

FINAL DESIGN REPORT - Volume 2

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City of Rochester, Department of Environmental Services



New York State Department of Transportation





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Memo Final



To: John Thomas From: William C. Holthoff

City Of Rochester Rochester (2250) NY Office

File: Inner Loop 192500170 Date: January 13, 2009

April 24, 2009 Revised

This document has been revised based on New York State Department of Transportation and Monroe County Department of Transportation comments (attached).

Raising the Eastern Portion of the Inner Loop Go/No Go Analysis

Introduction

The possibility of raising the eastern portion of the Inner Loop from Main Street to Monroe Avenue/Chestnut Street, to an at-grade boulevard or arterial was first considered and recommended in the "Vision 2000 Plan" prepared in the early 1990's. Since then, a number of additional studies have been completed to assess the potential of raising various segments of the Inner Loop to grade, and the land use implications resulting from such a modification to the City's street grid. The current study is scoped to determine the feasibility of raising the eastern section of the Inner Loop to grade, including a detailed analysis of transportation benefits, possible environmental and social impacts, the life cycle costs of maintaining the existing Inner Loop and its service roads, as well as safety and structural analysis of the retaining walls, bridges and pavement that make up this section of the Inner Loop and the service roads.

Prior to undertaking this costly analysis using public funds, it is prudent to at least undertake an initial traffic analysis to determine if there is a feasible alternative that can maintain or improve traffic operations in the study area if the Inner Loop is reconstructed to an at-grade boulevard or arterial. In addition, whether or not these roadway network changes will have any significant impacts outside the immediate study area should be determined. Thus, this initial study is being completed in order to be able to make a Go/No Go decision on whether to proceed with the significantly detailed and costly study. This memo addresses these issues and provides the supportive analysis and information needed to make a determination on whether to proceed with the more detailed study.

In summary, this memo is intended to address two (2) items:

1. Will raising the eastern portion of the Inner Loop to grade have transportation impacts beyond the existing Inner Loop and adjacent intersections?

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> 2. Is there at least one feasible alternative that would allow the eastern portion of the Inner Loop to be raised to grade without having severe transportation impacts within and around the immediate transportation network, now and in the future?

Summary of Findings

- 1. The traffic impacts of raising the eastern portion of the Inner Loop will be limited to the eastern Inner Loop area and adjacent intersections;
- 2. Future growth in traffic in the area will be traffic generated by proposed new developments or redevelopments within the Rochester CBD to the year 2014. After 2014 traffic is forecasted to increase by +0.625% per year, without raising the Inner Loop and if the Inner Loop is raised +0.75% per year (the larger value to reflect redevelopment of land vacated by raising the Inner Loop);
- Construction of the I-490 Western Gateway Project, underway when most of the updated traffic counts where obtained, had little if any notable impact on travel patterns and traffic volumes in the eastern Inner Loop Area;
- 4. That Level of Service (LOS) on the existing portion of the eastern Inner Loop and adjacent intersections are and will remain (through the year 2035), LOS of "C" or better with no individual movements below LOS "D";
- 5. That raising most of the eastern Inner Loop between the Monroe/Chestnut intersection to the East Avenue Intersection to two (2) through travel lanes in each direction, plus a separate left turn lane at major intersections, will maintain the high levels of traffic operations that would exist, if the eastern Inner Loop was not raised;
- 6. There are at least two (2) alternatives that would maintain high levels of traffic operations if the eastern Inner Loop was raised to grade at Main Street. However, to achieve these levels of traffic operations, the Inner Loop on/off ramp to Main Street would need to be widened from 5 lanes to 8 lanes and the section of University Avenue between South Union Street and Main Street would need to be widened from 5 lanes to either 7 or 8 lanes, depending on the alternative;
- 7. Due to the proximity of intersections, vehicle storage for the section of University Avenue between South Union Street and Main Street is an issue now, and will remain so into the future, for the existing Inner Loop or a raised Inner Loop.
- 8. That some of these widening and storage issues at the intersections near Main Street and University Avenue may be reduced by further refinements, acceptance of lower levels of traffic operations, or possibly by using Roundabouts. These and other alternatives will be explored given a Go decision.

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- 9. That accident rates on the mainline section of the Inner Loop do not exceed the statewide average for accidents on this type of highway. However, eight (8) of the eleven (11) adjacent intersections exceed the statewide average and ten (10) of the eleven (11) exceed the Monroe County Accident rate for an at-grade intersection, with a number of these intersections having a high rate of right angle accidents that might be corrected by replacing these intersections with a Roundabout or other alternative improvements.
- 10. A new I-490 westbound off-ramp to the Inner Loop could:
 - a. Be designed and constructed with a design speed of 25 MPH, 5% super elevation and posted for 20 MPH;
 - b. Would sever the existing pedestrian connection between Monroe Avenue and the South Wedge.
 - c. May attract 300 to 450 vehicles during the morning peak hour. The majority of this traffic (200 to 300) would divert from the I-490 off-ramp to Goodman Street. This traffic uses Broadway to reach this section of the Inner Loop. The remaining traffic would divert from the Clinton Avenue off-ramp;
 - d. The majority of this additional traffic is already traveling within the Inner Loop area. Analysis of this additional traffic on a raised Inner Loop would indicate that levels of traffic operations would remain acceptable (overall LOS "C" with no individual movements below "D");
 - e. That analysis of possible traffic impacts to I-490 (e.g. ramp spacing, decision sight distance, traffic operations) as a result of constructing this ramp, if any, will be identified after the Go decision;
 - f. The cost of constructing this ramp is approximately \$2.6 million;
- 11. The current estimated construction cost (including professional design and construction inspection services) of raising the eastern Inner Loop to grade between Chestnut/Monroe Avenue to Main Street is \$33.3 million (excluding the new I-490 off-ramp).

Recommendations and Conclusions

Based on the analysis, the following recommendations should be considered related to further study of raising the Inner Loop:

 Inner Loop between Chestnut/Monroe and East Avenue – The analysis did not identify any major travel disadvantages of reconstructing this section of the Inner Loop with a 5 lane arterial or boulevard. Thus, it is recommended that a GO decision be made and allowing a more detail analysis of this section to progress.

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Inner Loop at Main Street – Analysis indicates two traditional intersection
alternatives that would maintain reasonable traffic operations if the Inner Loop
was brought to grade at Main Street. Both alternatives, however, would require
significant road widening to the existing Inner Loop Main Street ramps and the
section of University Avenue between Main Street and South Union Street.

If undertaken, this would free up a significant amount of developable land, however, the impacts of widened streets in this area may not be acceptable. It is recommended that the concept of raising the Inner Loop at Main Street be carried forward into the next phase to determine whether other alternatives, such as Roundabouts, or diverting University Avenue traffic to the Scio Street interchange, may reduce these impacts to a more acceptable level. If not, consideration of raising the Inner Loop at Main Street should be documented and dropped from further consideration.

3. Westbound I-490 off-ramp to the Inner Loop – Review of this ramp indicates that it could be constructed; however, it would need to operate at a very low speed and sever a pedestrian connection between portions of the city. If this ramp is still considered an important addition to the highway network, then an analysis to determine any possible impacts of this low speed ramp to the I-490 mainline should be undertaken. If these impacts are acceptable, then discussions with FHWA should be undertaken to determine whether they will consider construction of this low speed ramp from the Interstate highway.

The remainder of this memo documents the process, analysis and findings in much greater detail.

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Raising the Eastern Inner Loop – Go/No Go Analysis

Background

The concept of the Inner Loop was developed in the 1960s. The concept and eventual implementation was to assist in distributing traffic in and around the Rochester Central Business District (CBD) as a result of construction of the I-490 expressway, as well as the future extension of I-390 to the CBD area. Since that time, the Inner Loop was constructed, as was I-490; however, the extension of I-390 to the CBD has not and never will be constructed. While many sections of the Inner Loop have served their purpose (i.e. distributing traffic in and around the Rochester CBD) and are valid links to maintain reasonable traffic operations in this area, the lightly used eastern portion of the Inner Loop that consists of 10 to 12 travel lanes associated with both the Inner Loop and the service roads that parallel it, has not.

This lightly used section of the Inner Loop is most likely the result of not extending I-390 to the Rochester CBD. Thus the question, should this section, which serves little, if any, transportation purpose and creates a barrier for pedestrian, bicyclist and motor vehicles, continue to exist? Also, the costs required to maintain 10 to 12 lanes of highway, four bridges, 8 traffic lights and as well as the opportunity costs of the land in the area that could be developed for other purposes should be considered.

Inner Loop Study Area

Concerns have been raised as to what traffic impacts might result from raising the eastern end of the Inner Loop on other area highways. In particular, on the expressway system and other arterials serving the Rochester Central Business District (CBD). If traffic increased significantly on other highway segments as a result of raising the Inner Loop, then the study area for this project would need to enlarged to address any traffic impacts that resulted.

To address this concern, the Genesee Transportation Council (GTC) Regional Travel Forecasting Model was employed. The forecasting model was run with and without the Inner Loop being raised for the year 2014, the year being used to analyze all the different proposed land use changes within the CBD. The resulting forecasted travel volumes were then compared at major segments of the highway system, with the Inner Loop being raised and without raising it, to determine any major traffic volume changes away from the Inner Loop that would occur.

The analysis, presented in Attachment A, compared segments of the expressway system, major arterials and Genesee River Bridge Crossings. The analysis found any traffic impact resulting from raising the Inner Loop to be in the immediate area adjacent to the section of Inner Loop being raised. Raising the Inner Loop will have no notable traffic impacts to the expressway system, their interchanges, or on major arterials surrounding or serving the Rochester CBD. Thus, the study area for determining the traffic impacts is at intersections with the Inner Loop and those immediately adjacent to them.

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Growth in Traffic - 20 Years after Reconstruction

Review of the travel patterns generated by the GTC Regional Forecasting model for the years 2005 to 2014 reflects all the planned land use changes in and around the Rochester Central Business District (CBD). While change in traffic between 2005 and 2014 does vary depending on what roadway section was reviewed, at most it shows an increase of 10%. Traffic growth along most roadway sections is less than 5% (or 0.625 per year) during the 8 year period forecasted.

Thus, to determine Inner Loop travel at ETC+20 or for the year 2035, the following was done:

- 1. The base traffic counts taken in 2008 were used to forecast future traffic volumes to 2035;
- 2. MCDOT created a future (2014) traffic file to reflect all the land use changes proposed for the CBD. These projections where used to forecast traffic to 2014;
- 3. The 2014 traffic forecasted by MCDOT was then increased by 0.625% per year to 2035 (ETC+20) using a straight percentage increase for traffic using the existing Inner Loop (without it being raised)
- 4. For a raised Inner Loop, a higher percentage was used (0.75% per year) to forecast traffic using a raised Inner Loop to the year 2035. The higher percentage increase used for a raised Inner Loop reflects additional traffic from development of the lands available by removing the Inner Loop.

This method of forecasting future travel for the Inner Loop was presented, reviewed and accepted by the Steering Committee.

Impact of Western Gateway Project (I-490 Reconstruction)

The traffic counts used to analyze the potential traffic impacts were obtained during the summer of 2008 while the I-490 Western Gateway Project was under construction, which had various restrictions and lane as well as ramp closures. To determine the possibility that the Western Gateway Project may have changed travel patterns of vehicles using the eastern Inner Loop and as such would affect the results, additional traffic counts were taken at the Monroe/Chestnut interchange with the Inner Loop, including the Inner Loop Main Line. These counts where taken after all I-490 Western Gateway Project lanes and ramps were reopened to traffic. The counts were taken on Thursday, 12/4/08 and the results were compared to counts taken during the months of June and August of 2008. Minor differences of traffic getting on or off the Inner Loop at Monroe/Chestnut were found, however there was little notable change in traffic using the Inner Loop itself. As a result, the traffic volumes using the Inner Loop and adjacent intersections analysis were adjusted to reflect the higher, but minor changes in traffic volumes.

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The following figures compare the intersection turning movement counts taken while construction was occurring on the I-490 Western Gateway Project and those counted after all sections of I-490 were open to traffic. Overall, the comparison shows that the I-490 Western Gateway Project, which was under construction at the time many of the traffic counts where obtained, had little notable impact on travel behavior in the eastern portion of the Inner Loop.





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Present and Future Traffic Operations

2008 Traffic Operations

Updated (2008) traffic turning movement counts were obtained during the weekday morning and evening peak travel hours along the eastern Inner Loop and adjacent intersections. Heavy vehicle data was also obtained at each of the locations and reflected in the analysis. This information was then used to determine current operating conditions. The analysis found that the Level of Service at all Inner Loop and adjacent intersections are operating well; all with Level of Service (LOS) of "C" or better with no turning movement below LOS "D".

2035 Future Traffic Operations

Again, all intersections were found to provide of LOS "C" or better with no turning movements below LOS "D".

Traffic Operations - Raised Inner Loop

In order to be able to make a Go Decision, at least one alternative layout needs to be identified. This alternative will maintain reasonable levels of operation in the area (LOS "D" for intersection and turning movements). For this level of analysis, a reasonable alignment was chosen (generally following Union Street corridor). Using this corridor alignment, two (2) options where explored. The first option includes raising the Inner Loop from Monroe/Chestnut to East Avenue only (Option 1). The second option extends raising the Inner Loop to Main Street with two (2) sub-options; one without reconnecting University Avenue (Option 2), the other with the re-connection of University Avenue (Option 4).

The analysis shows LOS "C" or better could be maintained with no turning movements below LOS of "D" for all alternatives and sub-options, provided additional improvements are made at Main Street and University Avenue.

To achieve these levels of traffic operations would require:

- Generally, two (2) through lanes on the raised Inner Loop portion between Monroe Avenue and University Avenue with separate left turn lanes at intersections. These improvements are consistent for all alternatives.
- If the Inner Loop <u>is not</u> raised at Main Street, then no further improvements would be required at the intersection of Main Street and at the South Union Street Intersection with University Avenue.
- Raising the Inner Loop to grade at Main Street, however, would require the Inner Loop on/off ramp to be widened from 5 lanes to 8 lanes for either alternative considered. While no improvement would be required to east/west Main Street, the section of University Avenue between South Union Street and Main Street would need to be widened from 5 lanes to 7 lanes if the two sections of

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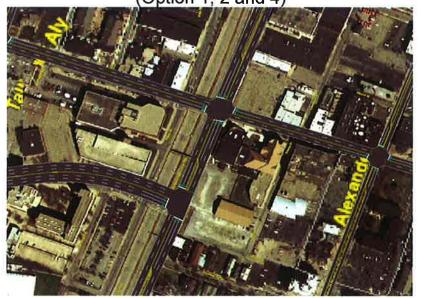
University Avenue are <u>not</u> reconnected. If University Avenue is reconnected, a 4 lane new road connection would be needed.

The following 5 figures present the lane configuration needed to maintain LOS at each key intersections. Note that some of these widening and storage issues may be reduced by further refinement, acceptance of lower levels of traffic operations, or possibly by using Roundabouts.

Chestnut/Monroe/Raised Inner Loop



East Avenue, Broad Street/Raised Inner Loop (Option 1, 2 and 4)



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Option 1 - Main/University-Inner Loop Not Raised



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Option 4 - Main/University-Raised Inner Loop Re-Connected University Avenue



The following table summarizes the overall intersection results. A detailed LOS by turning movement is presented in Attachment C, and the Synchro analysis files are contained in the attached CD.

Intersection Queuing Analysis

While each individual intersection was found to provide a reasonable LOS, the possibility that these levels of operation could not be achieved because of the lack of vehicle storage between intersections, or the various vehicle turning lanes, was also explored. Overall, the queue lengths where found to be less than the available storage lengths available for 2008 conditions and 2035 conditions for both the existing Inner Loop and for most options under a raised Inner Loop. The area with the least amount of vehicle storage between intersections, however, is on University Avenue between Main Street and South Union Street. A queuing analysis table is presented in Attachment C.

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Overall Level of Service

		Option 4	NTERSECTION REMOVED	SAME AS OPTION 1	STING	SAME AS OPTION 1	INTERSECTION REMOVED	SAME AS OPTION 1	NTERSECTION REMOVED	0	o	O	O
	PM	Option 2	CTION	AS 9	SAME AS EXISTING	AS O	CTION	AS O	ECTION	m	O	ပ	m
	Δ.	Option 1	INTERSE	m	SAME	4	INTERSE	U	INTERSE	a	U	O	m
2035		Existing	∢	4	m	œ	m	m	ω	a	U	U	æ
20		Option 4	MOVED	E AS	TING	E AS	MOVED	E AS	MOVED	a	80	O	ပ
	5	Option 2	NTERSECTION REMOVED	SAME AS OPTION 1	SAME AS EXISTING	SAME AS OPTION 1	INTERSECTION REMOVED	SAME AS OPTION 1	INTERSECTION REMOVED	m	m	U	ω.
	AM	Option 1	INTERSE	œ	SAME	4	INTERSE	m	INTERSE	4	m	U	ω
		Existing	00	ω	ω	U	4	4	m	4	m	U	m
		Option 4	MOVED	E AS	LING	E AS	MOVED	EAS ON 1	MOVED	80	U	U	O
	5	Option 2	INTERSECTION REMOVED	SAME AS OPTION 1	SAME AS EXISTING	SAME AS OPTION 1	INTERSECTION REMOVED	SAME AS OPTION 1	INTERSECTION REMOVED	m	υ	U	m
	PM	Option 1	INTERSE	<u>a</u>	SAME	⋖	INTERSE	ω	INTERSE	m	m	U	œ
28		Existing	4	4	∢	m	m	4	ю	m	m	U	m
2008		Option 4	MOVED	EAS ON 1	LING	E AS	MOVED	EAS ON 1	MOVED	ω	m	ပ	ပ
	_	Option 2	INTERSECTION REMOVED	SAME AS OPTION 1	SAME AS EXISTING	SAME AS OPTION 1	INTERSECTION REMOVED	SAME AS OPTION 1	INTERSECTION REMOVED	m	m	ပ	m
	AM	Option 1	INTERSE	ω	SAME	4	INTERSE	ω	INTERSE	6	ပ	ပ	m
		Existing	m	4	œ	O	4	∢	ω	4	8	ပ	œ
	Intersection		Monroe Avenue & Inner Loop EB Ramps	Monroe Avenue & Inner Loop WB Ramps	Monroe Avenue & Union Street	Union Street & Broad/Court Street	Pitkin Street & Broad/Court Street	Union Street & East Avenue	Pitkin Street & East Avenue	University Avenue & Union Street	Main Street & Union Street	Main Street & Inner Loop Ramps	Main Street & University Avenue/Pitkin Street

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Measure of Effectiveness

Synchro traffic analysis software provides a number of performance measures for comparison of network alternatives. Some of these measures include vehicle stops, delay, travel time, average speed and emissions. It should be noted that these measures represent the entire network evaluated including the free flow expressway traffic as well as the at grade signalized and unsignalized intersections. Performance measures, which are presented in the following table, where obtained on a simulated traffic network (60 minutes) during each peak hour for each alternative considered. The table shows that some network performance measures are better for some alternatives than for others. In some cases better than can be achieved under the No-Build option. This, in spite of the fact that raising the Inner Loop would result in higher traffic volumes generated by new adjacent development and that free flow traffic on existing Inner Loop would now have to travel through three (3) or four (4) at-grade traffic signal controlled intersections.

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SimTraffic MOE's (60-minute Interval)

	_			_				_			_					_
		Raised Inner Loop - 2035	432.6	847.3	373.9	732.3	28271	15.38	5463.5	637.4	6	302.3	18.1	2536	81739	8660
ji	p Area	Raised Inner Loop - Option 2 2035	385.6	643.8	331.6	553.7	24615	11.42	5405.3	587.6	12	291.3	19.1	2493	81856	8700
PM Peak Hour	Overall Inner Loop	Raised Inner Loop - Option 1 2035	255.1	452.3	202.7	359.4	24151	11.89	5680	466.5	12	270.8	21	2716	88298	9312
	Overal	- bliu8 oV 3635	311	602.7	263.3	510.1	22779	12.26	5112	497	12	266.2	19.2	2515	87009	8707
		Existing Conditions - 2008	162.1	548	126.5	427.5	17571	16.5	4938.3	345.2	14	227.6	21.7	2418	86888	8450
		Raised Inner Loop - Option 4 2035	472.2	434.1	432.4	397.5	21258	5.43	4626.8	644.5	10	282.3	16.4	3909	101307	9270
on.	op Area	Raised Inner Loop - Option 2 2035	336.3	289.5	298.3	256.8	19463	4.65	4668.8	509.1	13	251.1	18.6	3581	95621	9125
AM Peak Hour	Overall Inner Loop Area	Raised Inner Loop - Option 1 2035	191.3	171.2	152.8	136.7	18928	4.7	4820.4	367.9	14	226	21.3	3316	95334	9839
Ā	Overa	- bliu8 oM 2602	170.8	155.7	136.6	124.5	17691	4.48	4438	335	13	210.3	21.1	2818	89440	8948
		- enoitibnoO gnitsix∃ 2002	132.8	143.7	108.6	117.6	13887	4.18	3700.1	271.7	14	175.7	21.1	2401	78934	7656
			hr)	(s)	hr)	Veh (s)			mi)	(hr)	mph)	al)	(g)	(a)	(b) sı	ns (g)
			Total Delay (hr)	Delay / Veh (s)	Stop Delay (hr)	Stop Delay / Veh (s)	Total Stops	Stop / Veh	Travel Dist. (mi)	Travel Time (hr)	Avg Speed (mph)	Fuel Used (gal)	Fuel Eff. (mpg)	HC Emissions (g)	CO Emissions (g)	NOx Emissions (g)

NOTE: - Bold represents the more efficient option in comparison to 2035 No-Build geometry.

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Inner Loop Accident Analysis and Major Non-Standard Features

The existing Inner Loop consists of a number of non-standard highway features that could contribute to accidents within the corridor. These are:

- What might be considered diamond interchanges at the Inner Loop with the intersections of East Avenue, Broad Street and Chestnut/Monroe Avenue (short section two traffic signals);
- 2. Blind slip ramps to the Inner Loop between Broad Street and Chestnut /Monroe Avenue;
- 3. The merge, weave section from the two lane on-ramp from southbound Chestnut Street to the two lane Inner Loop to reach the loop ramp to South Clinton Avenue, I-490 eastbound and I-490 westbound.

To determine if this is true for the eastern Inner Loop, an accident analysis was undertaken and the detailed analysis and accident diagrams are contained in Attachment B and summarized in the following table.

The table shows the locations experiencing accidents above state or county wide accident rates. These locations are highlighted in red for those exceeding the State-wide rates.

The detailed analysis of eastern Inner Loop mainline sections found the overall accident rate to be 2.48 accidents per million vehicle miles (acc/mvm), which is lower than the statewide accident rate of 2.72 acc/mvm for Principal Arterial Expressway. The majority of these accidents were found to occur along the horizontal curve between East Main Street and East Avenue. Thus, these sub-standard features do not appear to be causing an accident rate that would exceed those expected to be found on a Principal Arterial Expressway

Of the eleven (11) at-grade adjacent intersections examined in this analysis, only 3 intersections had an accident rate below the statewide accident rate and only 1 below the Monroe County average accident rate (East Main Street at University/Pitkin Street).

Further study will be required to determine if raising the Inner Loop will assist in reducing these intersection accidents, in particular the high proportion of right angle accidents on South Union Street at the intersections with Monroe Avenue, East Avenue and University Avenue. Consideration of the use of a Roundabout at the raised Inner Loop intersection, rather that traffic signal controlled intersections, would assist in eliminating right angle accidents at these intersections.

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ACCIDENT RATES

	Number of	State/County		
Intersection	Accidents	Rate	Actual Rate	
Intersection Rate (excludes m	idblock accident	s)		
East Main Street @				
University/Pitkin	7	0.26 / 0.46	0.33	ACC/MEV
East Main Street @				
Inner Loop/University	40	0.26 / 0.46	0.96	ACC/MEV
East Main Street @				
Union Street	23	0.26 / 0.46	0.83	ACC/MEV
Pitkin Street @				
East Ave	8	0.34 / 0.22	0.44	ACC/MEV
Pitkin Street @				
Broad Street	4	0.34 / 0.22	0.66	ACC/MEV
Union Street @				
University Ave	14	0.34 / 0.22	0.65	ACC/MEV
Union Street @				
East Ave	17	0.34 / 0.22	1.13	ACC/MEV
Union Street @				
Broad St	3	0.19 / 0.22	0.71	ACC/MEV
Monroe Avenue @				
Inner Loop/ Pitkin St.	7	0.34 / 0.22	0.26	ACC/MEV
Monroe Avenue @				
Howell St.	5	0.34 / 0.22	0.34	ACC/MEV
Monroe Avenue @				
South Union St.	20	0.34 / 0.22	1.12	ACC/MEV
Link Rate				
Inner Loop - 940T				
Rt. 490-E. Main St.	30	2.72	2.48	ACC/MVM
1-490				
W.of River -E. of Clinton	47	2.72	1.08	ACC/MVM

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New I-490 Westbound Off-Ramp to the Inner Loop Traffic Volumes

Currently, westbound I-490 traffic has two alternatives to reach the east side of the Rochester CBD. First, is to use the Clinton Avenue northbound ramp directly into the heart of the CBD. Second, is to exit at Goodman Street and use Broadway Street and then South Union Street to reach the eastern Inner Loop area. For this second alternative, traffic using the Goodman Street off-ramp, will pass through five (5) traffic signal controlled intersections to reach this area. One of the alternatives to be considered under this study is to create an additional I-490 off-ramp, leading directly to the Inner Loop, which would divert traffic off of Broadway and South Union Street and provide a more direct access to the eastern CBD area.

To determine the volume of traffic that might use this new off-ramp, existing routes and future traffic volumes where reviewed. They show the following results:



Broadway to Union to the Eastern Inner Loop Area

Review of northbound traffic on Broadway Street would indicate that possibly around 200 to 300 might be from I-490 westbound during the morning peak hour and these vehicles might use a new westbound I-490 exit ramp to reach areas in the eastern Inner Loop Area (200 northbound through vehicles and 77 left turning vehicles onto Monroe Avenue). During the evening peak travel hour possibly around 150 to 200 vehicles might use this new ramp (100 northbound and 85 turning left to Monroe Avenue).

The traffic impact of this possible change is already included in the base analysis, except at the intersection of Monroe/Chestnut with the Inner Loop. This traffic already passes through or distributes itself to intersections on the northern section.

Diversion from South Clinton Avenue I-490 Westbound Exit

This ramp in the morning peak travel period accommodates over 2,000 vehicles per hour. The only real opportunity for this ramp to service traffic on the east side of the Inner Loop is to either turn right onto Woodbury Avenue or right onto Court Street (which provides access to both the Xerox and Midtown parking garages). The majority of parking that serves developments on the east side of the Inner Loop is located east of Chestnut, along Broad and Scio Streets. Thus, most of this traffic that might use a new I-490 eastbound off-ramp to the Inner Loop would most likely

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travel on Clinton Avenue, turn right on Court Street, travel eastbound past Chestnut Street. The morning peak hour traffic making this movement is 234 vehicles, not all of which would be expected to be from Clinton Avenue. Thus, a rough estimate of traffic that is currently using the I-490 westbound off-ramp to Clinton Avenue that might be diverted to a new westbound off-ramp to the Inner Loop would most likely be in the neighborhood of 100 vehicles during either the morning or evening peak travel hour.

Total Diversion to a New I-490 westbound off-ramp to the Inner Loop

Based on the above rough analysis of possible peak hour diversions to a new I-490 off-ramp to the Inner Loop, this new ramp would be roughly estimated to attract between 300 to possibly 450 vehicles during the morning peak travel period and 300 to 400 vehicles during the evening peak travel hour.

Analysis of this traffic on a raised Inner Loop found that it would not have a notable impact. All intersections were found to continue to operate at LOS "C" with no turning movement below LOS "D".

Attachments

- A Inner Loop Study Area Analysis Memo, 9/23/08
- B Detailed Level of Service Table
- C Queuing Analysis Table
- D Accident Summary Memo 12/17/08
- E Synchro Analysis Files on CD
- F Agency Comments and Response

Memo



To: John Thomas From: William C. Holthoff

City of Rochester Rochester (2250) NY Office

File: Inner Loop 192500170 Date: October 3, 2008

Inner Loop Study Area Analysis

This memo will serve to address concerns raised on the order of magnitude of the traffic impacts that may result from raising the eastern end of the Inner Loop. In particular, the effects on the expressway system and other arterials serving the Rochester Central Business District (CBD). If the projected traffic increases on other highway segments are of significance as a result of raising the Inner Loop, then the study area for this project would need to enlarge to address any traffic impacts that may directly result.

To address this concern, the Genesee Transportation Council (GTC) Regional Travel Forecasting Model was employed. The forecasting model was run with and without raising the Inner Loop for the year 2014. This year is being used to analyze all the different proposed land use changes within the CBD. The forecasted traffic volume along major segments of the highway system, with and without raising the Inner Loop was compared to determine traffic volume changes. These segments (see attached map) and traffic changes are shown in the attached tables.

Review of this comparison indicates the following:

Expressway System

The following expressway mainline sections were reviewed:

- I-490 on the east side and west side of the CBD;
- NY 590 between Blossom Road and Browncroft Boulevard; and,
- NY 104 between Carter Street and Portland Avenue.

The change in traffic ranged from an increase of +0.55% to a decrease of -0.56%. The largest volume change was a plus +27 vehicles to a -27 vehicles per hour. These in significant differences are due to random variations within the model instead of the result of raising the Inner Loop. Based on this, raising the Inner Loop would have no impact on these expressways or their associated interchanges.

Bridges

Both the Bausch Bridge and the Ford Street bridges over the Genesee River where compared. Traffic volume changes on the Bausch Street Bridge showed an increase of less than 2% (less than 15 vehicles per hour). On the Ford Street Bridge, changes in

One Team. Infinite Solutions.

June 15, 2009 John Thomas, City of Rochester Page 2 of 4

traffic ranged from -0.5% (-6 vehicles) to +4.7% (+39 vehicles). These changes are also insignificant and may be the result of random model variations.

Arterial System

East Side

Forecasted traffic volumes where compared for Main Street, East Avenue and Monroe Avenue between Park Avenue and Goodman Street. The results show some minor impact as a result of raising the Inner Loop. The change in traffic volumes ranged from an increase of +15% to a decrease of -9.3%; however, the net change in east-west travel using these four arterials is reflective of an increase of 2% during the morning and evening peak travel hours.

North Side

Traffic volumes on Clinton Avenue between Woodbury Boulevard and East Broad Street where compared and the change in traffic volumes range from -0.17% to +2.3%. This is a minor traffic change as a result of raising the Inner Loop.

South Side

Traffic volumes on South Clinton Avenue and Mt. Hope Avenue between Byron Street and Alexander Street were reviewed. A significant decrease in traffic was identified for southbound traffic on South Clinton Avenue (-21%) and a minor reduction on Mt. Hope Avenue (-3.6%). Further review indicates this being a result of how the model was coded to reflect the raised Inner Loop. The loss of a coded slip ramp from Chestnut Street to the raised Inner Loop appears to have caused these reductions and redistribution of traffic to other routes south of the CBD. In reality, this would not occur, southbound drivers on Chestnut destined to locations south on South Clinton Avenue would continue to use the same ramp. Overall, raising the Inner Loop will have no notable impacts on the south side of the CBD. This minor coding change may also be responsible for changes (increases) on the east side of the Inner Loop and in other areas.

Conclusion

Review and comparison of the forecasted traffic in the year 2014, with and without raising the Inner Loop indicates the traffic impact will remain contained to the immediate adjacent area. Raising the Inner Loop will have no notable traffic impacts on the expressway system, their interchanges, or on major arterials surrounding or serving the Rochester CBD. Thus, the study area for determining the traffic impacts is at the intersections with the Inner Loop and those immediately adjacent to them.

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William C. Helch &

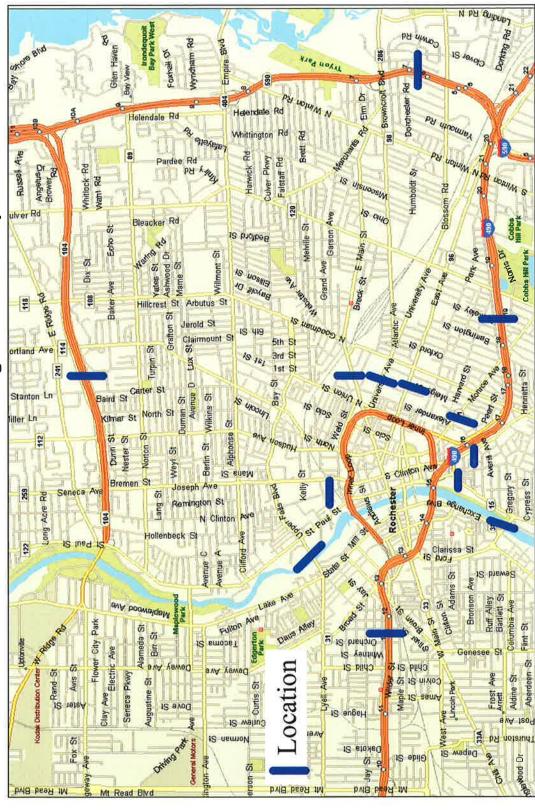
STANTEC CONSULTING SERVICES INC.

William C. Holthoff Senior Associate

bill.holthoff@stantec.com

cc: Jim Hofmann, Stantec

Inner Loop Volume Comparison Locations (2014) With and Without Raising the Inner Loop



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*** = Utility Truck had the right most lane closed while new overhead signs were installed. This created a large backup through the Alexander Street Intersection

= Thru lane Queue is greater than 200'.

= Turn Lane / Thru Lane exceeds storage length and is blocking other traffic

Memo



Inner Loop - Accident History

December 17, 2008

Date: Revised April 24, 2009

To: Bill Holthoff, Stantec

From: Paula Benway, Stantec

Inner Loop Accident Data

The most recent available accident information was obtained for the section of the inner loop from the Rt. 490 interchange in the east to north of the East Main Street interchange. Information available represents a 39-month period between January 1, 2005 and March 7, 2008. The accident history identified a total of 49 accidents occurred along the Inner Loop in this area. The reportable accidents accounted for 30 (61%) of the total accidents and the non-reportable accidents accounted for 19 (39%) of the total accidents. The following list summarizes the types and number of reportable accidents. The rest of the assessment (analysis, rates and potential corrective action) will be related to the reportable type accidents that occurred in the corridor.

- Fixed Object 17 (57%)
- Sideswipe 5 (17%)
- Rear End 4 (13%)
- Right Angle 1 (3%)
- Head-on 1 (3%)
- Unknown 2 (7%)

The accident severity included 13 injuries (43%) and 17 (57%) property damage only. Fifty three percent of all accidents occurred during evening hours with 55% occurring on dry pavement conditions. Seventy percent of the vehicles involved were traveling in a westerly direction. As indicated above, 57% of the accidents involved collision with fixed objects (guide rail, curbing, abutment, debris). Only four of the 30 accidents occurred at a merge/diverge ramp location, with the majority of accidents occurring main line along the horizontal curve between East Main Street and East Avenue. The accident rate for the corridor was calculated and compared to statewide accident rates for Principal Arterial expressways. The current accident rate is 2.48 accidents per million vehicle miles (acc/mvm) which is below the statewide average of 2.72 acc/mvm.

Collision diagrams, detailed accident history, and rate calculations are attached.

Extended Study Area

An extended study area was also reviewed that included at grade adjacent corridors including: East Main Street, Monroe Avenue/Chestnut, Pitkin Street, Union Street, and a portion of Interstate 490. The following table summarizes the number of reportable accidents and the calculated accident rates for the corridor and intersections for each of these adjacent roadways.

December 17, 2008 Inner Loop Page 2 of 4

ACCIDENT RATES

	Number of	State/County		
Intersection	Accidents	Rate	Actual Rate	
Intersection Rate (excludes m	idblock accident	s)		
East Main Street @				
University/Pitkin	7	0.26 / 0.46	0.33	ACC/MEV
East Main Street @				
Inner Loop/University	40	0.26 / 0.46	0.96	ACC/MEV
East Main Street @				
Union Street	23	0.26 / 0.46	0.83	ACC/MEV
Pitkin Street @				
East Ave	8	0.34 / 0.22	0.44	ACC/MEV
Pitkin Street @				
Broad Street	4	0.34 / 0.22	0.66	ACC/MEV
Union Street @				
University Ave	14	0.34 / 0.22	0.65	ACC/MEV
Union Street @				
East Ave	17	0.34 / 0.22	1.13	ACC/MEV
Union Street @				
Broad St	3	0.19 / 0.22	0.71	ACC/MEV
Monroe Avenue @				
Inner Loop/ Pitkin St.	7	0.34 / 0.22	0.26	ACC/MEV
Monroe Avenue @				
Howell St.	5	0.34 / 0.22	0.34	ACC/MEV
Monroe Avenue @				
South Union St.	20	0.34 / 0.22	1.12	ACC/MEV
Link Rate				
Inner Loop - 940T				
Rt. 490-E. Main St.	30	2.72	2.48	ACC/MVM
I-490				
W.of River -E. of Clinton	47	2.72	1.08	ACC/MVM

Locations experiencing above state or county wide accident rates are highlighted in red. Both sections of the expressway system (Inner Loop and I-490) are experiencing accident occurrences below the average rates. Each of the adjacent corridors is further assessed below.

Corridor Breakdown

East Main Street corridor—80 accidents occurred over a 41-month period from University Avenue in the west to Union Street in the east. There were 27(35%) rear-end accidents, 18(23%) sideswipe, 15(20%) right angle, 6(8%) overtaking, 7(8%) left turn, 2(2%) fixed object, 1 backing, 1 bicycle and 2(2%) unknown accidents that occurred at the three intersections along East Main Street. The severity of these accidents included 15(19%) injuries and 65(81%) property damage only. Seventy four percent of all accidents occurred during daylight hours with 70% occurring on dry pavement conditions. The East Main Street intersections with the Inner Loop/University Avenue and the Union Street intersection are experiencing accident rates above the state/county wide average rates. The Monroe County Department of Transportation investigated East Main Street east of Union Street in July 2006 as part of a PIL. The investigation resulted in traffic signal

December 17, 2008 Inner Loop Page 3 of 4

timing changes that improved the progression on East Main Street.

Inner Loop/University Intersection – of the 40 accidents that occurred at this intersection, 13(33%) were vehicles sideswiping/overtaking in the left turn lanes on the Inner Loop ramp approach and the University Avenue approach. These accidents are attributable to driver confusion, inattention to turning maneuvers, unsafe lane change or possible narrow lane widths. The other major accident type occurring at this intersection is rear-end accidents 13 (33%) of the total; driver inattention is noted as a contributing factor.

North Union Street Intersection – of the 23 accidents that occurred at this intersection, 8(35%) were vehicles sideswiping/overtaking on the North Union Street northbound approach and the East Main Street westbound approach. These accidents are attributable to driver confusion, inattention to turning maneuvers, unsafe lane changes or possible narrow lane widths. The other major accident type occurring at this intersection is rear-end accidents 8 (35%) of the total; driver inattention is noted as a contributing factor.

Monroe Avenue/Chestnut corridor – 50 accidents occurred over a 41-month period along the section from Chestnut north of Inner Loop to South Union Street intersection to the south. There were 20 (40%) rear-end accidents, 11(22%) right angle, 6(12%) sideswipe, 4(8%) right turn, 3(6%) fixed object, 2(4%) left turn, 1(2%) head on, 1(2%) bicycle, 1(2%) driveway and 1 unknown accident. The severity of these accidents included 66% property damage only, 32% resulted in injuries and one fatality (motorcycle) did occur. Sixty two percent of the accidents occurred during daylight hours, and with 68% occurring on dry pavement conditions. The South Union intersection with Monroe Avenue is experiencing an accident rate above the state/county wide average.

South Union Intersection – of the 20 accidents that occurred at this intersection, 8(40%) were right angle accidents with the South Union approach. These accidents are attributable to driver inattention and visibility constraints. The other major accident type occurring at this intersection is rear-end accidents 7 (35%) of the total; driver inattention is noted as a contributing factor.

Pitkin Street corridor – 12 accidents occurred over a 29-month period. There were 5(42%) rearend accidents, 3(25%) right angle, 1(8%) right turn, 1(8%) overtaking, 1(8%), pedestrian, 1(8%) unknown accident. Ninety two percent of the accidents involved property damage only, with 58% occurring during daylight hours, and with 58% occurring on dry pavement conditions. The East Avenue and Broad Street intersections with Pitkin Street are experiencing accident rates above the state/county wide average rates. Review of the accidents occurring at either intersection does not show a predominant accident pattern.

Union Street corridor – 61 accidents occurred over a 39-month period. There were 21(34%) right angle, 12(20%) rear-end, 10(16%) left turn, 4(6%) backing up, 3(5%) sideswipe, 3(5%) fixed object, 3(5%) right turn, 3(5%) unknown, 1 driveway and 1 overtaking accident. Eighty four percent of the accidents involved property damage only, and evenly distributed during daylight/evening hours, and with 74% occurred on dry pavement conditions. Further review of the actual reports suggests that the rear end accidents were primarily a result of following too closely. The University Avenue and East Avenue intersections with Union Street are experiencing accident rates above the state/county wide average rates.

University Avenue Intersection – of the 14 accidents that occurred at this intersection,

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December 17, 2008 Inner Loop Page 4 of 4

8(57%) were right angle accidents. These accidents are attributable to driver inattention and possible visibility constraints.

East Avenue Intersection – of the 17 accidents that occurred at this intersection, 12(71%) were right angle accidents. These accidents are attributable to driver inattention and possible visibility constraints related to bridge railing over the Inner Loop and building on the southeast quadrant.

I-490 corridor – 47 accidents occurred over a 33-month period. The 47 accidents consisted of 18(38%) fixed object accidents, 16(34%) rear-end, 8(17%) overtaking, 3(6%) unknown, 1 head-on and 1 sideswipe accident. The accident severity included 16(34%) injuries and 31(66%) property damage only. Sixty six percent of the accidents occurred during daylight hours, and with 60% occurring on dry pavement conditions. The majority of fixed object accidents involved unsafe travel speeds for the conditions (wet, construction, grade, or curvature of road). It should be noted that sections of I-490 included in this assessment was under construction during the time represented by this safety assessment. As such, caution should be used in review or interpretation of the findings.

STANTEC CONSULTING SERVICES INC.

Attachments: Accident Rate Calculations, Collision Diagrams, Detailed Accident History

ACCIDENT RATE CALCULATIONS

Project Name: Date: Inner Loop 12/10/2008

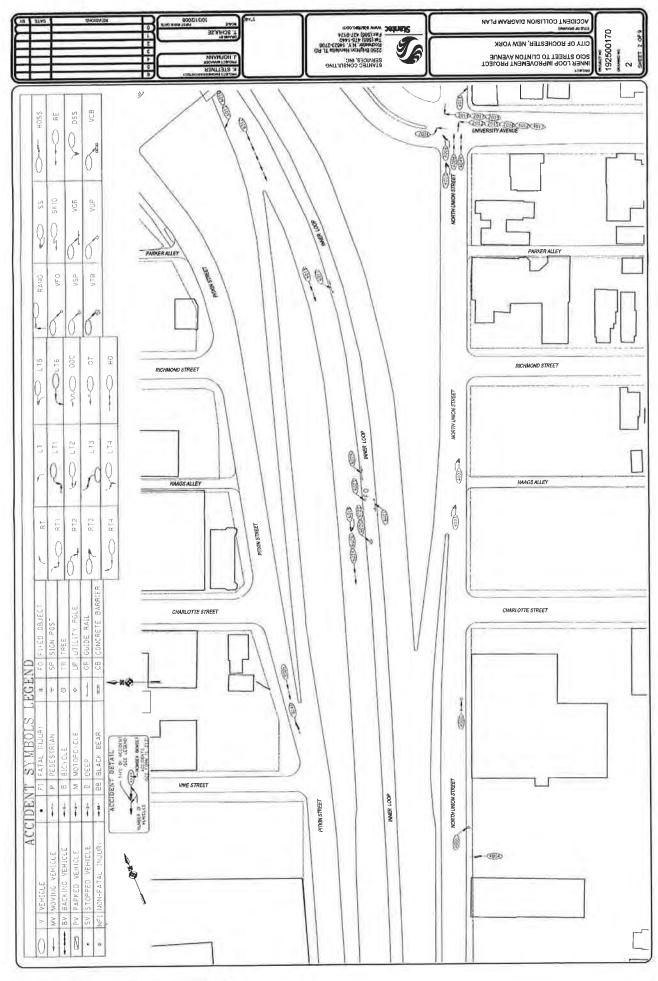
East Main Street @ University Ave/Pitkin	# Accidents 7	Per Million Entering Vehicle 1,000,000	es 70000001		1
Oliversity Aven itali		3.4 x 365	21034950	0.33	ACC/MEV
	Vehicles/Day	# of Years Days/Year	2,00,100	0.26	Statewide Rat
	· · · · · · · · · · · · · · · · · · ·			0.46	County Rate
	# Accidents	Per Million Entering Vehicle			-
Inner Loop/University		1,000,000	= 40000000 =	0.96	ACC/MEV
	,	(3.4 x 365	41511450		
	Vehicles/Day	# of Years Days/Year		0.26 0.46	Statewide Rate County Rate
	# Accidents	Per Million Entering Vehicl	es	0.40	County Hate
Union Street		1,000,000	_ 23000000 _	0.02	ACC/MEV
	-	3.4 x 365	27736350	0.83	ACC/MEV
	Vehicles/Day	# of Years Days/Year		0.26	Statewide Rat
				0.46	County Rate
Pitkin Street @	# Accidents	Per Million Entering Vehicl	es		
East Ave	8	1,000,000	_ 8000000 _	0.44	ACC/MEV
-	16,450	x 3 x 365	18012750	-	1
	Vehicles/Day	# of Years Days/Year		0.34	Statewide Rat
		D 1888 Entering Valid		0.22	County Rate
Dun and Ofward	# Accidents	Per Million Entering Vehica x 1,000,000	4000000		1
Broad Street		x 1,000,000 x 3 x 365	6077250	0.66	ACC/MEV
	Vehicles/Day	# of Years Days/Year	0017200	0.34	Statewide Rat
	Vomoioorbay	non round bayarra		0.22	County Rate
Huden Charat @	# Assidanta	Por Million Entoring Vehic	los		
Union Street @	# Accidents 14	Per Million Entering Vehica x 1,000,000	_ 14000000 _		1
University Ave		x 3 x 365	21462000 =	0.65	ACC/MEV
	Vehicles/Day	# of Years Days/Year		0.34	Statewide Rat
	V 00.0.0	,		0.22	County Rate
	# Accidents	Per Million Entering Vehic			-
East Ave		x 1,000,000	<u> 17000000</u> =	1.13	ACC/MEV
	1	x 3 x 365	15001500		
	Vehicles/Day	# of Years Days/Year		0.34	Statewide Rate
	H. A :- ! - ! - ! - ! -	Day Millian Entering Vohio	loo	0.22	County Rate
Broad St	# Accidents 3	Per Million Entering Vehic x 1,000,000	3000000 _		7
Broad St		x 3 x 365	4215750	0.71	ACC/MEV
	Vehicles/Day	# of Years Days/Year		0.19	Statewide Rat
		,		0.22	County Rate
Monroe Avenue @	# Accidents	Per Million Entering Vehic	les		
Inner Loop/ Pitkin St.	_	x 1,000,000	7000000 _	0.00	T ACCUMEN
		x 3.4 x 365	26445710	0.26	ACC/MEV
	Vehicles/Day	# of Years Days/Year	1	0.34	Statewide Ra
	_			0.22	County Rate
	# Accidents	Per Million Entering Vehic			7
Howell St.		x 1,000,000	= 5000000 =	0.34	ACC/MEV
	•	x 3.4 x 365	14581750	0.34	_ Statewide Ra
	Vehicles/Day	# of Years Days/Year		0.34	County Rate
	# Accidents	Per Million Entering Vehic	eles	0.22	County Nate
South Union St.		x 1,000,000	_ 20000000 _		1
Journ Jinon Jt.	14,400	x 3.4 x 365	17870400	1.12	ACC/MEV
	Vehicles/Day	# of Years Days/Year		0.34	Statewide Ra
	,	•		0.46	County Rate

Total Link Rate

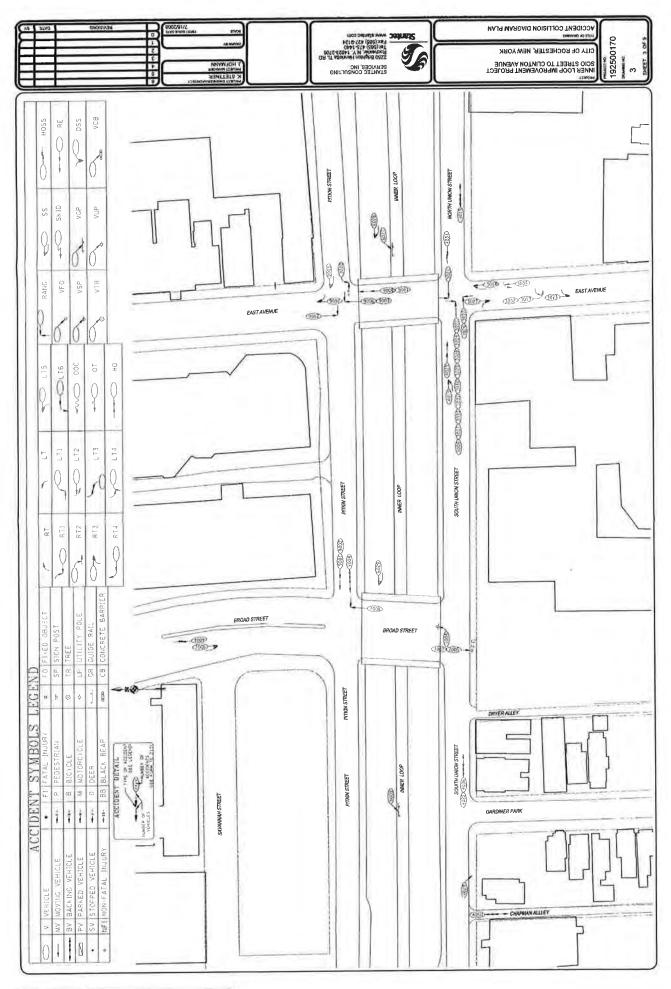
(All midblock & intersection accidents)

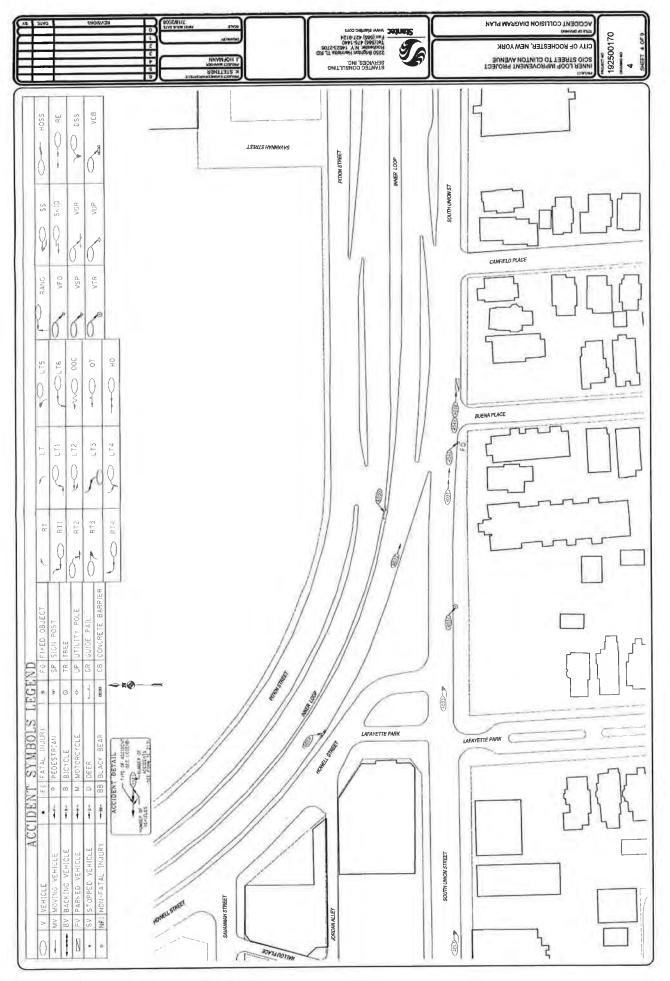
Inner Loop - 940T Rt. <u>490-E. Main St.</u>	$\frac{\# Accidents}{30} \times \frac{Per Million Entering Vehicles}{1,000,000} = \frac{30000000}{1,0000000}$ $\frac{1}{1} \times \frac{10,200}{1,000000} \times \frac{3.25}{1,000000000000000000000000000000000000$	= 2.48 2.72 0.00	ACC/MVM Statewide Rate County Rate
I-490 W.of Rive <u>r -E. of Clinton</u>	$\frac{\text{\#Accidents}}{47} \times \frac{\text{Per Million Entering Vehicles}}{1,000,000} = \frac{47000000}{0.5} \times \frac{86,970}{43648069} \times \frac{2.75}{43648069} \times \frac{365}{43648069}$ Length (miles) Vehicles/Day # of Years Days/Year	2.72 0.00	ACC/MVM Statewide Rate County Rate

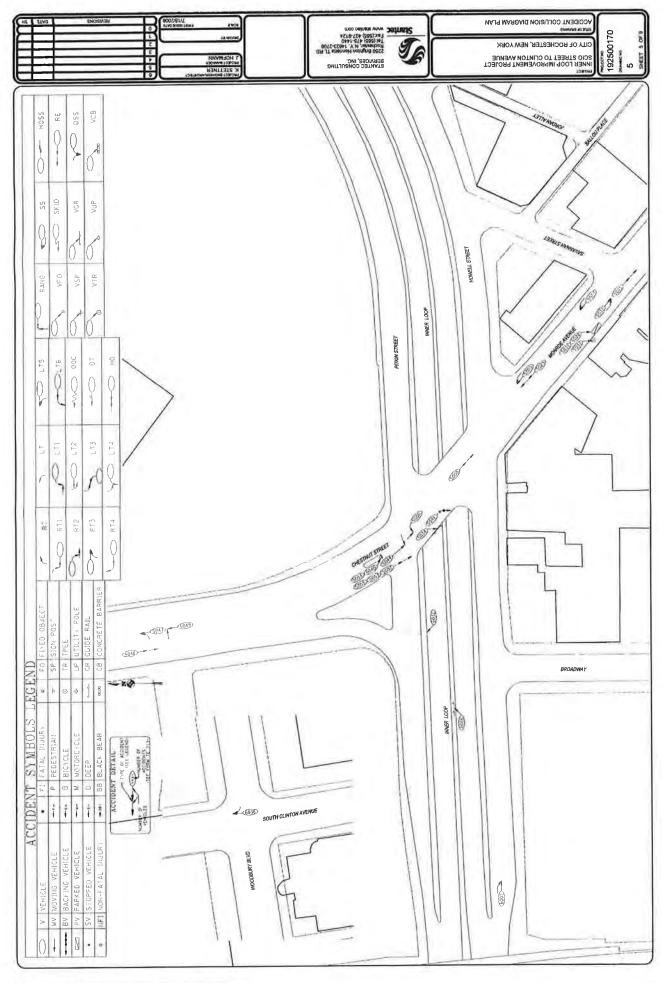


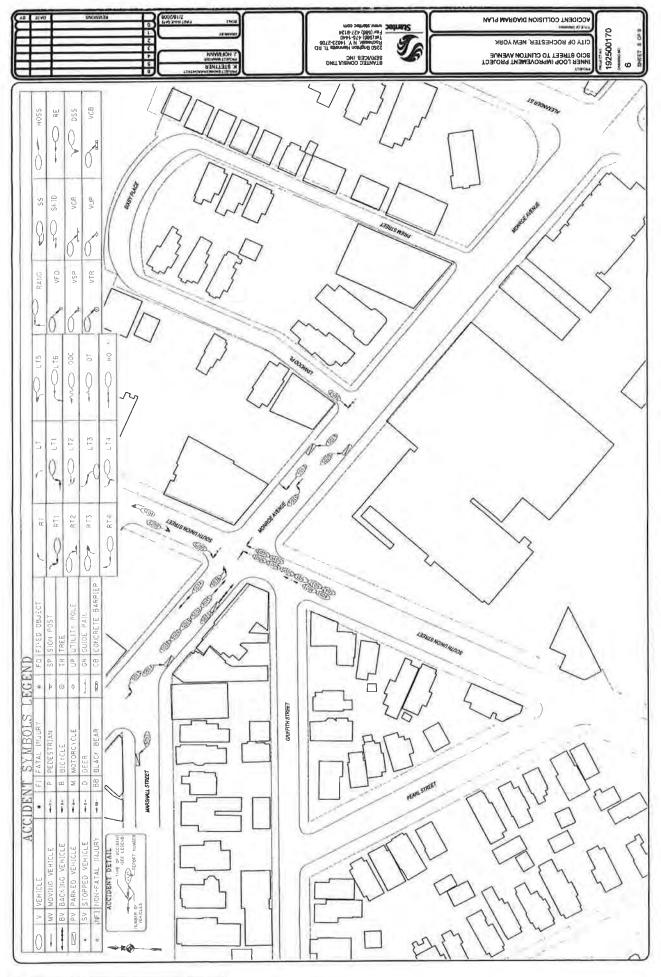


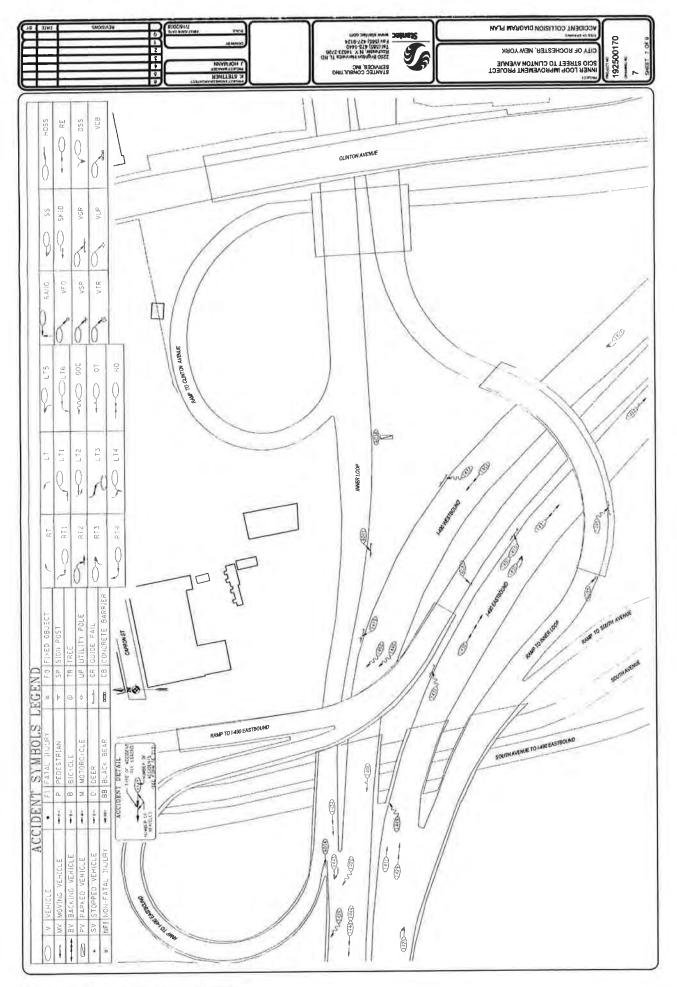
35

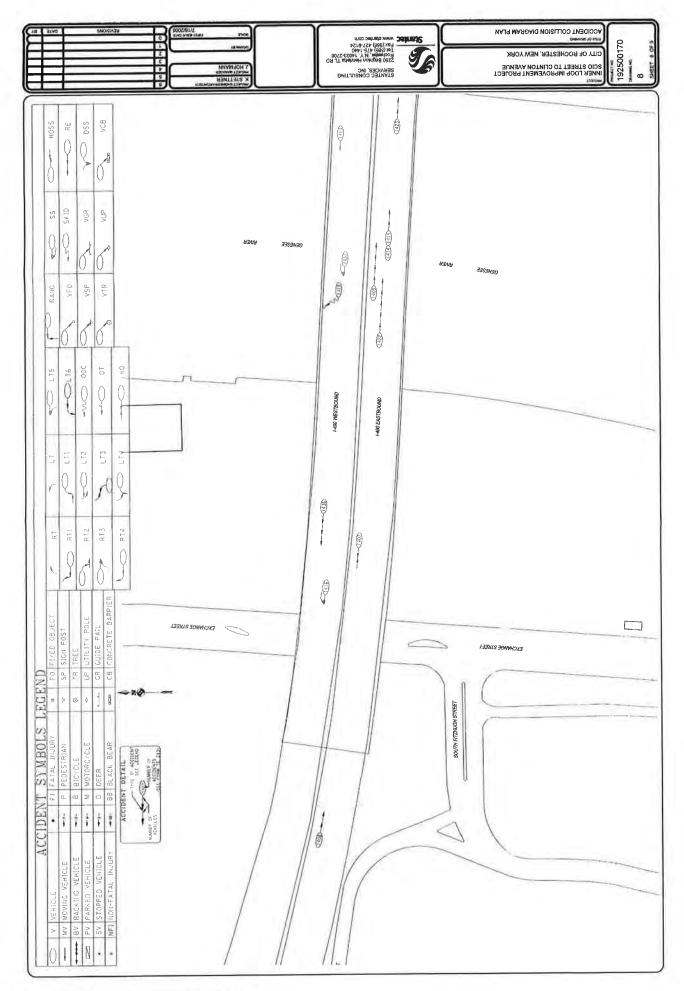


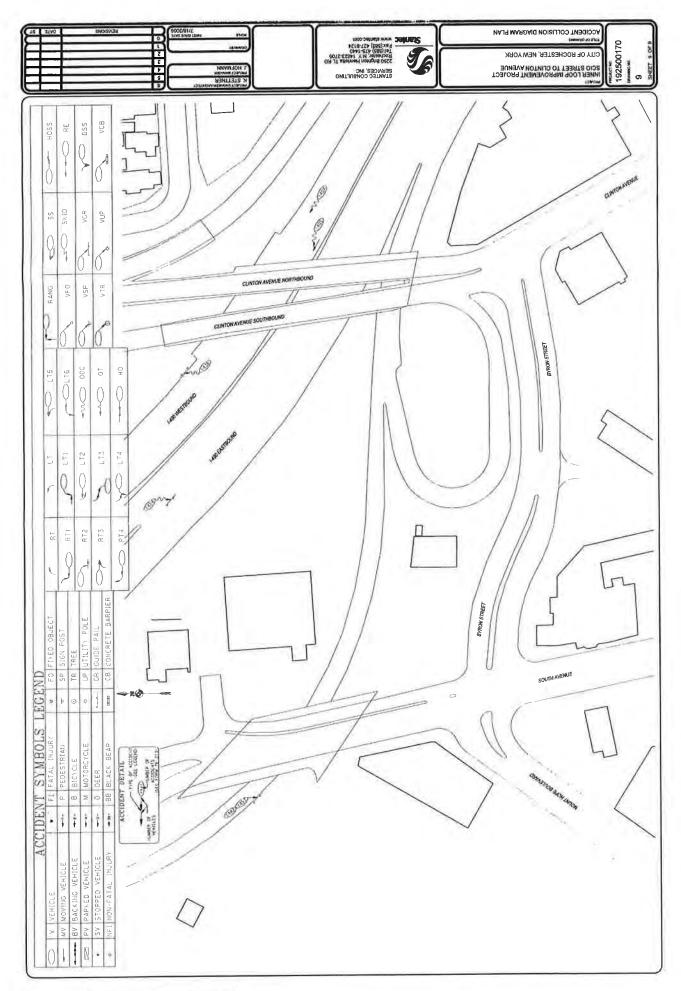












P.I.N. Case No. File By		ure to Yield Right of Way (13) Passing or	HEFT SIDE (2) Alcohol Involvement (19)	ONTO IT'S ROOF. (2) Alcohol Involvement	RAIL. (66) Pavement Slippery	volvement (13) Passing or Lane Usage	r Lane Usage Improper				g or Lane Usage Improper) Unsafe Speed	ent Slippery	proper
Street Name: Inner Loop (Rt. 940T) Route Number: Location: Inner Loop Milepost: E. Main St To: 1-490	(12) Description	V2 STRUCK V1 AT EXIT LANE FOR MONROE AVE. (7) Failure to Yield Right of Way (13) Passing or Lane Usage Improper	V1 STRUCK GUIDE RAIL, THEN STRUCK GUIDE RAIL WITH LEFT SIDE (2) Alcohol Involvement (19) Unsafe Speed	V1 SPUN OUT OF CONTROL, HITTING WALL & FLIPPING ONTO IT'S ROOF. (2) Alcohol Involvement (66) Pavement Slippery	V1 HIT ICY PATCH ON THE ROAD , SPUN OUT & HIT GUARD RAIL. (66) Pavement Slippery	V1 LEFT ITS LANE & STRUCK GUARD RAIL (2) Alcohol Involvement (13) Passing or Lane Usage mproper	V1 PASS V2, LOST CONTROL STRIKING V2 (13) Passing or Lane Usage Improper	Acc. Main St to Acc. E. Ave (9) Following Too Closely	Acc. Main St to Acc. E. Ave (66) Pavement Slippery	rmp from Main St (4) Driver Inattention	Acc. Main St to Acc. E. Ave (19) Unsafe Speed (13) Passing or Lane Usage Improper	Acc. Main St to Acc. E. Ave (9) Following Too Closely	Acc. Main St to Acc. E. Ave (20) Unsafe Lane Changing (19) Unsafe Speed	Acc. Main St to Acc. E. Ave (19) Unsafe Speed (66) Pavement Slippery	Acc. Main St to Acc. E. Ave (13) Passing or Lane Usage Improper
Stree Route I L	(11) Acc. Type		FixO	FixO V	Fixo	FixO	Side	REnd	FixO	RAng n	Fixo	REnd	Side	Fixo	Fixo
7 L O	S L R S V V t d d f e Contributing y d d d r Factors		4 4 2 12,19	4 4 4 42,66	4: 6 4 466	4 1 1 12,13	PDO 1 2 1 113	1 1 29	PDO 4 5 2 366	1 1 14	PDO 1 5 1 119,13	5 1 19	4 1 1 2 20,19	4 4 2 3,19,66	4 5 2 213
× a C	05 08 08 V (3) (3) 1	7	5:43 Inj	0:29 Inj	21:30 Inj	1:00 PI	16:05 PI	16:16 Inj	18:29 PE	12:05! Inj	7:49 PI	14:23, Inj	22:40 Inj	19:00 Inj	1:40 Ini
DETAILS OF ACCIDENT HISTORY Sear-Brown Group PERIOD STUDIED	m 1/1/20 3/7/20 Month	1	12/16/2007	2/9/2007	1	7/5/2007	6/10/2005	2/8/2006.	11/16/2006	6/2/2007	9/22/2006	4/8/2007	4/4/2005	10/19/2006	1/24/2007
고음 로 [종	39 39 0	6001	6004	8005	9009	6009	6011	6012	6013	6016	6017	6018	6019	6020	6021

P.I.N. Case No.	By Page Number 2				Slippery	Slippery	Slippery	ing or Lane Usage Improper		Pavement Slippery		or Lane Usage Improper	4	7) Tire Failure/Inadequate	/Debris	ohol Involvement (20) Unsafe Lane	r Vehicular	Unsafe Speed (47) Tire
Inner Loop (Rt. 9.	Milepost: E. Main St To: 1-490 Date of Report: 1/13/200		(4.5)	Description	Acc. Main St to Acc. E. Ave (19) Unsafe Speed (66) Pavement Slippery	Acc. Main St to Acc. E. Ave (19) Unsafe Speed (66) Pavement Slippery	Acc. Main St to Acc. E. Ave (19) Unsafe Speed (66) Pavement Slippery	Acc. Main St to Acc. E. Ave (2) Alcohol Involvement (13) Passing or Lane Usage Improper	Main St Ramp (19) Unsafe Speed (64) Obstruction/Debris	Access E. Ave to Ramp Chapman St. (19) Unsafe Speed (66) Pavement Slippery	Access E. Ave to Ramp Chapman St. (66) Pavement Slippery	Access Ramp Chapman St to Access Buena St (13) Passing or Lane Usage Improper	Slip Ramp from Pitkin (2) Alcohol Involvement	Ramp Chapman St to Access Buena St (19) Unsafe Speed (47) Tire Failure/Inadequate	Ramp to Buena St - V1 hit debris in the road (64) Obstruction/Debris	1430East Ramp-crashed into attenuator at diverge pt. (2) Alcohol Involvement (20) Unsafe Lane Changing	I-490East Ramp - truck on fire in construction zone (60) Other Vehicular	South overpass - going straight, hit curb, unsafe speed (19) Unsafe Speed (47) Tire
Stre Route	Date o		(11)	Acc. Type	Fixo	Fixo	REnd	Fixo	REnd	Fixo	Side	Side	Fixo	FixO	Unkn	Fixo	Unkn	Fixo
Inner Loop Monroe City of Rochester	(6)		w e a a (10)	contributing r Factors	219,66	1 19,66	119,66	12,13	319,64	419,66	466	113	2 2	119,47	164	12,20	2.60	119,47
ner Monr ty of		SI		. D	4	4	4	-	7	4	4		-	-	-			F
	3	x o a	8 TO O 1	= 0	10	no.	-	1	-	-	7	17	-	10	1-	10	-	9
Diagram: Inner Loo County of Monroe Town of City of Rc	(9)	д б.	E + U O 1	ם :	4	-	-	4	4	1	4	i im.	14	TE	1	4	4	-
Cou	(5)	ν Φ	> 0 •	- ×	PDO	PDO	2	PDO	PDO	PDO	PDO	PDO	E	PDO	PDO	PDÖ	1 PD0	PDO
JRY Jp	(4)	. e <	E 1- 0 -	(3) E	23:35	8:02	9:45	0:10	18:22	8:04	4:30	16:05	4:24	11:25	6:45	11:17	22:45 1	11:25 1 PDO
DETAILS OF ACCIDENT HISTORY Sear-Brown Group	PERIOD STUDIED From 1/1/2005			(2) (Date T	1/26/2007	2/15/2007	2/15/2007	7/5/2007	10/19/2006	1/20/2005	2/16/2007	6/10/2005	1/1/2005	5/26/2007	12/20/2006	7/27/2007	9/13/2006	5/26/2007
D ACCII Sear-	PER Fro	To:		(E) Si	6022	6023	6024	6025	6026	6027	6028	6029	6030	6032	6033	6034	6038	6039

P.I.N. Case No.	File	Page Number 3				Control Disregarded (20) Unsafe Lane	(19) Unsafe Speed (66) Pavement Slippery
Street Name: Inner Loop (Rt. 940T) oute Number:		Milepost: E. Main St. 10: 1-450 if Report: 1/13/200			(12) Description	E. Clinton Overpass- wrong way on Inner toop (17) Traffic Control Disregarded (20) Unsafe Lane Changing	W of Clinton overpass - unsafe speed, pavement slippery (19) Unsafe Speed (66) Pavement Slippery
Street Name: Route Number:	Location:	Millepost: Date of Report:			(11) Acc.	H-On E. Clinton Ov Changing	FixO W of Clinton
Diagram: Inner Loop County of Monroe	Town of City of Rochester	(4) (5) (6) (7) (8) (9) I	N D C N D C	c d f W	ent rting	4 1 1 217,20	2 4 2 319,66
DETAILS OF ACCIDENT HISTORY	Sear-Brown Group	PERIOD STUDIED From 1/1/2005 (4)	To: 3/7/2008 v 39 Months e	E - 0	(1) (2) (3) e No. Date Time S	6040 1/5/2008 2:18 2 Inj	6041 1/11/2008, 6:31 1 inj

Location: Inner Loop

Town: City of Rochester

County: Monroe

13-Jan-09

			Milepost: E. M	1ain St	To: 1-4	190		
		% of			% of	Direction	# Vab	% of
Time of Day N	No. of Accidents	Total	Direction # \		Total	NorthEast:	0	Tota 0
6 AM - 10 AM	6	20	North:	0	0	NorthWest:	l	2.3
10:00 AM - 4 PM	5	17	South:	1	2.3	SouthEast:	3	2,3 7
4 PM - 7 PM	6	20	East:	8	19	South West:	ر 0	0
7 PM - 12 MID	5	17	West:	30	70	South west:	U	U
12 MID - 6 AM	8	27	Unknown:	0	0			
Unspecified	0	0				Total	43	
Total	30							
Weather	No. of Accidents		Acc. Type #	Veh	% of Total	Acc. Type	# Veh	% of Tota
Clear:	15	50	Sideswipe:	5	17	Bicycle:	0	0
Cloudy:	7	23	Rear End:	4	13	Right Turn:	0	0
Fog:	0	0	Right Angle;	1	3.3	Driveway:	U	0
Rain:	4	13	Left Turn:	0	0	Backing:	0	0
Sleet:	0	0	Pedestrian:	0	0	Overtaking:	0	0
Snow:	4	13	Fixed Object:	17	57	Unknown:	2	6.7
Unknown:	0	0	Head ou:	1	3.3		20	
Total	30					Total	30	
Pavement	No. of Accident	s	Accident Sev	erity	No. of Accide	nts % o	f Total	
Dry:	16	55	F	atal:	0	C	1	
Muddy:	0	0	Non-Fatal Inj	ury:	13	4	-3	
Other:	0	0	Property damage of	only:	17	5	7	
Slush:	0	0	Non-reports	able:	0	C	•	
Snow/Ice:	7	24		Fotal	30			
Wet:	6	21	i r					
Unknown:	0	0	Type of Ve	hicle	No. of Acciden	ts % o	f Total	
			Passenger	Cars:	43	ç	8	
Total	29		Commercial Vel	icles:	1	2	1.3	
				Total	44			
Time of Veer	No. of Accident	16	Light Cor	ndition	No. of Acciden	ts % 0	f Total	
Winter (Dec-Feb)	13	43	Dark Road-Li		16		53	
Spring (Mar-May)	5		Dark Road-Unti	_	0	(
Summer (Jun-Aug)	7	23	3 0	Dawn:	2		5.7	
Fall (Sep-Nov)	5			ylight:	12		10	
ran (sep-nov)				Dusk:	0	(
	4.0			~ u311.	.,			
Total	30		Unk	nown:	0	()	

P.I.N. Case No.	By Page Number 1		attention (9) Following Too Closely			& 2 but entering lane 3 struck V2 (69)		cleared			ng or Lane Usage Improper			ehicle. (4) Driver Inattention (20)	y (17) Traffic Control Disregarded	ffic Control Disregarded
East Main St Cor East Main St	Milepost: University Ave To: Union Street Date of Report: 1/13/200	(12) Description	V1 rear-ended v2 while V2 was stopped in traffic. (4) Driver Inattention (9) Following Too Closely Note that the property of the Administration of the Control of the Contr	Lane Changing	V1 sideswiped the parked v2. (4) Driver Inattention	V1 was allowed to enter by v2 stopped vehicles in Lanes 1 & 2 View Obstructed/Limited (7) Failure to Yield Right of Way	(9) Following Too Closely	V2 in intersection when light turned red. V1 started before V2 cleared	V2 turned into the path of V1 (18) Turning Improperly	V1 struck v2. (4) Driver Inattention	V2 was sideswiped by v1. (18) Turning Improperly (13) Passing or Lane Usage Improper	(7) Failure to Yield Right of Way	(17) Traffic Control Disregarded	V1 clipped mirror on V2 while goig around a third unvolved vehicle. (4) Driver Inattention (20) Unsafe Lane Changing	V1 ran red light and struck V2 (7) Failure to Yield Right of Way (17) Traffic Control Disregarded	V1 struck V2 who had failed to stop for the red light. (17) Traffic Control Disregarded
Stre	Date o	(11) Acc. Type	REnd	900	Side	RAng	REnd	Left	Left	RAng	Side	Left	RAng	Side	RAng	RAng
Diagram: East Main County of Monroe Town of City of Rochester	(5) (6) (7) (8) (9)	g o u h a r W t d f e C C t (10) o o h Apparent n n n e Contributing d d d r Factors	PD0 1 1 14,9	0.7(0.)	1 1 14	PDO 1 1 1 2 69,7	PDO 1 1 119	2 1 1	00 4 1 1,18	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1, 1, 2, 3, 18,13	4 1 4 2,7	1 1 1 217	1 1 2 24,20	DO 1 1 2 37,17	DO 1 1 1 1,17
<u> </u>	<u> </u>	> o E - O - o o	11:50 2 PI	4	13:40 Z PDO	16:20 2 PI	13:38 2 PI	9:10 2 Inj	22:50 2 PDO	12:05: 2 Inj	8:06. 2 .PDO	22:11; 2 PDO	13:35 2 PDO	13:33 2 PDO	1:16 2 PDO	15:29i 2 PDO
DETAILS OF ACCIDENT HISTORY Sear-Brown Group	PERIOD STUDIED From 1/1/2005	5/10/200 Months	10/2/2005 11		5/23/2007 13	1/3/2006, 16	9/9/2005; 13	3/28/2006 9	3/2/2007: 22	6/2/2007 12	4/4/2007 8	3/6/2007 22	3/26/2006, 13	6/10/2005 13	7/6/2005	9/17/2005 15
DE ACCID Sear-E	PERIOD	(£) No.0	1019	3	1023	1033	1034	1035	1037	1038	1039	1040	1041	1042	1043	1044

P.I.N. Case No.	By Page Number 2			sregarded	light. (17) Traffic Control Disregarded	as rearended by V2 (26) Reaction to			Control Disregarded		green light. (17) Traffic Control	18) Turning Improperly	(20) Unsafe Lane Changing			13) Passing or Lane Usage Improper
East Main St Cor East Main St	Milepost: University Ave To: Union Street Date of Report: 1/13/200	(12)	Description	(4) Driver inattention V2 ran a red light and was struck by V1 (17) Traffic Control Disregarded	V1 & 2 colided in the intersection and claim both had a green light. (17) Traffic Control Disregarded	V2 stopped quickly to avoid vehicle running a red light and was rearended by V2 Other Univolved Vehicle	V1 backed into V2 (3) Backing Unsafely	(4) Driver Inattention	V1 ran the red light and was struck by v2 and V3. (17) Traffic Control Disregarded	(4) Driver Inattention	V18.2 struck each other. Both drivers claimed that they had a green light (17) Traffic Control Disregarded (17) Traffic Control Disregarded (17) Traffic Control Disregarded (17) Failure to Yield Right of Way	V1 straight in a left turnlane and struck v2, in a left turnlane (18) Turning Improperly	V1 sideswiped V2 and left the scene (2) Alcohol Involvement (20) Unsafe Lane Changing	(4) Driver Inattention	(4) Driver Inattention	Both vehicles were turning left and V2 drifted into v1's lane. (13) Passing or Lane Usage Improper
Stre	Date o	(11) Acc.	Туре	Cver	RAng	REnd	Back	REnd	RAng	REnd	RAng	Side	Side	REnd	REnd	Side
Diagram: East Main County of Monroe Town of City of Rochester	(6) (2) (8) (9)	L R S 9 0 u h a r W t d f e C C C a (10) 0 0 0 h Apparent n n n e Contributing	d d d r Factors	4 4 1 2 3.17	1	1 1 2 2,26	4 1 1 23	1 1 14	1 1 2 317	1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1 -1	1 1 117,17,	3 4 1 118	4 1 1 22,20	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 1 14	1 1 113
	(4) (5)	> 0 = - 0 - 0	o o	20:06 2 Ini	7:35 2 Inj	7:45 2 PDO	17:12 2 PDO	13:50 Z PDO	3 PDO	9:05: PDO	12:33 2 Inj	16:06 2 PDO	23:35 2 PDO	18:15 2 PDO	17:15 2 PDO	7/27/2007 17:16 2 :PDO
DETAILS OF ACCIDENT HISTORY Sear-Brown Group	PERIOD STUDIED From 1/1/2005	5/10/200 Months (2) (3)	e 7	10/22/2005 2	10/25/2005	1	12/27/2005 1	3/27/2006 1	5/19/2006	8/12/2006		1/2/2007: 1	5/3/2007; 2	5/29/2007: 1	6/28/2007; 1	1/27/2007 1
DE ACCID Sear-B	PERIC	0 1	Ö	1046	1047	1048	1049	1050	1051	1052	1054	1055	1056	1057	1058	1059:

P.I.N. Case No. File By Page Number 3			illure to Yield Right of Way (20) Unsafe	t (13) Passing or Lane Usage Improper		rol Disregarded (4) Driver Inattention	sage Improper		1	V2 of hit V3 (9) Following Too Closely		ie. (26) Reaction to Other Univolved	Usage Improper	V2 (4) Driver Inattention (9) Following	I hit a parked car (69) View w Obstructed/Limited	
Street Name: East Main St Corridor Route Number: Location: East Main St Milepost: University Ave To: Union Street Date of Report: 1/13/200		(12) Description	V1 U-turn from the right lane and turned infront of V2 (7) Failure to Yield Right of Way (20) Unsafe Lane Changing	V1 struck V2 with its traller while they were both turning left (13) Passing or Lane Usage Improper	(13) Passing or Lane Usage Improper	V1 tried to make the light and Struck V2&3 (17) Traffic Control Disregarded (4) Driver Inattention	V1 merge to right lane and struck v2 (13) Passing or Lane Usage Improper	(9) Following Too Closely	(9) Following Too Closely	V3 sudden stop causing V2 to stop. V1 hit v2 which caused V2 ot hit V3 (9) Following Too Closely	(9) Following Too Closely	V1 avoiding another vehicle struck v2 who was the right lane. (26) Reaction to Other Univolved Vehicle	V1 drove by V2 and struck V1's mirror. (13) Passing or Lane Usage Improper	V2 stopped suddenly to let a NYS Trooper by and v1 struck V2 (4) Driver Inattention (9) Following Too Closely	V1 struck V2 as it made a left turn causing it to spin out and hit a parked car (69) View Obstructed/Limited (7) Failure to Yield Right of Way (69) View Obstructed/Limited	(7) Failure to Yield Right of Way
Stree Route L I		(11) Acc. Type	Over	Side	Over	RAng	Over	REnd	REnd	REnd	REnd	Side	Over	REnd	Left	Left
	(10)	Apparent Contributing Factors							29	19	3.9	226	213		2 69, 7,69	17
Main oe Rochester 9)	7 L B B S	Z S Z	17,20	1 13	213	117,4	213	0	100	100					10.5	
ast Main Monroe ty of Rochester (8) (9)	C f u S t a e &	d n n d	1 17,20	1 113	1 213	1 117	1 21	-	14	1	:0	2	•	4	7	-
of Monroe City of Rochester (7) (8) (9)	C dao R C frex tae ¥	_ o _	4 1 17,20	1 1 13	1 213	1 1 117	1 1 21	F	; +	T	17	12	-			1
gram: East Main inty of Monroe in of City of Rochester (6) (7) (8) (9)	C dao R C frus tae	4 e r	-	1 1 1 113	1 1 213	1 1 1 117	4 1 1 21	+	1 1 2	-	1 1 2	1 1 2	-	4		-
iagram: East N ounty of Monra own of City of (6) (7) (8) (9	C dao R C frus tae W	d n o	¥ 7	-	-	-	1-	1	-	-	1	- - - - - - - -	DO 4 1 1	-	1 1 2	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
Diagram: East Main County of Monroe Town of City of Rochester (4) (5) (6) (7) (8) (9)	C t b C C d a o R C C d a c C C d a c C C d a c C C C C C C C C C C C C C C C C C C	d n o	2 PDO 1 4 1	2 PDO 1 1 1	2 PDO 1 1 1	PD0 1 1	PDO 4 1 1	1	-	-	1	- - - - - - - -	2 PDO 4 1 1	PD0 1	3 inj 1 1 2	2 PDO 1, 1 1
Diagram: East N County of Monra Town of City of (4) (5) (6) (7) (8) (9	> e c i b e c c i b e c c c c c c c c c c c c c c c c c c	e t o o d d d d d d d d d d d d d d d d d	2 PDO 1 4 1	PDO 1 1 1	900	-	1-	10:32 2 PDO 1 1 1 1	10:32 2 PDO 1 1 1 1 2	16:30 3 PDO 1 1 1	13:00 2 PDO 1 1 2	10:02 2 PDO 1 1 2	19:05 2 PDO 4 1 1	2 PDO 1 1	1 1 2	8:10 2 PDO 1, 1
iagram: East N ounty of Monra own of City of (6) (7) (8) (9	C t b C C d a o R C C d a c C C d a c C C d a c C C C C C C C C C C C C C C C C C C	e t 0 0 c d d d d d d d d d d d d d d d d d	2 PDO 1 4 1	2 PDO 1 1 1	2 PDO 1 1 1	PD0 1 1	PDO 4 1 1	1	-	-	1	1/11/2008 10:02 2 PDO 1 1	1077: 1/21/2008 19:05 2 PDO 4 1 1	13:35; 2 PDO 1 1	3 inj 1 1 2	7/12/2005 8:10 2 PDO 1 1 1

East M f Monro City of City of d f e	Diagram: East Ma County of Monroe Town of City of R Town of City o	Diagram: East Marcoe County of Monroe Town of City of R Town of City of City of R Town of City o	Diagram: East Ma County of Monroe Town of City of R S
gram: Eas Junty of Me vn of City g o u g o u d d f f t d f f	Diagram: Eas County of Mc Town of City Town of City S		(4) (5) (6) (7) (7) (1) (6) (7) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1
gram ggram vn of vn of vn of c c c c c c c c c c c c c c c c c c	Diagram County o Town of Town of S C C i o t n y d d y d d PDO 1 PDO 1 Inj d d PDO 4 PDO 4 PDO 4 PDO 6 Inj d d PDO 6 PDO 7 PDO 7 PDO 7 PDO 6 PDO 6 PDO 6 PDO 6 PDO 7 PDO 7 PDO 7 PDO 7 PDO 6 PDO 6 PDO 7 PDO 7 PDO 7 PDO 6 PDO 7 PDO 6 PDO 7		(4) (5) (6) (7) (7) (1) (6) (7) (7) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1
	COULTON S S S S S S S S S S S S S S S S S S S		2 PD

Location: East Main St

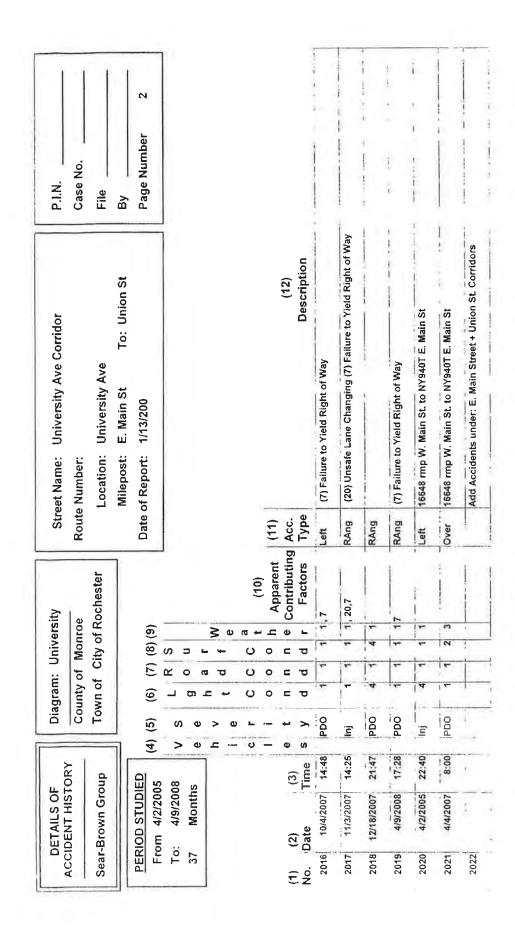
Town: City of Rochester

12-Jan-09

County: Monroe

12-Jan-09					Co	dity. mon			
			Milepost: L	Iniversity A	Ave	To: Unio	n Street		
Time of Day	No. of Accidents	% of Total	Direction	# Veh	% of Total		Direction	# Veh	% of Total
6 AM - 10 AM		21	North:	10	9.3		NorthEast:	1	0.9
10:00 AM - 4 PM		37	South:	19	18		NorthWest:	1	0.9
4 PM - 7 PM		19	East:	21	20		South East:	5	4.7
7 PM - 12 MID	10	19	West:	49	46		SouthWest:	1	0.9
12 MID - 6 AM	2	3.8	Unknown:	0	0				
Unspecified	0	0					Total	107	
Total	52		1272						
					% of		A. Tress	# 1/. 5	% of Total
	r No. of Accidents		Acc. Type		Total		Acc. Type		
Clear		55	Sideswipe:	9	17		Bicycle:	0	0
Cloudy		32	Rear End:	18	33		Right Turn:	0	0 0
Fog		0	Right Angle:	12	22		Driveway:	0	
Rain		13	Left Turn:	5	9.3		Backing:	1	1.9
Sleet		0	Pedestrian:	0	0		Overtaking: Unknown:	5 2	9.3 3.7
Snow		0	Fixed Object:	2	3.7		Unknown:	2	3.7
Unknown		0	Head on:	0	0		Total	54	
Tota	il 53		ļ						
Pavement	t No. of Accident		Accident S	•	No.	of Accidents		f Total	
Dry	: 38	70		Fatal:		0	0		
Muddy	: 0	0	Non-Fatal			10		9	
Other	: 0	0	Property damag	-		44		11	
Slush		0	Non-repo	ortable:		0	C)	
Snow/Ice	: 3	5.6	8	Total		54			
Wet	: 13	24							
Unknown	: 0	0	4	Vehicle	No. o	f Accidents		f Total	
Tota	ul 54		9	er Cars:		108		00	
1012	.,		Commercial V	Vehicles:		0	(,	
			(1)	Total		108			
Time of Yea	r No. of Acciden	ts	Light (Condition	No. o	f Accidents	% o	ſ Total	
Winter (Dec-Feb) 15	28	Dark Road	-Lighted:		12	2	.2	
Spring (Mar-May) 16	30	Dark Road-U	nlighted:		0	C		
Summer (Jun-Aug) 11	20		Dawn:		0	0		
Fall (Sep-Nov) 12	22		Daylight:		40		4	
Tota	al 54			Dusk:		1		.9	
100	J7		ι	Inknown:		1	ľ	.9	
				T	otal	54			

University Ave Corridor University Ave E. Main St To: Union St By Page Number 1 Page Number 1	(12) Description	V1 changed lanes and struck V2 (4) Driver Inattention (20) Unsafe Lane Changing	V1 struck V2 after V2 stopped for an emergency vehicle. (17) Traffic Control Disregarded	(20) Unsafe Lane Changing (13) Passing or Lane Usage Improper	V1 was cut off and stopped when struck by V2 (4) Driver Inattention	V1 merged over and struck V2. (7) Failure to Yield Right of Way	V2 stopped for pedestrians and V1 rear-ended V 2. (9) Following Too Closely	V2 was struck by Bicycle as v2 was turning left (4) Driver Inattention	losely	V1 stopped abruptly and V2 rearended it, and V3 rear ended Vehicle 2. (9) Following Too Closely	(9) Following Too Closely (4) Driver Inattention	V1 in the left lane andwent straight, v2 turned left from middle lane. V1 hit V2 on the left side. (18) Turning Improperly (4) Driver Inattention	Disregarded	(4) Driver Inattention (17) Traffic Control Disregarded
Street Name: University Route Number: Location: University Milepost: E. Main St Date of Report: 1/13/200		V1 changed lanes an	V1 struck V2 after V2	(20) Unsafe Lane Ch	V1 was cut off and s	V1 merged over and	V2 stopped for pede	V2 was struck by Bio	(9) Following Too Closely	V1 stopped abruptly	(9) Following Too C	V1 in the left lane an Turning Improperly ((17) Traffic Control Disregarded	(4) Driver Inattention
Stre Route Date c	(11) Acc. Type	Side	REnd	Over	REnd	Over	REnd	Bike	REnd	REnd	REnd	Over	RAng	RAng
Diagram: University County of Monroe Town of City of Rochester S (6) (7) (8) (9) L R S L R S L R S L R S L R S L R S L R S L R S L R C C C a T (10)	o o o h Apparent n n n e Contributing d d d r Factors	1 1 1 24,20	1 1 1 17	1 4 2 220,13	1 1 2 24	4 1 1 17	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 24	4 1 29	1 1 2,9	1 2 39,4	4 4 2 4 18,4	1 1 1 1,17	1 1 2 34,17
9 0, 0 7 0 -	- >	PDO	PDO	100	PDO	PDO	OGA	PDO	PDO	iPD0	ilnj	PDO	PDO	jr.
(4) > e t - o	(3) e Time	13:15	12:39	13:40	7:57	21:12	8:49	14:40	23:55	16:13	18:49	22:20	12:01	10:13
DETAILS OF ACCIDENT HISTORY Sear-Brown Group FERIOD STUDIED From 4/2/2005 To: 4/9/2008 37 Months	(2) (Date T	9/2005	8/15/2005	1/5/2006	1/18/2006	6/21/2006	7/20/2006	8/23/2006	12/29/2006	2/6/2007	3/24/2007	4/7/2007.	7/9/2006	1/13/2007:
CCD are 1 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014



Location: University Ave

Town: City of Rochester

County: Monroe

13-Jan-09

74.107			Milepost: [E. Main St		To: Unio	on St		
		% of			% of		Direction	# Wab	% of
Time of Day	No. of Accidents	Total	Direction	# Veh	Total			# ven	Tota 2.5
6 AM - 10 AM	4	20	North:	25	63		NorthEast:	-	
10:00 AM - 4 PM	8	40	South:	3	7.5		NorthWest:	1	2.5
4 PM - 7 PM	3	15	East:	0	0		SouthEast:	1	2.5
7 PM - 12 MID	5	25	West:	9	23		SouthWest:	0	0
12 MID - 6 AM	. 0	0	Unknown:	0	0				
Unspecified	0	0	I.				Total	40	
Total	20								
Weather	r No. of Accidents		Асс. Туре	# Veh	% of Total		Acc. Type	# Veh	% o Tota
Clear:		50	Sideswipe;	1	5		Bicycle:	1	5
Cloudy:		30	Rear End:	6	30		Right Turn:	0	0
Fog:		0	Right Angle;	6	30		Driveway:	0	0
Rain:		15	Left Turn;	2	10		Backing:	0	0
Sleet:		0	Pedestrian:	0	0		Overtaking:	4	20
Snow		5	Fixed Object:	0	0		Unknown:	0	0
Unknown		0	Head on:	0	0				
Tota		·					Total	20	
Pavement	t No. of Accident	ts	Accident S	Severity	No. of	Accidents	s % o	f Total	
Dry:		65		Fatal:		0	C)	
Muddy:		0	Non-Fatal	Injury:		4	2	20	
Other		0	Property dama	ge only:		16	8	30	
Slush		0	Non-rep	ortable:		0	()	
Snow/Ice:		5	10	Total		20			
Wet	: 6	30	ł				B 06 0		
Unknown	: 0	0	Type o	f Vehicle	No. of	Accidents	% 0	f Total	
			Passeng	ger Cars:		41			
Tota	al 20		Commercial	Vehicles:					
				Total					
Time of Van	r No. of Acciden		ļ	Condition	No. of	Accidents	% o	f Total	
Winter (Dec-Feb		30	Dark Road			5		25	
Spring (Mar-May		30	Dark Road-I			0	(
Spring (Mar-May Summer (Jun-Aug		30	Dain Road	Dawn:		0	(
Summer (Jun-Aug Fall (Sep-Nov		10		Daylight:		15		75	
ган (эер-иоч		10	JU Ti	Dusk:		0	(
Tota	al 20		0 5	Unknown:		0	(

