn1 | EBL | EBT | EBR | WBL | WBT | WBR |
|-----------------------|-------|-------|-----|-----|-------|-----|-----|
| Capacity (veh/h) | 304 | 1020 | - | - | 981 | - | - |
| HCM Lane V/C Ratio | 0.161 | 0.011 | - | - | 0.006 | - | - |
| HCM Control Delay (s) | 19.1 | 8.6 | 0.1 | - | 8.7 | 0 | - |
| HCM Lane LOS | C | A | A | - | A | A | - |
| HCM 95th %tile Q(veh) | 0.6 | 0 | - | - | 0 | - | - |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 0.4 | | | | | |
| Movement | EBL | EBT | WBT | WBR | SBL | SBR |
| Lane Configurations | | ↑↑ | ↑↑ | | ⚡ | |
| Traffic Vol, veh/h | 0 | 540 | 546 | 0 | 16 | 9 |
| Future Vol, veh/h | 0 | 540 | 546 | 0 | 16 | 9 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Free | Free | Free | Free | Stop | Stop |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | - | - | - | - | 0 | - |
| Veh in Median Storage, # | - | 0 | 0 | - | 0 | - |
| Grade, % | - | 0 | 0 | - | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 0 | 587 | 593 | 0 | 17 | 10 |

| Major/Minor | Major1 | Major2 | Minor2 | | |
|----------------------|--------|--------|--------|---|-----------|
| Conflicting Flow All | - | 0 | - | 0 | 887 297 |
| Stage 1 | - | - | - | - | 593 - |
| Stage 2 | - | - | - | - | 294 - |
| Critical Hdwy | - | - | - | - | 6.84 6.94 |
| Critical Hdwy Stg 1 | - | - | - | - | 5.84 - |
| Critical Hdwy Stg 2 | - | - | - | - | 5.84 - |
| Follow-up Hdwy | - | - | - | - | 3.52 3.32 |
| Pot Cap-1 Maneuver | 0 | - | - | 0 | 284 699 |
| Stage 1 | 0 | - | - | 0 | 515 - |
| Stage 2 | 0 | - | - | 0 | 730 - |
| Platoon blocked, % | - | - | - | - | - |
| Mov Cap-1 Maneuver | - | - | - | - | 284 699 |
| Mov Cap-2 Maneuver | - | - | - | - | 284 - |
| Stage 1 | - | - | - | - | 515 - |
| Stage 2 | - | - | - | - | 730 - |

| Approach | EB | WB | SB |
|----------------------|----|----|------|
| HCM Control Delay, s | 0 | 0 | 15.8 |
| HCM LOS | | | C |

| Minor Lane/Major Mvmt | EBT | WBT | SBLn1 |
|-----------------------|-----|-----|-------|
| Capacity (veh/h) | - | - | 361 |
| HCM Lane V/C Ratio | - | - | 0.075 |
| HCM Control Delay (s) | - | - | 15.8 |
| HCM Lane LOS | - | - | C |
| HCM 95th %tile Q(veh) | - | - | 0.2 |

| Intersection | | | | | | |
|--------------------------|------|------|------|------|------|------|
| Int Delay, s/veh | 2.7 | | | | | |
| Movement | EBL | EBR | NBL | NBT | SBT | SBR |
| Lane Configurations | | | | | | |
| Traffic Vol, veh/h | 2 | 20 | 20 | 30 | 50 | 2 |
| Future Vol, veh/h | 2 | 20 | 20 | 30 | 50 | 2 |
| Conflicting Peds, #/hr | 0 | 0 | 0 | 0 | 0 | 0 |
| Sign Control | Stop | Stop | Free | Free | Free | Free |
| RT Channelized | - | None | - | None | - | None |
| Storage Length | 0 | - | - | - | - | - |
| Veh in Median Storage, # | 0 | - | - | 0 | 0 | - |
| Grade, % | 0 | - | - | 0 | 0 | - |
| Peak Hour Factor | 92 | 92 | 92 | 92 | 92 | 92 |
| Heavy Vehicles, % | 2 | 2 | 2 | 2 | 2 | 2 |
| Mvmt Flow | 2 | 22 | 22 | 33 | 54 | 2 |

| Major/Minor | Minor2 | Major1 | | Major2 | |
|----------------------|--------|--------|-------|--------|---|
| Conflicting Flow All | 132 | 55 | 56 | 0 | 0 |
| Stage 1 | 55 | - | - | - | - |
| Stage 2 | 77 | - | - | - | - |
| Critical Hdwy | 6.42 | 6.22 | 4.12 | - | - |
| Critical Hdwy Stg 1 | 5.42 | - | - | - | - |
| Critical Hdwy Stg 2 | 5.42 | - | - | - | - |
| Follow-up Hdwy | 3.518 | 3.318 | 2.218 | - | - |
| Pot Cap-1 Maneuver | 862 | 1012 | 1549 | - | - |
| Stage 1 | 968 | - | - | - | - |
| Stage 2 | 946 | - | - | - | - |
| Platoon blocked, % | | | | - | - |
| Mov Cap-1 Maneuver | 850 | 1012 | 1549 | - | - |
| Mov Cap-2 Maneuver | 850 | - | - | - | - |
| Stage 1 | 954 | - | - | - | - |
| Stage 2 | 946 | - | - | - | - |

| Approach | EB | NB | SB |
|----------------------|-----|-----|----|
| HCM Control Delay, s | 8.7 | 2.9 | 0 |
| HCM LOS | A | | |

| Minor Lane/Major Mvmt | NBL | NBT | EBLn1 | SBT | SBR |
|-----------------------|-------|-----|-------|-----|-----|
| Capacity (veh/h) | 1549 | - | 995 | - | - |
| HCM Lane V/C Ratio | 0.014 | - | 0.024 | - | - |
| HCM Control Delay (s) | 7.4 | 0 | 8.7 | - | - |
| HCM Lane LOS | A | A | A | - | - |
| HCM 95th %tile Q(veh) | 0 | - | 0.1 | - | - |