P.I.N. Case No. File By Page Number 1			(18) Turning Improperly	(7) Failure to Yield Right of Way (4)		d struck V2 (4) Driver Inattention		i						
Street Name: East Ave Corridor Route Number: Location: East Ave/Union St Milepost: To: Union St. Date of Report: 1/13/200	(12) Description	(17) Traffic Control Disregarded	V1 stopped abruptly rear ended by V2. V1 was turning right and turned into V2 (4) Driver Inattention (18) Turning Improperly	V3 stopped to let V 1 into traffic, V2 struck V1 making a left (7) Failure to Yield Right of Way (4) Driver Inattention	Company of the Compan	V1 went the wrong way on N. Union, entered intersection and struck V2 (4) Driver inattention		(64) Obstruction/Debris (7) Failure to Yield Right of Way		(17) Traffic Control Disregarded	(17) Traffic Control Disregarded	(7) Failure to Yield Right of Way	(17) Traffic Control Disregarded	(17) Traffic Control Disregarded
Stre Route Date o	(11) Acc. Type	Left	Rend	Unkn	RAng	RAng	RAng	Left	RAng	RAng	RAng	Rght	RAng	RAng
Diagram: East Ave/U County of Monroe Town of City of Rochester i) (6) (7) (8) (9)	L R S	4 1 1 17	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 1 17.4	+ -	4 - - - -	4	4: 1 2 364,7		1 1 1 1 1.17	1 1 1 117	1 1 27	1 1 2 217	4 1 2 2, 17
Co Co To To (4) (5)	> o E - o - o w	000	PDO P	PDO	PDO	PD0	PDO	Ē.	<u> </u>	PDO	рода	PDO	.PDO	PDO
	3) [2:38 PE	8:06	18:03	22:10	4:00	22:45	20:59	11:53	20:10	15:43	16:21	10:15	20:14
ACCIDENT HISTORY Sear-Brown Group PERIOD STUDIED	Month	8/5/2006	7/21/2006	9/15/2005	9/16/2005	10/2/2005	1/6/2006	6/3/2006;	6/5/2006	6/7/2006	8/24/2006	8/22/2006	11/20/2006,	12/17/2006
DETAIL SCIDENT sar-Brow ERIOD S		1.			1		1	- 3					-	3029

P.I.N. Case No. File	Page Number 2					fic Control Disregarded	I V3 & 4. (17) Traffic Control Disregarded	pet	arded	k by V1 westbound (7) Failure to Yield		4		
Street Name: East Ave Corridor Route Number: Location: East Ave/Union St	1/13/200			(12)	Description	V1 hit V2, force V2 over the curb , hit parked V3&4 (17) Traffic Control Disregarded	V1 & 2 collided and caused V1 to spin out and strike parked V3 & 4. (17) Traffic Control Disregarded (7) Failure to Yield Right of Way	(7) Failure to Yield Right of Way (69) View Obstructed/Limited	(7) Failure to Yield Right of Way (17) Traffic Control Disregarded	v2 It out of drive, view obstructed by parked veh; was struck by V1 westbound (7) Failure to Yield Right of Way (69) View Obstructed/Limited	East Ave @ Union St (18) Turning Improperly	East Ave @ Union St (17) Traffic Control Disregarded	East Ave @ N. Union St (17) Traffic Control Disregarded	Add acidents found: Pitkin St. corridor
Stre Route	Date o		(13)	Acc.	Туре	RAng	RAng	RAng	RAng	Left	Left	RAng	RAng	dienie.
Diagram: East Ave/U County of Monroe Town of City of Rochester	(6)		≥ o a + c	. Bu	r Factors	1 2,17	1 117,7	2 3,7,69	1 17.17	1 17,69	1 118	1 1,17	1 117	
Eas Mo City		S 3 -	. 	-	-	-	1-	-	1-	-	-	1	1	Ť
Diagram: East County of Mon Town of City o	(9)	7 9 t	- U O		ਰ ਰ	-	-	4	-	m	4	4	+	1
Diag Cour Town	13	o o	> + -	•		E	. 3	PDO	PDO	PDO	PDO	PDO	PDO	+
					Time S	10:23 6	11:21	18:12	11:51	20:23	21:57	21:57	20:10	****
RY BY		8 g		·	F								6/7/2006 20:10	5
DETAILS OF ACCIDENT HISTORY Sear-Brown Group	4 > a c - a			(2)	Date	12/23/2006	1/4/2007	1/12/2007	5/8/2007	4/2/2008	11/2/2005	4/22/2006	6/7/2	7

Location: East Ave/Union

Town: City of Rochester

13-Jan-09

County: Monroe

15-01111-07									
			Milepost:		,	To: Uni	ion St.		
		% of	Ī		% of		Direction	# Wab	% of
Time of Day	No. of Accidents	Total	Direction	# Veh	Total			# ven	Total
6 AM - 10 AM	[]	4.5	North:	17	34		NorthEast:	_	2
10:00 AM - 4 PM	1 6	27	South:	5	10		NorthWest:	1	2
4 PM - 7 PM	1 3	14	East:	12	24		SouthEast:	0	0
7 PM - 12 MID	10	45	West:	14	28		SouthWest:	0	0
12 M1D - 6 AM	[2	9.1	Unknown:	0	0				
Unspecified	0	0					Total	50	
Total	22		I						
				N	% of	ne i dece			% of
Weather	r No. of Accidents		Acc. Type	# Veh	Total		Acc. Type		Total
Clear	: 15	68	Sideswipe:	0	0		Bicycle:	0	0
Cloudy:	: 4	18	Rear End;	l	4.5		Right Turn:	2	9.1
Fog:	: 0	0	Right Angle:	14	64		Driveway:	0	0
Rain	: 2	9.1	Left Turn:	4	18		Backing:	0	0
Sleet:	: 0	0	Pedestrian:	0	0		Overtaking:	0	0
Snow	: 1	4.5	Fixed Object;	0	0		Unknown:	1	4.5
Unknown	: 0	0	Head on:	0	0		Total	22	
Tota	l 22						10121		
Pavement	No. of Accident	s	Accident	Severity	No. of	Accidents	% 01	f Total	
Dry:	17	77	1	Fatal:		0	0		
Muddy:	: 0	0	Non-Fatal	l Injury:		5	2	.3	
Other:	; 0	0	Property dama	ge only:		17	7	7	
Slush:	: 0	0	Non-rep	ortable:		0	0		
Snow/Ice:	: 1	4.5	1	Total		22			
Wet:	: 4	18							100
Unknown:	: 0	0	Туре о	f Vehicle	No. of A	Accidents	% of	f Total	
_			Passen	ger Cars:		50	9	4	
Tota	1 22		Commercial	Vehicles:		3	5	7	
				Total		53			
Time of Year	No. of Accident	s	Light	Condition	No. of A	ccidents	% o1	f Total	* **
Winter (Dec-Feb)		23	Dark Road			9	.1		
Spring (Mar-May)		14	Dark Road-U	-		0	0		
Summer (Jun-Aug)		36		Dawn:		0	0		
Fall (Sep-Nov)		27		Daylight:		12	5	5	
· -				Dusk:		ı	4	.5	
Tota	1 22			Unknown:		0	0		

27

Total

P.I.N. Case No.	By Page Number 1		īΧ		Changing	A DRIVEWAY (18) Turning Improperly	Turning Improperly		3 LOT (26) Reaction to Other Univolved		ure to Yield Right of Way	sing or Lane Usage Improper (17) Traffic	ning Improperly (20) Unsafe Lane	ire to Yield Right of Way	ol Disregarded		assing or Lane Usage Improper	Other Univolved Vehicle
Union St. Corridor : Union St.	Milepost: S. Union St To: E. Main St Date of Report: 1/13/200			(12) Description	V1 ENTERED V2'S LANE AND STRUCK V2 (20) Unsafe Lane Changing	V1 TURNED IN FRON OF V2 IN AN ATTEMPT TO TURN INTO A DRIVEWAY (18) Turning Improperly	V1 EXITING LOT STRUCK V2 ENTERING PARKING LOT (18) Turning Improperly	STRUCK PARKING SIGN (4) Driver Inattention	V1 (MOTORCYCLE) STOPPED TO turn RIGHT INTO PARKING LOT (26) Reaction to Other Univolved Vehicle	V2 STRUCK V1 AS V1 WAS MAKING LEFT TURN	V1 FAILED TO STOP FOR RED LIGHT & STRUCK V2 (7) Failure to Yield Right of Way	V2 TURNED LEFT IN FRONT OF V1. V1 STRUCK V2 (13) Passing or Lane Usage Improper (17) Traffic Control Disregarded	V2 TURNED LEFT IN FRONT OF V1, V1 STRUCK V2 (18) Turning Improperly (20) Unsafe Lane Changing	V2 RAN RED LIGHT & STRUCK V1. V2 FLED SCENE (7) Failure to Yield Right of Way	V1 WENT THRU RED LIGHT & STRUCK V2 (17) Traffic Control Disregarded	V1 BACKED INTO V2 WHILE V2 WAS PARKED	V2 TURN LEFT, V1 STRUCK V2 BOTH IN LEFT LANES (13) Passing or Lane Usage Improper	V1 SWERVED TO AVOID V2, STRUCK CURB (26) Reaction to Other Univolved Vehicle
Street Name: Route Number: Location	M Date of		£ —	Acc. Type	Over V1	Unkn V1	Dray V1	Fixo V1	Rght V1	RAng V2	RAng V1	Left V2	Left V2	RAng V2	RAng V1	Back V1	Left V2	Fixo V1
Diagram: Union St. County of Monroe Town of City of Rochester	(6) (7) (8) (9)	то « о з г	c c c a (10)	D	4 1 2 320	1 1 218	4 1 1 18	1 14	4 1 1 126 F	1 1 2 2	1 1 1 17	4 1 1 113,17	4 1 1 218,20	1 1 17 6	1 1 1 217	4 1 1 2	4 1 2 13	1 4 126
	4) (5)	e <	- c - b	s t	PDO	PDO	Odd	PDO	luj	PDO	PDO	PDO	PDO	PDO	PDO	PDO	PDO	004
	11 2			(3) Time	2:27	8:48	0:50	16:15	00:0	8:10	8:47	2:20	23:45	13:36	10:54	21:00	22:34	17-25
≿.1		0	ľ				3	ιĠ		-		<u> </u>		120	00	10		
ACCIDENT HISTORY Sear-Brown Group Diagram Group To	PERIOD STUDIED From 3/17/200			(2) (Date T	10/28/2006	7/23/2006	12/16/2006	6/13/2006	6/11/2006	5/15/2007	6/12/2007	7/28/2007	11/30/2007	12/1/2007	4/20/2008	10/9/2006	11/3/2006	K/3/2007

						non		and the same of th			Control		o to		<i>A</i>		
P.I.N. Case No.	By Page Number 2			Inattention		ED INTO V2 (4) Driver Inattenti	er Inattention	K V2 (4) Driver Inattention	AFFIC (3) Backing Unsafely		field Right of Way (17) Traffic	Involvement (19) Unsafe Spee	wing Too Closely (26) Reactio	ohol Involvement	(7) Failure to Vield Right of Wa	Lane Changing	t (3) Backing Unsafely
Corrido	on St To: E. Main St 00		(12) Description	V1 STARTED TO SWITCH LANES & SIDESWIPED V2 (4) Driver Inattention	V2 STOPPED & V1 REAR-ENDED V2 (9) Following Too Closely	V1 WAS PARKED & V2 WAS STOPPED AT CORNER. V1 BACKED INTO V2 (4) Driver Inattention	V2 STOPPED & TRAFFIC LIGHT & V1 REAR-ENDED V2 (4) Driver inattention	V2 PARKED. V1 TURNED RIGHT INTO THE PARK LOT STRUCK V2 (4) Driver Inattention	V1 BACKING INTO DRIVEWAY & STRUCK V2 STOPPED IN TRAFFIC (3) Backing Unsafely	V1 (RTS BUS) REAR-ENDED V2. (4) Driver Inattention	V2 STRUCK BY V1 WHICH THEN FLED SCENE (7) Failure to Yield Right of Way (17) Traffic Control Disregarded	V1 HIGH RATE OF SPEED, SLID ICY ROAD, CURB (2) Alcohol Involvement (19) Unsafe Speed	V2 AVOID UNKNOWN VEHICLE, REAR-ENDED BY V1 (9) Following Too Closely (26) Reaction to Other Univolved Vehicle	V1 SWERVED OFF ROAD, OVER CURB, STRUCK TREE (2) Alcohol Involvement	VI CHANGED LANES & struck v2 (20) Unsafe Lane Changing (7) Failure to Yield Right of Way	VI WAS CHANGING LANES WHEN IT STRUCK V2 (20) Unsafe Lane Changing	V1 BACKING DOWN STREET INTO V2. (2) Alcohol Involvement (3) Backing Unsafely
Street Name: Union St. Route Number: Location: Union St.	Milepost: S. Union St Date of Report: 1/13/200			V1 STARTED TO SWI	V2 STOPPED & V1 RE	V1 WAS PARKED & V	V2 STOPPED & TRAF	V2 PARKED. V1 TUR	VI BACKING INTO DE	V1 (RTS BUS) REAR-	V2 STRUCK BY V1 W	VI HIGH RATE OF SP	V2 AVOID UNKNOWN VE Other Univolved Vehicle	V1 SWERVED OFF R	V1 CHANGED LANES	WAS CHANGING	V1 BACKING DOWN
Str	Date		(11) Acc. Type	Side	REnd	Back	REnd	Side	Back	REnd	RAng	Unkn	REnd	Fixo	Side	Left	Loft
n: Union St. of Monroe f City of Rochester	(7) (8) (9)	× − − × × × × × × × × × × × × × × × × ×	C C t (10) 0 0 h Apparent n n e Contributing d d r Factors	 - -	5. -	1 1 14	:	1 1 24	1 1 23	4-	1 1 17,17	1 4 42,19	1 2 39,26	1 1 22	1 2 3 20,7	1 1 220	1 1 223
Diagram: County of Town of	9	J 6 -	- 0 0 E T	-		4		4	-		4	4	4	4	1	1	-
10 P	(5)	σ o >	0 L - + >	PDO	Ē	P00	PDO	PDO	PDO	<u> </u>	PDO	PDO	P00	PDO	P00	PDO	PDO
ORY up	3 €	> 0 =	(3) e	8:45	11:07	1:30	17:18	23:50	10:52	14:32	2:41	2:25	1:02	0:30	8:40	14:00	1.49
DETAILS OF ACCIDENT HISTORY Sear-Brown Group	PERIOD STUDIED From 3/17/200		(2) Date	5/5/2006	3/31/2006	10/30/2005	12/10/2005	5/31/2006	1/22/2008	10/12/2007	8/12/2007	2/16/2007	5/20/2006	11/17/2005	4/4/2008	6/9/2006	8/26/2005
ACCII Sear-I	PERIOD	39	Ε̈́Š	4019	4021	4022	4023	4025	4026	4027	4028	4029	4031	4032	4033	4035	4036

P.I.N.	Case No.	File	By	Page Number 3				G V2 & V3 (2) Alcohol Involvement (19)	ollowing Too Closely	Inexperience	sely	ire Failure/Inadequate	Too Closely (66) Pavement Slippery		3Y V1 (26) Reaction to Other Univolved	. (4) Driver Inattention	HEN BACKED UP & STRUCK V2 (2)		Month of the state
Union St. Corridor		Union St.	S. Union St To: E. Main St	1/13/200		(12)	Description	V1 TURNED LEFT, WRONG WAY,ONE WAY ST. SIDESWIPING V2 & V3 (2) Alcohol Involvement (19) Unsafe Speed	V2 PARKED WHEN V1 SWERVED V1 REAR-ENDED V2 (9) Following Too Closely	v1 VEHICLE WOULD NOT TURN & STRUCK CURB (5) Driver Inexperience	V1 EXITED INNER LOOP & STRUCK V2 (9) Following Too Closely	V1 REAR-ENDED V2 PARKED. (2) Alcohol Involvement (47) Tire Failure/Inadequate	V1 ATTEMPTED TO STOP & REAR-ENDED V2 (9) Following Too Closely (66) Pavement Slippery	V2 ENTERED INTERSECTION & WAS STRUCK BY V1.	V2 STOPPED TO AVOID ANOTHER V & WAS REAR-ENDED BY V1 (26) Reaction to Other Univolved Vehicle	V2 STOPPED AT RED LIGHT AND WAS REAR-ENDED BY V1. (4) Driver inattention	V1 TURNED THE WRONG WAY ONTO ONE-WAY STREET, THEN BACKED UP & STRUCK V2 (2) Alcohol Involvement (3) Backing Unsafely	S. Union St @ Griffth St (9) Following Too Closely	And accidents found: F. Maios Haiversilvs Fast Aves Broads Mourse corridors
Street Name:	Route Number:	Location:	Milepost:	Date of Report:				V1 TURNED LI Unsafe Speed	V2 PARKED	M VEHICLE	V1 EXITED IN	V1 REAR-EN	V1 ATTEMPT	V2 ENTERED	V2 STOPPED Vehicle	V2 STOPPED	V1 TURNED	S. Union St (Add agging
Stre	Route			Date		(11) Acc.	Туре	Left	REnd	RAng	REnd	REnd	REnd	RAng	REnd	REnd	Back	REnd	ļ
on St.	Toe	of Rochester		(6)	N ⊕ m •	t (10) h Apparent e Contributing	r Factors	12.19	19	15	6	22,47	29,66	2	426	24	12,3	1.9	1011
Unior	Mon	City of		(8)	0 = L L O	0 =	P	-	40	-	-	1	2	-	. 2	7	-	~	1
n: L	ğ			3	Koea O	0 =	ਰ	-	-	4	1	1	1	1	-	-		F	1
Diagram:	County of Monroe	Town of		(9)	7 9 E + 0	0 =	ס	4		4		4	1	1		4	4		-
Ď	ပိ	오		(4) (5)	() 0 > 0 F		>	PDO	PDO	PDO	這	100	PDO	PDO	PDO	PDO	PDO	ini	1 -
>0	- CR	dn			> 0 E - 0	- e -	Time s	1:34	15:43	4:32	11:07	22:55	2:45	13:50	17:59	19:15:	23:41:	11:07.	
		Sear-Brown Group		PERIOD STUDIED From 3/17/200	6/31/200 Months		a	4/29/2006	3/11/2008	5/31/2008	3/31/2006	1/2/2006	4/5/2008	3/15/2008	12/12/2007:	2/22/2008;	3/17/2005	3/31/2006:	100
DETAILS OF		6	11	片드	. 1	5	(4)	9.00							4				

Location: Union St.

Town: City of Rochester

13-Jan-09

County: Monroe

			Milepost: 8	S. Union St	To: E	Main St		
		% of			% of		4 4 7 4	% of
Time of Day	No. of Accidents	Total	Direction	# Veh	Total	Direction		Tota
6 AM - 10 AM	5	13	North:	41	56	NorthEast:	4	5.5
10:00 AM - 4 PM	10	26	South:	9	12	NorthWest:	5	6.8
4 PM - 7 PM	I 4	10	East:	6	8.2	SouthEast:	2	2.7
7 PM - 12 MID	7	18	West:	6	8.2	SouthWest:	Û	0
12 MID - 6 AM	[13	33	Unknown:	0	0			
Unspecified	0	0				Total	73	
Tota	39							
Weathe	r No. of Accidents		Acc. Type	# Veh	% of Total	Acc. Type	# Veh	% of Tota
Clear	: 19	49	Sideswipe:	3	7.7	Bicycle:	0	0
Cloudy	: 15	38	Rear End:	11	28	Right Turn:	1	2.6
Fog		0	Right Angle:	7	18	Driveway:	1	2.6
Rain		7.7	Left Turn:	6	15	Backing:	4	10
Sleet	: 0	0	Pedestrian:	0	0	Overtaking:	1	2.6
Snow	: 2	5.1	Fixed Object:	3	7.7	Unknown:	2	5.1
Unknown	: 0	0	Head on:	0	0	T-4-1	20	
Tota	al 39					Total	39	
Pavemen	t No. of Accident	s	Accident S	Severity	No. of Accide	nts % o	f Total	
Dry	: 28	74		Fatal:	0	()	
Muddy	: 0	0	Non-Fatal	Injury:	5	i	13	
Other	: 0	0	Property dama	ge only:	34	}	37	
Slush	: 1	2.6	Non-rep	ortable:	0	()	
Snow/Ice	: 1	2.6		Total	39			
Wet	: 8	21						
Unknown	; 0	0	Type of	Vehicle	No. of Acciden	ts % o	f Total	
Tota	ıl 38		Passeng Commercial	ger Cars:	73			
			Commercial	venicies: Total				
			ļ	10tat		amin n sin		w0.
Time of Yea	r No. of Acciden	ts	_	Condition	No. of Acciden		f Total	
Winter (Dec-Feb) 8	21	Dark Road	_	21		54	
Spring (Mar-May) 16	41	Dark Road-U	-	0		0	
Summer (Jun-Aug) 8	21	E.	Dawn:	0		0	
Fall (Sep-Nov) 7	18		Daylight:	18		46	
Tota	al 39			Dusk:	0		0	
100	•		t	Jnknown:	0	(0	
				Т	otal 39			

-6.169

P.I.N. Case No.	File	By Page Number 1			Right of Way	owing Too Closely	ffic Control Disregarded	E A U-TURN & STRUCK V2 (7) Failure	STRUCK V3 (17) Traffic Control	V1 (4) Driver Inattention (7) Failure to	TARTED TO MOVE (4) Driver	O V2 (4) Driver Inattention	to Yield Right of Way	attention (7) Failure to Yield Right of	regarded (7) Failure to Yield Right of	roperly (69) View Obstructed/Limited	re to Yield Right of Way	V3
Monroe Ave Corridor	ve	Chestnut 10: Alexander St. 1/13/200		(12) Description	V1 WENT THRU RED LIGHT & STRUCK V2 (7) Failure to Yield Right of Way	V2 STOPPED IN TRAFFIC & WAS REAR-ENDED BY V1 (9) Following Too Closely	V1 WENT THRU A RED LIGHT & WAS STRUCK BY V2 (17) Traffic Control Disregarded	V1 MAKE A WRONG TURN ON A ONE WAY ST. V1 THEN MADE A U-TURN & STRUCK V2 (7) Failure to Yield Right of Way (18) Turning Improperly	V2 WENT THRU RED LIGHT & WAS STRUCK BY V1. V2 THEN STRUCK V3 (17) Traffic, Control Disregarded	V2 ATTEMPTED TO MAKE A LEFT TURN & WAS STRUCK BY V1 (4) Driver Inattention (7) Failure to Yield Right of Way	/2 STOPPED, V1 LIGHT TURN GREEN & THOUGHT V2 HAD STARTED TO MOVE (4) Driver nattention	V2 STOPPED TO MAKE A LEFT TURN WHEN V1 REAR-ENDED V2 (4) Driver Inattention	V1 ATTEMPTED TO ENTER TRAFFIC & STRUCK V2 (7) Failure to Yield Right of Way	V2 STOPPED TO turn LEFT, V1 REAR-ENDED V2 (4) Driver Inattention (7) Failure to Yield Right of Way	V2 ran A RED LIGHT & STRUCK BY V1 (17) Traffic Control Disregarded (7) Failure to Yield Right of Way	V1 EXITED PARKING LOT INTO PATH OF V2 (18) Turning Improperly (69) View Obstructed/Limited	V2 TURNED IN FRONT OF V1 & WAS STRUCK BY V1 (7) Failure to Yield Right of Way	V1 TURNED RIGHT & STRUCK PARKED V2, PUSHING IT INTO V3
Street Name: Mc Route Number:		Milepost: Ch			V1 WENT THRU F	V2 STOPPED IN 7	V1 WENT THRU	V1 MAKE A WRO	V2 WENT THRU F Disregarded	V2 ATTEMPTED TO Yield Right of Way	V2 STOPPED, V1 Inattention	VZ STOPPED TO	V1 ATTEMPTED	V2 STOPPED TO Way	V2 ran A RED LIG Way	V1 EXITED PARK	V2 TURNED IN FR	V1 TURNED RIGH
Stre Route		Date o		(11) Acc. Type	RAng	REnd	RAng	RAng	RAng	RAng	REnd	REnd	Side	REnd	RAng	Drwy	Rght	Rght
roe Av	City of Rochester			(10) Apparent Contributing Factors	7	6	217	7,18	217	2 4,7	4	4		4,7	17,71	218,69	7	
onro	/ of R	(6) (8)	≥ o a	- c o -	2 2	-	1 2	-	2 2	1 2	- 2	-	2	-	+	2 2	2 2	-
. Mc	- 1	_		0 - 0	·	-	1	-	-	-	-	-	1	-	•	-	-	***
Diagram: Monroe /	Town of	(9)	_ p ∈ + 0		7-	+	4	4	-	-	-	4	-	4	-	4	i e	-
Cou	Tow	(4) (5)	0 0 > 0 L	+ ×	PDO	PDO	РОО	PDO	Ē.	PDO	PDO	Ē	PDO	Ē	PDO	PDO	.PDO	PDO
ORY	dn		9 (0	(3) Time	13:44	12:22	22:45	22:59	19:52	10:15		23:05	15:00	19:43	15:21	0:06	9:02	17:51
DETAILS OF ACCIDENT HISTORY	Sear-Brown Group	PERIOD STUDIED From 1/4/2005	. 5/28/200 Months	(2) Date	5/18/2006	718/2006	11/7/2007	5/28/2008	6/3/2006	1/4/2005,	6/22/2006	7/28/2006	7/5/2005	12/31/2005	9/25/2005	12/22/2005	2/24/2006	6/22/2007
	ᇈᅵ	1 2 2	.c. 14		5001	2005	2003	5004	5005	2006	2005	2008	8009	5010	5011	5012	5013	5014

P.I.N. Case No.	By Page Number 2				cle (26) Reaction to Other Univolved	ailure to Yield Right of Way		3) Passing or Lane Usage Improper	ring Too Closely (42) Brakes Defective	ring Too Closely (42) Brakes Defective	PEDESTRIAN (4) Driver Inattention	ollowing Too Closely	WALL (2) Alcohol Involvement (13)	/1 REAR-ENDED V2 (9) Following Too			ailure to Yield Right of Way
Monroe Ave Corr Monroe Ave	Milepost: Chestnut To: Alexander St. Date of Report: 1/13/200		(12) Description	V1 REAR-ENDED V2 (9) Following Too Closely	V1 REAR-ENDED V2 (26) Reaction to Other Univolved Vehicle (26) Reaction to Other Univolved Vehicle	V1 PULLED INTO TRAFFIC FROM CURB & STRUCK V2 (7) Failure to Yield Right of Way	V2 PARKED, STRUCK BY ANOTHER VEHICLE	V1 (UNKNOWN) SIDESWIPED V2 & V3 AS both PARKED (13) Passing or Lane Usage Improper	V2 SLOWED FOR TRAFFIC, V1 REAR-ENDED V2. (9) Following Too Closely (42) Brakes Defective	V2 SLOWED FOR TRAFFIC, V1 REAR-ENDED V2. (9) Following Too Closely (42) Brakes Defective	V1 WRONG WAY-ONE WAY ST., TURNED RIGHT & STRUCK PEDESTRIAN (4) Driver Inattention	V2 STOPPED IN TRAFFIC & WAS REAR-ENDED BY V1 (9) Following Too Closely	V2 PARKED. V1 REAR-ENDED V2, THEN STRUCK SIGN & WALL (2) Alcohol Involvement (13) Passing or Lane Usage Improper	V2 STOPPED FOR LIGHT WHEN LIGHT TURNED GREEN, V1 REAR-ENDED V2 (9) Following Too Closely	V2 PARKED. V1 STRUCK V2 & FLED SCENE.	V1 OVER CURB & STRUCK TREE	V1 PULLED FROM CURB INTO TRAFFIC & STRUCK V2 (7) Failure to Yield Right of Way
Stree Route N	N Date of		(11) Acc. Type	REnd V	REnd V	Side V	Side	Side	REnd V	REnd V:	Rght V	REnd V	REnd V	REnd V	REnd V.	Fixo V	Raht
Diagram: Monroe Av County of Monroe Town of City of Rochester	(2) (9)	7 5 6 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	C C d (10)	1 1 19	1 1 2 26,26	1 1 1 17	4 1 1	113	1 1 29,42	1 1 29,42	4 1 2 34	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	4 1 1 12,13	1 2 29	4 1 2 1	1 1 1 1	1 1 2 37
_ 10 [(4) (5)	> o c -	0 - 0 K	PDO	PDO	PDO 1	OG4	DOG .	<u>=</u>	3 Inj	<u> </u>	PDO	PDO 8	<u>=</u>	PDO	lo PDO	PDO
DETAILS OF ACCIDENT HISTORY Sear-Brown Group	PERIOD STUDIED From 1/4/2005	5/28/200 Months) (3) te Time	3/28/2007 17:25	3/31/2008 14:33	7/22/2005 16:47	9/28/2007 0:15	4/5/2008	3/14/2008 14:08	3/14/2008 14:08	7/13/2007	6/13/2005: 14:36	7/8/2005 2:08	12/21/2005: 15:49	2/19/2006; 1:58	9/27/2005 1:10	10/7/2005 13:20
DE' ACCIDE Sear-Br	PERIOD	To:	(1) (2) No. Date	5015	5016	5017	5019	5020	5023	5024	5025	5026	5028		5031	5032	5033

P.I.N. Case No.	File File Rv		(12) Description	V1 SLIDE ON SLIPPERY PAVEMENT & STRUCK GUIDE RAIL. (66) Pavement Slippery	V1 STRUCK V2 WHICH WAS IN THE INTERSECTION. (7) Failure to Yield Right of Way (7) Failure to Yield Right of Way	V1 STOPPED MAKE A LEFT TURN. V2 PASS V1 ON LEFT. V1 THEN STRUCK V2 (60) Other Vehicular (13) Passing or Lane Usage Improper	V2 STOPPED, WHEN LIGHT CHANGED V2 ENTERED INTERSECTION & STRUCK BY V1 (17) Traffic Control Disregarded	V1 REAR-ENDED V2, PUSHING IT INTO V3 (9) Following Too Closely (66) Pavement Slippery	Passing or Lane Usage Improper	HIT CURB, LIGHT POLE	K V2 (17) Traffic Control Disregarded	V1 (BUS) ENTERED THE INTERSECTION & STRUCK V2. (17) Traffic Control Disregarded	ield Right of Way		ention (4) Driver Inattention	V1 was parallel parking and struck V2, turning improperly, other vehicular (18) Turning Improperly (50) Other Vehicular	
Street Name: Monroe Ave Corridor Route Number:	Location: Monroe Ave	1/13/200		V1 SLIDE ON SLIPPERY PAVEMENT &	V1 STRUCK V2 WHICH WAS IN THE IN Yield Right of Way	V1 STOPPED MAKE A LEFT TURN. V2 PASS V7 Vehicular (13) Passing or Lane Usage Improper	V2 STOPPED, WHEN LIGHT CHANGED Control Disregarded	V1 REAR-ENDED V2, PUSHING IT INTO	D1 STRUCK THE MEDIAN and sign (13) Passing or Lane Usage Improper	V1 (MOTORCYCLE) LOST CONTROL & HIT CURB, LIGHT POLE	V1 WENT THRU A RED LIGHT & STRUCK V2 (17) Traffic Control Disregarded	1	Ref. Mrkr. 31 4303 2042 (7) Failure to Yield Right of Way	Ref. Mrkr. 31 4303 2042	Ref. Mrkr. 31 4303 2042 (4) Driver Inattention (4) Driver Inattention	V1 was parallel parking and struck V2, (60) Other Vehicular	
Str		Date	(11) Acc. Type	Unkn	RAng	Side	RAng	REnd	Fixo	FixO	RAng	RAng	Left	REnd	RAng	REnd	1
Diagram: Monroe Av	Town of City of Rochester	(6) (8) (2) (9)	R S S S S S S S S S	1 1 166	1, 1, 1,7,7	1 1 1 2 60,13	1 1 2 317	1 1 2 39,66	4 4 1 113	4 4 1	4 1 1 217	1 1 117	4 1 1 2,7	1 2 3	1 2 44,4	4 1 4 4 18,60	
Diag	Tow	(2)	() (a > (a r - + >	j j	Light	PDO	PDO	PDO	PDO	Fat	in.	PDO	Ĭ.	lnj.	<u>ij</u>	PDO	:
		<u>4</u>	S	7:30	9:58	19:06	14:13	17:26	2:30	1:56;	20:08	10:01	17:34	15:54	11:40	21:20	
)RY	اليو	I III IO	9 6						900	900	9/5/2006	70		200			
DETAILS OF ACCIDENT HISTORY	Sear-Brown Group	PERIOD STUDIED From 1/4/2005	5/28/2 Month	2/18/2007	5/25/2007	4/8/2007	8/20/2007	8/17/2007	3/19/2006	7/3/2006	915/2	9/19/2006	12/27/2005	10/26/2007	12/3/2007	3/16/2007	00000

Ave Corridor Ave To: Alexander St.	(12) Case Number 4	V1 stoped at signal then drove forward and struck V2, inattatention, fallure to yield (4) Driver Inattention (7) Failure to Yield Right of Way	V1 struck median and sign post, driver inattention (4) Driver Inattention	V1 rear ended V2 who was stopped at light. V1 states breaks defective (42) Brakes Defective	Additional Angidoste on Histor Chook commenced
Street Name: Route Number: Location: Milepost:	(11) Acc.	-	H-On V1 struck me	REnd V1 rear ende	Alconition
Diagram: Monroe Av County of Monroe Town of City of Rochester	(6) (7) (8) (9) L R S g o u t d f e C C C a (10) O O h Apparent n n n e Contributing d d d r Factors	1 1 1 14,7	1 1 4	4 1 1 142	
DETAILS OF ACCIDENT HISTORY Sear-Brown Group	() > a t - 2 - a v	1/2007	11/3/2005 0:15 PDO	7/4/2006 23:14 PDO	
ACCII Sear-I	Fron 10:	23	5054	5055	9000

Location: Monroe Ave

Town: City of Rochester

13-Jan-09

County: Monroe

13-Jan-09					Coun	ty. wioi	1100		
			Milepost:	Milepost: Chestnut To: Alexander St.					
		% of	Y		% of		751		% of
Time of Day	No. of Accidents	Total	Direction		Total		Direction		Total
6 AM - 10 AM		9.1	North:	9	11		NorthEast:	2	2.4
10:00 AM - 4 PM		39	South:	13	16		NorthWest:	4	4.9
4 PM - 7 PM		11	East:	39	48		SouthEast:	2	2.4
7 PM - 12 MID		20	West:	12	15		SouthWest:	1	1,2
12 MID - 6 AM		20	Unknown:	0	0				
Unspecified	0	0	id.				Total	82	
Total	l 44))						
			1	***************************************	% of				% of
	r No. of Accidents		Acc. Type		Total		Acc. Type		Total
Clear		50	Sideswipe:	5	11		Bicycle:	1	2.2
Cloudy:		34	Rear End:	17	38		Right Turn:	4	8.9
Fog		0	Right Angle:	11	24		Driveway:	1	2.2
Rain		11	Left Turn;	1	2.2		Backing:	0	0
Sleet:		0	Pedestrian:	0	0		Overtaking:	0	0
Snow:		4.5	Fixed Object:	3	6.7		Unknown:	1	2.2
Unknown:		0	Head on:	1	2.2		Total	45	
Tota	1 44						Total	45	
Pavement	No. of Accident	s	Accident Severity		No. of Accidents % o		f Total		
Dry:	30	68	!	Fatal:		1	2.2		
Muddy:	0	0	Non-Fatal	Injury:	1	4	31		
Other:	0	0	Property dama	ge only:	30		7		
Slush:	0	0	Non-rep	ortable;	0 6		1		
Snow/Ice:	1	2.3	1	Total	4	.5			
Wet:	13	30		·	-,				
Unknown:	0	0	Type of	f Vehicle	No. of Accidents		% 01	f Total	
			Passeng	ger Cars:	8	7			
Total	ł 44		Commercial '	Vehicles:					
			1	Total					
Time of Year	No. of Accident		Light (Condition	No. of Ac	ecidente	·····	f Total	e 19.900
Winter (Dec-Feb)		20	Dark Road			7	nts % of Tota		
Spring (Mar-May)		29	Dark Road-U			0	0		
Summer (Jun-Aug)		31	Dark Road*C	Dawn:		0	0		
Fall (Sep-Nov)		20	4	Daylight:		.7	61		
ran (Sep-Nov)		-0		Dayngiit: Dusk:		0	0		
Total	45		ſ	Juknown:		0	0		
							Ü		
				Te	otal 4	4			

P.I.N. Case No.	By Page Number 1		(12) Description	ilGN. (17) Traffic Control Disregarded	V1 FAILED TO STOP AT STOP SIGN, WENT ACROSS INTERSECTION & HIT THE FIRE HYDRANT (13) Passing or Lane Usage Improper	V1 SIDESWIPED V2. V2 DROVE OVER MEDIAN & OVER A STREET SIGN (4) Driver Inattention (20) Unsafe Lane Changing	nent Slippery	ntrol Disregarded	browd st hit v2 going EB (17) Traffic Control per	dors.
Street Name: E. Broad St Corridor Route Number: Location: East Broad St	Milepost: Savanah St To: Union St Date of Report: 1/13/200		Desc	V1 TURNED LEFT & DROVE OVER MEDIAN & SIGN. (17) Traffic Control Disregarded	V1 FAILED TO STOP AT STOP SIGN, WENT AC Passing or Lane Usage Improper	V1 SIDESWIPED V2. V2 DROVE OVER MEDIAN Unsafe Lane Changing	V1 SLID ON BLACK ICE INTO CURB (66) Pavement Slippery	(17) Traffic Control Disregarded (17) Traffic Control Disregarded	V1 making left out of lot went wrong way down browd st hit v2 going EB (17) Traffic Control Disregarded (13) Passing or Lane Usage Improper	Add accidents found: Pittin St + Ilnion St Corridors
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Location: East Broad St

Town: City of Rochester

13-Jan-09

County: Monroe

3-Jan-09					ounity.			
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4 PM - 7 PM		0	East:	5	56	SouthWest:		0
7 PM - 12 MID		17	West:	2	22	South west:	U	U
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Cloudy:		0	Rear End;	0	0	Right Turn:		0
Fog:		0	Right Angle;	1	17	Driveway:		0
Rain:		17	Left Turn:	1	17	Backing:	0	0
Sleet:	0	0	Pedestrian;	0	0	Overtaking:	0	0
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P.I.N. Case No.	By Page Number 1		ffic Control Disregarded	V1 FAILED TO STOP AT STOP SIGN, WENT ACROSS INTERSECTION & HIT THE FIRE HYDRANT (13) Passing or Lane Usage Improper	TREET SIGN (4) Driver Inattention (20)		rded	v2 going EB (17) Traffic Control
	n St To: Chestnut/Mon	(12) Description	V1 TURNED LEFT & DROVE OVER MEDIAN & SIGN. (17) Traffic Control Disregarded	AT STOP SIGN, WENT ACROSS INTER-	V1 SIDESWIPED V2. V2 DROVE OVER MEDIAN & OVER A STREET SIGN (4) Driver Inattention (20) Unsafe Lane Changing	V1 SLID ON BLACK ICE INTO CURB (66) Pavement Slippery	(17) Traffic Control Disregarded (17) Traffic Control Disregarded	V1 making left out of lot went wrong way down browd st hit v2 going EB (17) Traffic Control Disregarded (13) Passing or Lane Usage Improper Add assing to Lane Usage Improper Add assing to the Initial St. Ostridon
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Location: Pitkin St

Town: City of Rochester

13-Jan-09

County: Monroe

J-3411-07						•			
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10:00 AM - 4 PM		42	South:	10	43		NorthWest:	0	0
4 PM - 7 PM	1	8.3	East:	3	13		SouthEast:	0	0
7 PM - 12 MID	3	25	West:	9	39		SouthWest:	1	4.3
12 MID - 6 AM		8.3	Unknown:	0	0				
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Clear:		42	Sideswipe:	0	0		Bicycle:	0	0
Cloudy:		25	Rear End:	5	42		Right Turn:	1	8.3
Fog:		0	Right Angle:	3	25		Driveway:	0	0
Rain:	_	17	Left Turn:	0	0		Backing:	0	0
Sleet:		0	Pedestrian:	1	8.3		Overtaking:	1	8.3
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Department of Transportation

Monroe County, New York

Maggie Brooks
County Executive

Terrence J. Rice, P.E. Director

March 3, 2009

Mr. James R. McIntosh City Engineer City Hall 30 Church Street Rochester, NY 14614

RE: INNER LOOP STUDY, PHASE II, E. MAIN ST. TO I-490 - GO/NO GO ANALYSIS

Dear Mr. McIntosh:

We have completed our review of the draft Go/No Go analysis report dated January 13, 2009 for the above referenced project and we offer the following comments.

General Comments

- 1. We agree with the report's conclusions that further study of the Inner Loop between Monroe Avenue/Chestnut Street and East Avenue, of the Inner Loop at Main Street, and of the proposed new westbound I-490 off ramp to the Inner Loop is appropriate.
- 2. The two at-grade alternatives shown in the report for the Inner Loop at Main Street do not appear to be practical due to the number of lanes shown. The excess width may not create a suitable pedestrian environment, and the accident analysis indicates an existing problem with sideswipe/overtaking accidents, which would be aggravated if more lanes were added. Therefore, we believe that other options should be explored beyond those identified in the report.
- 3. We believe that the proposed I-490 westbound off-ramp to the Inner Loop is a desirable alternative to improve access for I-490 westbound traffic. The report should include sketches of the proposed layout, similar to those contained in the January 22, 2009 meeting handout.
- 4. NYSDOT guidelines stipulate that roundabouts should be considered first before signalization. Have roundabouts been considered for the Inner Loop intersections with Main Street/University Avenue, Chestnut Street/Monroe Avenue, Broad Street, and East Avenue?
- 5. Although the grade separated eastern portion of the Inner Loop does not have the level of volumes as the remainder of the Inner Loop, it does not follow that this section of road has no purpose, as was stated on Page 5. It serves as a connecting route between the east side of downtown and I-490 to/from the west. However, the lack of a direct connection from I-490 westbound limits the usefulness of this section of road, and we would agree that that this section of the Inner Loop would not be likely to attract more traffic if it was raised to grade without any modifications to the access from I-490 westbound.
- 6. The options are identified as #1, #2, and #4. They should either be renumbered or an explanation should be provided concerning what option #3 was and why it is not further discussed in the report.

INNER LOOP STUDY, PHASE II, E. MAIN STREET TO I-490 - GO/NO GO ANALYSIS March 3, 2009 Page 2

Technical Comments

- 7. Pg 6 The report should explain how the traffic volumes were adjusted to account for the road closures associated with the I-490 Western Gateway.
- 8. Pg 9 In the top figure, the intersection of Chestnut/Monroe/Raised Inner Loop should show two (2) receiving eastbound lanes, and the eastbound approach should consist of a left, thru, and shared thru/right lane, so that eastbound through vehicles do not get trapped.
- 9. Pg 9 In the bottom figure, the East Ave/Inner Loop intersection does not show left turn lanes on East Avenue. We anticipate that dedicated left turn lanes will be needed to handle the projected traffic volumes and to provide adequate line of sight for opposing left turning vehicles.
- 10. Pg 9 The bottom figure shows Broad Street intersecting the Inner Loop as a six lane roadway. The volumes do not justify such a cross section, and its narrowing is being studied as part of the City's Broad/Court/Chestnut project. Additionally, consideration should be given to extending Broad Street to the east of Union Street.
- 11. Pg 12 The Level of Service table should include information for each approach and lane group.
- 12. Pg 14 The existing average speeds shown in the table would be too low for a grade separated facility. The report should clarify that the existing network included the mainline, the frontage roads, and some adjacent signalized intersections.
- 13. Pg 12 & Attachment B Some discrepancies were found between the LOS tables and the Synchro files, specifically in the 2035 PM scenario.
- 14. Attachment C The queue analysis table attached includes several table cells containing a "?". Please add the missing information.
- 15. Attachment D The "Inner Loop Accident Data" section appears to include linear sections for both the Inner Loop frontage roads and the Inner Loop main line. The main line and frontage roads are very different in character and should be discussed separately. Given their different character, comparing both to the same statewide accident rates for "principal arterial expressways" does not seem appropriate.
- 16. Please confirm that only reportable accidents were used to calculate the accident rates. Although the report states that this was the case, it seems unusual that so many intersections would substantially exceed the average accident rates.
- 17. Attachment D We recommend separating the accident plot diagrams into one diagram for each year so that the accident trends over time for a given location can be visually recognized.
- 18. Attachment D For the East Main Street corridor discussion, please add that a portion of Main Street east of Union St was studied by MCDOT as part of a PIL in July 2006, resulting in traffic signal timing changes that improved the progression on East Main Street.
- 19. Attachment D The report should include a discussion about any notable accident patterns that were identified in the collision diagrams, such as the northbound/eastbound right angle accident patterns shown at both Monroe Avenue/Union Street and East Avenue/Union Street.

INNER LOOP STUDY, PHASE II, E. MAIN STREET TO I-490 - GO/NO GO ANALYSIS

March 3, 2009

Page 3

- 20. Attachment D The sections of I-490 shown in diagrams 7, 8, and 9 were under construction during some of the years studied in the accident analysis. This should be clearly identified and discussed in the report.
- 21. Chestnut/Woodbury, Monroe/Inner Loop, and Broad/Inner Loop The analysis should use a 100 second cycle length in the AM, show each signal as coordinated, and include all pedestrian timing requirements to ensure that there is enough split time being provided for pedestrians to cross the street.
- 22. Union/University For safety reasons, the proposed southbound dual lefts on Union Street at University Avenue should be modeled as a protected only left turn.
- 23. Main/University/Pitkin The westbound left turn lane on Main Street at Pitkin Street/University Avenue should be included in all models.

Grammatical Comments

- 24. Pg 2, #4. Replace "turning movements" with "individual movements" to better describe the Level of Service results.
- 25. Attachment A -- Please correct the many grammatical errors in Inner Loop Study Area Analysis Memo. Also, the Inner Loop Volume Comparison Locations (2014) map should read "Raised" not "Raise".
- 26. Attachment A For better clarity, we suggest saying "due to random variations within the model" instead of "the result of running the model twice".

We look forward to reviewing a revised report with the above comments addressed. If you have any questions or require additional information, please contact me at 753-7755.

Sincerely,

James R. Pond, P.E., PTOE Associate Traffic Engineer

JRP:mlp

xc:

T. Rice

S. Leathersich

M. Partelow

D. Goehring, NYSDOT

J. Hoffman, Stantec

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M

DEPARTMENT DE TRANSPORTATION

TO:

Marvin Kleinberg

FROM:

David Goehring, Regional Traffic Engineer

SUBJECT:

Comments on Raising the Eastern Portion of the Inner Loop

DATE:

February 24, 2009

We have reviewed the January 13, 2009 memo and supporting documents for Raising the Eastern Portion of the Inner Loop from William Holtoff of Stantec. For the Go/No Go decision on whether to proceed with a more detailed study, we have the following comments.

In regards to the recommendations and conclusions made, we agree with the Go decision for the Inner Loop between Chestnut/Monroe and East Avenue, and with the Go decision for the Westbound I-490 off ramp to the Inner Loop. However we recommend a No Go decision for the Inner Loop at Main Street.

Our No Go decision for a raised Inner Loop at Main Street is based on the following.

- 1. As stated in the analysis, vehicle storage in the area of University Avenue/South Union Street/Main Street is an issue now and will remain so into the future for the existing Inner Loop or raised Inner Loop. Since this is a problem now, this project does not justify the need to add more points of conflict, reduce the storage lengths, and add more traffic to an area that already has issues. This option will increase delays and potentially decrease safety. We should not be adding lanes and introducing complex traffic signal phasing to address new problems.
- 2. For some approaches lane utilization is an issue that will significantly increase queue lengths which presents some safety concerns. Queue lengths are likely to extend into adjacent intersections or extend beyond storage lengths. This is apparent through a review of SimTraffic and the Inner Loop approaches to Main Street.
- 3. We have concerns regarding a highway with relatively high speeds entering an area that is congested with long queue lengths. Since sight distance approaching Main Street from the Inner Loop may be restricted, this also may become a safety issue with increases in high speed rear end accidents.
- 4. With the introduction of more intersections and lanes, it will be significantly more difficult for pedestrians to traverse through this area.

In general we have the following comments regarding the supporting documents.

- 1. In the areas of the Inner Loop at grade, what restrictions on access are proposed? Is a raised median proposed or will some sections be right-of-way without access?
- 2. At a traffic signal where there are three or more through lanes opposing a left turn movement, the left turn movement is generally controlled by a protected only left turn arrow.
- 3. In the SYNCHRO analysis, the lost time adjustment should be zero, the percentage of heavy vehicles is much greater than the default value of 2 percent and as stated above the lane utilization will differ on certain approaches to an intersection. Each of these inputs will impact the capacity of an intersection.
- 4. We agree with the consideration of a roundabout alternative at each intersection.

Memo



DRAFT

To: John Thomas From: Paula Benway

Rochester, New York

File: Inner Loop 192500170 Date: April 24, 2009

A draft Go/No Go Analysis for Raising the Eastern Portion of the Inner Loop was prepared and documented in a memo to the City of Rochester dated January 13, 2009. This memo was shared and reviewed by the technical advisory committee. Formal comments were received as follows:

- Monroe County Department of Transportation, March 3, 2009
- New York State Department of Transportation, February 24, 2009

This memo serves to address the comments received. A copy of the correspondence from MCDOT and NYSDOT are attached.

Monroe County DOT

MCDOT Comment 1: We agree with the report's conclusions that further study of the Inner Loop between Monroe Avenue/Chestnut Street and East Avenue, of the Inner Loop at Main Street, and of the proposed new westbound I-490 off ramp to the Inner Loop is appropriate.

Response: no response necessary.

MCDOT Comment 2: The two at-grade alternatives shown in the report for the Inner Loop at Main Street do not appear to be practical due to the number of lanes shown. The excess width may not create a suitable pedestrian environment, and the accident analysis indicates an existing problem with sideswipe/overtaking accidents, which would be aggravated if more lanes were added. Therefore, we believe that other options should be explored beyond those identified in the report.

Response: Initial attempt was to determine if an option to bring the Inner Loop up to grade at Main Street was possible; as documented. Additional alternatives at Main Street will be developed and evaluated to minimize some of the concerns noted as part of the next phase of the project.

MCDOT Comment 3: We believe that the proposed I-490 westbound off-ramp to the Inner Loop is a desirable alternative to improve access for I-490 westbound traffic. The report should include sketches of the proposed layout, similar to those contained in the January 22, 2009 meeting handout.

Response: A concept sketch will be included.

MCDOT Comment 4: NYSDOT guidelines stipulate that roundabouts should be considered first before signalization. Have roundabouts been considered for the Inner Loop intersections with Main Street/ University Avenue, Chestnut Street/Monroe Avenue, Broad Street, and East Avenue?

One Team. Infinite Solutions.

April 24, 2009 Response to Agency Comments Page 2 of 6

Response: Alternative refinement, including consideration and modeling of roundabouts at each of the intersections is part of the next phase of the project.

MCDOT Comment 5: Although the grade separated eastern portion of the Inner Loop does not have the level of volumes as the remainder of the Inner Loop, it does not follow that this section of road has no purpose, as was stated on Page 5. It serves as a connecting route between the east side of downtown and I-490 to/from the west. However, the lack of a direct connection from I-490 westbound limits the usefulness of this section of road, and we would agree that this section of the Inner Loop would not be likely to attract more traffic if it was raised to grade without any modifications to the access from I-490 westbound.

Response: so noted.

MCDOT Comment 6: The options are identified as #1, #2, and #4. They should either be renumbered or an explanation should be provided concerning what option #3 was and why it is not further discussed in the report.

Response: so noted.

MCDOT Comment 7: Pg 6- the report should explain how the traffic volumes were adjusted to account for the road closures associated with the I-490 Western Gateway. Response: The text has been edited to clarify how the volumes were adjusted.

MCDOT Comment 8: Pg 9 – In the top figure, the intersection of Chestnut/Monroe/Raised Inner Loop should show two (2) receiving eastbound lanes, and the eastbound approach should consist of a left, through, and shared thru/right lane, so that eastbound through vehicles do not get trapped.

Response: The synchro analysis was adjusted accordingly.

MCDOT Comment 9: Pg 9 – In the bottom figure, the East Avenue/Inner Loop intersection does not show left turn lanes on East Avenue. We anticipate that dedicated left turn lanes will be needed to handle the projected traffic volumes and to provide adequate line of sight for opposing left turning vehicles.

Response: Preliminary analysis indicates this intersection to operate at good levels today and in the future. Due to the relatively tight ROW with existing buildings on the southeast and northeast corners, the feasibility of opposing left turn lanes without impacts to adjacent properties is low. This will be considered in the next phase of the project as other alternatives or refinements will be further evaluated.

MCDOT Comment 10: Pg 9 – The bottom figure shows Broad Street intersecting the Inner Loop as a six lane roadway. The volumes do not justify such a cross section, and its narrowing is being studied as part of the City's Broad/Court/Chestnut project. Additionally, consideration should be given to extending Broad Street to the east of Union Street.

Response: Updated information on the Broad/Court/Chestnut project is appreciated. Subsequent analysis of this intersection will show the reduced number of lanes on the Broad Street approach.

April 24, 2009 Response to Agency Comments Page 3 of 6

MCDOT Comment 11: Pg 12 – The Level of Service table should include information for each approach and lane group.

Response: A detailed level of service table by approach/lane group is provided in Attachment B.

MCDOT Comment 12: Pg 14 – The existing average speeds shown in the table would be too low for a grade separated facility. The report should clarify that the existing network included the mainline, the frontage roads, and some adjacent signalized intersections.

Response: Correct, the average speeds shown on the table are inclusive of all roadways and intersections within the study area; clarification will be provided.

MCDOT Comment 13: Pg 12 & Attachment B – Some discrepancies were found between the LOS tables and the Synchro files, specifically in the 2035 PM scenario. *Response: The level of service tables has been updated.*

MCDOT Comment 14: Attachment C – The queue analysis table attached includes several table cells containing a "?". Please add the missing information.

Response: The table has been updated.

MCDOT Comment 15: Attachment D – The "Inner Loop Accident Data" section appears to include linear sections for both the Inner Loop frontage roads and the Inner Loop main line. The main line and frontage roads are very different in character and should be discussed separately. Given their different character, comparing both to the same statewide accident rates for "principal arterial expressways" does not seem appropriate.

Response: The accidents reported in this category occurred on the Inner Loop mainline only. Accidents on the frontage roads were not included in the linear accident rate calculation.

MCDOT Comment 16: Please confirm that only reportable accidents were used to calculate the accident rates. Although the report states that this was the case, it seems unusual that so many intersections would substantially exceed the average accident rates.

Response: Only reportable accidents were used to calculate the accident rates.

MCDOT Comment 17: Attachment D – We recommend separating the accident plot diagrams into one diagram for each year so that the accident trends over time for a given location can be visually recognized.

Response: With such a large study area, providing collision diagrams per year would triple the number of diagrams needed. Instead, a summary report from the database that shows how many accidents occurred per location per year is provided. This may assist in determining an increase or decrease in crashes from year to year.

MCDOT Comment 18: Attachment D – For the East Main Street corridor discussion, please add that a portion of Main Street east of Union St was studied by MCDOT as part of a PIL in July 2006, resulting in traffic signal timing changes that improved the progression on East Main Street.

Response: Update on the PIL investigation result has been added.

April 24, 2009 Response to Agency Comments Page 4 of 6

MCDOT Comment 19: Attachment D – The report should include a discussion about any notable accident patterns that were identified in the collision diagrams, such as the northbound/eastbound right angle accident patterns shown on both Monroe Avenue/Union Street and East Avenue/Union Street.

Response: A discussion of the accident patterns at these intersections is on page 3 and 4.

MCDOT Comment 20: Attachment D – The sections of I-490 shown in diagrams 7, 8, and 9 were under construction during some of the years studied in the accident analysis. This should be clearly identified and discussed in the report.

Response: This clarification has been added to the report.

MCDOT Comment 21: Chestnut/Woodbury, Monroe/Inner Loop, and Broad/Inner Loop – The analysis should use a 100 second cycle length in the AM, Show each signal as coordinated, and include all pedestrian timing requirements to ensure that there is enough split time being provided for pedestrians to cross the street.

Response: The analysis has been updated.

MCDOT Comment 22: Union/University – For safety reasons, the proposed southbound dual lefts on Union Street at University Avenue should be modeled as a protected only left turn.

Response: The analysis has been updated.

MCDOT Comment 23: Main/University/Pitkin – the westbound left turn lane on Main Street at Pitkin Street/University Avenue should be included in all models.

Response: The analysis has been updated.

MCDOT Comment 24: Pg 2, #4 – Replace "turning movements" with "individual movements" to better describe the Level of Service results.

Response: so noted

MCDOT Comment 25: Attachment A – Please correct the many grammatical errors in Inner Loop Study Area Analysis Memo. Also, the Inner Loop Volume Comparison Locations (2014) map should read "Raised" not "Raise".

Response: so noted

MCDOT Comment 26: Attachment A – for better clarity, we suggest saying "due to random variations within the model" instead of "the result of running the model twice". *Response:* so noted

New York State DOT

NYSDOT Comment 1: As stated in the analysis, vehicle storage in the area of University Avenue/South Union Street/Main Street is an issue now and will remain so into the future for the existing Inner Loop or raised Inner Loop. Since this is a problem now, this project does not justify the need to add more points of conflict reduce the storage lengths, and add more traffic to an area that already has issues. This option will increase delays and potentially decrease safety. We should not be adding lanes and introducing a complex traffic signal phasing to address new problems.

Response: no response necessary.

April 24, 2009 Response to Agency Comments Page 5 of 6

NYSDOT Comment 2: For some approaches lane utilization is an issue that will significantly increase queue lengths which presents some safety concerns. Queue lengths are likely to extend into adjacent intersections or extend beyond storage lengths. This is apparent through a review of SimTraffic and the Inner Loop approaches to Main Street.

Response: So noted, efforts have been made to adjust lane utilization factors as much as possible to resemble actual operations.

NYSDOT Comment 3: We have concerns regarding a highway with relatively high speeds entering an area that is congested with long queue lengths. Since sight distance approaching Main Street from the Inner Loop may be restricted, this also may become a safety issue with increases in high speed rear end accidents.

Response: Both issues noted would normally be identified and addressed in a later phase of the project. Future consideration will be given to these items.

NYSDOT Comment 4: With the introduction of more intersections and lanes, it will be significantly more difficult for pedestrians to traverse through this area.

Response: As the number of travel lanes increase the more difficult it can be for a pedestrian, however, as the project alternatives are refined the introduction of refuge islands where applicable or other pedestrian friendly amenities will be considered to minimize this concern.

New York State DOT – Supporting Documents

NYSDOT Comment 1: In the areas of the Inner Loop at grade, what restrictions on access are proposed? Is a raised median proposed or will some sections be right-of-way without access.

Response: At this point, no definitive recommendation has been made related to the level of access that will be provided along the Inner Loop at grade sections. This will be identified and discussed in later phases of this project.

NYSDOT Comment 2: At a traffic signal where there are three or more through lanes opposing a left turn movement, the left turn movement is generally controlled by a protected only left turn arrow.

Response: The analysis has been updated.

NYSDOT Comment 3: In the SYNCHRO analysis, the lost time adjustment should be zero, the percentage of heavy vehicles is much greater than the default value of 2 percent and as stated above the lane utilization will differ on certain approaches to an intersection. Each of these inputs will impact the capacity of an intersection.

Response: The analysis has been updated to reflect zero lost time. Actual heavy vehicles percentages obtained during the traffic counts have been used in the analysis.

NYSDOT Comment 4: We agree with the consideration of a roundabout alternative at each intersection.

Response: Roundabout feasibility and analysis will be performed in the next step of the project.

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STANTEC CONSULTING SERVICES INC.

Paula Benway
Associate, Transportation
Paula.Benway@stantec.com

Attachments: MCDOT, March 3, 2009

NYSDOT, February 24, 2009

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APPENDIX GTraffic Analysis

Appendix G – Traffic Analysis Contents

2035 Alternative Development Memo – Page 3 2035 Cycle Track Operations Memo – Page 33 2008 Existing Conditions – Page 103 2015 ETC Conditions – Page 147 2035 No Build Conditions – Page 191 2035 Preferred Alternative – Page 233

Appendix G – Traffic Analysis Contents

2035 Alternative Development Memo

Synchro Files (available upon request)





To: Jim Hofmann Jr From: Paula F. Benway, FITE

Rochester NY Office Rochester NY Office

File Name Date: February 11, 2014

Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

This serves to document and evaluate the traffic capacity needs at each of the intersections within the Inner Loop East corridor. The purpose of this analysis is to evaluate all of the ideas and suggestions received from the various stakeholders along with options developed by the design team to address capacity, geometric, and pedestrian/bicycle needs at each location. The intent is to pick the most equitable intersection treatment that addresses the various needs which will form the ultimate proposed corridor alternative.

The following sections cover an overview on the traffic volumes followed by location specific option evaluation.

Traffic Volumes

The analysis was completed using the projected 2035 Future Traffic Volumes for the weekday morning and evening peak hours (attached). Some options required some redistribution of traffic, and hence, the individual volumes may not be exactly as depicted in the attached traffic volume diagrams. For example, at the corridor north terminus location, several options were evaluated for the Inner Loop ramp locations (Charlotte Street vs. Richmond Street) that altered one-way versus two-traffic patterns in the immediate area.

The traffic volumes being used as part of the analysis originated from the Project Scoping Report (PSR) where growth rates and extent of redistribution of traffic was assessed and recorded. The 2035 future "no-build" traffic volumes are the basis of the analysis and have been applied to the new atgrade urban city street environment. Since the PSR report was done some time back and development has occurred within the immediate project area, updated traffic counts were performed at a few key intersections to evaluate what has changed since the original 2008 traffic volumes were taken. While national trends indicate that traffic volumes have leveled off or even decreased over the past 10 years throughout the nation, traditional forecasting substantially overestimates the potential for traffic growth. Recent studies have revealed that traffic on roads in urban settings (arterials and collectors) was typically overestimated by a significant amount¹. Traffic counts recently taken (September 2013) at Broad Street and at the East Avenue intersection with Union Street and Pitkin Street indicate that traffic volumes have remained at the same levels as those recorded in 2008 at the start of the PSR project. A volume comparison table is attached. Traffic volumes at the Broad Street intersections have actually decreased by 2-5% per year since 2008; that is significant. When the 2013 volumes are compared to the projected 2014 ETC volumes (one year difference), the 2013 volumes are 10%-30% lower. Bottom line, should traffic levels remain at current levels, the projected 2035 volumes may be high.

¹ Pavithra Parthasarathi and David Levinson, "Post construction Evaluation of Traffic Forecast Accuracy" Transport Policy, 2010.



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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

Traffic counts were obtained at the intersections of Broad Street and at the East Avenue intersections with Pitkin Street and Union Street during the weekday morning and evening peak. The following table summarizes a comparison to previously collected (base counts) taken in 2008 and to the projected 2014 Estimated Time of Completion volumes being used in this study.

	Com	parison to 20	008 Traffic		Compariso	on to 2014 E	TC Projec	tions
	2008	2013			2013			
	Intersection	Intersection	Volume	% /	Intersection	2014 ETC	Volume	
Intersection	Volume	Volume	Change	Year	Volume	Projections	Change	%
East Ave @ Unio	n St							
Morning PH	991	985	-6	0%	985	1090	-105	-10%
Evening PH	1255	1332	77	1%	1332	1430	-98	- 7 %
East Ave @ Pitkir	n St							
Morning PH	963	1011	48	1%	1011	1078	-67	-6%
Evening PH	1084	1077	-7	0%	1077	1228	-151	-12%
Broad St @ Unio	n St							
Morning PH	338	290	-48	-3%	290	360	-70	-19%
Evening PH	394	399	5	0%	399	476	-77	-16%
Broad St @ Pitkir	n St							
Morning PH	528	385	-143	-5%	385	572	-187	-33%
Evening PH	618	559	-59	-2%	559	710	-151	-21%
	2008	2013	Total	% /	2013	2014 ETC	Volume	
Roadway	Volume	Volume	Change	Year	Volume	Projections	Change	%
Union Street (Be	tween Broad	and East)						
Morning PH	215	215	0	0%	215	224	-9	-4%
Evening PH	340	344	4	0%	344	420	-76	-18%
Pitkin St (Betwee	n Broad and E	ast)						
Morning PH	306	250	-56	-4%	250	336	-86	-26 %
Evening PH	249	252	3	0%	252	263	-11	-4%

Urban traffic networks and grid systems are flexible and resilient due to their inherent connectivity. Street design should be from a network perspective and consider turn restrictions as well as the overall distribution of congestion throughout the network. Hence, while traffic projections maybe high and will be used per standard procedures, due care is warranted in determining geometric and traffic control features identified to assure that the corridor and intersections are not overdesigned.

The following presents numerous options and sub options evaluated at each corridor intersection.



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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

Monroe Avenue/Chestnut Street Intersection

Numerous intersection alternatives were considered and evaluated at this intersection and includes traditional signalized intersection, off-set T-intersections and a roundabout. Several variations for each alternative are documented below.

Alternative 1: Traditional signalized intersection as documented in preliminary conceptual layout. This alternative provides 3-lanes on the east/west approaches, with slight modifications to the north/south approaches. Acceptable levels of



service (LOS D or better) and low v/c ratios would be experienced with this alternative, and queuing would not be a concern. This alternative provides excess vehicular capacity and is not recommended.

While good operations would be achieved, this alternative has the following constraints:

- Pedestrian and bicycle access can be accommodated, but it is a relatively large intersection for pedestrian crossings.
- SB left turns from Chestnut Street onto the Inner Loop will be restricted due to geometric constraints. Alternative access via Woodbury Blvd or S. Union will be available for this minor movement.

			Al	/I Peak Ho	our			PI	/I Peak Ho	our	
				Level	50th	95th			Level	50th	95th
	LANE	V/C		of	Queue	Queue	V/C		of	Queue	Queue
Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft)
	EB-L (1)	0.47	17.5	В	83	151	0.42	26.5	С	41	77
	EB-T (1)	0.39	21.7	С	114	253	0.47	31.8	С	135	256
	EB-R (1)	0.22	4.4	Α	0	46	0.14	0.5	Α	0	0
	WB-L (1)	0.05	5.6	Α	3	6	0.07	11.1	В	6	11
Inner Loop/Howell Street &	WB-TR (2)	0.32	13.3	В	70	97	0.71	27.9	С	227	271
Chestnut Street/Monroe Avenue	NB-L (1)	0.62	29.9	С	77	116	0.89	53.7	D	121	269
Signalized	NB-TR (1)	0.65	29.5	С	238	311	0.38	15.2	В	131	196
	SB-T (1)	0.73	44.8	D	185	258	0.93	53.7	D	357	565
	SB-R (1)	0.20	0.3	Α	0	0	0.85	6.6	Α	0	0
	Intersection	-	20.9	С	-	-	-	24.5	С	-	-

Alternative 1A: Traditional signalized intersection with reduced geometry on the EB approach consisting of an EB Left Turn lane and a Through-Right lane on the Inner Loop. This alternative provides LOS D or better, low v/c ratios, and queuing that does not affect adjacent intersections. This alternative reduces the number of lanes for pedestrians to cross from Monroe Avenue to Chestnut Street. SB left turns from Chestnut Street onto Howell Street will be prohibited due geometric constraints.



to



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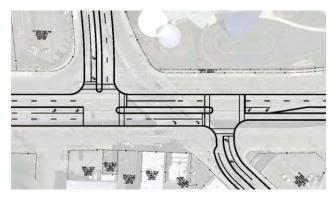
Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

ALTERNATIVE 1A: SIGNALIZED INTERSE	CTION - EB API	PROACH	l: EB-L,	EB-TR								
			Al	/I Peak Ho	ur			PI	VI Peak Ho	our		
				Level	50th	95th			Level	50th	95th	
Intersection	LANE GROUP	V/C Ratio	Delay	of Service	Queue (ft)	Queue (ft)	V/C Ratio	Delay	of Service	Queue (ft)	Queue (ft)	
	EB-L (1)	0.45	15.8	В	78	141	0.42	26.5	С	41	77	
	EB-TR (1)	0.59	23.5	С	182	434	0.63	35.1	D	181	379	
	WB-L (1)	0.06	5.1	Α	3	6	0.08	11.3	В	6	11	
Inner Loop/Howell Street &	WB-TR (2)	0.29	12.3	В	69	94	0.71	27.9	С	227	271	
Chestnut Street/Monroe Avenue	NB-L (1)	0.70	38.0	D	80	124	0.89	53.7	D	121	269	
Signalized	NB-TR (1)	0.69	32.6	С	247	330	0.38	15.2	В	131	196	
	SB-T (1)	0.73	45.6	D	185	262	0.93	53.7	D	357	565	
	SB-R (1)	0.20	0.3	Α	0	0	0.85	6.6	Α	0	0	
	Intersection	-	23.6	С	-	-	1	25.6	С	1	-	
Source: Synchro 8/SimTraffic												

Alternative 1B: Traditional signalized intersection with continued reduction in width including Alternative 1A geometry plus only one WB LTR travel lane on the Inner Loop. Reduction of WB lanes to one will force WB, NB Monroe Avenue and SB Chestnut approaches to operate at LOS F during the PM peak hour. These levels are not borderline failures, queuing is estimated on the WB Inner Loop approach to range from 600-800 feet which would affect operations at the Howell Street and S. Union Street intersection. This option is not recommended based on the capacity results.

ALTERNATIVE 1B: SIGNALIZED INTERSE	CTION - WB AP	PROAC	H: WB-L	TR							
			Al	/ Peak Ho	our			PI	/ Peak Ho	ur	
				Level	50th	95th			Level	50th	95th
Intersection	LANE GROUP	V/C Ratio	Delay	of Service	Queue (ft)	Queue (ft)	V/C Ratio	Delay	of Service	Queue (ft)	Queue (ft)
	EB-L (1)	0.51	16.9	В	78	141	0.42	22.0	С	36	68
	EB-TR (1)	0.54	17.1	В	182	311	0.47	20.9	С	157	239
Inner Loop/Howell Street &	WB-LTR (1)	0.62	22.0	С	224	328	1.16	118.0	F	595	817
Chestnut Street/Monroe Avenue	NB-L (1)	0.70	38.0	D	80	124	1.07	100.0	F	145	308
Signalized	NB-TR (1)	0.69	32.6	С	247	330	0.43	19.8	В	153	230
	SB-T (1)	0.73	45.6	D	185	262	1.02	77.2	F	391	614
	SB-R (1)	0.20	0.3	Α	0	0	0.85	6.6	Α	0	0
	Intersection	-	24.0	С	-	-	-	48.8	D	-	-

Alternative 2: Traditional signalized off-set intersections with reduced east/west travel lanes on the Inner Loop. This alternative was developed to improve pedestrian crossings by separating and creating two off-set T-intersections. The capacity analysis indicates that the five lane section through both intersections would cause failing conditions during the weekday evening peak hour for critical movements at both T-intersections. The failing conditions are not borderline, significant delays and queuing would be experienced for Chestnut Street SB and Monroe Ave NB approaches.





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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

							NS	TERNATIVE 2: OFFSET INTERSECTION
PM Peak Hour	PM Pea		ur	/ Peak Ho	A۱			
95th Level 50th	Lev	95th	50th	Level				
e Queue V/C of Queue	V/C o	Queue	Queue	of		V/C	LANE	
(ft) Ratio Delay Service (ft)	Ratio Delay Serv	(ft)	(ft)	Service	Delay	Ratio	GROUP	Intersection
214 0.26 21.5 C 40	0.26 21.5 0	214	102	D	48.0	0.83	EB-L (1)	
222 0.61 42.9 D 118	0.61 42.9 E	222	145	D	47.0	0.81	EB-T (2)	Inner Loop/Howell Street &
69 0.97 55.1 E 128	0.97 55.1 E	69	60	Α	4.6	0.58	WB-TR (2)	Chestnut Street
320 1.25 159.9 F 522	1.25 159.9 F	320	183	D	50.5	0.82	SB-L (1)	Signalized
0 1.82 394.6 F 1134	1.82 394.6 F	0	0	Α	0.3	0.20	SB-R (1)	
191.6 F -	- 191.6 F	-	-	С	23.8	-	Intersection	
111 0.43 10.3 B 46	0.43 10.3 E	111	65	В	13.0	0.52	EB-T (1)	
4 0.60 10.7 B 103	0.60 10.7 E	4	0	Α	3.2	0.51	EB-R (1)	
25 0.06 23.3 C 8	0.06 23.3	25	9	В	19.6	0.08	WB-L (1)	Inner Loop/Howell Street &
146 1.13 111.0 F 262	1.13 111.0 F	146	100	D	37.9	0.59	WB-T (2)	Monroe Avenue
235 1.08 111.0 F 240	1.08 111.0 F	235	173	D	37.0	0.74	NB-LR (2)	Signalized
67.0 E -	- 67.0 E	-	-	С	23.7	-	Intersection	
07.0 E	- 67.0 E	-	-	C	23.1	-	intersection	rce: Synchro 8/SimTraffic

Alternative 2A: Traditional signalized off-set intersections with double left/right turn lanes on Monroe/Chestnut approaches. A free flow right turn lane for Chestnut Street SB approach is also included. This option was assessed in order to achieve improved intersection operations. This alternative would require a six lane section between the two off-set T-intersections and four travel lanes on Monroe Avenue. These geometric requirements would:

- Impact properties on the Monroe Avenue approach.
- Not improve or decrease the number of travel lanes for pedestrians to cross.



			Al	/I Peak Ho	our			PI	/ Peak Ho	our	
				Level	50th	95th			Level	50th	95th
	LANE	V/C		of	Queue	Queue	V/C		of	Queue	Queue
Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft)
	EB-L (1)	0.84	46.0	D	90	216	0.37	22.5	С	36	70
Inner Loop/Howell Street &	EB-T (2)	0.60	33.3	С	132	184	0.45	31.4	С	98	142
Chestnut Street	WB-TR (2)	0.49	2.6	Α	56	51	0.72	5.8	Α	47	74
Signalized	SB-L (2)	0.78	51.5	D	97	159	0.80	41.3	D	182	268
	SB-R (1)	0.20	0.3	Α	0	0	0.85	6.7	Α	0	0
	Intersection	-	20.0	В	ı	-	-	15.2	В	ı	1
	EB-T (1)	0.58	8.9	Α	20	62	0.41	5.4	Α	21	44
	EB-R (2)	0.36	3.3	Α	0	20	0.39	2.5	Α	6	28
Inner Loop/Howell Street &	WB-L (1)	0.07	15.7	В	8	22	0.07	18.1	В	8	24
Monroe Avenue	WB-T (2)	0.43	30.3	С	91	133	0.83	42.8	D	201	296
Signalized	NB-LR (2)	0.56	30.9	С	162	220	0.76	38.2	D	178	242
	Intersection	-	19.3	В	-	-	-	24.5	С	-	-

Alternative 3: Single Lane Roundabout – an oval roundabout to optimize the approach entries is shown to the right. Capacity analysis indicates a single lane roundabout would not provide

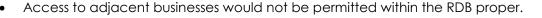


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Reference: Inner Loop East - Intersection Alternatives - Capacity Analysis

acceptable levels of service. Most approaches to the roundabout would operate at over capacity conditions with significant queuing in all directions. This alternative has the following constraints:

- Geometric footprint is large and the Monroe Avenue approach to the roundabout may not fit within the ROW.
- The distance travelled by a pedestrian would notably increase.



Alternative access options to the parcels on the southwest corner would be required.



			AM Pea	ak Hour			PM Pea	k Hour	
			Level	50th	95th		Level	50th	95th
	LANE		of	Queue	Queue		of	Queue	Queue
Intersection	GROUP	Delay	Service	(ft)	(ft)	Delay	Service	(ft)	(ft)
	EB-L	58.4	F	431	1208	89.9	F	1020	1275
	EB-T	62.2	F	431	1208	75.8	F	1020	1275
	EB-R	55.4	F	431	1208	68.8	F	1020	1275
	WB-L	90.0	F	917	1173	127.9	F	1408	1655
	WB-T	89.3	F	917	1173	88.8	F	1408	1655
Inner Loop/Howell Street &	WB-R	85.0	F	917	1173	60.9	F	1408	1655
Chestnut St/Monroe Ave	NB-L	60.2	F	261	530	28.6	D	401	515
Roundabout	NB-T	57.2	F	261	530	31.4	D	401	515
	NB-R	56.6	F	261	530	69.9	F	401	515
	SB-L	56.5	F	151	683	232.0	F	1047	1104
	SB-T	46.9	Е	151	683	264.6	F	1047	1104
	SB-R	0.0	Α	0	0	0.0	Α	0	0
	Intersection	20.6	С	-	-	23.8	С	-	-
Source: VISSIM 5.4									

Alternative 3A: Dual Lane Roundabout - in order to address the capacity deficiencies identified in Alternative 3, a dual lane roundabout was assessed that may include two entry lanes on the WB Inner Loop approach and on the SB Chestnut Street approach along with a SB bypass lane for right turning vehicles. The capacity analysis indicates that a significant reduction in delay would be achieved. However, some queuing would still be anticipated, especially on the Monroe Avenue NB approach. While good operations would be achieved, this alternative has the following constraints:





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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

- Geometric footprint is large and the Monroe Avenue approach to the roundabout may not fit within the ROW.
- Pedestrian access would be a challenge.
- Access to adjacent businesses would not be permitted within the RDB proper. Alternative access
 options to the parcels on the southwest corner would be required.

			AM Pea	ak Hour			PM Pea	k Hour	
			Level	50th	95th		Level	50th	95th
	LANE		of	Queue	Queue		of	Queue	Queue
Intersection	GROUP	Delay	Service	(ft)	(ft)	Delay	Service	(ft)	(ft)
	EB-L	5.8	Α	1	98	6.0	Α	2	120
	EB-T	4.6	Α	1	98	5.0	Α	2	120
	EB-R	3.7	Α	1	98	4.5	Α	2	120
	WB-L	17.6	С	10	169	16.4	С	31	340
	WB-T	14.4	В	10	169	15.0	В	31	340
Inner Loop/Howell Street &	WB-R	17.4	С	10	169	17.3	С	31	340
Chestnut St/Monroe Ave	NB-L	39.2	E	132	513	18.2	С	38	420
Roundabout	NB-T	39.2	E	132	513	18.2	С	38	420
	NB-R	36.6	Е	132	513	14.1	В	38	420
	SB-L	8.1	Α	2	82	41.9	Е	61	372
	SB-T	6.7	Α	2	82	30.4	D	61	372
	SB-R	0.0	Α	0	0	0.0	Α	0	0
	Intersection	15.2	С	-	-	13.5	В	-	-
Source: VISSIM 5.4									

Alternative 4A: Signalized Intersection with U-Turn west of Broadway: This option is a variation from the traditional four-way intersection, Alternative 1A. This option eliminates westbound left turns from the Howell Street approach at the intersection proper, has no southbound left turn lane on Chestnut Street. The U-turn just west of the intersection allows for the turn restrictions and improved access to Broadway and the adjacent residential neighborhood.

This option works well with a minimal amount of lanes, similar to Alternative 1A. However, a



deceleration lane along westbound Inner Loop leading to the U-turn would be necessary to prevent rear-end accidents at the U-turn location. Geometric constraints with the eastbound Inner Loop ramp lanes were identified along with the concern that eastbound right turning traffic will act as free flow conditions and will impact pedestrian crossings. There is no net benefit of this option over Alternative 1A.



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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

LTERNATIVE 4A: SIGNALIZED INTER	SECTION with	U-TURN	1								
			Al	/I Peak Ho	our		PM Peak Hour				
				Level	50th	95th			Level	50th	95th
	LANE	V/C		of	Queue	Queue	V/C		of	Queue	Queue
Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft)
	EB-L (1)	0.28	14.8	В	82	144	0.16	22.8	С	44	81
	EB-T (1)	0.41	16.9	В	118	203	0.52	29.3	С	150	232
	EB-R (1)*	0.26	11.2	В	-	26	0.20	12.8	В	1	19
	WB-L (1)*	0.04	11.2	В	-	3	0.03	10.1	В	ı	3
Inner Loop/Howell Street &	WB-TR (2)	0.34	29.8	С	73	123	0.81	46.9	D	198	355
Chestnut Street/Monroe Avenue	NB-L (1)	0.59	29.0	С	77	119	0.87	49.6	D	125	271
Signalized	NB-TR (1)	0.66	30.2	С	238	324	0.38	14.1	В	129	193
	SB-T (1)	0.74	46.3	D	185	266	0.93	53.2	D	368	580
	SB-R (1)	0.20	0.3	Α	0	0	0.88	8.3	Α	0	8
	Intersection	-		Α	-	-	-	28.7	С	-	-

*Movements are unsignalized and offset from main intersection.

Alt 4B - Signalized Intersection with U-Turn at Broadway: This is a sub option of Alternative 4A to have the U-turn directly across from Broadway. This also works from a traffic standpoint and would produce similar capacity analysis results as alternative 4A. As stated in 4A, it should consider a deceleration lane along westbound Inner Loop leading to the U-turn. Geometric and pedestrian safety concerns would be similar to 4A and it would not produce any notable benefits over alternative 1A



Alt 5 - Signalized Intersections at Existing Ramps:

This option maintains the current ramps from the Inner Loop to Monroe Avenue and Chestnut Street. The area between the ramps would be filled in and converted to green space. This option works provided two SB thru lanes on Chestnut Street. This is needed to minimize green time for that

movement and provide improved operations for the Monroe Avenue NB thru and left turns, as well as the Inner Loop ramp EB lefts. There is insufficient storage between the two intersections to hold the eastbound left-turn volume during the morning peak hour. Therefore, to phase the signal so that the northbound thru movement (at the intersection with WB Inner Loop) overlaps with the eastbound left-turn phase so that those left-turning vehicles can travel all the way through the intersection.



While operations can be refined to address the travel volumes, this option would require wider road widths, does not make the pedestrian crossing distances any shorter and eliminate potential development area east of Monroe/Chestnut St. The green space area would provide improved walking experience versus crossing on a bridge today.



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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

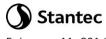
ALTERNATIVE 5: SIGNALIZED INTERS	ECTIONS at EX	KISTING	RAMP	S								
·			Al	/I Peak Ho	our	, and the second	PM Peak Hour					
				Level	50th	95th			Level	50th	95th	
	LANE	V/C		of	Queue	Queue	V/C		of	Queue	Queue	
Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft)	
	EB-L (1)	0.35	22.0	С	104	144	0.15	20.8	С	41	76	
Inner Loop/Howell Street EB &	EB-T (1)	0.44	23.4	С	144	203	0.41	24.6	С	133	205	
Chestnut Street/Monroe Avenue	EB-R (1)	0.25	3.8	Α	0	26	0.13	4.1	Α	0	26	
Signalized	NB-TR (2)	0.37	16.4	В	127	40	0.35	14.4	В	120	159	
	SB-T (2)	0.37	7.0	Α	12	123	0.65	6.5	Α	16	20	
	Intersection	-	15.3	В	-	-		13.1	В	-	-	
	WB-L (1)	0.07	46.8	D	15	30	0.06	40.9	D	15	30	
Inner Loop/Howell Street WB &	WB-TR (2)	0.50	48.3	D	113	170	0.81	54.4	D	242	308	
Chestnut Street/Monroe Avenue	NB-L (1)	0.23	3.5	Α	9	22	0.41	4.5	Α	7	12	
Signalized	NB-T (1)	0.55	5.7	Α	72	383	0.39	2.9	Α	17	34	
	SB-T (2)	0.35	31.8	С	86	125	0.59	33.6	С	172	229	
	SB-R (1)	0.20	0.3	Α	0	0	0.85	6.6	Α	0	0	
	Intersection	-	17.6	В	-	-	-	20.7	С	-	-	

Alt 6 - Inner Loop T at Monroe/Chestnut: This option ends the Inner Loop ramps at Monroe Avenue as a T-Intersection. This option is similar to a concept provided in a prior charette plan. This option would force current traffic to find alternative ways to their destination within the project area. For example, traffic could divert north and use the Broad/Court Street connection to South Union corridor, or traffic could turn right and then left at the S. Union/Monroe Avenue intersection. For analysis purposes, it was assumed that traffic would split 50/50 at the Tintersection. 50% of the vehicles traveling thru on Inner Loop/Howell Street would reroute via Broad Street, and the other 50% would utilize S Union to Monroe Ave. Analysis indicates that to accommodate the rerouted



traffic, the following geometry would be necessary at the intersection: a double left-turn lane from Monroe to the westbound Inner Loop; a separate right-turn lane on southbound S. Union Street.

This option essentially offsets major thru movements. There is too much uncertainty when it comes to how vehicles would redistribute; if more vehicles redistribute to S Union Street, then more improvements may be needed at that location. Improvements would entail widening which would impact adjacent properties. This option may be made to work, however would shift traffic to other locations and would require additional improvements and widening to accommodate.

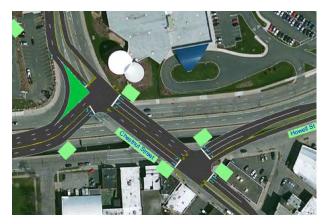


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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

ALTERNATIVE 6: INNER LOOP T INTEI	RSECTION										
			Al	/I Peak Ho	our			PI	VI Peak Ho	our	
				Level	50th	95th			Level	50th	95th
	LANE	V/C		of	Queue	Queue	V/C		of	Queue	Queue
Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft)
	EB-L (1)	0.78	41.7	D	230	311	0.69	46.6	D	145	213
Inner Loop &	EB-R (1)	0.48	5.0	Α	0	54	0.46	7.4	Α	0	58
Chestnut Street/Monroe Avenue	NB-L (2)	0.64	45.8	D	99	147	0.79	41.1	D	170	281
Signalized	NB-T (1)	0.41	13.3	В	150	260	0.27	7.0	Α	59	126
	SB-T (1)	0.42	26.1	С	147	246	0.73	31.3	С	326	515
	SB-R (1)	0.29	0.5	Α	0	0	1.07	48.4	F	144	406
	Intersection	-	20.9	С	-	-	-	37.8	D	-	-
	EB-L (1)	0.59	21.2	С	62	139	0.39	5.7	Α	11	13
	EB-T (1)	0.48	13.4	В	131	205	0.62	8.4	Α	49	50
	WB-T (1)	0.55	14.4	В	163	251	0.50	13.6	В	186	270
Monroe Avenue &	WB-R (1)	0.18	2.6	Α	3	29	0.20	2.8	Α	9	38
South Union Street	NB-L (1)	0.16	17.9	В	31	63	0.19	24.8	С	47	88
Signalized	NB-T (1)	0.54	23.6	С	139	221	0.33	26.8	С	98	159
	NB-R (1)	0.04	6.8	Α	0	16	0.07	7.8	Α	0	23
	SB-L (1)	0.48	27.0	С	46	100	0.56	30.9	С	103	155
	SB-R (1)	0.22	4.1	Α	0	35	0.45	3.9	Α	28	37
	Intersection	-	15.6	В	-	-	1	12.3	В	-	-

Alt 7 – Inner Loop/Howell Street Offset: another option is to create off-set T-Intersections with Monroe Avenue/Chestnut as shown to the right. This option would require adding dual left-turn lanes northbound on Monroe Avenue, as well as dual right-turn lanes westbound on the Howell Street approach. As shown in the capacity analysis summary table, the NB left-turns on Monroe Avenue would operate at LOS F in the PM peak hour. The left-turn volume during the PM peak hour is approximately 900 vehicles. Therefore, a triple left would be required. It does not make sense to needlessly require, what were simple through





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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

movements on EB/WB Inner Loop/Howell Street, to make multiple turning movements to complete the thru move.

ALTERNATIVE 7: INNER LOOP - HOWE	LL STREET O	FFSET										
			Αľ	/I Peak Ho	our		PM Peak Hour					
				Level	50th	95th			Level	50th	95th	
	LANE	V/C		of	Queue	Queue	V/C		of	Queue	Queue	
Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft)	
	EB-L (1)	0.48	32.1	С	126	201	0.25	33.8	С	52	98	
Inner Loop EB &	EB-R (1)	0.62	6.7	Α	0	80	0.58	7.5	Α	0	76	
Chestnut Street/Monroe Avenue	NB-L (2)	0.48	20.9	С	107	142	0.94	96.4	F	301	434	
Signalized	NB-T (1)	0.47	12.8	В	256	370	0.30	7.4	Α	57	122	
	SB-T (1)	0.61	39.1	D	174	266	0.93	54.8	D	363	577	
	SB-R (1)	0.47	6.0	Α	0	63	0.85	6.6	Α	0	0	
	Intersection	-	17.7	В	-	-	-	37.9	D	-	-	
	WB-L (1)	0.05	24.0	С	7	15	0.03	16.9	В	5	16	
Howell Street WB &	WB-R (2)	0.23	1.1	Α	2	0	0.39	3.7	Α	23	49	
Chestnut Street/Monroe Avenue	NB-TR (2)	0.53	28.3	С	170	225	0.65	35.2	D	190	252	
Signalized	SB-T (1)	0.54	16.3	В	145	187	0.70	33.7	С	90	142	
	SB-R (1)	0.42	19.0	В	236	311	0.74	12.1	В	96	144	
	Intersection	-	18.3	В	-	-	-	18.7	В	-	-	

Inner Loop/Howell/S. Union Street Intersection

Four intersection alternatives were considered and evaluated at this intersection. These include a traditional T-intersection and a roundabout. Variations for each alternative were evaluated.

Alternative 1: Traditional T-intersection with the Inner Loop/Howell Street terminating and forming a T-intersection with S. Union Street. A three lane section would be necessary on S. Union Street. A southbound right turn lane and a northbound left turn lane on Union would be necessary. Capacity analysis indicates the overall intersection would operate at acceptable levels of service as a "stop" sign controlled intersection, with the exception of the Howell Street approach, which would experience delays considered border line "failing" (51.3 sec) during the evening peak hour. A traffic signal could be considered at this location when and if traffic volumes and delays materialize. A traffic signal would provide acceptable levels of service on all three approaches.



ALTERNATIVE 1: HOWELL STREET	"T" AT UNION STRE	ET									
			Al	/I Peak Ho	our		PM Peak Hour				
				Level	50th	95th			Level	50th	95th
	LANE	V/C		of	Queue	Queue	V/C		of	Queue	Queue
Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft)
	EB-LR (1)	0.81	41.1	E	-	181	0.89	51.3	F	-	236
Howell Street &	NB-LT (1)	0.01	0.2	Α	-	0	0.01	0.2	Α	-	1
S Union Street	SB-T (1)	0.06	0.0	Α	-	0	0.10	0.0	Α	-	0
Unsignalized	SB-R (1)	0.22	0.0	Α	-	0	0.38	0.0	Α	-	0
	Intersection	-	9.8	Α	-	-	-	6.1	Α	-	-
v/c ratio = volume/capacity ratio											
Source: Synchro 8/SimTraffic											



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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

Alternative 2: Traditional 4-way intersection of Howell Street terminating at S. Union Street opposite LaFayette Street. As a four-way intersection, traffic signal control would be necessary. One travel lane in all four approaches to serve shared access by lefts, troughs and right turning vehicles would be sufficient. This geometry will also maintain a tight intersection allowing for improved pedestrian crossing. The capacity analysis indicates acceptable levels (LOS D or better) with low v/c ratios and moderate queuing.



ALTERNATIVE 2: FOUR-LEG INTERSECT	ION AT LAFAYI	ETTE ST	REET									
			Al	/I Peak Ho	ur		PM Peak Hour					
				Level	50th	95th			Level	50th	95th	
	LANE	V/C		of	Queue	Queue	V/C		of	Queue	Queue	
Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft)	
	EB-LTR (1)	0.76	34.5	С	145	211	0.85	42.6	D	167	315	
Howell Street/Lafayette Street &	WB-LTR (1)	0.01	12.8	В	1	8	0.01	14.2	В	1	9	
S Union Street	NB-LTR (1)	0.58	21.3	С	250	217	0.48	14.0	В	192	301	
Signalized	SB-LTR (1)	0.46	6.0	Α	41	125	0.76	14.1	В	181	352	
-	Intersection	-	19.1	В	-	-	-	20.6	С	-	-	
v/c ratio = volume/capacity ratio Source: Synchro 8/SimTraffic												

A sub option was considered with this four-way alignment to provide stop sign control on all four approaches. This option would require additional travel lanes on the Howell Street approach and the S. Union Street southbound approach would need to be widened to provide a free-flow right turn lane. Hence, an all-way stop sign control intersection would not work without additional widening.

Alternative 3: Traditional T-intersection with the Inner Loop/Howell Street proceeding in a north/south direction with the S. Union Street segment from Monroe Avenue terminating at a T-intersection with the Inner Loop. A three lane section on the Inner Loop/new Union Street would be necessary. The S. Union stub would be controlled by a stop sign. Capacity analysis indicates acceptable levels of operation (LOS D or better). Little to no delay would be experienced by all movements.

This alternative would continue the free flow traffic operations that would promote higher travel speeds. This alternative does not provide a definitive terminus of the Inner Loop.





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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

OUP F	V/C Ratio	Delay 24.9	Level of Service	50th Queue (ft)	95th Queue (ft)	V/C Ratio	Delay	Level of Service	50th Queue (ft)	95th Queue (ft)
OUP F	Ratio	,	Service	(ft)	(ft)	Ratio		Service		(ft)
_R (1)		,		` '					(ft)	
. ,	0.79	24.9	С		100					
			_	-	199	0.66	19.5	С	-	126
R (1)	0.20	0.0	Α	-	0	0.22	0.0	Α	-	0
L (1)	0.08	8.2	Α	-	7	0.14	8.5	Α	-	12
T (1)	0.22	0.0	Α	-	0	0.37	0.0	Α	-	0
ection	-	11.1	В	-	-	-	6.4	Α	-	-
	T (1)	T (1) 0.22	T (1) 0.22 0.0	T (1) 0.22 0.0 A	T (1) 0.22 0.0 A -	T (1) 0.22 0.0 A - 0	T (1) 0.22 0.0 A - 0 0.37	T (1) 0.22 0.0 A - 0 0.37 0.0	T (1) 0.22 0.0 A - 0 0.37 0.0 A	T (1) 0.22 0.0 A - 0 0.37 0.0 A -

Alternative 4: Single Lane Roundabout – a single lane roundabout would have the Inner Loop approach T-into S. Union Street. This was the initial concept layout presented in the 2009 project scoping report as a gateway treatment into the corridor. Preliminary analysis using Synchro which provides a planning level overall assessment indicates the roundabout would operate with indicates a roundabout would operate with a volume to capacity ratio of (V/C) in the AM of 0.55 and in the PM of 0.59, well under capacity conditions. However, this option has significant impacts in the general areas and was dropped from serious consideration as follow:



- A single lane roundabout at this location would have significant right-of-way needs. The roundabout sketch created (shown) still does not accommodate truck traffic on Howell wishing to turn right onto South Union Street. Truck traffic would have to go around the entire roundabout perimeter to proceed in a southerly direction.
- Significant impacts would be experienced by adjacent private driveways. Access to residential
 and commercial driveways would need to be reconnected further from the approaches to the
 roundabout.
- The placement of such a large roundabout at this location would eliminate existing parking spaces along Union and Howell and prohibit the creation of additional spaces as compared to other alternatives. This area has intense number of multi-family residential housing that depends on on-street parking. Alternative off-street parking would need to be created within the vicinity.
- The extent a pedestrian or bicycle would have to travel to cross the intersection to reach the cycle track on the west side of the corridor is significantly longer than a traditional intersection.
- The extent of the intersection footprint would notably minimize developable land in this prime entrance to the new corridor.
- This alternative would not consistent with the desire to establish an urban city street by minimizing the intersection footprint which notably improves walkability and mobility.

Broad Street/Union Street Intersection

Two major intersection alternatives were considered and evaluated at this intersection. These include a traditional T-





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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

intersection and a roundabout. Variations for each alternative were evaluated.

Alternative 1: Traditional signalized T-intersection – Broad Street would have two approach lanes and Union Street would have a three lane section. The capacity analysis indicates acceptable levels of service (LOS D or better) would be experienced. Queuing is not anticipated to affect major intersections, but may block side streets and alleys.

ALTERNATIVE 1: SIGNALIZED											
			Al	/I Peak Ho	our			PI	/I Peak Ho	ur	
				Level	50th	95th			Level	50th	95th
Intersection	LANE GROUP	V/C Ratio	Delay	of Service	Queue (ft)	Queue (ft)	V/C Ratio	Delay	of Service	Queue (ft)	Queue (ft)
	EB-L (1)	0.40	45.0	D	54	99	0.77	47.4	D	198	271
S Union St &	EB-R (1)	0.17	13.7	В	0	29	0.35	6.2	Α	0	43
E Broad St	NB-L (1)	0.34	3.7	Α	14	29	0.19	5.6	Α	11	22
Signalized	NB-T (1)	0.48	4.2	Α	117	209	0.63	11.2	В	347	490
	SB-TR (1)	0.57	9.2	Α	152	193	0.65	13.6	В	143	174
	Intersection	-	8.5	Α	1	-	ı	17.3	В	-	-
v/c ratio = volume/capacity ratio Source: Synchro 8/SimTraffic											

Alternative 2: Single Lane Roundabout – a single lane roundabout would operate and provide good levels of service, if in isolation. However, if a roundabout is considered at the East Avenue intersection, failing levels of service would be experienced, due to the proximity of the two intersections.



			AM Pea	ık Hour					
			Level	50th	95th		Level	50th	95th
			of	Queue	Queue		of	Queue	Queue
Intersection	MOVEMENT	Delay	Service	(ft)	(ft)	Delay	Service	(ft)	(ft)
	EB-L	22.7	С	9	111	126.9	F	241	281
	EB-R	4.6	Α	9	111	90.6	F	241	281
S Union St &	NB-L	85.5	F	1317	1667	320.6	F	1521	1661
E Broad St	NB-T	87.9	F	1317	1667	308.9	F	1521	1661
Roundabout	SB-T	5.9	Α	46	650	15.6	С	438	696
	SB-R	6.9	Α	46	650	5.5	Α	438	696
	Intersection	46.8	Е	-	-	131.8	F	-	-

If a dual lane roundabout is considered at East Avenue, the Broad Street dual lane roundabout would show improved operations, see table below. All movements would operate at LOS D or better, except the Broad Street left turn movement which would experience LOS F during the evening peak hour. However, it should be noted that the failing condition is borderline levels with high volumes projected out to 2035.



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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

			AM Pea	ak Hour			PM Pea	ak Hour	
			Level	50th	95th		Level	50th	95th
			of	Queue	Queue		of	Queue	Queue
Intersection	MOVEMENT	Delay	Service	(ft)	(ft)	Delay	Service	(ft)	(ft)
	EB-L	4.5	Α	1	50	52.4	F	104	277
	EB-R	4.7	Α	1	50	39.4	Е	104	277
S Union St &	NB-L	4.7	Α	1	53	30.4	D	87	885
E Broad St	NB-T	3.3	Α	1	53	31.3	D	87	885
Roundabout	SB-T	7.8	Α	7	267	6.5	Α	2	119
	SB-R	7.9	Α	7	267	4.5	Α	2	119
	Intersection	5.4	Α	-	-	27.3	D		-

East Avenue/Union Street Intersection

Two major intersection alternatives were considered and evaluated at the East Avenue intersection. These include a traditional signalized intersection and a roundabout. Variations for each alternative were evaluated.

Alternative 1: Traditional signalized intersection – East Avenue would continue to operate as it does today with a three lane section; this would be restriped to include dedicated left turn lanes and one through lane in each direction. The capacity analysis indicates acceptable overall levels of service would be experienced with failing movements on the Union Street NB approach. Queuing is shown to be long on both approaches. The Union NB approach queue of 300-435 feet would exceed available storage and interfere with the Broad Street intersection.

			Al	M Peak Ho	our			PI	M Peak Ho	ur	
Intersection	LANE GROUP	V/C Ratio	Delay	Level of Service	50th Queue (ft)	95th Queue (ft)	V/C Ratio	Delay	Level of Service	50th Queue (ft)	95th Queue (ft)
	EB-L (1)	0.09	16.1	В	10	25	0.14	14.0	В	14	49
	EB-TR (1)	0.48	32.2	С	116	181	0.96	59.7	Е	333	556
	WB-L (1)	0.42	33.8	С	89	146	0.39	18.1	В	31	59
S Union St &	WB-TR (1)	0.73	44.2	D	277	376	0.74	34.5	С	252	424
East Ave	NB-L (1)	0.39	26.2	С	66	116	0.20	16.7	В	18	40
Signalized	NB-TR (2)	0.53	38.2	D	204	257	1.00	59.5	F	294	435
	SB-L (1)	0.55	22.3	С	88	137	0.88	52.6	D	94	245
	SB-TR (1)	0.71	38.6	D	287	431	0.77	39.8	D	254	436
	Intersection	-	36.1	D	-	-	-	49.0	D	-	-

An option to be considered would be to maintain the 3-lane section on East Avenue as it is working today and adjust the intersection operations in future years as development occurs in the area.



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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

Alternative 1A: Traditional signalized intersection – East Avenue would continue to operate as it does today, but with a four lane section. The four lane section is primarily needed during the weekday evening peak hour. A four lane pavement section is currently on East Avenue, with the outer lanes used for on-street parking. Restricting parking on the south side of East Avenue between Union and Alexander could be considered during the evening peak hour. Intersection markings and signing would need to be further evaluated. The capacity analysis does indicate improved intersection operations and reduced queues that maybe less likely to overflow into other intersections.



ALTERNATIVE 1A: FOUR-LANES ON EA	ST AVENUE										
			Al	/I Peak Ho	our			PI	/I Peak Ho	ur	
				Level	50th	95th			Level	50th	95th
	LANE	V/C		of	Queue	Queue	V/C		of	Queue	Queue
Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft)
	EB-LTR (2)	0.31	24.3	С	61	90	0.70	33.6	С	180	228
	WB-LTR (2)	0.81	28.1	С	207	221	0.86	30.7	С	77	139
S Union St &	NB-L (1)	0.29	8.7	Α	19	32	0.12	8.2	Α	13	19
East Ave	NB-TR (2)	0.44	19.0	В	170	238	0.72	24.1	С	136	193
Signalized	SB-L (1)	0.44	11.4	В	44	81	0.70	22.9	С	51	149
	SB-TR (1)	0.57	21.5	С	229	355	0.53	21.1	С	228	359
	Intersection	-	21.4	С	-	-	-	26.5	С	-	-
v/c ratio = volume/capacity ratio Source: Synchro 8/SimTraffic											

Alternative 2: Single Lane Roundabout – a single lane roundabout at the East Avenue intersection was considered. The capacity analysis indicates this intersection treatment would not provide the needed capacity for the projected volumes at this location. Failing levels would be experienced on most approaches with extensive queuing in all directions. This queuing would affect operations on all nearby intersections, potentially causing gridlock conditions.

			AM Pea	k Hour			PM Pea	k Hour	
			Level	50th	95th		Level	50th	95th
	LANE		of	Queue	Queue		of	Queue	Queue
Intersection	GROUP	Delay	Service	(ft)	(ft)	Delay	Service	(ft)	(ft)
	EB-L	41.1	Е	85	474	134.9	F	455	496
	EB-T	45.5	Е	85	474	131.5	F	455	496
	EB-R	41.7	Е	85	474	122.6	F	455	496
	WB-L	113.7	F	667	829	41.9	Е	551	801
	WB-T	113.0	F	667	829	39.0	Е	551	801
S Union St &	WB-R	112.9	F	667	829	38.0	Е	551	801
East Ave	NB-L	47.0	Е	292	615	70.2	F	706	840
Roundabout	NB-T	44.8	Е	292	615	62.2	F	706	840
	NB-R	44.3	Е	292	615	62.9	F	706	840
	SB-L	63.8	F	462	781	58.0	F	622	806
	SB-T	63.7	F	462	781	61.5	F	622	806
	SB-R	58.6	F	462	781	56.4	F	622	806
	Intersection	68.1	F	-	-	67.8	F	-	-
Source: VISSIM 5.4									



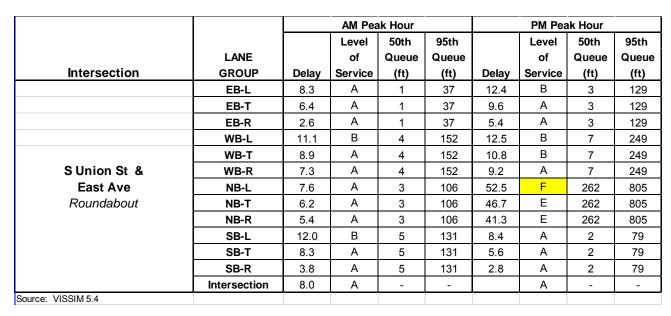
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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

Alternative 2A: Dual Lane Roundabout – a dual lane roundabout at the East Avenue intersection was considered in order to determine the infrastructure needed to apply a roundabout at this intersection that would result in acceptable levels of service. The capacity analysis indicates this intersection treatment would provide notably improved operations; with the exception of the Union Street NB left turn movement onto East Avenue, which would still experience a LOS F. However, queuing would be reduced and the 800' queues NB would interfered with Broad Street requiring a dual lane at Broad.

While improved operations would be achieved with a dual lane roundabout at the East Avenue intersection, the following constraints are identified:

- The geometric footprint of the roundabout is very large. The
 approaches to the roundabout with provision of splitter islands
 would force the RDB to be placed in the center of the
 available developable lands in this area.
- Notable loss of developable lands would result.
- The distance traveled by pedestrian and bicycles would be notably longer.
- Reconnecting access to the immediate parcels would be challenging.







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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

Charlotte Street/Union Street Intersection

Two major intersection alternatives were considered and evaluated at the Charlotte Street intersection. These include a traditional unsignalized, signalized intersection and a roundabout.

Alternative 1: Traditional unsignalized intersection – two-way stop sign control on the Charlotte Street approaches would result in failing levels of service during the weekday evening peak hour on the Charlotte Street approaches. This alternative would have one lane in each direction on Charlotte Street and a three-lane section on Union Street. This operation would also have safety concerns with southbound traffic on the Inner Loop ramp speeding through the intersection.



ALTERNATIVE 1: UNSIGNALIZED											
			Al	/I Peak Ho	our			PN	I Peak Ho	our	
				Level	50th	95th			Level	50th	95th
Intersection	LANE GROUP	V/C Ratio	Delay	of Service	Queue (ft)	Queue (ft)	V/C Ratio	Delay	of Service	Queue (ft)	Queue (ft)
	EB-LTR (1)	0.78	43.8	E	-	161	2.10	585.7	F	-	517
	WB-LTR (1)	0.46	46.9	E	-	53	2.65	959.8	F	-	293
S Union St &	NB-L (1)	0.03	8.4	Α	-	2	0.04	8.5	Α	-	3
Charlotte St	NB-TR (1)	0.38	0.0	Α	-	0	0.54	0.0	Α	-	0
Unsignalized	SB-L (1)	0.02	9.1	Α	-	1	0.04	10.9	В	-	3
	SB-TR (1)	0.27	0.0	Α	-	0	0.29	0.0	Α	-	0
	Intersection	-	10.4	В	1	-	ı	134.9	F	1	-
v/c ratio = volume/capacity ratio Source: Synchro 8/SimTraffic							_				_

Alternative 1A: Traditional signalized intersection – This operation would provide acceptable levels of service for all approaches with minimal queuing. It should be noted that a traffic signal may rest predominantly on the north/south approaches due to the heavy volumes. This may be a safety concern with SB traffic coming off the Inner Loop ramp not slowing down through the intersection. Additional alternatives may need to be considered to address the pedestrian and bicycle conflicts at this location.

ALTERNATIVE 1A: SIGNALIZED											
			Al	/I Peak Ho	our			PI	/I Peak Ho	ur	
				Level	50th	95th			Level	50th	95th
	LANE	V/C		of	Queue	Queue	V/C		of	Queue	Queue
Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft)
	EB-LTR (1)	0.54	14.2	В	37	115	0.51	16.9	В	46	122
	WB-LTR (1)	0.20	27.0	С	28	66	0.30	27.2	С	42	91
S Union St &	NB-L (1)	0.05	2.5	Α	3	6	0.09	7.8	Α	8	19
Charlotte St	NB-TR (2)	0.27	2.9	Α	35	40	0.37	7.6	Α	88	177
Signalized	SB-L (1)	0.03	5.0	Α	3	10	0.07	5.5	Α	4	13
-	SB-TR (1)	0.36	7.1	Α	105	154	0.38	7.3	Α	114	166
	Intersection	-	7.4	Α	-	-	-	9.9	Α	-	-
v/c ratio = volume/capacity ratio Source: Synchro 8/SimTraffic											

Alternative 2: Single Lane Roundabout – a single lane roundabout at Charlotte Street would work well in isolation. As previously mentioned, intersection operations at East Avenue will affect Charlotte Street. The levels of service shown below assume a dual lane roundabout is provided at East Avenue



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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

intersection. Capacity analysis indicates this intersection treatment would provide acceptable levels of service, with the exception of the EB approach which would experience a LOS E during the weekday evening peak hour.

			AM Pea	ak Hour			PM Pea	ak Hour	
			Level	50th	95th		Level	50th	95th
			of	Queue	Queue		of	Queue	Queue
Intersection	MOVEMENT	Delay	Service	(ft)	(ft)	Delay	Service	(ft)	(ft)
	EB-L	0.0	Α	3	90	8.7	Α	4	134
	EB-T	4.5	Α	3	90	0.0	Α	4	134
	EB-R	7.2	Α	3	90	7.9	Α	4	134
	WB-L	7.4	Α	1	32	35.8	Е	5	91
	WB-T	5.6	Α	1	32	0.0	Α	5	91
S Union St &	WB-R	5.6	Α	1	32	35.3	E	5	91
Charlotte St	NB-L	5.1	Α	1	80	0.0	Α	5	328
Roundabout	NB-T	4.7	Α	1	80	11.6	В	5	328
	NB-R	4.4	Α	1	80	0.0	Α	5	328
	SB-L	0.0	Α	1	141	0.0	Α	1	81
	SB-T	0.0	Α	1	141	5.4	Α	1	81
	SB-R	5.4	Α	1	141	0.0	Α	1	81
	Intersection	5.4	Α	-	-	25.9	D	-	-

Inner Loop Ramps/Union Street Intersection

Other alternatives are being considered and evaluated for the Inner Loop Ramps/Union Street intersection. These include a T-Intersection opposite Richmond Street with variations that will include one-way and two way ramp options. This alternative would allow Union Street to provide two-way traffic up to University Avenue. As this alternative would re-distribute traffic in this area, the evening peak period was analyzed as it represents the worst peak hour.

Alternative 1: Inner Loop one-way northbound ramp only with Union Street two-way operations. This option would force Inner Loop exiting traffic to exit at the current E. Main Street exit then proceed south through the University Avenue intersection. Due to the close proximity and synchronized signal operations at the Union/University/E. Main Street intersection, this option affects all three intersections. Analysis indicates that adding approximately 465vph (evening peak) through the E. Main Street intersection will increase delays and queuing. The analysis shown includes optimization of the geometry and signal timing between the three intersections. The analysis also includes further redistribution of traffic to reflect this alternative. This includes converting Union Street to two-way all the way to E. Main Street further enhancing access to and from the public market area. The capacity analysis results would suggest:

- Inner Loop Ramp @ E. Main/University an additional southbound lane would be necessary to address the queuing on the ramp.
- Union @ E. Main Street the intersection will operate at acceptable levels with the introduction of southbound traffic. Queuing is not anticipated to overflow into adjacent intersections.



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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

- Union @ University the addition of southbound traffic and additional phasing would still provide for acceptable levels of operation. Northbound queues may overflow into the Richmond Street intersection.
- Richmond/Union @ IL On-Ramp This intersection would have to be signalized and provide a three lane section on Union Street. Overall acceptable levels of service would be achieved. However, long queues (400 feet) may result in the NB left turn lane onto the Inner Loop on-ramp.

ALTERNATIVE 1: ONE-WAY RAI	MP									·	
			Al	/ Peak Ho	our			PI	/ Peak Ho	our	
				Level	50th	95th			Level	50th	95th
	LANE	V/C		of	Queue	Queue	V/C		of	Queue	Queue
Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft)
	WB-LTR (1)			Α			0.15	31.8	С	13	42
S Union Street &	NB-L (1)			Α			0.74	18.7	В	88	414
Richmond Street	NB-TR (1)			Α			0.33	1.6	Α	43	43
Signalized	SB-T (1)			Α			0.40	2.2	Α	80	105
	Intersection	1		Α	-	-	1	7.2	Α	-	-
	EB-T (1)			Α			0.60	7.1	Α	60	79
	EB-R (1)			Α			0.47	2.0	Α	1	2
	WB-L (1)			Α			0.10	11.6	В	8	22
S Union Street &	WB-TR (1)			Α			0.52	16.0	В	199	290
University Avenue	NB-L (1)			Α			0.10	25.1	С	27	59
Signalized	NB-T (1)			Α			0.51	38.4	D	198	277
	NB-R (1)			Α			0.23	12.8	В	40	93
	SB-LTR (1)			Α			0.16	47.6	D	76	132
	Intersection	ı		Α	-	-	-	15.2	В	-	-
	EB-L (1)			Α			0.01	16.8	В	3	5
	EB-TR (3)			Α			0.67	25.5	С	135	170
S Union Street &	WB-L (1)			Α			0.19	24.2	С	47	88
Main Street	WB-TR (3)			Α			0.67	29.5	С	214	264
Signalized	NB-LT (1)			Α			0.46	64.2	E	91	153
	NB-R (1)			Α			0.54	36.8	D	105	187
	SB-LTR (1)			Α			0.32	10.7	В	0	44
	Intersection	-		Α	-	-	-	29.3	С	-	-
	EB-L (1)			Α			0.26	23.9	С	6	12
	EB-TR (3)			Α			0.50	16.0	В	62	77
Main Street &	WB-TR (3)			Α			0.64	2.4	Α	1	1
University Avenue	NB-L (1)			Α			0.67	42.8	D	114	209
Signalized	NB-TR (2)			Α			0.66	35.1	D	121	173
	SB-L (1)			Α			0.87	48.8	D	262	271
	SB-TR (2)			Α			0.79	96.4	F	933	1797
	Intersection	-		Α	-	-	-	24.0	С	-	-
	EB-L (1)			Α			0.07	22.5	С	7	23
	EB-TR (2)			Α			0.53	27.5	С	162	217
Main Street &	WB-T (2)			Α			0.27	5.3	Α	22	47
University Avenue/Pitkin Street	WB-R (1)			Α			0.25	1.3	Α	0	9
Signalized	SB-L (2)			Α			0.21	23.8	С	59	89
	SB-TR (1)			Α			0.05	20.7	С	12	33
	Intersection	1		Α	1	-	1	16.3	В	1	-

Alternative 2: this alternative would terminate the Inner Loop (two-way ramps) opposite Richmond Street with two way operations on Union Street. This alternative would eliminate the need for



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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

westbound traffic on E. Main Street to use the Pitkin Street intersection. This alternative provides for left turns to occur at the E. Main Street/University Avenue intersection.

- Richmond/Union @ IL On-Ramp This intersection is shown with traffic signal control. Considering, Richmond is a through street; it is recommended a signal be considered at this location. Overall acceptable levels of service would be achieved.
- Union/University the additional signal phases would impact the EB approach. The EB approach will drop in level of service with queuing to exceed capacity and may impact operations at the E. Main Street intersections during peak hours.

ALTERNATIVE 2: TWO-WAY RA	IVII VVIIII LEF	1 A1 UI						-			
			Al	VI Peak Ho				PI	/ Peak Ho		
				Level	50th	95th			Level	50th	95th
_	LANE	V/C		of	Queue	Queue	V/C		of	Queue	Queue
Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft)
	EB-R (1)			Α			0.62	5.2	A	0	47
S Union Street &	WB-LTR (1)			Α			0.18	33.4	С	13	42
Richmond Street	NB-L (1)			Α			0.43	1.9	Α	7	18
Signalized	NB-TR (1)			Α			0.33	1.0	Α	8	17
	SB-TR (1)			Α			0.11	2.3	Α	11	21
	Intersection	-		Α	-	-	-	3.2	Α	-	-
	EB-LT (1)			Α			0.60	43.9	D	410	543
	EB-R (1)			Α			0.12	3.4	Α	6	18
	WB-L (1)			Α			0.09	11.1	В	8	22
S Union Street &	WB-TR (1)			Α			0.51	15.2	В	194	282
University Avenue	NB-L (1)			Α			0.08	19.7	В	24	42
Signalized	NB-T (1)			Α			0.52	30.0	С	175	197
	NB-R (1)			Α			0.24	10.8	В	41	64
	Intersection	-		Α	-	-	-	26.7	С	-	-
	EB-L (1)			Α			0.02	16.3	В	2	5
	EB-TR (2)			Α			0.99	55.0	D	368	511
S Union Street &	WB-TR (3)			Α			0.76	32.6	С	247	302
Main Street	NB-LT (1)			Α			0.30	52.0	D	90	150
Signalized	NB-R (1)			Α			0.43	30.5	С	91	167
	SB-LTR (1)			Α			0.23	7.7	Α	0	39
	Intersection	-		Α	-	-	-	41.3	D	-	-
	EB-L (1)			Α			0.27	25.3	С	6	12
	EB-TR (3)			Α			0.52	17.1	В	64	79
	WB-L (1)			Α			0.74	34.7	С	7	16
Main Street &	WB-TR (3)			Α			0.66	3.2	Α	1	17
University Avenue	NB-L (1)			Α			0.45	27.0	С	103	174
Signalized	NB-TR (2)			Α			0.44	24.4	С	110	157
	SB-L (1)			Α			0.71	50.7	D	184	294
	SB-TR (2)			Α			0.71	40.3	D	190	256
	Intersection	-		Α	-	-	-	21.4	С	-	-
	EB-L (1)			Α			0.07	23.1	С	7	23
	EB-TR (2)			Α			0.54	28.5	С	165	221
Main Street &	WB-T (2)			Α			0.24	5.3	Α	28	50
University Avenue/Pitkin Street				Α			0.22	1.6	Α	0	8
Signalized	SB-L (2)			Α			0.27	29.4	С	64	100
	SB-TR (1)			Α			0.06	25.4	С	14	37
	Intersection	-		Α	-	-	-	17.6	В	-	-

Alternative 3: this alternative would terminate the Inner Loop (two-way ramps) opposite Richmond Street with two way operations on Union Street north to E. Main Street. This alternative would



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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

eliminate the need for westbound traffic on E. Main Street to use the Pitkin Street intersection and would allow left turns to occur at the E. Main Street/Union Street intersection.

- Richmond/Union @ IL On-Ramp This intersection was assessed with stop sign control; however, while all most movements through the intersection would operate at acceptable levels, the Richmond Street approach would have extremely long delays during the weekday evening peak hour. The intersection is shown with traffic signal control. Considering, Richmond is a through street; it is recommended a signal be considered at this location. Overall acceptable levels of service would be achieved. This option would have the tendency to attract cut through traffic along Richmond Street.
- Union/University the additional signal phases would impact the EB approach. The EB approach will drop in level of service with queuing to exceed capacity and may impact operations at the E. Main Street intersections during peak hours.



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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

			Al	/ Peak Ho	ur			PI	/I Peak Ho	ur	
				Level	50th	95th			Level	50th	95th
	LANE	V/C		of	Queue	Queue	V/C		of	Queue	Queue
Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft)
miter section	EB-R (1)	itatio	Delay	A	(11)	(11)	0.61	4.9	A	0	46
S Union Street &	WB-LTR (1)			A			0.15	31.7	C	13	42
Richmond Street				A			0.13	2.7	A	12	37
Signalized	NB-L (1) NB-TR (1)			A			0.44	1.4	A	13	17
Signalized	SB-TR (1)			A			0.33	2.8	A	13	25
	` ,										
	Intersection			A	-	-	-	3.5	A	-	-
	EB-L (1)			A			0.03	7.4	A B	2	5
	EB-TR (1)			A A			0.60	18.6 11.6	В	371 8	507 22
S Union Street &	WB-L (1)			A					В	199	290
	WB-TR (1)						0.52	16.0			
University Avenue	NB-L (1)			A			0.10	20.9	С	25	44
Signalized	NB-T (1)			Α			0.51	30.3	С	180	206
	NB-R (1)			Α			0.23	12.0	В	44	69
	SB-TR (1)			Α			0.16	47.5	D	76	132
	Intersection	-		Α	-	-	-	21.1	С	-	-
	EB-L (1)			Α			0.01	16.7	В	2	5
	EB-TR (3)			Α			0.67	26.7	С	147	204
S Union Street &	WB-L (1)			Α			0.19	24.2	С	47	88
Main Street	WB-TR (3)			Α			0.67	29.5	С	214	264
Signalized	NB-LT (1)			Α			0.45	62.7	E	91	153
	NB-R (1)			Α			0.53	35.3	D	90	158
	SB-LTR (1)			Α			0.31	10.5	В	0	44
	Intersection	-		Α	-	-	-	29.6	С	1	-
	EB-L (1)			Α			0.26	23.9	С	6	12
	EB-TR (3)			Α			0.50	16.1	В	62	77
Main Street &	WB-TR (3)			Α			0.64	2.4	Α	1	1
University Avenue	NB-L (1)			Α			0.66	41.8	D	114	209
Signalized	NB-TR (2)			Α			0.65	34.5	С	121	173
-	SB-L (1)			Α			0.88	49.8	D	294	480
	SB-TR (2)			Α			0.36	25.6	С	98	139
	Intersection	-		Α		-	-	21.1	С		-
	EB-L (1)			Α			0.07	22.5	С	7	23
	EB-TR (2)			Α			0.53	27.5	С	162	217
Main Street &	WB-T (2)			Α			0.26	5.3	Α	22	47
versity Avenue/Pitkin Street	WB-R (1)			A			0.24	1.3	A	0	9
Signalized	SB-L (2)			A			0.22	23.9	C	59	89
orginanzoa	SB-TR (1)			A			0.05	20.7	C	12	33
	Intersection	_		A	-	_	-	24.0	C	-	-

Alternative 3A: this alternative offers a slight variation from Alternative 3 which would suggest leaving the Richmond Street/Inner Loop ramp intersection as an unsignalized intersection and converting Richmond Street as a one-way EB (away from Union Street) or creating a greenway street for neighborhood traffic only. This alternative would have several affects:

• Richmond/Union @ IL On-Ramp – Stop sign control would be sufficient to provide overall acceptable levels of operation with removal of Richmond Street traffic. Overall acceptable levels of service would be achieved. A one-way Richmond may still attract some cut-through traffic, but less than if signalized.



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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

Charlotte Street/Union – this intersection is projected to operate with long delays if stop-sign
control is installed on the Charlotte Street approaches. However, based on the 2035 traffic
volumes, traffic signal warrants may not be met. Hence, under this alternative, Charlotte Street
should remain stop-sign controlled until volumes and delays meet warrants. This intersection may
need to be reassessed with subsequent E. Main Street/University Avenue plans.

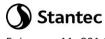
Various options were presented to the Richmond Street neighborhood such as closure of the street at Union Street, providing a right-out only diverter at Union Street, one-way travel patterns or do nothing. While these features are still being refined, the right-out diverter option is being moved forward as part of this assessment. More details will be identified of this approach through the final design phase.

Cycle Track Signal Analysis

What is a cycle track phase? A cycle track signal phase is an exclusive phase that would require all vehicles to stop and only allow bicycles to move. This phase is normally justified when volumes on a cycle track reach higher volumes. Typically a 10 second phase (w/ 4 seconds yellow and 2 seconds red) would be required. This phase was incorporated into the traffic signal operations at each of the corridor intersections and would impact intersection operations at each location. The Monroe/Chestnut and East Avenue intersections would see the greatest impact:

- Howell/Monroe/Chestnut weekday evening peak operations would drop to overall LOS D with the northbound and southbound approaches failing with long queuing (300'-700').
- East Avenue/Union the intersection would see a drop in levels of operation with the 4-lane section on East Avenue.

This option is not recommended at this time. When and if bicycle traffic increases to a level that would justify the need for additional traffic control, cycle track signal phase can be considered.



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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

			Al	/ Peak Ho	our			PI	M Peak Ho	ur	
				Level	50th	95th			Level	50th	95
Intersection	LANE	V/C	D.1	of	Queue	Queue	V/C	D.1	of	Queue	Qu
intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(f
	EB-L (1)	0.65	31.1	С	112	238	0.46	29.6	С	44	8
	EB-T (1)	0.50	32.8	С	154	326	0.49	34.3	С	145	2
	EB-R (1)	0.26	3.1	Α	0	31	0.14	0.4	Α	0	
Inner Loop/Howell Street &	WB-L (1)	0.07	21.2	С	10	28	0.07	22.1	С	10	2
Chestnut Street/Monroe Avenue	WB-TR (2)	0.42	32.4	С	100	145	0.74	41.5	D	232	3
Signalized	NB-L (1)	0.75	44.7	D	86	147	1.29	187.6	F	189	3
	NB-TR (1)	0.71	35.9	D	265	357	0.51	26.9	С	186	2
	SB-T (1)	0.75	49.0	D	196	280	1.18	136.2	F	483	6
	SB-R (1)	0.20	0.3	Α	0	0	0.85	6.5	Α	0	
	Intersection	-	29.9	С	-	-	-	51.2	D	-	
	EB-L (1)	0.40	45.0	D	54	99	0.85	57.7	E	204	3
S Union St &	EB-R (1)	0.17	13.7	В	0	29	0.37	7.1	Α	0	
E Broad St	NB-L (1)	0.78	42.2	D	65	176	0.25	11.6	В	20	
Signalized	NB-T (1)	0.72	21.5	С	322	467	0.72	20.4	С	340	4
	SB-TR (1)	0.91	30.7	С	148	576	0.78	18.8	В	139	1
	Intersection	-	28.6	С	-	-	-	24.6	С	-	
	EB-LTR (2)	0.37	29.2	С	66	103	0.81	42.3	D	194	2
	WB-LTR (2)	0.87	42.0	D	185	279	0.99	61.0	Е	193	3
S Union St &	NB-L (1)	0.45	19.9	В	26	47	0.18	14.7	В	17	
East Ave	NB-TR (2)	0.64	22.6	С	123	202	0.95	42.8	D	307	2
Signalized	SB-L (1)	0.57	31.8	С	84	160	0.92	74.8	E	142	2
	SB-TR (2)	0.77	33.9	С	144	257	0.72	32.6	С	162	3
	Intersection	-	31.3	С	-	-	-	46.9	D	-	
	EB-LTR (1)	0.55	15.2	В	41	121	0.53	20.6	С	62	1
	WB-LTR (1)	0.20	27.3	С	29	67	0.30	28.7	С	45	,
S Union St &	NB-L (1)	0.10	8.1	Α	4	6	0.17	7.4	Α	7	
Charlotte St	NB-TR (2)	0.40	8.2	Α	45	60	0.55	7.7	Α	67	
Signalized	SB-L (1)	0.06	15.6	В	6	19	0.13	17.0	В	8	2
	SB-TR (1)	0.54	21.9	С	203	298	0.56	21.7	С	216	3
	Intersection	-	14.7	В	-	-	-	14.5	В	-	

The other option is to allow bicycles to cross when pedestrians are crossing. In this case, it is recommended that a leading pedestrian phase of 6 seconds be provided. This opportunity for pedestrians and bicyclists to get an advance to cross provides better visibility to motorists. The capacity analysis at the corridor intersections with an advanced 6 second pedestrian phase indicates:



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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

			AI	/I Peak Ho	our			PI	M Peak Ho	our	
				Level	50th	95th			Level	50th	95t
	LANE	V/C		of	Queue	Queue	V/C		of	Queue	Que
Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft
	EB-L (1)	0.52	21.6	С	92	163	0.46	29.6	С	44	82
	EB-T (1)	0.43	25.5	С	127	270	0.49	34.3	С	145	26
	EB-R (1)	0.24	4.6	Α	0	45	0.14	0.5	Α	0	0
Inner Loop/Howell Street &	WB-L (1)	0.05	5.7	Α	3	7	0.07	22.1	С	10	28
Chestnut Street/Monroe Avenue	WB-TR (2)	0.36	15.1	В	92	127	0.74	41.5	D	232	30
Signalized	NB-L (1)	0.66	33.6	С	79	120	0.98	77.2	Е	136	30
-	NB-TR (1)	0.67	31.2	С	243	324	0.41	18.7	В	153	22
	SB-T (1)	0.73	45.6	D	185	262	0.98	66.8	F	394	62
	SB-R (1)	0.20	0.3	Α	0	0	0.85	6.5	Α	0	(
	Intersection	-	22.8	С	-	-	-	31.4	С	-	
	EB-L (1)	0.40	45.0	D	54	99	0.81	52.1	D	198	28
S Union St &	EB-R (1)	0.17	13.7	В	0	29	0.36	6.7	Α	0	4
E Broad St	NB-L (1)	0.52	13.7	В	27	57	0.23	10.4	В	19	3
Signalized	NB-T (1)	0.61	9.9	Α	296	174	0.70	18.3	В	322	42
•	SB-TR (1)	0.73	16.4	В	142	181	0.74	18.5	В	141	2
	Intersection	-	14.8	В	-	-	-	22.6	С	-	
	EB-LTR (2)	0.34	26.9	С	64	96	0.74	36.6	D	183	2
	WB-LTR (2)	0.82	40.0	D	191	251	0.91	45.5	D	190	29
S Union St &	NB-L (1)	0.36	10.5	В	21	34	0.14	10.5	В	16	2
East Ave	NB-TR (2)	0.51	14.9	В	122	143	0.82	30.1	С	296	19
Signalized	SB-L (1)	0.51	18.8	В	54	123	0.80	52.5	D	135	23
· ·	SB-TR (2)	0.65	21.9	С	138	196	0.60	20.9	С	149	20
	Intersection	_	24.3	С	-	-	_	34.6	С	-	_
	EB-LTR (1)	0.54	13.7	В	35	112	0.53	19.8	В	58	13
	WB-LTR (1)	0.20	27.0	С	28	66	0.30	28.6	С	45	9
S Union St &	NB-L (1)	0.08	6.1	Α	4	7	0.13	5.6	Α	6	8
Charlotte St	NB-TR (2)	0.35	6.5	Α	44	55	0.48	6.2	Α	64	7
Signalized	SB-L (1)	0.05	12.2	В	5	16	0.10	12.3	В	7	2
3	SB-TR (1)	0.48	17.1	В	178	261	0.49	16.1	В	183	26
	Intersection	-	12.1	В	-	-	-	12.0	В	-	
io = volume/capacity ratio											_

This document provides an engineering assessment of capacity effects and geometric needs at each of the corridor intersections. Various sub options were either discussed or sketched with various stakeholders through the development process that may not be analyzed; some of these sub options may have addressed other geometric or operational opportunities, but may not affect the capacity analysis results already reflected in the options presented. This document does not reflect an all exhaustive list of every idea presented, however covers all the major options.

It is anticipated that the preferred treatment at each location will formulate the preferred corridor alternative. The analysis for the entire corridor will be refined to include the effects of the cycle track operations (6 second lead ped phase), reflect the final traffic volumes, reflect the storage lengths shown on the corridor concept, and include more accurate clearance intervals and other site specific characteristics at each location.



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Reference: Inner Loop East – Intersection Alternatives – Capacity Analysis

Sincerely,

Paula Flores Benway, FITE

ITE Northeastern International Director

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Appendix G – Traffic Analysis Contents

2035 Cycle Track Operations Memo

Synchro Files (available upon request)

Memo



To: Jim Hofmann From: Paula Benway

Rochester Office Rochester Office

Date: February 28, 2014

Reference: Inner Loop – Cycle Track - Traffic Signal Operations

Per review comments received from the MCDOT on traffic signal phase sequencing associated with the introduction of the two-way cycle track, we have evaluated several options for consideration. The following details the option, operations, pros and cons and the impact on geometric and intersection operations. The traffic signal phase sequence to protect pedestrian and bicycle traffic through signalized intersections impacts the following intersections in the corridor. The other signalized intersections in the corridor are not impacted by the cycle track crossing.

- Monroe/Chestnut/Howell Intersection
- Broad Street/Union Street Intersection
- East Avenue/Union Street Intersection

Two-Way Cycle Tracks defined: two-way cycle tracks (also known as protected bike lanes, separated bikeways, and on-street bike paths) are physically separated cycle tracks that allow bicycle movement in both directions on one side of the road. Two-way cycle tracks share some design characteristics as one-way tracks, but may require additional considerations at driveway and side-street crossings. Improved visibility of cycle track users is important on the approaches to side street crossings.

Various options were evaluated to address traffic signal phasing sequences and their associated conflicts at the above noted intersections.

<u>Do Nothing – Status Quo Signal Operations</u>

This option maintains standard traffic signal operations instructing bicyclists on the cycle track to use the pedestrian crossing signal indicators. It is anticipated that under this option, pedestrian crossing indications would automatically come up during each and every cycle. Push button or other bicycle detection systems could be considered to minimize delay. A schematic of the traffic signal indications for the conflicting vehicular movements and movements permitted through the intersection is shown below; this schematic is for illustrative purposes and not reflective of traffic signal plans. More specific phasing information is provided in the capacity analysis printouts attached.

Advantages: low cost; minimal signing required; no impact on motor vehicle capacity conditions.

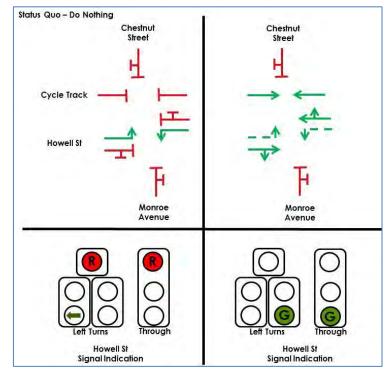


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Reference: Inner Loop – Cycle Track - Traffic Signal Operations

Disadvantages:

- A two-way cycle track introduces a contraflow bike lane that motorists may not have a clear line of sight. Either a permissive left turn vehicle or a right turn vehicle may not be aware a cyclist is approaching from behind and traveling at average speeds of 5-10mph. Unlike at pedestrian speeds, inadequate reaction time may result.
- The number one crash type between bicycles and vehicles involve operations with contra-flow bike operations. This type of conflict occurs as motor vehicle drivers have a hard time seeing a bicycle traveling in a contra-flow direction quick enough to react and avoid a conflict.
- In communities where high pedestrian and bicycle traffic is the norm, the higher the likelihood that motor vehicles would yield at crossings. In communities



- where low and infrequent pedestrian and bicycle traffic exists, the likely hood of motor vehicles yielding is diminished placing a higher incident risk at these crossing locations. In this case, the cycle-track will be a new facility and drivers may not initially yield.
- Bicycle signal heads are generally the preferred option over installing a sign instructing bicycles
 to use pedestrian signals. While instructing bicyclists to use pedestrian signals is a low-cost option,
 the length of the pedestrian clearance interval (typically timed at 3.5 feet per second) is usually
 inappropriate for bicyclists. The result is that approaching bicyclists have poor information about
 when it is safe and legal to enter the intersection.

Similar cycle track operations exist in Syracuse with signalized and stop sign controlled intersection crossings. One of the differences is the setting, heavy pedestrian and bicycle traffic is normal in an urban campus setting such as the case with the Syracuse cycle track.







¹ NACTO, Urban Bikeway Design Guide, Bicycle Signal Heads, pg 130.



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Reference: Inner Loop – Cycle Track - Traffic Signal Operations

Provide Lead Pedestrian Interval

This option maintains standard traffic signal operations instructing bicyclists on the cycle track to use the pedestrian crossing signal indicators. A lead pedestrian interval of 6 seconds would be provided to allow pedestrian and bicycle traffic an advance start prior to motor vehicle movement. Lead pedestrian intervals have been shown to reduce pedestrian-vehicle collisions as much as 60% at treated intersections². These lead intervals are critical at intersections where heavy right- or left-turning volumes create consistent conflicts and safety concerns between vehicles and pedestrians. This 6 second lead interval normally goes unnoticed by the motorist as they have a red signal indication; all conflicting motor vehicle movements through the intersection would have a red signal indication. This lead pedestrian interval is normally provided at locations with high pedestrian volumes. The lead pedestrian interval clears the intersection of all cyclists quickly and can help prevent conflicts with the contra-flow collisions. This interval would be provided in the direction of the cycle track flow. For example, if the cycle track is north/south, the lead pedestrian interval would be provided on the north/south crossing.

Typically in an urban environment where shared lanes (i.e. left/thru, thru/right) exist, all motor vehicle movements at the intersection would be shown a "red" signal indication, during the lead interval. This would be followed by a "green" signal indication for the parallel movements. If separate left turn and right turn lanes exist, the lead pedestrian interval would operate concurrently with the parallel thru movements only. In essence the left turns and right turns in the dedicated lanes can be controlled by their own "red" arrows.

At each of the three corridor intersections, dedicated left turn lanes are provided and left turn motorists would see a "red" arrow during the pedestrian lead interval. However, no dedicated right turn lanes are proposed at of these intersections. This means that when the parallel traffic stream gets the "green" signal indication, right turning traffic will have to yield to pedestrian and bicycle traffic.

Each of the three intersections also incorporated protected/permissive left turns. Protected/permissive left turns introduce additional complexities when combined with lead pedestrian phases and two-way cycle tracks. For example, if a lead pedestrian phase is provided and is followed by a protected/permissive left-turn, during the permissive portion of the left turn phase, drivers may not be aware of bicyclists approaching on the cycle track from the contra-flow direction.

Advantages:

- Low cost and minimal signing required.
- It allows the pedestrians/bikes that arrived during the "Do Not Cross" indication phase to advance safely into the crossing prior to conflicting vehicle turns. This could address a notable amount of the pedestrian/bike traffic; but does not address the random bike traffic arrivals after the 6 second interval.
- Minimizes the potential for opposing left/right turns conflicts with pedestrians/bicycles during the lead advance phase.

² National Association of City Transportation Officials, Urban Street Design Guide, 2013



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Reference: Inner Loop – Cycle Track - Traffic Signal Operations

Disadvantages:

- Slight increase in delay to motor vehicles as a result of longer red phase during the lead pedestrian interval.
- Randomly arriving cycle track users in the contra-flow lane are still at risk of conflict with permissive turning vehicles.

MCDOT Signal Phase Sequence

MCDOT suggested a lead pedestrian phase (discussed above) to be integrated with non-opposing thru movements. For example, at the Monroe/Chestnut intersection, the County suggested the following phasing sequence:

- Have an EB lead phase where left-turn and EB thru traffic receive "green" signal indication,
- Then the 6 second lead pedestrian phase would operate concurrently with the EB thru movement only (no conflicting movements). During this phase the EB left turn vehicles would have a "red" signal indication.
- After the lead pedestrian phase, the WB approach would receive "green" signal indication concurrent with the EB approach. At this point the EB left-turns would then become permissive with a "green" signal indication.

The complexity here is trying to articulate to motor vehicles that they have a protected (Green Arrow), followed by a prohibited phase (Red Arrow), and then followed by a permissive left-turn phase (Green Ball) all within the same cycle. This is not a normal phasing sequence in the region and would require the introduction of "flashing yellow arrow". This type of operation has been introduced by the NYSDOT in this region but at limited locations. This phase sequence option would not impact intersection delays.

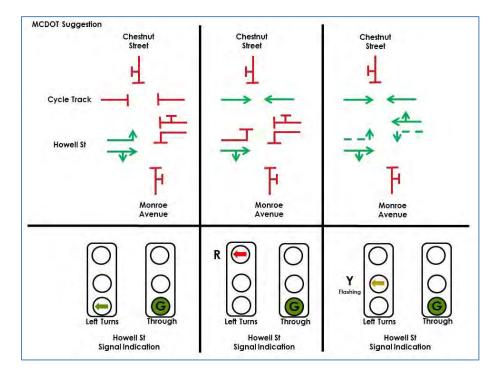
Advantages:

- It allows the pedestrians/bikes that arrived during the "Do Not Cross" indication phase to advance safely into the crossing prior to conflicting vehicle turns. This could address a notable amount of the ped/bike traffic.
- Minimizes the potential for opposing left/right turn conflicts with pedestrians/bicycles during the lead advance phase.
- Bike detection for the cycle track could reduce delay.



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Reference: Inner Loop – Cycle Track - Traffic Signal Operations



Disadvantages:

- Increased confusion for left turning vehicles with non-traditional phasing sequence (flashing yellow arrow).
- The 6 second "red" arrow may be short enough for motor vehicles to eventually ignore and then proceed through the intersection potentially creating conflicts with oncoming vehicles and with pedestrian/bicycle traffic.
- Randomly arriving cycle track users in the contra-flow lane are at conflict with permissive turning (left and right) vehicles.

Optimized Option

This option would:

- Have an EB phase where left-turn traffic receives a "green arrow" signal indication, or a protected phase.
- Then the 6 second lead pedestrian phase for only pedestrian/bicycle traffic. During this phase all EB/WB vehicles would have a "red ball" signal indication.
- After the lead pedestrian phase, the EB/WB approaches would receive "green ball" signal indication. At this point the EB left-turns would become permissive with a "green" signal indication.

The advantage to the recommended phasing sequence is that it minimizes phasing confusion with introduction on non-traditional phasing. This phasing sequence still does not address the conflict with permissive turns, but with the lead phase it has been minimized to the extent practical without introducing protected phasing. This phasing sequence still has the same advantages and disadvantages as the MCDOT suggested phasing.

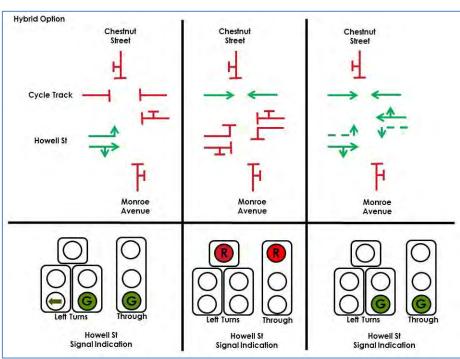
Design with community in mind



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Reference: Inner Loop – Cycle Track - Traffic Signal Operations

This option optimizes intersection operations. Overall, all three intersections will have acceptable levels with only one movement at the East Avenue intersection estimated to operate with a v/c ratio of 0.97.



		Phasing with Cycle and Offset Optimization									
			AM	Peak Ho	_	•		_	l Peak Ho	our	
				Level	50th	95th			Level	50th	95th
	LANE	V/C		of	Queue	Queue	V/C		of	Queue	Queue
Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft)
	EB-L (1)	0.68	27.4	С	78	119	0.50	29.9	С	40	75
	EB-TR (1)	0.85	36.0	D	182	265	0.76	39.1	D	177	282
Inner Loop/Howell Street &	WB-TR (2)	0.41	18.7	В	32	66	0.95	44.0	D	217	301
Chestnut Street/Monroe Avenue	NB-L (1)	0.43	19.2	В	46	97	0.89	54.3	D	100	272
Signalized	NB-TR (1)	0.59	22.0	С	126	250	0.40	13.7	В	90	150
	SB-L (1)	0.24	31.2	С	28	63	0.10	23.1	С	14	36
	SB-T (1)	0.54	34.2	С	139	223	0.87	45.7	D	332	523
	SB-R (1)	0.20	0.3	Α	0	0	0.85	6.6	Α	0	0
	Intersection	-	23.6	С	-	-	-	27.6	С	-	-
	EB-L (1)	0.37	39.3	D	48	90	0.78	48.2	D	198	272
S Union Street &	EB-R (1)	0.21	36.3	D	21	49	0.56	39.2	D	103	159
E Broad Street	NB-L (1)	0.44	9.2	Α	15	45	0.22	9.4	Α	14	30
Signalized	NB-T (1)	0.61	7.4	Α	30	187	0.72	18.3	В	174	352
	SB-TR (1)	0.83	21.9	С	154	510	0.78	17.3	В	150	175
	Intersection	-	15.6	В	-	-	-	24.5	С	-	-
	EB-L (1)	0.14	18.5	В	11	28	0.17	16.8	В	16	37
	EB-TR (1)	0.55	33.7	С	121	196	0.97	62.2	Е	399	630
	WB-L (1)	0.52	25.8	С	67	115	0.54	27.5	С	36	68
S Union Street &	WB-TR (1)	0.85	46.3	D	246	436	0.71	33.9	С	271	413
East Avenue	NB-L (1)	0.74	40.1	D	43	162	0.54	42.1	D	23	40
Signalized	NB-TR (2)	0.49	13.5	В	103	132	0.90	37.7	D	182	295
	SB-L (1)	0.61	20.5	С	64	106	0.89	53.5	D	109	259
	SB-TR (1)	0.67	27.4	С	223	336	0.79	42.0	D	280	426
	Intersection	-	27.6	С	-	-	-	43.5	D	-	-
v/c ratio = volume/capacity ratio Source: Synchro 8/SimTraffic											



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Reference: Inner Loop – Cycle Track - Traffic Signal Operations

Lag Left Turn Option

Another option considered was providing permissive lead phases followed by a protected lag left turn phase. Intersection operations at the East Avenue intersection were not favorable and are shown below. This option is not recommended and has the same advantages and disadvantages

as the prior two options.

					Permi	ssive La	g Left P	hasing			
			ΑN	l Peak H	our			PN	l Peak H	our	
				Level	50th	95th			Level	50th	95th
	LANE	V/C		of	Queue	Queue	V/C		of	Queue	Queue
Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft)
	EB-L (1)	0.59	34.2	С	110	149	0.50	43.9	D	45	83
	EB-TR (1)	0.82	38.2	D	262	342	0.69	36.1	D	196	298
Inner Loop/Howell Street &	WB-TR (2)	0.63	30.0	С	82	125	0.95	47.1	D	205	325
Chestnut Street/Monroe Avenue	NB-L (1)	0.31	10.1	В	66	93	0.86	48.1	D	126	254
Signalized	NB-TR (1)	0.46	13.9	В	197	328	0.38	15.9	В	120	222
	SB-L (1)	0.17	26.6	С	25	66	0.09	21.6	С	14	35
	SB-T (1)	0.38	26.9	С	125	231	0.78	36.8	D	320	498
	SB-R (1)	0.20	0.3	Α	0	0	0.85	6.6	Α	0	0
	Intersection	-	23.2	С	-	-	-	26.6	С	-	-
	EB-L (1)	0.40	45.0	D	54	99	0.80	50.0	D	198	277
S Union Street &	EB-R (1)	0.22	41.5	D	24	53	0.57	40.1	D	103	161
E Broad Street	NB-L (1)	0.50	18.7	В	51	84	0.23	6.9	Α	8	16
Signalized	NB-T (1)	0.61	13.6	В	244	353	0.71	10.5	В	182	274
	SB-TR (1)	0.77	14.0	В	151	187	0.78	15.0	В	150	173
	Intersection	-	16.6	В	-	-	-	21.0	С	-	-
	EB-L (1)	0.14	20.1	С	12	30	0.19	18.9	В	17	39
	EB-TR (1)	0.57	37.7	D	135	213	1.04	82.8	F	453	665
	WB-L (1)	0.51	26.7	С	74	124	0.54	29.1	С	38	71
S Union Street &	WB-TR (1)	0.83	46.2	D	268	447	0.76	38.7	D	285	465
East Avenue	NB-L (1)	0.69	40.4	D	30	113	0.27	26.0	С	22	29
Signalized	NB-TR (2)	0.63	22.8	С	100	148	0.99	53.0	D	223	463
	SB-L (1)	0.69	45.7	D	106	172	0.99	95.7	F	115	273
	SB-TR (1)	0.79	41.2	D	304	444	0.74	38.8	D	280	426
	Intersection	-	35.7	D	-	-	-	56.3	Е	-	-
atio = volume/capacity ratio											

Protected Left-Turn Signal Phase Sequence

This option would provide protected left turn phasing only, no permissive left turns would be allowed to minimize conflicts with the pedestrian and cycle track users. For example, at the Monroe/Chestnut intersection the following phasing sequence:

- Have an EB lead phase where left-turn and EB thru traffic receive "areen" signal indication,
- Then the 6 second lead pedestrian phase would operate concurrently with the EB thru movement only (no conflicting movements). During this phase the EB left turn vehicles would have a "red" signal indication.
- After the lead pedestrian phase, the WB approach would receive "green" signal indication concurrent with the EB thru traffic. At this point the EB left-turns would still have a "red" signal indication.

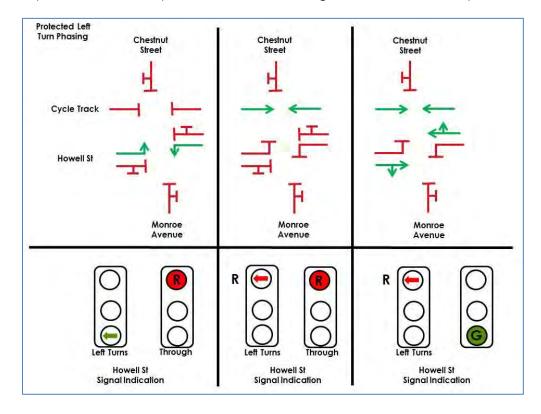
This option would affect intersection operations slightly. Overall Level D or better would still be provided at each intersection. However, additional movements will operate with volume/capacity



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Reference: Inner Loop – Cycle Track - Traffic Signal Operations

ratios above desired levels during the evening peak hour. This means that during the weekday evening peak hour, some movements may experience intersection variability. However, it should be kept in mind that these operations are reflective of projected traffic volumes by the year 2035. Intersection operations are anticipated to be better during other hours of the day.



Advantages:

- Eliminates left turn conflicts with pedestrians/bicycles on the cycle track side of the intersection.
- Keeps the signal phasing sequence simple with traditional operations.
- Bike detection for the cycle track could reduce delay.

Disadvantages:

- Randomly arriving cycle track users in the contra-flow lane are still at risk of conflict with permissive right turn vehicles.
- In order to make the cycle track users fully protected, left and right turn lanes and protected phasing for these movements would need to be incorporated. This would not only increase the geometric footprint of the three intersections, but also would impact intersection motor vehicle delays for both movements.



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Reference: Inner Loop – Cycle Track - Traffic Signal Operations

LANE GROUP Ratio Delay Service (ft) (ft) (ft) Ratio Delay Service (ft) (ft			Protected Left Turn Only									
LANE GROUP Ratio Delay Service (ft) (ft) (ft) Ratio Delay Service (ft) (ft				AM	Peak H	our			PN	Peak H	our	
Intersection					Level	50th	95th			Level	50th	95th
EB-L(1) 0.73 50.3 D 143 222 0.70 71.5 E 63 142		LANE	V/C		of	Queue	Queue	V/C		of	Queue	Queue
EB-TR (1) 0.60 19.2 B 190 292 0.53 25.1 C 172 265	Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft)
Inner Loop/Howell Street & WB-T (2)		EB-L (1)	0.73	50.3	D	143	222	0.70	71.5	E	63	142
Chestnut Street/Monroe Avenue NB-L (1) 0.51 23.8 C 51 112 0.97 74.4 E 153 297 Signalized NB-TR (1) 0.63 24.7 C 134 255 0.41 18.6 B 126 257 SB-L (1) 0.27 35.2 D 31 69 0.11 24.6 C 15 38 SB-R (1) 0.20 0.39 A 0 0 0.85 6.6 A 0 0 Intersection - 28.1 C -		EB-TR (1)	0.60	19.2	В	190	292	0.53	25.1	С	172	262
NB-TR (1)	Inner Loop/Howell Street &	WB-T (2)	0.67	45.8	D	112	160	0.95	62.1	Е	232	346
SB-L(1) 0.27 35.2 D 31 69 0.11 24.6 C 15 38	Chestnut Street/Monroe Avenue	NB-L (1)	0.51	23.8	С	51	112	0.97	74.4	E	153	297
SB-T (1) 0.59 39.6 D 155 241 0.92 54.5 D 343 546 SB-R (1) 0.20 0.3 A 0 0 0.85 6.6 A 0 0 Intersection - 28.1 C - - - 33.9 C - - - EB-L (1) 0.37 39.3 D 48 90 0.82 50.5 D 179 284 EB-R (1) 0.21 36.3 D 21 49 0.58 38.4 D 93 153 S Union Street & NB-L (1) 0.59 35.7 D 70 153 0.39 38.0 D 43 69 E Broad Street NB-T (1) 0.49 4.7 A 70 272 0.61 12.0 B 232 344 Signalized SB-T (1) 0.91 27.8 C 136 478 0.82 20	Signalized	NB-TR (1)	0.63	24.7	С	134	255	0.41	18.6	В	126	257
SB-R (1) 0.20 0.3 A 0 0 0.85 6.6 A 0 0 0.85		SB-L (1)	0.27	35.2	D	31	69	0.11	24.6	С	15	38
Intersection -		SB-T (1)	0.59	39.6	D	155	241	0.92	54.5	D	343	548
EB-L (1) 0.37 39.3 D 48 90 0.82 50.5 D 179 284 EB-R (1) 0.21 36.3 D 21 49 0.58 38.4 D 93 153 S Union Street & NB-L (1) 0.59 35.7 D 70 153 0.39 38.0 D 43 69 E Broad Street NB-T (1) 0.49 4.7 A 70 272 0.61 12.0 B 232 340 Signalized SB-T (1) 0.91 27.8 C 136 478 0.82 20.4 C 149 167 Intersection - 19.7 B - - - 24.5 C - - - 24.5 C - - - - 24.5 C - </th <th></th> <th>SB-R (1)</th> <th>0.20</th> <th>0.3</th> <th>Α</th> <th>0</th> <th>0</th> <th>0.85</th> <th>6.6</th> <th>Α</th> <th>0</th> <th>0</th>		SB-R (1)	0.20	0.3	Α	0	0	0.85	6.6	Α	0	0
EB-R (1) 0.21 36.3 D 21 49 0.58 38.4 D 93 15.5		Intersection	-	28.1	С	-	-	-	33.9	С	-	-
S Union Street & NB-L (1) 0.59 35.7 D 70 153 0.39 38.0 D 43 69 E Broad Street NB-T (1) 0.49 4.7 A 70 272 0.61 12.0 B 232 340 Signalized SB-T (1) 0.91 27.8 C 136 478 0.82 20.4 C 149 167 Intersection - 19.7 B - - - 24.5 C - - - 24.5 C -		EB-L (1)	0.37	39.3	D	48	90	0.82	50.5	D	179	284
E Broad Street NB-T (1) 0.49 4.7 A 70 272 0.61 12.0 B 232 340 Signalized SB-T (1) 0.91 27.8 C 136 478 0.82 20.4 C 149 167 Intersection - 19.7 B - - - 24.5 C - - - 24.5 C -		EB-R (1)	0.21	36.3	D	21	49	0.58	38.4	D	93	153
Signalized SB-T (1) 0.91 27.8 C 136 478 0.82 20.4 C 149 167 Intersection - 19.7 B - - - 24.5 C - - EB-L (1) 0.13 18.4 B 11 28 0.16 15.5 B 15 34 EB-TR (1) 0.56 34.8 C 123 199 0.99 65.2 E 395 596 WB-L (1) 0.51 25.2 C 67 115 0.50 23.6 C 32 62 S Union Street & WB-TR (1) 0.84 46.1 D 250 448 0.72 32.4 C 248 414 East Avenue NB-L (1) 0.82 76.0 E 69 187 0.41 47.7 D 30 48 Signalized NB-TR (2) 0.59 22.2 C 166 247 0.95<	S Union Street &	NB-L (1)	0.59	35.7	D	70	153	0.39	38.0	D	43	69
Intersection - 19.7 B - - 24.5 C - - EB-L (1) 0.13 18.4 B 11 28 0.16 15.5 B 15 34 EB-TR (1) 0.56 34.8 C 123 199 0.99 65.2 E 395 596 65.2 E	E Broad Street	NB-T (1)	0.49	4.7	Α	70	272	0.61	12.0	В	232	340
EB-L (1) 0.13 18.4 B 11 28 0.16 15.5 B 15 34 EB-TR (1) 0.56 34.8 C 123 199 0.99 65.2 E 395 596 WB-L (1) 0.51 25.2 C 67 115 0.50 23.6 C 32 62 S Union Street & WB-TR (1) 0.84 46.1 D 250 448 0.72 32.4 C 248 414 East Avenue NB-L (1) 0.82 76.0 E 69 187 0.41 47.7 D 30 48 Signalized NB-TR (2) 0.59 22.2 C 166 247 0.95 43.2 D 190 315 SB-L (1) 0.58 19.2 B 66 110 0.93 60.7 E 89 237 SB-T (1) 0.89 55.6 E 265 448 0.97 69.4 E 264 455 Intersection - 37.6 D - - 50.5 D - -	Signalized	SB-T (1)	0.91	27.8	С	136	478	0.82	20.4		149	167
EB-TR (1) 0.56 34.8 C 123 199 0.99 65.2 E 395 596 WB-L (1) 0.51 25.2 C 67 115 0.50 23.6 C 32 62 S Union Street & WB-TR (1) 0.84 46.1 D 250 448 0.72 32.4 C 248 414 East Avenue NB-L (1) 0.82 76.0 E 69 187 0.41 47.7 D 30 48 Signalized NB-TR (2) 0.59 22.2 C 166 247 0.95 43.2 D 190 319 SB-L (1) 0.58 19.2 B 66 110 0.93 60.7 E 89 23 SB-T (1) 0.89 55.6 E 265 448 0.97 69.4 E 264 458 Intersection - 37.6 D - - 50.5 D - -		Intersection	-	19.7	В	-	-	-	24.5	С	-	-
WB-L (1) 0.51 25.2 C 67 115 0.50 23.6 C 32 62 S Union Street & WB-TR (1) 0.84 46.1 D 250 448 0.72 32.4 C 248 414 East Avenue NB-L (1) 0.82 76.0 E 69 187 0.41 47.7 D 30 48 Signalized NB-TR (2) 0.59 22.2 C 166 247 0.95 43.2 D 190 316 SB-L (1) 0.58 19.2 B 66 110 0.93 60.7 E 89 23° SB-T (1) 0.89 55.6 E 265 448 0.97 69.4 E 264 450 Intersection - 37.6 D - - - 50.5 D -		EB-L (1)	0.13	18.4	В	11	28	0.16	15.5	В	15	34
S Union Street & East Avenue WB-TR (1) 0.84 46.1 D 250 448 0.72 32.4 C 248 412 East Avenue NB-L (1) 0.82 76.0 E 69 187 0.41 47.7 D 30 48 Signalized NB-TR (2) 0.59 22.2 C 166 247 0.95 43.2 D 190 315 SB-L (1) 0.58 19.2 B 66 110 0.93 60.7 E 89 23° SB-T (1) 0.89 55.6 E 265 448 0.97 69.4 E 264 450 Intersection - 37.6 D - - - 50.5 D - -		EB-TR (1)	0.56	34.8	С	123	199	0.99	65.2	E	395	596
East Avenue NB-L (1) 0.82 76.0 E 69 187 0.41 47.7 D 30 48 Signalized NB-TR (2) 0.59 22.2 C 166 247 0.95 43.2 D 190 319 SB-L (1) 0.58 19.2 B 66 110 0.93 60.7 E 89 23° SB-T (1) 0.89 55.6 E 265 448 0.97 69.4 E 264 450 Intersection - 37.6 D - - - 50.5 D -		WB-L (1)	0.51	25.2	С	67	115	0.50	23.6	С	32	62
Signalized NB-TR (2) 0.59 22.2 C 166 247 0.95 43.2 D 190 319 SB-L (1) 0.58 19.2 B 66 110 0.93 60.7 E 89 23° SB-T (1) 0.89 55.6 E 265 448 0.97 69.4 E 264 450 Intersection - 37.6 D - - - 50.5 D -	S Union Street &	WB-TR (1)	0.84	46.1	D	250	448	0.72	32.4	С	248	414
SB-L (1) 0.58 19.2 B 66 110 0.93 60.7 E 89 23° SB-T (1) 0.89 55.6 E 265 448 0.97 69.4 E 264 450 Intersection - 37.6 D - - - 50.5 D -	East Avenue	NB-L (1)	0.82	76.0	E	69	187	0.41	47.7	D	30	48
SB-T (1) 0.89 55.6 E 265 448 0.97 69.4 E 264 458	Signalized	NB-TR (2)	0.59	22.2	С	166	247	0.95	43.2	D	190	319
Intersection -		SB-L (1)	0.58	19.2	В	66	110	0.93	60.7	Е	89	231
		SB-T (1)	0.89	55.6	E	265	448	0.97	69.4	E	264	459
v/c ratio = volume/capacity ratio		Intersection		37.6	D	-	-	-	50.5	D	-	-
Source: Synchro 8/SimTraffic	v/c ratio = volume/capacity ratio											

Cycle Track Visibility

As the two-way cycle track will be the first in the region, for each of the options outlined above, several items should be considered to maximize cycle track visibility.

- Initiate a local educational campaign on different bicycle facilities and their use. This corridor will
 have a variety of bicycle facilities (cycle track, bike lanes, contra-flow lanes, bike boxes, and
 two-stage turning queue boxes). Public service announcements, news coverage and website
 information should be considered. Collaboration with a bicycle advocacy group would be ideal
 in reaching out to users involved in local bicycling clubs.
- Install temporary signs to warn all motorists of new facilities for the initial few months upon opening of the facility, similar to when a new traffic signal is installed.
- Higher order of Intersection crossing markings consisting of shared lane markings, colored
 conflict area, or elephant's feet markings may be used to contrast with the adjacent pedestrian
 area or to increase the visibility of the cycle track in the conflict areas (intersection approaches
 and crossings). This raises awareness for both bicyclists and motorists. These treatments reinforce
 that through bicyclists have priority over turning vehicles or vehicle entering the roadway.
- Provide supplemental signs (temporary or permanent) "yield to bikes" at appropriate locations along the corridor. This maybe at intersections, at side streets, or at major driveway crossings of the cycle track.



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Reference: Inner Loop – Cycle Track - Traffic Signal Operations

Cycle track may be shifted more closely to the travel lanes on the minor street intersection
approaches to put bicyclists clearly in the field of view of motorists.

Again, the introduction of a two-way cycle track in the Union Street corridor will be the first in the region, the use and volume of bicycles and pedestrian traffic may not materialize for some time as potential growth and development occurs in the general area. At some point in the future, when and if volume and operational conflicts arise, additional more restricted intersection controls and operations can be instituted. These include:

<u>Provision of Right Turn Lanes</u> - As identified above, the option to provide right turn lanes in combination with fully protected signal phasing for right and left turning vehicles was considered. Provision of right turn lanes at each of the three intersections is possible with minor adjustments to the curb/parking lane. The right turn lanes do not have to be long, just of adequate length to provide restrictive arrow during the pedestrian lead phase on the side street. It is anticipated that provision of right turn lanes at the three intersections would eliminate some parking spaces. A couple of the movements would still operate with high volume/ capacity ratios during only the evening peak hour; however, overall acceptable levels of service.

		Protected Left and Right-Turn Movements									
			AN	l Peak H	our			PM	l Peak H	our	
				Level	50th	95th			Level	50th	95th
	LANE	V/C		of	Queue	Queue	V/C		of	Queue	Queue
Intersection	GROUP	Ratio	Delay	Service	(ft)	(ft)	Ratio	Delay	Service	(ft)	(ft)
	EB-L (1)	0.73	50.3	D	143	222	0.54	53.8	D	61	113
	EB-TR (1)	0.63	21.5	С	216	292	0.55	25.9	С	172	262
	WB-T (2)	0.38	34.4	С	85	119	0.74	40.2	D	213	281
Inner Loop/Howell Street &	WB-R (1)	0.33	42.6	D	41	79	0.08	35.1	D	12	34
Chestnut Street/Monroe Avenue	NB-L (1)	0.45	21.5	С	50	112	0.94	68.3	E	159	301
Signalized	NB-TR (1)	0.58	22.4	С	132	255	0.40	18.4	В	124	262
	SB-L (1)	0.24	33.7	С	30	68	0.10	23.8	С	14	37
	SB-T (1)	0.56	37.6	D	151	241	0.89	49.6	D	337	535
	SB-R (1)	0.20	0.3	Α	0	0	0.85	6.6	Α	0	0
	Intersection	-	26.2	С			-	28.2	С	-	-
	EB-L (1)	0.37	39.3	D	48	90	0.76	42.6	D	174	246
	EB-R (1)	0.21	36.3	D	21	48	0.54	34.5	С	90	143
S Union Street &	NB-L (1)	0.59	34.0	С	76	134	0.39	35.0	С	36	64
E Broad Street	NB-T (1)	0.49	5.2	Α	137	295	0.63	14.1	В	296	420
Signalized	SB-T (1)	0.42	6.6	Α	42	78	0.59	9.8	Α	86	106
	SB-R (1)	0.42	12.2	В	39	78	0.11	8.4	Α	10	16
	Intersection	-	12.1	В	-	-	-	20.0	В	-	-
	EB-L (1)	0.11	16.4	В	10	26	0.15	14.8	В	14	33
	EB-TR (1)	0.55	33.7	С	121	196	0.98	63.6	E	392	596
	WB-L (1)	0.46	21.2	С	63	108	0.45	21.1	С	31	61
S Union Street &	WB-TR (1)	0.78	39.4	D	240	424	0.71	31.9	С	248	414
East Avenue	NB-L (1)	0.66	59.0	E	68	150	0.41	49.2	D	33	49
Signalized	NB-TR (2)	0.61	21.1	С	177	107	0.98	47.2	D	205	421
	SB-L (1)	0.66	25.0	С	72	130	0.95	66.7	Е	91	241
	SB-T (1)	0.77	38.1	D	236	389	0.67	32.6	С	218	329
	SB-R (1)	0.10	27.3	С	17	42	0.08	26.3	С	39	25
	Intersection	-	31.5	С	-	-	-	46.1	D	-	-
//c ratio = volume/capacity ratio											-



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Reference: Inner Loop – Cycle Track - Traffic Signal Operations

<u>Bicycle Signals</u> - When and if cycle track volume and increased conflicts occur, full bicycle signals could be considered at the three intersections. Bicycle signals are typically used to improve identified safety or operational problems involving bicycle facilities or to provide guidance for bicyclist at intersections where they may have different needs from other road users (e.g., bicycle only movements, leading bicycle intervals). Bicycle signals separates bicycle movements from conflicting motor vehicle, or pedestrian movement and provides priority to bicycle movements at intersection. This protects bicyclists in the intersection, which may improve real and perceived safety at high-conflict areas. This also provides improved operation and provides appropriate information for bicyclists. While a dedicated bicycle signal is generally desirable from a safety point of view, an added signal phase lengthens the overall cycle length and exacerbates delay for all users. Bicycle signals and bicycle phases are common in heavy bicycle use corridors in cities such as Washington, DC, New York, NY, Portland, OR, San Francisco, CA and other major metropolitan cities.

Summary

- The introduction of a two-way cycle track along the Union Street corridor will require careful attention to maximize visibility of all users at the crossings and minimize conflicts.
- The contra-flow bike approach is the critical/vulnerable movement at the crossing locations.
- Various signal phasing sequences are identified to address this movement, with the
 Protected Left Turn Phasing option providing the greatest level of conflict avoidance. While
 intersection operations during the peak hour may not be as desirable, minimizing conflicts is
 important.
- Various communities across the country have chosen to realign their performance measures
 with broader aims, including economic, growth, public health, sustainability and mode shift.
 What this means is that communities are moving away from Level of Service (LOS) being the
 only performance measure in urban settings.
- Additional considerations to improve cycle track visibility will be incorporated in the design.
- Right turning vehicle movements conflicts are still possible with the current design and can
 be addressed only with the addition of more restrictive intersection operations, the addition
 of right turn lanes, or the additional of bicycle signals/phasing. These treatments are possible
 and can be considered as growth occurs in the corridor.

We hope this information is helpful in determining the phasing sequence at the noted intersections.

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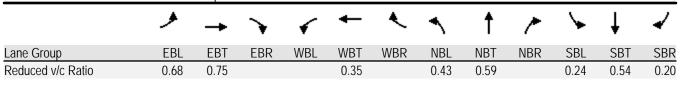
Attachments: Capacity Analysis Printouts

	-	•	•	•	_	1	Ť	_	-	¥	4
Lane Group EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ą.			∱ }		ሻ	f)		*	†	7
Volume (vph) 229	303	167	0	274	66	168	435	1	56	258	293
Ideal Flow (vphpl) 1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft) 200		0	100		250	250		0	100		0
Storage Lanes 1		0	0		1	1		0	1		1
Taper Length (ft) 75		J	75		·	75		J	75		·
Right Turn on Red		Yes	, 0		No	, 0		Yes	70		Yes
Link Speed (mph)	30	100		30	110		30	100		30	100
Link Distance (ft)	973			457			741			768	
Travel Time (s)	22.1			10.4			16.8			17.5	
Confl. Peds. (#/hr) 30	22.1	30	30	10.4	30	22	10.0	10	10	17.5	22
Confl. Bikes (#/hr)		30	30		20	22		10	10		22
Peak Hour Factor 0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%) 8%	8%	8%	8%	8%	8%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)	070	070	070	070	070	270	270	270	270	270	270
Lane Group Flow (vph) 241	495	0	0	357	0	177	459	0	59	272	308
Turn Type custom	NA	U	U	NA	U	pm+pt	NA	U	Perm	NA	Free
Protected Phases 7	4 7			8		рит+рі 5	2		r Cilli	6	1166
Permitted Phases 4	4 /			0		2	Z		4	Ü	Free
	47			8		5	2		6	6	riee
20100101 1 11400	4 /			Ö		5	2		0	0	
Switch Phase				10.0		7.0	10.0		10.0	10.0	
Minimum Initial (s) 5.0				10.0		7.0	10.0		10.0	10.0	
Minimum Split (s) 11.5				22.5		12.0	23.5		23.5	23.5	
Total Split (s) 12.0				34.0		12.0	38.0		26.0	26.0	
Total Split (%) 13.3%				37.8%		13.3%	42.2%		28.9%	28.9%	
Yellow Time (s) 3.5				3.5		3.0	3.5		3.5	3.5	
All-Red Time (s) 3.0				3.0		2.0	3.0		3.0	3.0	
Lost Time Adjust (s) -1.5				-1.5		-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s) 5.0				5.0		3.5	5.0		5.0	5.0	
Lead/Lag						Lead			Lag	Lag	
Lead-Lag Optimize?						Yes			Yes	Yes	
Recall Mode None				Min		None	C-Max		C-Max	C-Max	
Act Effct Green (s) 31.5	31.5			24.5		39.0	37.5		24.4	24.4	90.0
Actuated g/C Ratio 0.35	0.35			0.27		0.43	0.42		0.27	0.27	1.00
v/c Ratio 0.68	0.85			0.41		0.43	0.59		0.24	0.54	0.20
Control Delay 27.4	36.0			18.7		19.2	22.0		31.2	34.2	0.3
Queue Delay 0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay 27.4	36.0			18.7		19.2	22.0		31.2	34.2	0.3
LOS C	D			В		В	С		С	С	Α
Approach Delay	33.2			18.7			21.2			17.6	
Approach LOS	С			В			С			В	
Queue Length 50th (ft) 78	182			32		46	126		28	139	0
Queue Length 95th (ft) 119	265			66		m97	250		63	223	0
Internal Link Dist (ft)	893			377			661			688	
Turn Bay Length (ft) 200						250			100		
Base Capacity (vph) 353	664			1030		414	776		248	504	1554
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

Rochester Inner Loop 2035 AM Peak Hour Optimized Stantec

Lane Group	ø4	ø11
Lane Configurations		
Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Right Turn on Red		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	4	11
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	10.0	4.0
Minimum Split (s)	22.5	6.0
Total Split (s)	34.0	6.0
Total Split (%)	38%	7%
Yellow Time (s)	3.5	2.0
All-Red Time (s)	3.0	0.0
Lost Time Adjust (s)	0.0	0.0
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	Min	Mov
	Min	Max
Act Effet Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		
- Corago Oup Moducin		

Rochester Inner Loop 2035 AM Peak Hour Optimized Stantec



Intersection Summary

Area Type: Other

Cycle Length: 90 Actuated Cycle Length: 90

Offset: 4 (4%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

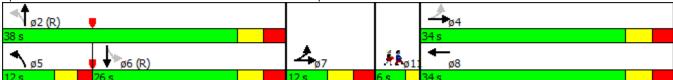
Maximum v/c Ratio: 0.85

Intersection Signal Delay: 23.6 Intersection LOS: C
Intersection Capacity Utilization 72.8% ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Monroe Ave/Chestnut Street & Inner Loop/Howell St



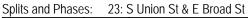
G-3

Reduced v/c Ratio	
Intersection Summary	

	ʹ	•	4	†	ļ	4			
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	ø11	
Lane Configurations	ሻ	7	ሻ	<u></u>	f)				
Volume (vph)	81	36	168	653	396	209			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Storage Length (ft)	0	0	100			0			
Storage Lanes	1	1	1			0			
Taper Length (ft)	25		75						
Right Turn on Red		No				No			
Link Speed (mph)	30			30	30				
Link Distance (ft)	134			240	437				
Travel Time (s)	3.0			5.5	9.9				
Confl. Peds. (#/hr)		34	30			30			
Confl. Bikes (#/hr)						20			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90			
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	90	40	187	726	672	0			
Turn Type	NA	Perm	custom	NA	NA				
Protected Phases	4		5	25	6		2	11	
Permitted Phases		4	2						
Detector Phase	4	4	5	25	6				
Switch Phase									
Minimum Initial (s)	10.0	10.0	5.0		20.0		20.0	4.0	
Minimum Split (s)	24.5	24.5	10.5		25.5		25.5	6.0	
Total Split (s)	25.0	25.0	11.0		48.0		48.0	6.0	
Total Split (%)	27.8%	27.8%	12.2%		53.3%		53%	7%	
Yellow Time (s)	3.5	3.5	3.5		3.5		3.5	2.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	0.0	
Lost Time Adjust (s)	-1.5	-1.5	-1.5		-1.5				
Total Lost Time (s)	4.0	4.0	4.0		4.0				
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None		C-Max		C-Max	Max	
Act Effct Green (s)	12.6	12.6	57.8	58.6	44.0				
Actuated g/C Ratio	0.14	0.14	0.64	0.65	0.49				
v/c Ratio	0.37	0.21	0.44	0.61	0.83				
Control Delay	39.3	36.3	9.2	7.4	21.8				
Queue Delay	0.0	0.0	0.0	0.0	0.1				
Total Delay	39.3	36.3	9.2	7.4	21.9				
LOS	D	D	Α	Α	С				
Approach Delay	38.4			7.8	21.9				
Approach LOS	D			Α	С				
Queue Length 50th (ft)	48	21	15	30	154				
Queue Length 95th (ft)	90	49	m45	187	#510				
Internal Link Dist (ft)	54			160	357				
Turn Bay Length (ft)			100						
Base Capacity (vph)	405	326	427	1189	813				
Starvation Cap Reductn	0	0	0	0	5				
Spillback Cap Reductn	0	0	0	0	0				
Storage Cap Reductn	0	0	0	0	0				

Rochester Inner Loop 2035 AM Peak Hour Optimized Stantec

	٠	•	4	†	↓	4						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	ø11				
Reduced v/c Ratio	0.22	0.12	0.44	0.61	0.83							
Intersection Summary												
Area Type:	Other											
Cycle Length: 90												
Actuated Cycle Length: 90												
Offset: 87 (97%), Referenced to phase 2:NBTL and 6:SBT, Start of Green												
Natural Cycle: 80												
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.83												
Intersection Signal Delay: 1	15.6			Int	ersection	LOS: B						
Intersection Capacity Utiliz	ation 67.2%			IC	U Level c	of Service (2					
Analysis Period (min) 15												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												
m Volume for 95th perce	ntile queue is	s metered	d by upstr	eam signa	al.							





	٠	→	•	•	+	•	1	†	<i>></i>	/	+	✓
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	f a		*	f a		ሻ	↑ ↑		ች	f)	
Volume (vph)	28	191	35	160	331	78	124	532	78	198	410	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	.,	0	175	.,	0	100	.,00	0	250		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	75			75		, ,	75			75		J
Right Turn on Red	70		No	, 0		Yes	, 0		Yes	, 0		No
Link Speed (mph)		30	110		30	103		30	103		30	110
Link Distance (ft)		148			496			437			655	
Travel Time (s)		3.4			11.3			9.9			14.9	
Confl. Peds. (#/hr)	59	5.4	15	15	11.5	59	23	7.7	29	29	17.7	23
Confl. Bikes (#/hr)	37		13	10		37	23		2,	2,		20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Shared Lane Traffic (%)	4 70	470	470	4 70	4 70	470	370	370	370	4 70	470	4 70
Lane Group Flow (vph)	31	251	0	178	455	0	138	678	0	220	494	0
Turn Type	pm+pt	NA	U	pm+pt	NA	U	Perm	NA	U	pm+pt	NA	U
Protected Phases	ριτι - ρι 7	4		3	8		r Cilli	2		ριτι - μι	6	
Permitted Phases	4	4		8	O		2	2		6	U	
Detector Phase	7	4		3	8		2	2		1	6	
Switch Phase	1	4		3	0		2	Z		1	Ü	
Minimum Initial (s)	5.0	20.0		5.0	20.0		20.0	20.0		5.0	20.0	
Minimum Split (s)	10.0	28.0		10.0	28.0		25.5	25.5		10.0	25.5	
	10.0	29.0		10.0	29.0		41.0	41.0		10.0	41.0	
Total Split (s)	11.1%	32.2%		11.1%	32.2%		45.6%	45.6%		11.1%	45.6%	
Total Split (%) Yellow Time (s)	3.0	3.5		3.0	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.5		2.0	2.5		2.0	2.0		2.0	2.0	
` ,	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5		-1.5	-1.5	
Lost Time Adjust (s)	3.5	4.5		3.5	4.5					3.5	4.0	
Total Lost Time (s)							4.0	4.0		3.3	4.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize? Recall Mode	Yes	Yes Min		Yes	Yes		C-Max	C-Max		Mono	C-Max	
Act Effct Green (s)	None 30.8	23.3		None 32.2	Min 27.3		37.0	37.0		None 45.2	37.0	
` '	0.34	0.26		0.36	0.30					0.50	0.41	
Actuated g/C Ratio	0.34	0.26		0.50	0.85		0.41 0.74	0.41 0.49		0.50	0.41	
v/c Ratio Control Delay	18.5	33.7		25.8	46.3		40.1	13.5		20.5	27.1	
,		0.0		0.0	0.0			0.0			0.3	
Queue Delay	0.0 18.5	33.7		25.8	46.3		0.0 40.1	13.5		0.0 20.5	27.4	
Total Delay LOS	16.3 B	33.7 C		23.6 C	40.3 D					20.5 C		
Approach Delay	Б	32.0		C	40.5		D	B 18.0		C	C 25.3	
		32.0 C			40.5 D			16.0 B			25.5 C	
Approach LOS Queue Length 50th (ft)	11	121		67	246		43	103		64	223	
Queue Length 95th (ft)	28	196		115	#436		m#162	132		106	336	
Internal Link Dist (ft)	20	68		113	416		111# 102	357		100	575	
` '		00		175	410		100	337		250	373	
Turn Bay Length (ft)	22/	402		175 344	EOO		100	1201		250	724	
Base Capacity (vph)	226	482			538		186	1381		361	736	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	35	
Storage Cap Reductn	0	0		0	0		0	0		0	0	

Rochester Inner Loop 2035 AM Peak Hour Optimized Stantec

Lane Group	ø11	
Lane Configurations	ווע	
Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Right Turn on Red		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	11	
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	4.0	
Minimum Split (s)	6.0	
Total Split (s)	10.0	
Total Split (%)	11%	
Yellow Time (s)	2.0	
All-Red Time (s)	0.0	
Lost Time Adjust (s)		
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	Max	
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductin		
Storage Cap Neudolli		

Rochester Inner Loop 2035 AM Peak Hour Optimized Stantec

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.14	0.52		0.52	0.85		0.74	0.49		0.61	0.70	

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 27.6 Intersection Capacity Utilization 81.4% ICU Level of Service D

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: S Union St & East Ave



Lane Group ø11	
Reduced v/c Ratio	
Intersection Summary	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ĵ»			∱ }		ሻ	f)		ሻ	†	7
Volume (vph)	94	276	84	0	641	21	263	340	15	31	536	1285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	100		250	250		0	100		0
Storage Lanes	1		0	0		1	1		0	1		1
Taper Length (ft)	75			75			75			75		
Right Turn on Red			Yes			No			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		973			457			741			768	
Travel Time (s)		22.1			10.4			16.8			17.5	
Confl. Peds. (#/hr)	30		30	30		30	14		41	41		
Confl. Bikes (#/hr)						20						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	99	379	0	0	697	0	277	374	0	33	564	1353
Turn Type	custom	NA	ŭ		NA	ŭ	pm+pt	NA	ŭ	Perm	NA	Free
Protected Phases	7	4 7			8		5	2			6	
Permitted Phases	4						2	_		6		Free
Detector Phase	7	4 7			8		5	2		6	6	
Switch Phase	•							_		J		
Minimum Initial (s)	5.0				10.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	11.5				22.5		12.0	23.5		23.5	23.5	
Total Split (s)	12.0				26.0		16.0	56.0		40.0	40.0	
Total Split (%)	12.0%				26.0%		16.0%	56.0%		40.0%	40.0%	
Yellow Time (s)	3.5				3.5		3.0	3.5		3.5	3.5	
All-Red Time (s)	3.0				3.0		2.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.5				-1.5		-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)	5.0				5.0		3.5	5.0		5.0	5.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Recall Mode	None				Min		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	28.0	28.0			21.0		52.5	51.0		35.0	35.0	100.0
Actuated g/C Ratio	0.28	0.28			0.21		0.52	0.51		0.35	0.35	1.00
v/c Ratio	0.50	0.76			0.95		0.89	0.40		0.10	0.87	0.85
Control Delay	29.9	39.1			44.0		54.3	13.7		23.1	45.7	6.6
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	29.9	39.1			44.0		54.3	13.7		23.1	45.7	6.6
LOS	С	D			D		D	В		С	D	Α
Approach Delay		37.2			44.0			31.0			18.2	
Approach LOS		D			D			С			В	
Queue Length 50th (ft)	40	177			217		100	90		14	332	0
Queue Length 95th (ft)	75	#282			m#301		#272	150		36	#523	0
Internal Link Dist (ft)		893			377			661			688	
Turn Bay Length (ft)	200						250			100		
Base Capacity (vph)	197	501			737		312	940		326	652	1583
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	0.76			0.95		0.89	0.40		0.10	0.87	0.85

Rochester Inner Loop 2035 PM Peak Hour Optimized Stantec

2: Monroe	Ave/Chestnut	Street &	Inner	Loop/How	ell St

Lane Group	ø4	ø11	
LaneConfigurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Right Turn on Red			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	4	11	
Permitted Phases	4	11	
Detector Phase			
Switch Phase			
Minimum Initial (s)	10.0	4.0	
	10.0		
Minimum Split (s)	22.5	6.0	
Total Split (s)	26.0	6.0	
Total Split (%)	26%	6%	
Yellow Time (s)	3.5 3.0	2.0	
All-Red Time (s)	3.0	0.0	
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag			
Lead-Lag Optimize?	N //:	Mari	
Recall Mode	Min	Max	
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn			
Storage Cap Reductn			
Reduced v/c Ratio			

Rochester Inner Loop 2035 PM Peak Hour Optimized Stantec

Area Type: Other

Cycle Length: 100

Actuated Cycle Length: 100

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95 Intersection Signal Delay: 27.6 Intersection Capacity Utilization 82.3%

Intersection LOS: C

ICU Level of Service E

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Monroe Ave/Chestnut Street & Inner Loop/Howell St



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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	ø11	
Lane Configurations	ሻ	7	ሻ	<u></u>	7	02.1	~=	~	
Volume (vph)	290	161	65	673	510	60			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Storage Length (ft)	0	0	100	1700	1700	0			
Storage Lanes	1	1	100			0			
Taper Length (ft)	25		75			U			
Right Turn on Red	23	No	73			No			
Link Speed (mph)	30	INO		30	30	INO			
Link Distance (ft)	134			240	437				
Travel Time (s)	3.0			5.5	9.9				
Confl. Peds. (#/hr)	3.0	43	30	5.5	9.9	30			
` '		43	30			20			
Confl. Bikes (#/hr)	0.07	0.07	0.07	0.07	0.07				
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86			
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%			
Shared Lane Traffic (%)	007	407	7.	700	//0	0			
Lane Group Flow (vph)	337	187	76	783	663	0			
Turn Type	NA	Perm	custom	NA	NA				
Protected Phases	4		5	2 5	6		2	11	
Permitted Phases		4	2						
Detector Phase	4	4	5	2 5	6				
Switch Phase									
Minimum Initial (s)	10.0	10.0	5.0		20.0		20.0	4.0	
Minimum Split (s)	24.5	24.5	10.5		25.5		25.5	6.0	
Total Split (s)	32.0	32.0	11.0		51.0		51.0	6.0	
Total Split (%)	32.0%	32.0%	11.0%		51.0%		51%	6%	
Yellow Time (s)	3.5	3.5	3.5		3.5		3.5	2.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	0.0	
Lost Time Adjust (s)	-1.5	-1.5	-1.5		-1.5				
Total Lost Time (s)	4.0	4.0	4.0		4.0				
Lead/Lag									
Lead-Lag Optimize?									
Recall Mode	None	None	None		C-Max		C-Max	Max	
Act Effct Green (s)	24.4	24.4	57.6	57.6	47.0				
Actuated g/C Ratio	0.24	0.24	0.58	0.58	0.47				
v/c Ratio	0.78	0.56	0.22	0.72	0.78				
Control Delay	48.2	39.2	9.4	18.3	16.9				
Queue Delay	0.0	0.0	0.0	0.0	0.4				
Total Delay	48.2	39.2	9.4	18.3	17.3				
LOS	D	D	Α	В	В				
Approach Delay	45.0			17.5	17.3				
Approach LOS	D			В	В				
Queue Length 50th (ft)	198	103	14	174	150				
Queue Length 95th (ft)	272	159	m30	352	m175				
Internal Link Dist (ft)	54			160	357				
Turn Bay Length (ft)			100						
Base Capacity (vph)	495	385	346	1083	850				
Starvation Cap Reductn	0	0	0	0	25				
Spillback Cap Reductn	0	0	0	0	0				
Storage Cap Reductn	0	0	0	0	0				

Rochester Inner Loop 2035 PM Peak Hour Optimized Stantec

	۶	\rightarrow	4	†	ļ	✓			
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	ø11	
Reduced v/c Ratio	0.68	0.49	0.22	0.72	0.80				
Intersection Summary									
Area Type:	Other								
Cycle Length: 100									
Actuated Cycle Length: 10	00								
Offset: 92 (92%), Reference	ced to phase	2:NBTL a	and 6:SBT	, Start of	Green				
Natural Cycle: 75									
Control Type: Actuated-Co	oordinated								
Maximum v/c Ratio: 0.78									
Intersection Signal Delay:	24.5			In	tersection	LOS: C			
Intersection Capacity Utilization 61.0% ICU Level of Service B									
Analysis Period (min) 15									
m Volume for 95th percentile queue is metered by upstream signal.									

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Lane Group E	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	f)		ሻ	ĵ.		ሻ	↑ ↑		ሻ	1>	
Volume (vph)	42	470	88	90	367	72	50	668	245	229	392	31
	900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	175		0	100		0	250		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Right Turn on Red			No			Yes			Yes			No
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		148			496			437			655	
Travel Time (s)		3.4			11.3			9.9			14.9	
Confl. Peds. (#/hr)	27		50	50		27	62		27	27		62
Confl. Bikes (#/hr)												20
	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	47	620	0	100	488	0	56	1014	0	254	470	0
	n+pt	NA		pm+pt	NA		Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4			8	Ū		2	_		6	J	
Detector Phase	7	4		3	8		2	2		1	6	
Switch Phase	•			J	Ū		_	_			J	
	5.0	20.0		5.0	20.0		20.0	20.0		5.0	20.0	
` '	10.0	28.0		10.0	28.0		25.5	25.5		10.0	25.5	
	10.0	39.0		10.0	39.0		37.0	37.0		14.0	37.0	
	.0%	39.0%		10.0%	39.0%		37.0%	37.0%		14.0%	37.0%	
Yellow Time (s)	3.0	3.5		3.0	3.5		3.5	3.5		3.0	3.5	
All-Red Time (s)	2.0	2.5		2.0	2.5		2.0	2.0		2.0	2.0	
	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5		-2.0	-1.5	
Total Lost Time (s)	3.5	4.5		3.5	4.5		4.0	4.0		3.0	4.0	
• , ,	ead	Lag		Lead	Lag							
	Yes	Yes		Yes	Yes							
	one	Min		None	Min		C-Max	C-Max		None	C-Max	
	12.2	36.0		42.9	38.0		33.0	33.0		45.5	33.0	
` ').42	0.36		0.43	0.38		0.33	0.33		0.46	0.33	
	0.17	0.97		0.54	0.71		0.54	0.90		0.89	0.79	
	16.8	62.2		27.5	33.9		42.1	35.4		53.5	41.8	
3	0.0	0.0		0.0	0.0		0.0	2.3		0.0	0.2	
	16.8	62.2		27.5	33.9		42.1	37.7		53.5	42.0	
LOS	В	E		С	С		D	D		D	D	
Approach Delay		59.0		Ţ,	32.9			38.0			46.0	
Approach LOS		E			С			D			D	
Queue Length 50th (ft)	16	~399		36	271		23	182		109	280	
Queue Length 95th (ft)	37	#630		68	#413		m40	#295		#259	#426	
Internal Link Dist (ft)		68			416			357			575	
Turn Bay Length (ft)				175			100			250		
	282	640		184	683		103	1127		285	597	
Starvation Cap Reductn	0	0		0	0		0	47		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	7	
Storage Cap Reductn	0	0		0	0		0	0		0	0	

Rochester Inner Loop 2035 PM Peak Hour Optimized Stantec

Lane Group	ø11		
	שוו		
Lane Configurations			
Volume (vph)			
Ideal Flow (vphpl)			
Storage Length (ft)			
Storage Lanes			
Taper Length (ft)			
Right Turn on Red			
Link Speed (mph)			
Link Distance (ft)			
Travel Time (s)			
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor			
Heavy Vehicles (%)			
Shared Lane Traffic (%)			
Lane Group Flow (vph)			
Turn Type			
Protected Phases	11		
Permitted Phases			
Detector Phase			
Switch Phase			
Minimum Initial (s)	4.0		
Minimum Split (s)	6.0		
Total Split (s)	14.0		
Total Split (%)	14%		
Yellow Time (s)	2.0		
All-Red Time (s)	0.0		
Lost Time Adjust (s)			
Total Lost Time (s)			
Lead/Lag			
Lead-Lag Optimize?			
Recall Mode	Max		
Act Effct Green (s)			
Actuated g/C Ratio			
v/c Ratio			
Control Delay			
Queue Delay			
Total Delay			
LOS			
Approach Delay			
Approach LOS			
Queue Length 50th (ft)			
Queue Length 95th (ft)			
Internal Link Dist (ft)			
Turn Bay Length (ft)			
Base Capacity (vph)			
Starvation Cap Reductn			
Spillback Cap Reductn Storage Cap Reductn			
Siciage Cap Reductif			

Rochester Inner Loop 2035 PM Peak Hour Optimized Stantec

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.17	0.97		0.54	0.71		0.54	0.94		0.89	0.80	

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

Offset: 96 (96%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.97

Intersection Signal Delay: 43.5 Intersection LOS: D
Intersection Capacity Utilization 89.1% ICU Level of Service E

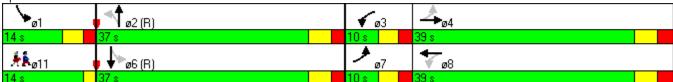
Analysis Period (min) 15

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

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: S Union St & East Ave



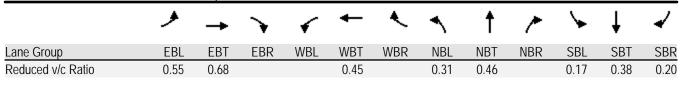
Lane Group	ø11
Reduced v/c Ratio	
Intersection Summary	

	۶	→	•	•	←	•	1	†	<i>></i>	\	 	√
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ĵ.			∱ }		ች	f)		*	†	7
Volume (vph)	229	303	167	0	274	66	168	435	1	56	258	293
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	100	.,	250	250		0	100	.,	0
Storage Lanes	1		0	0		1	1		0	1		1
Taper Length (ft)	75		Ü	75		•	75		, ,	75		· ·
Right Turn on Red	70		Yes	70		No	70		Yes	70		Yes
Link Speed (mph)		30	103		30	110		30	103		30	103
Link Distance (ft)		973			457			741			768	
Travel Time (s)		22.1			10.4			16.8			17.5	
Confl. Peds. (#/hr)	30	22.1	30	30	10.4	30	22	10.0	10	10	17.5	22
Confl. Bikes (#/hr)	30		30	30		20	22		10	10		22
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
	8%	8%	8%	8%	8%	8%	2%	2%	2%	2%	2%	2%
Heavy Vehicles (%)	870	870	870	870	870	870	270	270	270	270	2%	270
Shared Lane Traffic (%)	241	405	0	0	257	0	177	450	0	ΓO	272	200
Lane Group Flow (vph)	241	495	0	0	357	0	177	459	0	59	272	308
Turn Type	pm+pt	NA			NA		pm+pt	NA		Perm	NA	Free
Protected Phases	7	4			8		5	2		,	6	_
Permitted Phases	4				0		2	0		6	,	Free
Detector Phase	7	4			8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	10.0			10.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	10.5	22.5			22.5		12.0	23.5		23.5	23.5	
Total Split (s)	19.0	49.0			30.0		13.0	45.0		32.0	32.0	
Total Split (%)	19.0%	49.0%			30.0%		13.0%	45.0%		32.0%	32.0%	
Yellow Time (s)	3.5	3.5			3.5		3.0	3.5		3.5	3.5	
All-Red Time (s)	2.0	3.0			3.0		2.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.5	-1.5			-1.5		-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)	4.0	5.0			5.0		3.5	5.0		5.0	5.0	
Lead/Lag	Lag				Lead		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes				Yes		Yes			Yes	Yes	
Recall Mode	None	Min			Min		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	37.2	36.2			17.9		55.3	53.8		38.6	38.6	100.0
Actuated g/C Ratio	0.37	0.36			0.18		0.55	0.54		0.39	0.39	1.00
v/c Ratio	0.59	0.82			0.63		0.31	0.46		0.17	0.38	0.20
Control Delay	34.2	38.2			30.0		10.1	13.9		26.6	26.9	0.3
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	34.2	38.2			30.0		10.1	13.9		26.6	26.9	0.3
LOS	С	D			С		В	В		С	С	Α
Approach Delay		36.9			30.0			12.8			14.1	
Approach LOS		D			С			В			В	
Queue Length 50th (ft)	110	262			82		66	197		25	125	0
Queue Length 95th (ft)	149	342			125		93	328		66	231	0
Internal Link Dist (ft)	117	893			377		, 3	661		33	688	Ŭ
Turn Bay Length (ft)	200	070			377		250	501		100	300	
Base Capacity (vph)	440	727			798		576	1002		353	718	1554
Starvation Cap Reductn	0	0			0		0	0		0	0	1554
Spillback Cap Reductn	0	0			0		0	0		0	0	0
Storage Cap Reductn	0	0			0		0	0			0	
Siorage Cap Reductif	U	U			U		U	U		0	U	0

Rochester Inner Loop 2035 AM Peak Hour Lag Left Stantec

Lane Group	ø11	
LaneConfigurations		
Volume (vph)		
Ideal Flow (vphpl)		
Storage Length (ft)		
Storage Lanes		
Taper Length (ft)		
Right Turn on Red		
Link Speed (mph)		
Link Distance (ft)		
Travel Time (s)		
Confl. Peds. (#/hr)		
Confl. Bikes (#/hr)		
Peak Hour Factor		
Heavy Vehicles (%)		
Shared Lane Traffic (%)		
Lane Group Flow (vph)		
Turn Type		
Protected Phases	11	
Permitted Phases		
Detector Phase		
Switch Phase		
Minimum Initial (s)	4.0	
Minimum Split (s)	6.0	
Total Split (s)	6.0	
Total Split (%)	6%	
Yellow Time (s)	2.0	
All-Red Time (s)	0.0	
Lost Time Adjust (s)	0.0	
Total Lost Time (s)		
Lead/Lag		
Lead-Lag Optimize?		
Recall Mode	None	
Act Effct Green (s)		
Actuated g/C Ratio		
v/c Ratio		
Control Delay		
Queue Delay		
Total Delay		
LOS		
Approach Delay		
Approach LOS		
Queue Length 50th (ft)		
Queue Length 95th (ft)		
Internal Link Dist (ft)		
Turn Bay Length (ft)		
Base Capacity (vph)		
Starvation Cap Reductn		
Spillback Cap Reductn		
Storage Cap Reductn		

Rochester Inner Loop 2035 AM Peak Hour Lag Left Stantec



Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

Offset: 26 (26%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 75

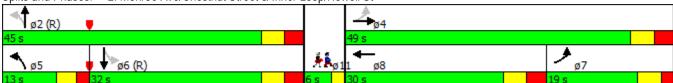
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 23.2 Intersection LOS: C
Intersection Capacity Utilization 72.0% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Monroe Ave/Chestnut Street & Inner Loop/Howell St



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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	ø11	
Lane Configurations	ሻ	7	ሻ	^	ĵ»				
Volume (vph)	81	36	168	653	396	209			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Storage Length (ft)	0	0	100			0			
Storage Lanes	1	1	1			0			
Taper Length (ft)	25		75						
Right Turn on Red		No				No			
Link Speed (mph)	30			30	30				
Link Distance (ft)	134			240	437				
Travel Time (s)	3.0			5.5	9.9				
Confl. Peds. (#/hr)		34	30			30			
Confl. Bikes (#/hr)						20			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90			
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	90	40	187	726	672	0			
Turn Type	NA		custom	NA	NA				
Protected Phases	4		5	25	6		2	11	
Permitted Phases		4	2						
Detector Phase	4	4	5	25	6				
Switch Phase									
Minimum Initial (s)	10.0	10.0	5.0		20.0		20.0	4.0	
Minimum Split (s)	24.5	24.5	10.5		25.5		25.5	6.0	
Total Split (s)	25.0	25.0	12.0		57.0		69.0	6.0	
Total Split (%)	25.0%	25.0%	12.0%		57.0%		69%	6%	
Yellow Time (s)	3.5	3.5	3.5		3.5		3.5	2.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	0.0	
Lost Time Adjust (s)	-1.5	-1.5	-1.5		-1.5				
Total Lost Time (s)	4.0	4.0	4.0		4.0				
Lead/Lag			Lag		Lead				
Lead-Lag Optimize?			Yes		Yes				
Recall Mode	None	None	None		C-Max		C-Max	Max	
Act Effct Green (s)	13.0	13.0	65.0	65.0	53.0				
Actuated g/C Ratio	0.13	0.13	0.65	0.65	0.53				
v/c Ratio	0.40	0.22	0.50	0.61	0.77				
Control Delay	45.0	41.5	18.7	13.6	13.7				
Queue Delay	0.0	0.0	0.0	0.0	0.3				
Total Delay	45.0	41.5	18.7	13.6	14.0				
LOS	D	D	В	В	В				
Approach Delay	43.9			14.7	14.0				
Approach LOS	D			В	В				
Queue Length 50th (ft)	54	24	51	244	151				
Queue Length 95th (ft)	99	53	84	353	187				
Internal Link Dist (ft)	54			160	357				
Turn Bay Length (ft)			100						
Base Capacity (vph)	364	291	377	1187	878				
Starvation Cap Reductn	0	0	0	0	24				
Spillback Cap Reductn	0	0	0	0	0				
Storage Cap Reductn	0	0	0	0	0				

Rochester Inner Loop 2035 AM Peak Hour Lag Left Stantec

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	ø11
Reduced v/c Ratio	0.25	0.14	0.50	0.61	0.79			
Intersection Summary								
Area Type:	Other							
Cycle Length: 100								
Actuated Cycle Length: 10	00							
Offset: 93 (93%), Referen	ced to phase	2:NBTL a	and 6:SBT	, Start of	Green			
Natural Cycle: 80								
Control Type: Actuated-C	oordinated							
Maximum v/c Ratio: 0.77								
Intersection Signal Delay:	16.6			Int	tersection	LOS: B		
Intersection Capacity Utiliz	zation 67.2%			IC	U Level o	of Service (2	
Analysis Period (min) 15								

Splits and Phases: 23: S Union St & E Broad St



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	1>		*	1>		ሻ	↑ ↑		ሻ	(î	
Volume (vph)	28	191	35	160	331	78	124	532	78	198	410	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	175		0	100		0	250		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Right Turn on Red			No			Yes			Yes			No
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		148			496			437			655	
Travel Time (s)		3.4			11.3			9.9			14.9	
Confl. Peds. (#/hr)	59		15	15		59	23		29	29		23
Confl. Bikes (#/hr)												20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Shared Lane Traffic (%)	170	170	170	170	170	170	070	070	070	170	170	170
Lane Group Flow (vph)	31	251	0	178	455	0	138	678	0	220	494	0
Turn Type	pm+pt	NA	J	pm+pt	NA	· ·	pm+pt	NA	J	pm+pt	NA	O
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4	7		8	U		2	2		6	U	
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase	,	7		3	U		3	2		I	U	
Minimum Initial (s)	5.0	20.0		5.0	20.0		5.0	20.0		5.0	20.0	
Minimum Split (s)	10.0	28.0		10.0	28.0		10.5	25.5		10.5	25.5	
Total Split (s)	10.0	32.0		12.0	34.0		11.0	36.0		14.0	39.0	
Total Split (%)	10.0%	32.0%		12.0%	34.0%		11.0%	36.0%		14.0%	39.0%	
Yellow Time (s)	3.0	3.5		3.0	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.5		2.0	2.5		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)	3.5	4.5		3.5	4.5		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lead		Lag	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	Min		None	Min		None	C-Max		None	C-Max	
Act Effct Green (s)	32.6	25.1		37.2	31.1		39.0	32.0		45.0	35.0	
	0.33	0.25		0.37	0.31		0.39	0.32		0.45	0.35	
Actuated g/C Ratio	0.33	0.23		0.57	0.83					0.45	0.33	
v/c Ratio	20.1	37.7		26.7	46.2		0.69	0.63 22.8		45.7		
Control Delay							40.4				41.2	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	20.1	37.7		26.7	46.2		40.4	22.8		45.7	41.2	
LOS	С	D		С	D		D	C		D	D	
Approach Delay		35.8			40.7			25.8			42.6	
Approach LOS	10	D		7.4	D		20	C		10/	D	
Queue Length 50th (ft)	12	135		74	268		30	100		106	304	
Queue Length 95th (ft)	30	213		124	#447		m#113	148		#172	#444	
Internal Link Dist (ft)		68		175	416		100	357		250	575	
Turn Bay Length (ft)	047	107		175	FF0		100	1075		250	/0/	
Base Capacity (vph)	217	486		348	550		200	1075		320	626	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	1	
Storage Cap Reductn	0	0		0	0		0	0		0	0	

Rochester Inner Loop 2035 AM Peak Hour Lag Left Stantec

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.14	0.52		0.51	0.83		0.69	0.63		0.69	0.79	

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.83

Intersection Signal Delay: 35.7 Intersection LOS: D
Intersection Capacity Utilization 71.6% ICU Level of Service C

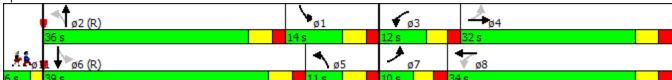
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: S Union St & East Ave



Lane Group		۶	→	•	•	+	•	1	†	/	/	+	-√
Valume (opfn)	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Valume (opfn)	Lane Configurations	*	î,			ተ ጌ		ሻ	ĵ.		7	*	7
Ideal Flow (ryhphp)				84	0		21	263		15	31		1285
Storage Length (ft)		1900		1900	1900	1900	1900			1900	1900		
Storage Lames				0	100		250	250		0	100		0
Taper Length (III)				0	0		1			0	1		1
Link Speed (mph)		75			75			75			75		
Link Speed (mph) 30 30 30 30 768 Link Distance (fi) 973 457 768 768 Travel Time (s) 22.1 10.4 16.8 17.5 Confl. Bikes (#/hr) 30 30 30 14 41 41 Peak Hour Factor 0.95				Yes			No			Yes			Yes
Inh Distance (III)			30			30			30			30	
Confi. Peds. (#/hr)			973			457			741			768	
Confl. Bikes (#hr)			22.1			10.4			16.8			17.5	
Peak Hour Factor 0.95 0.	Confl. Peds. (#/hr)	30		30	30		30	14		41	41		
Shared Lane Traffic (%) Lane Group Flow (vph) 99 379 0 0 697 0 277 374 0 33 564 1353 Turn Type pm+pt NA NA pm+pt NA Perm NA Pree Protected Phases 7 4 8 5 2 6 6 Free Detector Phases 7 4 8 5 2 6 6 Free Detector Phases 7 4 8 5 2 6 6 6 Free Detector Phase 7 4 8 5 2 6 6 6 Free Detector Phase 7 4 8 5 2 6 6 6 Free Detector Phase 7 4 8 5 2 6 6 6 Free Detector Phase 7 4 8 5 2 6 6 6 Free Detector Phase 7 4 8 7 7 7 7 7 7 7 7 7	Confl. Bikes (#/hr)						20						
Lane Group Flow (vph)	Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Lane Group Flow (vph)	Shared Lane Traffic (%)												
Turn Type	` '	99	379	0	0	697	0	277	374	0	33	564	1353
Protected Phases		pm+pt	NA			NA		pm+pt	NA		Perm	NA	
Permitted Phases						8						6	
Switch Phase Minimum Initial (s) 5.0 10.0 10.0 10.0 7.0 10.0	Permitted Phases	4									6		Free
Switch Phase Minimum Initial (s) 5.0 10.0 10.0 10.0 7.0 10.0			4			8		5	2			6	
Minimum Initial (s) 5.0 10.0 10.0 7.0 10.0 10.0 10.0 Minimum Split (s) 11.5 22.5 22.5 12.0 23.5 23.5 23.5 23.5 23.5 23.5 23.5 23.5 23.5 23.5 23.5 23.5 23.6 42.0 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>													
Minimum Split (s) 11.5 22.5 22.5 12.0 23.5 23.5 23.5 Total Split (s) 12.0 38.0 26.0 14.0 56.0 42.0 42.0 Total Split (%) 12.0% 38.0% 26.0% 14.0% 56.0% 42.0% 42.0% Yellow Time (s) 3.5 3.5 3.5 3.0 3.0 3.0 3.0 Lost Time (s) 3.0 3.0 3.0 2.0 3.0 3.0 3.0 Lost Time (s) 5.0		5.0	10.0			10.0		7.0	10.0		10.0	10.0	
Total Split (s) 12.0 38.0 26.0 14.0 56.0 42.0 42.0 Total Split (%) 12.0% 38.0% 26.0% 14.0% 56.0% 42.0% 42.0% Yellow Time (s) 3.5 3.5 3.5 3.0	` ,												
Total Split (%) 12.0% 38.0% 26.0% 14.0% 56.0% 42.0% 42.0% Yellow Time (s) 3.5 3.0 5.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0 4.0													
Yellow Time (s) 3.5 3.5 3.5 3.0			38.0%					14.0%	56.0%			42.0%	
All-Red Time (s) 3.0 3.0 3.0 2.0 3.0 3.0 3.0 Lost Time Adjust (s) -1.5 -1.								3.0	3.5			3.5	
Lost Time Adjust (s) -1.5	` '							2.0					
Total Lost Time (s) 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 Lead/Lag Lag Lag <td>` ,</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>-1.5</td> <td></td> <td></td> <td></td> <td></td> <td></td>	` ,							-1.5					
Lead/Lag Lag Lead Lead Lead Lead Lag Lag Lag Lead-Lag Optimize? Yes Yes <td></td> <td>5.0</td> <td>5.0</td> <td></td> <td></td> <td>5.0</td> <td></td> <td>3.5</td> <td>5.0</td> <td></td> <td>5.0</td> <td>5.0</td> <td></td>		5.0	5.0			5.0		3.5	5.0		5.0	5.0	
Lead-Lag Optimize? Yes		Lag										Lag	
Recall Mode None Min Min None C-Max C-Max C-Max Act Effct Green (s) 32.0 30.6 21.0 54.9 53.4 38.8 38.8 100.0 Actuated g/C Ratio 0.32 0.31 0.21 0.55 0.53 0.39 0.39 1.00 v/c Ratio 0.50 0.69 0.95 0.86 0.38 0.09 0.78 0.85 Control Delay 43.9 36.1 47.1 48.1 15.9 21.6 36.8 6.6 Queue Delay 0.0 <t< td=""><td>Lead-Lag Optimize?</td><td></td><td></td><td></td><td></td><td></td><td></td><td>Yes</td><td></td><td></td><td></td><td></td><td></td></t<>	Lead-Lag Optimize?							Yes					
Actuated g/C Ratio 0.32 0.31 0.21 0.55 0.53 0.39 0.39 1.00 V/c Ratio 0.50 0.69 0.95 0.86 0.38 0.09 0.78 0.85 Control Delay 43.9 36.1 47.1 48.1 15.9 21.6 36.8 6.6 Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Total Delay 43.9 36.1 47.1 48.1 15.9 21.6 36.8 6.6 LOS D D D B C D A Approach Delay 37.7 47.1 29.6 15.6 A A Approach LOS D D C B C D A A Approach Delay 37.7 47.1 29.6 15.6 A A A Approach LOS D D C B C D B C D B C <t< td=""><td></td><td>None</td><td>Min</td><td></td><td></td><td>Min</td><td></td><td>None</td><td>C-Max</td><td></td><td>C-Max</td><td>C-Max</td><td></td></t<>		None	Min			Min		None	C-Max		C-Max	C-Max	
V/c Ratio 0.50 0.69 0.95 0.86 0.38 0.09 0.78 0.85 Control Delay 43.9 36.1 47.1 48.1 15.9 21.6 36.8 6.6 Queue Delay 0.0	Act Effct Green (s)	32.0	30.6			21.0		54.9	53.4		38.8	38.8	100.0
V/c Ratio 0.50 0.69 0.95 0.86 0.38 0.09 0.78 0.85 Control Delay 43.9 36.1 47.1 48.1 15.9 21.6 36.8 6.6 Queue Delay 0.0	Actuated g/C Ratio	0.32	0.31			0.21		0.55	0.53		0.39	0.39	1.00
Control Delay 43.9 36.1 47.1 48.1 15.9 21.6 36.8 6.6 Queue Delay 0.0 </td <td></td> <td></td> <td>0.69</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>0.09</td> <td>0.78</td> <td>0.85</td>			0.69								0.09	0.78	0.85
Queue Delay 0.0 <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>													
Total Delay 43.9 36.1 47.1 48.1 15.9 21.6 36.8 6.6 LOS D D D D D B C D A Approach Delay 37.7 47.1 29.6 15.6 15.6 Approach LOS D D C B C Queue Length 50th (ft) 45 196 205 126 120 14 320 0 Queue Length 95th (ft) 83 298 m#325 #254 222 35 #498 0 Internal Link Dist (ft) 893 377 661 688 Turn Bay Length (ft) 200 250 100 Base Capacity (vph) 197 588 737 322 984 361 722 1583 Starvation Cap Reductn 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0													
LOS D D D D B C D A Approach Delay 37.7 47.1 29.6 15.6 15.6 Approach LOS D D C B C Queue Length 50th (ft) 45 196 205 126 120 14 320 0 Queue Length 95th (ft) 83 298 m#325 #254 222 35 #498 0 Internal Link Dist (ft) 893 377 661 688 688 Turn Bay Length (ft) 200 250 100 0 Base Capacity (vph) 197 588 737 322 984 361 722 1583 Starvation Cap Reductn 0 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0	3												
Approach Delay 37.7 47.1 29.6 15.6 Approach LOS D D C B Queue Length 50th (ft) 45 196 205 126 120 14 320 0 Queue Length 95th (ft) 83 298 m#325 #254 222 35 #498 0 Internal Link Dist (ft) 893 377 661 688 Turn Bay Length (ft) 200 250 100 100 Base Capacity (vph) 197 588 737 322 984 361 722 1583 Starvation Cap Reductn 0 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0 0													
Approach LOS D D C B Queue Length 50th (ft) 45 196 205 126 120 14 320 0 Queue Length 95th (ft) 83 298 m#325 #254 222 35 #498 0 Internal Link Dist (ft) 893 377 661 688 688 Turn Bay Length (ft) 200 250 100 100 100 Base Capacity (vph) 197 588 737 322 984 361 722 1583 Starvation Cap Reductn 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0													
Queue Length 50th (ft) 45 196 205 126 120 14 320 0 Queue Length 95th (ft) 83 298 m#325 #254 222 35 #498 0 Internal Link Dist (ft) 893 377 661 688 Turn Bay Length (ft) 200 250 100 Base Capacity (vph) 197 588 737 322 984 361 722 1583 Starvation Cap Reductn 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0													
Queue Length 95th (ft) 83 298 m#325 #254 222 35 #498 0 Internal Link Dist (ft) 893 377 661 688 Turn Bay Length (ft) 200 250 100 Base Capacity (vph) 197 588 737 322 984 361 722 1583 Starvation Cap Reductn 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0		45	196					126	120		14	320	0
Internal Link Dist (ft) 893 377 661 688 Turn Bay Length (ft) 200 250 100 Base Capacity (vph) 197 588 737 322 984 361 722 1583 Starvation Cap Reductn 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0													0
Turn Bay Length (ft) 200 250 100 Base Capacity (vph) 197 588 737 322 984 361 722 1583 Starvation Cap Reductn 0 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0													
Base Capacity (vph) 197 588 737 322 984 361 722 1583 Starvation Cap Reductn 0 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0	, ,	200						250			100		
Starvation Cap Reductn 0 0 0 0 0 0 0 Spillback Cap Reductn 0 0 0 0 0 0 0 0 0			588			737			984			722	1583
Spillback Cap Reductn 0 0 0 0 0 0 0													
Storage Cap Reductin U U U 0 0 0 0 0	Storage Cap Reductn	0	0			0		0	0		0	0	0
Reduced v/c Ratio 0.50 0.64 0.95 0.86 0.38 0.09 0.78 0.85													

Rochester Inner Loop 2035 PM Peak Hour Lag Left Stantec

Other

Intersection Summary Area Type:

Cycle Length: 100

Actuated Cycle Length: 100

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95 Intersection Signal Delay: 26.6 Intersection Capacity Utilization 82.3%

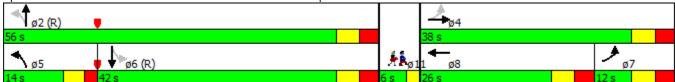
Intersection LOS: C
ICU Level of Service E

Analysis Period (min) 15

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Monroe Ave/Chestnut Street & Inner Loop/Howell St



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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	ø11	
Lane Configurations	ኻ	7	ሻ		f)				
Volume (vph)	290	161	65	673	510	60			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Storage Length (ft)	0	0	100			0			
Storage Lanes	1	1	1			0			
Taper Length (ft)	25		75						
Right Turn on Red		No				No			
Link Speed (mph)	30			30	30				
Link Distance (ft)	134			240	437				
Travel Time (s)	3.0			5.5	9.9				
Confl. Peds. (#/hr)		43	30			30			
Confl. Bikes (#/hr)						20			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86			
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	337	187	76	783	663	0			
Turn Type	NA		custom	NA	NA				
Protected Phases	4		5	25	6		2	11	
Permitted Phases		4	2						
Detector Phase	4	4	5	25	6				
Switch Phase									
Minimum Initial (s)	10.0	10.0	5.0		20.0		20.0	4.0	
Minimum Split (s)	24.5	24.5	10.5		25.5		25.5	6.0	
Total Split (s)	31.0	31.0	12.0		51.0		63.0	6.0	
Total Split (%)	31.0%	31.0%	12.0%		51.0%		63%	6%	
Yellow Time (s)	3.5	3.5	3.5		3.5		3.5	2.0	
All-Red Time (s)	2.0	2.0	2.0		2.0		2.0	0.0	
Lost Time Adjust (s)	-1.5	-1.5	-1.5		-1.5				
Total Lost Time (s)	4.0	4.0	4.0		4.0				
Lead/Lag			Lag		Lead				
Lead-Lag Optimize?			Yes		Yes				
Recall Mode	None	None	None		C-Max		C-Max	Max	
Act Effct Green (s)	23.9	23.9	59.0	59.0	47.0				
Actuated g/C Ratio	0.24	0.24	0.59	0.59	0.47				
v/c Ratio	0.80	0.57	0.23	0.71	0.78				
Control Delay	50.0	40.1	6.9	10.2	14.6				
Queue Delay	0.0	0.0	0.0	0.3	0.4				
Total Delay	50.0	40.1	6.9	10.5	15.0				
LOS	D	D	Α	В	В				
Approach Delay	46.5			10.2	15.0				
Approach LOS	D			В	В				
Queue Length 50th (ft)	198	103	8	182	150				
Queue Length 95th (ft)	277	161	m16	274	m173				
Internal Link Dist (ft)	54			160	357				
Turn Bay Length (ft)			100						
Base Capacity (vph)	477	371	330	1109	850				
Starvation Cap Reductn	0	0	0	0	25				
Spillback Cap Reductn	0	0	0	59	0				
Storage Cap Reductn	0	0	0	0	0				

Rochester Inner Loop 2035 PM Peak Hour Lag Left Stantec

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	ø11
Reduced v/c Ratio	0.71	0.50	0.23	0.75	0.80			
Intersection Summary								
Area Type:	Other							
Cycle Length: 100								
Actuated Cycle Length: 1	00							
Offset: 96 (96%), Referen	nced to phase	2:NBTL a	nd 6:SB1	, Start of	Green			
Natural Cycle: 75	·							
Control Type: Actuated-C	oordinated							
Maximum v/c Ratio: 0.80								
Intersection Signal Delay:	: 21.0			Int	tersection	LOS: C		
Intersection Capacity Utili	zation 61.0%			IC	U Level o	f Service E	3	
Analysis Period (min) 15								
m Volume for 95th perc	entile queue is	s metered	by upstr	eam sign	al.			





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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	(Î		ሻ	f)		ሻ	↑ ↑		ኻ	(î	
Volume (vph)	42	470	88	90	367	72	50	668	245	229	392	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	175		0	100		0	250		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Right Turn on Red			No			Yes			Yes			No
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		148			496			437			655	
Travel Time (s)		3.4			11.3			9.9			14.9	
Confl. Peds. (#/hr)	27		50	50		27	62		27	27		62
Confl. Bikes (#/hr)			0.0	0.0								20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)	2,0	2.0	270	0,0	0.0	0,0	2.0	2.0	2,0	2,0	2.0	2.0
Lane Group Flow (vph)	47	620	0	100	488	0	56	1014	0	254	470	0
Turn Type	pm+pt	NA	Ū	pm+pt	NA	Ū	pm+pt	NA	J	pm+pt	NA	J
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4	•		8	Ū		2	_		6	J	
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase	,	•		0	U		Ū			•	U	
Minimum Initial (s)	5.0	20.0		5.0	20.0		5.0	20.0		5.0	20.0	
Minimum Split (s)	10.0	28.0		10.0	28.0		10.5	25.5		10.5	25.5	
Total Split (s)	10.0	36.0		10.0	36.0		11.0	34.0		14.0	37.0	
Total Split (%)	10.0%	36.0%		10.0%	36.0%		11.0%	34.0%		14.0%	37.0%	
Yellow Time (s)	3.0	3.5		3.0	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.5		2.0	2.5		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)	3.5	4.5		3.5	4.5		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lag	Lead		Lag	Lead	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Recall Mode	None	Min		None	Min		None	C-Max		None	C-Max	
Act Effct Green (s)	39.7	33.5		40.4	35.5		37.0	30.0		43.2	35.2	
Actuated g/C Ratio	0.40	0.34		0.40	0.36		0.37	0.30		0.43	0.35	
v/c Ratio	0.19	1.04		0.54	0.76		0.27	0.99		0.99	0.74	
Control Delay	18.9	82.8		29.1	38.7		26.0	52.2		95.7	38.7	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.8		0.0	0.1	
Total Delay	18.9	82.8		29.1	38.7		26.0	53.0		95.7	38.8	
LOS	В	F		С	D		С	D		F	D	
Approach Delay		78.3			37.1		Ū	51.6			58.8	
Approach LOS		E			D			D			E	
Queue Length 50th (ft)	17	~453		38	285		22	223		115	280	
Queue Length 95th (ft)	39	#665		71	#465		m29	#463		#273	#426	
Internal Link Dist (ft)		68			416			357			575	
Turn Bay Length (ft)				175			100	50.		250	3.0	
Base Capacity (vph)	252	596		184	639		207	1028		256	637	
Starvation Cap Reductn	0	0		0	0		0	4		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	7	
Storage Cap Reductn	0	0		0	0		0	0		0	0	

Rochester Inner Loop 2035 PM Peak Hour Lag Left Stantec

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.19	1.04		0.54	0.76		0.27	0.99		0.99	0.75	

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

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

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.04

Intersection Signal Delay: 56.3 Intersection LOS: E
Intersection Capacity Utilization 89.1% ICU Level of Service E

Analysis Period (min) 15

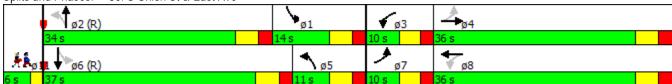
Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: S Union St & East Ave



2. Worlde 7 Wer offesting 5	<u> </u>		$\overline{}$		—	•	•	†	<u></u> >	_	1	1
	_	_	*	*			,	- 1			*	_
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	f)			∱ î≽		"	۔		- ነ		7
Volume (vph)	229	303	167	0	274	66	168	435	1	56	258	293
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		250	250		0	100		0
Storage Lanes	1		0	0		1	1		0	1		1
Taper Length (ft)	75			75			75			75		
Right Turn on Red			Yes			No			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		973			457			741			768	
Travel Time (s)		22.1			10.4			16.8			17.5	
Confl. Peds. (#/hr)	30		30	30		30	22		10	10		22
Confl. Bikes (#/hr)						20						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	241	495	0	0	357	0	177	459	0	59	272	308
Turn Type	Prot	NA			NA		pm+pt	NA		Perm	NA	Free
Protected Phases	7	4			8		5	2			6	
Permitted Phases							2			6		Free
Detector Phase	7	4			8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0			10.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	13.5	22.5			22.5		13.5	23.5		23.5	23.5	
Total Split (s)	28.0	57.0			23.0		14.0	43.0		29.0	29.0	
Total Split (%)	28.0%	57.0%			23.0%		14.0%	43.0%		29.0%	29.0%	
Yellow Time (s)	3.5	3.5			3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.5	-1.5			-1.5		-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead						Lead			Lag	Lag	
Lead-Lag Optimize?	Yes						Yes			Yes	Yes	
Recall Mode	None	Min			Min		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	19.9	50.6			16.6		39.4	39.4		24.8	24.8	100.0
Actuated g/C Ratio	0.20	0.51			0.17		0.39	0.39		0.25	0.25	1.00
v/c Ratio	0.73	0.60			0.67		0.51	0.63		0.27	0.59	0.20
Control Delay	50.3	19.2			45.8		23.8	24.7		35.2	39.6	0.3
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	50.3	19.2			45.8		23.8	24.7		35.2	39.6	0.3
LOS	D	В			73.0 D		23.0 C	C C		D	D	Α
Approach Delay	D .	29.4			45.8		Ü	24.4		D	20.2	,,
Approach LOS		C C			43.0 D			C C			C	
Queue Length 50th (ft)	143	190			112		51	134		31	155	0
Queue Length 95th (ft)	222	292			160		112	255		69	241	0
Internal Link Dist (ft)	222	893			377		112	661		07	688	U
Turn Bay Length (ft)	200	073			3//		250	001		100	000	
Base Capacity (vph)	384	851			574		347	733		215	462	1554
Starvation Cap Reductn	0	831			0			733		0	402	
		0			0		0	0		0	0	0
Spillback Cap Reductn	0											
Storage Cap Reductn	0	0			0		0	0		0	0	0

Rochester Inner Loop 2035 AM Peak Hour Protected Left Stantec

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.63	0.58			0.62		0.51	0.63		0.27	0.59	0.20

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

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

Natural Cycle: 80

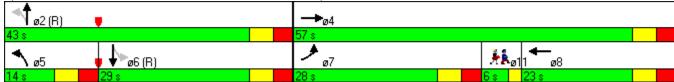
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 28.1 Intersection LOS: C
Intersection Capacity Utilization 72.8% ICU Level of Service C

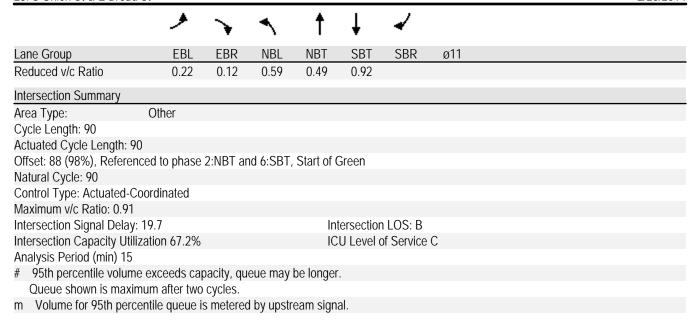
Analysis Period (min) 15

Splits and Phases: 2: Monroe Ave/Chestnut Street & Inner Loop/Howell St



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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø11		
Lane Configurations	ሻ	7	ሻ	<u></u>	f)				
Volume (vph)	81	36	168	653	396	209			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Storage Length (ft)	0	0	100			0			
Storage Lanes	1	1	1			0			
Taper Length (ft)	25		75						
Right Turn on Red		No				No			
Link Speed (mph)	30			30	30				
Link Distance (ft)	134			240	437				
Travel Time (s)	3.0			5.5	9.9				
Confl. Peds. (#/hr)		34	30			30			
Confl. Bikes (#/hr)						20			
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90			
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	90	40	187	726	672	0			
Turn Type	NA	Perm	Prot	NA	NA				
Protected Phases	4		5	2	6		11		
Permitted Phases		4							
Detector Phase	4	4	5	2	6				
Switch Phase									
Minimum Initial (s)	10.0	10.0	8.0	20.0	20.0		4.0		
Minimum Split (s)	24.5	24.5	13.5	25.5	25.5		6.0		
Total Split (s)	25.0	25.0	15.0	64.0	44.0		6.0		
Total Split (%)	27.8%	27.8%	16.7%	71.1%	48.9%		7%		
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		2.0		
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0		
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5				
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0				
Lead/Lag			Lead				Lag		
Lead-Lag Optimize?			Yes				Yes		
Recall Mode	None	None	None	C-Max	C-Max		Max		
Act Effct Green (s)	12.6	12.6	16.5	73.3	40.0				
Actuated g/C Ratio	0.14	0.14	0.18	0.81	0.44				
v/c Ratio	0.37	0.21	0.59	0.49	0.91				
Control Delay	39.3	36.3	35.7	4.7	27.4				
Queue Delay	0.0	0.0	0.0	0.0	0.4				
Total Delay	39.3	36.3	35.7	4.7	27.8				
LOS	D	D	D	Α	С				
Approach Delay	38.4			11.0	27.8				
Approach LOS	D			В	С				
Queue Length 50th (ft)	48	21	70	70	136				
Queue Length 95th (ft)	90	49	m153	272	m#478				
Internal Link Dist (ft)	54			160	357				
Turn Bay Length (ft)			100						
Base Capacity (vph)	405	326	318	1488	739				
Starvation Cap Reductn	0	0	0	0	5				
Spillback Cap Reductn	0	0	0	0	0				
Storage Cap Reductn	0	0	0	0	0				

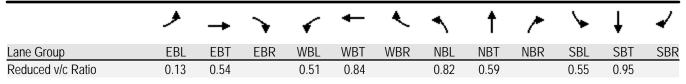
Rochester Inner Loop 2035 AM Peak Hour Protected Left Stantec





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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	1>		*	1>		ሻ	↑ ↑		ሻ	f)	
Volume (vph)	28	191	35	160	331	78	124	532	78	198	410	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	175		0	100		0	250		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	75			75			75			75		
Right Turn on Red			No			Yes			Yes			No
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		148			496			437			655	
Travel Time (s)		3.4			11.3			9.9			14.9	
Confl. Peds. (#/hr)	59		15	15		59	23		29	29		23
Confl. Bikes (#/hr)												20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	251	0	178	455	0	138	678	0	220	494	0
Turn Type	pm+pt	NA	-	pm+pt	NA	-	Prot	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4	•		8	J		J	_		6	J	
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase	•	•		J	J		J	_			J	
Minimum Initial (s)	6.0	20.0		6.0	20.0		6.0	20.0		6.0	20.0	
Minimum Split (s)	12.0	28.0		12.0	28.0		11.5	25.5		11.5	25.5	
Total Split (s)	12.0	28.0		12.0	28.0		12.0	33.0		17.0	32.0	
Total Split (%)	13.3%	31.1%		13.3%	31.1%		13.3%	36.7%		18.9%	35.6%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	1.0		1.0	1.0	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes					
Recall Mode	None	Min		None	Min		None	C-Max		None	C-Max	
Act Effct Green (s)	30.2	22.7		32.0	27.5		8.8	30.8		40.0	28.0	
Actuated g/C Ratio	0.34	0.25		0.36	0.31		0.10	0.34		0.44	0.31	
v/c Ratio	0.13	0.56		0.51	0.84		0.82	0.59		0.58	0.89	
Control Delay	18.4	34.8		25.2	46.1		76.0	22.2		19.2	49.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	5.8	
Total Delay	18.4	34.8		25.2	46.1		76.0	22.2		19.2	55.6	
LOS	В	C		23.2 C	D		70.0 E	C		В	55.6 E	
Approach Delay		33.0		O .	40.2			31.3			44.4	
Approach LOS		C			D			C C			D	
Queue Length 50th (ft)	11	123		67	250		69	166		66	265	
Queue Length 95th (ft)	28	199		115	#448		#187	247		110	#448	
Internal Link Dist (ft)	20	68		113	416		# 10 <i>1</i>	357		110	575	
Turn Bay Length (ft)		00		175	410		100	337		250	313	
Base Capacity (vph)	241	462		348	542		168	1151		397	556	
Starvation Cap Reductn	0	402		0	0		0	0		397	0	
				0	0		0				36	
Spillback Cap Reductn	0	0						0		0		
Storage Cap Reductn	0	0		0	0		0	0		0	0	

Rochester Inner Loop 2035 AM Peak Hour Protected Left Stantec



Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 37.6 Intersection LOS: D
Intersection Capacity Utilization 72.8% ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 30: S Union St & East Ave



Lane Group EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT Lane Configurations 1 <t< th=""><th>SBR 1285 1900 0</th></t<>	SBR 1285 1900 0
Volume (vph) 94 276 84 0 641 21 263 340 15 31 536 Ideal Flow (vphpl) 1900 <t< th=""><th>1900</th></t<>	1900
Volume (vph) 94 276 84 0 641 21 263 340 15 31 536 Ideal Flow (vphpl) 1900 <t< td=""><td>1900</td></t<>	1900
Ideal Flow (vphpl) 1900 <td>1900</td>	1900
Storage Length (ft) 200 0 0 175 250 0 100 Storage Lanes 1 0 0 1 1 0 1 Taper Length (ft) 75 75 75 75 75 Right Turn on Red Yes No Yes Link Speed (mph) 30 30 30 Link Distance (ft) 973 457 741 768 Travel Time (s) 22.1 10.4 16.8 17.5	0
Storage Lanes 1 0 0 1 1 0 1 Taper Length (ft) 75 75 75 75 Right Turn on Red Yes No Yes Link Speed (mph) 30 30 30 Link Distance (ft) 973 457 741 768 Travel Time (s) 22.1 10.4 16.8 17.5	1
Taper Length (ft) 75 75 75 75 Right Turn on Red Yes No Yes Link Speed (mph) 30 30 30 Link Distance (ft) 973 457 741 768 Travel Time (s) 22.1 10.4 16.8 17.5	
Link Speed (mph) 30 30 30 Link Distance (ft) 973 457 741 768 Travel Time (s) 22.1 10.4 16.8 17.5	
Link Speed (mph) 30 30 30 Link Distance (ft) 973 457 741 768 Travel Time (s) 22.1 10.4 16.8 17.5	Yes
Link Distance (ft) 973 457 741 768 Travel Time (s) 22.1 10.4 16.8 17.5	
Travel Time (s) 22.1 10.4 16.8 17.5	
Confl. Bikes (#/hr) 20	
Peak Hour Factor 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95	0.95
Shared Lane Traffic (%)	
Lane Group Flow (vph) 99 379 0 0 697 0 277 374 0 33 564	1353
Turn Type Prot NA NA pm+pt NA Perm NA	Free
Protected Phases 7 4 8 5 2 6	
Permitted Phases 2 6	Free
Detector Phase 7 4 8 5 2 6 6	
Switch Phase	
Minimum Initial (s) 4.0 10.0 10.0 7.0 10.0 10.0 10.0	
Minimum Split (s) 10.5 22.5 22.5 13.5 23.5 23.5	
Total Split (s) 13.0 45.0 26.0 17.0 55.0 38.0 38.0	
Total Split (%) 13.0% 45.0% 26.0% 17.0% 55.0% 38.0% 38.0%	
Yellow Time (s) 3.5 3.5 3.5 3.5 3.5 3.5	
All-Red Time (s) 3.0 3.0 3.0 3.0 3.0 3.0	
Lost Time Adjust (s) -1.5 -1.5 -1.5 -1.5 -1.5	
Total Lost Time (s) 5.0 5.0 5.0 5.0 5.0 5.0	
Lead/Lag Lead Lag Lag	
Lead-Lag Optimize? Yes Yes Yes Yes	
Recall Mode None Min Min None C-Max C-Max C-Max	
Act Effct Green (s) 8.0 40.0 21.0 50.0 50.0 33.0 33.0	100.0
Actuated g/C Ratio 0.08 0.40 0.21 0.50 0.50 0.33 0.33	1.00
v/c Ratio 0.70 0.53 0.95 0.97 0.41 0.11 0.92	0.85
Control Delay 71.5 25.1 62.1 74.4 18.6 24.6 54.5	6.6
Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0
Total Delay 71.5 25.1 62.1 74.4 18.6 24.6 54.5	6.6
LOS E C E E B C D	Α
Approach Delay 34.7 62.1 42.3 20.7	
Approach LOS C E D C	
Queue Length 50th (ft) 63 172 232 153 126 15 343	0
Queue Length 95th (ft) #142 262 #346 #297 257 38 #548	0
Internal Link Dist (ft) 893 377 661 688	
Turn Bay Length (ft) 200 250 100	
Base Capacity (vph) 141 711 737 286 922 307 614	1583
Starvation Cap Reductn 0 0 0 0 0 0 0	0
Spillback Cap Reductn 0 0 0 0 0 0	0
Storage Cap Reductn 0 0 0 0 0 0	0
Reduced v/c Ratio 0.70 0.53 0.95 0.97 0.41 0.11 0.92	0.85

Rochester Inner Loop 2035 PM Peak Hour Protected Left Stantec

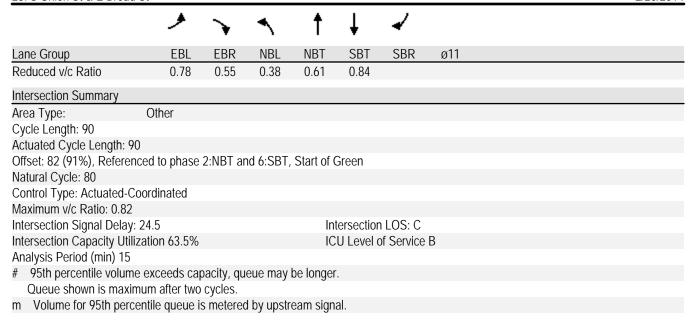
Intersection Summary Area Type: Other Cycle Length: 100 Actuated Cycle Length: 100 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection Natural Cycle: 90 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.97 Intersection Signal Delay: 33.9 Intersection LOS: C Intersection Capacity Utilization 83.1% ICU Level of Service E Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

	ၨ	•	1	†	ţ	4		
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø11	
Lane Configurations	ች	7	ሻ	†	1>			
Volume (vph)	290	161	65	673	510	60		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	0	0	100	.,,,,	.,	0		
Storage Lanes	1	1	1			0		
Taper Length (ft)	25		75			Ü		
Right Turn on Red	20	No	, 0			No		
Link Speed (mph)	30	110		30	30	110		
Link Distance (ft)	134			240	437			
Travel Time (s)	3.0			5.5	9.9			
Confl. Peds. (#/hr)	3.0	43	30	5.5	7.7	30		
Confl. Bikes (#/hr)		73	30			20		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%		
Shared Lane Traffic (%)	2 /0	270	1 70	1 70	2 /0	2 /0		
Lane Group Flow (vph)	337	187	76	783	663	0		
Turn Type	NA	Perm	Prot	NA	NA	U		
Protected Phases	4	reiiii	5	2	6		11	
Permitted Phases	4	4	5	2	0		11	
Detector Phase	4	4	5	2	6			
Switch Phase	4	4	3	Z	0			
	10.0	10.0	8.0	20.0	20.0		3.0	
Minimum Initial (s)	24.5	24.5	13.5	25.5	25.5		6.0	
Minimum Split (s)	26.0	26.0	14.0	64.0	44.0		6.0	
Total Split (s)	28.9%	28.9%	15.6%	71.1%	48.9%		7%	
Total Split (%)	3.5		3.5		3.5		2.0	
Yellow Time (s)	2.0	3.5	2.0	3.5	2.0		0.0	
All-Red Time (s)	-1.5	2.0 -1.5	-1.5	2.0 -1.5	-1.5		0.0	
Lost Time Adjust (s)	4.0	4.0	4.0		4.0			
Total Lost Time (s)	4.0	4.0		4.0	4.0		Log	
Lead/Lag			Lead				Lag	
Lead-Lag Optimize?	None	None	Yes	C May	C May		Yes	
Recall Mode	None	None	None	C-Max	C-Max		Max	
Act Effet Green (s)	20.8	20.8	9.8	61.2	40.0			
Actuated g/C Ratio	0.23	0.23	0.11	0.68	0.44			
v/c Ratio	0.82	0.58	0.39	0.61	0.82			
Control Delay	50.5	38.4	38.0	12.0	20.0			
Queue Delay	0.0	0.0	0.0	0.0	0.4			
Total Delay	50.5	38.4	38.0	12.0	20.4			
LOS	D	D	D	В	С			
Approach Delay	46.2			14.3	20.4			
Approach LOS	D			В	С			
Queue Length 50th (ft)	179	93	43	232	149			
Queue Length 95th (ft)	#284	153	m69	340	m167			
Internal Link Dist (ft)	54			160	357			
Turn Bay Length (ft)			100					
Base Capacity (vph)	432	340	198	1278	805			
Starvation Cap Reductn	0	0	0	0	16			
Spillback Cap Reductn	0	0	0	0	0			
Storage Cap Reductn	0	0	0	0	0			

Rochester Inner Loop 2035 PM Peak Hour Protected Left Stantec



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	₽		ሻ	f _a		ች	↑ ↑		ች	f.	
Volume (vph)	42	470	88	90	367	72	50	668	245	229	392	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	1700	0	175	1700	0	100	1700	0	250	1700	0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	75			75		, and the second	75			75		J
Right Turn on Red	70		No	, 0		Yes	, 0		Yes	, 0		No
Link Speed (mph)		30	110		30	100		30	100		30	110
Link Distance (ft)		148			496			437			655	
Travel Time (s)		3.4			11.3			9.9			14.9	
Confl. Peds. (#/hr)	27	5.4	50	50	11.5	27	62	7.7	27	27	17.7	62
Confl. Bikes (#/hr)	21		30	30		21	02		21	21		20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)	2 /0	270	270	370	370	370	270	270	270	270	270	270
Lane Group Flow (vph)	47	620	0	100	488	0	56	1014	0	254	470	0
Turn Type	pm+pt	NA	U		NA	U	Prot	NA	U		NA	U
Protected Phases	ριτι - ρι 7	4		pm+pt 3	8		5	2		pm+pt 1	6	
Permitted Phases	4	4		8	0		5	2		6	U	
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase	1	4		3	0		5	Z		1	Ü	
Minimum Initial (s)	5.0	20.0		5.0	20.0		5.0	20.0		5.0	20.0	
` ,	11.0	28.0		11.0	28.0		10.5	25.5		10.5	25.5	
Minimum Split (s)	11.0	34.0		11.0	34.0		11.0	32.0		13.0	28.0	
Total Split (s)	12.2%	37.8%		12.2%	37.8%		12.2%	35.6%		14.4%	31.1%	
Total Split (%) Yellow Time (s)	3.5	37.8%		3.5	37.8%		3.5	35.6%		3.5	31.1%	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.0	2.0		2.0	2.0	
` '	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5		-1.5	-1.5	
Lost Time Adjust (s)	4.5	4.5		4.5	4.5			4.0			4.0	
Total Lost Time (s)							4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead					
Lead-Lag Optimize? Recall Mode	Yes	Yes		Yes	Yes		Yes	C-Max		Mono	C-Max	
Act Effct Green (s)	None 36.9	Min 31.7		None 37.8	Min 33.9		None 7.0	28.0		None 33.0	24.0	
Actuated g/C Ratio	0.41	0.35		0.42	0.38		0.08	0.31		0.37	0.27	
	0.41	0.33		0.42	0.36		0.06	0.95		0.57	0.27	
v/c Ratio Control Delay	15.5	65.2		23.6	32.4		47.7	42.8		60.7	69.4	
,	0.0	0.0		0.0	0.0		0.0	0.4		0.0	0.0	
Queue Delay	15.5	65.2		23.6	32.4		47.7	43.2		60.7	69.4	
Total Delay LOS	15.5 B	03.2 E		23.0 C	32.4 C		47.7 D	43.2 D		60.7 E		
Approach Delay	D	61.7		C	30.9		D	43.4		Е	E 66.3	
Approach LOS		61.7 E			30.9 C			43.4 D			00.3 E	
Queue Length 50th (ft)	15	~392		32	248		30	190		89	264	
Queue Length 95th (ft)	34	~392 #596		62	#414		m48	#319		#231	#459	
Internal Link Dist (ft)	34	#370 68		02	416		11140	357		#231	575	
Turn Bay Length (ft)		00		175	410		100	337		250	373	
	289	628		201	679		137	1071		273	483	
Base Capacity (vph)					0/9							
Starvation Cap Reductn Spillback Cap Reductn	0	0		0	0		0	5 0		0	0	
Storage Cap Reductin				0	0		0			0	0	
Sidiage Cap Reductif	0	0		U	U		U	0		U	U	

Rochester Inner Loop 2035 PM Peak Hour Protected Left Stantec

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.16	0.99		0.50	0.72		0.41	0.95		0.93	0.97	

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 50.5 Intersection LOS: D
Intersection Capacity Utilization 89.5% ICU Level of Service E

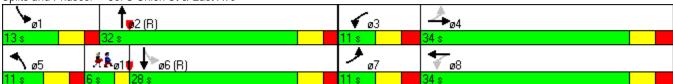
Analysis Period (min) 15

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

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

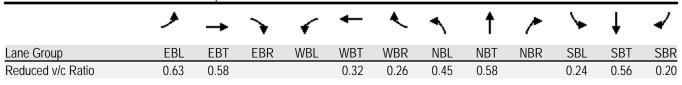
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: S Union St & East Ave



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	f)			^	7	ሻ	ĵ»		ሻ	†	7
Volume (vph)	229	303	167	0	274	66	168	435	1	56	258	293
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	100		75	250		0	100		0
Storage Lanes	1		0	0		1	1		0	1		1
Taper Length (ft)	75		-	75		-	75		-	75		-
Right Turn on Red	, 0		Yes	, 0		No	, 0		Yes	, 0		Yes
Link Speed (mph)		30			30			30			30	. 00
Link Distance (ft)		973			457			741			768	
Travel Time (s)		22.1			10.4			16.8			17.5	
Confl. Peds. (#/hr)	30	22.1	30	30	10.1	30	22	10.0	10	10	17.0	22
Confl. Bikes (#/hr)	30		30	30		20			10	10		
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)	070	070	070	070	070	070	2.70	270	2.70	270	270	270
Lane Group Flow (vph)	241	495	0	0	288	69	177	459	0	59	272	308
Turn Type	Prot	NA	U	U	NA	custom		NA	U	Perm	NA	Free
Protected Phases	7				8 11	cusioni 8	pm+pt	2		Pellii	6	riee
	1	4			0 11	Ö	5	Z		4	0	Fron
Permitted Phases	7	4			0.11	0	2 5	2		6	,	Free
Detector Phase	1	4			8 11	8	5	2		6	6	
Switch Phase	7.0	10.0				10.0	7.0	10.0		10.0	10.0	
Minimum Initial (s)	7.0	10.0				10.0	7.0	10.0		10.0	10.0	
Minimum Split (s)	13.5	22.5				22.5	13.5	23.5		23.5	23.5	
Total Split (s)	28.0	57.0				23.0	14.0	43.0		29.0	29.0	
Total Split (%)	28.0%	57.0%				23.0%	14.0%	43.0%		29.0%	29.0%	
Yellow Time (s)	3.5	3.5				3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	3.0	3.0				3.0	3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.5	-1.5				-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)	5.0	5.0				5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead						Lead			Lag	Lag	
Lead-Lag Optimize?	Yes						Yes			Yes	Yes	
Recall Mode	None	Min				Min	None	C-Max		C-Max	C-Max	
Act Effct Green (s)	19.9	47.8			23.0	13.8	42.2	42.2		26.3	26.3	100.0
Actuated g/C Ratio	0.20	0.48			0.23	0.14	0.42	0.42		0.26	0.26	1.00
v/c Ratio	0.73	0.63			0.38	0.33	0.45	0.58		0.24	0.56	0.20
Control Delay	50.3	21.5			34.4	42.6	21.5	22.4		33.7	37.6	0.3
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	50.3	21.5			34.4	42.6	21.5	22.4		33.7	37.6	0.3
LOS	D	С			С	D	С	С		С	D	Α
Approach Delay		31.0			36.0			22.2			19.3	
Approach LOS		С			D			С			В	
Queue Length 50th (ft)	143	216			85	41	50	132		30	151	0
Queue Length 95th (ft)	222	292			119	79	112	255		68	241	0
Internal Link Dist (ft)		893			377			661			688	
Turn Bay Length (ft)	200					75	250			100		
Base Capacity (vph)	384	851			907	269	390	785		241	490	1554
Starvation Cap Reductn	0	0			0	0	0	0		0	0	0
Spillback Cap Reductn	0	0			0	0	0	0		0	0	0
Storage Cap Reductn	0	0			0	0	0	0		0	0	0

Rochester Inner Loop 2035 AM Peak Hour Protected Left Stantec



Intersection Summary

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

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

Natural Cycle: 80

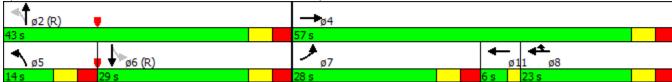
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 26.2 Intersection Capacity Utilization 72.1% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 2: Monroe Ave/Chestnut Street & Inner Loop/Howell St

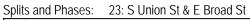


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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø11	
Lane Configurations	ሻ	7	ሻ	1	†	7		
Volume (vph)	81	36	168	653	396	209		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	0	0	100			75		
Storage Lanes	1	1	1			1		
Taper Length (ft)	25		75					
Right Turn on Red		No				No		
Link Speed (mph)	30			30	30			
Link Distance (ft)	134			240	437			
Travel Time (s)	3.0			5.5	9.9			
Confl. Peds. (#/hr)		34	30			30		
Confl. Bikes (#/hr)						20		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90		
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	90	40	187	726	440	232		
Turn Type	NA	Perm	Prot	NA	NA	custom		
Protected Phases	4		5	2	6 11	6	11	
Permitted Phases		4	Ū	_	0	J		
Detector Phase	4	4	5	2	6 11	6		
Switch Phase	•	•	J	_	0 11	J		
Minimum Initial (s)	10.0	10.0	8.0	20.0		20.0	4.0	
Minimum Split (s)	24.5	24.5	13.5	25.5		25.5	6.0	
Total Split (s)	25.0	25.0	23.0	65.0		36.0	6.0	
Total Split (%)	27.8%	27.8%	25.6%	72.2%		40.0%	7%	
Yellow Time (s)	3.5	3.5	3.5	3.5		3.5	2.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	0.0	
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5		-1.5	0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0		
Lead/Lag			Lead				Lag	
Lead-Lag Optimize?			Yes				Yes	
Recall Mode	None	None	None	C-Max		C-Max	Max	
Act Effct Green (s)	12.6	12.6	16.3	73.3	52.2	32.0	Max	
Actuated g/C Ratio	0.14	0.14	0.18	0.81	0.58	0.36		
v/c Ratio	0.37	0.21	0.59	0.49	0.42	0.42		
Control Delay	39.3	36.3	34.0	5.2	6.3	12.2		
Queue Delay	0.0	0.0	0.0	0.0	0.3	0.0		
Total Delay	39.3	36.3	34.0	5.2	6.6	12.2		
LOS	D	D	C	A	A	В		
Approach Delay	38.4	J	Ü	11.1	8.5			
Approach LOS	D			В	A			
Queue Length 50th (ft)	48	21	76	137	42	39		
Queue Length 95th (ft)	90	49	m134	295	m78	m78		
Internal Link Dist (ft)	54	17	111101	160	357	11170		
Turn Bay Length (ft)	JT		100	100	337	75		
Base Capacity (vph)	405	326	377	1488	1058	552		
Starvation Cap Reductn	0	0	0	0	203	0		
Spillback Cap Reductn	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0		
Storage Cap Reductif	U	U	U	U	U	U		

Rochester Inner Loop 2035 AM Peak Hour Protected Left Stantec

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø11
Reduced v/c Ratio	0.22	0.12	0.50	0.49	0.51	0.42	
Intersection Summary							
Area Type:	Other						
Cycle Length: 90							
Actuated Cycle Length: 90)						
Offset: 10 (11%), Referen	ced to phase	2:NBT ar	nd 6:SBT,	Start of C	Green		
Natural Cycle: 70	·						
Control Type: Actuated-C	oordinated						
Maximum v/c Ratio: 0.59							
Intersection Signal Delay:	12.1			Int	tersection	LOS: B	
Intersection Capacity Utili				IC	U Level c	f Service	A
Analysis Period (min) 15							
m Volume for 95th percent	entile queue is	s metered	d by upstr	eam sign	al.		

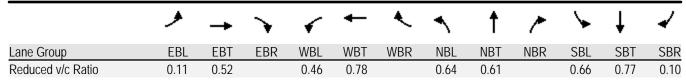




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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	f		ሻ	f		ሻ	↑ ↑		ሻ	<u></u>	7
Volume (vph)	28	191	35	160	331	78	124	532	78	198	410	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	175		0	100		0	250		50
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	75			75			75			75		
Right Turn on Red			No			Yes			Yes			No
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		148			496			437			655	
Travel Time (s)		3.4			11.3			9.9			14.9	
Confl. Peds. (#/hr)	59		15	15		59	23		29	29		23
Confl. Bikes (#/hr)												20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	31	251	0	178	455	0	138	678	0	220	456	38
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		pm+pt	NA	custom
Protected Phases	7	4		3	8		5	2		1	6 11	6
Permitted Phases	4			8						6 11		
Detector Phase	7	4		3	8		5	2		1	6 11	6
Switch Phase												
Minimum Initial (s)	6.0	20.0		6.0	20.0		6.0	20.0		6.0		20.0
Minimum Split (s)	12.0	28.0		12.0	28.0		11.5	25.5		11.5		25.5
Total Split (s)	13.0	29.0		14.0	30.0		15.0	33.0		14.0		26.0
Total Split (%)	14.4%	32.2%		15.6%	33.3%		16.7%	36.7%		15.6%		28.9%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5		3.5
All-Red Time (s)	2.5	2.5		2.5	2.5		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5		-1.5		-1.5
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.0	4.0		4.0		4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead					
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes					
Recall Mode	None	Min		None	Min		None	C-Max		None		C-Max
Act Effct Green (s)	31.3	23.3		35.3	29.6		10.9	29.9		39.6	29.3	22.0
Actuated g/C Ratio	0.35	0.26		0.39	0.33		0.12	0.33		0.44	0.33	0.24
v/c Ratio	0.11	0.55		0.46	0.78		0.66	0.61		0.66	0.77	0.10
Control Delay	16.4	33.7		21.2	39.4		59.0	21.1		25.0	38.1	27.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	16.4	33.7		21.2	39.4		59.0	21.1		25.0	38.1	27.3
LOS	В	С		С	D		Ε	С		С	D	С
Approach Delay		31.8			34.3			27.5			33.5	
Approach LOS		С			С			С			С	
Queue Length 50th (ft)	10	121		63	240		68	177		72	236	17
Queue Length 95th (ft)	26	196		108	#424		#150	107		#130	#389	42
Internal Link Dist (ft)		68			416			357			575	
Turn Bay Length (ft)				175			100			250		50
Base Capacity (vph)	286	482		390	582		215	1118		335	594	379
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0

Rochester Inner Loop 2035 AM Peak Hour Protected Left Stantec

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Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.78

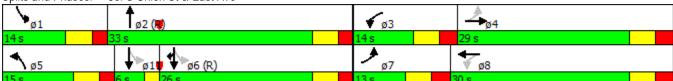
Intersection Signal Delay: 31.5 Intersection LOS: C
Intersection Capacity Utilization 70.7% ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

Splits and Phases: 30: S Union St & East Ave



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	7	f)			^	7	J.	ĵ»		, j	†	7
Volume (vph)	94	276	84	0	641	21	263	340	15	31	536	1285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	100		75	250		0	100		0
Storage Lanes	1		0	0		1	1		0	1		1
Taper Length (ft)	75			75			75			75		
Right Turn on Red			Yes			No			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		973			457			741			768	
Travel Time (s)		22.1			10.4			16.8			17.5	
Confl. Peds. (#/hr)	30		30	30		30	14		41	41		
Confl. Bikes (#/hr)						20						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	99	379	0	0	675	22	277	374	0	33	564	1353
Turn Type	Prot	NA			NA	custom	pm+pt	NA		Perm	NA	Free
Protected Phases	7	4			8 11	8	5	2			6	
Permitted Phases							2			6		Free
Detector Phase	7	4			8 11	8	5	2		6	6	
Switch Phase												
Minimum Initial (s)	4.0	10.0				10.0	7.0	10.0		10.0	10.0	
Minimum Split (s)	10.5	22.5				22.5	13.5	23.5		23.5	23.5	
Total Split (s)	16.0	45.0				23.0	16.0	55.0		39.0	39.0	
Total Split (%)	16.0%	45.0%				23.0%	16.0%	55.0%		39.0%	39.0%	
Yellow Time (s)	3.5	3.5				3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	3.0	3.0				3.0	3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.5	-1.5				-1.5	-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)	5.0	5.0				5.0	5.0	5.0		5.0	5.0	
Lead/Lag	Lead						Lead			Lag	Lag	
Lead-Lag Optimize?	Yes						Yes			Yes	Yes	
Recall Mode	None	Min				Min	None	C-Max		C-Max	C-Max	
Act Effct Green (s)	10.4	38.7			26.0	16.7	51.3	51.3		34.0	34.0	100.0
Actuated g/C Ratio	0.10	0.39			0.26	0.17	0.51	0.51		0.34	0.34	1.00
v/c Ratio	0.54	0.55			0.74	0.08	0.94	0.40		0.10	0.89	0.85
Control Delay	53.8	25.9			40.2	35.1	68.3	18.4		23.8	49.6	6.6
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	53.8	25.9			40.2	35.1	68.3	18.4		23.8	49.6	6.6
LOS	D	С			D	D	Е	В		С	D	Α
Approach Delay		31.7			40.1			39.6			19.3	
Approach LOS		С			D			D			В	
Queue Length 50th (ft)	61	172			213	12	~159	124		14	337	0
Queue Length 95th (ft)	113	262			281	34	#301	262		37	#535	0
Internal Link Dist (ft)		893			377			661			688	
Turn Bay Length (ft)	200				- ,	75	250			100		
Base Capacity (vph)	194	711			964	284	294	946		316	633	1583
Starvation Cap Reductn	0	0			0	0	0	0		0	0	0
Spillback Cap Reductn	0	0			0	0	0	0		0	0	0
Storage Cap Reductn	0	0			0	0	0	0		0	0	0
Reduced v/c Ratio	0.51	0.53			0.70	0.08	0.94	0.40		0.10	0.89	0.85
TOUROUS WO NATIO	0.01	0.00			0.70	0.00	J. 7-7	0.70		0.10	0.07	0.00

Rochester Inner Loop 2035 PM Peak Hour Protected Left Stantec

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Intersection Summary

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

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

Natural Cycle: 90

Control Type: Actuated-Coordinated

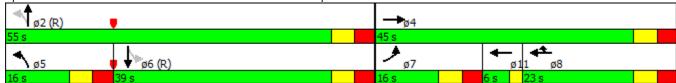
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 28.2 Intersection Capacity Utilization 82.4% ICU Level of Service E

Analysis Period (min) 15

- Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.
- # 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 2: Monroe Ave/Chestnut Street & Inner Loop/Howell St



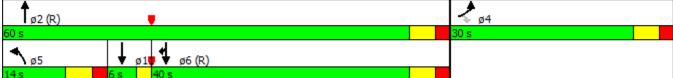
	۶	•	4	†	ļ	4		
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø11	
Lane Configurations	ሻ	7	ሻ	†	†	7		
Volume (vph)	290	161	65	673	510	60		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	0	0	100			75		
Storage Lanes	1	1	1			1		
Taper Length (ft)	25		75					
Right Turn on Red		No				No		
Link Speed (mph)	30			30	30			
Link Distance (ft)	134			240	437			
Travel Time (s)	3.0			5.5	9.9			
Confl. Peds. (#/hr)		43	30			30		
Confl. Bikes (#/hr)						20		
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86		
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%		
Shared Lane Traffic (%)								
Lane Group Flow (vph)	337	187	76	783	593	70		
Turn Type	NA	Perm	Prot	NA	NA	custom		
Protected Phases	4		5	2	6 11	6	11	
Permitted Phases		4						
Detector Phase	4	4	5	2	6 11	6		
Switch Phase								
Minimum Initial (s)	10.0	10.0	8.0	20.0		20.0	4.0	
Minimum Split (s)	24.5	24.5	13.5	25.5		25.5	6.0	
Total Split (s)	30.0	30.0	14.0	60.0		40.0	6.0	
Total Split (%)	33.3%	33.3%	15.6%	66.7%		44.4%	7%	
Yellow Time (s)	3.5	3.5	3.5	3.5		3.5	2.0	
All-Red Time (s)	2.0	2.0	2.0	2.0		2.0	0.0	
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5		-1.5		
Total Lost Time (s)	4.0	4.0	4.0	4.0		4.0		
Lead/Lag			Lead				Lag	
Lead-Lag Optimize?			Yes				Yes	
Recall Mode	None	None	None	C-Max		C-Max	Max	
Act Effct Green (s)	22.5	22.5	9.9	59.5	48.2	36.0		
Actuated g/C Ratio	0.25	0.25	0.11	0.66	0.54	0.40		
v/c Ratio	0.76	0.54	0.39	0.63	0.59	0.11		
Control Delay	42.6	34.5	35.0	14.1	9.3	8.4		
Queue Delay	0.0	0.0	0.0	0.0	0.5	0.0		
Total Delay	42.6	34.5	35.0	14.1	9.8	8.4		
LOS	D	С	D	В	Α	Α		
Approach Delay	39.7			16.0	9.7			
Approach LOS	D			В	Α			
Queue Length 50th (ft)	174	90	36	296	86	10		
Queue Length 95th (ft)	246	143	m64	420	m106	m16		
Internal Link Dist (ft)	54			160	357			
Turn Bay Length (ft)			100			75		
Base Capacity (vph)	511	402	201	1242	998	633		
Starvation Cap Reductn	0	0	0	0	125	0		
Spillback Cap Reductn	0	0	0	0	0	0		
Storage Cap Reductn	0	0	0	0	0	0		

Rochester Inner Loop 2035 PM Peak Hour Protected Left Stantec

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	•	•	•	†	↓	1	
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø11
Reduced v/c Ratio	0.66	0.47	0.38	0.63	0.68	0.11	
Intersection Summary							
Area Type:	Other						
Cycle Length: 90							
Actuated Cycle Length: 90)						
Offset: 6 (7%), Reference	d to phase 2:1	NBT and	6:SBT, St	art of Gre	een		
Natural Cycle: 70	·						
Control Type: Actuated-Co	oordinated						
Maximum v/c Ratio: 0.76							
Intersection Signal Delay:	20.0			Int	tersection	LOS: C	
Intersection Capacity Utiliz	zation 59.6%			IC	U Level o	f Service	В
Analysis Period (min) 15							
m Volume for 95th perce	entile queue is	s metered	by upstr	eam sign	al.		





G-55

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	J.	ĵ»		Ţ	ĵ.		7	↑ ↑		*		7
Volume (vph)	42	470	88	90	367	72	50	668	245	229	392	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	175		0	100		0	250		50
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	75		, ,	75		J	75		, ,	75		·
Right Turn on Red	70		No	70		Yes	70		Yes	70		No
Link Speed (mph)		30	140		30	103		30	103		30	110
Link Distance (ft)		148			496			437			655	
Travel Time (s)		3.4			11.3			9.9			14.9	
Confl. Peds. (#/hr)	27	3.4	50	50	11.5	27	62	7.7	27	27	14.7	62
Confl. Bikes (#/hr)	21		30	30		۷1	UZ		21	21		20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)	2 /0	2 /0	Z /0	3 /0	3 /0	3 /0	Z /0	Z /0	Z /0	Z /0	2 /0	2 /0
	47	420	0	100	400	0	56	1014	0	254	124	34
Lane Group Flow (vph)		620	U		488	U		1014	U		436	
Turn Type	pm+pt	NA		pm+pt	NA		Prot	NA		pm+pt	NA	custom
Protected Phases	7	4		3	8		5	2		/ 11	6 11	6
Permitted Phases	4			8	0		-	0		6 11	/ 11	,
Detector Phase	7	4		3	8		5	2		1	6 11	6
Switch Phase	5 0	00.0		5 0	00.0		F 0	00.0		F 0		00.0
Minimum Initial (s)	5.0	20.0		5.0	20.0		5.0	20.0		5.0		20.0
Minimum Split (s)	11.0	28.0		11.0	28.0		10.5	25.5		10.5		25.5
Total Split (s)	12.0	34.0		12.0	34.0		11.0	31.0		13.0		27.0
Total Split (%)	13.3%	37.8%		13.3%	37.8%		12.2%	34.4%		14.4%		30.0%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5		3.5
All-Red Time (s)	2.5	2.5		2.5	2.5		2.0	2.0		2.0		2.0
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5		-1.5		-1.5
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.0	4.0		4.0		4.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead					
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes					
Recall Mode	None	Min		None	Min		None	C-Max		None		C-Max
Act Effct Green (s)	37.9	31.9		38.8	34.3		7.0	27.0		38.4	31.2	23.2
Actuated g/C Ratio	0.42	0.35		0.43	0.38		0.08	0.30		0.43	0.35	0.26
v/c Ratio	0.15	0.98		0.45	0.71		0.41	0.98		0.95	0.67	0.08
Control Delay	14.8	63.6		21.1	31.9		49.2	47.2		66.7	32.4	26.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.2	0.0
Total Delay	14.8	63.6		21.1	31.9		49.2	47.2		66.7	32.6	26.3
LOS	В	Е		С	С		D	D		Е	С	С
Approach Delay		60.2			30.0			47.3			44.3	
Approach LOS		Е			С			D			D	
Queue Length 50th (ft)	14	~392		31	248		33	205		91	218	15
Queue Length 95th (ft)	33	#596		61	#414		m49	#421		#241	329	39
Internal Link Dist (ft)		68		٥.	416			357			575	0,
Turn Bay Length (ft)		00		175	110		100	007		250	0,0	50
Base Capacity (vph)	312	632		220	687		137	1034		266	646	408
Starvation Cap Reductn	0	0		0	007		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	21	0
Storage Cap Reductin	0	0		0	0		0	0		0	0	0
Sicrage Cap Reductif	U	U		U	U		U	U		U	U	

Rochester Inner Loop 2035 PM Peak Hour Protected Left Stantec

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Reduced v/c Ratio	0.15	0.98		0.45	0.71		0.41	0.98		0.95	0.70	0.08

Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 46.1 Intersection LOS: D
Intersection Capacity Utilization 89.5% ICU Level of Service E

Analysis Period (min) 15

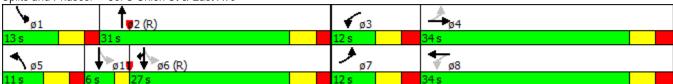
Volume exceeds capacity, queue is theoretically infinite.
 Queue shown is maximum after two cycles.

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

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: S Union St & East Ave

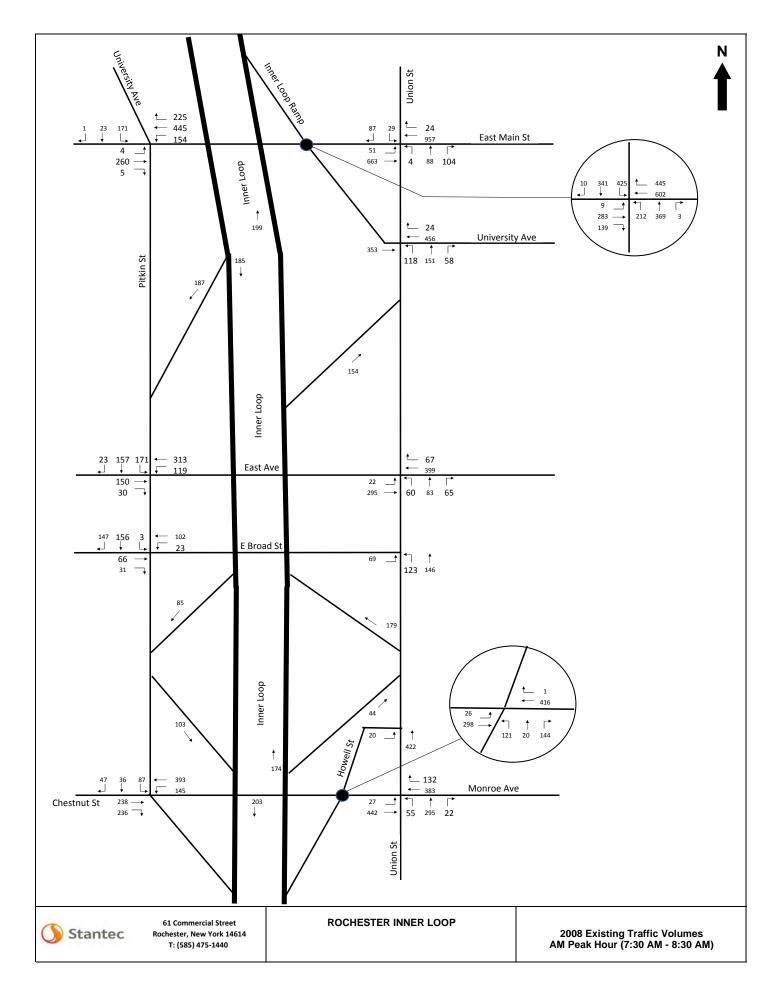


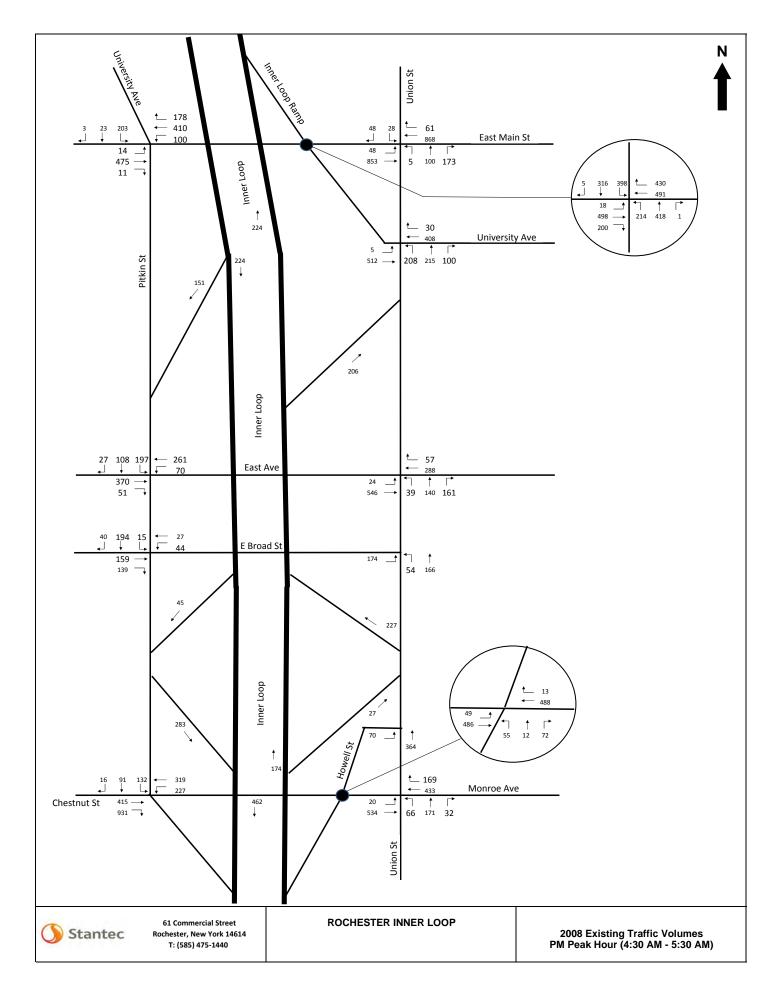
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Appendix G – Traffic Analysis Contents

2008 Existing Conditions

- 2008 Existing Traffic Volumes
- 2008 Existing Capacity Analysis Printouts
- Synchro Files (available upon request)





	>	→	74	4	•	*_	\	*	4	+	*	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		4₽	7					4₽			∱ }	
Volume (vph)	121	20	144	0	0	0	26	298	0	0	416	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		200	0		0	0		0	0		50
Storage Lanes	0		1	0		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frt			0.850									
Flt Protected		0.959						0.996				
Satd. Flow (prot)	0	3266	1524	0	0	0	0	3457	0	0	3471	0
Flt Permitted		0.959						0.910				
Satd. Flow (perm)	0	3266	1524	0	0	0	0	3159	0	0	3471	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			180									
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		768			258			177			418	
Travel Time (s)		17.5			5.9			4.0			9.5	
Peak Hour Factor	0.80	0.80	0.80	0.90	0.95	0.90	0.92	0.92	0.92	0.94	0.94	0.94
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	151	25	180	0	0	0	28	324	0	0	443	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	176	180	0	0	0	0	352	0	0	444	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	· ·		0	· ·		0	J		0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1				1	2			2	
Detector Template	Left		Right				Left	Thru			Thru	
Leading Detector (ft)	20	50	20				20	100			100	
Trailing Detector (ft)	0	0	0				0	0			0	
Detector 1 Position(ft)	0	0	0				0	0			0	
Detector 1 Size(ft)	20	50	20				20	6			6	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex				CI+Ex	CI+Ex			CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0				0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0				0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0				0.0	0.0			0.0	
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Split	NA	Perm				pm+pt	NA			NA	
Protected Phases	2	2					3	13			1	
Permitted Phases			2				13				1	

7:30 am Baseline %user_name%

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Detector Phase	2	2	2				3	13			1	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0				3.0				3.0	
Minimum Split (s)	32.0	32.0	32.0				25.0				25.0	
Total Split (s)	32.0	32.0	32.0				25.0				28.0	
Total Split (%)	37.6%	37.6%	37.6%				29.4%				32.9%	
Maximum Green (s)	27.0	27.0	27.0				20.0				23.0	
Yellow Time (s)	4.0	4.0	4.0				4.0				4.0	
All-Red Time (s)	1.0	1.0	1.0				1.0				1.0	
Lost Time Adjust (s)		0.0	0.0								0.0	
Total Lost Time (s)		5.0	5.0								5.0	
Lead/Lag	Lag	Lag	Lag								Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0				3.0				3.0	
Recall Mode	Min	Min	Min				None				C-Max	
Walk Time (s)	7.0	7.0	7.0				5.0				5.0	
Flash Dont Walk (s)	18.0	18.0	18.0				15.0				15.0	
Pedestrian Calls (#/hr)	0	0	0				0				0	
Act Effct Green (s)		9.9	9.9					60.1			52.0	
Actuated g/C Ratio		0.12	0.12					0.71			0.61	
v/c Ratio		0.46	0.53					0.16			0.21	
Control Delay		38.6	11.8					3.1			8.2	
Queue Delay		0.0	0.0					0.3			0.0	
Total Delay		38.6	11.8					3.4			8.2	
LOS		D	В					Α			Α	
Approach Delay		25.0						3.4			8.2	
Approach LOS		С						А			А	
Intersection Summary												
Area Type:	Other											
Cycle Length: 85												
Actuated Cycle Length: 85												
Offset: 73 (86%), Reference	ced to phase	e 1:NWSE	Start of	Green								
Natural Cycle: 85												
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.53												
Intersection Signal Delay:	11.9			Ir	ntersection	n LOS: B						
Intersection Capacity Utiliz	ation 39.7%	, o		[(CU Level	of Service	e A					
Analysis Period (min) 15												
Splits and Phases: 2471	: Monroe &											
№ ø1 (R)			3 ø2					¥	ø3			

7:30 am Baseline Synchro 7 - Report %user_name% Page 2

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		ર્ન	7					∱ }			414	
Volume (vph)	55	12	72	0	0	0	0	488	13	49	486	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	0		75	0		0
Storage Lanes	0		1	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Frt			0.850					0.996				
Flt Protected		0.961									0.995	
Satd. Flow (prot)	0	1808	1599	0	0	0	0	3525	0	0	3522	0
Flt Permitted		0.961									0.866	
Satd. Flow (perm)	0	1808	1599	0	0	0	0	3525	0	0	3065	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			90					3				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		335			316			315			193	
Travel Time (s)		7.6			7.2			7.2			4.4	
Peak Hour Factor	0.80	0.80	0.80	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	69	15	90	0	0	0	0	514	14	54	540	0
Shared Lane Traffic (%)	07	10	70	· ·		•	· ·	011		0.1	0.10	J
Lane Group Flow (vph)	0	84	90	0	0	0	0	528	0	0	594	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	2011	0	· ··g···	20.0	0		2011	0		2011	0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		10			10							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1			•		1	•	1	1	•
Detector Template			•					•			•	
Leading Detector (ft)	50	50	50					50		50	50	
Trailing Detector (ft)	0	0	0					0		0	0	
Detector 1 Position(ft)	0	0	0					0		0	0	
Detector 1 Size(ft)	50	50	50					50		50	50	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex					CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	OI. EX	OI LX	OI · EX					OI. EX		OI. EX	OI. EX	
Detector 1 Extend (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0					0.0		0.0	0.0	
Turn Type	Split	NA	Perm					NA		pm+pt	NA	
Protected Phases	2	2	1 01111					1		3	13	
Permitted Phases			2					1		13	10	
Detector Phase	2	2	2					1		3	13	
Switch Phase	۷							'		3	1 3	
Minimum Initial (s)	6.0	6.0	6.0					7.0		6.0		
Minimum Split (s)	32.0	32.0	32.0					27.0		11.0		
Total Split (s)	33.0	33.0	33.0					50.0		17.0		
Total Split (S)	აა.0	აა.0	აა.0					50.0		17.0		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Total Split (%)	33.0%	33.0%	33.0%					50.0%		17.0%		
Maximum Green (s)	28.0	28.0	28.0					45.0		12.0		
Yellow Time (s)	4.0	4.0	4.0					4.0		4.0		
All-Red Time (s)	1.0	1.0	1.0					1.0		1.0		
Lost Time Adjust (s)		0.0	0.0					0.0				
Total Lost Time (s)		5.0	5.0					5.0				
Lead/Lag	Lag	Lag	Lag					Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0					2.0		3.0		
Recall Mode	Min	Min	Min					C-Max		None		
Walk Time (s)	7.0	7.0	7.0					7.0				
Flash Dont Walk (s)	18.0	18.0	18.0					15.0				
Pedestrian Calls (#/hr)	0	0	0					0				
Act Effct Green (s)		11.3	11.3					61.7			73.7	
Actuated g/C Ratio		0.11	0.11					0.62			0.74	
v/c Ratio		0.41	0.35					0.24			0.26	
Control Delay		46.0	12.1					8.4			0.8	
Queue Delay		0.0	0.0					0.0			0.2	
Total Delay		46.0	12.1					8.4			1.0	
LOS		D	В					Α			Α	
Approach Delay		28.4						8.4			1.0	
Approach LOS		С						Α			Α	
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 10												
Offset: 65 (65%), Reference	ced to phase	1:NBSB	, Start of C	Green								
Natural Cycle: 70												
Control Type: Actuated-Co	oordinated											
Maximum v/c Ratio: 0.44												
Intersection Signal Delay:				li li	ntersection	n LOS: A						
Intersection Capacity Utiliz	zation 46.3%)		[(CU Level	of Service	Α					
Analysis Period (min) 15												
Splits and Phases: 247	1: Monroe &	IL EB										
#247#2472 # ø1 (R)					#247	#2472 ø2				#2471	2472 Ø3	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations					4 † }			^	77	ħ		
Volume (vph)	0	0	0	87	36	47	0	238	236	145	393	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	1.00	0.95	0.88	1.00	1.00	1.00
Frt					0.958				0.850			
Flt Protected					0.975					0.950		
Satd. Flow (prot)	0	0	0	0	4659	0	0	3505	2760	1736	1827	0
Flt Permitted					0.975					0.595		
Satd. Flow (perm)	0	0	0	0	4659	0	0	3505	2760	1087	1827	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					59				251			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		494			239			635			177	
Travel Time (s)		11.2			5.4			14.4			4.0	
Peak Hour Factor	0.90	0.90	0.90	0.80	0.80	0.80	0.94	0.94	0.94	0.88	0.88	0.88
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	0	0	0	109	45	59	0	253	251	165	447	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	213	0	0	253	251	165	447	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	J •		0			12	J ·		12	J
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		25	15		9
Number of Detectors				1	2			2	1	1	2	
Detector Template				Left	Thru			Thru	Right	Left	Thru	
Leading Detector (ft)				20	100			100	20	20	100	
Trailing Detector (ft)				0	0			0	0	0	0	
Detector 1 Position(ft)				0	0			0	0	0	0	
Detector 1 Size(ft)				20	6			6	20	20	6	
Detector 1 Type				CI+Ex	CI+Ex			CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0			0.0	0.0	0.0	0.0	
Detector 1 Queue (s)				0.0	0.0			0.0	0.0	0.0	0.0	
Detector 1 Delay (s)				0.0	0.0			0.0	0.0	0.0	0.0	
Detector 2 Position(ft)					94			94			94	
Detector 2 Size(ft)					6			6			6	
Detector 2 Type					CI+Ex			CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)					0.0			0.0			0.0	
Turn Type				Split	NA			NA	Free	pm+pt	NA	
Protected Phases				3	3			1		2	12	
Permitted Phases					<u> </u>				Free	12	' -	
Detector Phase				3	3			1	. 100	2	12	
Switch Phase					J						1 4	
Minimum Initial (s)				3.0	3.0			3.0		3.0		
wiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiiii				5.0	5.0			5.0		3.0		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Minimum Split (s)				25.0	25.0			25.0		25.0		
Total Split (s)				25.0	25.0			25.0		25.0		
Total Split (%)				33.3%	33.3%			33.3%		33.3%		
Maximum Green (s)				20.0	20.0			20.0		20.0		
Yellow Time (s)				3.0	3.0			3.0		3.0		
All-Red Time (s)				2.0	2.0			2.0		2.0		
Lost Time Adjust (s)					0.0			0.0		0.0		
Total Lost Time (s)					5.0			5.0		5.0		
Lead/Lag								Lead		Lag		
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0			3.0		3.0		
Recall Mode				None	None			C-Max		Max		
Walk Time (s)				5.0	5.0			5.0		5.0		
Flash Dont Walk (s)				15.0	15.0			15.0		15.0		
Pedestrian Calls (#/hr)				0	0			0		0		
Act Effct Green (s)					7.9			32.1	75.0	52.1	57.1	
Actuated g/C Ratio					0.11			0.43	1.00	0.69	0.76	
v/c Ratio					0.39			0.17	0.09	0.18	0.32	
Control Delay					24.3			14.0	0.1	3.5	3.7	
Queue Delay					0.0			0.0	0.0	0.9	7.3	
Total Delay					24.3			14.0	0.1	4.3	11.0	
LOS					С			В	А	А	В	
Approach Delay					24.3			7.0			9.2	
Approach LOS					С			Α			Α	
Intersection Summary												
	her											
Cycle Length: 75												
Actuated Cycle Length: 75												
Offset: 65 (87%), Referenced to	to phase	1:NWSE	. Start of	Green								
Natural Cycle: 75			,									
Control Type: Actuated-Coordi	inated											
Maximum v/c Ratio: 0.39												
Intersection Signal Delay: 10.8	}			lr	ntersection	LOS: B						
Intersection Capacity Utilizatio)				of Service	Α					
Analysis Period (min) 15												
Splits and Phases: 571: Mor	nroe/Ch	estnut & F	Pitkin									
№ ø1 (R)			ø2					4 ø3				

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					ብ ተ ቡ			4₽			^	77
Volume (vph)	0	0	0	132	91	16	227	319	0	0	415	931
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	0.95	0.95	1.00	1.00	0.95	0.88
Frt					0.990							0.850
Flt Protected					0.973			0.980				
Satd. Flow (prot)	0	0	0	0	4899	0	0	3468	0	0	3539	2787
Flt Permitted					0.973			0.648				
Satd. Flow (perm)	0	0	0	0	4899	0	0	2293	0	0	3539	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					9							1023
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		410			1027			193			627	
Travel Time (s)		9.3			23.3			4.4			14.3	
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	0	0.70	0.70	143	99	17	241	339	0	0.71	456	1023
Shared Lane Traffic (%)	J	· ·	· ·	1 10	,,	.,	211	007	J	J	100	1020
Lane Group Flow (vph)	0	0	0	0	259	0	0	580	0	0	456	1023
Enter Blocked Intersection	No	No	No	No	Yes	No	Yes	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	Lort	0	rtigitt	Lon	0	rtigitt	Lore	12	ragin	Lort	12	ragne
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		10			10			10			10	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	1.00	9	15	1.00	9	15	1.00	9	15	1.00	25
Number of Detectors	10		,	1	1	,	1	1	,	10	1	1
Detector Template					'			'				
Leading Detector (ft)				50	50		50	50			50	50
Trailing Detector (ft)				0	0		0	0			0	0
Detector 1 Position(ft)				0	0		0	0			0	0
Detector 1 Size(ft)				50	50		50	50			50	50
Detector 1 Type				CI+Ex	CI+Ex		CI+Ex	CI+Ex			CI+Ex	CI+Ex
Detector 1 Channel				CITEX	OITEX		OITEX	CITEX			OITEX	CITEX
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	0.0
Turn Type				Split	NA		pm+pt	NA			NA	Free
Protected Phases				3	3		2	12			1	1100
Permitted Phases				J	J		12	1 2			'	Free
Detector Phase				3	3		2	12			1	1166
Switch Phase				J	J			1 2			'	
Minimum Initial (s)				6.0	6.0		6.0				7.0	
Minimum Split (s)				11.0	11.0		32.0				27.0	
Total Split (s)				17.0	17.0		33.0				50.0	
Total Split (%)				17.0%	17.0%		33.0%				50.0%	
				17.0%	17.0%		28.0				45.0	
Maximum Green (s)												
Yellow Time (s)				4.0	4.0		4.0				4.0	
All-Red Time (s)				1.0	1.0		1.0				1.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)					0.0						0.0	
Total Lost Time (s)					5.0						5.0	
Lead/Lag							Lag				Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0				2.0	
Recall Mode				None	None		Min				C-Max	
Walk Time (s)							7.0				7.0	
Flash Dont Walk (s)							18.0				15.0	
Pedestrian Calls (#/hr)							0				0	
Act Effct Green (s)					12.0			73.0			61.7	100.0
Actuated g/C Ratio					0.12			0.73			0.62	1.00
v/c Ratio					0.44			0.32			0.21	0.37
Control Delay					39.4			2.1			6.9	0.3
Queue Delay					0.0			0.0			0.0	0.0
Total Delay					39.4			2.1			6.9	0.3
LOS					D			Α			Α	Α
Approach Delay					39.4			2.1			2.4	
Approach LOS					D			Α			Α	
Intersection Summary												
<i>3</i> I	ther											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 65 (65%), Referenced	to phase	1:NBSB,	Start of (Green								
Natural Cycle: 70												
Control Type: Actuated-Coord	dinated											
Maximum v/c Ratio: 0.44												
Intersection Signal Delay: 6.4					tersection							
Intersection Capacity Utilization	on 46.7%			IC	CU Level o	of Service	Α					
Analysis Period (min) 15												
	/lonroe/Ch	estnut &	Pitkin									
#247#2472					#247	#2472 ø2				#247	#2472 Ø3	
50 s					33 s					17 s		

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Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations	ሻ	∱ }					7	†			^	7
Volume (vph)	55	295	22	0	0	0	27	442	0	0	383	132
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	250		250	0		0	0		0	0		50
Storage Lanes	1		0	0		0	1		0	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.990										0.850
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1752	3470	0	0	0	0	1719	1810	0	0	1827	1553
Flt Permitted	0.950						0.473					
Satd. Flow (perm)	1752	3470	0	0	0	0	856	1810	0	0	1827	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9										113
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		500			568			202			736	
Travel Time (s)		11.4			12.9			4.6			16.7	
Peak Hour Factor	0.90	0.90	0.90	0.95	0.95	0.90	0.85	0.85	0.85	0.90	0.90	0.90
Heavy Vehicles (%)	3%	3%	3%	2%	2%	2%	5%	5%	5%	4%	4%	4%
Adj. Flow (vph)	61	328	24	0	0	0	32	520	0	0	426	147
Shared Lane Traffic (%)	UI	320	24	U	U	U	JZ	320	U	U	420	147
Lane Group Flow (vph)	61	352	0	0	0	0	32	520	0	0	426	147
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
	Left	Left		Left						Left		
Lane Alignment	Leit		Right	Leit	Left	Right	Left	Left	Right	Leit	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane	4.00	4.00	1.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	1.00
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	1	9	15		9	15	0	9	15	0	9
Number of Detectors	1	1					1	2			2	1
Detector Template	Left						Left	Thru			Thru	
Leading Detector (ft)	20	50					20	100			100	50
Trailing Detector (ft)	0	0					0	0			0	0
Detector 1 Position(ft)	0	0					0	0			0	0
Detector 1 Size(ft)	20	50					20	6			6	50
Detector 1 Type	CI+Ex	CI+Ex					CI+Ex	CI+Ex			CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0					0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0	0.0					0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0	0.0					0.0	0.0			0.0	0.0
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	custom	NA					D.Pm	NA			NA	Perm
Protected Phases											4	
Permitted Phases	2	2					4	4				4
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Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	SEL	SET	SER	NWL	NWT	NWR
Detector Phase	2	2					4	4			4	4
Switch Phase												
Minimum Initial (s)	9.0	9.0					3.0	3.0			3.0	3.0
Minimum Split (s)	22.0	22.0					25.0	25.0			25.0	25.0
Total Split (s)	28.0	28.0					52.0	52.0			52.0	52.0
Total Split (%)	35.0%	35.0%					65.0%	65.0%			65.0%	65.0%
Maximum Green (s)	23.0	23.0					47.0	47.0			47.0	47.0
Yellow Time (s)	4.0	4.0					5.0	5.0			5.0	5.0
All-Red Time (s)	1.0	1.0					0.0	0.0			0.0	0.0
Lost Time Adjust (s)	0.0	0.0					0.0	0.0			0.0	0.0
Total Lost Time (s)	5.0	5.0					5.0	5.0			5.0	5.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	4.0	4.0					3.0	3.0			3.0	3.0
Recall Mode	None	None					None	None			None	None
Walk Time (s)	7.0	7.0					5.0	5.0			5.0	5.0
Flash Dont Walk (s)	8.0	8.0					15.0	15.0			15.0	15.0
Pedestrian Calls (#/hr)	0	0					0	0			0	0
Act Effct Green (s)	12.1	12.1					23.0	23.0			23.0	23.0
Actuated g/C Ratio	0.26	0.26					0.50	0.50			0.50	0.50
v/c Ratio	0.13	0.38					0.07	0.57			0.47	0.18
Control Delay	17.2	16.9					6.1	10.4			8.9	2.7
Queue Delay	0.0	0.0					0.0	0.0			0.0	0.0
Total Delay	17.2	16.9					6.1	10.4			8.9	2.7
LOS	В	В					Α	В			Α	А
Approach Delay		16.9						10.2			7.3	
Approach LOS		В						В			Α	
Intersection Summary												
Area Type:	Other											
Cycle Length: 80												
Actuated Cycle Length: 45	.9											
Natural Cycle: 50												
Control Type: Semi Act-Un	ncoord											
Maximum v/c Ratio: 0.57												
Intersection Signal Delay:	10.9			In	tersection	n LOS: B						
Intersection Capacity Utiliz)			U Level		e A					
Analysis Period (min) 15												
Splits and Phases: 246:	Union & Mo	nroe										
Tø2			1 04									
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	†			1	7	ሻ	4 1>				
Volume (vph)	20	534	0	0	433	169	66	171	32	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		50	250		250	0		0
Storage Lanes	1		0	0		1	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt						0.850		0.976				
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1787	1881	0	0	1881	1599	1752	3421	0	0	0	0
Flt Permitted	0.458						0.950					
Satd. Flow (perm)	862	1881	0	0	1881	1599	1752	3421	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						140		19				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		286			720			700			476	
Travel Time (s)		6.5			16.4			15.9			10.8	
Peak Hour Factor	0.92	0.92	0.92	0.87	0.87	0.87	0.86	0.86	0.86	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	22	580	0	0	498	194	77	199	37	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	22	580	0	0	498	194	77	236	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12	9		12	9		12	9		12	9
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1	1	1	1				
Detector Template												
Leading Detector (ft)	50	50			50	50	50	50				
Trailing Detector (ft)	0	0			0	0	0	0				
Detector 1 Position(ft)	0	0			0	0	0	0				
Detector 1 Size(ft)	50	50			50	50	50	50				
Detector 1 Type	CI+Ex	CI+Ex			CI+Ex	CI+Ex	CI+Ex	CI+Ex				
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0				
Turn Type	Perm	NA			NA	Perm	Split	NA				
Protected Phases		1			1		2	2				
Permitted Phases	1					1						
Detector Phase	1	1			1	1	2	2				
Switch Phase	·	·			·		_	_				
Minimum Initial (s)	7.0	7.0			7.0	7.0	9.0	9.0				
Minimum Split (s)	23.0	23.0			23.0	23.0	22.0	22.0				
Total Split (s)	75.0	75.0			75.0	75.0	25.0	25.0				
- 3.31 Opin (0)	, 0.0	, 0.0			, 0.0	, 0.0	20.0	20.0				

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Lana Crave	EDI		▼	▼	WDT	WDD	ND.	I NDT	/ NDD	CDI	CDT	CDE
Lane Group Total Split (%)	75.0%	75.0%	EBR	WBL	WBT 75.0%	WBR 75.0%	NBL 25.0%	NBT 25.0%	NBR	SBL	SBT	SBF
	75.0%	75.0%			70.0%	70.0	20.0	20.0%				
Maximum Green (s) Yellow Time (s)	4.0	4.0			4.0	4.0	4.0	4.0				
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	0.0	0.0	0.0				
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0	5.0				
Lead/Lag	Lead	Lead			Lead	Lead						
	Leau	Leau			Leau	Leau	Lag	Lag				
Lead-Lag Optimize?	2.0	2.0			2.0	2.0	4.0	4.0				
Vehicle Extension (s)	2.0	2.0			2.0	2.0	4.0	4.0				
Recall Mode	C-Max	C-Max			C-Max	C-Max	None	None				
Walk Time (s)	7.0	7.0			7.0	7.0	7.0	7.0				
Flash Dont Walk (s)	11.0	11.0			11.0	11.0	8.0	8.0				
Pedestrian Calls (#/hr)	0	0			0	0	0	0				
Act Effct Green (s)	77.2	77.2			77.2	77.2	12.8	12.8				
Actuated g/C Ratio	0.77	0.77			0.77	0.77	0.13	0.13				
v/c Ratio	0.03	0.40			0.34	0.15	0.35	0.52				
Control Delay	4.5	8.0			2.1	0.4	43.2	41.1				
Queue Delay	0.0	0.3			0.0	0.0	0.0	0.0				
Total Delay	4.5	8.3			2.1	0.4	43.2	41.1				
LOS	А	A			A	Α	D	D				
Approach Delay		8.1			1.6			41.6				
Approach LOS		Α			Α			D				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 10												
Offset: 97 (97%), Reference	ed to phase	e 1:EBWB,	Start of (Green								
Natural Cycle: 50												
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.52												
Intersection Signal Delay: 1					ntersectio							
Intersection Capacity Utiliz	ation 43.9%	, D		ŀ	CU Level	of Service	e A					
Analysis Period (min) 15												
Splits and Phases: 246:	Union & Mo	onroe										
≠ ø1 (R)									↑ ø2			

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2
Lane Configurations	ሻሻ		ች	^	-		
Volume (vph)	69	0	123	146	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	200		.,	0	
Storage Lanes	2	0	1			0	
Taper Length (ft)	25		25				
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00	
Frt	0.,,			0.70			
Flt Protected	0.950		0.950				
Satd. Flow (prot)	3367	0	1770	3539	0	0	
Flt Permitted	0.950	•	0.950	0007		· ·	
Satd. Flow (perm)	3367	0	1770	3539	0	0	
Right Turn on Red	0007	Yes	1770	0007		Yes	
Satd. Flow (RTOR)		1 00				105	
Link Speed (mph)	30			30	30		
Link Distance (ft)	136			556	451		
Travel Time (s)	3.1			12.6	10.3		
Peak Hour Factor	0.90	0.90	0.95	0.95	0.90	0.90	
Heavy Vehicles (%)	4%	4%	2%	2%	2%	2%	
Adj. Flow (vph)	77	0	129	154	0	0	
Shared Lane Traffic (%)	11	U	127	137	U	U	
Lane Group Flow (vph)	77	0	129	154	0	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	24	Right	Leit	12	12	Rigitt	
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane	10			10	10		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	1.00	9	1.00	1.00	1.00	9	
Number of Detectors	13	7	13	1		7	
Detector Template	ı			ı			
Leading Detector (ft)	50		50	50			
Trailing Detector (ft)	0		0	0			
Detector 1 Position(ft)	0		0	0			
Detector 1 Size(ft)	50		50	50			
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex			
Detector 1 Channel	CITLX		CITLX	CITLX			
Detector 1 Extend (s)	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0			
	0.0		0.0	0.0			
Detector 1 Delay (s) Turn Type	Prot		Prot	NA			
Protected Phases			3				2
Permitted Phases	1		3	2 3			۷
	1		3	2.2			
Detector Phase	1		3	2 3			
Switch Phase Minimum Initial (s)	7.0		4.0				10.0
Minimum Initial (s)	7.0		6.0				10.0
Minimum Split (s)	21.0		24.0				28.0
Total Split (s)	22.0		39.0				39.0

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	
Total Split (%)	22.0%		39.0%				39%	
Maximum Green (s)	16.0		34.0				34.0	
Yellow Time (s)	4.0		4.0				4.0	
All-Red Time (s)	2.0		1.0				1.0	
Lost Time Adjust (s)	0.0		0.0					
Total Lost Time (s)	6.0		5.0					
Lead/Lag	Lead						Lag	
Lead-Lag Optimize?								
Vehicle Extension (s)	2.0		4.0				3.0	
Recall Mode	C-Max		None				None	
Walk Time (s)	7.0						7.0	
Flash Dont Walk (s)	8.0						15.0	
Pedestrian Calls (#/hr)	0						0	
Act Effct Green (s)	58.7		14.1	30.3				
Actuated g/C Ratio	0.59		0.14	0.30				
v/c Ratio	0.04		0.52	0.14				
Control Delay	1.5		46.2	24.4				
Queue Delay	0.4		0.0	0.0				
Total Delay	1.9		46.2	24.4				
LOS	Α		D	С				
Approach Delay	1.9			34.3				
Approach LOS	Α			С				
Intersection Summary								
Area Type:	Other							
Cycle Length: 100								
Actuated Cycle Length: 10								
Offset: 54 (54%), Reference	ced to phase	1:EBWB,	Start of (Green				
Natural Cycle: 75								
Control Type: Actuated-Co	oordinated							
Maximum v/c Ratio: 0.55								
Intersection Signal Delay:					ersection			
Intersection Capacity Utiliz	zation 23.3%			IC	U Level c	of Service	: A	
Analysis Period (min) 15								
Splits and Phases: 2592	2: Union & Br	nad						
#259 # 2592	#259#2					T	#259#259	92
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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2
Lane Configurations	ሻሻ		ሻ	^	-		
Volume (vph)	174	0	54	166	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	200	1700	1700	0	
Storage Lanes	2	0	1			0	
Taper Length (ft)	25		25				
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00	
Frt	0.77	1.00	1.00	0.70	1.00	1.00	
Flt Protected	0.950		0.950				
Satd. Flow (prot)	3433	0	1787	3574	0	0	
Flt Permitted	0.950	U	0.950	337 4	U	U	
Satd. Flow (perm)	3433	0	1787	3574	0	0	
Right Turn on Red	3733	Yes	1707	JJ 7	U	Yes	
Satd. Flow (RTOR)		163				103	
Link Speed (mph)	30			30	30		
Link Distance (ft)	175			499	451		
Travel Time (s)	4.0			11.3	10.3		
Peak Hour Factor	0.88	0.88	0.86	0.86	0.90	0.90	
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%	
Adj. Flow (vph)	198	0	63	193	0	0	
Shared Lane Traffic (%)	170	U	03	173	U	U	
Lane Group Flow (vph)	198	0	63	193	0	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	24	Rigiil	Leit	12	12	Rigiti	
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
` '	10			10	10		
Two way Left Turn Lane	1.00	1.00	1.00	1.00	1.00	1.00	
Headway Factor	1.00	9	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9		1		9	
Number of Detectors	1		1	1			
Detector Template	ΓO		Γ0	ΓO			
Leading Detector (ft)	50		50	50			
Trailing Detector (ft)	0		0	0			
Detector 1 Position(ft)	0		0	0			
Detector 1 Size(ft)	50		50 CL Ev	50			
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex			
Detector 1 Channel	0.0		0.0	0.0			
Detector 1 Extend (s)	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0			
Turn Type	Prot		Prot	NA			2
Protected Phases	1		3	2 3			2
Permitted Phases							
Detector Phase	1		3	2 3			
Switch Phase							
Minimum Initial (s)	7.0		6.0				10.0
Minimum Split (s)	21.0		24.0				28.0
Total Split (s)	37.0		30.0				33.0

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	
Total Split (%)	37.0%		0.0%	NDT	ODT	ODIC	33%	
Maximum Green (s)	31.0	J.	25.0				28.0	
Yellow Time (s)	4.0		4.0				4.0	
All-Red Time (s)	2.0		1.0				1.0	
Lost Time Adjust (s)	0.0		0.0				1.0	
Total Lost Time (s)	6.0		5.0					
Lead/Lag	Lead		0.0				Lag	
Lead-Lag Optimize?	Loud						Lug	
Vehicle Extension (s)	2.0		4.0				3.0	
Recall Mode	C-Max	ı	None				None	
Walk Time (s)	7.0	'	10110				7.0	
Flash Dont Walk (s)	8.0						15.0	
Pedestrian Calls (#/hr)	0						0	
Act Effct Green (s)	62.6		10.1	26.4			-	
Actuated g/C Ratio	0.63		0.10	0.26				
v/c Ratio	0.09		0.35	0.20				
Control Delay	2.8		50.8	31.7				
Queue Delay	0.4		0.0	0.0				
Total Delay	3.3		50.8	31.7				
LOS	А		D	С				
Approach Delay	3.3			36.4				
Approach LOS	А			D				
Intersection Summary								
Area Type:	Other							
Cycle Length: 100								
Actuated Cycle Length: 10								
Offset: 25 (25%), Reference	ced to phase	1:EBWB, S	tart of (Green				
Natural Cycle: 75								
Control Type: Actuated-Co	oordinated							
Maximum v/c Ratio: 0.51								
Intersection Signal Delay:					ersection			
Intersection Capacity Utiliz	zation 23.3%			IC	U Level c	f Service	Α	
Analysis Period (min) 15								
Splits and Phases: 2592	2: Union & Br	oad						
#259#2592		-	#259	#2592				#259#2592
ø1 (R)			↓▶	T _{ø2}				▼ 1 ø3

Lane Group EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT Lane Configurations ↑↑ ↑ ↑↑	147 1900 0.91
Volume (vph) 0 66 31 23 102 0 0 0 3 156 Ideal Flow (vphpl) 1900 190	1900
Volume (vph) 0 66 31 23 102 0 0 0 3 156 Ideal Flow (vphpl) 1900 190	1900
Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 190	
	0.91
Lanc viii. i avivi 1.00 0.30 1.00 0.30 1.00 1.00 1.00 1.00	
Frt 0.850 0.928	
Flt Protected 0.991 0.999	
Satd. Flow (prot) 0 3471 1553 0 3507 0 0 0 0 4714	0
Flt Permitted 0.914 0.999	
Satd. Flow (perm) 0 3471 1553 0 3235 0 0 0 0 4714	0
Right Turn on Red Yes Yes Yes	Yes
Satd. Flow (RTOR) 76 179	
Link Speed (mph) 30 30 30	
Link Distance (ft) 786 136 477 435	
Travel Time (s) 17.9 3.1 10.8 9.9	
Peak Hour Factor 0.79 0.79 0.79 0.85 0.85 0.90 0.90 0.90 0.82 0.82	0.82
Heavy Vehicles (%) 4% 4% 4% 2% 2% 2% 2% 2% 2% 2% 2% 2%	2%
Adj. Flow (vph) 0 84 39 27 120 0 0 0 4 190	179
Shared Lane Traffic (%)	
Lane Group Flow (vph) 0 84 39 0 147 0 0 0 0 373	0
Enter Blocked Intersection No	No
Lane Alignment Left Left Right Left Right Left Left Right Left Left	Right
Median Width(ft) 0 0 0	J
Link Offset(ft) 0 0 0	
Crosswalk Width(ft) 16 16 16	
Two way Left Turn Lane	
Headway Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	1.00
Turning Speed (mph) 15 9 15 9 15 9 15	9
Number of Detectors 1 1 1 1 1 1	
Detector Template	
Leading Detector (ft) 50 50 50 50 50 50	
Trailing Detector (ft) 0 0 0 0 0	
Detector 1 Position(ft) 0 0 0 0 0	
Detector 1 Size(ft) 50 50 50 50 50 50	
Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex	
Detector 1 Channel	
Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0	
Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0	
Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0	
Turn Type NA Perm D.P+P NA Split NA	
Protected Phases 1 3 13 2 2	
Permitted Phases 1 1	
Detector Phase 1 1 3 13 2 2	
Switch Phase	
Minimum Initial (s) 7.0 7.0 6.0 10.0	
Minimum Split (s) 21.0 21.0 24.0 28.0 28.0	
Total Split (s) 22.0 22.0 39.0 39.0 39.0	
Total Split (%) 22.0% 22.0% 39.0% 39.0% 39.0%	
Maximum Green (s) 16.0 16.0 34.0 34.0	
Yellow Time (s) 4.0 4.0 4.0 4.0	

7:30 am Baseline %user_name%

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)		2.0	2.0	1.0						1.0	1.0	
Lost Time Adjust (s)		0.0	0.0								0.0	
Total Lost Time (s)		6.0	6.0								5.0	
Lead/Lag		Lead	Lead							Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)		2.0	2.0	4.0						3.0	3.0	
Recall Mode		C-Max	C-Max	None						None	None	
Walk Time (s)		7.0	7.0							7.0	7.0	
Flash Dont Walk (s)		8.0	8.0							15.0	15.0	
Pedestrian Calls (#/hr)		0	0							0	0	
Act Effct Green (s)		58.7	58.7		71.9						11.1	
Actuated g/C Ratio		0.59	0.59		0.72						0.11	
v/c Ratio		0.04	0.04		0.06						0.55	
Control Delay		5.0	1.8		0.5						12.1	
Queue Delay		0.0	0.0		0.2						0.0	
Total Delay		5.0	1.8		0.7						12.1	
LOS		Α	А		Α						В	
Approach Delay		4.0			0.7						12.1	
Approach LOS		Α			Α						В	
Intersection Summary												
<i>J</i> 1	ther											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 54 (54%), Referenced	to phase	1:EBWE	3, Start of	Green								
Natural Cycle: 75												
Control Type: Actuated-Coord	dinated											
Maximum v/c Ratio: 0.55												
Intersection Signal Delay: 8.0					tersection							
Intersection Capacity Utilization	on 34.2%			IC	U Level o	of Service	: A					
Analysis Period (min) 15												
Splits and Phases: 2591: Pitkin & Broad												
#259#2592	#259#2	2592					#259#25	92				
★ ø _{1 (R)}	4	pg2					*	ø3				
22 s	39 s						39 s					

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		^	7		₽₽₽						4 † 1	
Volume (vph)	0	159	139	44	27	0	0	0	0	15	194	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.91	0.91	1.00	1.00	1.00	1.00	0.91	0.91	0.91
Frt			0.850								0.976	
Flt Protected					0.970						0.997	
Satd. Flow (prot)	0	3539	1583	0	4933	0	0	0	0	0	4948	0
Flt Permitted					0.781						0.997	
Satd. Flow (perm)	0	3539	1583	0	3972	0	0	0	0	0	4948	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			181								40	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		750			175			248			439	
Travel Time (s)		17.0			4.0			5.6			10.0	
Peak Hour Factor	0.77	0.77	0.77	0.75	0.75	0.75	0.90	0.90	0.90	0.82	0.82	0.82
Adj. Flow (vph)	0	206	181	59	36	0	0	0	0	18	237	49
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	206	181	0	95	0	0	0	0	0	304	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12	J .		12	J		0	J		0	9
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1	1	1					1	1	
Detector Template												
Leading Detector (ft)		50	50	50	50					50	50	
Trailing Detector (ft)		0	0	0	0					0	0	
Detector 1 Position(ft)		0	0	0	0					0	0	
Detector 1 Size(ft)		50	50	50	50					50	50	
Detector 1 Type		CI+Ex	CI+Ex	CI+Ex	CI+Ex					CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Turn Type		NA	Perm	D.P+P	NA					Split	NA	
Protected Phases		1		3	13					2	2	
Permitted Phases			1	1								
Detector Phase		1	1	3	13					2	2	
Switch Phase												
Minimum Initial (s)		7.0	7.0	6.0						10.0	10.0	
Minimum Split (s)		21.0	21.0	24.0						28.0	28.0	
Total Split (s)		37.0	37.0	30.0						33.0	33.0	
Total Split (%)		37.0%	37.0%	30.0%						33.0%	33.0%	
Maximum Green (s)		31.0	31.0	25.0						28.0	28.0	
Yellow Time (s)		4.0	4.0	4.0						4.0	4.0	
All-Red Time (s)		2.0	2.0	1.0						1.0	1.0	

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Lane Group	EBL EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0								0.0	
Total Lost Time (s)	6.0	6.0								5.0	
Lead/Lag	Lead	Lead							Lag	Lag	
Lead-Lag Optimize?											
Vehicle Extension (s)	2.0	2.0	4.0						3.0	3.0	
Recall Mode	C-Max	C-Max	None						None	None	
Walk Time (s)	7.0	7.0							7.0	7.0	
Flash Dont Walk (s)	8.0	8.0							15.0	15.0	
Pedestrian Calls (#/hr)	0	0							0	0	
Act Effct Green (s)	62.6	62.6		71.6						11.4	
Actuated g/C Ratio	0.63	0.63		0.72						0.11	
v/c Ratio	0.09	0.17		0.03						0.51	
Control Delay	4.2	0.3		1.1						34.8	
Queue Delay	0.0	0.0		0.0						0.0	
Total Delay	4.2	0.3		1.1						34.8	
LOS	Α	Α		Α						С	
Approach Delay	2.4			1.1						34.8	
Approach LOS	А			Α						С	
Intersection Summary											
J1 -	her										
Cycle Length: 100											
Actuated Cycle Length: 100			_								
Offset: 25 (25%), Referenced to Natural Cycle: 75	to phase 1:EBWE	3, Start of	Green								
Control Type: Actuated-Coordi	inated										
Maximum v/c Ratio: 0.51	iriatea										
Intersection Signal Delay: 14.8	2		ln	tersection	1 ∩S· R						
Intersection Capacity Utilizatio					of Service	Δ					
Analysis Period (min) 15	11 30.770		10	O LCVCI (or oct vice	, A					
Splits and Phases: 2591: Pi	tkin & Broad										
#259#2592		#259	#2592				#259	#2592			
ø1 (R)		4	f _{ø2}				❖	1 ø3			
37 s		33 s					30 s				

Lane Configurations		۶	→	•	•	←	•	•	†	/	/	ļ	4
Volume (vph) 22 295 0 0 399 67 60 83 65 0 0 0 Ideal Flow (vphpl) 1900 <th>Lane Group</th> <th>EBL</th> <th>EBT</th> <th>EBR</th> <th>WBL</th> <th>WBT</th> <th>WBR</th> <th>NBL</th> <th>NBT</th> <th>NBR</th> <th>SBL</th> <th>SBT</th> <th>SBR</th>	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph) 22 295 0 0 399 67 60 83 65 0 0 0 0 10deal Flow (vphpl) 1900 </td <td>Lane Configurations</td> <td></td> <td>41}</td> <td></td> <td></td> <td>ትЪ</td> <td></td> <td></td> <td>414</td> <td>7</td> <td></td> <td></td> <td></td>	Lane Configurations		41}			ት Ъ			414	7			
Lane Util. Factor 0.95 0.95 1.00 1.00 0.95 0.95 0.95 0.95 1.00 <td></td> <td>22</td> <td></td> <td>0</td> <td>0</td> <td></td> <td>67</td> <td>60</td> <td></td> <td>65</td> <td>0</td> <td>0</td> <td>0</td>		22		0	0		67	60		65	0	0	0
Fit 0.997 0.979 Satd. Flow (prot) 0 3461 0 0 3395 0 0 3366 1538 0	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Fit Protected	Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Satd. Flow (prot) 0 3461 0 0 3395 0 0 3366 1538 0 0 0 Flt Permitted 0.913 0 0 3395 0 0 3366 1538 0 0 0 Satd. Flow (perm) 0 3169 0 0 3395 0 0 3366 1538 0 0 0 0 Right Turn on Red Yes	Frt					0.978				0.850			
Fit Permitted 0.913 0.979 Satd. Flow (perm) 0 3169 0 0 3395 0 0 3366 1538 0 0 0 0 Right Turn on Red Yes Yes Yes Yes Yes Yes Satd. Flow (RTOR) 25 87 87 152 87 152 153 154	Flt Protected		0.997						0.979				
Satd. Flow (perm) 0 3169 0 0 3395 0 0 3366 1538 0	Satd. Flow (prot)	0	3461	0	0	3395	0	0	3366	1538	0	0	0
Right Turn on Red Yes Yes Yes Yes Satd. Flow (RTOR) 25 87 Link Speed (mph) 30 30 30 30 Link Distance (ft) 123 667 451 780 Travel Time (s) 2.8 15.2 10.3 17.7 Peak Hour Factor 0.76 0.76 0.93 0.93 0.94 0.94 0.94 0.90 0.90 0.90 Heavy Vehicles (%) 4% 4% 4% 4% 5% 5% 5% 2% 2% 2% Adj. Flow (vph) 29 388 0 0 429 72 64 88 69 0 0 0 0 5 Shared Lane Traffic (%) 2 2 2 64 88 69 0 0 0 0 Lane Group Flow (vph) 0 417 0 0 501 0 0 152 69 0 0 0 <t< td=""><td>Flt Permitted</td><td></td><td>0.913</td><td></td><td></td><td></td><td></td><td></td><td>0.979</td><td></td><td></td><td></td><td></td></t<>	Flt Permitted		0.913						0.979				
Satd. Flow (RTOR) 25 87 Link Speed (mph) 30 30 30 Link Distance (ft) 123 667 451 780 Travel Time (s) 2.8 15.2 10.3 17.7 Peak Hour Factor 0.76 0.76 0.76 0.93 0.93 0.94 0.94 0.90 0.90 0.90 Heavy Vehicles (%) 4% 4% 4% 4% 5% 5% 5% 2% 2% 2% Adj. Flow (vph) 29 388 0 0 429 72 64 88 69 0 0 0 0 Shared Lane Traffic (%) 2 38 0 0 501 0 0 152 69 0 0 0 0 Lane Group Flow (vph) 0 417 0 0 501 0 0 152 69 0 0 0 0 Enter Blocked Intersection No No	Satd. Flow (perm)	0	3169	0	0	3395	0	0	3366	1538	0	0	0
Link Speed (mph) 30 30 30 30 Link Distance (ft) 123 667 451 780 Travel Time (s) 2.8 15.2 10.3 17.7 Peak Hour Factor 0.76 0.76 0.76 0.93 0.93 0.94 0.94 0.90 0.90 0.90 Heavy Vehicles (%) 4% 4% 4% 4% 5% 5% 5% 2% 2% 2% Adj. Flow (vph) 29 388 0 0 429 72 64 88 69 0 0 0 Shared Lane Traffic (%) 5 5 5% 5% 5% 69 0 0 0 Lane Group Flow (vph) 0 417 0 0 501 0 0 152 69 0 0 0 Enter Blocked Intersection No No<	Right Turn on Red			Yes			Yes			Yes			Yes
Link Distance (ft) 123 667 451 780 Travel Time (s) 2.8 15.2 10.3 17.7 Peak Hour Factor 0.76 0.76 0.76 0.93 0.93 0.94 0.94 0.94 0.90 0.90 0.90 Heavy Vehicles (%) 4% 4% 4% 4% 5% 5% 5% 2% 2% 2% Adj. Flow (vph) 29 388 0 0 429 72 64 88 69 0 0 0 Shared Lane Traffic (%) Lane Group Flow (vph) 0 417 0 0 501 0 0 152 69 0 0 0 Enter Blocked Intersection No	Satd. Flow (RTOR)									87			
Travel Time (s) 2.8 15.2 10.3 17.7 Peak Hour Factor 0.76 0.76 0.76 0.93 0.93 0.93 0.94 0.94 0.94 0.90 0.90 0.90 Heavy Vehicles (%) 4% 4% 4% 4% 4% 5% 5% 5% 2% 2% 2% Adj. Flow (vph) 29 388 0 0 429 72 64 88 69 0 0 0 0 Shared Lane Traffic (%) Lane Group Flow (vph) 0 417 0 0 501 0 0 152 69 0 0 0 Enter Blocked Intersection No No <td>Link Speed (mph)</td> <td></td> <td></td> <td></td> <td></td> <td>30</td> <td></td> <td></td> <td>30</td> <td></td> <td></td> <td>30</td> <td></td>	Link Speed (mph)					30			30			30	
Peak Hour Factor 0.76 0.76 0.76 0.93 0.93 0.94 0.94 0.94 0.90 0.90 0.90 Heavy Vehicles (%) 4% 4% 4% 4% 5% 5% 5% 2% 2% 2% Adj. Flow (vph) 29 388 0 0 429 72 64 88 69 0 0 0 0 Shared Lane Traffic (%) Shared Lane Traff	Link Distance (ft)		123						451			780	
Heavy Vehicles (%) 4% 4% 4% 4% 4% 5% 5% 5% 2% 2% 2% Adj. Flow (vph) 29 388 0 0 429 72 64 88 69 0 0 0 0 Shared Lane Traffic (%) Lane Group Flow (vph) 0 417 0 0 501 0 0 152 69 0 0 0 0 Enter Blocked Intersection No	Travel Time (s)		2.8			15.2			10.3			17.7	
Adj. Flow (vph) 29 388 0 0 429 72 64 88 69 0 0 0 Shared Lane Traffic (%) Lane Group Flow (vph) 0 417 0 0 501 0 0 152 69 0 0 0 Enter Blocked Intersection No No <td< td=""><td>Peak Hour Factor</td><td>0.76</td><td>0.76</td><td>0.76</td><td>0.93</td><td>0.93</td><td>0.93</td><td>0.94</td><td>0.94</td><td>0.94</td><td>0.90</td><td>0.90</td><td>0.90</td></td<>	Peak Hour Factor	0.76	0.76	0.76	0.93	0.93	0.93	0.94	0.94	0.94	0.90	0.90	0.90
Shared Lane Traffic (%) Lane Group Flow (vph) 0 417 0 0 501 0 0 152 69 0 0 0 Enter Blocked Intersection No	Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	5%	5%	5%	2%	2%	2%
Lane Group Flow (vph)0417005010015269000Enter Blocked IntersectionNoNoNoNoNoNoNoNoNoNoNoNoLane AlignmentLeftLeftRightLeftLeftRightLeftLeftRightLeftLeftRightMedian Width(ft)00000	Adj. Flow (vph)	29	388	0	0	429	72	64	88	69	0	0	0
Enter Blocked Intersection No	Shared Lane Traffic (%)												
Lane Alignment Left Left Right Left Right Left Right Left Right Median Width(ft) 0 0 0 0	Lane Group Flow (vph)	0	417	0	0	501	0	0	152	69	0	0	0
Median Width(ft) 0 0 0	Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Median Width(ft) 0 0 0	Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
	Median Width(ft)		0			0			0			0	
Link Offset(ft) 0 0 0	Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft) 16 16 16	Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane	Two way Left Turn Lane												
Headway Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph) 15 9 15 9 15 9 15 9	Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors 1 1 1 1 1 1	Number of Detectors	1	1			1		1	1	1			
Detector Template	Detector Template												
Leading Detector (ft) 50 50 50 50 50	Leading Detector (ft)	50	50			50		50	50	50			
Trailing Detector (ft) 0 0 0 0	Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft) 0 0 0 0	Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft) 50 50 50 50 50	Detector 1 Size(ft)	50	50			50		50	50	50			
Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex	Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex	CI+Ex			
Detector 1 Channel	Detector 1 Channel												
Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0	Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0	Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0	Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Turn Type pm+pt NA NA Split NA Perm	Turn Type	pm+pt	NA			NA		Split	NA	Perm			
Protected Phases 2 1 2 1 3 3	Protected Phases		12			1		3	3				
Permitted Phases 1 2 3	Permitted Phases	12								3			
Detector Phase 2 1 2 1 3 3 3	Detector Phase	2	12			1		3	3	3			
Switch Phase	Switch Phase												
Minimum Initial (s) 6.0 6.0 6.0 6.0	Minimum Initial (s)	6.0				6.0		6.0	6.0	6.0			
Minimum Split (s) 23.0 22.0 22.0 22.0	Minimum Split (s)	23.0				23.0		22.0	22.0	22.0			
Total Split (s) 26.0 52.0 22.0 22.0													
Total Split (%) 26.0% 52.0% 22.0% 22.0% 22.0%													
Maximum Green (s) 20.5 46.5 16.5 16.5													
Yellow Time (s) 3.5 3.5 3.5 3.5									3.5				

7:30 am Baseline %user_name%

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.0				2.0		2.0	2.0	2.0			
Lost Time Adjust (s)					0.0			0.0	0.0			
Total Lost Time (s)					5.5			5.5	5.5			
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0				2.0		3.0	3.0	3.0			
Recall Mode	None				C-Max		None	None	None			
Walk Time (s)	7.0				7.0		7.0	7.0	7.0			
Flash Dont Walk (s)	9.0				10.0		9.0	9.0	9.0			
Pedestrian Calls (#/hr)	0				0		0	0	0			
Act Effct Green (s)		72.7			55.3			10.8	10.8			
Actuated g/C Ratio		0.73			0.55			0.11	0.11			
v/c Ratio		0.18			0.27			0.42	0.28			
Control Delay		1.0			5.6			34.9	9.1			
Queue Delay		0.5			0.0			0.0	0.0			
Total Delay		1.5			5.6			34.9	9.1			
LOS		Α			Α			С	Α			
Approach Delay		1.5			5.6			26.9				
Approach LOS		А			А			С				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 16 (16%), Referenc	ed to phase	1:EBWB,	Start of	Green								
Natural Cycle: 70												
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.71												
Intersection Signal Delay: 8	3.2			li li	ntersectior	LOS: A						
Intersection Capacity Utiliza	ation 39.0%			ŀ	CU Level of	of Service	A					
Analysis Period (min) 15												
Splits and Phases: 2602	: Union & Ea	ıst										
#260#2602					#26	0#2602			#26	0#2602		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		41∱			↑ ↑			41∱	7			
Volume (vph)	24	546	0	0	288	57	39	140	161	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	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt					0.975				0.850			
Flt Protected		0.998						0.989				
Satd. Flow (prot)	0	3532	0	0	3417	0	0	3500	1583	0	0	0
Flt Permitted		0.935						0.989				
Satd. Flow (perm)	0	3309	0	0	3417	0	0	3500	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					24				179			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		148			667			451			567	
Travel Time (s)		3.4			15.2			10.3			12.9	
Peak Hour Factor	0.86	0.86	0.86	0.87	0.87	0.87	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	28	635	0	0	331	66	43	156	179	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	663	0	0	397	0	0	199	179	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	J		0	<u> </u>		0	J		0	J
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1	1			
Detector Template												
Leading Detector (ft)	50	50			50		50	50	50			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	50	50			50		50	50	50			
Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex	CI+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Turn Type	pm+pt	NA			NA		Split	NA	Perm			
Protected Phases	2	12			1		3	3				
Permitted Phases	12								3			
Detector Phase	2	12			1		3	3	3			
Switch Phase												
Minimum Initial (s)	6.0				6.0		6.0	6.0	6.0			
Minimum Split (s)	23.0				23.0		22.0	22.0	22.0			
Total Split (s)	34.0				35.0		31.0	31.0	31.0			
	34.0%				35.0%		31.0%	31.0%				
Yellow Time (s)	3.5				3.5		3.5	3.5	3.5			
Total Split (%) Maximum Green (s)	34.0% 28.5				35.0% 29.5		31.0% 25.5	31.0% 25.5	31.0% 25.5			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.0				2.0		2.0	2.0	2.0			
Lost Time Adjust (s)					0.0			0.0	0.0			
Total Lost Time (s)					5.5			5.5	5.5			
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0				2.0		3.0	3.0	3.0			
Recall Mode	None				C-Max		None	None	None			
Walk Time (s)	7.0				7.0		7.0	7.0	7.0			
Flash Dont Walk (s)	9.0				10.0		9.0	9.0	9.0			
Pedestrian Calls (#/hr)	0				0		0	0	0			
Act Effct Green (s)		71.4			51.0			12.1	12.1			
Actuated g/C Ratio		0.71			0.51			0.12	0.12			
v/c Ratio		0.28			0.23			0.47	0.51			
Control Delay		0.9			23.3			47.9	17.7			
Queue Delay		0.2			0.0			0.0	0.0			
Total Delay		1.1			23.3			47.9	17.7			
LOS		Α			С			D	В			
Approach Delay		1.1			23.3			33.6				
Approach LOS		Α			С			С				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 1	100											
Offset: 94 (94%), Referen	nced to phase	1:EBWB,	Start of	Green								
Natural Cycle: 70	·											
Control Type: Actuated-C	Coordinated											
Maximum v/c Ratio: 0.61												
Intersection Signal Delay	<i>ı</i> : 15.8			Ir	ntersection	LOS: B						
Intersection Capacity Util	lization 44.3%			[(CU Level o	of Service	e A					
Analysis Period (min) 15												
Splits and Phases: 260	02: Union & Ea	net										
#260#2602	UZ. UTIIUIT & EC	ısı	#260#2	602				#260#	2602			
#200#2002			#200 ± 2	∮				#200#	4			
√ v1 (R)			4.	w2				1	™ ø3			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		^	7		414					*	∱ }	
Volume (vph)	0	150	30	119	313	0	0	0	0	171	157	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt			0.850								0.981	
Flt Protected					0.986					0.950		
Satd. Flow (prot)	0	3471	1553	0	3423	0	0	0	0	1736	3405	0
Flt Permitted					0.811					0.950		
Satd. Flow (perm)	0	3471	1553	0	2815	0	0	0	0	1736	3405	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			87								15	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		788			123			435			516	
Travel Time (s)		17.9			2.8			9.9			11.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90	0.80	0.80	0.80
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Adj. Flow (vph)	0	158	32	125	329	0	0	0	0	214	196	29
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	158	32	0	454	0	0	0	0	214	225	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	<i>J</i>		0	<u> </u>		12	3		12	3
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1	1	1					1	1	
Detector Template												
Leading Detector (ft)		50	50	50	50					50	50	
Trailing Detector (ft)		0	0	0	0					0	0	
Detector 1 Position(ft)		0	0	0	0					0	0	
Detector 1 Size(ft)		50	50	50	50					50	50	
Detector 1 Type		CI+Ex	CI+Ex	CI+Ex	CI+Ex					CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Turn Type		NA	Perm	pm+pt	NA					Split	NA	
Protected Phases		1		3	13					2	2	
Permitted Phases			1	13								
Detector Phase		1	1	3	13					2	2	
Switch Phase												
Minimum Initial (s)		6.0	6.0	6.0						6.0	6.0	
Minimum Split (s)		23.0	23.0	22.0						23.0	23.0	
Total Split (s)		52.0	52.0	22.0						26.0	26.0	
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)		52.0%	52.0%	22.0%						26.0%	26.0%	
Maximum Green (s)		46.5	46.5	16.5						20.5	20.5	
Yellow Time (s)		3.5	3.5	3.5						3.5	3.5	
All-Red Time (s)		2.0	2.0	2.0						2.0	2.0	
Lost Time Adjust (s)		0.0	0.0							0.0	0.0	
Total Lost Time (s)		5.5	5.5							5.5	5.5	
Lead/Lag		Lead	Lead							Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)		2.0	2.0	3.0						3.0	3.0	
Recall Mode		C-Max	C-Max	None						None	None	
Walk Time (s)		7.0	7.0	7.0						7.0	7.0	
Flash Dont Walk (s)		10.0	10.0	9.0						9.0	9.0	
Pedestrian Calls (#/hr)		0	0	0						0	0	
Act Effct Green (s)		55.3	55.3		66.1					17.4	17.4	
Actuated g/C Ratio		0.55	0.55		0.66					0.17	0.17	
v/c Ratio		0.08	0.04		0.24					0.71	0.37	
Control Delay		11.4	2.0		1.0					52.1	35.7	
Queue Delay		0.0	0.0		0.2					0.0	0.0	
Total Delay		11.4	2.0		1.2					52.1	35.7	
LOS		В	Α		Α					D	D	
Approach Delay		9.8			1.2						43.7	
Approach LOS		Α			Α						D	
Intersection Summary												
- · J · ·	her											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 16 (16%), Referenced	to phase	e 1:EBWE	3, Start of	Green								
Natural Cycle: 70												
Control Type: Actuated-Coord	inated											
Maximum v/c Ratio: 0.71												
Intersection Signal Delay: 20.0					tersection							
Intersection Capacity Utilization	n 40.3%)		IC	CU Level of	of Service	Α					
Analysis Period (min) 15												
Splits and Phases: 2601: P	itkin & E	ast										
#260#2602 #260#2602 #260#2602					#26	50#2602	2		#20	60#2602	3	

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Volume (wiph)	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (wiph)	Lane Configurations		44	7		413					*	∳ Љ	
Ideal Flow (rohph)		0			70		0	0	0	0			27
Storage Length (ft)		1900		1900	1900	1900		1900	1900	1900	1900	1900	1900
Storage Lanes		0		125	0		0	0		0	0		0
Taper Length (ff)		0		1	0		0	0		0	1		0
Fit		25			25			25			25		
Fit Protected		1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Sald. Flow (prov) 0 3539 1583 0 3470 0 0 0 0 1770 3433 0 Fli Flemmitted	Frt			0.850								0.970	
Fit Permitted	Flt Protected					0.990					0.950		
Satd. Flow (perm)	Satd. Flow (prot)	0	3539	1583	0	3470	0	0	0	0	1770	3433	0
Page						0.798					0.950		
Satid Flow (RTOR)	Satd. Flow (perm)	0	3539	1583	0	2797	0	0	0	0	1770	3433	0
Link Speed (mph)	Right Turn on Red			Yes			Yes			Yes			Yes
Link Distance (II)	Satd. Flow (RTOR)			87								30	
Link Distance (ft)			30			30			30			30	
Peak Hour Factor 0.92 0.92 0.92 0.93 0.93 0.93 0.90 0.90 0.90 0.89 0.			763			148			439			686	
Heavy Vehicles (%)	Travel Time (s)		17.3			3.4			10.0			15.6	
Heavy Vehicles (%)	Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.90	0.90	0.90	0.89	0.89	0.89
Adj. Flow (vph) 0 402 55 75 281 0 0 0 221 121 30 Shared Lane Traffic (%) Same Group Flow (vph) 0 402 55 0 356 0 0 0 0 221 151 0 Enter Blocked Intersection No	Heavy Vehicles (%)	2%		2%	3%		3%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%) Lane Group Flow (vph) 0 402 55 0 356 0 0 0 0 0 221 151 0 No No No No No No No		0	402	55	75	281	0	0	0	0	221		30
Lane Group Flow (vph)													
Enter Blocked Intersection		0	402	55	0	356	0	0	0	0	221	151	0
Median Width(ff) 0 0 12 12 Link Offset(ff) 0 0 0 0 Crosswalk Width(ff) 16 16 16 16 Two way Left Turn Lane Headway Factor 1.00		No	No	No	No	No	No	No	No	No	No	No	No
Median Width(ff) 0 0 12 12 Link Offset(ff) 0 0 0 0 Crosswalk Width(ff) 16 16 16 16 Two way Left Turn Lane Headway Factor 1.00	Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Link Offset(fft) 0 0 0 0 0 Crosswalk Width(fft) 16 16 16 16 Two way Left Turn Lane 1.00				3			3			3			3
Two way Left Turn Lane	Link Offset(ft)		0			0			0			0	
Two way Left Turn Lane	, ,		16			16						16	
Headway Factor 1.00	Two way Left Turn Lane												
Turning Speed (mph) 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 1		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Number of Detectors 1 1 1 1 1 1 1 Detector Template Leading Detector (ft) 50		15		9	15		9	15		9	15		9
Leading Detector (ft) 50 50 50 50 50 Trailing Detector (ft) 0 0 0 0 0 0 Detector 1 Position(ft) 0 0 0 0 0 0 Detector 1 Size(ft) 50 5			1	1	1	1					1	1	
Leading Detector (ft) 50 50 50 50 50 Trailing Detector (ft) 0 0 0 0 0 0 Detector 1 Position(ft) 0 0 0 0 0 0 Detector 1 Size(ft) 50 5	Detector Template												
Trailing Detector (ft) 0 0 0 0 0 Detector 1 Position(ft) 0 0 0 0 0 Detector 1 Size(ft) 50 50 50 50 50 Detector 1 Type Cl+Ex Cl+Ex Cl+Ex Cl+Ex Cl+Ex Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0			50	50	50	50					50	50	
Detector 1 Position(ft) 0 0 0 0 0 Detector 1 Size(ft) 50 50 50 50 Detector 1 Type Cl+Ex Cl+Ex Cl+Ex Cl+Ex Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Turn Type NA Perm pm+pt NA NA NA NA Permitted Phases 1 1 3 13 2 2 2 2 2 Switch Phase 1 1 3 13 2 2 2 3 3 13 2 2 2 2 3 3 1 3 1 3 1 3 1 3 1 3 1 3 1 3 1			0	0	0	0					0	0	
Detector 1 Size(ft) 50 20 20 20 20 20 20 20 20 0.0			0	0	0	0					0	0	
Detector 1 Type Cl+Ex Cl-Ex Cl-O Cl-O Cl-O Cl-O			50	50	50	50					50	50	
Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 <t< td=""><td>, ,</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	, ,												
Detector 1 Queue (s) 0.0													
Detector 1 Queue (s) 0.0	Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 Turn Type NA Perm pm+pt NA Split NA Protected Phases 1 3 13 2 2 Permitted Phases 1 1 3 13 2 2 Switch Phase 1 1 3 13 2 2 Switch Phase 8 6.0 6.0 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 23.0 23.0 23.0	Detector 1 Queue (s)		0.0	0.0							0.0	0.0	
Turn Type NA Perm pm+pt NA Split NA Protected Phases 1 3 13 2 2 Permitted Phases 1 13 3 13 2 2 Detector Phase 1 1 3 13 2 2 2 Switch Phase Winimum Initial (s) 6.0	, ,			0.0							0.0		
Protected Phases 1 3 13 2 2 Permitted Phases 1 13 3 13 2 2 Detector Phase 1 1 3 13 2 2 Switch Phase 3 13 2 2 2 Minimum Initial (s) 6.0 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 23.0 23.0			NA	Perm	pm+pt						Split		
Permitted Phases 1 1 3 Detector Phase 1 1 3 1 3 Switch Phase 8 6.0 6.0 6.0 6.0 Minimum Initial (s) 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 23.0 23.0	31										•		
Detector Phase 1 1 3 13 2 2 Switch Phase Switch Phase 6.0 6.				1	13								
Switch Phase Minimum Initial (s) 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 23.0 23.0			1			13					2	2	
Minimum Initial (s) 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 23.0 23.0													
Minimum Split (s) 23.0 23.0 22.0 23.0 23.0			6.0	6.0	6.0						6.0	6.0	
	` '												
1 otal opiit (3) 34.0 34.0 34.0	Total Split (s)		35.0	35.0	31.0						34.0	34.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)		35.0%	35.0%	31.0%						34.0%	34.0%	
Maximum Green (s)		29.5	29.5	25.5						28.5	28.5	
Yellow Time (s)		3.5	3.5	3.5						3.5	3.5	
All-Red Time (s)		2.0	2.0	2.0						2.0	2.0	
Lost Time Adjust (s)		0.0	0.0							0.0	0.0	
Total Lost Time (s)		5.5	5.5							5.5	5.5	
Lead/Lag		Lead	Lead							Lag	Lag	
Lead-Lag Optimize?											J	
Vehicle Extension (s)		2.0	2.0	3.0						3.0	3.0	
Recall Mode		C-Max	C-Max	None						None	None	
Walk Time (s)		7.0	7.0	7.0						7.0	7.0	
Flash Dont Walk (s)		10.0	10.0	9.0						9.0	9.0	
Pedestrian Calls (#/hr)		0	0	0						0	0	
Act Effct Green (s)		51.0	51.0		63.1					20.4	20.4	
Actuated g/C Ratio		0.51	0.51		0.63					0.20	0.20	
v/c Ratio		0.22	0.06		0.19					0.61	0.21	
Control Delay		10.9	0.2		6.5					45.7	28.1	
Queue Delay		0.0	0.0		0.1					0.0	0.0	
Total Delay		10.9	0.2		6.6					45.7	28.1	
LOS		В	Α		Α					D	С	
Approach Delay		9.6			6.6						38.6	
Approach LOS		А			Α						D	
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 10	0											
Offset: 94 (94%), Reference		e 1:EBWE	3, Start of	Green								
Natural Cycle: 70	•											
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.61												
Intersection Signal Delay: 1	17.8			In	tersection	LOS: B						
Intersection Capacity Utilization		6		IC	CU Level o	of Service	Α					
Analysis Period (min) 15												
Splits and Phases: 2601	: Pitkin & E	ast										
#260#2602			#260#2	2602				#260#	2602			
★			N	<u> </u>				★	√t lea			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4₽			↑ ↑		ሻ	↑ ↑				
Volume (vph)	0	353	0	0	456	24	118	151	58	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	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Frt					0.993			0.959				
Flt Protected							0.950					
Satd. Flow (prot)	0	3471	0	0	3382	0	1703	3266	0	0	0	0
Flt Permitted							0.950					
Satd. Flow (perm)	0	3471	0	0	3382	0	1703	3266	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					8			60				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		316			584			383			361	
Travel Time (s)		7.2			13.3			8.7			8.2	
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	6%	6%	6%	2%	2%	2%
Adj. Flow (vph)	0	401	0	0	496	26	131	168	64	0	0	0
Shared Lane Traffic (%)												_
Lane Group Flow (vph)	0	401	0	0	522	0	131	232	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	20.0	0		20.1	0	····g···	20.0	12		20.0	12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1				
Detector Template												
Leading Detector (ft)	50	50			50		50	50				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	50	50			50		50	50				
Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex				
Detector 1 Channel	0	01.72.1			011 271		0	51. ZX				
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	0.0	NA			NA		Split	NA				
Protected Phases		2 3			23		1	1				
Permitted Phases	2	20			23		•	•				
Detector Phase	2	23			23		1	1				
Switch Phase	-	20			20		•	•				
Minimum Initial (s)	6.0						7.0	7.0				
Minimum Split (s)	15.0						30.0	30.0				
Total Split (s)	30.0						40.0	40.0				
Total Split (%)	30.0%						40.0%	40.0%				
Maximum Green (s)	24.0						34.0	34.0				
Yellow Time (s)	3.5						3.5	3.5				
TOHOW THING (3)	3.0						ა.ა	3.0				

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5						2.5	2.5				
Lost Time Adjust (s)							0.0	0.0				
Total Lost Time (s)							6.0	6.0				
Lead/Lag	Lag						Lead	Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0						3.0	3.0				
Recall Mode	None						C-Max	C-Max				
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							16.0	16.0				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)		53.5			53.5		34.5	34.5				
Actuated g/C Ratio		0.54			0.54		0.34	0.34				
v/c Ratio		0.22			0.29		0.22	0.20				
Control Delay		4.3			3.8		20.4	13.3				
Queue Delay		0.0			0.0		0.0	0.0				
Total Delay		4.3			3.8		20.4	13.3				
LOS		Α			Α		С	В				
Approach Delay		4.3			3.8			15.8				
Approach LOS		А			А			В				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 38 (38%), Reference	ed to phase	1:EBWB,	Start of	Green								
Natural Cycle: 70												
Control Type: Actuated-Coo	ordinated											
Maximum v/c Ratio: 0.77												
Intersection Signal Delay: 7					itersection							
Intersection Capacity Utiliza	ation 29.9%			IC	CU Level of	of Service	e A					
Analysis Daried (min) 15												

Splits and Phases: 3044: Union & University

Analysis Period (min) 15



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4₽			↑ ↑		ሻ	↑ ↑				
Volume (vph)	5	512	0	0	408	30	208	215	100	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	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Frt					0.990			0.952				
Flt Protected							0.950					
Satd. Flow (prot)	0	3539	0	0	3504	0	1770	3369	0	0	0	0
Flt Permitted		0.950					0.950					
Satd. Flow (perm)	0	3362	0	0	3504	0	1770	3369	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					12			82				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		298			584			576			361	
Travel Time (s)		6.8			13.3			13.1			8.2	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.86	0.86	0.86	0.90	0.90	0.90
Adj. Flow (vph)	6	656	0	0	523	38	242	250	116	0	0	0
Shared Lane Traffic (%)	J	000			020			200				J
Lane Group Flow (vph)	0	662	0	0	561	0	242	366	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	Lort	0	rugin	Lon	0	rugiit	Lon	12	rugiit	Lon	12	rugin
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		10									10	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	1.00	9	15	1.00	9	15	1.00	9	15	1.00	9
Number of Detectors	1	1	,	10	1	,	1	1	,	10		,
Detector Template	'	•			•		'	'				
Leading Detector (ft)	50	50			50		50	50				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	50	50			50		50	50				
Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex				
Detector 1 Channel	OIILX	OITEX			CITEX		OITEX	OITEX				
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	custom	NA			NA		Split	NA				
Protected Phases	Cusioni	23			23		3piit	1				
Permitted Phases	2	2 3			23		ı	ı				
Detector Phase	2	23			23		1	1				
Switch Phase	2	2 3			2 3		ı	ı				
Minimum Initial (s)	6.0						7.0	7.0				
Minimum Split (s)	15.0						30.0	30.0				
							40.0					
Total Split (s)	31.0							40.0				
Total Split (%)	31.0%						40.0%	40.0%				
Maximum Green (s)	25.0						34.0	34.0				
Yellow Time (s)	3.5						3.5	3.5				
All-Red Time (s)	2.5						2.5	2.5				

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)							0.0	0.0				
Total Lost Time (s)							6.0	6.0				
Lead/Lag	Lag						Lead	Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0						3.0	3.0				
Recall Mode	None						C-Max	C-Max				
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							16.0	16.0				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)		54.0			54.0		34.0	34.0				
Actuated g/C Ratio		0.54			0.54		0.34	0.34				
v/c Ratio		0.36			0.30		0.40	0.31				
Control Delay		6.7			8.2		33.3	24.4				
Queue Delay		8.0			0.0		0.0	0.0				
Total Delay		7.5			8.2		33.3	24.4				
LOS		Α			Α		С	С				
Approach Delay		7.5			8.2			27.9				
Approach LOS		Α			Α			С				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 51 (51%), Referenc	ed to phase	1:EBWB	Start of	Green								
Natural Cycle: 75												
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.95												
Intersection Signal Delay: 1					tersection							
Intersection Capacity Utiliza	ation 39.2%			IC	CU Level of	of Service	e A					
Analysis Period (min) 15												
Splits and Phases: 3044	: Union & Ur	niversity										
#304#304#304#			#	304#304	¥304¥30	44		#30	4#304#3	043*3044		
ø1 (R	t)			4.0 A.A	42	ø2		¥	-2)/ ↑	P → ø:	3	
40 s			3	1 s				29 s				

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ħβ	7		^	7	ሻ	4Te		ሻ	413-	
Volume (vph)	9	283	139	1	602	445	212	369	3	425	341	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	0		0	0		0	250		250
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	1.00	0.91	0.91	0.95	0.91	0.91	0.95
Frt		0.993	0.850			0.850		0.999			0.997	
Flt Protected	0.950						0.950	0.997		0.950	0.984	
Satd. Flow (prot)	1597	3039	1301	0	3312	1482	1579	3312	0	1507	3112	0
Flt Permitted	0.282				0.955		0.950	0.997		0.950	0.984	
Satd. Flow (perm)	474	3039	1301	0	3163	1482	1579	3312	0	1507	3112	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5	142			83		1			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		297			291			316			371	
Travel Time (s)		6.8			6.6			7.2			8.4	
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.81	0.81	0.81	0.92	0.92	0.92
Heavy Vehicles (%)	13%	13%	13%	9%	9%	9%	4%	4%	4%	9%	9%	9%
Adj. Flow (vph)	10	325	160	1	669	494	262	456	4	462	371	11
Shared Lane Traffic (%)		020	10%	•	007	171	11%	100	•	40%	0,1	
Lane Group Flow (vph)	10	341	144	0	670	494	233	489	0	277	567	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	Lon	12	rugin	Lort	12	rugin	Lon	12	rugin	Lon	12	rugin
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								. 0				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	•	1	1	
Detector Template				•		•		•			•	
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50		50	50	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	0.1.2%	01127	31. Z.	0	5 <u>2.</u>	31. Z.	0	01.12.1		J	51. Z.	
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+ov	Split	NA		Split	NA	
Protected Phases	1 01111	1	3	1 01111	1	2	3	3		2	2	
Permitted Phases	1	'	1	1	'	1	Ü					
Detector Phase	1	1	3	1	1	2	3	3		2	2	
Switch Phase	1		J		'		<u> </u>	3				
Minimum Initial (s)	7.0	7.0	6.0	7.0	7.0	6.0	6.0	6.0		6.0	6.0	
Minimum Split (s)	30.0	30.0	15.0	30.0	30.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	40.0	40.0	30.0	40.0	40.0	30.0	30.0	30.0		30.0	30.0	
Total Split (3)	40.0	40.0	50.0	40.0	40.0	30.0	50.0	50.0		50.0	50.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	40.0%	40.0%	30.0%	40.0%	40.0%	30.0%	30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	34.0	34.0	23.5	34.0	34.0	24.0	23.5	23.5		24.0	24.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5	3.0	2.5	2.5	2.5	3.0	3.0		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.5		6.0	6.0	6.5	6.5		6.0	6.0	
Lead/Lag	Lead	Lead		Lead	Lead	Lag				Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	None	C-Max	C-Max	None	None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0							
Flash Dont Walk (s)	16.0	16.0		16.0	16.0							
Pedestrian Calls (#/hr)	0	0		0	0							
Act Effct Green (s)	34.5	34.5	63.5		34.5	64.5	23.0	23.0		24.0	24.0	
Actuated g/C Ratio	0.34	0.34	0.64		0.34	0.64	0.23	0.23		0.24	0.24	
v/c Ratio	0.06	0.32	0.16		0.61	0.50	0.64	0.64		0.77	0.76	
Control Delay	24.4	24.1	5.7		8.2	5.5	38.8	34.1		51.1	42.7	
Queue Delay	0.0	0.0	0.0		0.2	2.2	8.0	0.6		0.0	0.0	
Total Delay	24.4	24.1	5.7		8.3	7.7	39.6	34.7		51.1	42.7	
LOS	С	С	Α		Α	Α	D	С		D	D	
Approach Delay		18.7			8.1			36.3			45.4	
Approach LOS		В			Α			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

Offset: 38 (38%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 25.8 Intersection LOS: C
Intersection Capacity Utilization 63.2% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3042: University/IL WB & Main



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	ħβ	7		^	7	ሻ	414		*	€Î}	
Volume (vph)	18	498	200	0	491	430	214	418	1	398	316	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	0		0	0		0	250		250
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	0.91	0.91	0.95	0.91	0.91	0.95
Frt		0.994	0.850			0.850					0.998	
Flt Protected	0.950						0.950	0.998		0.950	0.983	
Satd. Flow (prot)	1736	3305	1413	0	3438	1538	1610	3383	0	1595	3294	0
Flt Permitted	0.375						0.950	0.998		0.950	0.983	
Satd. Flow (perm)	685	3305	1413	0	3438	1538	1610	3383	0	1595	3294	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4	154			56					1	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		298			291			298			403	
Travel Time (s)		6.8			6.6			6.8			9.2	
Peak Hour Factor	0.83	0.83	0.83	0.93	0.93	0.93	0.84	0.84	0.84	0.85	0.85	0.85
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	22	600	241	0	528	462	255	498	1	468	372	6
Shared Lane Traffic (%)			10%		020	.02	10%	.,,	•	41%	0,2	J
Lane Group Flow (vph)	22	624	217	0	528	462	229	525	0	276	570	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	20.1	12	g	20.1	12	g	20.1	12		20.1	12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1		1	1	1	1	•	1	1	•
Detector Template		•	•			•		•		•	•	
Leading Detector (ft)	50	50	50		50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0		0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0		0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50		50	50	50	50		50	50	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	OI LX	OLLEX	OI LX		OI. EX	OI LX	OI LX	OI LX		OI LX	OI LX	
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	pm+ov		NA	pm+ov	Split	NA		Split	NA	
Protected Phases	1 01111	1	3		1	2	3	3		2	2	
Permitted Phases	1	'	1		'	1	J	J				
Detector Phase	1	1	3		1	2	3	3		2	2	
Switch Phase	'	'	J		ſ		3	J				
Minimum Initial (s)	7.0	7.0	6.0		7.0	6.0	6.0	6.0		6.0	6.0	
Minimum Split (s)	30.0	30.0	15.0		30.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	40.0	40.0	29.0		40.0	31.0	29.0	29.0		31.0	31.0	
Total Split (S)	40.0	40.0	∠7.U		40.0	31.0	∠7.U	∠7.∪		31.0	31.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	40.0%	40.0%	29.0%		40.0%	31.0%	29.0%	29.0%		31.0%	31.0%	
Maximum Green (s)	34.0	34.0	22.5		34.0	25.0	22.5	22.5		25.0	25.0	
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5	3.0		2.5	2.5	3.0	3.0		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.5		6.0	6.0	6.5	6.5		6.0	6.0	
Lead/Lag	Lead	Lead			Lead	Lag				Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	None		C-Max	None	None	None		None	None	
Walk Time (s)	7.0	7.0			7.0							
Flash Dont Walk (s)	16.0	16.0			16.0							
Pedestrian Calls (#/hr)	0	0			0							
Act Effct Green (s)	34.0	34.0	62.5		34.0	65.0	22.5	22.5		25.0	25.0	
Actuated g/C Ratio	0.34	0.34	0.62		0.34	0.65	0.22	0.22		0.25	0.25	
v/c Ratio	0.09	0.55	0.23		0.45	0.45	0.63	0.69		0.69	0.69	
Control Delay	18.0	19.3	4.2		10.8	1.3	37.9	35.0		44.5	39.1	
Queue Delay	0.0	0.4	0.4		0.7	2.2	1.8	1.9		0.0	0.0	
Total Delay	18.0	19.7	4.6		11.5	3.5	39.8	36.9		44.5	39.1	
LOS	В	В	А		В	Α	D	D		D	D	
Approach Delay		15.8			7.8			37.8			40.8	
Approach LOS		В			Α			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

Offset: 51 (51%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 24.4 Intersection LOS: C
Intersection Capacity Utilization 59.7% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3042: University/IL WB & Main



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	ተተተ			ተተኈ		ሻ	↑ ↑			4	
Volume (vph)	51	663	0	0	957	24	4	88	104	29	0	87
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt					0.996			0.919			0.899	
Flt Protected	0.950						0.950				0.988	
Satd. Flow (prot)	1641	4715	0	0	4874	0	1597	2936	0	0	1493	0
Flt Permitted	0.166						0.664				0.869	
Satd. Flow (perm)	287	4715	0	0	4874	0	1116	2936	0	0	1314	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4			114			99	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		291			715			361			297	
Travel Time (s)		6.6			16.3			8.2			6.8	
Peak Hour Factor	0.82	0.82	0.82	0.92	0.92	0.92	0.91	0.91	0.91	0.88	0.88	0.88
Heavy Vehicles (%)	10%	10%	10%	6%	6%	6%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	62	809	0	0	1040	26	4	97	114	33	0	99
Shared Lane Traffic (%)	02	007	U	U	1010	20	•	,,		00	· ·	, ,
Lane Group Flow (vph)	62	809	0	0	1066	0	4	211	0	0	132	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	LCIT	12	Right	Leit	12	Right	LCIT	12	Rigitt	LCIT	12	Rigin
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		10			10			10			10	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	1.00	1.00	9	1.00	1.00	9	1.00	1.00	9	1.00	1.00	9
Number of Detectors	13	1	7	13	1	7	13	1	7	13	1	7
Detector Template	ı	ı			·		ı	ı		ı	ı	
Leading Detector (ft)	50	50			50		50	50		50	50	
Trailing Detector (ft)	0	0			0		0	0		0	0	
Detector 1 Position(ft)	0	0			0		0	0		0	0	
Detector 1 Size(ft)	50	50			50		50	50		50	50	
Detector 1 Type	Cl+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	CI+LX	CI+LX			CI+LX		CI+LX	CI+LX		CI+LX	CI+LX	
	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0											
Detector 1 Delay (s)		0.0			0.0		0.0	0.0		0.0	0.0	
Turn Type	pm+pt	NA			NA		Perm	NA		Perm	NA	
Protected Phases	2	12			1		2	3		2	3	
Permitted Phases	12	1.0			4		3	0		3	0	
Detector Phase	2	12			1		3	3		3	3	
Switch Phase					7.0							
Minimum Initial (s)	6.0				7.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	15.0				30.0		15.0	15.0		15.0	15.0	
Total Split (s)	30.0				40.0		30.0	30.0		30.0	30.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	30.0%				40.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	24.0				34.0		23.5	23.5		23.5	23.5	
Yellow Time (s)	3.5				3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5				2.5		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0				0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0				6.0		6.5	6.5			6.5	
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0				3.0		3.0	3.0		3.0	3.0	
Recall Mode	None				C-Max		None	None		None	None	
Walk Time (s)					7.0							
Flash Dont Walk (s)					16.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	58.5	64.5			34.5		23.0	23.0			23.0	
Actuated g/C Ratio	0.58	0.64			0.34		0.23	0.23			0.23	
v/c Ratio	0.13	0.27			0.63		0.02	0.28			0.35	
Control Delay	4.9	3.5			25.5		45.5	31.0			13.2	
Queue Delay	0.0	0.2			0.0		0.0	0.0			0.0	
Total Delay	4.9	3.7			25.5		45.5	31.0			13.2	
LOS	Α	Α			С		D	С			В	
Approach Delay		3.8			25.5			31.2			13.2	
Approach LOS		А			С			С			В	

Intersection Summary

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

Offset: 38 (38%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 17.1 Intersection LOS: B
Intersection Capacity Utilization 57.6% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3043: Union & Main



G-95

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ተተተ			ተተኈ		ሻ	↑ ↑			4	
Volume (vph)	48	853	0	0	868	61	5	100	173	28	0	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	*0.60	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt					0.990			0.905			0.915	
Flt Protected	0.950						0.950				0.982	
Satd. Flow (prot)	1752	5036	0	0	3256	0	1770	3203	0	0	1642	0
Flt Permitted	0.118						0.730				0.784	
Satd. Flow (perm)	218	5036	0	0	3256	0	1360	3203	0	0	1311	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					7			153			98	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		291			715			361			297	
Travel Time (s)		6.6			16.3			8.2			6.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.92	0.92	0.92	0.78	0.78	0.78
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Adj. Flow (vph)	55	969	0	0	986	69	5	109	188	36	0	62
Shared Lane Traffic (%)	00	707	· ·	· ·	700	07	J	107	100	00	· ·	0L
Lane Group Flow (vph)	55	969	0	0	1055	0	5	297	0	0	98	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	2011	12	·g	2011	12	. ugu	2011	12	g	2011	12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	1.00	9	15	1.00	9	15	1.00	9	15	1.00	9
Number of Detectors	1	1	•		1	•	1	1	•	1	1	•
Detector Template		•					•	•		•	•	
Leading Detector (ft)	50	50			50		50	50		50	50	
Trailing Detector (ft)	0	0			0		0	0		0	0	
Detector 1 Position(ft)	0	0			0		0	0		0	0	
Detector 1 Size(ft)	50	50			50		50	50		50	50	
Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	OFFER	OITEX			OTTEX		OTTEX	OFFER		OFFER	OFFER	
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Turn Type	pm+pt	NA			NA		Perm	NA		Perm	NA	
Protected Phases	2	12			1		I CIIII	3		I CIIII	3	
Permitted Phases	12	1 2			'		3	J		3	J	
Detector Phase	2	12			1		3	3		3	3	
Switch Phase	۷	1 4			ı		J	J		J	J	
Minimum Initial (s)	6.0				7.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	15.0				30.0		15.0	15.0		15.0	15.0	
					40.0		29.0					
Total Split (s)	31.0				40.0		29.0	29.0		29.0	29.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	31.0%				40.0%		29.0%	29.0%		29.0%	29.0%	
Maximum Green (s)	25.0				34.0		22.5	22.5		22.5	22.5	
Yellow Time (s)	3.5				3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5				2.5		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0				0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0				6.0		6.5	6.5			6.5	
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0				3.0		3.0	3.0		3.0	3.0	
Recall Mode	None				C-Max		None	None		None	None	
Walk Time (s)					7.0							
Flash Dont Walk (s)					16.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	59.0	65.0			34.0		22.5	22.5			22.5	
Actuated g/C Ratio	0.59	0.65			0.34		0.22	0.22			0.22	
v/c Ratio	0.11	0.30			0.95		0.02	0.35			0.26	
Control Delay	2.8	1.8			43.3		48.0	32.5			8.7	
Queue Delay	0.0	0.2			0.0		0.0	0.0			0.0	
Total Delay	2.8	2.0			43.3		48.0	32.5			8.7	
LOS	А	Α			D		D	С			Α	_
Approach Delay		2.1			43.3			32.8			8.7	
Approach LOS		Α			D			С			Α	

Intersection Summary

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

Offset: 51 (51%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 23.6 Intersection LOS: C
Intersection Capacity Utilization 57.3% ICU Level of Service B

Analysis Period (min) 15

* User Entered Value

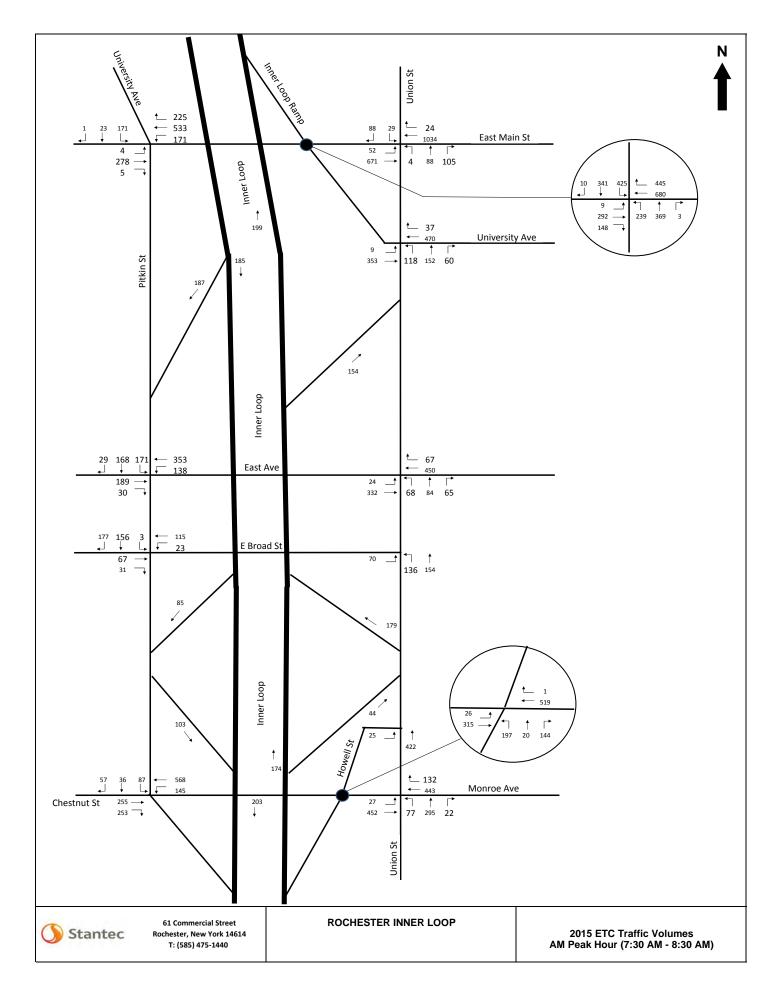
Splits and Phases: 3043: Union & Main

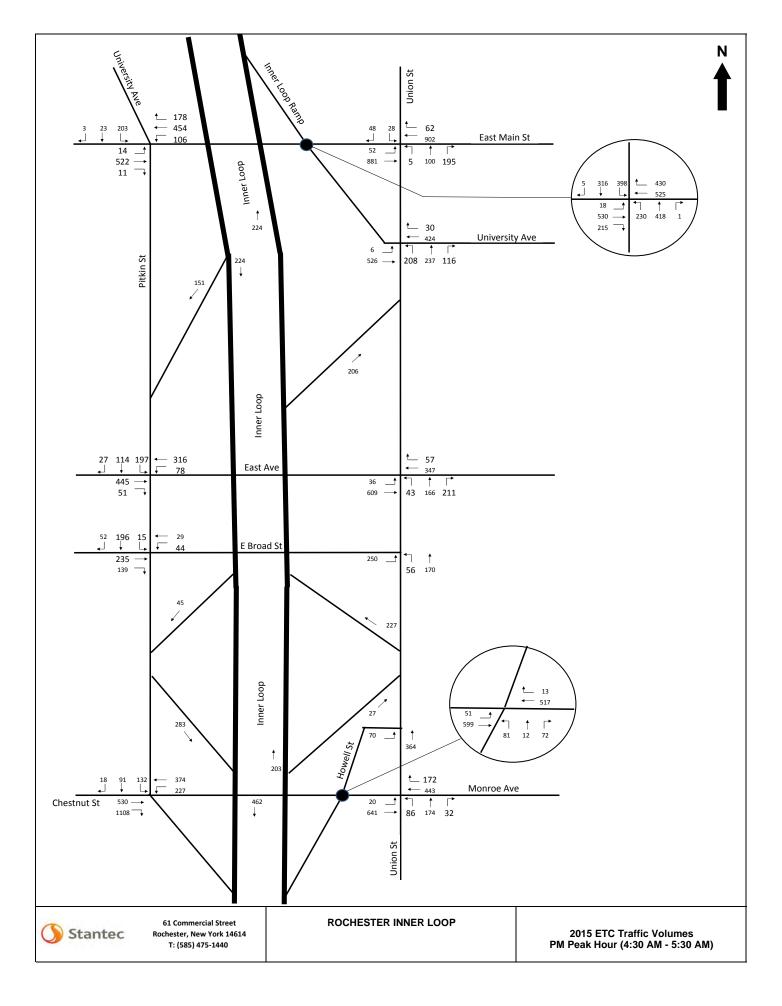


Appendix G – Traffic Analysis Contents

2015 ETC Conditions

- 2015 ETC Traffic Volumes
- 2015 ETC Capacity Analysis Printouts
- Synchro Files (available upon request)





Same Group
Volume (ynph)
Volume (ynph)
Storage Length (ft) 200 0 0 0 0 50 0 0 0 50 0
Storage Length (ft) 200 0 0 0 0 50 0 0 0 50 0
Storage Lanes
Taper Length (ft)
Lane Util. Factor
Fit Protected 0.950 1787 1639 0 0 0 0 0 0 3525 0 0 3525 0 0 3525 0 0 0 3525 0 0 0 3525 0 0 0 3525 0 0 0 3525 0 0 0 3525 0 0 3525 0 0 3525 0 0 3525 0 0 3525 0 0 3083 0 0 0 0 3525 0 0 3083 0 0 0 0 0 3525 0 0 3083 0 0 0 0 0 0 3525 0 0 3083 0 0 0 0 0 0 3525 0 0 3083 0 0 0 0 0 0 3525 0 0 3083 0 0 0 0 0 0 0 0 0
Satid. Flow (prot) 1787 1639 0 0 0 0 0 3525 0 0 3525 0 0 3725 0 0 3725 0 0 3725 0 0 3725 0 0 0 0 0 0 0 0 0
Fit Permitted 0.950
Satd. Flow (perm) 1787 1639 by Yes 0 0 0 0 3525 by Yes 0 0 3083 by Yes 0 10 3083 by Yes
Page
Said. Flow (RTOR) 90 30 40 30 40 40 410 40 40 90 90 0.95 0.90 0.90 0
Link Speed (mph) 30 30 30 30 30 178 <th< td=""></th<>
Link Distance (ft)
Travel Time (s) 7.4 7.8 9.3 4.0 Peak Hour Factor 0.80 0.80 0.80 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.90<
Peak Hour Factor 0.80 0.80 0.80 0.95 0.95 0.95 0.95 0.95 0.95 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.95 0.95 0.95 0.95 0.95 0.90 0.90 0.90 0.90 20 2%
Heavy Vehicles (%) 1% 1% 1% 2%
Adj. Flow (vph) 101 15 90 0 0 0 544 14 57 666 0 Shared Lane Traffic (%) Lane Group Flow (vph) 101 105 0 0 0 0 558 0 0 723 0 Enter Blocked Intersection No 10 10
Shared Lane Traffic (%) Lane Group Flow (vph) 101 105 0 0 0 0 0 558 0 0 723 0
Shared Lane Traffic (%) Lane Group Flow (vph) 101 105 0 0 0 0 0 558 0 0 723 0
Enter Blocked Intersection No No <th< td=""></th<>
Lane Alignment Left Left Right Left Right Left Left Right Left Left Right Median Width(ft) 12 12 0 0 0 Link Offset(ft) 0 0 0 0 0 Crosswalk Width(ft) 16 16 16 16 16 Two way Left Turn Lane 1.00 1
Median Width(ft) 12 12 12 0 0 Link Offset(ft) 0 0 0 0 Crosswalk Width(ft) 16 16 16 16 Two way Left Turn Lane 1.00 </td
Median Width(ft) 12 12 12 0 0 Link Offset(ft) 0 0 0 0 Crosswalk Width(ft) 16 16 16 16 Two way Left Turn Lane 1.00 </td
Crosswalk Width(ft) 16 16 16 16 16 16 16 16 16 Two way Left Turn Lane 100 1.00 1
Two way Left Turn Lane Headway Factor 1.00
Headway Factor 1.00
Turning Speed (mph) 15 9 15 9 15 9 15 9 Number of Detectors 1 1 1 1 1 1 Detector Template Leading Detector (ft) 50 50 50 50 Trailing Detector (ft) 0 0 0 0 0 Detector 1 Position(ft) 0 0 0 0 0
Number of Detectors 1 1 1 1 Detector Template Leading Detector (ft) 50 50 50 Leading Detector (ft) 0 0 0 0 Trailing Detector (ft) 0 0 0 0 Detector 1 Position(ft) 0 0 0 0
Detector Template Leading Detector (ft) 50 50 50 50 50 50 50 70 <t< td=""></t<>
Leading Detector (ft) 50 50 50 50 Trailing Detector (ft) 0 0 0 0 Detector 1 Position(ft) 0 0 0 0
Trailing Detector (ft) 0 0 0 0 Detector 1 Position(ft) 0 0 0 0
Detector 1 Position(ft) 0 0 0
Detector 1 Position(ft) 0 0 0
50 50
Detector 1 Size(ft) 50 50 50 50 50
Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex
Detector 1 Channel
Detector 1 Extend (s) 0.0 0.0 0.0 0.0
Detector 1 Queue (s) 0.0 0.0 0.0 0.0
Detector 1 Delay (s) 0.0 0.0 0.0 0.0
Turn Type Split NA NA pm+pt NA
Protected Phases 2 2 1 3 13
Permitted Phases 1 1 3
Detector Phase 2 2 1 3 13
Switch Phase
Minimum Initial (s) 6.0 6.0 7.0 6.0
Minimum Split (s) 32.0 32.0 27.0 11.0
Total Split (s) 33.0 33.0 50.0 17.0

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	33.0%	33.0%						50.0%		17.0%		
Maximum Green (s)	28.0	28.0						45.0		12.0		
Yellow Time (s)	4.0	4.0						4.0		4.0		
All-Red Time (s)	1.0	1.0						1.0		1.0		
Lost Time Adjust (s)	0.0	0.0						0.0				
Total Lost Time (s)	5.0	5.0						5.0				
Lead/Lag	Lag	Lag						Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0						2.0		3.0		
Recall Mode	Min	Min						C-Max		None		
Walk Time (s)	7.0	7.0						7.0				
Flash Dont Walk (s)	18.0	18.0						15.0				
Pedestrian Calls (#/hr)	0	0						0				
Act Effct Green (s)	12.7	12.7						58.3			72.3	
Actuated g/C Ratio	0.13	0.13						0.58			0.72	
v/c Ratio	0.45	0.37						0.27			0.32	
Control Delay	45.4	14.4						10.6			1.4	
Queue Delay	0.0	0.0						0.0			0.1	
Total Delay	45.4	14.4						10.6			1.5	
LOS	D	В						B			Α	
Approach Delay		29.6						10.6			1.5	
Approach LOS		С						В			А	
Intersection Summary												
Area Type:	Other											
Cycle Length: 100	_											
Actuated Cycle Length: 10		4.115.05	.	_								
Offset: 65 (65%), Reference	ced to phase	e 1:NBSB,	Start of (Green								
Natural Cycle: 70												
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.45	0.0					1.00.4						
Intersection Signal Delay:					tersection							
Intersection Capacity Utiliz	ration 50.3%)		IC	U Level (of Service	A					
Analysis Period (min) 15												
	1: Monroe &	IL EB										
#247#2472 # ø1 (R)					#247	#2472 M _{Ø2}				#2471	2472 ø3	
50 s					33 s	.,,-				17 s		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		41∱	7					414			ħβ	
Volume (vph)	197	20	144	0	0	0	26	315	0	0	519	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		200	0		0	0		0	0		50
Storage Lanes	0		1	0		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	0.95	0.95	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frt			0.850									
Flt Protected		0.957						0.996				
Satd. Flow (prot)	0	3259	1524	0	0	0	0	3457	0	0	3471	0
Flt Permitted		0.957						0.905				
Satd. Flow (perm)	0	3259	1524	0	0	0	0	3141	0	0	3471	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			180									
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		768			258			174			411	
Travel Time (s)		17.5			5.9			4.0			9.3	
Peak Hour Factor	0.80	0.80	0.80	0.90	0.95	0.90	0.92	0.92	0.92	0.94	0.94	0.94
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	4%	4%	4%	4%	4%	4%
Adj. Flow (vph)	246	25	180	0	0	0	28	342	0	0	552	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	271	180	0	0	0	0	370	0	0	553	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	J		0	3		0	3		0	3
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1				1	2			2	
Detector Template	Left		Right				Left	Thru			Thru	
Leading Detector (ft)	20	50	20				20	100			100	
Trailing Detector (ft)	0	0	0				0	0			0	
Detector 1 Position(ft)	0	0	0				0	0			0	
Detector 1 Size(ft)	20	50	20				20	6			6	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex				CI+Ex	CI+Ex			CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0				0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0				0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0				0.0	0.0			0.0	
Detector 2 Position(ft)								94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								CI+Ex			CI+Ex	
Detector 2 Channel												
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Split	NA	Perm				pm+pt	NA			NA	
Protected Phases	2	2					3	13			1	
Permitted Phases			2				13				1	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Detector Phase	2	2	2				3	13			1	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0				3.0				3.0	
Minimum Split (s)	32.0	32.0	32.0				25.0				25.0	
Total Split (s)	32.0	32.0	32.0				25.0				28.0	
Total Split (%)	37.6%	37.6%	37.6%				29.4%				32.9%	
Maximum Green (s)	27.0	27.0	27.0				20.0				23.0	
Yellow Time (s)	4.0	4.0	4.0				4.0				4.0	
All-Red Time (s)	1.0	1.0	1.0				1.0				1.0	
Lost Time Adjust (s)		0.0	0.0								0.0	
Total Lost Time (s)		5.0	5.0								5.0	
Lead/Lag	Lag	Lag	Lag								Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0				3.0				3.0	
Recall Mode	Min	Min	Min				None				C-Max	
Walk Time (s)	7.0	7.0	7.0				5.0				5.0	
Flash Dont Walk (s)	18.0	18.0	18.0				15.0				15.0	
Pedestrian Calls (#/hr)	0	0	0				0				0	
Act Effct Green (s)		12.6	12.6					57.4			48.9	
Actuated g/C Ratio		0.15	0.15					0.68			0.58	
v/c Ratio		0.98dl	0.48					0.17			0.28	
Control Delay		37.9	9.5					4.0			10.3	
Queue Delay		0.0	0.0					0.3			0.0	
Total Delay		37.9	9.5					4.3			10.3	
LOS		D	Α					Α			В	
Approach Delay		26.6						4.3			10.3	
Approach LOS		С						Α			В	
Intersection Summary												
Area Type:	Other											
Cycle Length: 85												
Actuated Cycle Length: 85												
Offset: 73 (86%), Reference		1:NWSE	Start of	Green								
Natural Cycle: 85			,									
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.56												
Intersection Signal Delay:	14.0			Ir	ntersection	LOS: B						
Intersection Capacity Utiliz)			CU Level		e A					
Analysis Period (min) 15												
dl Defacto Left Lane. Re	ecode with 1	though la	ane as a le	eft lane.								
Splits and Phases: 2471	: IL EB											

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR	
Lane Configurations					ፈተኩ		ሻሻ	77	¥	7	
Volume (vph)	0	0	0	87	36	57	255	253	145	568	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	0.97	0.88	1.00	0.95	
Frt					0.953			0.850	0.911	0.850	
Flt Protected					0.976		0.950		0.980		
Satd. Flow (prot)	0	0	0	0	4639	0	3400	2760	1631	1475	
Flt Permitted					0.976		0.950		0.768		
Satd. Flow (perm)	0	0	0	0	4639	0	3400	2760	1278	1475	
Right Turn on Red			Yes			Yes		Yes			
Satd. Flow (RTOR)					71			269			
Link Speed (mph)		30			30		30		30		
Link Distance (ft)		470			260		648		174		
Travel Time (s)		10.7			5.9		14.7		4.0		
Peak Hour Factor	0.90	0.90	0.90	0.80	0.80	0.80	0.94	0.94	0.88	0.88	
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	3%	3%	4%	4%	
Adj. Flow (vph)	0	0	0	109	45	71	271	269	165	645	
Shared Lane Traffic (%)										37%	
Lane Group Flow (vph)	0	0	0	0	225	0	271	269	404	406	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right	
Median Width(ft)		0	ŭ		0	Ŭ	36	, i	12	, i	
Link Offset(ft)		0			0		0		0		
Crosswalk Width(ft)		16			16		16		16		
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15		9	15		9	30	25	15	9	
Number of Detectors				1	2		1	1	1	1	
Detector Template				Left	Thru		Left	Right	Left	Right	
Leading Detector (ft)				20	100		20	20	20	20	
Trailing Detector (ft)				0	0		0	0	0	0	
Detector 1 Position(ft)				0	0		0	0	0	0	
Detector 1 Size(ft)				20	6		20	20	20	20	
Detector 1 Type				CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel											
Detector 1 Extend (s)				0.0	0.0		0.0	0.0	0.0	0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0	0.0	0.0	
Detector 1 Delay (s)				0.0	0.0		0.0	0.0	0.0	0.0	
Detector 2 Position(ft)					94						
Detector 2 Size(ft)					6						
Detector 2 Type					CI+Ex						
Detector 2 Channel											
Detector 2 Extend (s)					0.0						
Turn Type				Split	NA		Prot	Free	D.P+P	pt+ov	
Protected Phases				3	3		1		2	12	
Permitted Phases								Free	12		
Detector Phase				3	3		1		2	12	
Switch Phase											
Minimum Initial (s)				3.0	3.0		3.0		3.0		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR	
Minimum Split (s)				25.0	25.0		25.0		25.0		
Total Split (s)				25.0	25.0		25.0		25.0		
Total Split (%)				33.3%	33.3%		33.3%		33.3%		
Maximum Green (s)				20.0	20.0		20.0		20.0		
Yellow Time (s)				3.0	3.0		3.0		3.0		
All-Red Time (s)				2.0	2.0		2.0		2.0		
Lost Time Adjust (s)					0.0		0.0		0.0		
Total Lost Time (s)					5.0		5.0		5.0		
Lead/Lag							Lead		Lag		
Lead-Lag Optimize?									J		
Vehicle Extension (s)				3.0	3.0		3.0		3.0		
Recall Mode				None	None		C-Max		Max		
Walk Time (s)				5.0	5.0		5.0		5.0		
Flash Dont Walk (s)				15.0	15.0		15.0		15.0		
Pedestrian Calls (#/hr)				0	0		0		0		
Act Effct Green (s)					7.9		32.1	75.0	52.1	57.1	
Actuated g/C Ratio					0.11		0.43	1.00	0.69	0.76	
v/c Ratio					0.41		0.19	0.10	0.41	0.36	
Control Delay					23.2		14.1	0.1	5.1	4.2	
Queue Delay					0.0		0.0	0.0	3.0	7.4	
Total Delay					23.2		14.1	0.1	8.1	11.6	
LOS					С		В	Α	Α	В	
Approach Delay					23.2		7.1		9.9		
Approach LOS					С		Α		Α		
Intersection Summary											
J1	her										
Cycle Length: 75											
Actuated Cycle Length: 75											
Offset: 65 (87%), Referenced	to phase	1:NWSBI	L, Start o	of Green							
Natural Cycle: 75											
Control Type: Actuated-Coord	inated										
Maximum v/c Ratio: 0.41											
Intersection Signal Delay: 10.8					itersection						
Intersection Capacity Utilization	n 44.3%			IC	CU Level o	of Service	e A				
Analysis Period (min) 15											
Splits and Phases: 571:											
↓ † ø1 (R)		7	44					4 ø3			
25 s		25	s					s s			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					414			4₽			^	77
Volume (vph)	0	0	0	132	91	18	227	374	0	0	530	1108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	0.95	0.95	1.00	1.00	0.95	0.88
Frt					0.989							0.850
Flt Protected					0.973			0.981				
Satd. Flow (prot)	0	0	0	0	4894	0	0	3472	0	0	3539	2787
Flt Permitted					0.973			0.615				
Satd. Flow (perm)	0	0	0	0	4894	0	0	2177	0	0	3539	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					11							1180
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		410			1028			178			627	
Travel Time (s)		9.3			23.4			4.0			14.3	
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.94	0.94	0.94	0.91	0.91	0.91
Adj. Flow (vph)	0	0	0	143	99	20	241	398	0	0	582	1218
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	262	0	0	639	0	0	582	1218
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	<u> </u>		0	3		12	<u> </u>		12	<u> </u>
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		25
Number of Detectors				1	1		1	1			1	1
Detector Template												
Leading Detector (ft)				50	50		50	50			50	50
Trailing Detector (ft)				0	0		0	0			0	0
Detector 1 Position(ft)				0	0		0	0			0	0
Detector 1 Size(ft)				50	50		50	50			50	50
Detector 1 Type				CI+Ex	CI+Ex		CI+Ex	CI+Ex			CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	0.0
Turn Type				Split	NA		pm+pt	NA			NA	Free
Protected Phases				3	3		2	12			1	
Permitted Phases							12					Free
Detector Phase				3	3		2	12			1	
Switch Phase												
Minimum Initial (s)				6.0	6.0		6.0				7.0	
Minimum Split (s)				11.0	11.0		32.0				27.0	
Total Split (s)				17.0	17.0		33.0				50.0	
Total Split (%)				17.0%	17.0%		33.0%				50.0%	
Maximum Green (s)				12.0	12.0		28.0				45.0	
Yellow Time (s)				4.0	4.0		4.0				4.0	
All-Red Time (s)				1.0	1.0		1.0				1.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)					0.0						0.0	
Total Lost Time (s)					5.0						5.0	
Lead/Lag							Lag				Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0				2.0	
Recall Mode				None	None		Min				C-Max	
Walk Time (s)							7.0				7.0	
Flash Dont Walk (s)							18.0				15.0	
Pedestrian Calls (#/hr)							0				0	
Act Effct Green (s)					14.0			71.0			58.3	100.0
Actuated g/C Ratio					0.14			0.71			0.58	1.00
v/c Ratio					0.38			0.37			0.28	0.44
Control Delay					38.5			2.6			8.8	0.4
Queue Delay					0.0			0.0			0.0	0.0
Total Delay					38.5			2.6			8.8	0.4
LOS					D			Α			Α	Α
Approach Delay					38.5			2.6			3.1	
Approach LOS					D			Α			Α	
Intersection Summary												
<i>3</i> I	her											
Cycle Length: 100												
Actuated Cycle Length: 100			0	_								
Offset: 65 (65%), Referenced	to phase	1:NBSB,	Start of (Green								
Natural Cycle: 70												
Control Type: Actuated-Coord	inated											
Maximum v/c Ratio: 0.45						100.4						
Intersection Signal Delay: 6.4	E4 40/				tersection							
Intersection Capacity Utilization Analysis Period (min) 15	n 51.4%			IC	CU Level o	of Service	А					
rinarysis i criod (min) 15												
Splits and Phases: 2472: M	onroe & l	L WB			#2474	*2472				4047	#2472	
#24/#24/2 # ø1 (R)					#24/	‡2472 • 1				#24/	¥24/2	
50 s					33 s	192				17 s	₩ Ø3	

Lane Group
Volume (vph) 27 452 0 0 443 132 77 295 22 0 0 0 Ideal Flow (vphpl) 1900 0 0 0 10 10 0 0 0 1900 1900 1900 10 0
Volume (vph) 27 452 0 0 443 132 77 295 22 0 0 0 Ideal Flow (vphpl) 1900 0 0 0 10 10 0 0 0 1900 1900 1900 10 0
Ideal Flow (vphpl)
Storage Length (ff)
Storage Lanes
Taper Length (ft) 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 25 20 1.00 0.950 0.950 0.90 0.90 0.00
Lane Util. Factor 1.00 1.00 1.00 1.00 0.95 0.95 1.00 0.95 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 0.950
Satd. Flow (prot) 1719 1810 0 0 1729 1475 1752 3470 0 0 0 0 0
Satd. Flow (prot) 1719 1810 0 0 1729 1475 1752 3470 0 0 0 0 Fit Permitted 0.312 0.950 Satd. Flow (perm) 565 1810 0 0 1729 1475 1752 3470 0 0 0 0 Right Turn on Red Yes
Satd. Flow (perm) 565 1810 0 0 1729 1475 1752 3470 0 0 0 0 0 0 0 0 0
Satd. Flow (perm) 565 1810 0 0 1729 1475 1752 3470 0 0 0 0 Right Turn on Red Yes Yes Yes Yes Yes Yes Satd. Flow (RTOR) 3 88 9 30 30 30 30 Link Speed (mph) 30 <t< td=""></t<>
Right Turn on Red Yes Path All Path
Right Turn on Red Yes Path All Path
Satd. Flow (RTOR) 3 88 9 Link Speed (mph) 30 30 30 Link Distance (ft) 236 714 600 597 Travel Time (s) 5.4 16.2 13.6 13.6 Peak Hour Factor 0.85 0.85 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.95 0.95 0.95 0.90 Heavy Vehicles (%) 5% 5% 5% 4% 4% 4% 3% 3% 3% 2% 2% 2% Adj. Flow (vph) 32 532 0 0 492 147 86 328 24 0 0 0 0 Shared Lane Traffic (%) 10% Lane Group Flow (vph) 32 532 0 0 507 132 86 352 0 0 0 0 Enter Blocked Intersection No No
Link Speed (mph) 30 30 30 30 Link Distance (ft) 236 714 600 597 Travel Time (s) 5.4 16.2 13.6 13.6 Peak Hour Factor 0.85 0.85 0.85 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.95 0.95 0.95 0.90 Heavy Vehicles (%) 5% 5% 5% 4% 4% 4% 3% 3% 2% 2% 2% Adj. Flow (vph) 32 532 0 0 492 147 86 328 24 0 0 0 Shared Lane Traffic (%) 10% Lane Group Flow (vph) 32 532 0 0 507 132 86 352 0 0 0 0 Enter Blocked Intersection No
Link Distance (ft) 236 714 600 597 Travel Time (s) 5.4 16.2 13.6 13.6 Peak Hour Factor 0.85 0.85 0.90 0.90 0.90 0.90 0.90 0.90 0.90 0.95 0.95 0.95 0.90 Heavy Vehicles (%) 5% 5% 5% 4% 4% 4% 3% 3% 3% 2% 2% 2% Adj. Flow (vph) 32 532 0 0 492 147 86 328 24 0 0 0 Shared Lane Traffic (%) 10% Lane Group Flow (vph) 32 532 0 0 507 132 86 352 0 0 0 0 Enter Blocked Intersection No
Travel Time (s) 5.4 16.2 13.6 13.6 Peak Hour Factor 0.85 0.85 0.85 0.90 0.90 0.90 0.90 0.90 0.90 0.95 0.95 0.95 0.90 Heavy Vehicles (%) 5% 5% 5% 4% 4% 4% 3% 3% 3% 2% 2% 2% Adj. Flow (vph) 32 532 0 0 492 147 86 328 24 0 0 0 Shared Lane Traffic (%) 10% Lane Group Flow (vph) 32 532 0 0 507 132 86 352 0 0 0 0 Enter Blocked Intersection No
Heavy Vehicles (%) 5% 5% 5% 4% 4% 4% 3% 3% 3% 2% 2% 2% Adj. Flow (vph) 32 532 0 0 492 147 86 328 24 0 0 0 Shared Lane Traffic (%) 10% Lane Group Flow (vph) 32 532 0 0 507 132 86 352 0 0 0 0 Enter Blocked Intersection No
Adj. Flow (vph) 32 532 0 0 492 147 86 328 24 0 0 0 Shared Lane Traffic (%) 10% Lane Group Flow (vph) 32 532 0 0 507 132 86 352 0 0 0 0 Enter Blocked Intersection No No <td< td=""></td<>
Shared Lane Traffic (%) 10% Lane Group Flow (vph) 32 532 0 0 507 132 86 352 0 0 0 0 Enter Blocked Intersection No
Lane Group Flow (vph) 32 532 0 0 507 132 86 352 0 0 0 0 Enter Blocked Intersection No No<
Lane Group Flow (vph) 32 532 0 0 507 132 86 352 0 0 0 0 Enter Blocked Intersection No No<
Enter Blocked Intersection No
Lane Alignment Left Left Right Left Right Left Right Left Right
Median Width(ft) 12 12 12 12
Link Offset(ft) 0 0 0
Crosswalk Width(ft) 16 16 16
Two way Left Turn Lane
Headway Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0
Turning Speed (mph) 15 9 15 9 15 9
Number of Detectors 1 2 2 1 1 1
Detector Template Left Thru Thru Left
Leading Detector (ft) 20 100 100 50 20 50
Trailing Detector (ft) 0 0 0 0
Detector 1 Position(ft) 0 0 0 0 0
Detector 1 Size(ft) 20 6 6 50 20 50
Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex
Detector 1 Channel
Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0
Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0
Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0
Detector 2 Position(ft) 94 94
Detector 2 Size(ft) 6 6
Detector 2 Type CI+Ex CI+Ex
Detector 2 Channel
Detector 2 Extend (s) 0.0 0.0
Turn Type D.Pm NA NA Perm Perm NA
Protected Phases 4 2
Permitted Phases 4 4 4 2

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector Phase	4	4			4	4	2	2				
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	9.0	9.0				
Minimum Split (s)	25.0	25.0			25.0	25.0	22.0	22.0				
Total Split (s)	52.0	52.0			52.0	52.0	28.0	28.0				
Total Split (%)	65.0%	65.0%			65.0%	65.0%	35.0%	35.0%				
Maximum Green (s)	47.0	47.0			47.0	47.0	23.0	23.0				
Yellow Time (s)	5.0	5.0			5.0	5.0	4.0	4.0				
All-Red Time (s)	0.0	0.0			0.0	0.0	1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0				
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0	5.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0	3.0	4.0	4.0				
Recall Mode	None	None			None	None	Max	Max				
Walk Time (s)	5.0	5.0			5.0	5.0	7.0	7.0				
Flash Dont Walk (s)	15.0	15.0			15.0	15.0	8.0	8.0				
Pedestrian Calls (#/hr)	0	0			0	0	0	0				
Act Effct Green (s)	27.9	27.9			27.9	27.9	23.7	23.7				
Actuated g/C Ratio	0.45	0.45			0.45	0.45	0.38	0.38				
v/c Ratio	0.13	0.65			0.65	0.19	0.13	0.26				
Control Delay	9.7	16.5			16.5	4.2	17.2	16.1				
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0				
Total Delay	9.7	16.5			16.5	4.2	17.2	16.1				
LOS	А	В			В	Α	В	В				
Approach Delay		16.1			13.9			16.3				
Approach LOS		В			В			В				
Intersection Summary												
Area Type:	Other											
Cycle Length: 80												
Actuated Cycle Length: 6	1.9											
Natural Cycle: 50												
Control Type: Semi Act-L	Incoord											
Maximum v/c Ratio: 0.65												
Intersection Signal Delay	: 15.3			li	ntersectio	n LOS: B						
Intersection Capacity Util		,			CU Level		e A					
Analysis Period (min) 15												
Splits and Phases: 246	6: Union & Mo	onroe										
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ች	+			1>		ሻ	ħβ				
Volume (vph)	20	641	0	0	443	172	86	174	32	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	250		250	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	1.00
Frt					0.962			0.977				
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1787	1881	0	0	1810	0	1752	3424	0	0	0	0
Flt Permitted	0.346						0.950					
Satd. Flow (perm)	651	1881	0	0	1810	0	1752	3424	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					42			19				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		236			685			470			510	
Travel Time (s)		5.4			15.6			10.7			11.6	
Peak Hour Factor	0.92	0.92	0.92	0.87	0.87	0.87	0.86	0.86	0.86	0.95	0.95	0.95
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	22	697	0	0	509	198	100	202	37	0	0	0
Shared Lane Traffic (%)		077		· ·	007	170	100	202	0,	· ·		· ·
Lane Group Flow (vph)	22	697	0	0	707	0	100	239	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	20.0	12	···g···	2011	12	. ugu	20.0	12		20.1	12	. ug. u
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane											10	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	•		1	•	1	1	•			•
Detector Template		•						•				
Leading Detector (ft)	50	50			50		50	50				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	50	50			50		50	50				
Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex				
Detector 1 Channel	OFFER	OTTEX			OTTEX		OITEX	OTTEX				
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	Perm	NA			NA		Split	NA				
Protected Phases	I CIIII	1			1		2 2	2				
Permitted Phases	1	'			'		2					
Detector Phase	1	1			1		2	2				
Switch Phase	ı	ı			ı			۷				
Minimum Initial (s)	7.0	7.0			7.0		9.0	9.0				
Minimum Split (s)	23.0	23.0			23.0		22.0	22.0				
	72.0	72.0			72.0		28.0	28.0				
Total Split (s)	12.0	12.0			12.0		2ŏ.U	2ŏ.U				

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	72.0%	72.0%			72.0%		28.0%	28.0%				
Maximum Green (s)	67.0	67.0			67.0		23.0	23.0				
Yellow Time (s)	4.0	4.0			4.0		4.0	4.0				
All-Red Time (s)	1.0	1.0			1.0		1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0		0.0	0.0				
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0				
Lead/Lag	Lead	Lead			Lead		Lag	Lag				
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0			2.0		4.0	4.0				
Recall Mode	C-Max	C-Max			C-Max		None	None				
Walk Time (s)	7.0	7.0			7.0		7.0	7.0				
Flash Dont Walk (s)	11.0	11.0			11.0		8.0	8.0				
Pedestrian Calls (#/hr)	0	0			0		0	0				
Act Effct Green (s)	77.1	77.1			77.1		12.9	12.9				
Actuated g/C Ratio	0.77	0.77			0.77		0.13	0.13				
v/c Ratio	0.04	0.48			0.50		0.44	0.52				
Control Delay	3.0	7.2			3.9		45.8	41.0				
Queue Delay	0.0	0.4			0.1		0.0	0.0				
Total Delay	3.0	7.5			4.0		45.8	41.0				
LOS	Α	Α			Α		D	D				
Approach Delay		7.4			4.0			42.5				
Approach LOS		Α			Α			D				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 10												
Offset: 97 (97%), Reference	ced to phase	e 1:EBWB	Start of (Green								
Natural Cycle: 60												
Control Type: Actuated-Co	oordinated											
Maximum v/c Ratio: 0.52												
	Intersection Signal Delay: 12.8											
Intersection Capacity Utiliz	zation 49.6%)		ŀ	CU Level o	of Service	e A					
Analysis Period (min) 15												
Splits and Phases: 246:	Union & Mo	nroe										
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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2
Lane Configurations	ሻሻ		ች	^	-		
Volume (vph)	70	0	136	154	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	
Storage Length (ft)	0	0	200		.,	0	
Storage Lanes	2	0	1			0	
Taper Length (ft)	25		25				
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00	
Frt	0.,,			0.70			
Flt Protected	0.950		0.950				
Satd. Flow (prot)	3367	0	1770	3539	0	0	
Flt Permitted	0.950		0.950	0007		· ·	
Satd. Flow (perm)	3367	0	1770	3539	0	0	
Right Turn on Red	0007	Yes		0007		Yes	
Satd. Flow (RTOR)		. 00				. 00	
Link Speed (mph)	30			30	30		
Link Distance (ft)	136			556	451		
Travel Time (s)	3.1			12.6	10.3		
Peak Hour Factor	0.90	0.90	0.95	0.95	0.90	0.90	
Heavy Vehicles (%)	4%	4%	2%	2%	2%	2%	
Adj. Flow (vph)	78	0	143	162	0	0	
Shared Lane Traffic (%)	, 0			.02		· ·	
Lane Group Flow (vph)	78	0	143	162	0	0	
Enter Blocked Intersection	No	No	No	No	No	No	
Lane Alignment	Left	Right	Left	Left	Left	Right	
Median Width(ft)	24	. ugu	20.1	12	12	g	
Link Offset(ft)	0			0	0		
Crosswalk Width(ft)	16			16	16		
Two way Left Turn Lane							
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	15	9	15			9	
Number of Detectors	1	,	1	1		•	
Detector Template	•		•	•			
Leading Detector (ft)	50		50	50			
Trailing Detector (ft)	0		0	0			
Detector 1 Position(ft)	0		0	0			
Detector 1 Size(ft)	50		50	50			
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex			
Detector 1 Channel	OI. EX		OI LX	OI LA			
Detector 1 Extend (s)	0.0		0.0	0.0			
Detector 1 Queue (s)	0.0		0.0	0.0			
Detector 1 Delay (s)	0.0		0.0	0.0			
Turn Type	Prot		Prot	NA			
Protected Phases	1		3	2 3			2
Permitted Phases			J				<u>-</u>
Detector Phase	1		3	2 3			
Switch Phase			J	2.0			
Minimum Initial (s)	7.0		6.0				10.0
Minimum Split (s)	21.0		24.0				28.0
Total Split (s)	22.0		39.0				39.0
Total Oplit (3)	22.0		37.0				U/.U

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	
Total Split (%)	22.0%		39.0%				39%	
Maximum Green (s)	16.0		34.0				34.0	
Yellow Time (s)	4.0		4.0				4.0	
All-Red Time (s)	2.0		1.0				1.0	
Lost Time Adjust (s)	0.0		0.0					
Total Lost Time (s)	6.0		5.0					
Lead/Lag	Lead						Lag	
Lead-Lag Optimize?								
Vehicle Extension (s)	2.0		4.0				3.0	
Recall Mode	C-Max		None				None	
Walk Time (s)	7.0						7.0	
Flash Dont Walk (s)	8.0						15.0	
Pedestrian Calls (#/hr)	0						0	
Act Effct Green (s)	57.9		14.9	31.1				
Actuated g/C Ratio	0.58		0.15	0.31				
v/c Ratio	0.04		0.54	0.15				
Control Delay	1.5		46.3	23.8				
Queue Delay	0.4		0.0	0.0				
Total Delay	1.9		46.3	23.8				
LOS	А		D	С				
Approach Delay	1.9			34.3				
Approach LOS	Α			С				
Intersection Summary								
Area Type:	Other							
Cycle Length: 100								
Actuated Cycle Length: 10								
Offset: 54 (54%), Referen	ced to phase	1:EBWB	, Start of (Green				
Natural Cycle: 75								
Control Type: Actuated-Co	oordinated							
Maximum v/c Ratio: 0.57								
Intersection Signal Delay:					tersection			
Intersection Capacity Utiliz	zation 23.3%			IC	U Level of	of Service	A	
Analysis Period (min) 15								
Splits and Phases: 259	2: Union & Br	oad						
#259#2592	#259#2						#259#25	92
ø1 (R)	- ↓	f _{ø2}					▽ ◀	ø3

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	
Lane Configurations	ሻሻ		ች	^				_
Volume (vph)	250	0	56	170	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	0	0	200		.,	0		
Storage Lanes	2	0	1			0		
Taper Length (ft)	25	, ,	25			, ,		
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00		
Frt	0.77	1.00	1.00	0.70	1.00	1.00		
Flt Protected	0.950		0.950					
Satd. Flow (prot)	3433	0	1787	3574	0	0		
Flt Permitted	0.950	U	0.950	3374	U	U		
Satd. Flow (perm)	3433	0	1787	3574	0	0		
Right Turn on Red	3433	Yes	1707	3374	U	Yes		
Satd. Flow (RTOR)		163				163		
Link Speed (mph)	30			30	30			
Link Distance (ft)	175			499	451			
Travel Time (s)	4.0			11.3	10.3			
Peak Hour Factor	0.88	0.88	0.86	0.86	0.90	0.90		
	2%	2%	1%	1%	2%	2%		
Heavy Vehicles (%)	284		65	198				
Adj. Flow (vph)	204	0	00	198	0	0		
Shared Lane Traffic (%)	284	0	65	198	0	0		
Lane Group Flow (vph) Enter Blocked Intersection	284 No	No	No	No	No	No		
Lane Alignment			Left	Left				
Median Width(ft)	Left 24	Right	Leit	12	Left 12	Right		
Link Offset(ft)	0			0	0			
, ,	16				16			
Crosswalk Width(ft)	10			16	10			
Two way Left Turn Lane	1.00	1.00	1.00	1.00	1.00	1.00		
Headway Factor	1.00	9	1.00	1.00	1.00	1.00		
Turning Speed (mph) Number of Detectors	13	9	13	1		9		
Detector Template	ı		ı	I				
Leading Detector (ft)	50		50	50				
Trailing Detector (ft)	0		0	0				
				0				
Detector 1 Position(ft)	0 50		0 50	50				
Detector 1 Size(ft)	CI+Ex			CI+Ex				
Detector 1 Type	CI+EX		CI+Ex	CI+EX				
Detector 1 Channel	0.0		0.0	0.0				
Detector 1 Extend (s)			0.0	0.0				
Detector 1 Queue (s)	0.0		0.0	0.0				
Detector 1 Delay (s)	0.0		0.0	0.0				
Turn Type Protected Phases	Prot		Prot	NA			2	
	1		3	2 3			2	
Permitted Phases	1		2	2.2				
Detector Phase	1		3	2 3				
Switch Phase	7.0		/ 0				10.0	
Minimum Initial (s)	7.0		6.0				10.0	
Minimum Split (s)	21.0		24.0				28.0	
Total Split (s)	31.0		24.0				45.0	

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	
Total Split (%)	31.0%	24	1.0%				45%	
Maximum Green (s)	25.0		19.0				40.0	
Yellow Time (s)	4.0		4.0				4.0	
All-Red Time (s)	2.0		1.0				1.0	
Lost Time Adjust (s)	0.0		0.0					
Total Lost Time (s)	6.0		5.0					
Lead/Lag	Lead						Lag	
Lead-Lag Optimize?								
Vehicle Extension (s)	2.0		4.0				3.0	
Recall Mode	C-Max	N	lone				None	
Walk Time (s)	7.0						7.0	
Flash Dont Walk (s)	8.0						15.0	
Pedestrian Calls (#/hr)	0						0	
Act Effct Green (s)	62.3		10.1	26.7				
Actuated g/C Ratio	0.62		0.10	0.27				
v/c Ratio	0.13		0.36	0.21				
Control Delay	3.3		46.5	28.0				
Queue Delay	0.4		0.0	0.0				
Total Delay	3.7		46.5	28.0				
LOS	Α		D	С				
Approach Delay	3.7			32.6				
Approach LOS	Α			С				
Intersection Summary								
Area Type:	Other							
Cycle Length: 100								
Actuated Cycle Length: 10								
Offset: 25 (25%), Reference	ed to phase	1:EBWB, St	tart of C	Green				
Natural Cycle: 75								
Control Type: Actuated-Co	ordinated							
Maximum v/c Ratio: 0.51								
Intersection Signal Delay:					ersection			
Intersection Capacity Utiliz	ation 24.6%			IC	U Level o	f Service	A	
Analysis Period (min) 15								
Splits and Phases: 2592	: Union & Br	oad						
#259#2592 ø1 (R)		#259#1	2592					#259#2592

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		^	7		4₽						ብ ተ ቡ	
Volume (vph)	0	67	31	23	115	0	0	0	0	3	156	177
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.91	0.91	0.91
Frt			0.850								0.921	
Flt Protected					0.992							
Satd. Flow (prot)	0	3471	1553	0	3511	0	0	0	0	0	4684	0
Flt Permitted					0.918							
Satd. Flow (perm)	0	3471	1553	0	3249	0	0	0	0	0	4684	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			76								216	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		786			136			477			435	
Travel Time (s)		17.9			3.1			10.8			9.9	
Peak Hour Factor	0.78	0.78	0.78	0.85	0.85	0.85	0.90	0.90	0.90	0.82	0.82	0.82
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	86	40	27	135	0	0	0	0	4	190	216
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	86	40	0	162	0	0	0	0	0	410	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	Ü		0	Ŭ		0	Ü		0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1	1	1					1	1	
Detector Template												
Leading Detector (ft)		50	50	50	50					50	50	
Trailing Detector (ft)		0	0	0	0					0	0	
Detector 1 Position(ft)		0	0	0	0					0	0	
Detector 1 Size(ft)		50	50	50	50					50	50	
Detector 1 Type		CI+Ex	CI+Ex	CI+Ex	CI+Ex					CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Turn Type		NA	Perm	D.P+P	NA					Split	NA	
Protected Phases		1		3	13					2	2	
Permitted Phases			1	1								
Detector Phase		1	1	3	13					2	2	
Switch Phase												
Minimum Initial (s)		7.0	7.0	6.0						10.0	10.0	
Minimum Split (s)		21.0	21.0	24.0						28.0	28.0	
Total Split (s)		22.0	22.0	39.0						39.0	39.0	
Total Split (%)		22.0%	22.0%	39.0%						39.0%	39.0%	
Maximum Green (s)		16.0	16.0	34.0						34.0	34.0	
Yellow Time (s)		4.0	4.0	4.0						4.0	4.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)		2.0	2.0	1.0						1.0	1.0	
Lost Time Adjust (s)		0.0	0.0								0.0	
Total Lost Time (s)		6.0	6.0								5.0	
Lead/Lag		Lead	Lead							Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)		2.0	2.0	4.0						3.0	3.0	
Recall Mode		C-Max	C-Max	None						None	None	
Walk Time (s)		7.0	7.0							7.0	7.0	
Flash Dont Walk (s)		8.0	8.0							15.0	15.0	
Pedestrian Calls (#/hr)		0	0							0	0	
Act Effct Green (s)		57.9	57.9		71.8						11.2	
Actuated g/C Ratio		0.58	0.58		0.72						0.11	
v/c Ratio		0.04	0.04		0.07						0.57	
Control Delay		5.6	2.2		0.5						11.1	
Queue Delay		0.0	0.0		0.2						0.0	
Total Delay		5.6	2.2		0.7						11.1	
LOS		Α	Α		Α						В	
Approach Delay		4.5			0.7						11.1	
Approach LOS		Α			А						В	
Intersection Summary												
<i>J</i> I	ther											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 54 (54%), Referenced	to phase	1:EBWE	3, Start of	Green								
Natural Cycle: 75												
Control Type: Actuated-Coord	dinated											
Maximum v/c Ratio: 0.57												
Intersection Signal Delay: 7.5					tersection							
Intersection Capacity Utilization	on 34.2%			IC	CU Level of	of Service	A					
Analysis Period (min) 15												
Splits and Phases: 2591: F	itkin & Br	oad										
#259#2592	#259#2						#259#25	92				
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Lane Configurations		•	-	•	•	—	•	4	†	~	/	ţ	4
Volume (vph) 0 235 139 44 29 0 0 0 0 15 196 52	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (vph) 0 235 139 44 29 0 0 0 0 15 196 52	Lane Configurations		^	7		4₽						4 † }	
Lane Util. Factor 1.00 0.95 1.00 0.95 0.95 0.95 0.95 0.90 1.00 1.00 0.91 0.91 0.91 0.91 0.97 0.970		0		139	44		0	0	0	0	15		52
Fith Protection	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Fit Protected	Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.91	0.91	0.91
Satd. Flow (proft)	Frt			0.850								0.970	
Fit Permitted	Flt Protected					0.971						0.997	
Satd, Flow (perm) 0 3539 1583 0 2608 0 0 0 0 4918 0 Right Turn on Red Yes Yes Yes 763 Yes 63 Sald, Flow (RTOR) 185 30 30 30 30 30 Link Distance (ft) 750 175 175 248 439 177 Travel Time (s) 0.75 0.75 0.77 0.77 0.77 0.90 0.90 0.90 0.82 0.82 0.82 Adj. Flow (vph) 0 313 185 57 38 0 0 0 0 0.82 0.82 0.82 Shared Lane Traffic (%) 1 185 0 95 0	Satd. Flow (prot)	0	3539	1583	0	3437	0	0	0	0	0	4918	0
Name	Flt Permitted					0.737						0.997	
Satid Flow (RTOR) 185 18	Satd. Flow (perm)	0	3539	1583	0	2608	0	0	0	0	0	4918	0
Link Speed (mph) 30 30 30 30 30 Link Distance (ft) 750 175 248 439 Travel Time (s) 17.0 4.0 5.6 10.0 Peak Hour Factor 0.75 0.75 0.77 0.77 0.77 0.90 0.90 0.90 0.82 0.82 0.82 Adj. Flow (vph) 0 313 185 57 38 0 0 0 0 0.82 0.82 0.82 Adj. Flow (vph) 0 313 185 0 95 0 0 0 0 0 320 0 Lane Group Flow (vph) 0 313 185 0 95 0	Right Turn on Red			Yes			Yes			Yes			Yes
Link Distance (ft) 750 175 248 439 Travel Time (s) 17.0 4.0 5.6 10.0 Peak Hour Factor 0.75 0.75 0.75 0.77 0.77 0.90 0.90 0.90 0.82 0.82 Adj. Flow (ych) 0 313 185 57 38 0 0 0 0 18 239 63 Shared Lane Traffic (%) Lane Group Flow (ych) 0 313 185 0 95 0 0 0 0 320 0 Enter Blocked Intersection No No </td <td>Satd. Flow (RTOR)</td> <td></td> <td></td> <td>185</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>63</td> <td></td>	Satd. Flow (RTOR)			185								63	
Travel Time (s)	Link Speed (mph)		30			30			30			30	
Peak Hour Factor 0.75 0.75 0.75 0.77 0.77 0.90 0.90 0.82 0.82 0.82 Adj. Flow (vph) 0 313 185 57 38 0 0 0 0 18 239 63 Shared Lane Traffic (%) Sample Lane Traffic (%) Lane Group Flow (vph) 0 313 185 0 95 0 0 0 0 320 0 Enter Blocked Intersection No	Link Distance (ft)		750			175			248			439	
Adj. Flow (vph) 0 313 185 57 38 0 0 0 18 239 63 Shared Lane Traffic (%) Lane Group Flow (vph) 0 313 185 0 95 0 0 0 0 320 0 Enter Blocked Intersection No	Travel Time (s)		17.0			4.0			5.6			10.0	
Shared Lane Traffic (%) Lane Group Flow (vph) 0 313 185 0 95 0 0 0 0 0 0 320 0 0 0 0 0 0 0 0 0	Peak Hour Factor	0.75	0.75	0.75	0.77	0.77	0.77	0.90	0.90	0.90	0.82	0.82	0.82
Shared Lane Traffic (%) Lane Group Flow (γph) 0 313 185 0 95 0 0 0 0 0 0 0 320 0 0 0 0 0 0 0 0 0	Adj. Flow (vph)	0	313	185	57	38	0	0	0	0	18	239	63
Enter Blocked Intersection No No <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>													
Enter Blocked Intersection No No <th< td=""><td>Lane Group Flow (vph)</td><td>0</td><td>313</td><td>185</td><td>0</td><td>95</td><td>0</td><td>0</td><td>0</td><td>0</td><td>0</td><td>320</td><td>0</td></th<>	Lane Group Flow (vph)	0	313	185	0	95	0	0	0	0	0	320	0
Median Width(fft) 0 16 Total from the factors 1		No	No	No	No	No	No	No	No	No	No	No	No
Median Width(fft) 0 16 Total from the factors 1	Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Link Offset(fit) 0 0 0 0 0 Crosswalk Width(fit) 16 16 16 16 Two way Left Turn Lane 1.00				3			3			3			3
Crosswalk Width(fft) 16 16 16 16 Two way Left Turn Lane 100 1.00	` ,		0			0			0			0	
Two way Left Turn Lane	, ,		16			16			16			16	
Headway Factor 1.00	` ,												
Turning Speed (mph) 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 1		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Number of Detectors 1 1 1 1 1 1 1 Detector Template Image: Control of the control of		15		9	15		9	15		9	15		9
Leading Detector (ft) 50 50 50 50 Trailing Detector (ft) 0<			1	1		1					1	1	
Leading Detector (ft) 50 50 50 50 Trailing Detector (ft) 0<	Detector Template												
Trailing Detector (ft) 0 0 0 0 0 Detector 1 Position(ft) 0 0 0 0 0 Detector 1 Size(ft) 50 50 50 50 50 Detector 1 Type Cl+Ex Cl+Ex Cl+Ex Cl+Ex Cl+Ex Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0			50	50	50	50					50	50	
Detector 1 Position(ft) 0 0 0 0 0 Detector 1 Size(ft) 50 50 50 50 Detector 1 Type Cl+Ex Cl+Ex Cl+Ex Cl+Ex Detector 1 Channel Use of the colspan="2">Use of the colspan="2"			0	0	0	0					0	0	
Detector 1 Type CI+Ex CI-Ex CI-Ex CI-Ex CI-Ex			0	0	0	0					0	0	
Detector 1 Type CI+Ex CI-Ex CI-Ex CI-Ex CI-Ex CI-Ex CI-Ex			50	50	50	50					50	50	
Detector 1 Extend (s) 0.0 0.	Detector 1 Type		CI+Ex	CI+Ex	CI+Ex	CI+Ex					CI+Ex	CI+Ex	
Detector 1 Extend (s) 0.0 0.	Detector 1 Channel												
Detector 1 Queue (s) 0.0			0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Delay (s) 0.0	` ,		0.0	0.0							0.0		
Turn Type NA Perm D.P+P NA Split NA Protected Phases 1 3 13 2 2 Permitted Phases 1 1 1				0.0							0.0		
Protected Phases 1 3 1 3 2 2 Permitted Phases 1 1 1 1 1 1 1 2 2 2 2 2 2 2 2 Switch Phase 3 1 3 1 3 3 1 3 2 2 2 2 3 3 3 1 0 1 0 1 0 1 0 1 0 1 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 <td></td>													
Permitted Phases 1 1 Detector Phase 1 1 3 13 2 2 Switch Phase Minimum Initial (s) 7.0 7.0 6.0 10.0 10.0											•		
Detector Phase 1 1 3 13 2 2 Switch Phase Minimum Initial (s) 7.0 7.0 6.0 10.0 10.0				1	1								
Switch Phase 7.0 7.0 6.0 10.0 10.0			1	1		13					2	2	
Minimum Initial (s) 7.0 7.0 6.0 10.0													
• •			7.0	7.0	6.0						10.0	10.0	
Minimum Spiit (S) 21.0 21.0 24.0 28.0 28.0	Minimum Split (s)		21.0	21.0	24.0						28.0	28.0	
Total Split (s) 31.0 31.0 24.0 45.0 45.0													
Total Split (%) 31.0% 31.0% 24.0% 45.0% 45.0%	1 ' '												
Maximum Green (s) 25.0 25.0 19.0 40.0 40.0													
Yellow Time (s) 4.0 4.0 4.0 4.0													
All-Red Time (s) 2.0 2.0 1.0 1.0 1.0													

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Lane Group	EBL EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)	0.0	0.0								0.0	
Total Lost Time (s)	6.0	6.0								5.0	
Lead/Lag	Lead	Lead							Lag	Lag	
Lead-Lag Optimize?											
Vehicle Extension (s)	2.0		4.0						3.0	3.0	
Recall Mode	C-Max	C-Max	None						None	None	
Walk Time (s)	7.0								7.0	7.0	
Flash Dont Walk (s)	8.0	8.0							15.0	15.0	
Pedestrian Calls (#/hr)	0								0	0	
Act Effct Green (s)	62.3			71.4						11.6	
Actuated g/C Ratio	0.62	0.62		0.71						0.12	
v/c Ratio	0.14			0.05						0.51	
Control Delay	5.9	0.6		1.1						31.3	
Queue Delay	0.0	0.0		0.1						0.0	
Total Delay	5.9	0.6		1.2						31.3	
LOS	А	Α		Α						С	
Approach Delay	3.9			1.2						31.3	
Approach LOS	A			Α						С	
Intersection Summary											
Area Type: Oth	ner										
Cycle Length: 100											
Actuated Cycle Length: 100			_								
Offset: 25 (25%), Referenced t Natural Cycle: 75	o phase 1:EBW	B, Start of	Green								
	natad										
Control Type: Actuated-Coordii Maximum v/c Ratio: 0.51	nateu										
			ln:	tersection	L OC. D						
Intersection Signal Delay: 13.2					of Service	۸					
Intersection Capacity Utilization Analysis Period (min) 15	11 30.9%		IC	U Lever)i Service	A					
	dda O Dasad										
	kin & Broad	F0#2F02						#2504	12502		
#259#2592	#2	59#2592						#2591	2592		
ø1 (R)	1	ø2						₩	Y ø3		
318	45	S						24 S			

Lane Group		۶	-	•	•	—	•	•	†	/	>	Ţ	1
Volume (pyh)	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (pyh)	Lane Configurations		41₽			↑ ↑			41₽	7			
Lane UIII Factor	Volume (vph)	24		0	0		67	68		65	0	0	0
Fit Protected 0.997	Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Filt Protected	Lane Util. Factor	0.95	0.95	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Sald, Flow (prof) 0	Frt					0.981				0.850			
File Permitted	Flt Protected		0.997						0.978				
Satid. Flow (perm) 0 3145 0 0 3405 0 0 3362 1538 0 0 0 0 0 0 0 0 0	Satd. Flow (prot)	0	3461	0	0	3405	0	0	3362	1538	0	0	0
Right Turn on Red Salt, Flow (RTOR) Salt	Flt Permitted		0.906						0.978				
Said, Flow (RTOR)	Satd. Flow (perm)	0	3145	0	0	3405	0	0	3362	1538	0	0	0
Link Speed (mph)	Right Turn on Red			Yes			Yes			Yes			Yes
Link Distance (II)	Satd. Flow (RTOR)					22				87			
Travel Time (s)	Link Speed (mph)		30			30			30			30	
Peak Hour Factor 1.00	Link Distance (ft)		123			667			451			780	
Heavy Vehicles (%)	Travel Time (s)		2.8			15.2			10.3			17.7	
Adj. Flow (vph) 32 437 0 0 484 72 72 89 69 0 0 0 0 Shared Lane Traffic (%) Lane Group Flow (vph) 0 469 0 0 556 0 0 161 69 0 0 0 Enter Blocked Intersection No	Peak Hour Factor	0.76	0.76	0.76	0.93	0.93	0.93	0.94	0.94	0.94	0.90	0.90	0.90
Shared Lane Traffic (%) Lane Group Flow (wph) 0 469 0 0 556 0 0 161 69 0 0 0 0 0 0 0 0 0	Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	5%	5%	5%	2%	2%	2%
Lane Group Flow (vph)	Adj. Flow (vph)	32	437	0	0	484	72	72	89	69	0	0	0
Lane Group Flow (vph)	Shared Lane Traffic (%)												
Enter Blocked Intersection No No <th< td=""><td></td><td>0</td><td>469</td><td>0</td><td>0</td><td>556</td><td>0</td><td>0</td><td>161</td><td>69</td><td>0</td><td>0</td><td>0</td></th<>		0	469	0	0	556	0	0	161	69	0	0	0
Median Width(ft) 0 1 0 1.00		No	No	No	No	No	No	No	No	No	No	No	No
Median Width(ft) 0 1 0 1.00	Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Link Offset(ff) 0 0 0 0 0 Crosswalk Width(ff) 16 16 16 16 16 Two way Left Turn Lane 10 1.00 0.0			0	Ü		0	Ŭ		0	Ŭ		0	J
Two way Left Turn Lane Headway Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0			0			0			0			0	
Headway Factor 1.00	Crosswalk Width(ft)		16			16			16			16	
Turning Speed (mph) 15 9 15 9 15 9 15 9 15 9 15 9 Number of Detectors 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Two way Left Turn Lane												
Number of Detectors 1 1 1 1 1 1 1 1 1 1 1 Detector Template Caraling Detector (ft) 50	Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Detector Template	Turning Speed (mph)	15		9	15		9	15		9	15		9
Leading Detector (ft) 50 50 50 50 50 Trailing Detector (ft) 0 0 0 0 0 Detector 1 Position(ft) 0 0 0 0 0 Detector 1 Size(ft) 50 50 50 50 50 Detector 1 Type Cl+Ex Cl+Ex Cl+Ex Cl+Ex Cl+Ex Detector 1 Channel 0 0 0 0 0 0 Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0 Turn Type pm+pt NA NA Split NA Perm Protected Phases 2 12 1 3 3 3 Permitted Phase 1 3 3 3 3 3 Whinimum Ini	Number of Detectors	1	1			1		1	1	1			
Trailing Detector (ft) 0 0 0 0 0 Detector 1 Position(ft) 0 0 0 0 0 Detector 1 Size(ft) 50 50 50 50 50 Detector 1 Type Cl+Ex Cl+Ex Cl+Ex Cl+Ex Cl+Ex Detector 1 Channel Cleast Clea	Detector Template												
Detector 1 Position(ft) 0 0 0 0 0 0 Detector 1 Size(ft) 50 50 50 50 50 Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0	Leading Detector (ft)	50	50			50		50	50	50			
Detector 1 Size(ft) 50 50 50 50 50 Detector 1 Type CI+Ex	Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Type	Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0	Detector 1 Size(ft)	50	50			50		50	50	50			
Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0	Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex	CI+Ex			
Detector 1 Queue (s) 0.0													
Detector 1 Delay (s) 0.0 Perm Perm </td <td>Detector 1 Extend (s)</td> <td>0.0</td> <td>0.0</td> <td></td> <td></td> <td>0.0</td> <td></td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td></td> <td></td> <td></td>	Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Turn Type pm+pt NA NA Split NA Perm Protected Phases 2 12 1 3 3 Permitted Phases 12 3 3 3 Detector Phase 2 12 1 3 3 Switch Phase Minimum Initial (s) 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 22.0 Total Split (s) 26.0 52.0 22.0 22.0 22.0 Total Split (%) 26.0% 52.0% 22.0% 22.0% 22.0%	Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Protected Phases 2 1 2 1 3 3 Permitted Phases 1 2 3 3 3 Detector Phase 2 1 2 1 3 3 3 Switch Phase 8	Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Protected Phases 2 1 2 1 3 3 Permitted Phases 1 2 3 3 3 Detector Phase 2 1 2 1 3 3 3 Switch Phase 8	Turn Type	pm+pt	NA			NA		Split	NA	Perm			
Detector Phase 2 1 2 3 3 3 3 Switch Phase Minimum Initial (s) 6.0 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 22.0 22.0 Total Split (s) 26.0 52.0 22.0 22.0 22.0 Total Split (%) 26.0% 52.0% 22.0% 22.0% 22.0%	Protected Phases		12			1			3				
Switch Phase Minimum Initial (s) 6.0 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 22.0 22.0 Total Split (s) 26.0 52.0 22.0 22.0 22.0 Total Split (%) 26.0% 52.0% 22.0% 22.0% 22.0%	Permitted Phases	12								3			
Minimum Initial (s) 6.0 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 22.0 22.0 Total Split (s) 26.0 52.0 22.0 22.0 22.0 Total Split (%) 26.0% 52.0% 22.0% 22.0% 22.0%	Detector Phase	2	12			1		3	3	3			
Minimum Split (s) 23.0 23.0 22.0 22.0 22.0 Total Split (s) 26.0 52.0 22.0 22.0 22.0 Total Split (%) 26.0% 52.0% 22.0% 22.0% 22.0%	Switch Phase												
Minimum Split (s) 23.0 23.0 22.0 22.0 22.0 Total Split (s) 26.0 52.0 22.0 22.0 22.0 Total Split (%) 26.0% 52.0% 22.0% 22.0% 22.0%	Minimum Initial (s)	6.0				6.0		6.0	6.0	6.0			
Total Split (s) 26.0 52.0 22.0 22.0 22.0 Total Split (%) 26.0% 52.0% 22.0% 22.0% 22.0%		23.0				23.0		22.0	22.0	22.0			
Total Split (%) 26.0% 52.0% 22.0% 22.0% 22.0%	• • • • • • • • • • • • • • • • • • • •												
	Maximum Green (s)	20.5				46.5		16.5	16.5	16.5			
Yellow Time (s) 3.5 3.5 3.5 3.5													

52 s

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.0				2.0		2.0	2.0	2.0			
Lost Time Adjust (s)					0.0			0.0	0.0			
Total Lost Time (s)					5.5			5.5	5.5			
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0				2.0		3.0	3.0	3.0			
Recall Mode	None				C-Max		None	None	None			
Walk Time (s)	7.0				7.0		7.0	7.0	7.0			
Flash Dont Walk (s)	9.0				10.0		9.0	9.0	9.0			
Pedestrian Calls (#/hr)	0				0		0	0	0			
Act Effct Green (s)		71.4			54.0			12.1	12.1			
Actuated g/C Ratio		0.71			0.54			0.12	0.12			
v/c Ratio		0.20			0.30			0.40	0.26			
Control Delay		1.1			6.4			33.3	8.5			
Queue Delay		0.5			0.0			0.0	0.0			
Total Delay		1.6			6.4			33.3	8.5			
LOS		Α			Α			С	Α			
Approach Delay		1.6			6.4			25.8				
Approach LOS		А			А			С				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 10												
Offset: 16 (16%), Referen	ced to phase	1:EBWB,	Start of	Green								
Natural Cycle: 70												
Control Type: Actuated-Co	oordinated											
Maximum v/c Ratio: 0.71												
Intersection Signal Delay:	8.2			Ir	ntersection	LOS: A						
Intersection Capacity Utiliz	zation 41.5%			[(CU Level o	of Service	Α					
Analysis Period (min) 15												
Splits and Phases: 2603	2: Union & Ea	ıst										
#260#2602 #01 (R)	•				#26	50#2602	2		#26	0#2602 10/03		

Lane Grotogue		۶	-	•	•	—	•	•	†	/	>	Ţ	1
Volume (pyh)	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (pyh)	Lane Configurations		4₽			ħβ			414	7			
Ideal Flow (ryhpip)		36		0	0		57	43		211	0	0	0
Lane UIII Factor			1900		1900	1900	1900	1900		1900	1900	1900	1900
Fit IProtected			0.95	1.00	1.00	0.95	0.95	0.95	0.95	1.00		1.00	1.00
Sald, Flow (prof) 0 3529 0 0 3431 0 0 3504 1583 0 0 0 0	Frt					0.979				0.850			
File Permitted	Flt Protected		0.997						0.990				
Satid. Flow (perm)	Satd. Flow (prot)	0	3529	0	0	3431	0	0	3504	1583	0	0	0
Right Turn on Red	Flt Permitted		0.914						0.990				
Right Turn on Red	Satd. Flow (perm)	0	3235	0	0	3431	0	0	3504	1583	0	0	0
Link Speed (mph)	Right Turn on Red			Yes			Yes			Yes			Yes
Link Distance (II)						19				234			
Link Distance (ft)	Link Speed (mph)		30			30			30			30	
Peak Hour Factor 0.86 0.86 0.86 0.87 0.87 0.87 0.90 0.			148			667			451			567	
Heavy Vehicles (%)	` '		3.4			15.2			10.3			12.9	
Adj. Flow (vph)	` '	0.86		0.86	0.87	0.87	0.87	0.90		0.90	0.90	0.90	0.90
Adj. Flow (vph)	Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%) Lane Group Flow (vph) 0 750 0 0 465 0 0 232 234 0 0 0 0 0 0 0 0 0	, ,		708	0	0	399	66	48	184	234			
Lane Group Flow (vph)	• • • • • • • • • • • • • • • • • • • •												
Enter Blocked Intersection No No <th< td=""><td></td><td>0</td><td>750</td><td>0</td><td>0</td><td>465</td><td>0</td><td>0</td><td>232</td><td>234</td><td>0</td><td>0</td><td>0</td></th<>		0	750	0	0	465	0	0	232	234	0	0	0
Left Left Right Left Right Left Right Left Right Left Right Left Right Rig		No		No							No	No	No
Median Width(ft) 0 10													
Link Offset(ff) 0 0 0 0 0 Crosswalk Width(ff) 16 16 16 16 16 Two way Left zur Lane 1.00 0.00 0.0 0.00 0.0 0.00 0.0				J			<u> </u>			J			J
Crosswalk Width(ft) 16 16 16 16 16 16 16 16 16 16 Two way Left Turn Lane 16 16 16 16 16 10 100 1.00 <th< td=""><td></td><td></td><td></td><td></td><td></td><td>0</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></th<>						0							
Two way Left Turn Lane Headway Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	. ,		16			16			16			16	
Headway Factor 1.00	, ,												
Turning Speed (mph) 15 9 15 9 15 9 15 9 15 9 15 9 Number of Detectors 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Number of Detectors 1 1 1 1 1 1 1 1 1 1 1 Detector Template Companies		15		9			9	15		9			
Leading Detector (ft) 50 50 50 50 50 Trailing Detector (ft) 0 0 0 0 0 Detector 1 Position(ft) 0 0 0 0 0 Detector 1 Size(ft) 50 50 50 50 50 Detector 1 Type Cl+Ex Cl+Ex Cl+Ex Cl+Ex Cl+Ex Detector 1 Channel 0 0 0 0 0 0 Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0 Turn Type pm+pt NA NA Split NA Perm Protected Phases 2 12 1 3 3 3 Permitted Phase 1 2 1 3 3 3 Minimum Init		1	1			1		1	1	1			
Leading Detector (ft) 50 50 50 50 50 Trailing Detector (ft) 0 0 0 0 0 Detector 1 Position(ft) 0 0 0 0 0 Detector 1 Size(ft) 50 50 50 50 50 Detector 1 Type Cl+Ex Cl+Ex Cl+Ex Cl+Ex Cl+Ex Detector 1 Channel 0 0 0 0 0 0 Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0 Turn Type pm+pt NA NA Split NA Perm Protected Phases 2 12 1 3 3 3 Permitted Phase 1 2 1 3 3 3 Minimum Init													
Detector 1 Position(ft) 0 0 0 0 0 0 Detector 1 Size(ft) 50 50 50 50 50 Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0		50	50			50		50	50	50			
Detector 1 Position(ft) 0 0 0 0 0 0 Detector 1 Size(ft) 50 50 50 50 50 Detector 1 Type Cl+Ex Cl+Ex Cl+Ex Cl+Ex Cl+Ex Detector 1 Channel Clean	Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Size(ft) 50 50 50 50 50 Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 Turn Type pm+pt NA NA Split NA Perm Protected Phases 2 12 1 3 3 3 Permitted Phases 12 1 3 3 3 3 Detector Phase 2 12 1 3 3 3 3 Switch Phase 2 12 1 3 3 3 3 Minimum Initial (s) 6.0 6.0 6.0 6.0 6.0 6.0 Minimum Split (s) 36.0 35.0		0	0			0		0	0	0			
Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0		50	50			50		50	50	50			
Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0	Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex	CI+Ex			
Detector 1 Queue (s) 0.0													
Detector 1 Delay (s) 0.0 Perm Perm </td <td>Detector 1 Extend (s)</td> <td>0.0</td> <td>0.0</td> <td></td> <td></td> <td>0.0</td> <td></td> <td>0.0</td> <td>0.0</td> <td>0.0</td> <td></td> <td></td> <td></td>	Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Turn Type pm+pt NA NA Split NA Perm Protected Phases 2 12 1 3 3 Permitted Phases 12 3 3 3 Detector Phase 2 12 1 3 3 Switch Phase Minimum Initial (s) 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 22.0 Total Split (s) 36.0 35.0 29.0 29.0 29.0 Total Split (%) 36.0% 35.0% 29.0% 29.0% 29.0%		0.0	0.0			0.0		0.0	0.0	0.0			
Turn Type pm+pt NA NA Split NA Perm Protected Phases 2 12 1 3 3 Permitted Phases 12 3 3 3 Detector Phase 2 12 1 3 3 Switch Phase Minimum Initial (s) 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 22.0 Total Split (s) 36.0 35.0 29.0 29.0 29.0 Total Split (%) 36.0% 35.0% 29.0% 29.0% 29.0%	Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Protected Phases 2 1 2 1 3 3 Permitted Phases 1 2 3 3 3 Detector Phase 2 1 2 1 3 3 3 Switch Phase 8 9	Turn Type	pm+pt	NA			NA		Split	NA	Perm			
Detector Phase 2 1 2 3 3 3 3 Switch Phase Minimum Initial (s) 6.0 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 22.0 22.0 Total Split (s) 36.0 35.0 29.0 29.0 29.0 Total Split (%) 36.0% 35.0% 29.0% 29.0% 29.0%	Protected Phases		12			1			3				
Switch Phase Minimum Initial (s) 6.0 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 22.0 22.0 Total Split (s) 36.0 35.0 29.0 29.0 29.0 Total Split (%) 36.0% 35.0% 29.0% 29.0% 29.0%	Permitted Phases	12								3			
Minimum Initial (s) 6.0 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 22.0 22.0 Total Split (s) 36.0 35.0 29.0 29.0 29.0 Total Split (%) 36.0% 35.0% 29.0% 29.0% 29.0%	Detector Phase	2	12			1		3	3	3			
Minimum Split (s) 23.0 23.0 22.0 22.0 22.0 Total Split (s) 36.0 35.0 29.0 29.0 29.0 Total Split (%) 36.0% 35.0% 29.0% 29.0% 29.0%	Switch Phase												
Minimum Split (s) 23.0 23.0 22.0 22.0 22.0 Total Split (s) 36.0 35.0 29.0 29.0 29.0 Total Split (%) 36.0% 35.0% 29.0% 29.0% 29.0%	Minimum Initial (s)	6.0				6.0		6.0	6.0	6.0			
Total Split (s) 36.0 35.0 29.0 29.0 29.0 Total Split (%) 36.0% 35.0% 29.0% 29.0% 29.0%		23.0				23.0		22.0	22.0	22.0			
Total Split (%) 36.0% 29.0% 29.0% 29.0%	• • • • • • • • • • • • • • • • • • • •												
Maximum Green (s) 30.5 29.5 23.5 23.5													
Yellow Time (s) 3.5 3.5 3.5 3.5													

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.0				2.0		2.0	2.0	2.0			
Lost Time Adjust (s)					0.0			0.0	0.0			
Total Lost Time (s)					5.5			5.5	5.5			
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0				2.0		3.0	3.0	3.0			
Recall Mode	None				C-Max		None	None	None			
Walk Time (s)	7.0				7.0		7.0	7.0	7.0			
Flash Dont Walk (s)	9.0				10.0		9.0	9.0	9.0			
Pedestrian Calls (#/hr)	0				0		0	0	0			
Act Effct Green (s)		69.7			49.1			13.8	13.8			
Actuated g/C Ratio		0.70			0.49			0.14	0.14			
v/c Ratio		0.32			0.27			0.48	0.56			
Control Delay		1.1			23.9			39.5	11.9			
Queue Delay		0.1			0.0			0.0	0.0			
Total Delay		1.2			23.9			39.5	11.9			
LOS		Α			С			D	В			
Approach Delay		1.2			23.9			25.7				
Approach LOS		Α			С			С				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 1	00											
Offset: 94 (94%), Referen	nced to phase	1:EBWB,	Start of	Green								
Natural Cycle: 70												
Control Type: Actuated-C	Coordinated											
Maximum v/c Ratio: 0.61												
Intersection Signal Delay	: 14.2			Ir	ntersection	LOS: B						
Intersection Capacity Util	ization 48.9%			I(CU Level o	of Service	: A					
Analysis Period (min) 15												
Splits and Phases: 260)2: Union & Ea	ict										
#260#2602	JZ. UTIIUTI W LO	ısı	#260#2	602				#26	0#2602			
4- 4-			L	*				#20	41			
₩ 1 (R)			4.	W2				₩	TY 03			

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Volume (viph)	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Volume (viph)	Lane Configurations		44	7		413					*	ቀ ጌ	
Ideal Flow (rophp)		0			138		0	0	0	0	171		29
Storage Length: (ft)	Ideal Flow (vphpl)	1900	1900	1900	1900	1900		1900	1900	1900	1900	1900	1900
Storage Lanes		0		125	0		0	0		0	0		0
Taper Length (ff)		0		1	0			0		0	1		
Lane Unil. Factor 1,00 0,95 1,00 0,95 0,95 0,95 0,96 1,00 1,00 1,00 1,00 0,95 0,978 1,00 1,00 1,00 1,00 0,978 1,00		25			25			25			25		
Fit Protected		1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Sald. Flow (pront)	Frt			0.850								0.978	
File Permitted	Flt Protected					0.986					0.950		
Satd. Flow (perm)	Satd. Flow (prot)	0	3471	1553	0	3423	0	0	0	0	1736	3395	0
Page						0.790					0.950		
Page	Satd. Flow (perm)	0	3471	1553	0	2742	0	0	0	0	1736	3395	0
Satid Flow (RTOR)				Yes			Yes			Yes			Yes
Link Speed (mph)				87								18	
Link Distance (ft) 788			30			30			30			30	
Peak Hour Factor 0.95 0.95 0.95 0.95 0.95 0.90 0.90 0.90 0.80 0.			788			123			435			516	
Heavy Vehicles (%)	Travel Time (s)		17.9			2.8			9.9			11.7	
Adj. Flow (vph) 0 199 32 145 372 0 0 0 214 210 36 Shared Lane Traffic (%) Shared Lane Group Flow (vph) 0 199 32 0 517 0 0 0 214 246 0 Enter Blocked Intersection No	Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90	0.80	0.80	0.80
Adj. Flow (vph) 0 199 32 145 372 0 0 0 214 210 36 Shared Lane Traffic (%) Shared Lane Group Flow (vph) 0 199 32 0 517 0 0 0 0 214 246 0 Enter Blocked Intersection No No<	Heavy Vehicles (%)	4%		4%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Shared Lane Traffic (%) Lane Group Flow (γρh) 0 199 32 0 517 0 0 0 0 0 214 246 0 0 0 0 0 0 0 0 0		0	199	32	145	372	0	0	0	0	214	210	36
Lane Group Flow (vph)													
Enter Blocked Intersection		0	199	32	0	517	0	0	0	0	214	246	0
Median Width(fft) 0 0 12 12 Link Offset(fft) 0 0 0 0 Crosswalk Width(fit) 16 16 16 16 Two way Left Turn Lane 1.00 1		No	No	No	No	No	No	No	No	No	No	No	No
Median Width(fft) 0 0 12 12 Link Offset(fft) 0 0 0 0 Crosswalk Width(fit) 16 16 16 16 Two way Left Turn Lane 1.00 1	Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Link Offset(fft) 0 0 0 0 0 Crosswalk Width(fft) 16 16 16 16 Two way Left Turn Lane 1.00				3			3			3			3
Two way Left Turn Lane	Link Offset(ft)		0			0			0			0	
Two way Left Turn Lane	, ,		16			16						16	
Headway Factor 1.00	Two way Left Turn Lane												
Turning Speed (mph) 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15 1		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Number of Detectors 1 1 1 1 1 Detector Template Leading Detector (ft) 50 50 50 50 Trailing Detector (ft) 0 0 0 0 0 0 Detector 1 Position(ft) 0		15		9	15		9	15		9	15		9
Leading Detector (ft) 50 50 50 50 50 Trailing Detector (ft) 0 0 0 0 0 0 Detector 1 Position(ft) 0 0 0 0 0 0 Detector 1 Size(ft) 50 5			1	1	1	1					1	1	
Leading Detector (ft) 50 50 50 50 50 Trailing Detector (ft) 0 0 0 0 0 0 Detector 1 Position(ft) 0 0 0 0 0 0 Detector 1 Size(ft) 50 5	Detector Template												
Trailing Detector (ft) 0 0 0 0 0 Detector 1 Position(ft) 0 0 0 0 0 Detector 1 Size(ft) 50 50 50 50 50 Detector 1 Type Cl+Ex Cl+Ex Cl+Ex Cl+Ex Cl+Ex Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0			50	50	50	50					50	50	
Detector 1 Position(ft) 0 0 0 0 0 Detector 1 Size(ft) 50 50 50 50 Detector 1 Type Cl+Ex Cl+Ex Cl+Ex Cl+Ex Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0 0.0 Turn Type NA Perm pm+pt NA Split NA Protected Phases 1 3 13 2 2 Permitted Phases 1 1 3 13 2 2 Switch Phase 1 1 3 13 2 2 Minimum Initial (s) 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 23.0 23.0			0	0	0	0					0	0	
Detector 1 Size(ft) 50 50 50 50 Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0			0	0	0	0					0	0	
Detector 1 Type Cl+Ex Cl-Ex Cl-D Cl-D Cl-D Cl-D			50	50	50	50					50	50	
Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 <t< td=""><td>, ,</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>	, ,												
Detector 1 Queue (s) 0.0													
Detector 1 Queue (s) 0.0	Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 Turn Type NA Perm pm+pt NA Split NA Protected Phases 1 3 13 2 2 Permitted Phases 1 1 3 13 2 2 Switch Phase 1 1 3 13 2 2 Switch Phase 6.0 6.0 6.0 6.0 6.0 Minimum Initial (s) 6.0 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 23.0 23.0	Detector 1 Queue (s)		0.0	0.0							0.0	0.0	
Turn Type NA Perm pm+pt NA Split NA Protected Phases 1 3 13 2 2 Permitted Phases 1 13 3 13 2 2 Detector Phase 1 1 3 13 2 2 2 Switch Phase Winimum Initial (s) 6.0 6.0 6.0 6.0 6.0 6.0 6.0 4.0				0.0							0.0		
Protected Phases 1 3 13 2 2 Permitted Phases 1 13 3 13 2 2 Detector Phase 1 1 3 13 2 2 Switch Phase 3 13 3 2 2 Minimum Initial (s) 6.0 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 23.0 23.0			NA	Perm	pm+pt						Split		
Permitted Phases 1 1 3 Detector Phase 1 1 3 1 3 2 2 Switch Phase Minimum Initial (s) 6.0 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 23.0 23.0	31										•		
Detector Phase 1 1 3 1 3 2 2 Switch Phase Switch Phase 6.0 6				1	13								
Switch Phase Minimum Initial (s) 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 23.0 23.0			1			13					2	2	
Minimum Initial (s) 6.0 6.0 6.0 6.0 Minimum Split (s) 23.0 23.0 22.0 23.0 23.0													
Minimum Split (s) 23.0 23.0 22.0 23.0 23.0			6.0	6.0	6.0						6.0	6.0	
	` ,												
	Total Split (s)		52.0	52.0	22.0						26.0	26.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Total Split (%)		52.0%	52.0%	22.0%						26.0%	26.0%	
Maximum Green (s)		46.5	46.5	16.5						20.5	20.5	
Yellow Time (s)		3.5	3.5	3.5						3.5	3.5	
All-Red Time (s)		2.0	2.0	2.0						2.0	2.0	
Lost Time Adjust (s)		0.0	0.0							0.0	0.0	
Total Lost Time (s)		5.5	5.5							5.5	5.5	
Lead/Lag		Lead	Lead							Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)		2.0	2.0	3.0						3.0	3.0	
Recall Mode		C-Max	C-Max	None						None	None	
Walk Time (s)		7.0	7.0	7.0						7.0	7.0	
Flash Dont Walk (s)		10.0	10.0	9.0						9.0	9.0	
Pedestrian Calls (#/hr)		0	0	0						0	0	
Act Effct Green (s)		54.0	54.0		66.1					17.4	17.4	
Actuated g/C Ratio		0.54	0.54		0.66					0.17	0.17	
v/c Ratio		0.11	0.04		0.27					0.71	0.41	
Control Delay		12.5	2.0		1.1					52.0	35.9	
Queue Delay		0.0	0.0		0.2					0.0	0.0	
Total Delay		12.5	2.0		1.3					52.0	35.9	
LOS		В	Α		Α					D	D	
Approach Delay		11.0			1.3						43.4	
Approach LOS		В			Α						D	
Intersection Summary												
<i>J</i> 1	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 16 (16%), Referenced	d to phase	: 1:EBWE	3, Start of	Green								
Natural Cycle: 70												
Control Type: Actuated-Coor	dinated											
Maximum v/c Ratio: 0.71												
Intersection Signal Delay: 19					tersection							
Intersection Capacity Utilizat	ion 42.2%)		IC	CU Level of	of Service	Α					
Analysis Period (min) 15												
Splits and Phases: 2601: I	Pitkin & E	ast										
#260#2602 #260#2602 #260#2602					#26	50#2602	2		#26	60#2602	3	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		^	7		414					ሻ	∱ 1≽	
Volume (vph)	0	445	51	78	316	0	0	0	0	197	114	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt			0.850								0.972	
Flt Protected					0.990					0.950		
Satd. Flow (prot)	0	3539	1583	0	3470	0	0	0	0	1770	3440	0
Flt Permitted					0.778					0.950		
Satd. Flow (perm)	0	3539	1583	0	2727	0	0	0	0	1770	3440	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			87								29	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		763			148			439			686	
Travel Time (s)		17.3			3.4			10.0			15.6	
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.90	0.90	0.90	0.89	0.89	0.89
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	484	55	84	340	0	0	0	0	221	128	30
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	484	55	0	424	0	0	0	0	221	158	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12	·		12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1	1	1					1	1	
Detector Template												
Leading Detector (ft)		50	50	50	50					50	50	
Trailing Detector (ft)		0	0	0	0					0	0	
Detector 1 Position(ft)		0	0	0	0					0	0	
Detector 1 Size(ft)		50	50	50	50					50	50	
Detector 1 Type		CI+Ex	CI+Ex	CI+Ex	CI+Ex					CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Turn Type		NA	Perm	pm+pt	NA					Split	NA	
Protected Phases		1		3	13					2	2	
Permitted Phases			1	13								
Detector Phase		1	1	3	13					2	2	
Switch Phase												
Minimum Initial (s)		6.0	6.0	6.0						6.0	6.0	
Minimum Split (s)		23.0	23.0	22.0						23.0	23.0	
Total Split (s)		35.0	35.0	29.0						36.0	36.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)		35.0%	35.0%	29.0%						36.0%	36.0%	
Maximum Green (s)		29.5	29.5	23.5						30.5	30.5	
Yellow Time (s)		3.5	3.5	3.5						3.5	3.5	
All-Red Time (s)		2.0	2.0	2.0						2.0	2.0	
Lost Time Adjust (s)		0.0	0.0							0.0	0.0	
Total Lost Time (s)		5.5	5.5							5.5	5.5	
Lead/Lag		Lead	Lead							Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)		2.0	2.0	3.0						3.0	3.0	
Recall Mode		C-Max	C-Max	None						None	None	
Walk Time (s)		7.0	7.0	7.0						7.0	7.0	
Flash Dont Walk (s)		10.0	10.0	9.0						9.0	9.0	
Pedestrian Calls (#/hr)		0	0	0						0	0	
Act Effct Green (s)		49.1	49.1		62.9					20.6	20.6	
Actuated g/C Ratio		0.49	0.49		0.63					0.21	0.21	
v/c Ratio		0.28	0.07		0.23					0.61	0.22	
Control Delay		12.5	0.3		5.9					45.1	28.5	
Queue Delay		0.0	0.0		0.1					0.0	0.0	
Total Delay		12.5	0.3		6.0					45.1	28.5	
LOS		В	Α		Α					D	С	
Approach Delay		11.2			6.0						38.2	
Approach LOS		В			Α						D	
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 10												
Offset: 94 (94%), Reference	ced to phas	e 1:EBWE	3, Start of	Green								
Natural Cycle: 70												
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.61												
Intersection Signal Delay:					itersection							
Intersection Capacity Utiliz	ation 48.09	6		IC	CU Level	of Service	: A					
Analysis Period (min) 15												
Splits and Phases: 2601	I: Pitkin & E	ast										
#260 # 2602			#260#2					#26	0#2602			
± ± ± 1 (R)			N	♣ ₀₂				1 🕏	1 1 √ 1 × 2 × 2 × 2 × 2 × 2 × 2 × 2 × 2 × 2 ×			

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Valume (psh)	Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Valume (psh)	Lane Configurations		413			ት ጌ			ፈተሴ				
Ideal Flow (ryhph)		9		0	0		37	118		60	0	0	0
Lane Util. Factor		1900	1900		1900	1900	1900	1900	1900		1900	1900	1900
File Protected			0.95	1.00	1.00	0.95	0.95	0.91	0.91	0.91	1.00	1.00	1.00
Satis Flow (pront) 0 3468 0 0 3368 0 0 4676 0 0 0 0 0 0 0 0 0	Frt					0.989			0.973				
File Permitted	Flt Protected		0.999						0.982				
File Permitted	Satd. Flow (prot)	0	3468	0	0	3368	0	0	4676	0	0	0	0
Right Turn on Red Yes Yes Tes Yes Ye			0.940						0.982				
Page	Satd. Flow (perm)	0	3263	0	0	3368	0	0	4676	0	0	0	0
Said Flow (RTOR)				Yes			Yes			Yes			Yes
Link Distance (TI)						13			55				
Link Distance (ft)	Link Speed (mph)		30			30			30			30	
Peak Hour Factor 0.88 0.88 0.88 0.92 0.92 0.90 0.			316			584			383			361	
Heavy Vehicles (%)			7.2			13.3			8.7			8.2	
Adj. Flow (vph)	Peak Hour Factor	0.88	0.88	0.88	0.92		0.92	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	6%	6%	6%	2%	2%	2%
Shared Lane Traffic (%) Lane Group Flow (vph) 0		10	401	0	0	511	40	131	169	67	0	0	
Lane Group Flow (vph)													
Enter Blocked Intersection		0	411	0	0	551	0	0	367	0	0	0	0
Left Left Left Right Left Left Right Left Left		No	No	No	No	No	No	No	No	No	No	No	No
Median Width(ft) 0 0 0 0 0 0 0 1	Lane Alignment	Left		Right		Left	Right	Left	Left	Right	Left		Right
Link Offset(fit)	Ţ.			J			J						J
Crosswalk Width(ft)						0							
Two way Left Turn Lane Headway Factor 1.00	. ,		16			16			16			16	
Headway Factor 1.00	` ,												
Turning Speed (mph) 15 9 15 9 15 9 15 9 15 9 15 9 15 9 15		1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Number of Detectors 1 1 1 1 1 1 1 Detector Template Leading Detector (ft) 50 50 50 50 50 50 Toland Toland </td <td></td> <td>15</td> <td></td> <td></td> <td></td> <td></td> <td>9</td> <td>15</td> <td></td> <td>9</td> <td></td> <td></td> <td></td>		15					9	15		9			
Leading Detector (ft) 50 50 50 50 Trailing Detector (ft) 0 0 0 0 Detector 1 Position(ft) 0 0 0 0 Detector 1 Size(ft) 50 50 50 50 Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex Detector 1 Channel 0.0 0.0 0.0 0.0 Detector 1 Extend (s) 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 Turn Type custom NA NA Split NA Protected Phases 2 3 2 3 1 1 Permitted Phases 2 2 3 2 3 1 1 Winimum Initial (s) 6.0 7.0 7.0 7.0 Minimum Split (s) 15.0 30.0 30.0 30.0 Total Split (%) 30.0%		1	1			1		1	1				
Leading Detector (ft) 50 50 50 50 Trailing Detector (ft) 0 0 0 0 Detector 1 Position(ft) 0 0 0 0 Detector 1 Position(ft) 50 50 50 50 Detector 1 Size(ft) 50 50 50 50 Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex Detector 1 Channel 0.0 0.0 0.0 0.0 0.0 Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0													
Trailing Detector (ft) 0 0 0 0 Detector 1 Position(ft) 0 0 0 0 Detector 1 Size(ft) 50 50 50 50 Detector 1 Type Cl+Ex Cl+Ex Cl+Ex Cl+Ex Cl+Ex Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 Turn Type custom NA NA Split NA Protected Phases 2 23 23 1 1 Permitted Phases 2 23 23 1 1 Switch Phase 2 23 23 1 1 Minimum Initial (s) 6.0 7.0 7.0 Minimum Split (s) 15.0 30.0 30.0 Total Split (%) 30.0% 40.0 <t< td=""><td></td><td>50</td><td>50</td><td></td><td></td><td>50</td><td></td><td>50</td><td>50</td><td></td><td></td><td></td><td></td></t<>		50	50			50		50	50				
Detector 1 Size(ft) 50 50 50 50 Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex Detector 1 Channel Detector 1 Extend (s) 0.0 0.0 0.0 0.0 Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 Turn Type custom NA NA Split NA Protected Phases 2 2 3 1 1 Permitted Phases 2 2 3 1 1 Switch Phase 2 2 3 2 1 1 Minimum Initial (s) 6.0 7.0 7.0 7.0 Minimum Split (s) 15.0 30.0 30.0 30.0 Total Split (%) 30.0% 40.0 40.0% Maximum Green (s) 24.0 34.0 <td></td> <td>0</td> <td>0</td> <td></td> <td></td> <td>0</td> <td></td> <td>0</td> <td>0</td> <td></td> <td></td> <td></td> <td></td>		0	0			0		0	0				
Detector 1 Size(ft) 50 50 50 50 Detector 1 Type CI+Ex CI-Ex CI-Ex CI-Ex CI-Ex CI-Ex CI-Ex		0	0			0		0	0				
Detector 1 Channel Detector 1 Extend (s) 0.0		50	50			50		50	50				
Detector 1 Channel Detector 1 Extend (s) 0.0	Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex				
Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 Turn Type custom NA NA Split NA Protected Phases 2 3 2 3 1 1 1 Permitted Phases 2 2 3 2 3 1 1 1 Switch Phase 2 2 3 2 3 1 1 1 Switch Phase 8 2 2 3 2 3 1 1 1 Minimum Initial (s) 6.0 7.0 7.0 7.0 Minimum Split (s) 15.0 30.0 30.0 30.0 Total Split (s) 30.0 40.0 40.0 40.0 Maximum Green (s) 24.0 34.0 34.0 34.0													
Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 Turn Type custom NA NA Split NA Protected Phases 2 3 2 3 1 1 1 Permitted Phases 2 2 3 2 3 1 1 1 Switch Phase 2 2 3 2 3 1 1 1 Switch Phase 8 7.0 7.0 7.0 Minimum Initial (s) 6.0 30.0 30.0 30.0 Minimum Split (s) 15.0 30.0 30.0 40.0 40.0 Total Split (s) 30.0% 40.0% 40.0% 40.0% 40.0% Maximum Green (s) 24.0 34.0 34.0 34.0 34.0	Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 Turn Type custom NA NA Split NA Protected Phases 2 3 2 3 1 1 1 Permitted Phases 2 2 3 2 3 1 1 1 Switch Phase 2 2 3 2 3 1 1 1 Switch Phase 8 7.0 7.0 7.0 Minimum Initial (s) 6.0 30.0 30.0 30.0 Minimum Split (s) 15.0 30.0 30.0 40.0 40.0 Total Split (s) 30.0% 40.0% 40.0% 40.0% 40.0% Maximum Green (s) 24.0 34.0 34.0 34.0 34.0		0.0	0.0			0.0		0.0	0.0				
Turn Type custom NA NA Split NA Protected Phases 2 3 2 3 1 1 1 Permitted Phases 2 2 3 2 3 1 1 1 Switch Phase 2 2 3 2 3 1 1 1 1 Switch Phase 30.0 7.0 7.0 7.0 Minimum Initial (s) 6.0 30.0 30.0 30.0 Minimum Split (s) 15.0 30.0 30.0 40.0 Total Split (s) 30.0 40.0 40.0 Total Split (%) 30.0% 40.0% 40.0% Maximum Green (s) 24.0 34.0 34.0		0.0	0.0			0.0		0.0	0.0				
Protected Phases 2 3 2 3 1 1 1 Permitted Phases 2 2 3 2 3 1 1 1 Detector Phase 2 2 3 2 3 1 1 1 Switch Phase 8 7.0 7.0 7.0 Minimum Initial (s) 6.0 30.0 30.0 30.0 40.0 Minimum Split (s) 15.0 30.0 40.0 40.0 40.0 Total Split (s) 30.0 40.0 40.0 40.0 Total Split (%) 30.0% 40.0% 40.0% Maximum Green (s) 24.0 34.0 34.0		custom	NA			NA		Split	NA				
Permitted Phases 2 23 Detector Phase 2 23 23 1 1 Switch Phase 8 1 1 1 1 Minimum Initial (s) 6.0 7.0 7.0 Minimum Split (s) 15.0 30.0 30.0 Total Split (s) 30.0 40.0 40.0 Total Split (%) 30.0% 40.0% 40.0% Maximum Green (s) 24.0 34.0 34.0			23					-					
Switch Phase Minimum Initial (s) 6.0 7.0 7.0 Minimum Split (s) 15.0 30.0 30.0 Total Split (s) 30.0 40.0 40.0 Total Split (%) 30.0% 40.0% 40.0% Maximum Green (s) 24.0 34.0 34.0	Permitted Phases	2				2 3							
Minimum Initial (s) 6.0 7.0 7.0 Minimum Split (s) 15.0 30.0 30.0 Total Split (s) 30.0 40.0 40.0 Total Split (%) 30.0% 40.0% 40.0% Maximum Green (s) 24.0 34.0 34.0	Detector Phase	2	23			23		1	1				
Minimum Split (s) 15.0 30.0 30.0 Total Split (s) 30.0 40.0 40.0 Total Split (%) 30.0% 40.0% 40.0% Maximum Green (s) 24.0 34.0 34.0	Switch Phase												
Minimum Split (s) 15.0 30.0 30.0 Total Split (s) 30.0 40.0 40.0 Total Split (%) 30.0% 40.0% 40.0% Maximum Green (s) 24.0 34.0 34.0	Minimum Initial (s)	6.0						7.0	7.0				
Total Split (s) 30.0 40.0 40.0 Total Split (%) 30.0% 40.0% 40.0% Maximum Green (s) 24.0 34.0 34.0		15.0						30.0	30.0				
Total Split (%) 30.0% 40.0% 40.0% Maximum Green (s) 24.0 34.0 34.0													
Maximum Green (s) 24.0 34.0 34.0													
	Yellow Time (s)	3.5						3.5	3.5				

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)	2.5						2.5	2.5				
Lost Time Adjust (s)								0.0				
Total Lost Time (s)								6.0				
Lead/Lag	Lag						Lead	Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0						3.0	3.0				
Recall Mode	None						C-Max	C-Max				
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							16.0	16.0				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)		54.0			54.0			34.0				
Actuated g/C Ratio		0.54			0.54			0.34				
v/c Ratio		0.23			0.30			0.23				
Control Delay		4.6			3.6			15.9				
Queue Delay		0.0			0.0			0.0				
Total Delay		4.6			3.6			15.9				
LOS		A			A			B				
Approach Delay		4.6			3.6			15.9				
Approach LOS		Α			А			В				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 10												
Offset: 38 (38%), Reference	ced to phase	1:EBWB,	Start of	Green								
Natural Cycle: 70												
Control Type: Actuated-Co	oordinated											
Maximum v/c Ratio: 0.77				_								
Intersection Signal Delay:					tersection							
Intersection Capacity Utiliz	zation 32.9%			IC	CU Level of	of Service	e A					
Analysis Period (min) 15												

Splits and Phases: 3044: Union & University



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4₽			↑ ↑		ሻ	↑ ↑				
Volume (vph)	6	526	0	0	424	30	208	237	116	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	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Frt					0.990			0.951				
Flt Protected		0.999					0.950					
Satd. Flow (prot)	0	3536	0	0	3504	0	1770	3366	0	0	0	0
Flt Permitted		0.948					0.950					
Satd. Flow (perm)	0	3355	0	0	3504	0	1770	3366	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					11			91				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		298			584			576			361	
Travel Time (s)		6.8			13.3			13.1			8.2	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.86	0.86	0.86	0.90	0.90	0.90
Adj. Flow (vph)	8	674	0	0	544	38	242	276	135	0	0	0
Shared Lane Traffic (%)		0, 1			0				.00			J
Lane Group Flow (vph)	0	682	0	0	582	0	242	411	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	Lort	0	rugin	Loit	0	rugiit	Lon	12	rugiit	Lon	12	rugin
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		10									10	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	1.00	9	15	1.00	9	15	1.00	9	15	1.00	9
Number of Detectors	1	1	,	10	1	,	1	1	,	10		,
Detector Template		•			•		'	'				
Leading Detector (ft)	50	50			50		50	50				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	50	50			50		50	50				
Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex				
Detector 1 Channel	CITEX	OITEX			CITEX		OITEX	OITEX				
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	custom	NA			NA		Split	NA				
Protected Phases	Cusioni	23			23		3piit	1				
Permitted Phases	2	2 3			23		ı	ı				
Detector Phase	2	23			23		1	1				
Switch Phase		2 3			2 3		ı					
Minimum Initial (s)	6.0						7.0	7.0				
Minimum Split (s)	15.0						30.0	30.0				
							40.0					
Total Split (s)	31.0							40.0				
Total Split (%)	31.0%						40.0%	40.0%				
Maximum Green (s)	25.0						34.0	34.0				
Yellow Time (s)	3.5						3.5	3.5				
All-Red Time (s)	2.5						2.5	2.5				

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lost Time Adjust (s)							0.0	0.0				
Total Lost Time (s)							6.0	6.0				
Lead/Lag	Lag						Lead	Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0						3.0	3.0				
Recall Mode	None						C-Max	C-Max				
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							16.0	16.0				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)		54.0			54.0		34.0	34.0				
Actuated g/C Ratio		0.54			0.54		0.34	0.34				
v/c Ratio		0.38			0.31		0.40	0.34				
Control Delay		7.0			8.5		34.5	25.9				
Queue Delay		8.0			0.0		0.0	0.0				
Total Delay		7.8			8.5		34.5	25.9				
LOS		Α			Α		С	С				
Approach Delay		7.8			8.5			29.1				
Approach LOS		Α			Α			С				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 100		. ==::::	0	_								
Offset: 51 (51%), Reference	ed to phase	1:EBWB	Start of	Green								
Natural Cycle: 75												
Control Type: Actuated-Coo	ordinated											
Maximum v/c Ratio: 0.99												
Intersection Signal Delay: 1					tersection							
Intersection Capacity Utiliza	ation 40.3%			IC	CU Level of	of Service	e A					
Analysis Period (min) 15												
	: Union & Ur	niversity										
#304#304#304#3044			#	304#304	¥304¥30	144		#30	4#304#3	043*3044		
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40 s			3	1 s				29 s				

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ħβ	7		^	7	ሻ	414		*	€Î}	
Volume (vph)	9	292	148	1	680	445	239	369	3	425	341	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	0		0	0		0	250		250
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	1.00	0.91	0.91	0.95	0.91	0.91	0.95
Frt		0.992	0.850			0.850		0.999			0.997	
Flt Protected	0.950						0.950	0.995		0.950	0.984	
Satd. Flow (prot)	1597	3036	1301	0	3312	1482	1579	3305	0	1507	3112	0
Flt Permitted	0.228				0.955		0.950	0.995		0.950	0.984	
Satd. Flow (perm)	383	3036	1301	0	3163	1482	1579	3305	0	1507	3112	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6	142			82		1			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		297			291			316			393	
Travel Time (s)		6.8			6.6			7.2			8.9	
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.81	0.81	0.81	0.92	0.92	0.92
Heavy Vehicles (%)	13%	13%	13%	9%	9%	9%	4%	4%	4%	9%	9%	9%
Adj. Flow (vph)	10	336	170	1	756	494	295	456	4	462	371	11
Shared Lane Traffic (%)			11%	•	, 00	.,,	17%	,00	•	40%	0	
Lane Group Flow (vph)	10	355	151	0	757	494	245	510	0	277	567	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	2011	12	g	20.0	12	g	20.1	12	g	2011	12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane								. 0				
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1	•	1	1	-
Detector Template	•	•	•			•		•			•	
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50		50	50	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	OI LX	OLLEX	OI LX	OI: EX	OT LX	OI LX	OI LX	OI. EX		OI. EX	OI. EX	
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+ov	Split	NA		Split	NA	
Protected Phases	1 01111	1	3	1 01111	1	2	3	3		2	2	
Permitted Phases	1	'	1	1	'	1	J	<u> </u>				
Detector Phase	1	1	3	1	1	2	3	3		2	2	
Switch Phase	1	'	3	ı	· ·		3	3				
Minimum Initial (s)	7.0	7.0	6.0	7.0	7.0	6.0	6.0	6.0		6.0	6.0	
Minimum Split (s)	30.0	30.0	15.0	30.0	30.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	40.0	40.0	30.0	40.0	40.0	30.0	30.0	30.0		30.0	30.0	
Total Split (S)	40.0	40.0	30.0	40.0	40.0	30.0	30.0	30.0		30.0	30.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	40.0%	40.0%	30.0%	40.0%	40.0%	30.0%	30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	34.0	34.0	23.5	34.0	34.0	24.0	23.5	23.5		24.0	24.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5	3.0	2.5	2.5	2.5	3.0	3.0		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.5		6.0	6.0	6.5	6.5		6.0	6.0	
Lead/Lag	Lead	Lead		Lead	Lead	Lag				Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	None	C-Max	C-Max	None	None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0							
Flash Dont Walk (s)	16.0	16.0		16.0	16.0							
Pedestrian Calls (#/hr)	0	0		0	0							
Act Effct Green (s)	34.0	34.0	63.5		34.0	64.0	23.5	23.5		24.0	24.0	
Actuated g/C Ratio	0.34	0.34	0.64		0.34	0.64	0.24	0.24		0.24	0.24	
v/c Ratio	0.08	0.34	0.17		0.70	0.51	0.66	0.66		0.77	0.76	
Control Delay	23.8	23.4	5.5		9.0	4.9	38.8	33.7		51.1	42.7	
Queue Delay	0.0	0.0	0.0		0.2	2.4	1.0	0.7		0.0	0.0	
Total Delay	23.8	23.4	5.5		9.2	7.3	39.8	34.4		51.1	42.7	
LOS	С	С	Α		Α	Α	D	С		D	D	
Approach Delay		18.2			8.4			36.2			45.4	
Approach LOS		В			Α			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 100
Actuated Cycle Length: 100

Offset: 38 (38%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 25.4 Intersection LOS: C
Intersection Capacity Utilization 64.1% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3042: University/IL WB & Main



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ħβ	7		^	7	ሻ	414		*	€Î}	
Volume (vph)	18	530	215	0	525	430	230	418	1	398	316	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	0		0	0		0	250		250
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	0.91	0.91	0.95	0.91	0.91	0.95
Frt		0.994	0.850			0.850					0.998	
Flt Protected	0.950						0.950	0.997		0.950	0.983	
Satd. Flow (prot)	1736	3305	1413	0	3438	1538	1610	3380	0	1595	3294	0
Flt Permitted	0.349						0.950	0.997		0.950	0.983	
Satd. Flow (perm)	638	3305	1413	0	3438	1538	1610	3380	0	1595	3294	0
Right Turn on Red			Yes	-		Yes			Yes			Yes
Satd. Flow (RTOR)		4	154			56					1	
Link Speed (mph)		30	101		30	00		30			30	
Link Distance (ft)		298			291			298			403	
Travel Time (s)		6.8			6.6			6.8			9.2	
Peak Hour Factor	0.83	0.83	0.83	0.93	0.93	0.93	0.84	0.84	0.84	0.85	0.85	0.85
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	22	639	259	0	565	462	274	498	1	468	372	6
Shared Lane Traffic (%)		007	10%	U	000	102	10%	170	•	41%	072	U
Lane Group Flow (vph)	22	665	233	0	565	462	247	526	0	276	570	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	Loit	12	ragne	Lort	12	rtigitt	Lort	12	ragin	Lort	12	ragna
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		10			10			10			10	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	1.00	9	15	1.00	9	15	1.00	9	15	1.00	9
Number of Detectors	1	1	1	10	1	1	1	1	,	1	1	,
Detector Template	'	'	'		'	'	'	•			•	
Leading Detector (ft)	50	50	50		50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0		0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0		0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50		50	50	50	50		50	50	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	CITEX	CITEX	CITEX		CITEX	OITEX	OITEX	OITEX		CITEX	OITEX	
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	pm+ov		NA	pm+ov	Split	NA		Split	NA	
Protected Phases	r Cilli	1	3		1	2	3 July 3	3		3piit	2	
Permitted Phases	1	ı	ა 1		1	1	J	J			۷	
Detector Phase	1	1	3		1	2	3	3		2	2	
	I	ı	3		ı	2	3	3				
Switch Phase	7.0	7.0	4.0		7.0	4.0	4.0	4.0		4.0	6.0	
Minimum Initial (s)	7.0	7.0	6.0		7.0	6.0	6.0	6.0		6.0		
Minimum Split (s)	30.0	30.0	15.0		30.0	15.0	15.0	15.0		15.0	15.0	
Total Split (s)	40.0	40.0	29.0		40.0	31.0	29.0	29.0		31.0	31.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	40.0%	40.0%	29.0%		40.0%	31.0%	29.0%	29.0%		31.0%	31.0%	
Maximum Green (s)	34.0	34.0	22.5		34.0	25.0	22.5	22.5		25.0	25.0	
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5	3.0		2.5	2.5	3.0	3.0		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.5		6.0	6.0	6.5	6.5		6.0	6.0	
Lead/Lag	Lead	Lead			Lead	Lag				Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	None		C-Max	None	None	None		None	None	
Walk Time (s)	7.0	7.0			7.0							
Flash Dont Walk (s)	16.0	16.0			16.0							
Pedestrian Calls (#/hr)	0	0			0							
Act Effct Green (s)	34.0	34.0	62.5		34.0	65.0	22.5	22.5		25.0	25.0	
Actuated g/C Ratio	0.34	0.34	0.62		0.34	0.65	0.22	0.22		0.25	0.25	
v/c Ratio	0.10	0.59	0.25		0.48	0.45	0.68	0.69		0.69	0.69	
Control Delay	17.2	18.7	4.0		11.5	1.2	40.0	34.9		44.5	39.1	
Queue Delay	0.0	0.5	0.5		8.0	2.4	2.5	1.8		0.0	0.0	
Total Delay	17.2	19.2	4.5		12.2	3.7	42.5	36.8		44.5	39.1	
LOS	В	В	Α		В	Α	D	D		D	D	
Approach Delay		15.4			8.4			38.6			40.8	
Approach LOS		В			Α			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

Offset: 51 (51%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 24.4 Intersection LOS: C
Intersection Capacity Utilization 60.1% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3042: University/IL WB & Main



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	, j	ተተተ			ተተ _ጉ		ř	↑ ↑			4	
Volume (vph)	52	671	0	0	1034	24	4	88	105	29	0	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt					0.997			0.919			0.898	
Flt Protected	0.950						0.950				0.988	
Satd. Flow (prot)	1641	4715	0	0	4879	0	1597	2936	0	0	1492	0
Flt Permitted	0.137						0.664				0.871	
Satd. Flow (perm)	237	4715	0	0	4879	0	1116	2936	0	0	1315	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4			115			100	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		291			715			361			297	
Travel Time (s)		6.6			16.3			8.2			6.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.91	0.91	0.91	0.88	0.88	0.88
Heavy Vehicles (%)	10%	10%	10%	6%	6%	6%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	57	729	0	0	1124	26	4	97	115	33	0	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	57	729	0	0	1150	0	4	212	0	0	133	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12	<i>J</i>		12	<u> </u>		12	<u> </u>		12	3
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50			50		50	50		50	50	
Trailing Detector (ft)	0	0			0		0	0		0	0	
Detector 1 Position(ft)	0	0			0		0	0		0	0	
Detector 1 Size(ft)	50	50			50		50	50		50	50	
Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Turn Type	pm+pt	NA			NA		Perm	NA		Perm	NA	
Protected Phases	2	12			1			3			3	
Permitted Phases	12						3			3		
Detector Phase	2	12			1		3	3		3	3	
Switch Phase							-					
Minimum Initial (s)	6.0				7.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	15.0				30.0		15.0	15.0		15.0	15.0	
Total Split (s)	30.0				40.0		30.0	30.0		30.0	30.0	
	20.0							- 0.0				

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	30.0%				40.0%		30.0%	30.0%		30.0%	30.0%	
Maximum Green (s)	24.0				34.0		23.5	23.5		23.5	23.5	
Yellow Time (s)	3.5				3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5				2.5		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0				0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0				6.0		6.5	6.5			6.5	
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0				3.0		3.0	3.0		3.0	3.0	
Recall Mode	None				C-Max		None	None		None	None	
Walk Time (s)					7.0							
Flash Dont Walk (s)					16.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	58.0	64.0			34.0		23.5	23.5			23.5	
Actuated g/C Ratio	0.58	0.64			0.34		0.24	0.24			0.24	
v/c Ratio	0.12	0.24			0.69		0.02	0.27			0.35	
Control Delay	4.7	3.1			27.2		44.5	32.4			13.1	
Queue Delay	0.0	0.2			0.0		0.0	0.0			0.0	
Total Delay	4.7	3.3			27.2		44.5	32.4			13.1	
LOS	A	Α			С		D	С			В	
Approach Delay		3.4			27.2			32.6			13.1	
Approach LOS		Α			С			С			В	

Intersection Summary

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

Offset: 38 (38%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 18.7 Intersection LOS: B
Intersection Capacity Utilization 59.2% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3043: Union & Main



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ተተተ			ተተ _ጉ		ሻ	∱ ∱			4	
Volume (vph)	52	881	0	0	902	62	5	100	195	28	0	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	*0.60	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt					0.990			0.901			0.915	
Flt Protected	0.950						0.950				0.982	
Satd. Flow (prot)	1752	5036	0	0	3256	0	1770	3189	0	0	1642	0
Flt Permitted	0.118						0.730				0.775	
Satd. Flow (perm)	218	5036	0	0	3256	0	1360	3189	0	0	1296	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					7			144			98	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		291			715			361			297	
Travel Time (s)		6.6			16.3			8.2			6.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.92	0.92	0.92	0.78	0.78	0.78
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Adj. Flow (vph)	59	1001	0	0	1025	70	5	109	212	36	0	62
Shared Lane Traffic (%)												
Lane Group Flow (vph)	59	1001	0	0	1095	0	5	321	0	0	98	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12	9		12	9		12	9		12	9
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50			50		50	50		50	50	
Trailing Detector (ft)	0	0			0		0	0		0	0	
Detector 1 Position(ft)	0	0			0		0	0		0	0	
Detector 1 Size(ft)	50	50			50		50	50		50	50	
Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Turn Type	pm+pt	NA			NA		Perm	NA		Perm	NA	
Protected Phases	2	12			1			3			3	
Permitted Phases	12				•		3			3		
Detector Phase	2	12			1		3	3		3	3	
Switch Phase	_	' -			•		Ü	<u> </u>				
Minimum Initial (s)	6.0				7.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	15.0				30.0		15.0	15.0		15.0	15.0	
Total Split (s)	31.0				40.0		29.0	29.0		29.0	29.0	
· otal opin (3)	31.0				то.о		27.0	27.0		27.0	27.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (%)	31.0%				40.0%		29.0%	29.0%		29.0%	29.0%	
Maximum Green (s)	25.0				34.0		22.5	22.5		22.5	22.5	
Yellow Time (s)	3.5				3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5				2.5		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0				0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0				6.0		6.5	6.5			6.5	
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0				3.0		3.0	3.0		3.0	3.0	
Recall Mode	None				C-Max		None	None		None	None	
Walk Time (s)					7.0							
Flash Dont Walk (s)					16.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	59.0	65.0			34.0		22.5	22.5			22.5	
Actuated g/C Ratio	0.59	0.65			0.34		0.22	0.22			0.22	
v/c Ratio	0.12	0.31			0.99		0.02	0.39			0.27	
Control Delay	2.8	1.8			50.4		47.8	34.8			8.7	
Queue Delay	0.0	0.2			0.0		0.0	0.0			0.0	
Total Delay	2.8	2.0			50.4		47.8	34.8			8.7	
LOS	Α	Α			D		D	С			Α	
Approach Delay		2.0			50.4			35.0			8.7	
Approach LOS		Α			D			D			Α	

Intersection Summary

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

Offset: 51 (51%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 27.0 Intersection LOS: C
Intersection Capacity Utilization 58.7% ICU Level of Service B

Analysis Period (min) 15

* User Entered Value

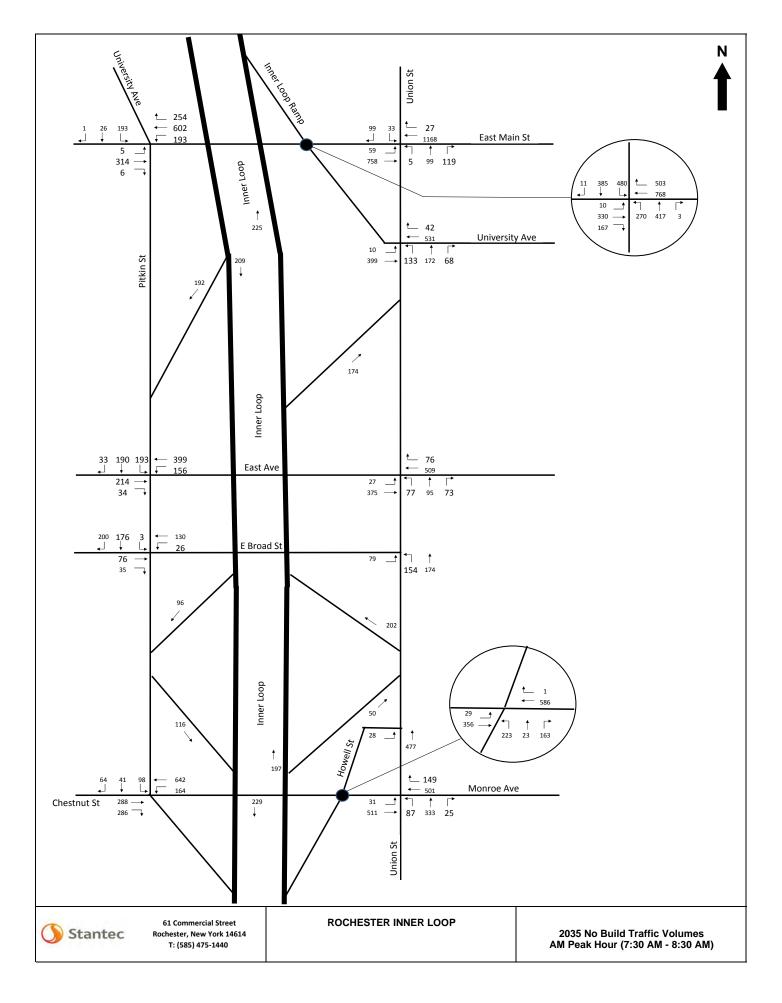
Splits and Phases: 3043: Union & Main

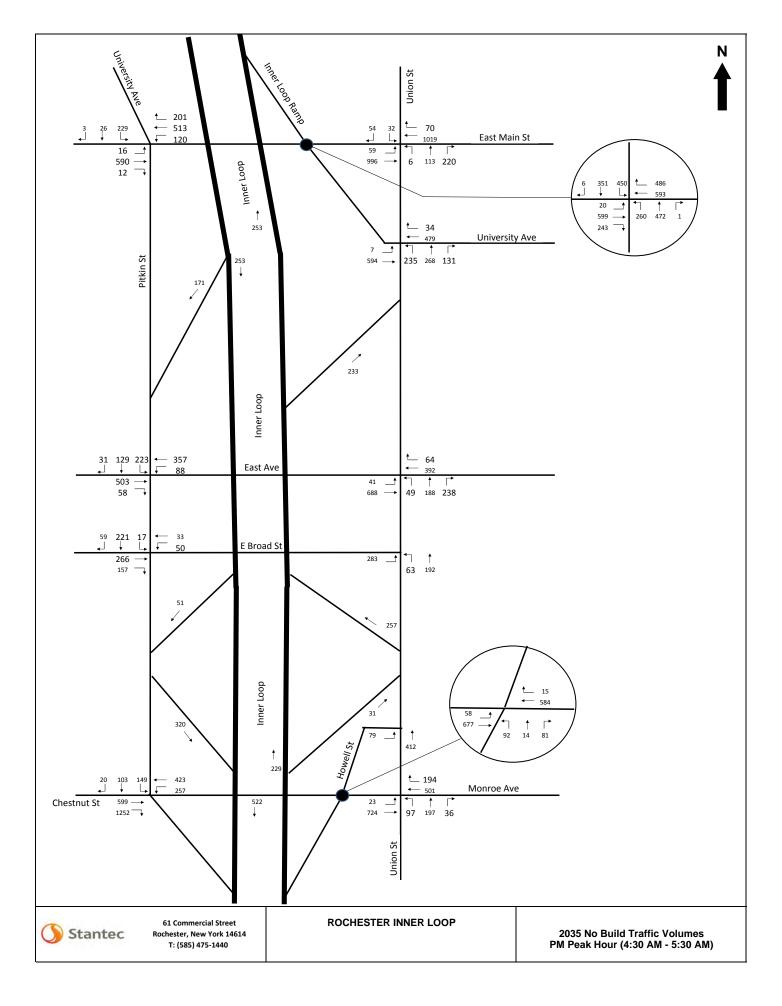


Appendix G – Traffic Analysis Contents

2035 No Build Conditions

- 2035 No Build Traffic Volumes
- 2035 No Build Capacity Analysis Printouts
- Synchro Files (available upon request)





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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		4	7					4₽			∱ î≽	
Volume (vph)	197	20	144	0	0	0	26	315	0	0	519	1
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		200	0		0	0		0	0		50
Storage Lanes	0		1	0		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	1.00	0.95	0.95
Frt			0.850									
Flt Protected		0.957						0.996				
Satd. Flow (prot)	0	1715	1524	0	0	0	0	3525	0	0	3539	0
Flt Permitted		0.957						0.897				
Satd. Flow (perm)	0	1715	1524	0	0	0	0	3175	0	0	3539	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			203									
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		768			258			174			411	
Travel Time (s)		17.5			5.9			4.0			9.3	
Peak Hour Factor	0.80	0.80	0.80	0.90	0.95	0.90	0.92	0.92	0.92	0.94	0.94	0.94
Growth Factor	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%
Heavy Vehicles (%)	6%	6%	6%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	278	28	203	0	0	0	32	387	0	0	624	1
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	306	203	0	0	0	0	419	0	0	625	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	J -		0	J .		0			0	3
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1				1	2			2	
Detector Template	Left		Right				Left	Thru			Thru	
Leading Detector (ft)	20	50	20				20	100			100	
Trailing Detector (ft)	0	0	0				0	0			0	
Detector 1 Position(ft)	0	0	0				0	0			0	
Detector 1 Size(ft)	20	50	20				20	6			6	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex				CI+Ex	CI+Ex			CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0				0.0	0.0			0.0	
Detector 1 Queue (s)	0.0	0.0	0.0				0.0	0.0			0.0	
Detector 1 Delay (s)	0.0	0.0	0.0				0.0	0.0			0.0	
Detector 2 Position(ft)	0.0	0.0	0.0				0.0	94			94	
Detector 2 Size(ft)								6			6	
Detector 2 Type								CI+Ex			CI+Ex	
Detector 2 Type Detector 2 Channel								O L.			OI. EX	
Detector 2 Extend (s)								0.0			0.0	
Turn Type	Split	NA	Perm				pm+pt	NA			NA	
Protected Phases	3piit	2	1 CIIII				3	13			1	
TOTOGUEUT HASES	۷	۷					J	ΙJ			ı	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Permitted Phases			2				13				1	
Detector Phase	2	2	2				3	13			1	
Switch Phase												
Minimum Initial (s)	6.0	6.0	6.0				3.0				3.0	
Minimum Split (s)	32.0	32.0	32.0				25.0				25.0	
Total Split (s)	32.0	32.0	32.0				25.0				28.0	
Total Split (%)	37.6%	37.6%	37.6%				29.4%				32.9%	
Maximum Green (s)	27.0	27.0	27.0				20.0				23.0	
Yellow Time (s)	4.0	4.0	4.0				4.0				4.0	
All-Red Time (s)	1.0	1.0	1.0				1.0				1.0	
Lost Time Adjust (s)		0.0	0.0								0.0	
Total Lost Time (s)		5.0	5.0								5.0	
Lead/Lag	Lag	Lag	Lag								Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0				3.0				3.0	
Recall Mode	Min	Min	Min				None				C-Max	
Walk Time (s)	7.0	7.0	7.0				5.0				5.0	
Flash Dont Walk (s)	18.0	18.0	18.0				15.0				15.0	
Pedestrian Calls (#/hr)	0	0	0				0	40.7			0	
Act Effct Green (s)		20.4	20.4					49.6			39.4	
Actuated g/C Ratio		0.24	0.24					0.58			0.46	
v/c Ratio		0.74	0.39					0.22			0.38	
Control Delay		40.6	5.8					7.5			17.4	
Queue Delay		0.0 40.6	0.0 5.8					0.3 7.8			0.0 17.4	
Total Delay LOS		40.6 D	5.8 A					7.8 A			17.4 B	
		26.7	А					7.8			17.4	
Approach Delay Approach LOS		20.7 C						7.0 A			17. 4 B	
		C						А			D	
Intersection Summary	Othor											
Area Type:	Other											
Cycle Length: 85												
Actuated Cycle Length: 85		. 1.NI\ <i>N/</i> CF	- Ctart of	Croon								
Offset: 73 (86%), Reference Natural Cycle: 85	eu to priase	: I.IVVSE	z, Start ui	Green								
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.74	orumateu											
Intersection Signal Delay:	17 0			In	ntersection	n I ∩S· R						
Intersection Capacity Utiliz		,				of Service	Δ Δ					
Analysis Period (min) 15		,		10	DO LOVOI	or Scrvice	, , ,					
Splits and Phases: 2471	I: IL EB											
№ ø1 (R)			302					×	43			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	f)						∱ ∱			4₽	
Volume (vph)	81	12	72	0	0	0	0	517	13	51	599	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		0	0		50	0		0
Storage Lanes	1		0	0		0	0		1	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	1.00
Frt		0.871						0.996				
Flt Protected	0.950										0.996	
Satd. Flow (prot)	1787	1639	0	0	0	0	0	3525	0	0	3525	0
Flt Permitted	0.950										0.857	
Satd. Flow (perm)	1787	1639	0	0	0	0	0	3525	0	0	3033	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		102						3				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		324			342			409			178	
Travel Time (s)		7.4			7.8			9.3			4.0	
Peak Hour Factor	0.80	0.80	0.80	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90
Growth Factor	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	114	17	102	0	0	0	0	615	15	64	752	0
Shared Lane Traffic (%)		.,	.02					0.10		0.	, 02	
Lane Group Flow (vph)	114	119	0	0	0	0	0	630	0	0	816	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12	·g		12		20.0	0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		10			10			10			10	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	1.00	9	15	1.00	9	15	1.00	9	15	1.00	9
Number of Detectors	1	1	,			•		1	,	1	1	
Detector Template	•	•						•		•	•	
Leading Detector (ft)	50	50						50		50	50	
Trailing Detector (ft)	0	0						0		0	0	
Detector 1 Position(ft)	0	0						0		0	0	
Detector 1 Size(ft)	50	50						50		50	50	
Detector 1 Type	CI+Ex	CI+Ex						CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	OITEN	OI LA						OI LA		OI! EX	OI LA	
Detector 1 Extend (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0						0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0						0.0		0.0	0.0	
Turn Type	Split	NA						NA		pm+pt	NA	
Protected Phases	2 2	2						1		3	13	
Permitted Phases								1		13	1 3	
Detector Phase	2	2						1		3	13	
Switch Phase		Z								J	1 J	
Minimum Initial (s)	6.0	6.0						7.0		6.0		
Minimum Split (s)	32.0	32.0						27.0		11.0		
wiiriiriurii Spiit (S)	32.0	32.0						21.0		11.0		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	35.0	35.0						48.0		17.0		
Total Split (%)	35.0%	35.0%						48.0%		17.0%		
Maximum Green (s)	30.0	30.0						43.0		12.0		
Yellow Time (s)	4.0	4.0						4.0		4.0		
All-Red Time (s)	1.0	1.0						1.0		1.0		
Lost Time Adjust (s)	0.0	0.0						0.0				
Total Lost Time (s)	5.0	5.0						5.0				
Lead/Lag	Lag	Lag						Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0						2.0		3.0		
Recall Mode	Min	Min						C-Max		None		
Walk Time (s)	7.0	7.0						7.0				
Flash Dont Walk (s)	18.0	18.0						15.0				
Pedestrian Calls (#/hr)	0	0						0				
Act Effct Green (s)	13.7	13.7						55.6			71.3	
Actuated g/C Ratio	0.14	0.14						0.56			0.71	
v/c Ratio	0.47	0.38						0.32			0.36	
Control Delay	44.5	13.4						13.2			1.9	
Queue Delay	0.0	0.0						0.0			0.1	
Total Delay	44.5	13.4						13.3			2.0	
LOS	D	В						В			Α	
Approach Delay		28.6						13.3			2.0	
Approach LOS		С						В			А	
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 10												
Offset: 65 (65%), Reference	ced to phase	: 1:NBSB,	Start of (Green								
Natural Cycle: 70												
Control Type: Actuated-Co	oordinated											
Maximum v/c Ratio: 0.49												
Intersection Signal Delay:					tersection							
Intersection Capacity Utiliz	zation 55.2%)		IC	CU Level	of Service	B B					
Analysis Period (min) 15												
	1: Monroe &	IL EB										
#247#2472 ø1 (R)					#247#2	472 Ø2				#2471	2472 Ø3	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR	
Lane Configurations					4 † \$		ሻሻ	77	W	7	
Volume (vph)	0	0	0	87	36	57	255	253	145	568	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	0.97	0.88	1.00	0.95	
Frt					0.952			0.850	0.912	0.850	
Flt Protected					0.976		0.950		0.980		
Satd. Flow (prot)	0	0	0	0	4634	0	3433	2787	1665	1504	
Flt Permitted					0.976		0.950		0.741		
Satd. Flow (perm)	0	0	0	0	4634	0	3433	2787	1259	1504	
Right Turn on Red			Yes			Yes		Yes			
Satd. Flow (RTOR)			. 00		81	. 00		304			
Link Speed (mph)		30			30		30		30		
Link Distance (ft)		470			260		648		174		
Travel Time (s)		10.7			5.9		14.7		4.0		
Peak Hour Factor	0.90	0.90	0.90	0.80	0.80	0.80	0.94	0.94	0.88	0.88	
Growth Factor	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	
Heavy Vehicles (%)	2%	2%	2%	4%	4%	4%	2%	2%	2%	2%	
Adj. Flow (vph)	0	0	0	123	51	81	307	304	186	729	
Shared Lane Traffic (%)	U	U	U	125	31	01	307	304	100	36%	
Lane Group Flow (vph)	0	0	0	0	255	0	307	304	448	467	
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Right	Left	Right	
Median Width(ft)	LOIL	0	Right	LCIT	0	Rigiti	36	Right	12	rtigiit	
Link Offset(ft)		0			0		0		0		
Crosswalk Width(ft)		16			16		16		16		
Two way Left Turn Lane		10			10		10		10		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Turning Speed (mph)	1.00	1.00	9	1.00	1.00	9	30	25	1.00	9	
Number of Detectors	13		7	13	2	7	1	1	13	1	
Detector Template				Left	Thru		Left	Right	Left	Right	
Leading Detector (ft)				20	100		20	20	20	20	
Trailing Detector (ft)				0	0		0	0	0	0	
Detector 1 Position(ft)				0	0		0	0	0	0	
Detector 1 Size(ft)				20	6		20	20	20	20	
Detector 1 Type				CI+Ex	CI+Ex			CI+Ex	CI+Ex	CI+Ex	
Detector 1 Channel				CITLX	CITLX		CITLX	CITLX	CITLX	CITLX	
Detector 1 Extend (s)				0.0	0.0		0.0	0.0	0.0	0.0	
Detector 1 Queue (s)				0.0	0.0		0.0	0.0	0.0	0.0	
, ,				0.0	0.0		0.0	0.0	0.0	0.0	
Detector 1 Delay (s) Detector 2 Position(ft)				0.0	94		0.0	0.0	0.0	0.0	
. ,											
Detector 2 Size(ft) Detector 2 Type					6 Cl+Ex						
Detector 2 Channel					CI+EX						
Detector 2 Extend (s)					0.0						
` '				Colit			Drot	Fron	D D . D	nt.ov	
Turn Type				Split	NA		Prot	Free	D.P+P	pt+ov	
Protected Phases				3	3		1	Ггоо	2	12	
Permitted Phases				2	2		1	Free	12	1.0	
Detector Phase				3	3		1		2	12	
Switch Phase											

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR	
Minimum Initial (s)				3.0	3.0		3.0		3.0		
Minimum Split (s)				25.0	25.0		25.0		25.0		
Total Split (s)				25.0	25.0		25.0		25.0		
Total Split (%)				33.3%	33.3%		33.3%		33.3%		
Maximum Green (s)				20.0	20.0		20.0		20.0		
Yellow Time (s)				3.0	3.0		3.0		3.0		
All-Red Time (s)				2.0	2.0		2.0		2.0		
Lost Time Adjust (s)					0.0		0.0		0.0		
Total Lost Time (s)					5.0		5.0		5.0		
Lead/Lag							Lead		Lag		
Lead-Lag Optimize?									ŭ		
Vehicle Extension (s)				3.0	3.0		3.0		3.0		
Recall Mode				None	None		C-Max		Max		
Walk Time (s)				5.0	5.0		5.0		5.0		
Flash Dont Walk (s)				15.0	15.0		15.0		15.0		
Pedestrian Calls (#/hr)				0	0		0		0		
Act Effct Green (s)					8.2		31.8	75.0	51.8	56.8	
Actuated g/C Ratio					0.11		0.42	1.00	0.69	0.76	
v/c Ratio					0.44		0.21	0.11	0.46	0.41	
Control Delay					23.2		14.6	0.1	5.8	4.7	
Queue Delay					0.0		0.0	0.0	3.9	10.2	
Total Delay					23.2		14.6	0.1	9.7	14.9	
LOS					С		В	Α	А	В	
Approach Delay					23.2		7.4		12.4		
Approach LOS					С		А		В		
Intersection Summary											
Area Type: Ot	her										
Cycle Length: 75											
Actuated Cycle Length: 75											
Offset: 65 (87%), Referenced	to phase	1:NWSB	L, Start o	of Green							
Natural Cycle: 75	·										
Control Type: Actuated-Coord	inated										
Maximum v/c Ratio: 0.46											
Intersection Signal Delay: 12.2	2			Ir	ntersection	LOS: B					
Intersection Capacity Utilizatio				IC	CU Level o	of Service	e A				
Analysis Period (min) 15											
Splits and Phases: 571:											
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations					ፈተኩ			41∱			^	77
Volume (vph)	0	0	0	132	91	18	227	374	0	0	530	1108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	0.91	0.91	0.91	0.95	0.95	1.00	1.00	0.95	0.88
Frt					0.989							0.850
Flt Protected					0.973			0.981				
Satd. Flow (prot)	0	0	0	0	4894	0	0	3472	0	0	3539	2787
Flt Permitted					0.973			0.607				
Satd. Flow (perm)	0	0	0	0	4894	0	0	2148	0	0	3539	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					10							1111
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		410			1028			178			627	
Travel Time (s)		9.3			23.4			4.0			14.3	
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.94	0.94	0.94	0.91	1.00	0.91
Growth Factor	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%
Adj. Flow (vph)	0	0	0	162	112	22	273	450	0	0	599	1376
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	0	0	0	296	0	0	723	0	0	599	1376
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		25
Number of Detectors				1	1		1	1			1	1
Detector Template												
Leading Detector (ft)				50	50		50	50			50	50
Trailing Detector (ft)				0	0		0	0			0	0
Detector 1 Position(ft)				0	0		0	0			0	0
Detector 1 Size(ft)				50	50		50	50			50	50
Detector 1 Type				CI+Ex	CI+Ex		CI+Ex	CI+Ex			CI+Ex	CI+Ex
Detector 1 Channel												
Detector 1 Extend (s)				0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Queue (s)				0.0	0.0		0.0	0.0			0.0	0.0
Detector 1 Delay (s)				0.0	0.0		0.0	0.0			0.0	0.0
Turn Type				Split	NA		pm+pt	NA			NA	Free
Protected Phases				3	3		2	12			1	_
Permitted Phases							12					Free
Detector Phase				3	3		2	12			1	
Switch Phase											7.0	
Minimum Initial (s)				6.0	6.0		6.0				7.0	
Minimum Split (s)				11.0	11.0		32.0				27.0	
Total Split (s)				17.0	17.0		35.0				48.0	
Total Split (%)				17.0%	17.0%		35.0%				48.0%	
Maximum Green (s)				12.0	12.0		30.0				43.0	
Yellow Time (s)				4.0	4.0		4.0				4.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)				1.0	1.0		1.0				1.0	
Lost Time Adjust (s)					0.0						0.0	
Total Lost Time (s)					5.0						5.0	
Lead/Lag							Lag				Lead	
Lead-Lag Optimize?												
Vehicle Extension (s)				3.0	3.0		3.0				2.0	
Recall Mode				None	None		Min				C-Max	
Walk Time (s)							7.0				7.0	
Flash Dont Walk (s)							18.0				15.0	
Pedestrian Calls (#/hr)							0				0	
Act Effct Green (s)					15.6			69.4			55.6	100.0
Actuated g/C Ratio					0.16			0.69			0.56	1.00
v/c Ratio					0.38			0.43			0.30	0.49
Control Delay					37.6			3.6			12.3	0.4
Queue Delay					0.0			0.0			0.0	0.0
Total Delay					37.6			3.6			12.3	0.4
LOS					D			Α			В	Α
Approach Delay					37.6			3.6			4.0	
Approach LOS					D			Α			А	
Intersection Summary												
<i>3</i> I	Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 65 (65%), Referenced	d to phase	1:NBSB,	Start of	Green								
Natural Cycle: 70												
Control Type: Actuated-Coor	dinated											
Maximum v/c Ratio: 0.49												
Intersection Signal Delay: 7.2				In	itersection	i LOS: A						
Intersection Capacity Utilizat	ion 56.5%			IC	CU Level of	of Service	В					
Analysis Period (min) 15												
Splits and Phases: 2472: I	Monroe & I	L WB										
#247#2472					#247#2	472 ø2				#247	#2472 Ø3	
40 -					25.0					17.		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	†			f	7	ሻ	∱ }				
Volume (vph)	27	452	0	0	443	132	77	295	22	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		50	250		250	0		0
Storage Lanes	1		0	0		1	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Frt					0.996	0.850		0.989				
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1719	1810	0	0	1729	1475	1752	3466	0	0	0	0
Flt Permitted	0.285						0.950					
Satd. Flow (perm)	516	1810	0	0	1729	1475	1752	3466	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4	93		9				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		236			714			600			597	
Travel Time (s)		5.4			16.2			13.6			13.6	
Peak Hour Factor	0.85	0.85	0.85	0.90	0.90	0.90	0.90	0.90	0.90	0.95	0.95	0.90
Growth Factor	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%
Heavy Vehicles (%)	5%	5%	5%	4%	4%	4%	3%	3%	3%	2%	2%	2%
Adj. Flow (vph)	36	601	0	0	556	166	97	370	28	0	0	0
Shared Lane Traffic (%)						10%						
Lane Group Flow (vph)	36	601	0	0	573	149	97	398	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12	J		12	J		12	<u> </u>		12	3
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	2			2	1	1	1				
Detector Template	Left	Thru			Thru		Left					
Leading Detector (ft)	20	100			100	50	20	50				
Trailing Detector (ft)	0	0			0	0	0	0				
Detector 1 Position(ft)	0	0			0	0	0	0				
Detector 1 Size(ft)	20	6			6	50	20	50				
Detector 1 Type	CI+Ex	CI+Ex			CI+Ex	CI+Ex	CI+Ex	CI+Ex				
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0	0.0				
Detector 2 Position(ft)		94			94							
Detector 2 Size(ft)		6			6							
Detector 2 Type		CI+Ex			CI+Ex							
Detector 2 Channel		J LA			J L.							
Detector 2 Extend (s)		0.0			0.0							
Turn Type	D.Pm	NA			NA	Perm	Perm	NA				
Protected Phases	2.1 111				4	. 31111	. 51111	2				
1.000004 1.10303					7							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4	4				4	2					
Detector Phase	4	4			4	4	2	2				
Switch Phase												
Minimum Initial (s)	3.0	3.0			3.0	3.0	9.0	9.0				
Minimum Split (s)	25.0	25.0			25.0	25.0	22.0	22.0				
Total Split (s)	54.0	54.0			54.0	54.0	26.0	26.0				
Total Split (%)	67.5%	67.5%			67.5%	67.5%	32.5%	32.5%				
Maximum Green (s)	49.0	49.0			49.0	49.0	21.0	21.0				
Yellow Time (s)	5.0	5.0			5.0	5.0	4.0	4.0				
All-Red Time (s)	0.0	0.0			0.0	0.0	1.0	1.0				
Lost Time Adjust (s)	0.0	0.0			0.0	0.0	0.0	0.0				
Total Lost Time (s)	5.0	5.0			5.0	5.0	5.0	5.0				
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0			3.0	3.0	4.0	4.0				
Recall Mode	None	None			None	None	Max	Max				
Walk Time (s)	5.0	5.0			5.0	5.0	7.0	7.0				
Flash Dont Walk (s)	15.0	15.0			15.0	15.0	8.0	8.0				
Pedestrian Calls (#/hr)	0	0			0	0	0	0				
Act Effct Green (s)	31.5	31.5			31.5	31.5	21.6	21.6				
Actuated g/C Ratio	0.50	0.50			0.50	0.50	0.34	0.34				
v/c Ratio	0.14	0.67			0.67	0.19	0.16	0.34				
Control Delay	8.8	15.3			15.3	3.8	19.8	18.8				
Queue Delay	0.0	0.0			0.0	0.0	0.0	0.0				
Total Delay	8.8	15.3			15.3	3.8	19.8	18.8				
LOS	Α	15.5 B			13.3 B	J.0	17.0 B	В				
Approach Delay	Λ	14.9			12.9		D	19.0				
		14.9 B			12.9 B			19.0 B				
Approach LOS		D			D			D				
Intersection Summary	Other											
Area Type:	Other											
Cycle Length: 80	_											
Actuated Cycle Length: 63	5.5											
Natural Cycle: 50												
Control Type: Semi Act-Ur	ncoord											
Maximum v/c Ratio: 0.67												
Intersection Signal Delay:					ntersectio							
Intersection Capacity Utiliz	cation 47.7%	,)		[(CU Level	of Service	e A					
Analysis Period (min) 15												
Splits and Phases: 246:	Union & Mo	onroe										
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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	
Lane Configurations	ሻሻ		ች	^				_
Volume (vph)	70	0	136	154	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	0	0	200	1700	1700	0		
Storage Lanes	2	0	1			0		
Taper Length (ft)	25	U	25			U		
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00		
Frt	0.77	1.00	1.00	0.75	1.00	1.00		
Flt Protected	0.950		0.950					
Satd. Flow (prot)	3367	0	1770	3539	0	0		
Flt Permitted	0.950	U	0.950	3337	U	U		
Satd. Flow (perm)	3367	0	1770	3539	0	0		
Right Turn on Red	3307	Yes	1770	3337	U	Yes		
Satd. Flow (RTOR)		1 03				1 52		
Link Speed (mph)	30			30	30			
Link Distance (ft)	136			556	451			
Travel Time (s)	3.1			12.6	10.3			
Peak Hour Factor	0.90	0.90	0.95	0.95	0.90	0.90		
Growth Factor	113%	113%	113%	113%	113%	113%		
	4%	2%	2%	2%	2%	2%		
Heavy Vehicles (%) Adj. Flow (vph)	88	0	162	183	0	0		
	00	U	102	103	U	U		
Shared Lane Traffic (%)	88	0	162	183	0	0		
Lane Group Flow (vph)		0			0	0		
Enter Blocked Intersection	No	No Dialet	No	No.	No Loft	No Diabt		
Lane Alignment	Left	Right	Left	Left	Left	Right		
Median Width(ft)	24			12	12			
Link Offset(ft)	0			0	0			
Crosswalk Width(ft)	16			16	16			
Two way Left Turn Lane	1.00	1.00	1.00	1.00	1.00	1.00		
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Turning Speed (mph)	15	9	15	1		9		
Number of Detectors	1		1	1				
Detector Template	F0		F.0	F0				
Leading Detector (ft)	50		50	50				
Trailing Detector (ft)	0		0	0				
Detector 1 Position(ft)	0		0	0				
Detector 1 Size(ft)	50		50	50				
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex				
Detector 1 Channel								
Detector 1 Extend (s)	0.0		0.0	0.0				
Detector 1 Queue (s)	0.0		0.0	0.0				
Detector 1 Delay (s)	0.0		0.0	0.0				
Turn Type	Prot		Prot	NA				
Protected Phases	1		3	23			2	
Permitted Phases								
Detector Phase	1		3	2 3				
Switch Phase								
Minimum Initial (s)	7.0		6.0				10.0	
Minimum Split (s)	21.0		24.0				28.0	

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2		
Total Split (s)	22.0		39.0				39.0		
Total Split (%)	22.0%	39	0.0%				39%		
Maximum Green (s)	16.0		34.0				34.0		
Yellow Time (s)	4.0		4.0				4.0		
All-Red Time (s)	2.0		1.0				1.0		
Lost Time Adjust (s)	0.0		0.0						
Total Lost Time (s)	6.0		5.0						
Lead/Lag	Lead						Lag		
Lead-Lag Optimize?							J		
Vehicle Extension (s)	2.0		4.0				3.0		
Recall Mode	C-Max	N	lone				None		
Walk Time (s)	7.0						7.0		
Flash Dont Walk (s)	8.0						15.0		
Pedestrian Calls (#/hr)	0						0		
Act Effct Green (s)	55.7		16.3	33.3					
Actuated g/C Ratio	0.56		0.16	0.33					
v/c Ratio	0.05		0.56	0.16					
Control Delay	1.4		45.2	22.3					
Queue Delay	0.4		0.0	0.0					
Total Delay	1.7		45.2	22.3					
LOS	А		D	С					
Approach Delay	1.7			33.0					
Approach LOS	А			С					
Intersection Summary									
Area Type:	Other								
Cycle Length: 100									
Actuated Cycle Length: 10	0								
Offset: 54 (54%), Reference		1:FBWB. St	art of (Green					
Natural Cycle: 75	ou to pilaco			0.00					
Control Type: Actuated-Co	ordinated								
Maximum v/c Ratio: 0.60	oraniatoa								
Intersection Signal Delay:	26.7			Int	ersection	LOS: C			
Intersection Capacity Utiliz					U Level o		Α Α		
Analysis Period (min) 15				10	0 201010	7 001 1100			
Splits and Phases: 2592	2: Union & Br	nad							
#259#2592	#259#2						#259#259	2	
4- 4	#259#2						#239#235	Ĺ	
ø1 (R)	30 c	ø2					▼ 1	ø3	

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	
Lane Configurations	757		ሻ	^	02.	0511	~_	
Volume (vph)	250	0	56	170	0	0		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	0	0	200	1700	1700	0		
Storage Lanes	2	0	1			0		
Taper Length (ft)	25	U	25			U		
Lane Util. Factor	0.97	1.00	1.00	0.95	1.00	1.00		
Frt	0.77	1.00	1.00	0.70	1.00	1.00		
Flt Protected	0.950		0.950					
Satd. Flow (prot)	3433	0	1787	3574	0	0		
Flt Permitted	0.950		0.950	0071	· ·	•		
Satd. Flow (perm)	3433	0	1787	3574	0	0		
Right Turn on Red	0 100	Yes	.,,,,,	- 557 1		Yes		
Satd. Flow (RTOR)		. 00				. 00		
Link Speed (mph)	30			30	30			
Link Distance (ft)	175			499	451			
Travel Time (s)	4.0			11.3	10.3			
Peak Hour Factor	0.88	0.88	0.86	0.86	0.90	0.90		
Growth Factor	113%	113%	113%	113%	113%	113%		
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%		
Adj. Flow (vph)	321	0	74	223	0	0		
Shared Lane Traffic (%)	5							
Lane Group Flow (vph)	321	0	74	223	0	0		
Enter Blocked Intersection	No	No	No	No	No	No		
Lane Alignment	Left	Right	Left	Left	Left	Right		
Median Width(ft)	24	J		12	12	J		
Link Offset(ft)	0			0	0			
Crosswalk Width(ft)	16			16	16			
Two way Left Turn Lane								
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00		
Turning Speed (mph)	15	9	15			9		
Number of Detectors	1		1	1				
Detector Template								
Leading Detector (ft)	50		50	50				
Trailing Detector (ft)	0		0	0				
Detector 1 Position(ft)	0		0	0				
Detector 1 Size(ft)	50		50	50				
Detector 1 Type	CI+Ex		CI+Ex	CI+Ex				
Detector 1 Channel								
Detector 1 Extend (s)	0.0		0.0	0.0				
Detector 1 Queue (s)	0.0		0.0	0.0				
Detector 1 Delay (s)	0.0		0.0	0.0				
Turn Type	Prot		Prot	NA				
Protected Phases	1		3	2 3			2	
Permitted Phases								
	1		3	23				
	7.0		6.0				10.0	
Detector Phase Switch Phase Minimum Initial (s) Minimum Split (s)	7.0 21.0		6.0 24.0	23			10.0 28.0	

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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø2	
Total Split (s)	31.0		24.0				45.0	
Total Split (%)	31.0%		24.0%				45%	
Maximum Green (s)	25.0		19.0				40.0	
Yellow Time (s)	4.0		4.0				4.0	
All-Red Time (s)	2.0		1.0				1.0	
Lost Time Adjust (s)	0.0		0.0					
Total Lost Time (s)	6.0		5.0					
Lead/Lag	Lead						Lag	
Lead-Lag Optimize?							ŭ	
Vehicle Extension (s)	2.0		4.0				3.0	
Recall Mode	C-Max		None				None	
Walk Time (s)	7.0						7.0	
Flash Dont Walk (s)	8.0						15.0	
Pedestrian Calls (#/hr)	0						0	
Act Effct Green (s)	60.7		11.0	28.3				
Actuated g/C Ratio	0.61		0.11	0.28				
v/c Ratio	0.15		0.38	0.22				
Control Delay	3.4		45.7	26.8				
Queue Delay	0.4		0.0	0.0				
Total Delay	3.8		45.7	26.8				
LOS	А		D	С				
Approach Delay	3.8			31.5				
Approach LOS	А			С				
Intersection Summary								
Area Type:	Other							
Cycle Length: 100								
Actuated Cycle Length: 10	0							
Offset: 25 (25%), Reference		1:EBWB	Start of	Green				
Natural Cycle: 75	'							
Control Type: Actuated-Co	ordinated							
Maximum v/c Ratio: 0.55								
Intersection Signal Delay:	17.1			Int	ersection	LOS: B		
Intersection Capacity Utiliz				IC	U Level o	of Service	Α	
Analysis Period (min) 15								
Splits and Phases: 2592	2: Union & Br	oad						
#259#2592			9#2592					#259#2592
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Lane Group EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SB1	CDD
Lanc Group LDL LDT LDT WDL WDT WDN NDL NDT NDN SDL SD	SBR
Lane Configurations	
Volume (vph) 0 67 31 23 115 0 0 0 3 156	
Ideal Flow (vphpl) 1900 1900 1900 1900 1900 1900 1900 190	1900
Lane Util. Factor 1.00 0.95 1.00 0.95 0.95 1.00 1.00 1.00 1.00 0.91 0.91	0.91
Frt 0.850 0.921	
Flt Protected 0.992	
Satd. Flow (prot) 0 3471 1553 0 3511 0 0 0 0 0 4684	0
Flt Permitted 0.913	
Satd. Flow (perm) 0 3471 1553 0 3231 0 0 0 0 0 4684	0
Right Turn on Red Yes Yes Yes	Yes
Satd. Flow (RTOR) 76 244	
Link Speed (mph) 30 30 30	
Link Distance (ft) 786 136 477 435	
Travel Time (s) 17.9 3.1 10.8 9.9	
Peak Hour Factor 0.78 0.78 0.78 0.85 0.85 0.90 0.90 0.90 0.82 0.82	0.82
Growth Factor 113% 113% 113% 113% 113% 113% 113% 113	113%
Heavy Vehicles (%) 4% 4% 4% 2% 2% 2% 2% 2% 2% 2% 2% 2% 2%	
Adj. Flow (vph) 0 97 45 31 153 0 0 0 4 215	244
Shared Lane Traffic (%)	
Lane Group Flow (vph) 0 97 45 0 184 0 0 0 0 0 463	0
Enter Blocked Intersection No	No
Lane Alignment Left Left Right Left Right Left Left Right Left Left	Right
Median Width(ft) 0 0 0	0
Link Offset(ft) 0 0 0	
Crosswalk Width(ft) 16 16 16 16	
Two way Left Turn Lane	
Headway Factor 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.0	1.00
Turning Speed (mph) 15 9 15 9 15 9 15	9
Number of Detectors 1 1 1 1 1 1 1 1	
Detector Template	
Leading Detector (ft) 50 50 50 50 50 50	
Trailing Detector (ft) 0 0 0 0 0	
Detector 1 Position(ft) 0 0 0 0 0	
Detector 1 Size(ft) 50 50 50 50 50	
Detector 1 Type CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex CI+Ex	
Detector 1 Channel	
Detector 1 Extend (s) 0.0 0.0 0.0 0.0 0.0 0.0	
Detector 1 Queue (s) 0.0 0.0 0.0 0.0 0.0 0.0	
Detector 1 Delay (s) 0.0 0.0 0.0 0.0 0.0 0.0	
Turn Type NA Perm D.P+P NA Split NA	
Protected Phases 1 3 13 2 2	
Permitted Phases 1 1	
Detector Phase 1 1 3 13 2 2	
Switch Phase	
Minimum Initial (s) 7.0 7.0 6.0 10.0 10.0	
Minimum Split (s) 21.0 21.0 24.0 28.0 28.0	
Total Split (s) 22.0 22.0 39.0 39.0 39.0	
Total Split (%) 22.0% 22.0% 39.0% 39.0% 39.0%	
Maximum Green (s) 16.0 16.0 34.0 34.0 34.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)		4.0	4.0	4.0						4.0	4.0	
All-Red Time (s)		2.0	2.0	1.0						1.0	1.0	
Lost Time Adjust (s)		0.0	0.0								0.0	
Total Lost Time (s)		6.0	6.0								5.0	
Lead/Lag		Lead	Lead							Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)		2.0	2.0	4.0						3.0	3.0	
Recall Mode		C-Max	C-Max	None						None	None	
Walk Time (s)		7.0	7.0							7.0	7.0	
Flash Dont Walk (s)		8.0	8.0							15.0	15.0	
Pedestrian Calls (#/hr)		0	0							0	0	
Act Effct Green (s)		55.7	55.7		71.0						12.0	
Actuated g/C Ratio		0.56	0.56		0.71						0.12	
v/c Ratio		0.05	0.05		0.08						0.60	
Control Delay		7.0	3.4		0.6						10.6	
Queue Delay		0.0	0.0		0.2						0.0	
Total Delay		7.0	3.4		0.8						10.6	
LOS		Α	А		Α						В	
Approach Delay		5.9			0.8						10.6	
Approach LOS		Α			А						В	
Intersection Summary												
	ther											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 54 (54%), Referenced	to phase	1:EBWE	3, Start of	Green								
Natural Cycle: 75												
Control Type: Actuated-Coord	linated											
Maximum v/c Ratio: 0.60												
Intersection Signal Delay: 7.4				In	tersection	LOS: A						
Intersection Capacity Utilization	on 34.2%			IC	U Level o	of Service	: A					
Analysis Period (min) 15												
Splits and Phases: 2591: P	itkin & Bro	oad										
#259#2592 ø1 (R)	#259#2	592 A ø2					#259#25	92 43				

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		^	7		4₽						44Þ	
Volume (vph)	0	235	139	44	29	0	0	0	0	15	196	52
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	0.91	0.91	0.91
Frt			0.850								0.970	
Flt Protected					0.971						0.997	
Satd. Flow (prot)	0	3539	1583	0	3437	0	0	0	0	0	4918	0
Flt Permitted					0.715						0.997	
Satd. Flow (perm)	0	3539	1583	0	2531	0	0	0	0	0	4918	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			209								71	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		750			175			248			439	
Travel Time (s)		17.0			4.0			5.6			10.0	
Peak Hour Factor	0.75	0.75	0.75	0.77	0.77	0.77	0.90	0.90	0.90	0.82	0.82	0.82
Growth Factor	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%
Adj. Flow (vph)	0	354	209	65	43	0	0	0	0	21	270	72
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	354	209	0	108	0	0	0	0	0	363	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1	1	1					1	1	
Detector Template												
Leading Detector (ft)		50	50	50	50					50	50	
Trailing Detector (ft)		0	0	0	0					0	0	
Detector 1 Position(ft)		0	0	0	0					0	0	
Detector 1 Size(ft)		50	50	50	50					50	50	
Detector 1 Type		CI+Ex	CI+Ex	CI+Ex	CI+Ex					CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Turn Type		NA	Perm	D.P+P	NA					Split	NA	
Protected Phases		1		3	1 3					2	2	
Permitted Phases			1	1								
Detector Phase		1	1	3	13					2	2	
Switch Phase												
Minimum Initial (s)		7.0	7.0	6.0						10.0	10.0	
Minimum Split (s)		21.0	21.0	24.0						28.0	28.0	
Total Split (s)		31.0	31.0	24.0						45.0	45.0	
Total Split (%)		31.0%	31.0%	24.0%						45.0%	45.0%	
Maximum Green (s)		25.0	25.0	19.0						40.0	40.0	
Yellow Time (s)		4.0	4.0	4.0						4.0	4.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
All-Red Time (s)		2.0	2.0	1.0						1.0	1.0	
Lost Time Adjust (s)		0.0	0.0								0.0	
Total Lost Time (s)		6.0	6.0								5.0	
Lead/Lag		Lead	Lead							Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)		2.0	2.0	4.0						3.0	3.0	
Recall Mode		C-Max	C-Max	None						None	None	
Walk Time (s)		7.0	7.0							7.0	7.0	
Flash Dont Walk (s)		8.0	8.0							15.0	15.0	
Pedestrian Calls (#/hr)		0	0							0	0	
Act Effct Green (s)		60.7	60.7		70.7						12.3	
Actuated g/C Ratio		0.61	0.61		0.71						0.12	
v/c Ratio		0.16	0.20		0.06						0.55	
Control Delay		6.4	0.6		1.2						31.5	
Queue Delay		0.0	0.0		0.1						0.0	
Total Delay		6.4	0.6		1.3						31.5	
LOS		Α	А		Α						С	
Approach Delay		4.3			1.3						31.5	
Approach LOS		Α			А						С	
Intersection Summary												
Area Type: (Other											
Cycle Length: 100												
Actuated Cycle Length: 100												
Offset: 25 (25%), Reference	d to phase	: 1:EBWE	3, Start of	Green								
Natural Cycle: 75	•											
Control Type: Actuated-Coor	rdinated											
Maximum v/c Ratio: 0.55												
Intersection Signal Delay: 13	3.5			In	tersection	LOS: B						
Intersection Capacity Utilizat	ion 38.1%)		IC	U Level o	of Service	: A					
Analysis Period (min) 15												
Splits and Phases: 2591:	Pitkin & B	road										
#259#2592	i ittiii ta D		9#2592						#2591	£2592		
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4₽			∱ ∱			41₽	7			
Volume (vph)	24	332	0	0	450	67	68	84	65	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	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt					0.981				0.850			
Flt Protected		0.997						0.978				
Satd. Flow (prot)	0	3461	0	0	3405	0	0	3362	1538	0	0	0
Flt Permitted		0.897						0.978				
Satd. Flow (perm)	0	3114	0	0	3405	0	0	3362	1538	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					22				87			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		123			667			451			780	
Travel Time (s)		2.8			15.2			10.3			17.7	
Peak Hour Factor	0.76	0.76	0.76	0.93	0.93	0.93	0.94	0.94	0.94	0.90	0.90	0.90
Growth Factor	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	5%	5%	5%	2%	2%	2%
Adj. Flow (vph)	36	494	0	0	547	81	82	101	78	0	0	0
Shared Lane Traffic (%)												-
Lane Group Flow (vph)	0	530	0	0	628	0	0	183	78	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	20.0	0	·g	20.0	0	·g	20.0	0	g	20.1	0	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	•		1	,	1	1	1	.0		•
Detector Template	•	•			•		·	•	•			
Leading Detector (ft)	50	50			50		50	50	50			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	50	50			50		50	50	50			
Detector 1 Type		CI+Ex			CI+Ex		CI+Ex		CI+Ex			
Detector 1 Channel	027	J			J		0	02	02			
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Turn Type	pm+pt	NA			NA		Split	NA	Perm			
Protected Phases	2	1 2			1		3	3	1 01111			
Permitted Phases	12				•		<u> </u>	<u> </u>	3			
Detector Phase	2	12			1		3	3	3			
Switch Phase		1 2			'		3	3	3			
Minimum Initial (s)	6.0				6.0		6.0	6.0	6.0			
Minimum Split (s)	23.0				23.0		22.0	22.0	22.0			
Total Split (s)	26.0				52.0		22.0	22.0	22.0			
Total Split (%)	26.0%				52.0%		22.0%	22.0%	22.0%			
Maximum Green (s)	20.0%				46.5		16.5	16.5	16.5			
waxiiiuiii Giccii (5)	20.0				40.0		10.5	10.5	10.5			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBF
Yellow Time (s)	3.5				3.5		3.5	3.5	3.5			
All-Red Time (s)	2.0				2.0		2.0	2.0	2.0			
Lost Time Adjust (s)					0.0			0.0	0.0			
Total Lost Time (s)					5.5			5.5	5.5			
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0				2.0		3.0	3.0	3.0			
Recall Mode	None				C-Max		None	None	None			
Walk Time (s)	7.0				7.0		7.0	7.0	7.0			
Flash Dont Walk (s)	9.0				10.0		9.0	9.0	9.0			
Pedestrian Calls (#/hr)	0				0		0	0	0			
Act Effct Green (s)		70.4			51.8			13.1	13.1			
Actuated g/C Ratio		0.70			0.52			0.13	0.13			
v/c Ratio		0.23			0.35			0.42	0.28			
Control Delay		1.5			6.9			33.8	9.6			
Queue Delay		0.5			0.0			0.0	0.0			
Total Delay		2.0			6.9			33.8	9.6			
LOS		Α			А			С	Α			
Approach Delay		2.0			6.9			26.6				
Approach LOS		А			А			С				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 10												
Offset: 16 (16%), Reference	ced to phase	1:EBWB	Start of	Green								
Natural Cycle: 70												
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.75												
Intersection Signal Delay: 8	8.7			I	ntersection	LOS: A						
Intersection Capacity Utiliz	ation 45.1%			I	CU Level o	of Service	e A					
Analysis Period (min) 15												
Splits and Phases: 2602	2: Union & Ea	ıst										
#260#2602 #01 (R)					#26	50#2602	2		#26	0#2602		

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		41∱			∱ }			41∱	7			
Volume (vph)	36	609	0	0	347	57	43	166	211	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	1.00	1.00	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00
Frt					0.979				0.850			
Flt Protected		0.997						0.990				
Satd. Flow (prot)	0	3529	0	0	3431	0	0	3504	1583	0	0	0
Flt Permitted		0.907						0.990				
Satd. Flow (perm)	0	3210	0	0	3431	0	0	3504	1583	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					19				191			
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		148			667			451			567	
Travel Time (s)		3.4			15.2			10.3			12.9	
Peak Hour Factor	0.86	0.86	0.86	0.87	0.87	0.87	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	47	800	0	0	451	74	54	208	265	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	847	0	0	525	0	0	262	265	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0	<u> </u>		0	3		0	<u> </u>		0	3
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1	1			
Detector Template												
Leading Detector (ft)	50	50			50		50	50	50			
Trailing Detector (ft)	0	0			0		0	0	0			
Detector 1 Position(ft)	0	0			0		0	0	0			
Detector 1 Size(ft)	50	50			50		50	50	50			
Detector 1 Type		CI+Ex			CI+Ex		CI+Ex	CI+Ex	CI+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0	0.0			
Turn Type	pm+pt	NA			NA		Split	NA	Perm			
Protected Phases	2	12			1		3	3				
Permitted Phases	12								3			
Detector Phase	2	12			1		3	3	3			
Switch Phase												
Minimum Initial (s)	6.0				6.0		6.0	6.0	6.0			
Minimum Split (s)	23.0				23.0		22.0	22.0	22.0			
Total Split (s)	36.0				35.0		29.0	29.0	29.0			
Total Split (%)	36.0%				35.0%		29.0%	29.0%	29.0%			
Maximum Green (s)	30.5				29.5		23.5	23.5	23.5			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.5				3.5		3.5	3.5	3.5			
All-Red Time (s)	2.0				2.0		2.0	2.0	2.0			
Lost Time Adjust (s)					0.0			0.0	0.0			
Total Lost Time (s)					5.5			5.5	5.5			
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0				2.0		3.0	3.0	3.0			
Recall Mode	None				C-Max		None	None	None			
Walk Time (s)	7.0				7.0		7.0	7.0	7.0			
Flash Dont Walk (s)	9.0				10.0		9.0	9.0	9.0			
Pedestrian Calls (#/hr)	0				0		0	0	0			
Act Effct Green (s)		68.0			45.4			15.5	15.5			
Actuated g/C Ratio		0.68			0.45			0.16	0.16			
v/c Ratio		0.38			0.34			0.48	0.65			
Control Delay		1.4			29.1			36.6	19.1			
Queue Delay		0.1			0.0			0.0	0.0			
Total Delay		1.5			29.1			36.6	19.1			
LOS		Α			С			D	В			
Approach Delay		1.5			29.1			27.8				
Approach LOS		Α			С			С				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 10	0											
Offset: 94 (94%), Reference	ed to phase	1:EBWB,	Start of 0	Green								
Natural Cycle: 70												
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.65												
Intersection Signal Delay: 1	16.4			I	ntersection	LOS: B						
Intersection Capacity Utiliz	ation 53.4%			I	CU Level o	f Service	e A					
Analysis Period (min) 15												
Splits and Phases: 2602	:: Union & Ea	ıst										
#260#2602			#260#2	602				#26	0#2602			

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		^	7		4₽					7	∱ ⊅	
Volume (vph)	0	189	30	138	353	0	0	0	0	171	168	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt			0.850								0.978	
Flt Protected					0.986					0.950		
Satd. Flow (prot)	0	3471	1553	0	3423	0	0	0	0	1736	3395	0
Flt Permitted					0.779					0.950		
Satd. Flow (perm)	0	3471	1553	0	2704	0	0	0	0	1736	3395	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			87								18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		788			123			435			516	
Travel Time (s)		17.9			2.8			9.9			11.7	
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.90	0.90	0.90	0.80	0.80	0.80
Growth Factor	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Adj. Flow (vph)	0	225	36	164	420	0	0	0	0	242	237	41
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	225	36	0	584	0	0	0	0	242	278	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1	1	1					1	1	
Detector Template												
Leading Detector (ft)		50	50	50	50					50	50	
Trailing Detector (ft)		0	0	0	0					0	0	
Detector 1 Position(ft)		0	0	0	0					0	0	
Detector 1 Size(ft)		50	50	50	50					50	50	
Detector 1 Type		CI+Ex	CI+Ex	CI+Ex	CI+Ex					CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Turn Type		NA	Perm	pm+pt	NA					Split	NA	
Protected Phases		1		3	13					2	2	
Permitted Phases			1	13								
Detector Phase		1	1	3	13					2	2	
Switch Phase												
Minimum Initial (s)		6.0	6.0	6.0						6.0	6.0	
Minimum Split (s)		23.0	23.0	22.0						23.0	23.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)		52.0	52.0	22.0						26.0	26.0	
Total Split (%)		52.0%	52.0%	22.0%						26.0%	26.0%	
Maximum Green (s)		46.5	46.5	16.5						20.5	20.5	
Yellow Time (s)		3.5	3.5	3.5						3.5	3.5	
All-Red Time (s)		2.0	2.0	2.0						2.0	2.0	
Lost Time Adjust (s)		0.0	0.0							0.0	0.0	
Total Lost Time (s)		5.5	5.5							5.5	5.5	
Lead/Lag		Lead	Lead							Lag	Lag	
Lead-Lag Optimize?										, i	ŭ	
Vehicle Extension (s)		2.0	2.0	3.0						3.0	3.0	
Recall Mode		C-Max	C-Max	None						None	None	
Walk Time (s)		7.0	7.0	7.0						7.0	7.0	
Flash Dont Walk (s)		10.0	10.0	9.0						9.0	9.0	
Pedestrian Calls (#/hr)		0	0	0						0	0	
Act Effct Green (s)		51.8	51.8		64.9					18.6	18.6	
Actuated g/C Ratio		0.52	0.52		0.65					0.19	0.19	
v/c Ratio		0.13	0.04		0.32					0.75	0.43	
Control Delay		13.4	2.2		1.2					52.5	34.6	
Queue Delay		0.0	0.0		0.2					0.0	0.0	
Total Delay		13.4	2.2		1.4					52.5	34.6	
LOS		В	А		А					D	С	
Approach Delay		11.8			1.4						42.9	
Approach LOS		В			А						D	
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 10	0											
Offset: 16 (16%), Reference		e 1:EBWE	3. Start of	Green								
Natural Cycle: 70	ou to pilao		, σια σ.	0.00								
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.75												
Intersection Signal Delay:	19.2			In	itersection	n LOS: B						
Intersection Capacity Utiliz		,			CU Level		e A					
Analysis Period (min) 15												
Splits and Phases: 260°	I: Pitkin & E	ast										
#260#2602					#2	60#2602			#2	60#2602		
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		^	7		4₽					*	∱ ∱	
Volume (vph)	0	445	51	78	316	0	0	0	0	197	114	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		125	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Frt			0.850								0.972	
Flt Protected					0.990					0.950		
Satd. Flow (prot)	0	3539	1583	0	3470	0	0	0	0	1770	3440	0
Flt Permitted					0.755					0.950		
Satd. Flow (perm)	0	3539	1583	0	2646	0	0	0	0	1770	3440	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			87								29	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		763			148			439			686	
Travel Time (s)		17.3			3.4			10.0			15.6	
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.90	0.90	0.90	0.89	0.89	0.89
Growth Factor	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	0	547	63	95	384	0	0	0	0	250	145	34
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	547	63	0	479	0	0	0	0	250	179	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12	J .		12	3
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors		1	1	1	1					1	1	
Detector Template												
Leading Detector (ft)		50	50	50	50					50	50	
Trailing Detector (ft)		0	0	0	0					0	0	
Detector 1 Position(ft)		0	0	0	0					0	0	
Detector 1 Size(ft)		50	50	50	50					50	50	
Detector 1 Type		CI+Ex	CI+Ex	CI+Ex	CI+Ex					CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0	0.0	
Turn Type		NA	Perm	pm+pt	NA					Split	NA	
Protected Phases		1		3	13					2	2	
Permitted Phases		•	1	13						_	_	
Detector Phase		1	1	3	13					2	2	
Switch Phase			•		10							
Minimum Initial (s)		6.0	6.0	6.0						6.0	6.0	
Minimum Split (s)		23.0	23.0	22.0						23.0	23.0	
wininium Spiit (S)		۷۵.0	23.0	22.0						۷۵.0	23.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)		35.0	35.0	29.0						36.0	36.0	
Total Split (%)		35.0%	35.0%	29.0%						36.0%	36.0%	
Maximum Green (s)		29.5	29.5	23.5						30.5	30.5	
Yellow Time (s)		3.5	3.5	3.5						3.5	3.5	
All-Red Time (s)		2.0	2.0	2.0						2.0	2.0	
Lost Time Adjust (s)		0.0	0.0							0.0	0.0	
Total Lost Time (s)		5.5	5.5							5.5	5.5	
Lead/Lag		Lead	Lead							Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)		2.0	2.0	3.0						3.0	3.0	
Recall Mode		C-Max	C-Max	None						None	None	
Walk Time (s)		7.0	7.0	7.0						7.0	7.0	
Flash Dont Walk (s)		10.0	10.0	9.0						9.0	9.0	
Pedestrian Calls (#/hr)		0	0	0						0	0	
Act Effct Green (s)		45.4	45.4		60.9					22.6	22.6	
Actuated g/C Ratio		0.45	0.45		0.61					0.23	0.23	
v/c Ratio		0.34	0.08		0.28					0.62	0.22	
Control Delay		15.4	1.2		5.8					43.8	27.8	
Queue Delay		0.0	0.0		0.1					0.0	0.0	
Total Delay		15.4	1.2		5.9					43.8	27.8	
LOS		В	Α		Α					D	С	
Approach Delay		13.9			5.9						37.1	
Approach LOS		В			А						D	
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 1	00											
Offset: 94 (94%), Referen	nced to phase	e 1:EBWE	3, Start of	Green								
Natural Cycle: 70	·											
Control Type: Actuated-C	Coordinated											
Maximum v/c Ratio: 0.65												
Intersection Signal Delay	: 18.0			In	tersection	LOS: B						
Intersection Capacity Util	ization 52.4%	0		IC	CU Level	of Service	Α					
Analysis Period (min) 15												
	01: Pitkin & E	ast										
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		41∱			∱ }		7	∱ }				
Volume (vph)	9	353	0	0	470	37	118	152	60	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	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Frt					0.989			0.958				
Flt Protected		0.999					0.950					
Satd. Flow (prot)	0	3468	0	0	3368	0	1703	3263	0	0	0	0
Flt Permitted		0.935					0.950					
Satd. Flow (perm)	0	3246	0	0	3368	0	1703	3263	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					12			63				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		316			584			383			361	
Travel Time (s)		7.2			13.3			8.7			8.2	
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.92	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%
Heavy Vehicles (%)	4%	4%	4%	6%	6%	6%	6%	6%	6%	2%	2%	2%
Adj. Flow (vph)	12	453	0	0	577	45	148	191	75	0	0	0
Shared Lane Traffic (%)		100	· ·	· ·	077	10	1 10	171	, 0	· ·	· ·	J
Lane Group Flow (vph)	0	465	0	0	622	0	148	266	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	Loit	0	ragin	Lore	0	rtigitt	Lort	12	rtigitt	Loit	12	rtigitt
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		10			10			10			10	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	1.00	9	15	1.00	9	15	1.00	9	15	1.00	9
Number of Detectors	13	1	,	10	1	,	1	1	,	10		,
Detector Template	'	'			'		'	'				
Leading Detector (ft)	50	50			50		50	50				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	50	50			50		50	50				
Detector 1 Type		CI+Ex			CI+Ex		CI+Ex					
Detector 1 Channel	OIILX	CITEX			CITEX		OITEX	OITEX				
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	custom	NA			NA		Split	NA				
Protected Phases	Custom	23			23		3piit	1				
Permitted Phases	2	2 3			23		ı					
Detector Phase	2	23			23		1	1				
Switch Phase		2 3			2 3		ı	ı				
	6.0						7.0	7.0				
Minimum Initial (s)							30.0	30.0				
Minimum Split (s)	15.0											
Total Split (s)	32.0						40.0	40.0				
Total Split (%)	32.0%						40.0%	40.0%				
Maximum Green (s)	26.0						34.0	34.0				

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.5						3.5	3.5				
All-Red Time (s)	2.5						2.5	2.5				
Lost Time Adjust (s)							0.0	0.0				
Total Lost Time (s)							6.0	6.0				
Lead/Lag	Lag						Lead	Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0						3.0	3.0				
Recall Mode	None						C-Max	C-Max				
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							16.0	16.0				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)		54.0			54.0		34.0	34.0				
Actuated g/C Ratio		0.54			0.54		0.34	0.34				
v/c Ratio		0.27			0.34		0.26	0.23				
Control Delay		4.6			3.6		20.3	13.5				
Queue Delay		0.5			0.0		0.0	0.0				
Total Delay		5.1			3.7		20.3	13.5				
LOS		Α			Α		С	В				
Approach Delay		5.1			3.7			15.9				
Approach LOS		Α			Α			В				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 10												
Offset: 38 (38%), Reference	ed to phase	1:EBWB,	Start of	Green								
Natural Cycle: 75												
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.81												
Intersection Signal Delay:					tersection							
Intersection Capacity Utiliz	ation 35.7%			IC	CU Level of	of Service	e A					
Analysis Period (min) 15												
Splits and Phases: 3044	: Union & Un	iversity										
#304#304#304#3044	22 & 311		#	304#304	≱ 304 ≱ 30)44		#3	04#304	304≇304	4	
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		41∱			∱ }		ሻ	↑ ↑				
Volume (vph)	6	526	0	0	424	30	208	237	116	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	1.00	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00
Frt					0.990			0.951				
Flt Protected		0.999					0.950					
Satd. Flow (prot)	0	3536	0	0	3539	0	1787	3399	0	0	0	0
Flt Permitted		0.946					0.950					
Satd. Flow (perm)	0	3348	0	0	3539	0	1787	3399	0	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					10			99				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		298			584			576			361	
Travel Time (s)		6.8			13.3			13.1			8.2	
Peak Hour Factor	0.78	0.78	0.78	0.78	0.78	0.78	0.86	0.86	0.86	0.90	0.90	0.90
Growth Factor	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	2%	2%	2%
Adj. Flow (vph)	9	762	0	0	614	43	273	311	152	0	0	0
Shared Lane Traffic (%)	,	702		· ·	011	10	270	011	102	J	· ·	J
Lane Group Flow (vph)	0	771	0	0	657	0	273	463	0	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	Loit	0	rtigitt	Lore	0	rtigitt	Lort	12	rtigiti	Lort	12	rtigitt
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		10			10			10			10	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	1.00	9	15	1.00	9	15	1.00	9	15	1.00	9
Number of Detectors	13	1	,	10	1	,	1	1	,	13		,
Detector Template	'	'			'			'				
Leading Detector (ft)	50	50			50		50	50				
Trailing Detector (ft)	0	0			0		0	0				
Detector 1 Position(ft)	0	0			0		0	0				
Detector 1 Size(ft)	50	50			50		50	50				
Detector 1 Type		CI+Ex			CI+Ex		CI+Ex					
Detector 1 Channel	OIILX	CITEX			CITEX		OITEX	CITEX				
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0				
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0				
Turn Type	custom	NA			NA		Split	NA				
Protected Phases	Custom	23			23		3piit	1				
Permitted Phases	2	2 3			23		'	ı				
Detector Phase	2	23			23		1	1				
Switch Phase		23			2 3		, I	ı				
Minimum Initial (s)	6.0						7.0	7.0				
							30.0	30.0				
Minimum Split (s)	15.0											
Total Split (s)	29.0						46.0	46.0				
Total Split (%)	29.0%						46.0%	46.0%				
Maximum Green (s)	23.0						40.0	40.0				

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Yellow Time (s)	3.5						3.5	3.5				
All-Red Time (s)	2.5						2.5	2.5				
Lost Time Adjust (s)							0.0	0.0				
Total Lost Time (s)							6.0	6.0				
Lead/Lag	Lag						Lead	Lead				
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0						3.0	3.0				
Recall Mode	None						C-Max	C-Max				
Walk Time (s)							7.0	7.0				
Flash Dont Walk (s)							16.0	16.0				
Pedestrian Calls (#/hr)							0	0				
Act Effct Green (s)		48.0			48.0		40.0	40.0				
Actuated g/C Ratio		0.48			0.48		0.40	0.40				
v/c Ratio		0.48			0.39		0.38	0.33				
Control Delay		9.1			11.1		28.5	21.4				
Queue Delay		1.9			0.1		0.0	0.0				
Total Delay		11.0			11.2		28.5	21.4				
LOS		В			В		С	С				
Approach Delay		11.0			11.2			24.1				
Approach LOS		В			В			С				
Intersection Summary												
Area Type:	Other											
Cycle Length: 100												
Actuated Cycle Length: 10												
Offset: 51 (51%), Reference	ced to phase	1:EBWB,	Start of	Green								
Natural Cycle: 80												
Control Type: Actuated-Co	ordinated											
Maximum v/c Ratio: 0.95												
Intersection Signal Delay:					tersection							
Intersection Capacity Utiliz	ration 44.2%			IC	U Level	of Service	e A					
Analysis Period (min) 15												
Splits and Phases: 3044	1: Union & Ur	niversity										
#304#304#304#3044				#3	304#304	±304 3 ±30	44		#304#30	0423043	3044	
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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	↑ ↑	7		^	7	Ť	4î.		7	4TÞ	
Volume (vph)	9	292	148	1	680	445	239	369	3	425	341	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	0		0	0		0	250		250
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	0.95	0.95	1.00	0.91	0.91	0.95	0.91	0.91	0.95
Frt		0.992	0.850			0.850		0.999			0.997	
Flt Protected	0.950						0.950	0.995		0.950	0.984	
Satd. Flow (prot)	1597	3036	1301	0	3312	1482	1579	3305	0	1507	3112	0
Flt Permitted	0.175				0.955		0.950	0.995		0.950	0.984	
Satd. Flow (perm)	294	3036	1301	0	3163	1482	1579	3305	0	1507	3112	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6	130			43		1			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		297			291			316			393	
Travel Time (s)		6.8			6.6			7.2			8.9	
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.81	0.81	0.81	0.92	0.92	0.92
Growth Factor	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%
Heavy Vehicles (%)	13%	13%	13%	9%	9%	9%	4%	4%	4%	9%	9%	9%
Adj. Flow (vph)	12	379	192	1	854	559	333	515	4	522	419	12
Shared Lane Traffic (%)			11%				17%			40%		
Lane Group Flow (vph)	12	400	171	0	855	559	276	576	0	313	640	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1	1	1	1	1	1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50	50	50	50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0	0	0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50	50	50	50	50	50		50	50	
Detector 1 Type	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+ov	Split	NA		Split	NA	
Protected Phases		1	3		1	2	3	3		2	2	
Permitted Phases	1		1	1		1						
Detector Phase	1	1	3	1	1	2	3	3		2	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	6.0	7.0	7.0	6.0	6.0	6.0		6.0	6.0	
Minimum Split (s)	30.0	30.0	15.0	30.0	30.0	15.0	15.0	15.0		15.0	15.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	40.0	40.0	28.0	40.0	40.0	32.0	28.0	28.0		32.0	32.0	
Total Split (%)	40.0%	40.0%	28.0%	40.0%	40.0%	32.0%	28.0%	28.0%		32.0%	32.0%	
Maximum Green (s)	34.0	34.0	21.5	34.0	34.0	26.0	21.5	21.5		26.0	26.0	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5	3.0	2.5	2.5	2.5	3.0	3.0		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.5		6.0	6.0	6.5	6.5		6.0	6.0	
Lead/Lag	Lead	Lead		Lead	Lead	Lag				Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	None	C-Max	C-Max	None	None	None		None	None	
Walk Time (s)	7.0	7.0		7.0	7.0							
Flash Dont Walk (s)	16.0	16.0		16.0	16.0							
Pedestrian Calls (#/hr)	0	0		0	0							
Act Effct Green (s)	34.0	34.0	61.5		34.0	66.0	21.5	21.5		26.0	26.0	
Actuated g/C Ratio	0.34	0.34	0.62		0.34	0.66	0.22	0.22		0.26	0.26	
v/c Ratio	0.12	0.39	0.20		0.80	0.56	0.81	0.81		0.80	0.79	
Control Delay	25.8	23.5	6.3		11.7	5.8	52.1	42.1		51.6	42.6	
Queue Delay	0.0	0.4	0.4		0.3	5.7	8.0	1.1		0.0	0.0	
Total Delay	25.8	23.8	6.7		12.0	11.5	52.9	43.2		51.6	42.6	
LOS	С	С	Α		В	В	D	D		D	D	
Approach Delay		18.9			11.8			46.3			45.5	
Approach LOS		В			В			D			D	

Intersection Summary

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

Offset: 38 (38%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 29.1 Intersection LOS: C
Intersection Capacity Utilization 70.4% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3042: University/IL WB & Main



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	↑ ↑	7		^	7	ሻ	413-		*	€Î}	
Volume (vph)	18	530	215	0	525	430	230	418	1	398	316	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	0		0	0		0	250		250
Storage Lanes	1		1	0		1	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	1.00	0.91	0.91	0.95	0.91	0.91	0.95
Frt		0.994	0.850			0.850					0.998	
Flt Protected	0.950						0.950	0.997		0.950	0.983	
Satd. Flow (prot)	1736	3305	1413	0	3438	1538	1610	3380	0	1595	3294	0
Flt Permitted	0.330	0000		J	0.00		0.950	0.997	J	0.950	0.983	J
Satd. Flow (perm)	603	3305	1413	0	3438	1538	1610	3380	0	1595	3294	0
Right Turn on Red	000	0000	Yes	· ·	0100	Yes	1010	0000	Yes	1070	0271	Yes
Satd. Flow (RTOR)		5	97			38			100		1	100
Link Speed (mph)		30	,,		30	00		30			30	
Link Distance (ft)		298			291			298			403	
Travel Time (s)		6.8			6.6			6.8			9.2	
Peak Hour Factor	0.83	0.83	0.83	0.93	0.93	0.93	0.84	0.84	0.84	0.85	0.85	0.85
Growth Factor	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	2%	2%	2%	3%	3%	3%
Adj. Flow (vph)	25	722	293	0	638	522	309	562	1	529	420	7
Shared Lane Traffic (%)	20	122	10%	U	000	522	10%	302	'	41%	720	,
Lane Group Flow (vph)	25	751	264	0	638	522	278	594	0	312	644	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)	Lort	12	rtigrit	LCIT	12	rtigitt	LOIL	12	rtigitt	LOIT	12	rtigrit
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane		10			10			10			10	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	1.00	1.00	9	1.00	1.00	9	1.00	1.00	9	1.00	1.00	9
Number of Detectors	13	1	1	13	1	1	1	1	,	13	1	7
Detector Template	I .		I		ı	I .		1		I	1	
Leading Detector (ft)	50	50	50		50	50	50	50		50	50	
Trailing Detector (ft)	0	0	0		0	0	0	0		0	0	
Detector 1 Position(ft)	0	0	0		0	0	0	0		0	0	
Detector 1 Size(ft)	50	50	50		50	50	50	50		50	50	
Detector 1 Type	CI+Ex	CI+Ex	Cl+Ex		CI+Ex	CI+Ex	CI+Ex	CI+Ex		Cl+Ex	CI+Ex	
Detector 1 Type Detector 1 Channel	CITLX	CITLX	CITLX		CITLX	CITLX	CITLX	CITLX		CITLX	CITLX	
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA			NA			NA		Split	NA	
Protected Phases	reiiii	1	vo+mq		1	pm+ov	Split			3piit	2	
Permitted Phases	1	ı	3 1		I	2	3	3		Z	Z	
	1 1	1	3		1	1 2	2	3		2	2	
Detector Phase	I		3			Z	3	3		Z	Z	
Switch Phase	7.0	7.0	4.0		7.0	4.0	4.0	4.0		4.0	4.0	
Minimum Initial (s)	7.0	7.0	6.0		7.0	6.0	6.0	6.0		6.0	6.0	
Minimum Split (s)	30.0	30.0	15.0		30.0	15.0	15.0	15.0		15.0	15.0	

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	46.0	46.0	25.0		46.0	29.0	25.0	25.0		29.0	29.0	
Total Split (%)	46.0%	46.0%	25.0%		46.0%	29.0%	25.0%	25.0%		29.0%	29.0%	
Maximum Green (s)	40.0	40.0	18.5		40.0	23.0	18.5	18.5		23.0	23.0	
Yellow Time (s)	3.5	3.5	3.5		3.5	3.5	3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5	3.0		2.5	2.5	3.0	3.0		2.5	2.5	
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.5		6.0	6.0	6.5	6.5		6.0	6.0	
Lead/Lag	Lead	Lead			Lead	Lag				Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	C-Max	C-Max	None		C-Max	None	None	None		None	None	
Walk Time (s)	7.0	7.0			7.0							
Flash Dont Walk (s)	16.0	16.0			16.0							
Pedestrian Calls (#/hr)	0	0			0							
Act Effct Green (s)	40.0	40.0	64.5		40.0	69.0	18.5	18.5		23.0	23.0	
Actuated g/C Ratio	0.40	0.40	0.64		0.40	0.69	0.18	0.18		0.23	0.23	
v/c Ratio	0.10	0.57	0.28		0.46	0.49	0.94	0.95		0.85	0.85	
Control Delay	14.0	15.2	4.9		8.4	1.2	72.2	59.4		59.7	48.9	
Queue Delay	0.0	0.4	0.5		0.8	2.1	2.0	6.8		0.0	0.0	
Total Delay	14.0	15.7	5.3		9.2	3.3	74.3	66.2		59.7	48.9	
LOS	В	В	Α		Α	Α	Е	Е		Е	D	
Approach Delay		13.0			6.5			68.8			52.4	
Approach LOS		В			Α			E			D	

Intersection Summary

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

Offset: 51 (51%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 80

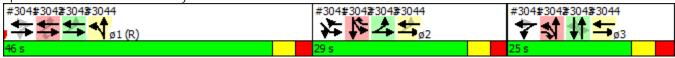
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.95

Intersection Signal Delay: 32.6 Intersection LOS: C
Intersection Capacity Utilization 65.1% ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 3042: University/IL WB & Main



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	*	ተተተ			ተተ _ጮ		ሻ	↑ ↑			4	
Volume (vph)	52	671	0	0	1034	24	4	88	105	29	0	88
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt					0.997			0.918			0.898	
Flt Protected	0.950						0.950				0.988	
Satd. Flow (prot)	1641	4715	0	0	4879	0	1597	2933	0	0	1492	0
Flt Permitted	0.118						0.625				0.855	
Satd. Flow (perm)	204	4715	0	0	4879	0	1051	2933	0	0	1291	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4			130			113	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		291			715			361			297	
Travel Time (s)		6.6			16.3			8.2			6.8	
Peak Hour Factor	0.82	0.82	0.82	0.92	0.92	0.95	0.91	0.91	0.91	0.88	0.88	0.88
Growth Factor	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%
Heavy Vehicles (%)	10%	10%	10%	6%	6%	6%	13%	13%	13%	13%	13%	13%
Adj. Flow (vph)	72	925	0	0	1270	29	5	109	130	37	0	113
Shared Lane Traffic (%)												
Lane Group Flow (vph)	72	925	0	0	1299	0	5	239	0	0	150	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12	Ü		12	Ü		12	Ü		12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50			50		50	50		50	50	
Trailing Detector (ft)	0	0			0		0	0		0	0	
Detector 1 Position(ft)	0	0			0		0	0		0	0	
Detector 1 Size(ft)	50	50			50		50	50		50	50	
Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Turn Type	pm+pt	NA			NA		Perm	NA		Perm	NA	
Protected Phases	2	12			1			3			3	
Permitted Phases	12						3			3		
Detector Phase	2	12			1		3	3		3	3	
Switch Phase												
Minimum Initial (s)	6.0				7.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	15.0				30.0		15.0	15.0		15.0	15.0	
	. 5.0				55.0							

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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	32.0				40.0		28.0	28.0		28.0	28.0	
Total Split (%)	32.0%				40.0%		28.0%	28.0%		28.0%	28.0%	
Maximum Green (s)	26.0				34.0		21.5	21.5		21.5	21.5	
Yellow Time (s)	3.5				3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5				2.5		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0				0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0				6.0		6.5	6.5			6.5	
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0				3.0		3.0	3.0		3.0	3.0	
Recall Mode	None				C-Max		None	None		None	None	
Walk Time (s)					7.0							
Flash Dont Walk (s)					16.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	60.0	66.0			34.0		21.5	21.5			21.5	
Actuated g/C Ratio	0.60	0.66			0.34		0.22	0.22			0.22	
v/c Ratio	0.15	0.30			0.78		0.02	0.33			0.41	
Control Delay	5.9	3.2			28.9		43.6	31.0			14.3	
Queue Delay	0.0	0.2			0.0		0.0	0.0			0.0	
Total Delay	5.9	3.5			28.9		43.6	31.0			14.3	
LOS	А	Α			С		D	С			В	
Approach Delay		3.6			28.9			31.2			14.3	
Approach LOS		Α			С			С			В	

Intersection Summary

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

Offset: 38 (38%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 75

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 19.0 Intersection LOS: B
Intersection Capacity Utilization 63.5% ICU Level of Service B

Analysis Period (min) 15

Splits and Phases: 3043: Union & Main



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ተተተ			ተተ _ጮ		ሻ	↑ ↑			4	
Volume (vph)	52	881	0	0	902	62	5	100	195	28	0	48
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	125		0	0		0	0		0	0		0
Storage Lanes	1		0	0		0	1		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	1.00	1.00	*0.60	0.91	1.00	0.95	0.95	1.00	1.00	1.00
Frt					0.990			0.901			0.915	
Flt Protected	0.950						0.950				0.982	
Satd. Flow (prot)	1752	5036	0	0	3256	0	1770	3189	0	0	1642	0
Flt Permitted	0.100						0.697				0.640	
Satd. Flow (perm)	184	5036	0	0	3256	0	1298	3189	0	0	1070	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					8			125			98	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		291			715			361			297	
Travel Time (s)		6.6			16.3			8.2			6.8	
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.92	0.92	0.92	0.78	0.78	0.78
Growth Factor	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%	113%
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	4%	4%	4%
Adj. Flow (vph)	67	1131	0	0	1158	80	6	123	240	41	0	70
Shared Lane Traffic (%)	· ·							0				
Lane Group Flow (vph)	67	1131	0	0	1238	0	6	363	0	0	111	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	1	1			1		1	1		1	1	
Detector Template												
Leading Detector (ft)	50	50			50		50	50		50	50	
Trailing Detector (ft)	0	0			0		0	0		0	0	
Detector 1 Position(ft)	0	0			0		0	0		0	0	
Detector 1 Size(ft)	50	50			50		50	50		50	50	
Detector 1 Type	CI+Ex	CI+Ex			CI+Ex		CI+Ex	CI+Ex		CI+Ex	CI+Ex	
Detector 1 Channel	51. ZX	01.72.1			01. LA		51. ZX	51. ZX		01. 27.	01.21	
Detector 1 Extend (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0			0.0		0.0	0.0		0.0	0.0	
Turn Type	pm+pt	NA			NA		Perm	NA		Perm	NA	
Protected Phases	2	1.2			1		T CITII	3		1 Cilli	3	
Permitted Phases	12	1 2			•		3	3		3	3	
Detector Phase	2	12			1		3	3		3	3	
Switch Phase		1 2			·		- 3	J		J	- 3	
Minimum Initial (s)	6.0				7.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	15.0				30.0		15.0	15.0		15.0	15.0	
wii iii iidii 3piit (3)	13.0				JU.U		15.0	15.0		13.0	10.0	

	•	-	•	•	•	•	1	Ť	-	-	¥	4
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Split (s)	29.0				46.0		25.0	25.0		25.0	25.0	
Total Split (%)	29.0%				46.0%		25.0%	25.0%		25.0%	25.0%	
Maximum Green (s)	23.0				40.0		18.5	18.5		18.5	18.5	
Yellow Time (s)	3.5				3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5				2.5		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0				0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0				6.0		6.5	6.5			6.5	
Lead/Lag	Lag				Lead							
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0				3.0		3.0	3.0		3.0	3.0	
Recall Mode	None				C-Max		None	None		None	None	
Walk Time (s)					7.0							
Flash Dont Walk (s)					16.0							
Pedestrian Calls (#/hr)					0							
Act Effct Green (s)	63.0	69.0			40.0		18.5	18.5			18.5	
Actuated g/C Ratio	0.63	0.69			0.40		0.18	0.18			0.18	
v/c Ratio	0.14	0.33			0.95		0.03	0.53			0.40	
Control Delay	5.1	2.5			36.4		50.5	39.7			14.2	
Queue Delay	0.0	0.2			0.0		0.0	0.0			0.0	
Total Delay	5.1	2.7			36.4		50.5	39.7			14.2	
LOS	Α	Α			D		D	D			В	
Approach Delay		2.8			36.4			39.9			14.2	_
Approach LOS		А			D			D			В	
Intercaction Cummery												

Intersection Summary

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

Offset: 51 (51%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 80

Control Type: Actuated-Coordinated

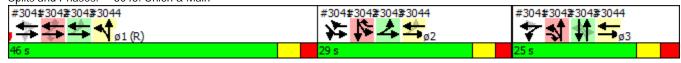
Maximum v/c Ratio: 0.95

Intersection Signal Delay: 22.2 Intersection LOS: C
Intersection Capacity Utilization 62.4% ICU Level of Service B

Analysis Period (min) 15

* User Entered Value

Splits and Phases: 3043: Union & Main



Appendix G – Traffic Analysis Contents

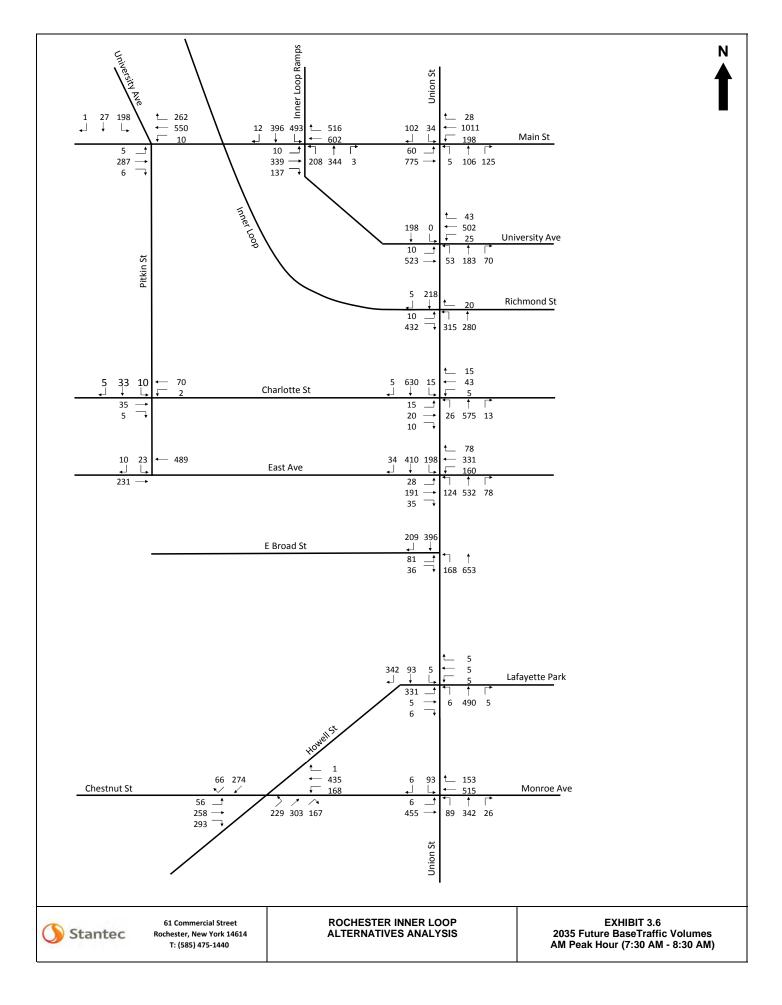
2035 Preferred Alternative

- Preferred Alternative Traffic Volumes
- Preferred Alternative Level Of Service Summary
- Preferred Alternative Capacity Analysis Printouts
- Synchro Files (available upon request)

		<u></u>	Red	ommende	ed Operat	ions	
		Al	/I Peak Ho	our	PI	/I Peak Ho	our
				Level			Leve
	LANE	V/C		of	V/C		of
Intersection	GROUP	Ratio	Delay	Service	Ratio	Delay	Servi
	EB-L	0.73	50.3	D	0.70	71.5	Е
	EB-TR	0.60	19.2	В	0.53	25.1	C
	WB-TR	0.67	45.8	D	0.95	62.1	E
Howell Street &	NB-L	0.51	23.8	С	0.97	74.4	E
hestnut Street/Monroe Avenue	NB-TR	0.63	24.7	C	0.41	18.6	В
Signalized	SB-L	0.03	35.2	D	0.41	24.6	C
Olghanzed .	SB-T	0.59	39.6	D	0.92	54.5	D
	SB-R	0.39	0.3	A	0.85	6.6	A
	Intersection	-	28.1	C	0.00	33.9	C
				-	0.70		-
Howall Ctroot 9	EB-LTR	0.54	17.6	В	0.76	28.1	C
Howell Street &	WB-LTR	0.02	10.2	В	0.02	13.8	В
Union Street	NB-LTR	0.79	21.5	C	0.50	17.6	В
Signalized	SB-LTR	0.66	6.3	A	0.93	22.7	C
	Intersection	-	15.2	В	-	22.6	C
	EB-L	0.31	28.2	С	0.35	33.7	С
	EB-T	0.75	40.5	D	0.50	36.3	D
Union Street &	WB-TR	0.06	6.2	Α	0.12	9.0	А
Monroe Avenue	NB-L	0.67	30.3	С	0.86	39.9	D
Signalized	NB-T	0.02	5.3	Α	0.02	15.5	В
	NB-R	0.43	6.7	Α	0.54	19.5	В
	SB-LTR	0.63	13.7	В	0.64	13.1	В
	Intersection	-	18.9	В	-	21.2	С
	EB-L	0.37	39.3	D	0.82	50.5	D
Union Street &	EB-R	0.21	36.3	D	0.58	38.4	D
E Broad Street	NB-L	0.59	35.7	D	0.39	38.0	D
Signalized	NB-T	0.49	4.7	Α	0.61	12.0	В
G	SB-TR	0.91	27.8	С	0.82	20.4	С
	Intersection	-	19.7	В	-	24.5	C
	EB-L	0.13	18.4	В	0.16	15.5	В
	EB-TR	0.56	34.8	С	0.99	65.2	E
	WB-L	0.51	25.2	C	0.50	23.6	C
Union Street &	WB-TR	0.84	46.1	D	0.72	32.4	C
East Avenue	NB-L	0.82	76.0	E	0.41	47.7	D
Signalized - 3 Lane Section	NB-TR	0.59	22.2	C	0.95	43.2	
orgranizod o zarro oddirom	SB-L	0.58	19.2	В	0.93	60.7	E
	SB-TR	0.89	55.6	E	0.97	69.4	
	Intersection	0.09	37.6	D	0.31	50.5	<u> </u>
East Avenue &		0.45		_	0.30		┢
Pitkin Street	EB-T	0.15	0.0	A	0.39	0.0	A
	WB-T	0.32	0.0	A	0.29	0.0	A
Unsignalized	SB-LR Intersection	0.11	16.6 0.7	C	0.10	17.3 0.5	C
		0.45		A	- 0.01		A
	EB-LTR	0.15	17.6	С	0.24	20.9	C
Observation Officer	WB-LTR	0.20	17.0	C	0.32	20.8	C
Charlotte Street	NB-LTR	0.20	0.6	A	0.28	0.8	A
	SB-LTR	0.02	0.4	A	0.03	0.7	A
	Intersection		1.6	A	-	2.4	A
Charlotte Street &	EB-TR	0.03	0.0	A	0.04	0.0	A
Pitkin Street	WB-LT	0.00	0.2	Α	0.00	0.2	А
Unsignalized	SB-LTR	0.07	10.0	Α	0.07	10.4	В
	Intersection	-	3.1	Α	-	2.4	А
	EB-LR	0.66	18.6	С	0.74	23.3	С
Union Street &	WB-R	0.03	10.2	В	0.04	11.7	В
Inner Loop/Richmond Street	NB-L	0.28	9.0	А	0.35	9.0	А
Unsignalized	NB-T	0.18	0.0	А	0.32	0.0	А
	SB-TR	0.15	0.0	Α	0.08	0.0	А
	Intersection	-	8.8	Α	-	9.9	А
Union Street &	EB-LTR	0.30	3.2	Α	0.30	3.2	А

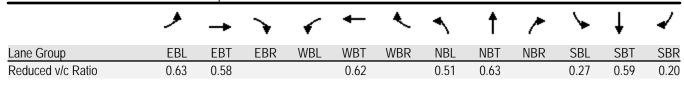
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Signalized	NB-LTR	0.72	41.9	D	0.72	22.3	С
	SB-LTR	0.64	51.4	D	0.25	45.9	D
	Intersection	-	18.2	В	-	13.4	В
	EB-L	0.13	2.3	Α	0.01	1.0	Α
	EB-TR	0.57	33.8	С	0.71	29.4	С
Union Street &	WB-L	0.38	14.3	В	0.20	12.3	В
Main Street	WB-TR	0.76	33.0	С	0.72	31.3	С
Signalized	NB-LT	0.31	47.3	D	0.32	48.3	D
	NB-R	0.31	26.3	С	0.46	19.7	В
	SB-LTR	0.37	14.2	В	0.25	9.0	Α
	Intersection	-	30.3	С	-	28.8	С
	EB-L	0.17	29.3	С	0.31	27.5	С
	EB-TR	0.39	24.5	С	0.62	21.5	С
	EB-R	0.27	8.4	Α	0.35	4.9	Α
University Avenue/Inner Loop &	WB-TR	0.92	8.3	Α	0.70	3.8	Α
Main Street	NB-L	0.58	36.4	D	0.49	45.7	D
Signalized	NB-LTR	0.56	32.1	О	0.48	42.5	D
	SB-L	0.73	41.4	D	0.70	40.6	D
	SB-LTR	0.72	35.9	D	0.70	36.0	D
	Intersection	-	23.5	С	-	22.6	С
	EB-L	0.09	26.8	С	0.27	36.3	D
	EB-TR	0.30	24.7	С	0.56	28.7	С
University Avenue/Pitkin Street &	WB-L	0.02	6.8	Α	0.03	6.6	Α
Main Street	WB-T	0.32	6.6	Α	0.25	5.5	Α
Signalized	WB-R	0.31	1.8	Α	0.24	1.5	Α
	SB-L	0.21	26.1	С	0.26	27.3	С
	SB-TR	0.06	23.2	С	0.06	22.6	С
	Intersection	-	12.9	В	-	17.4	В

v/c ratio = volume/capacity ratio Source: Synchro 8/SimTraffic



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	ĥ			∱ }		ሻ	f)		ሻ	†	7
Volume (vph)	229	303	167	0	274	66	168	435	1	56	258	293
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	0		250	250		0	100		0
Storage Lanes	1		0	0		1	1		0	1		1
Taper Length (ft)	75			75			75			75		
Right Turn on Red			Yes			No			Yes			Yes
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		973			457			741			768	
Travel Time (s)		22.1			10.4			16.8			17.5	
Confl. Peds. (#/hr)	30		30	30		30	22		10	10		22
Confl. Bikes (#/hr)						20						
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)												
Lane Group Flow (vph)	241	495	0	0	357	0	177	459	0	59	272	308
Turn Type	Prot	NA			NA		pm+pt	NA		Perm	NA	Free
Protected Phases	7	4			8		5	2			6	
Permitted Phases							2			6		Free
Detector Phase	7	4			8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	10.0			10.0		7.0	10.0		10.0	10.0	
Minimum Split (s)	13.5	22.5			22.5		13.5	23.5		23.5	23.5	
Total Split (s)	28.0	57.0			23.0		14.0	43.0		29.0	29.0	
Total Split (%)	28.0%	57.0%			23.0%		14.0%	43.0%		29.0%	29.0%	
Yellow Time (s)	3.5	3.5			3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	3.0	3.0			3.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	-1.5	-1.5			-1.5		-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)	5.0	5.0			5.0		5.0	5.0		5.0	5.0	
Lead/Lag	Lead						Lead			Lag	Lag	
Lead-Lag Optimize?	Yes						Yes			Yes	Yes	
Recall Mode	None	Min			Min		None	C-Max		C-Max	C-Max	
Act Effct Green (s)	19.9	50.6			16.6		39.4	39.4		24.8	24.8	100.0
Actuated g/C Ratio	0.20	0.51			0.17		0.39	0.39		0.25	0.25	1.00
v/c Ratio	0.73	0.60			0.67		0.51	0.63		0.27	0.59	0.20
Control Delay	50.3	19.2			45.8		23.8	24.7		35.2	39.6	0.3
Queue Delay	0.0	0.0			0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	50.3	19.2			45.8		23.8	24.7		35.2	39.6	0.3
LOS	D	В			D		С	С		D	D	Α
Approach Delay		29.4			45.8			24.4			20.2	
Approach LOS		С			D			С			С	
Queue Length 50th (ft)	143	190			112		51	134		31	155	0
Queue Length 95th (ft)	222	292			160		112	255		69	241	0
Internal Link Dist (ft)		893			377			661			688	
Turn Bay Length (ft)	200						250			100		
Base Capacity (vph)	384	851			574		347	733		215	462	1554
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
= Co.ago Cap (Coacon)	<u> </u>						<u> </u>					

Rochester Inner Loop 2035 AM Peak Hour Protected Left Stantec



Intersection Summary

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

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

Natural Cycle: 80

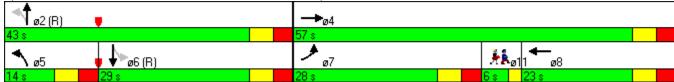
Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.73

Intersection Signal Delay: 28.1 Intersection LOS: C
Intersection Capacity Utilization 72.8% ICU Level of Service C

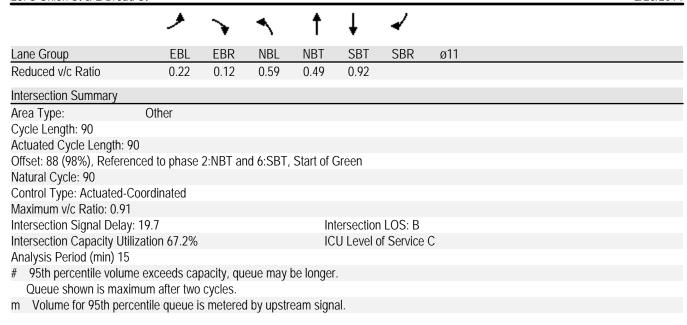
Analysis Period (min) 15

Splits and Phases: 2: Monroe Ave/Chestnut Street & Inner Loop/Howell St



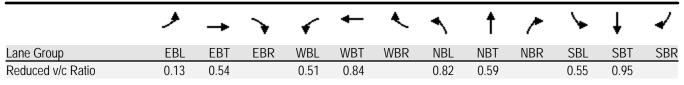
	ᄼ	•	•	†	ţ	4		
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø11	
Lane Configurations	ች	7	ሻ	†	1			
Volume (vph)	81	36	168	653	396	209		
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900		
Storage Length (ft)	0	0	100	1700	1700	0		
Storage Lanes	1	1	1			0		
Taper Length (ft)	25		75					
Right Turn on Red	20	No	, 0			No		
Link Speed (mph)	30	110		30	30	110		
Link Distance (ft)	134			240	437			
Travel Time (s)	3.0			5.5	9.9			
Confl. Peds. (#/hr)	0.0	34	30	0.0	,.,	30		
Confl. Bikes (#/hr)		01	30			20		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90		
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%		
Shared Lane Traffic (%)	770	770	770	770	470	770		
Lane Group Flow (vph)	90	40	187	726	672	0		
Turn Type	NA	Perm	Prot	NA	NA	U		
Protected Phases	4	1 CIIII	5	2	6		11	
Permitted Phases	7	4	3	2	U		11	
Detector Phase	4	4	5	2	6			
Switch Phase	7	7	3	2	U			
Minimum Initial (s)	10.0	10.0	8.0	20.0	20.0		4.0	
Minimum Split (s)	24.5	24.5	13.5	25.5	25.5		6.0	
Total Split (s)	25.0	25.0	15.0	64.0	44.0		6.0	
Total Split (%)	27.8%	27.8%	16.7%	71.1%	48.9%		7%	
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		2.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0	
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5		0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0			
Lead/Lag	т.0	٦.٥	Lead	٦.0	٦.٥		Lag	
Lead-Lag Optimize?			Yes				Yes	
Recall Mode	None	None	None	C-Max	C-Max		Max	
Act Effct Green (s)	12.6	12.6	16.5	73.3	40.0		Ινιαλ	
Actuated g/C Ratio	0.14	0.14	0.18	0.81	0.44			
v/c Ratio	0.14	0.14	0.10	0.49	0.44			
Control Delay	39.3	36.3	35.7	4.7	27.4			
Queue Delay	0.0	0.0	0.0	0.0	0.4			
Total Delay	39.3	36.3	35.7	4.7	27.8			
LOS	37.3 D	30.3 D	33.7 D	Α.7	27.0 C			
Approach Delay	38.4	D	D	11.0	27.8			
Approach LOS	30.4 D			11.0 B	27.0 C			
Queue Length 50th (ft)	48	21	70	70	136			
Queue Length 95th (ft)	90	49	m153	272	m#478			
Internal Link Dist (ft)	54	47	111133	160	357			
Turn Bay Length (ft)	54		100	100	33 <i>1</i>			
Base Capacity (vph)	405	326	318	1488	739			
Starvation Cap Reductn			318		739 5			
	0	0		0	0			
Spillback Cap Reductn	0	0	0	0				
Storage Cap Reductn	0	0	0	0	0			

Rochester Inner Loop 2035 AM Peak Hour Protected Left Stantec



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	f)		ሻ	f)		ሻ	↑ ↑		ች	f)	
Volume (vph)	28	191	35	160	331	78	124	532	78	198	410	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	.,,,,	0	175	.,,,,	0	100	.,,,,	0	250		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	75		, and the second	75		J	75		· ·	75		J
Right Turn on Red	, 0		No	, 0		Yes	, 0		Yes	, 0		No
Link Speed (mph)		30	110		30	103		30	103		30	110
Link Distance (ft)		148			496			437			655	
Travel Time (s)		3.4			11.3			9.9			14.9	
Confl. Peds. (#/hr)	59	5.⊣	15	15	11.0	59	23	7.7	29	29	17.7	23
Confl. Bikes (#/hr)	37		13	13		37	20		۷,	2,		20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Shared Lane Traffic (%)	470	470	470	470	4 70	4 70	370	J 70	370	4 70	470	4 70
Lane Group Flow (vph)	31	251	0	178	455	0	138	678	0	220	494	0
Turn Type	pm+pt	NA	U	pm+pt	NA	U	Prot	NA	U	pm+pt	NA	U
Protected Phases	7	4		3	8		5	2		ριτι - -ρι	6	
Permitted Phases	4	4		8	U		J	2		6	U	
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase	,	4		J	U		J	2			U	
Minimum Initial (s)	6.0	20.0		6.0	20.0		6.0	20.0		6.0	20.0	
Minimum Split (s)	12.0	28.0		12.0	28.0		11.5	25.5		11.5	25.5	
Total Split (s)	12.0	28.0		12.0	28.0		12.0	33.0		17.0	32.0	
Total Split (%)	13.3%	31.1%		13.3%	31.1%		13.3%	36.7%		18.9%	35.6%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)	4.5	4.5		4.5	4.5		4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	4.0		4.0	4.0	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes					
Recall Mode	None	Min		None	Min		None	C-Max		None	C-Max	
Act Effct Green (s)	30.2	22.7		32.0	27.5		8.8	30.8		40.0	28.0	
Actuated g/C Ratio	0.34	0.25		0.36	0.31		0.10	0.34		0.44	0.31	
v/c Ratio	0.13	0.56		0.51	0.84		0.82	0.59		0.58	0.89	
Control Delay	18.4	34.8		25.2	46.1		76.0	22.2		19.2	49.8	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	5.8	
Total Delay	18.4	34.8		25.2	46.1		76.0	22.2		19.2	55.6	
LOS	В	C		C	D		70.0 E	C		В	55.6 E	
Approach Delay		33.0		0	40.2			31.3		D	44.4	
Approach LOS		C			D			C C			D	
Queue Length 50th (ft)	11	123		67	250		69	166		66	265	
Queue Length 95th (ft)	28	199		115	#448		#187	247		110	#448	
Internal Link Dist (ft)	20	68		110	416		" 107	357		110	575	
Turn Bay Length (ft)				175			100	007		250	0.0	
Base Capacity (vph)	241	462		348	542		168	1151		397	556	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	36	
Storage Cap Reductn	0	0		0	0		0	0		0	0	

Rochester Inner Loop 2035 AM Peak Hour Protected Left Stantec



Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90 Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green, Master Intersection

Natural Cycle: 85

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 37.6 Intersection LOS: D
Intersection Capacity Utilization 72.8% ICU Level of Service C

Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

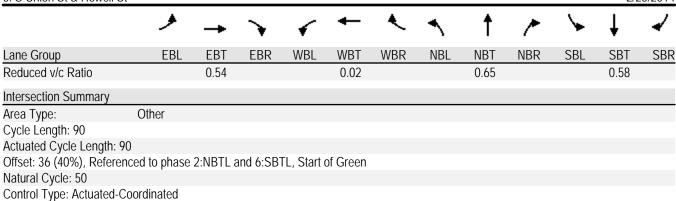
Splits and Phases: 30: S Union St & East Ave



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4			4	
Volume (vph)	331	5	6	5	5	5	6	490	5	5	93	342
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	1700	0	0	1700	0	0	1700	0	150	1700	0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		U	25		U	25		U	75		U
Right Turn on Red	25		Yes	23		Yes	23		Yes	73		Yes
Link Speed (mph)		30	163		25	163		30	163		30	163
Link Distance (ft)		339			304			503			434	
Travel Time (s)		7.7			8.3			11.4			9.9	
Confl. Peds. (#/hr)	10	1.1	22	22	0.3	10	30	11.4	12	12	7.7	30
Confl. Bikes (#/hr)	10		22	22		20	30		12	12		30
, ,	0.05	0.95	0.05	0.05	0.95	0.95	0.05	0.05	0.95	0.05	0.95	0.05
Peak Hour Factor	0.95 8%		0.95 8%	0.95			0.95	0.95 5%	5%	0.95		0.95
Heavy Vehicles (%)	8%	8%	8%	0%	0%	0%	5%	5%	5%	3%	3%	8%
Shared Lane Traffic (%)	0	250	0	0	15	0	0	F07	0	0	4/0	0
Lane Group Flow (vph)	0	359	0	0	15	0	0	527	0	0	463	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4		•	8			2		,	6	
Permitted Phases	4			8			2	_		6	6	
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	19.5	19.5		19.5	19.5		22.5	22.5		22.5	22.5	
Total Split (s)	45.0	45.0		45.0	45.0		45.0	45.0		45.0	45.0	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		C-Min	C-Min		C-Min	C-Min	
Act Effct Green (s)		48.6			48.6			33.4			33.4	
Actuated g/C Ratio		0.54			0.54			0.37			0.37	
v/c Ratio		0.54			0.02			0.79			0.66	
Control Delay		17.6			10.2			21.5			6.3	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		17.6			10.2			21.5			6.3	
LOS		В			В			С			Α	
Approach Delay		17.6			10.2			21.5			6.3	
Approach LOS		В			В			С			А	
Queue Length 50th (ft)		183			3			111			52	
Queue Length 95th (ft)		m260			14			145			m55	
Internal Link Dist (ft)		259			224			423			354	
Turn Bay Length (ft)		207			227			723			334	
Base Capacity (vph)		663			877			819			805	
Starvation Cap Reductn		003			0			2			000	
Spillback Cap Reductn		0			0			0			0	
		0										
Storage Cap Reductn		U			0			0			0	

Rochester Inner Loop 2035 AM Peak Hour Final 3 Lanes Stantec

3: S Union St & Howell St 2/25/2014



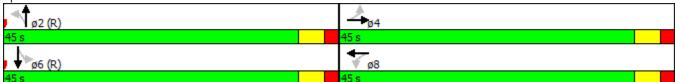
Maximum v/c Ratio: 0.79

Intersection Signal Delay: 15.2 Intersection LOS: B Intersection Capacity Utilization 63.7% ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: S Union St & Howell St



	*	†	7	₩	+	لِر	•	*	4	4	K	t
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	ሻ		7		4		ሻ	†			1	
Volume (vph)	89	342	26	93	0	6	6	455	0	0	515	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	12	13	12	12	12	12	10	12	12	12	12
Storage Length (ft)	80	12	0	0	12	0	100	10	100	0	12	100
Storage Lanes	1		1	0		0	1		0	0		0
Taper Length (ft)	75		ı	25		U	75		U	25		U
Right Turn on Red	7.5		Yes	25		Yes	7.5		Yes	20		Yes
Link Speed (mph)		30	103		30	103		30	103		30	103
Link Distance (ft)		805			503			741			446	
Travel Time (s)		18.3			11.4			16.8			10.1	
Confl. Peds. (#/hr)	30	10.5	12	12	11.4	30	32	10.0	10	10	10.1	32
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	5%	5%	5%	3%	3%	3%	2%	2%	2%	4%	4%	4%
Shared Lane Traffic (%)	370	370	370	3 /0	3 /0	3 /0	Z /0	2 /0	Z /0	4 /0	4 /0	4 /0
` ,	94	360	27	0	104	0	6	479	0	0	703	0
Lane Group Flow (vph)		NA			NA	U	Perm	NA	U	U	NA	U
Turn Type Protected Phases	Perm	NA 8	Perm	Perm	1NA 4		Pellii	2				
Protected Phases Permitted Phases	0	ð	0	4	4		2	2			6	
	8	0	8	4	4		2	2			,	
Detector Phase	8	8	8	4	4		2	2			6	
Switch Phase	7.0	7.0	7.0	7.0	7.0		0.0	0.0			0.0	
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		9.0	9.0			9.0	
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0		24.0	24.0			24.0	
Total Split (s)	33.0	33.0	33.0	33.0	33.0		57.0	57.0			57.0	
	36.7%	36.7%	36.7%	36.7%	36.7%		63.3%	63.3%			63.3%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	
Lost Time Adjust (s)	-1.5	-1.5	-1.5		-1.5		-1.5	-1.5			-1.5	
Total Lost Time (s)	4.5	4.5	4.5		4.5		4.5	4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min	Min	Min	Min		C-Max	C-Max			C-Max	
Act Effct Green (s)	23.8	23.8	23.8		23.8		57.2	57.2			57.2	
Actuated g/C Ratio	0.26	0.26	0.26		0.26		0.64	0.64			0.64	
v/c Ratio	0.31	0.75	0.06		0.67		0.02	0.43			0.63	
Control Delay	28.2	40.5	6.2		30.3		5.3	6.7			13.7	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay	28.2	40.5	6.2		30.3		5.3	6.7			13.7	
LOS	С	D	Α		С		Α	Α			В	
Approach Delay		36.1			30.3			6.7			13.7	
Approach LOS		D			С			Α			В	
Queue Length 50th (ft)	42	186	0		10		0	70			215	
Queue Length 95th (ft)	80	267	15		m#45		m2	137			378	
Internal Link Dist (ft)		725			423			661			366	
Turn Bay Length (ft)	80						100					
Base Capacity (vph)	358	573	501		179		334	1105			1110	
Starvation Cap Reductn	0	0	0		0		0	0			0	
Spillback Cap Reductn	0	0	0		0		0	0			0	
Storage Cap Reductn	0	0	0		0		0	0			0	

Rochester Inner Loop 2035 AM Peak Hour Final 3 Lanes Stantec

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Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Reduced v/c Ratio	0.26	0.63	0.05		0.58		0.02	0.43			0.63	
Intersection Summary												

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

Offset: 75 (83%), Referenced to phase 2:NETL and 6:SWT, Start of Green

Natural Cycle: 60

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.75

Intersection Signal Delay: 18.9 Intersection LOS: B Intersection Capacity Utilization 76.4% ICU Level of Service D

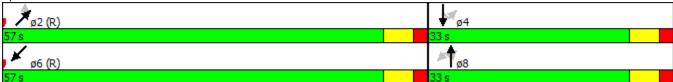
Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

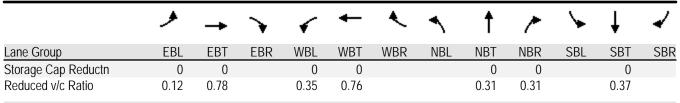
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 5: Monroe Ave & S Union St



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ች	^ ^		ሻ	ተተኈ			4	7		4	
Volume (vph)	60	775	0	198	1011	28	5	106	125	34	0	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	13	10	10	10	12	12	12	12	12	12
Storage Length (ft)	100	10	0	100	10	0	0	12	0	0	12	0
Storage Lanes	100		0	100		0	0		1	0		0
Taper Length (ft)	40		U	75		U	25		'	25		U
Right Turn on Red	т0		Yes	7.5		Yes	25		Yes	25		Yes
Link Speed (mph)		30	103		30	103		30	103		30	103
Link Distance (ft)		279			1119			376			743	
Travel Time (s)		6.3			25.4			8.5			16.9	
Confl. Peds. (#/hr)	11	0.5	14	14	23.4	11	14	0.5	11	11	10.7	14
Confl. Bikes (#/hr)	11		14	14		11	14		11	11		20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)	1070	1070	1070	1070	1070	1070	270	270	270	2 /0	270	270
Lane Group Flow (vph)	67	861	0	220	1154	0	0	124	139	0	151	0
Turn Type	pm+pt	NA	U	pm+pt	NA	U	Perm	NA	Perm	Perm	NA	U
Protected Phases	ριτι - ρι 2	1		ριτι - ρι	1		I CIIII	3	I CIIII	I CIIII	3	
Permitted Phases	1	1		1			3	J	3	3	J	
Detector Phase	2	1		2	1		3	3	3	3	3	
Switch Phase	2	1		2			J	J	J	J	J	
Minimum Initial (s)	6.0	7.0		6.0	7.0		6.0	6.0	6.0	6.0	6.0	
Minimum Split (s)	15.0	31.0		15.0	31.0		15.0	15.0	15.0	15.0	15.0	
Total Split (s)	37.0	39.0		37.0	39.0		24.0	24.0	24.0	24.0	24.0	
Total Split (%)	37.0%	39.0%		37.0%	39.0%		24.0%	24.0%	24.0%	24.0%	24.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5	3.5	3.5	3.5	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.5	2.5	2.5	2.5	2.5	
Lost Time Adjust (s)	-1.5	-1.5		-1.5	-1.5		2.0	-1.5	-1.5	2.0	-1.5	
Total Lost Time (s)	4.5	4.5		4.5	4.5			4.5	4.5		4.5	
Lead/Lag	Lag	Lead		Lag	Lead			1.0	1.0		1.0	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Recall Mode	None	C-Max		None	C-Max		Max	Max	Max	Max	Max	
Act Effct Green (s)	64.5	34.5		64.5	34.5		man	22.0	22.0	man	22.0	
Actuated g/C Ratio	0.64	0.34		0.64	0.34			0.22	0.22		0.22	
v/c Ratio	0.13	0.57		0.38	0.76			0.31	0.31		0.37	
Control Delay	2.3	32.5		14.3	33.0			47.3	26.3		14.2	
Queue Delay	0.0	1.3		0.0	0.0			0.0	0.0		0.0	
Total Delay	2.3	33.8		14.3	33.0			47.3	26.3		14.2	
LOS	Α	С		В	С			D	С		В	
Approach Delay		31.5			30.0			36.2			14.2	
Approach LOS		С			С			D			В	
Queue Length 50th (ft)	2	134		40	236			81	43		20	
Queue Length 95th (ft)	m6	184		65	291			142	93		77	
Internal Link Dist (ft)		199			1039			296			663	
Turn Bay Length (ft)	100			100								
Base Capacity (vph)	568	1518		624	1513			403	446		403	
Starvation Cap Reductn	0	421		0	0			0	0		0	
Spillback Cap Reductn	0	0		0	0			0	0		0	

Rochester Inner Loop 2035 AM Peak Hour Final 3 Lanes Stantec



Intersection Summary

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

Offset: 44 (44%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

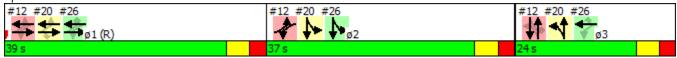
Maximum v/c Ratio: 0.81

Intersection Signal Delay: 30.3 Intersection LOS: C
Intersection Capacity Utilization 57.3% ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

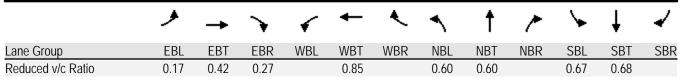
Splits and Phases: 12: S Union St & Main St



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Lana Crawa	EDI	- FDT	T DD	▼	WDT	WDD	ND.	NDT	, NDD	CDI	CDT	CDD
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		† }	107	0	^	F4 /	7	4P	0	100	4 }	4.0
Volume (vph)	10	339	137	0	602	516	208	344	3	493	396	12
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	11	12	12	10	10	10
Storage Length (ft)	95		0	0		0	0		0	225		225
Storage Lanes	1		1	0		0	1		0	1		1
Taper Length (ft)	35			25			25			40		
Right Turn on Red			Yes		0.0	Yes			Yes		40	Yes
Link Speed (mph)		30			30			30			40	
Link Distance (ft)		323			279			291			431	
Travel Time (s)		7.3			6.3			6.6			7.3	
Confl. Peds. (#/hr)	30		12	12		30			6	6		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	10%	10%	10%	10%	10%	10%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)			10%	_			14%			40%		
Lane Group Flow (vph)	11	392	137	0	1242	0	199	417	0	329	672	0
Turn Type	Perm	NA	Perm		NA		Split	NA		Split	NA	
Protected Phases		1			1		3	3		2	2	
Permitted Phases	1		1					-		_	_	
Detector Phase	1	1	1		1		3	3		2	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0		7.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	31.0	31.0	31.0		31.0		15.0	15.0		15.0	15.0	
Total Split (s)	39.0	39.0	39.0		39.0		24.0	24.0		37.0	37.0	
Total Split (%)	39.0%	39.0%	39.0%		39.0%		24.0%	24.0%		37.0%	37.0%	
Yellow Time (s)	3.5	3.5	3.5		3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5	2.5		2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-1.5	-1.5	-1.5		-1.5		-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)	4.5	4.5	4.5		4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lead	Lead		Lead					Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes		Yes					Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max		C-Max		Max	Max		None	None	
Act Effct Green (s)	34.5	34.5	34.5		34.5		22.0	22.0		30.0	30.0	
Actuated g/C Ratio	0.34	0.34	0.34		0.34		0.22	0.22		0.30	0.30	
v/c Ratio	0.17	0.39	0.27		0.92dr		0.58	0.56		0.73	0.72	
Control Delay	29.3	24.4	8.4		7.8		36.2	31.8		41.4	35.8	
Queue Delay	0.0	0.1	0.0		0.5		0.2	0.3		0.0	0.1	
Total Delay	29.3	24.5	8.4		8.3		36.4	32.1		41.4	35.9	
LOS	С	С	Α		Α		D	С		D	D	
Approach Delay		20.5			8.3			33.5			37.7	
Approach LOS		С			Α			С			D	
Queue Length 50th (ft)	4	67	0		17		131	137		197	200	
Queue Length 95th (ft)	m12	90	25		36		#216	191		307	267	
Internal Link Dist (ft)		243			199			211			351	
Turn Bay Length (ft)	95		=							225		
Base Capacity (vph)	64	1007	508		1535		342	742		488	1010	
Starvation Cap Reductn	0	0	0		68		9	52		0	0	
Spillback Cap Reductn	0	68	0		0		0	0		0	24	
Storage Cap Reductn	0	0	0		0		0	0		0	0	

Rochester Inner Loop 2035 AM Peak Hour Final 3 Lanes Stantec





Intersection Summary

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

Offset: 44 (44%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 23.5 Intersection LOS: C
Intersection Capacity Utilization 63.2% ICU Level of Service B

Analysis Period (min) 15

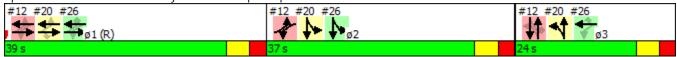
95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

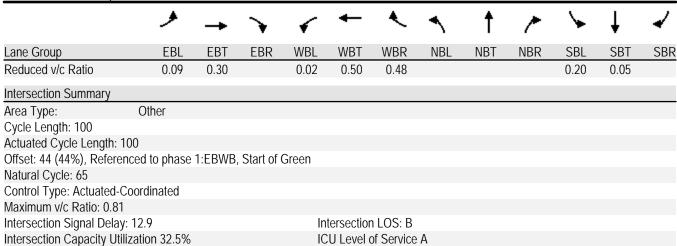
Splits and Phases: 20: University Ave/Inner Loop Ramps & Main St



		→	•	•	+	4	1	†	/	/	↓	✓
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑ \$		ሻ	^	7				ሻሻ	f	
Volume (vph)	5	287	6	10	550	262	0	0	0	198	27	1
	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	13	10	11	11	12	12	12	12	12	12
Storage Length (ft)	50		0	100		0	0	12	0	180	12	0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (ft)	25		U	35		•	25		U	75		O
Right Turn on Red	20		Yes	33		Yes	20		Yes	7.5		Yes
Link Speed (mph)		30	103		30	103		25	103		30	103
Link Distance (ft)		798			323			684			1114	
Travel Time (s)		18.1			7.3			18.7			25.3	
Confl. Peds. (#/hr)	13	10.1	11	11	7.5	13	5	10.7	12	12	20.0	5
	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
	10%	10%	10%	10%	10%	10%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)	1070	1070	1070	1070	1070	1070	2 /0	2 /0	2 /0	2 /0	2 /0	2 /0
Lane Group Flow (vph)	6	326	0	11	611	291	0	0	0	220	31	0
	Perm	NA	U	Perm	NA	Perm	U	U	U	Split	NA	U
Protected Phases	CIIII	1		r Cilli	13	r Cilli				3piit	2	
Permitted Phases	1	'		13	13	13				2	2	
Detector Phase	1	1		13	13	13				2	2	
Switch Phase	I	'		13	13	13				2	2	
Minimum Initial (s)	7.0	7.0								6.0	6.0	
	31.0	31.0								15.0	15.0	
	39.0	39.0								37.0	37.0	
	9.0%	39.0%								37.0%	37.0%	
Yellow Time (s)	3.5	37.070								37.070	37.076	
All-Red Time (s)	2.5	2.5								2.5	2.5	
Lost Time Adjust (s)	-1.5	-1.5								-1.5	-1.5	
Total Lost Time (s)	4.5	4.5								4.5	4.5	
` '	Lead	Lead								Lag	Lag	
Lead-Lag Optimize?	Yes	Yes								Yes	Yes	
	-Max	C-Max								None	None	
	34.5	34.5		61.0	61.0	61.0				30.0	30.0	
` '	0.34	0.34		0.61	0.61	0.61				0.30	0.30	
	0.09	0.30		0.02	0.32	0.31				0.21	0.06	
	26.8	24.7		6.8	6.2	1.3				26.1	23.2	
Queue Delay	0.0	0.0		0.0	0.3	0.5				0.0	0.0	
	26.8	24.7		6.8	6.6	1.8				26.1	23.2	
LOS	C	C		A	A	A				C	C	
Approach Delay		24.7		, ,	5.1	, ,				, ,	25.7	
Approach LOS		C			A						C	
Queue Length 50th (ft)	3	78		2	44	0				51	13	
Queue Length 95th (ft)	13	114		m2	m53	m6				80	34	
Internal Link Dist (ft)		718			243			604			1034	
Turn Bay Length (ft)	50			100	2.0			00.		180		
Base Capacity (vph)	64	1091		537	1934	938				1115	602	
Starvation Cap Reductn	0	0		0	722	328				0	0	
Spillback Cap Reductn	0	0		0	0	0				0	0	
Storage Cap Reductn	0	0		0	0	0				0	0	

Rochester Inner Loop 2035 AM Peak Hour Final 3 Lanes Stantec

Analysis Period (min) 15



m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: Pitkin St/University Ave & Main St

#12 #20 #26

#12 #20 #26

#12 #20 #26

#12 #20 #26

#13 #20 #26

#14 #20 #26

#15 #26

#15 #26

#16 #26

#17 #26

#18 #26 #26

#19 #26

	۶	→	•	•	←	•	1	†	/	/	+	-√
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		414			414			414			4	
Volume (vph)	10	523	0	25	502	43	53	183	70	0	198	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			0.95			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.97			1.00	
Flt Protected		1.00			1.00			0.99			1.00	
Satd. Flow (prot)		3536			3484			3369			1863	
Flt Permitted		0.94			0.91			0.70			1.00	
Satd. Flow (perm)		3333			3181			2385			1863	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	11	581	0	28	558	48	59	203	78	0	220	0
RTOR Reduction (vph)	0	0	0	0	5	0	0	32	0	0	0	0
Lane Group Flow (vph)	0	592	0	0	629	0	0	308	0	0	220	0
Confl. Peds. (#/hr)	6		8	8		6	1		6	6		1
Confl. Bikes (#/hr)												20
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		64.9			64.9			17.1			17.1	
Effective Green, g (s)		66.4			66.4			18.6			18.6	
Actuated g/C Ratio		0.66			0.66			0.19			0.19	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		2213			2112			443			346	
v/s Ratio Prot											0.12	
v/s Ratio Perm		0.18			c0.20			c0.13				
v/c Ratio		0.27			0.30			0.70			0.64	
Uniform Delay, d1		6.9			7.0			38.1			37.6	
Progression Factor		0.35			1.00			1.00			1.17	
Incremental Delay, d2		0.2			0.4			4.7			3.6	
Delay (s)		2.7			7.4			42.8			47.7	
Level of Service		Α			Α			D			D	
Approach Delay (s)		2.7			7.4			42.8			47.7	
Approach LOS		Α			Α			D			D	
Intersection Summary												
HCM 2000 Control Delay			17.5	Н	CM 2000	Level of	Service		В			
HCM 2000 Volume to Capac	city ratio		0.37									
Actuated Cycle Length (s)			100.0		um of lost				11.0			
Intersection Capacity Utilizat	tion		65.5%	IC	CU Level of	of Service			С			
Analysis Period (min)			15									
c Critical Lane Group												

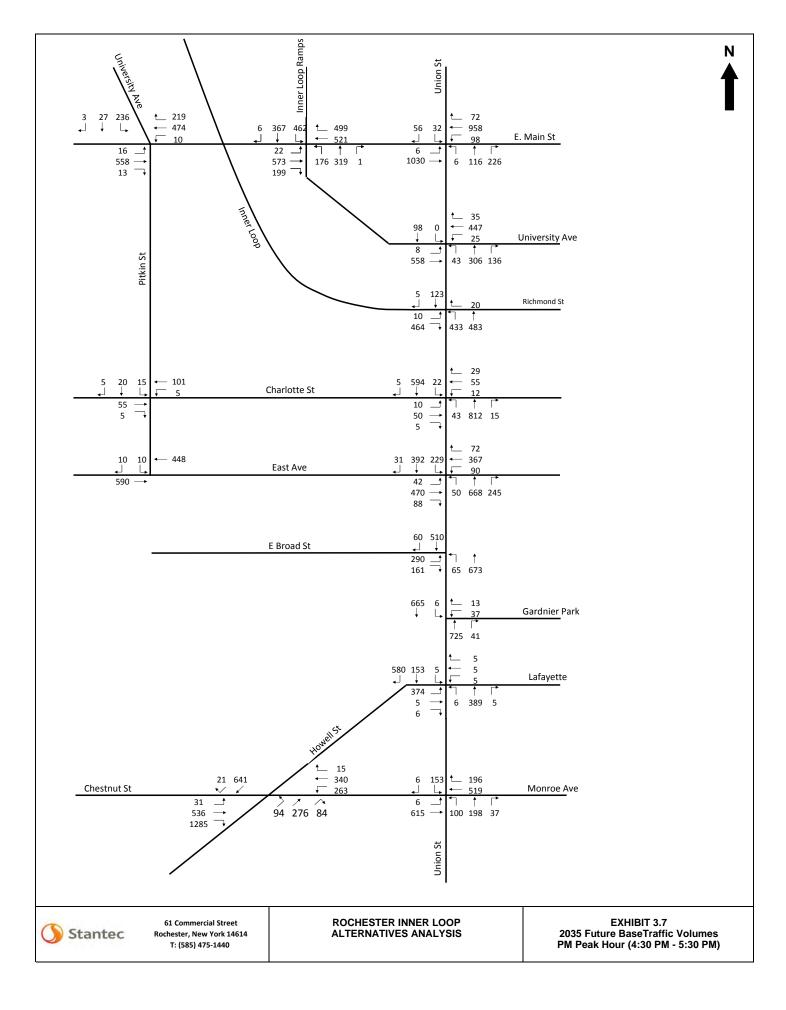
41. 3 Official St & Charlotte											J	1312017
	•	-	•	•	•	•	1	†	~	-	ţ	4
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			414			4	
Volume (veh/h)	15	20	10	5	43	15	26	575	13	15	630	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	17	22	11	6	48	17	29	639	14	17	700	6
Pedestrians		30			29			10			10	
Lane Width (ft)		12.0			10.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		3			2			1			1	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								655			637	
pX, platoon unblocked	0.94	0.94	0.90	0.94	0.94	0.89	0.90			0.89		
vC, conflicting volume	1194	1506	743	1501	1502	366	736			682		
vC1, stage 1 conf vol	766	766		733	733							
vC2, stage 2 conf vol	428	740		768	769							
vCu, unblocked vol	746	1080	657	1074	1075	26	649			383		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.2			4.2		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	95	93	97	98	85	98	96			98		
cM capacity (veh/h)	333	330	354	267	318	899	800			1005		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	50	70	348	334	722							
Volume Left	17	6	29	0	17							
Volume Right	11	17	0	14	6							
cSH	336	369	800	1700	1005							
Volume to Capacity	0.15	0.19	0.04	0.20	0.02							
Queue Length 95th (ft)	13	17	3	0	1							
Control Delay (s)	17.6	17.0	1.2	0.0	0.4							
Lane LOS	С	С	Α		Α							
Approach Delay (s)	17.6	17.0	0.6		0.4							
Approach LOS	С	С										
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utiliza	ation		60.9%	IC	CU Level	of Service			В			
Analysis Period (min)			15									
. ,												

11: East Ave & Pitkin St 3/5/2014

	•	—	+	4	<u> </u>	4	
Movement	EBL	EBT	WBT	WBR	SBL	SBR	
Lane Configurations	LDL	<u> </u>	<u>₩</u>	WDIX	₩.	ODIC	
Volume (veh/h)	0	231	489	0	23	10	
Sign Control	U	Free	Free	Ū	Stop	10	
Grade		0%	0%		0%		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	
Hourly flow rate (vph)	0	257	543	0	26	11	
Pedestrians	U	22	15	Ū	57		
Lane Width (ft)		12.0	12.0		12.0		
Walking Speed (ft/s)		4.0	4.0		4.0		
Percent Blockage		2	1.0		5		
Right turn flare (veh)			•		Ū		
Median type		None	None				
Median storage veh)		None	None				
Upstream signal (ft)			148				
oX, platoon unblocked	0.72		110		0.72	0.72	
C, conflicting volume	600				872	622	
/C1, stage 1 conf vol	000				072	UZZ	
/C2, stage 2 conf vol							
/Cu, unblocked vol	246				625	277	
C, single (s)	4.1				6.4	6.2	
C, 2 stage (s)					0	0.2	
F (s)	2.2				3.5	3.3	
o0 queue free %	100				92	98	
cM capacity (veh/h)	894				304	513	
Direction, Lane #	EB 1	WB 1	SB 1				
/olume Total	257	543	37				
Volume Left	0	0	26				
/olume Right	0	0	11				
cSH	1700	1700	347				
Volume to Capacity	0.15	0.32	0.11				
Queue Length 95th (ft)	0.13	0.52	9				
Control Delay (s)	0.0	0.0	16.6				
_ane LOS	0.0	0.0	C				
Approach Delay (s)	0.0	0.0	16.6				
Approach LOS	0.0	0.0	C				
ntersection Summary							
Average Delay			0.7				
ntersection Capacity Utiliza	ition		40.9%	IC	U Level o	of Service	Α
Analysis Period (min)			15				

	۶	→	•	•	←	•	1	†	<i>></i>	/	↓	✓
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4				7		+			f)	
Volume (veh/h)	10	0	432	0	0	20	315	280	0	0	218	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	0	480	0	0	22	350	311	0	0	242	6
Pedestrians		30			6						10	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		3			1						1	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								974			318	
pX, platoon unblocked	0.91	0.91	0.89	0.91	0.91	0.97	0.89			0.97		
vC, conflicting volume	1318	1292	275	1742	1295	327	278			317		
vC1, stage 1 conf vol	275	275		1017	1017							
vC2, stage 2 conf vol	1043	1017		725	278							
vCu, unblocked vol	1229	1200	127	1697	1203	293	130			283		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	94	100	40	100	100	97	72			100		
cM capacity (veh/h)	184	214	803	21	205	720	1250			1226		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	491	22	350	311	248							
Volume Left	11	0	350	0	0							
Volume Right	480	22	0	0	6							
cSH	746	720	1250	1700	1700							
Volume to Capacity	0.66	0.03	0.28	0.18	0.15							
Queue Length 95th (ft)	125	2	29	0	0							
Control Delay (s)	18.6	10.2	9.0	0.0	0.0							
Lane LOS	С	В	A									
Approach Delay (s)	18.6	10.2	4.8		0.0							
Approach LOS	С	В										
Intersection Summary												
Average Delay			8.8									
Intersection Capacity Utilizati	ion		74.2%	IC	CU Level	of Service			D			
Analysis Period (min)			15	-								
,			-									

Lane Configurations		۶	→	•	•	—	•	•	†	<i>></i>	/	Ţ	✓
Volume (veh/h) 0 35 5 2 70 0 0 0 0 10 33 5 5 2 70 0 0 0 0 0 10 33 5 5 5 2 70 0 0 0 0 0 0 10 33 5 5 5 5 2 70 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Sign Control Free													
Grade 0,0% 0,0% 0,0% 0,0% 0,0% 0,0% 0,0% 0,0		0		5	2		0	0		0	10		5
Peak Hour Factor 0.90													
Hourly flow rate (vph) 0 39 6 2 78 0 0 0 0 11 37 6 Pedestrians 10 10 10 10 10 Lane Width (ft) 12.0 12.0 0.0 12.0 Walking Speed (ft/s) 4.0 4.0 4.0 4.0 4.0 Percent Blockage 1 1 1 1 0 0 1 Right turn flare (veh) Median tyre None None Median storage veh) Upstream signal (ft) Px, platoon unblocked vC, conflicting volume 88 54 168 144 62 144 147 98 vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC2, stage (soft) KF (s) 2.2 2.2 3.5 4.0 3.3 3.5 4.0 3.3 p0 queue free % 100 100 100 100 100 99 95 99 cM capacity (veh/h) 1495 1551 754 744 1001 808 739 945 Direction, Lane # EB 1 WB 1 SB 1 Volume Total 44 80 53 Volume Left 0 2 11 Volume Right 6 0 6 CSH 1700 1551 770 Volume Length 95th (ft) 0 0 6 Control Delay (s) 0.0 0.2 10.0 Lane LOS A B B Approach Delay (s) 0.0 0.2 10.0 Approach LOS B Intersection Summary Average Delay Intersection Capacity Utilization I CU Level of Service A C C C C C C C C C C C C C C C C C C													
Pedestrians													
Lane Width (ft) 12.0 12.0 0.0 12.0		0		6	2		0	0		0	11		6
Walking Speed (fl/s)													
Percent Blockage	, ,												
Right turn flare (veh) Median type													
Median type None Median storage veh) Upstream signal (fi) pX, platoon unblocked vC, conflicting volume 88 54 168 144 62 144 147 98 vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC2, unblocked vol 8 54 168 144 62 144 147 98 CC, single (s) 4.1 4.1 7.1 6.5 6.2 7.1 6.5 6.2 IC, 2 stage (s) IF (s) 2.2 2.2 3.5 4.0 3.3 3.5 4.0 3.3 p0 queue free % 100 100 100 100 100 99 95 99 Mc apacity (veh/h) 1495 1551 754 744 1001 808 739 945 Direction, Lane # EB 1 WB 1 SB 1 Volume Total 44 80 53 Volume Left 0 2 11 Volume Right 6 0 6 cSH 170 1551 770 Volume to Capacity 0.03 0.00 0.07 Queue Length 95th (fi) 0 0 6 <td></td> <td></td> <td>1</td> <td></td> <td></td> <td>1</td> <td></td> <td></td> <td>0</td> <td></td> <td></td> <td>1</td> <td></td>			1			1			0			1	
Median storage veh) Upstream signal (ft) pX, platoon unblocked vC, conflicting volume 88 54 168 144 62 144 147 98 vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 88 54 168 144 62 144 147 98 tC, stage 2 conf vol vCu, unblocked vol 88 54 168 144 62 144 147 98 tC, stage 2 conf vol vCu, unblocked vol 88 54 168 144 62 144 147 98 tC, stage 2 conf vol vCu, unblocked vol 88 54 168 144 62 144 147 98 tC, stage 2 conf vol vCu, unblocked vol 8 54 168 144 62 144 147 98 tC, stage 2 conf vol vCu, unblocked vol 8 54 168 144 62 144 147 98 tC, stage 2 conf vol vCu, unblocked vol 151 75 74 0 33 3.5 4.0 3.3 3.5 4.0													
Upstream signal (ft) pX, platoon unblocked vC, conflicting volume 88 54 168 144 62 144 147 98 vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC2, stage 1 conf vol vC2, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC2, stage 1 conf vol vC2, stage 2 conf vol vC2, stage (s)			None			None							
pX, platoon unblocked vC, conflicting volume 88 54 168 144 62 144 147 98 vC1, stage 1 conf vol vC2, stage 2 conf vol vC3, stage 2 conf vol vC4, unblocked vol 88 54 168 144 62 144 147 98 tC, single (s) 4.1 7.1 6.5 6.2 7.1 6.5 6.2 tC, 2 stage (s) tF (s) 2.2 2.2 3.5 4.0 3.3 3.5 4.0 3.3 pO queue free % 100 100 100 100 100 99 95 99 cM capacity (veh/h) 1495 1551 754 744 1001 808 739 945 to the volume Total 44 80 53 to the volume Left 0 2 11 to the volume Right 6 0 6 conford 1551 770 to the volume Capacity 0.03 0.00 0.07 to the volume Capacity 0.03 0.00 0.07 to the volume Capacity 0.03 0.00 0.07 to the volume Capacity 0.03 0.00 0.00 0.00 to the volume Capacity 0.00 0.00 0.00 0.00 to the volume Capacity 0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.													
vC, conflicting volume 88 54 168 144 62 144 147 98 vC1, stage 1 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC2, stage 2 conf vol vC2, unblocked vol 88 54 168 144 62 144 147 98 tC, single (s) 4.1 4.1 7.1 6.5 6.2 7.1 6.5 6.2 tC, 2 stage (s) tF (s) 2.2 2 2.2 3.5 4.0 3.3 3.5 4.0 3.3 pO queue free % 100 100 100 100 100 100 99 95 99 cM capacity (veh/h) 1495 1551 754 744 1001 808 739 945 Direction, Lane # EB 1 WB 1 SB 1 Volume Total 44 80 53 Volume Left 0 2 11 Volume Right 6 0 6 cSH 1700 1551 770 Volume to Capacity 0.03 0.00 0.07 Queue Length 95th (ft) 0 0 6 COntrol Delay (s) 0.0 0.2 10.0 Lane LOS A B Approach Delay (s) 0.0 0.2 10.0 Approach Delay (s) 0.0 0.2 10.0 Approach LOS B Intersection Summary Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A													
vC1, stage 1 conf vol vC2, stage 2 conf vol vCu, unblocked vol 88 54 168 144 62 144 147 98 tC, single (s) 4.1 4.1 7.1 6.5 6.2 7.1 6.5 6.2 tC, 2 stage (s) tF (s) 2.2 2.2 3.5 4.0 3.3 3.5 4.0 3.3 p0 queue free % 100 100 100 100 100 99 95 99 cM capacity (veh/h) 1495 1551 754 744 1001 808 739 945 Direction, Lane # EB 1 WB 1 SB 1 Volume Total 44 80 53 Volume Left 0 2 11 Volume Right 6 0 6 cSH 1700 1551 770 Volume to Capacity 0.03 0.00 0.07 Queue Length 95th (fit) 0 0 6 Control Delay (s) 0.0 0.2 10.0 Lane LOS A B Approach Delay (s) 0.0 0.2 10.0 Approach LOS B Intersection Summary Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A													
vCQ, stage 2 conf vol vCu, unblocked vol 88 54 168 144 62 144 147 98 tC, single (s) 4.1 4.1 7.1 6.5 6.2 7.1 6.5 6.2 tC, 2 stage (s) tF (s) 2.2 2.3.5 4.0 3.3 3.5 4.0 3.3 p0 queue free % 100 100 100 100 100 99 95 99 cM capacity (veh/h) 1495 1551 754 744 1001 808 739 945 Direction, Lane # EB 1 WB 1 SB 1 Volume Total 44 80 53 Volume Left 0 2 11 Volume Right 6 0 6 cSH 1700 1551 770 Volume to Capacity 0.03 0.00 0.07 Queue Length 95th (fit) 0 0 6 Control Delay (s) 0.0 0.2 10.0 Lane LOS A B Approach Delay (s) 0.0 0.2 10.0 Approach LOS B Intersection Summary Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A		88			54			168	144	62	144	147	98
vCu, unblocked vol 88 54 168 144 62 144 147 98 tC, single (s) 4.1 4.1 7.1 6.5 6.2 7.1 6.5 6.2 tC, 2 stage (s) tE (s) 2.2 2.2 3.5 4.0 3.3 3.5 4.0 3.3 pO queue free % 100 100 100 100 100 99 95 99 cM capacity (veh/h) 1495 1551 754 744 1001 808 739 945 Direction, Lane # EB 1 WB 1 SB 1 Volume Total 44 80 53 Volume Left 0 2 11 Volume Right 6 0 6 cSH 1700 1551 770 Volume to Capacity 0.03 0.00 0.07 Queue Length 95th (ft) 0 0 6 Control Delay (s) 0.0 0.2 10.0 Lane LOS A B Approach Delay (s) 0.0 0.2 10.0 Approach LOS B Intersection Summary Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A													
tC, single (s) 4.1 4.1 7.1 6.5 6.2 7.1 6.5 6.2 tC, 2 stage (s) tF (s) 2.2 2.2 3.5 4.0 3.3 3.5 4.0 3.3 p0 queue free % 100 100 100 100 100 100 99 95 99 cM capacity (veh/h) 1495 1551 754 744 1001 808 739 945 Polymer Total 44 80 53 Volume Left 0 2 11 Volume Right 6 0 6 cSH 1700 1551 770 Volume to Capacity 0.03 0.00 0.07 Queue Length 95th (ft) 0 0 6 Control Delay (s) 0.0 0.2 10.0 Lane LOS A B Approach LOS B Intersection Summary Average Delay Intersection Capacity Utilization 24.7% ICU Level of Service A													
tC, 2 stage (s) tF (s)													
tF (s) 2.2 2.2 3.5 4.0 3.3 3.5 4.0 3.3 p0 queue free % 100 100 100 100 100 99 95 99 cM capacity (veh/h) 1495 1551 754 744 1001 808 739 945 Direction, Lane # EB 1 WB 1 SB 1 Volume Total 44 80 53 Volume Left 0 2 11 Volume Right 6 0 6 CSH 1700 1551 770 Volume to Capacity 0.03 0.00 0.07 Queue Length 95th (ft) 0 0 6 Control Delay (s) 0.0 0.2 10.0 Lane LOS A B Approach LOS B Intersection Summary Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A		4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
p0 queue free % 100 100 100 100 100 99 95 99 cM capacity (veh/h) 1495 1551 754 744 1001 808 739 945 Direction, Lane # EB 1 WB 1 SB 1													
CM capacity (veh/h) 1495 1551 754 744 1001 808 739 945 Direction, Lane # EB 1 WB 1 SB 1 Volume Total 44 80 53 Volume Left 0 2 11 Volume Right 6 0 6 cSH 1700 1551 770 Volume to Capacity 0.03 0.00 0.07 Queue Length 95th (ft) 0 0 6 Control Delay (s) 0.0 0.2 10.0 Lane LOS A B Approach LOS B Intersection Summary Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A													
Direction, Lane # EB 1 WB 1 SB 1 Volume Total 44 80 53 Volume Left 0 2 11 Volume Right 6 0 6 cSH 1700 1551 770 Volume to Capacity 0.03 0.00 0.07 Queue Length 95th (ft) 0 0 6 Control Delay (s) 0.0 0.2 10.0 Lane LOS A B Approach Delay (s) 0.0 0.2 10.0 Approach LOS B Intersection Summary Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A													
Volume Total 44 80 53 Volume Left 0 2 11 Volume Right 6 0 6 cSH 1700 1551 770 Volume to Capacity 0.03 0.00 0.07 Oueue Length 95th (ft) 0 0 6 Control Delay (s) 0.0 0.2 10.0 Lane LOS A B Approach Delay (s) 0.0 0.2 10.0 Approach LOS B Intersection Summary Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A	cM capacity (veh/h)	1495			1551			754	744	1001	808	739	945
Volume Left 0 2 11 Volume Right 6 0 6 cSH 1700 1551 770 Volume to Capacity 0.03 0.00 0.07 Queue Length 95th (ft) 0 0 6 Control Delay (s) 0.0 0.2 10.0 Lane LOS A B Approach Delay (s) 0.0 0.2 10.0 Approach LOS B Intersection Summary Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A	Direction, Lane #	EB 1	WB 1	SB 1									
Volume Right 6 0 6 cSH 1700 1551 770 Volume to Capacity 0.03 0.00 0.07 Queue Length 95th (ft) 0 0 6 Control Delay (s) 0.0 0.2 10.0 Lane LOS A B Approach Delay (s) 0.0 0.2 10.0 Approach LOS B Intersection Summary Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A	Volume Total	44	80	53									
cSH 1700 1551 770 Volume to Capacity 0.03 0.00 0.07 Queue Length 95th (ft) 0 0 6 Control Delay (s) 0.0 0.2 10.0 Lane LOS A B Approach Delay (s) 0.0 0.2 10.0 Approach LOS B Intersection Summary Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A	Volume Left	0	2	11									
Volume to Capacity 0.03 0.00 0.07 Queue Length 95th (ft) 0 0 6 Control Delay (s) 0.0 0.2 10.0 Lane LOS A B Approach Delay (s) 0.0 0.2 10.0 Approach LOS B Intersection Summary Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A	Volume Right	6	0	6									
Oueue Length 95th (ft) 0 0 6 Control Delay (s) 0.0 0.2 10.0 Lane LOS A B Approach Delay (s) 0.0 0.2 10.0 Approach LOS B Intersection Summary Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A	cSH	1700	1551	770									
Control Delay (s) 0.0 0.2 10.0 Lane LOS A B Approach Delay (s) 0.0 0.2 10.0 Approach LOS B Intersection Summary Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A	Volume to Capacity	0.03	0.00	0.07									
Lane LOS A B Approach Delay (s) 0.0 0.2 10.0 Approach LOS B Intersection Summary Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A	Queue Length 95th (ft)	0	0	6									
Approach Delay (s) 0.0 0.2 10.0 Approach LOS B Intersection Summary Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A	Control Delay (s)	0.0	0.2	10.0									
Approach LOS B Intersection Summary Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A	Lane LOS		Α	В									
Intersection Summary Average Delay Intersection Capacity Utilization 3.1 ICU Level of Service A	Approach Delay (s)	0.0	0.2	10.0									
Average Delay 3.1 Intersection Capacity Utilization 24.7% ICU Level of Service A	Approach LOS			В									
Intersection Capacity Utilization 24.7% ICU Level of Service A	Intersection Summary												
Intersection Capacity Utilization 24.7% ICU Level of Service A	Average Delay			3.1									
Analysis Doriod (min) 15	Intersection Capacity Utilizat	tion		24.7%	IC	CU Level	of Service			Α			
Analysis Feriou (Illin) 15	Analysis Period (min)			15									

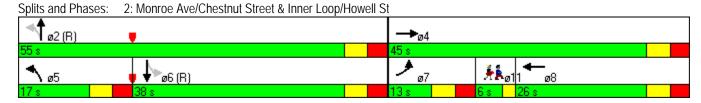


Lane Group EBL EBT EBR WBL WBT WBR NBL NBT NBR SBL SBT Lane Configurations 1 <t< th=""><th>SBR 7 1285</th></t<>	SBR 7 1285
Volume (vph) 94 276 84 0 641 21 263 340 15 31 536 Ideal Flow (vphpl) 1900 <t< th=""><th>1205</th></t<>	1205
Volume (vph) 94 276 84 0 641 21 263 340 15 31 536 Ideal Flow (vphpl) 1900 <t< td=""><td>1205</td></t<>	1205
Ideal Flow (vphpl) 1900 <td>1200</td>	1200
Storage Length (ft) 200 0 0 175 250 0 100 Storage Lanes 1 0 0 1 1 0 1 Taper Length (ft) 75 75 75 75 75 Right Turn on Red Yes No Yes Link Speed (mph) 30 30 30 Link Distance (ft) 973 457 741 768 Travel Time (s) 22.1 10.4 16.8 17.5	1900
Storage Lanes 1 0 0 1 1 0 1 Taper Length (ft) 75 75 75 75 Right Turn on Red Yes No Yes Link Speed (mph) 30 30 30 Link Distance (ft) 973 457 741 768 Travel Time (s) 22.1 10.4 16.8 17.5	0
Taper Length (ft) 75 75 75 75 Right Turn on Red Yes No Yes Link Speed (mph) 30 30 30 Link Distance (ft) 973 457 741 768 Travel Time (s) 22.1 10.4 16.8 17.5	1
Link Speed (mph) 30 30 30 Link Distance (ft) 973 457 741 768 Travel Time (s) 22.1 10.4 16.8 17.5	
Link Speed (mph) 30 30 30 Link Distance (ft) 973 457 741 768 Travel Time (s) 22.1 10.4 16.8 17.5	Yes
Link Distance (ft) 973 457 741 768 Travel Time (s) 22.1 10.4 16.8 17.5	
Travel Time (s) 22.1 10.4 16.8 17.5	
30 300. (",) 00 00 00 11 11 TI	
Confl. Bikes (#/hr) 20	
Peak Hour Factor 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95	0.95
Shared Lane Traffic (%)	
Lane Group Flow (vph) 99 379 0 0 697 0 277 374 0 33 564	1353
Turn Type Prot NA NA pm+pt NA Perm NA	Free
Protected Phases 7 4 8 5 2 6	
Permitted Phases 2 6	Free
Detector Phase 7 4 8 5 2 6 6	
Switch Phase	
Minimum Initial (s) 4.0 10.0 10.0 7.0 10.0 10.0 10.0	
Minimum Split (s) 10.5 22.5 22.5 13.5 23.5 23.5	
Total Split (s) 13.0 45.0 26.0 17.0 55.0 38.0 38.0	
Total Split (%) 13.0% 45.0% 26.0% 17.0% 55.0% 38.0% 38.0%	
Yellow Time (s) 3.5 3.5 3.5 3.5 3.5 3.5	
All-Red Time (s) 3.0 3.0 3.0 3.0 3.0 3.0	
Lost Time Adjust (s) -1.5 -1.5 -1.5 -1.5 -1.5	
Total Lost Time (s) 5.0 5.0 5.0 5.0 5.0 5.0	
Lead/Lag Lead Lag Lag	
Lead-Lag Optimize? Yes Yes Yes Yes	
Recall Mode None Min Min None C-Max C-Max C-Max	
Act Effct Green (s) 8.0 40.0 21.0 50.0 50.0 33.0 33.0	100.0
Actuated g/C Ratio 0.08 0.40 0.21 0.50 0.50 0.33 0.33	1.00
v/c Ratio 0.70 0.53 0.95 0.97 0.41 0.11 0.92	0.85
Control Delay 71.5 25.1 62.1 74.4 18.6 24.6 54.5	6.6
Queue Delay 0.0 0.0 0.0 0.0 0.0 0.0 0.0	0.0
Total Delay 71.5 25.1 62.1 74.4 18.6 24.6 54.5	6.6
LOS E C E E B C D	Α
Approach Delay 34.7 62.1 42.3 20.7	
Approach LOS C E D C	
Queue Length 50th (ft) 63 172 232 153 126 15 343	0
Queue Length 95th (ft) #142 262 #346 #297 257 38 #548	0
Internal Link Dist (ft) 893 377 661 688	
Turn Bay Length (ft) 200 250 100	
Base Capacity (vph) 141 711 737 286 922 307 614	1583
Starvation Cap Reductn 0 0 0 0 0 0 0	0
Spillback Cap Reductn 0 0 0 0 0 0	0
Storage Cap Reductn 0 0 0 0 0 0	0
Reduced v/c Ratio 0.70 0.53 0.95 0.97 0.41 0.11 0.92	0.85

Rochester Inner Loop 2035 PM Peak Hour Protected Left Stantec

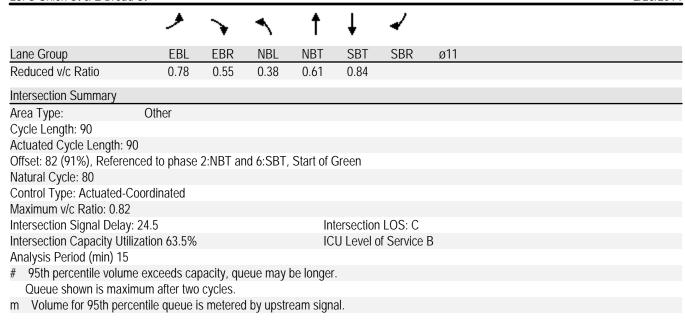
Intersection Summary Area Type: Other Cycle Length: 100 Actuated Cycle Length: 100 Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection Natural Cycle: 90 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.97 Intersection Signal Delay: 33.9 Intersection LOS: C Intersection Capacity Utilization 83.1% ICU Level of Service E Analysis Period (min) 15 # 95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

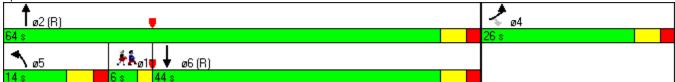


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Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	ø11		
Lane Configurations	ሻ	7	ሻ	1	f)				
Volume (vph)	290	161	65	673	510	60			
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900			
Storage Length (ft)	0	0	100			0			
Storage Lanes	1	1	1			0			
Taper Length (ft)	25		75						
Right Turn on Red		No				No			
Link Speed (mph)	30			30	30				
Link Distance (ft)	134			240	437				
Travel Time (s)	3.0			5.5	9.9				
Confl. Peds. (#/hr)		43	30			30			
Confl. Bikes (#/hr)						20			
Peak Hour Factor	0.86	0.86	0.86	0.86	0.86	0.86			
Heavy Vehicles (%)	2%	2%	1%	1%	2%	2%			
Shared Lane Traffic (%)									
Lane Group Flow (vph)	337	187	76	783	663	0			
Turn Type	NA	Perm	Prot	NA	NA				
Protected Phases	4		5	2	6		11		
Permitted Phases		4							
Detector Phase	4	4	5	2	6				
Switch Phase									
Minimum Initial (s)	10.0	10.0	8.0	20.0	20.0		3.0		
Minimum Split (s)	24.5	24.5	13.5	25.5	25.5		6.0		
Total Split (s)	26.0	26.0	14.0	64.0	44.0		6.0		
Total Split (%)	28.9%	28.9%	15.6%	71.1%	48.9%		7%		
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5		2.0		
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		0.0		
Lost Time Adjust (s)	-1.5	-1.5	-1.5	-1.5	-1.5				
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0				
Lead/Lag			Lead				Lag		
Lead-Lag Optimize?			Yes				Yes		
Recall Mode	None	None	None	C-Max	C-Max		Max		
Act Effct Green (s)	20.8	20.8	9.8	61.2	40.0				
Actuated g/C Ratio	0.23	0.23	0.11	0.68	0.44				
v/c Ratio	0.82	0.58	0.39	0.61	0.82				
Control Delay	50.5	38.4	38.0	12.0	20.0				
Queue Delay	0.0	0.0	0.0	0.0	0.4				
Total Delay	50.5	38.4	38.0	12.0	20.4				
LOS	D	D	D	В	С				
Approach Delay	46.2			14.3	20.4				
Approach LOS	D			В	С				
Queue Length 50th (ft)	179	93	43	232	149				
Queue Length 95th (ft)	#284	153	m69	340	m167				
Internal Link Dist (ft)	54			160	357				
Turn Bay Length (ft)			100						
Base Capacity (vph)	432	340	198	1278	805				
Starvation Cap Reductn	0	0	0	0	16				
Spillback Cap Reductn	0	0	0	0	0				
Storage Cap Reductn	0	0	0	0	0				

Rochester Inner Loop 2035 PM Peak Hour Protected Left Stantec

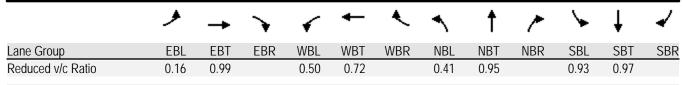


Splits and Phases: 23: S Union St & E Broad St



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	₽		ሻ	f _a		ች	↑ ↑		ች	f.	
Volume (vph)	42	470	88	90	367	72	50	668	245	229	392	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	1700	0	175	1700	0	100	1700	0	250	1700	0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	75			75		, and the second	75			75		J
Right Turn on Red	70		No	, 0		Yes	, 0		Yes	, 0		No
Link Speed (mph)		30	110		30	100		30	100		30	110
Link Distance (ft)		148			496			437			655	
Travel Time (s)		3.4			11.3			9.9			14.9	
Confl. Peds. (#/hr)	27	5.4	50	50	11.5	27	62	7.7	27	27	17.7	62
Confl. Bikes (#/hr)	21		30	30		21	02		21	21		20
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)	2 /0	270	270	370	370	370	270	270	270	270	270	270
Lane Group Flow (vph)	47	620	0	100	488	0	56	1014	0	254	470	0
Turn Type	pm+pt	NA	U		NA	U	Prot	NA	U		NA	U
Protected Phases	ριτι - ρι 7	4		pm+pt 3	8		5	2		pm+pt 1	6	
Permitted Phases	4	4		8	0		5	2		6	U	
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase	1	4		3	0		5	Z		1	Ü	
Minimum Initial (s)	5.0	20.0		5.0	20.0		5.0	20.0		5.0	20.0	
` ,	11.0	28.0		11.0	28.0		10.5	25.5		10.5	25.5	
Minimum Split (s)	11.0	34.0		11.0	34.0		11.0	32.0		13.0	28.0	
Total Split (s)	12.2%	37.8%		12.2%	37.8%		12.2%	35.6%		14.4%	31.1%	
Total Split (%) Yellow Time (s)	3.5	37.8%		3.5	37.8%		3.5	35.6%		3.5	31.1%	
All-Red Time (s)	2.5	2.5		2.5	2.5		2.0	2.0		2.0	2.0	
` '	-1.5	-1.5		-1.5	-1.5		-1.5	-1.5		-1.5	-1.5	
Lost Time Adjust (s)	4.5	4.5		4.5	4.5			4.0			4.0	
Total Lost Time (s)							4.0	4.0		4.0	4.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead					
Lead-Lag Optimize? Recall Mode	Yes	Yes		Yes	Yes		Yes	C-Max		Mono	C-Max	
Act Effct Green (s)	None 36.9	Min 31.7		None 37.8	Min 33.9		None 7.0	28.0		None 33.0	24.0	
Actuated g/C Ratio	0.41	0.35		0.42	0.38		0.08	0.31		0.37	0.27	
	0.41	0.33		0.42	0.36		0.06	0.95		0.57	0.27	
v/c Ratio Control Delay	15.5	65.2		23.6	32.4		47.7	42.8		60.7	69.4	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.4		0.0	0.0	
Total Delay	15.5	65.2		23.6	32.4		47.7	43.2		60.7	69.4	
LOS	15.5 B	03.2 E		23.0 C	32.4 C		47.7 D	43.2 D		60.7 E	09.4 E	
Approach Delay	D	61.7		C	30.9		D	43.4		Е	66.3	
Approach LOS		61.7 E			30.9 C			43.4 D			00.3 E	
Queue Length 50th (ft)	15	~392		32	248		30	190		89	264	
Queue Length 95th (ft)	34	~392 #596		62	#414		m48	#319		#231	#459	
Internal Link Dist (ft)	34	#370 68		02	416		11140	357		#231	575	
Turn Bay Length (ft)		00		175	410		100	337		250	373	
	289	628		201	679		137	1071		273	483	
Base Capacity (vph)					0/9							
Starvation Cap Reductn Spillback Cap Reductn	0	0		0	0		0	5 0		0	0	
Storage Cap Reductin				0	0		0			0	0	
Sidiage Cap Reductif	0	0		U	U		U	0		U	U	

Rochester Inner Loop 2035 PM Peak Hour Protected Left Stantec



Intersection Summary

Area Type: Other

Cycle Length: 90

Actuated Cycle Length: 90

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

Natural Cycle: 95

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.99

Intersection Signal Delay: 50.5 Intersection LOS: D
Intersection Capacity Utilization 89.5% ICU Level of Service E

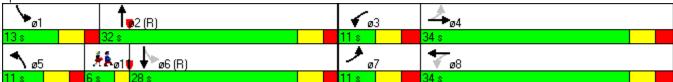
Analysis Period (min) 15

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

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

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 30: S Union St & East Ave



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			4		-	4	
Volume (vph)	374	5	6	5	5	5	6	389	5	5	153	580
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	1700	0	0	1700	0	0	1700	0	150	1700	0
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25		U	25		U	25		U	75		U
Right Turn on Red	23		Yes	20		Yes	20		Yes	75		Yes
Link Speed (mph)		30	163		25	163		30	163		30	163
Link Distance (ft)		339			304			503			434	
Travel Time (s)		7.7			8.3			11.4			9.9	
, ,	11	1.1	14	11	0.3	11	30	11.4	52	52	9.9	20
Confl. Peds. (#/hr)	41		14	14		41	30		52	52		30
Confl. Bikes (#/hr)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	20
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Shared Lane Traffic (%)	0	405	0	0	15	0	0	420	0	0	777	0
Lane Group Flow (vph)	0	405	0	0	15	0	0	420	0	0	777	0
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4		•	8		0	2		,	6	
Permitted Phases	4			8			2			6	6	
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		10.0	10.0		10.0	10.0		10.0	10.0	
Minimum Split (s)	19.5	19.5		19.5	19.5		22.5	22.5		22.5	22.5	
Total Split (s)	46.0	46.0		46.0	46.0		54.0	54.0		54.0	54.0	
Total Split (%)	46.0%	46.0%		46.0%	46.0%		54.0%	54.0%		54.0%	54.0%	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		-1.5			-1.5			-1.5			-1.5	
Total Lost Time (s)		4.0			4.0			4.0			4.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Max	Max		Max	Max		C-Min	C-Min		C-Min	C-Min	
Act Effct Green (s)		46.2			46.2			45.8			45.8	
Actuated g/C Ratio		0.46			0.46			0.46			0.46	
v/c Ratio		0.76			0.02			0.50			0.93	
Control Delay		28.1			13.8			17.4			22.7	
Queue Delay		0.0			0.0			0.3			0.0	
Total Delay		28.1			13.8			17.6			22.7	
LOS		С			В			В			С	
Approach Delay		28.1			13.8			17.6			22.7	
Approach LOS		С			В			В			С	
Queue Length 50th (ft)		268			4			116			92	
Queue Length 95th (ft)		m#408			16			158			#171	
Internal Link Dist (ft)		259			224			423			354	
Turn Bay Length (ft)												
Base Capacity (vph)		532			706			919			885	
Starvation Cap Reductn		0			0			120			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.76			0.02			0.53			0.88	

Rochester Inner Loop 2035 PM Peak Hour Final 3 Lanes Stantec

3: S Union St & Howell St 2/26/2014

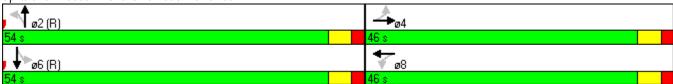
Intersection Summary Area Type: Other Cycle Length: 100 Actuated Cycle Length: 100 Offset: 19 (19%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green Natural Cycle: 45 Control Type: Actuated-Coordinated Maximum v/c Ratio: 0.93 Intersection Signal Delay: 22.6 Intersection Capacity Utilization 83.7% ICU Level of Service E Analysis Period (min) 15

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

Queue shown is maximum after two cycles.

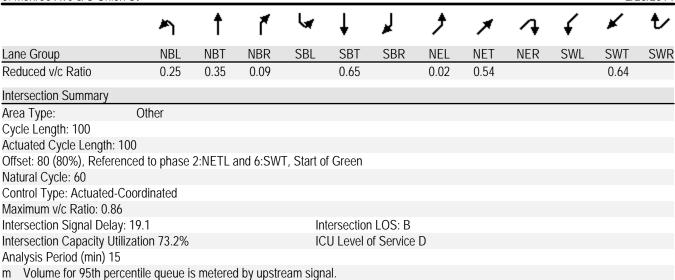
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 3: S Union St & Howell St



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Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations	ሻ	<u></u>	7	002	4	02.1	ሻ			0	7	<u> </u>
Volume (vph)	100	198	37	153	0	6	6	615	0	0	519	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	1700	1700	13	1700	1300	1700	1700	1900	1700	1700	1700	1700
Storage Length (ft)	80	12	0	0	12	0	100	10	100	0	12	100
Storage Lanes	1		1	0		0	100		0	0		0
Taper Length (ft)	75			25		U	75		U	25		U
	75		Yes	23		Yes	73		Yes	23		Yes
Right Turn on Red		30	res		20	res		30	res		20	res
Link Speed (mph)					30						30	
Link Distance (ft)		805			503			741			446	
Travel Time (s)		18.3	F0	F0	11.4		45	16.8			10.1	45
Confl. Peds. (#/hr)	0.05	0.05	52	52	0.05	0.05	45	0.05	64	64	0.05	45
Peak Hour Factor	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	1%	1%	1%	3%	3%	3%
Shared Lane Traffic (%)				_		_						-
Lane Group Flow (vph)	105	208	39	0	167	0	6	647	0	0	752	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA			NA	
Protected Phases		8			4			2			6	
Permitted Phases	8		8	4			2					
Detector Phase	8	8	8	4	4		2	2			6	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0		9.0	9.0			9.0	
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0		24.0	24.0			24.0	
Total Split (s)	36.0	36.0	36.0	36.0	36.0		64.0	64.0			64.0	
Total Split (%)	36.0%	36.0%	36.0%	36.0%	36.0%		64.0%	64.0%			64.0%	
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0			4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0			2.0	
Lost Time Adjust (s)	-1.5	-1.5	-1.5		-1.5		-1.5	-1.5			-1.5	
Total Lost Time (s)	4.5	4.5	4.5		4.5		4.5	4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None		C-Max	C-Max			C-Max	
Act Effct Green (s)	22.5	22.5	22.5		22.5		68.5	68.5			68.5	
Actuated g/C Ratio	0.22	0.22	0.22		0.22		0.68	0.68			0.68	
v/c Ratio	0.35	0.50	0.12		0.86		0.02	0.54			0.64	
Control Delay	33.7	36.3	9.0		40.6		10.8	13.1			13.1	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0			0.0	
Total Delay	33.7	36.3	9.0		40.6		10.8	13.1			13.1	
LOS	C	D	A		D		В	В			В	
Approach Delay	, ,	32.5	, ,		40.6		J	13.1			13.1	
Approach LOS		C			D			В			В	
Queue Length 50th (ft)	56	115	0		42		1	139			230	
Queue Length 95th (ft)	93	165	24		m66		m2	m244			460	
Internal Link Dist (ft)	73	725	27		423		1112	661			366	
Turn Bay Length (ft)	80	123			423		100	001			300	
Base Capacity (vph)	415	586	449		258		360	1202			1179	
Starvation Cap Reductn	415	000			258		300	0			0	
			0									
Spillback Cap Reductn	0	0	0		0		0	0			0	
Storage Cap Reductn	0	0	0		0		0	0			0	

Rochester Inner Loop 2035 PM Peak Hour Final 3 Lanes Stantec

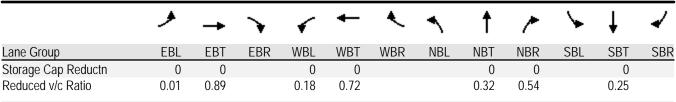


Splits and Phases: 5: Monroe Ave & S Union St



Lane Group
Configurations
Volume (vph) 6 1030 0 98 958 72 6 116 226 32 0 56 Ideal Flow (vphpl) 1900 0
Ideal Flow (yphpl)
Lane Width (ft)
Storage Length (fit) 100 0 100 0 0 0 0 0 0
Storage Lanes
Taper Length (fit)
Right Turn on Red Yes Yes Yes Yes Yes Yes Yes Link Speed (mph) 30 25.4 8.5 37 15 15 17 70 90 0.90
Link Speed (mph) 30 30 30 30 30 30 1119 376 743 743 Travel Time (s) 6.3 25.4 8.5 15 16.9 Confl. Peds. (#/hr) 8 17 17 8 17 15 15 17 Confl. Bikse (#/hr)
Link Distance (ft) 279 11119 376 743 Travel Time (s) 6.3 25.4 8.5 16.9 Confl. Peds. (#/hr) 8 17 17 8 17 15 15 15 17 Confl. Bikes (#/hr) "Total Split (s)" 0.90
Travel Time (s) 6.3 17 17 18 17 17 17 18 17 17
Confl. Peds. (#/hr) 8 17 17 8 17 15 15 17 Confl. Bikes (#/hr) 5 5 20 20 20 20 20 20 20 20 20 20 20 20 0.90 <t< td=""></t<>
Confl. Bikes (#/hr)
Peak Hour Factor 0.90 4% 2% 25
Heavy Vehicles (%) 3% 3% 3% 4% 4% 4% 2% 2% 2% 4% 4
Shared Lane Traffic (%) Lane Group Flow (vph) 7 1144 0 109 1144 0 0 0 136 251 0 98 0 0 1 0 0 0 0 0 0 0
Lane Group Flow (vph) 7 1144 0 109 1144 0 0 136 251 0 98 0 Turn Type pm+pt NA pm+pt NA Perm NA NA Perm NA NA Perm NA NA Perm NA
Turn Type pm+pt NA pm+pt NA Perm NA Perm NA Protected Phases 2 1 2 1 3 3 3 3 Permitted Phases 1 1 3 3 3 3 3 Detector Phase 2 1 2 1 3 3 3 3 3 Switch Phase 8 6.0 7.0 6.0
Protected Phases 2 1 2 1 3 3 Permitted Phases 1 1 3 3 3 3 Detector Phase 2 1 2 1 3 3 3 3 Switch Phase Winimum Initial (s) 6.0 7.0 6.0
Permitted Phases 1 1 3 3 3 3 Detector Phase 2 1 2 1 3 3 3 3 3 Switch Phase Switch Phase Minimum Initial (s) 6.0 7.0 6.0
Detector Phase 2 1 2 1 3 3 3 3 3 Switch Phase Minimum Initial (s) 6.0 7.0 6.0 7.0 6.0 24.0 24.0
Switch Phase Minimum Initial (s) 6.0 7.0 6.0 7.0 6.0 24.0 24.0 24.0
Minimum Initial (s) 6.0 7.0 6.0 7.0 6.0 24.0 24.0 24
Minimum Split (s) 15.0 31.0 15.0 31.0 15.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0% 24.5 2.5 2.5 2.5 2.5 2.5
Total Split (s) 37.0 39.0 37.0 39.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0 24.0% </td
Total Split (%) 37.0% 39.0% 37.0% 39.0% 24.0%
Yellow Time (s) 3.5 2.5
All-Red Time (s) 2.5
Lost Time Adjust (s) -1.5 <td< td=""></td<>
Total Lost Time (s) 4.5 4.5 4.5 4.5 4.5 4.5 Lead/Lag Lead Lag Lead Lag Optimize? Yes Yes Yes Yes
Lead/LagLagLeadLagLeadLead-Lag Optimize?YesYesYes
Lead-Lag Optimize? Yes Yes Yes Yes
O I
TANDAH INDAN TANDA CARIAN TANDA
Act Effct Green (s) 63.3 34.5 63.3 34.5 23.2 23.2 23.2
Actuated g/C Ratio 0.63 0.34 0.63 0.34 0.23 0.23 0.23
v/c Ratio 0.01 0.71 0.20 0.72 0.32 0.46 0.25
Control Delay 1.0 27.2 12.3 31.3 48.3 19.2 9.0
Queue Delay 0.0 2.3 0.0 0.0 0.0 0.5 0.0
Total Delay 1.0 29.4 12.3 31.3 48.3 19.7 9.0
LOS A C B C D B A
Approach Delay 29.3 29.6 29.7 9.0
Approach LOS C C C A
Queue Length 50th (ft) 0 137 20 227 65 64 0
Queue Length 95th (ft) m0 185 34 280 122 43
Internal Link Dist (ft) 199 1039 296 663
Turn Bay Length (ft) 100 100
Base Capacity (vph) 609 1621 603 1594 426 547 393
Starvation Cap Reductn 0 329 0 0 0 79 0
Spillback Cap Reductr 0 0 0 0 0 0

Rochester Inner Loop 2035 PM Peak Hour Final 3 Lanes Stantec



Intersection Summary

Area Type: Other

Cycle Length: 100 Actuated Cycle Length: 100

Offset: 64 (64%), Referenced to phase 1:EBWB, Start of Green

Natural Cycle: 65

Control Type: Actuated-Coordinated

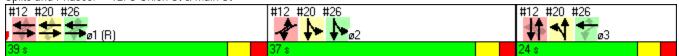
Maximum v/c Ratio: 0.72

Intersection Signal Delay: 28.8 Intersection LOS: C
Intersection Capacity Utilization 52.9% ICU Level of Service A

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

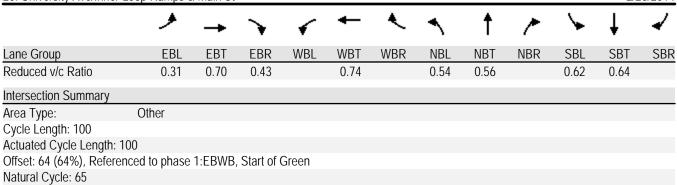
Splits and Phases: 12: S Union St & Main St



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ሻ	∱ }	7		ተተ _ጉ		*	4T>		ሻ	4îb	
Volume (vph)	22	573	199	0	521	499	176	319	1	462	367	6
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	10	10	10	10	10	11	12	12	10	10	10
Storage Length (ft)	95		0	0		0	0		0	225		225
Storage Lanes	1		1	0		0	1		0	1		1
Taper Length (ft)	35			25			25			40		
Right Turn on Red			Yes			Yes			Yes			Yes
Link Speed (mph)		30			30			30			40	
Link Distance (ft)		323			279			291			431	
Travel Time (s)		7.3			6.3			6.6			7.3	
Confl. Peds. (#/hr)	23		26	26		23			10	10		
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Shared Lane Traffic (%)			10%				10%			41%		
Lane Group Flow (vph)	24	659	199	0	1133	0	176	375	0	303	625	0
Turn Type	Perm	NA	Perm		NA		Split	NA		Split	NA	
Protected Phases		1			1		3	3		2	2	
Permitted Phases	1		1									
Detector Phase	1	1	1		1		3	3		2	2	
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0		7.0		6.0	6.0		6.0	6.0	
Minimum Split (s)	31.0	31.0	31.0		31.0		15.0	15.0		15.0	15.0	
Total Split (s)	39.0	39.0	39.0		39.0		24.0	24.0		37.0	37.0	
Total Split (%)	39.0%	39.0%	39.0%		39.0%		24.0%	24.0%		37.0%	37.0%	
Yellow Time (s)	3.5	3.5	3.5		3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	2.5	2.5	2.5		2.5		2.5	2.5		2.5	2.5	
Lost Time Adjust (s)	-1.5	-1.5	-1.5		-1.5		-1.5	-1.5		-1.5	-1.5	
Total Lost Time (s)	4.5	4.5	4.5		4.5		4.5	4.5		4.5	4.5	
Lead/Lag	Lead	Lead	Lead		Lead					Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes		Yes					Yes	Yes	
Recall Mode	C-Max	C-Max	C-Max		C-Max		Max	Max		None	None	
Act Effct Green (s)	34.5	34.5	34.5		34.5		23.2	23.2		28.8	28.8	
Actuated g/C Ratio	0.34	0.34	0.34		0.34		0.23	0.23		0.29	0.29	
v/c Ratio	0.31	0.62	0.35		0.70		0.49	0.48		0.70	0.70	
Control Delay	27.5	21.0	4.6		3.6		45.2	42.1		40.6	35.8	
Queue Delay	0.0	0.5	0.3		0.2		0.5	0.4		0.0	0.1	
Total Delay	27.5	21.5	4.9		3.8		45.7	42.5		40.6	36.0	
LOS	С	С	Α		Α		D	D		D	D	
Approach Delay		17.9			3.8			43.6			37.5	
Approach LOS		В			Α			D			D	
Queue Length 50th (ft)	6	87	0		6		128	136		183	189	
Queue Length 95th (ft)	m12	108	23		4		203	187		280	246	
Internal Link Dist (ft)		243			199			211			351	
Turn Bay Length (ft)	95	40			4/10		6.1.1			225	4600	
Base Capacity (vph)	78	1066	564		1618		361	785		488	1009	
Starvation Cap Reductn	0	90	96		86		33	119		0	0	
Spillback Cap Reductn	0	125	2		0		0	0		0	37	
Storage Cap Reductn	0	0	0		0		0	0		0	0	

Rochester Inner Loop 2035 PM Peak Hour Final 3 Lanes Stantec

Synchro 8 Report Page 10



Control Type: Actuated-Coordinated

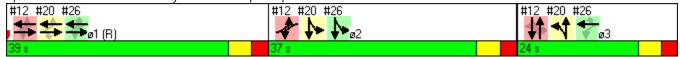
Maximum v/c Ratio: 0.72

Intersection Signal Delay: 22.6 Intersection Capacity Utilization 58.7% ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

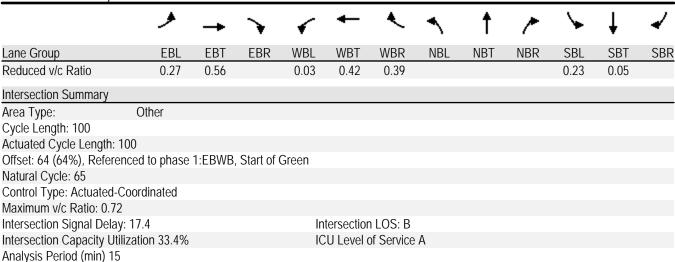
Splits and Phases: 20: University Ave/Inner Loop Ramps & Main St



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Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	ች	↑ ↑		ሻ	^	7				ሻሻ	f	
Volume (vph)	16	558	13	10	474	219	0	0	0	236	27	3
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Width (ft)	10	11	13	10	11	11	12	12	12	12	12	12
Storage Length (ft)	50		0	100		0	0	12	0	180	12	0
Storage Lanes	1		0	1		1	0		0	1		0
Taper Length (ft)	25		U	35		'	25		U	75		O
Right Turn on Red	20		Yes	33		Yes	20		Yes	7.5		Yes
Link Speed (mph)		30	103		30	103		25	103		30	103
Link Distance (ft)		798			323			684			1114	
Travel Time (s)		18.1			7.3			18.7			25.3	
Confl. Peds. (#/hr)	7	10.1	27	27	7.5	7		10.7		22	20.0	21
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Shared Lane Traffic (%)	370	370	370	2 /0	2 /0	2 /0	2 /0	2 /0	2 /0	1 70	1 70	1 70
Lane Group Flow (vph)	18	634	0	11	527	243	0	0	0	262	33	0
Turn Type	Perm	NA	U	Perm	NA	Perm	U	U	U	Split	NA	U
Protected Phases	r Cilli	1		r Cilli	13	r Cilli				3piit	2	
Permitted Phases	1			13	13	13				2	2	
Detector Phase	1	1		13	13	13				2	2	
Switch Phase				13	13	13				2	2	
Minimum Initial (s)	7.0	7.0								6.0	6.0	
Minimum Split (s)	31.0	31.0								15.0	15.0	
Total Split (s)	39.0	39.0								37.0	37.0	
Total Split (%)	39.0%	39.0%								37.0%	37.0%	
Yellow Time (s)	37.070	37.070								37.070	37.076	
All-Red Time (s)	2.5	2.5								2.5	2.5	
Lost Time Adjust (s)	-1.5	-1.5								-1.5	-1.5	
Total Lost Time (s)	4.5	4.5								4.5	4.5	
Lead/Lag	Lead	Lead								Lag	Lag	
Lead-Lag Optimize?	Yes	Yes								Yes	Yes	
Recall Mode	C-Max	C-Max								None	None	
Act Effct Green (s)	34.5	34.5		62.2	62.2	62.2				28.8	28.8	
Actuated g/C Ratio	0.34	0.34		0.62	0.62	0.62				0.29	0.29	
v/c Ratio	0.27	0.56		0.03	0.25	0.24				0.26	0.06	
Control Delay	36.3	28.7		6.6	5.3	1.2				27.3	22.6	
Queue Delay	0.0	0.0		0.0	0.2	0.4				0.0	0.0	
Total Delay	36.3	28.7		6.6	5.5	1.5				27.3	22.6	
LOS	D	C		A	A	A				C	C	
Approach Delay		28.9		, ,	4.3	, ,				, ,	26.8	
Approach LOS		C			A						C	
Queue Length 50th (ft)	8	170		1	26	0				64	13	
Queue Length 95th (ft)	31	226		m3	52	m8				94	35	
Internal Link Dist (ft)		718			243			604			1034	
Turn Bay Length (ft)	50			100	2.0			00.		180		
Base Capacity (vph)	67	1142		433	2128	1010				1126	603	
Starvation Cap Reductn	0	0		0	876	390				0	0	
Spillback Cap Reductn	0	0		0	0	0				0	0	
Storage Cap Reductn	0	0		0	0	0				0	0	

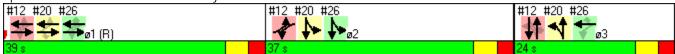
Rochester Inner Loop 2035 PM Peak Hour Final 3 Lanes Stantec

Synchro 8 Report Page 17



Splits and Phases: 26: Pitkin St/University Ave & Main St

m Volume for 95th percentile queue is metered by upstream signal.



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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4î>			4T>			414			4	
Volume (vph)	8	558	0	25	447	35	49	306	136	0	98	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		0.95			0.95			0.95			1.00	
Frpb, ped/bikes		1.00			1.00			0.99			1.00	
Flpb, ped/bikes		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.96			1.00	
Flt Protected		1.00			1.00			1.00			1.00	
Satd. Flow (prot)		3537			3488			3344			1863	
Flt Permitted		0.95			0.90			0.91			1.00	
Satd. Flow (perm)		3350			3158			3051			1863	
Peak-hour factor, PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Adj. Flow (vph)	9	620	0	28	497	39	54	340	151	0	109	0
RTOR Reduction (vph)	0	0	0	0	5	0	0	44	0	0	0	0
Lane Group Flow (vph)	0	629	0	0	559	0	0	501	0	0	109	0
Confl. Peds. (#/hr)	4		5	5		4	2		11	11		2
Confl. Bikes (#/hr)												20
Turn Type	Perm	NA		Perm	NA		Perm	NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		60.2			60.2			21.8			21.8	
Effective Green, g (s)		61.7			61.7			23.3			23.3	
Actuated g/C Ratio		0.62			0.62			0.23			0.23	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		2066			1948			710			434	
v/s Ratio Prot											0.06	
v/s Ratio Perm		c0.19			0.18			c0.16				
v/c Ratio		0.30			0.29			0.70			0.25	
Uniform Delay, d1		9.0			8.9			35.2			31.2	
Progression Factor		0.27			1.00			0.57			1.48	
Incremental Delay, d2		0.3			0.4			2.5			0.3	
Delay (s)		2.7			9.3			22.5			46.7	
Level of Service		A			Α			C			D	
Approach Delay (s)		2.7			9.3			22.5			46.7	
Approach LOS		Α			А			С			D	
Intersection Summary												
HCM 2000 Control Delay			13.2	Н	CM 2000	Level of S	Service		В			
HCM 2000 Volume to Capac	city ratio		0.40									
Actuated Cycle Length (s)			100.0		um of lost				11.0			
Intersection Capacity Utilizat	tion		57.6%	IC	CU Level of	of Service)		В			
Analysis Period (min)			15									
c Critical Lane Group												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4			4			414			4	
Volume (veh/h)	10	50	5	12	55	29	43	812	15	22	594	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	56	6	13	61	32	48	902	17	24	660	6
Pedestrians		30			27			10			10	
Lane Width (ft)		12.0			10.0			12.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		3			2			1			1	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								655			637	
pX, platoon unblocked	0.77	0.77	0.98	0.77	0.77	0.76	0.98			0.76		
vC, conflicting volume	1361	1783	703	1788	1778	496	696			946		
vC1, stage 1 conf vol	742	742		1033	1033							
vC2, stage 2 conf vol	619	1041		755	744							
vCu, unblocked vol	793	1340	685	1346	1333	0	678			301		
tC, single (s)	7.5	6.5	6.9	7.5	6.5	6.9	4.1			4.1		
tC, 2 stage (s)	6.5	5.5		6.5	5.5							
tF(s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	97	81	98	94	78	96	94			97		
cM capacity (veh/h)	320	289	369	217	279	803	868			939		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	72	107	499	468	690							
Volume Left	11	13	48	0	24							
Volume Right	6	32	0	17	6							
cSH	298	333	868	1700	939							
Volume to Capacity	0.24	0.32	0.06	0.28	0.03							
Queue Length 95th (ft)	23	34	4	0	2							
Control Delay (s)	20.9	20.8	1.5	0.0	0.7							
Lane LOS	С	С	Α		Α							
Approach Delay (s)	20.9	20.8	0.8		0.7							
Approach LOS	С	С										
Intersection Summary												
Average Delay			2.7									
Intersection Capacity Utiliza	ation		64.9%	IC	CU Level	of Service			С			
Analysis Period (min)			15									
, ,												

11: East Ave & Pitkin St 3/5/2014

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		4				7		†			f)	
Volume (veh/h)	10	0	464	0	0	20	433	483	0	0	123	5
Sign Control		Stop			Stop			Free			Free	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	11	0	516	0	0	22	481	537	0	0	137	6
Pedestrians		30			11						10	
Lane Width (ft)		12.0			12.0						12.0	
Walking Speed (ft/s)		4.0			4.0						4.0	
Percent Blockage		3			1						1	
Right turn flare (veh)												
Median type								TWLTL			TWLTL	
Median storage veh)								2			2	
Upstream signal (ft)								974			318	
pX, platoon unblocked	0.83	0.83	0.96	0.83	0.83	0.81	0.96			0.81		
vC, conflicting volume	1701	1679	169	2165	1682	558	172			548		
vC1, stage 1 conf vol	169	169		1510	1510							
vC2, stage 2 conf vol	1531	1510		655	172							
vCu, unblocked vol	1631	1606	113	2192	1609	333	116			320		
tC, single (s)	7.1	6.5	6.2	7.1	6.5	6.2	4.1			4.1		
tC, 2 stage (s)	6.1	5.5		6.1	5.5							
tF (s)	3.5	4.0	3.3	3.5	4.0	3.3	2.2			2.2		
p0 queue free %	84	100	41	100	100	96	65			100		
cM capacity (veh/h)	71	93	879	8	92	562	1378			992		
Direction, Lane #	EB 1	WB 1	NB 1	NB 2	SB 1							
Volume Total	527	22	481	537	142							
Volume Left	11	0	481	0	0							
Volume Right	516	22	0	0	6							
cSH	708	562	1378	1700	1700							
Volume to Capacity	0.74	0.04	0.35	0.32	0.08							
Queue Length 95th (ft)	168	3	40	0	0							
Control Delay (s)	23.3	11.7	9.0	0.0	0.0							
Lane LOS	С	В	A									
Approach Delay (s)	23.3	11.7	4.3		0.0							
Approach LOS	С	В										
Intersection Summary												
Average Delay			9.9									
Intersection Capacity Utilizati	on		80.9%	IC	CU Level	of Service			D			
Analysis Period (min)			15									
J												

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Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		f			र्स						4	
Volume (veh/h)	0	55	5	2	101	0	0	0	0	10	33	5
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Hourly flow rate (vph)	0	61	6	2	112	0	0	0	0	11	37	6
Pedestrians		10			10			10			10	
Lane Width (ft)		12.0			12.0			0.0			12.0	
Walking Speed (ft/s)		4.0			4.0			4.0			4.0	
Percent Blockage		1			1			0			1	
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	122			77			224	201	84	201	203	132
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	122			77			224	201	84	201	203	132
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	100			100			100	100	100	99	95	99
cM capacity (veh/h)	1453			1522			690	692	973	742	688	904
Direction, Lane #	EB 1	WB 1	SB 1									
Volume Total	67	114	53									
Volume Left	0	2	11									
Volume Right	6	0	6									
cSH	1700	1522	717									
Volume to Capacity	0.04	0.00	0.07									
Queue Length 95th (ft)	0	0	6									
Control Delay (s)	0.0	0.2	10.4									
Lane LOS		Α	В									
Approach Delay (s)	0.0	0.2	10.4									
Approach LOS			В									
Intersection Summary												
Average Delay			2.4									
Intersection Capacity Utiliza	ation		25.9%	IC	CU Level	of Service			Α			
Analysis Period (min)			15									

APPENDIX H Accident Analysis

Memo



Inner Loop – Accident History

Date: December 17, 2008

To: Bill Holthoff, Stantec

From: Paula Benway, Stantec

Inner Loop Accident Data

The most recent available accident information was obtained for the section of the inner loop from the Rt. 490 interchange in the east to north of the East Main Street interchange. Information available represents a 39-month period between January 1, 2005 and March 7, 2008. The accident history identified a total of 49 accidents occurred along the Inner Loop in this area. The reportable accidents accounted for 30 (61%) of the total accidents and the non-reportable accidents accounted for 19 (39%) of the total accidents. The following list summarizes the types and number of reportable accidents. The rest of the assessment (analysis, rates and potential corrective action) will be related to the reportable type accidents that occurred in the corridor.

- Fixed Object 17 (57%)
- Sideswipe 5 (17%)
- Rear End 4 (13%)
- Right Angle 1 (3%)
- Head-on 1 (3%)
- Unknown 2 (7%)

The accident severity included 13 injuries (43%) and 17 (57%) property damage only. Fifty three percent of all accidents occurred during evening hours with 55% occurring on dry pavement conditions. Seventy percent of the vehicles involved were traveling in a westerly direction. As indicated above, 57% of the accidents involved collision with fixed objects (guide rail, curbing, abutment, debris). Only four of the 30 accidents occurred at a merge/diverge ramp location, with the majority of accidents occurring main line along the horizontal curve between East Main Street and East Avenue. The accident rate for the corridor was calculated and compared to statewide accident rates for Principal Arterial expressways. The current accident rate is 2.48 accidents per million vehicle miles (acc/mvm) which is below the statewide average of 2.72 acc/mvm.

Collision diagrams, detailed accident history, and rate calculations are attached.

Extended Study Area

An extended study area was also reviewed that included at grade adjacent corridors including: East Main Street, Monroe Avenue/Chestnut, Pitkin Street, Union Street, and a portion of Interstate 490. The following table summarizes the number of reportable accidents and the calculated accident rates for the corridor and intersections for each of these adjacent roadways.

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December 17, 2008 Inner Loop Page 2 of 4

ACCIDENT RATES

	Number of	State/County		
Intersection	Accidents	Rate	Actual Rate	
Intersection Rate (excludes m	idblock accident	s)		
East Main Street @				
University/Pitkin	7	0.26 / 0.46	0.33	ACC/MEV
East Main Street @				
Inner Loop/University	40	0.26 / 0.46	0.96	ACC/MEV
East Main Street @				
Union Street	23	0.26 / 0.46	0.83	ACC/MEV
Pitkin Street @				
East Ave	8	0.34 / 0.22	0.44	ACC/MEV
Pitkin Street @				
Broad Street	4	0.34 / 0.22	0.66	ACC/MEV
Union Street @				
University Ave	14	0.34 / 0.22	0.65	ACC/MEV
Union Street @				
East Ave	17	0.34 / 0.22	1.13	ACC/MEV
Union Street @				
Broad St	3	0.19 / 0.22	0.71	ACC/MEV
Monroe Avenue @				
Inner Loop/ Pitkin St.	7	0.34 / 0.22	0.26	ACC/MEV
Monroe Avenue @				
Howell St.	5	0.34 / 0.22	0.34	ACC/MEV
Monroe Avenue @				
South Union St.	20	0.34 / 0.22	1.12	ACC/MEV
Link Rate				
Inner Loop - 940T				
Rt. 490-E. Main St.	30	2.72	2.48	ACC/MVM
I-490				
W.of River -E. of Clinton	47	2.72	1.08	ACC/MVM

Locations experiencing above state or county wide accident rates are highlighted in red. Both sections of the expressway system (Inner Loop and I-490) are experiencing accident occurrences below the average rates. Each of the adjacent corridors is further assessed below.

Corridor Breakdown

East Main Street corridor—80 accidents occurred over a 41-month period from University Avenue in the west to Union Street in the east. There were 27(35%) rear-end accidents, 18(23%) sideswipe, 15(20%) right angle, 6(8%) overtaking, 7(8%) left turn, 2(2%) fixed object, 1 backing, 1 bicycle and 2(2%) unknown accidents that occurred at the three intersections along East Main Street. The severity of these accidents included 15(19%) injuries and 65(81%) property damage only. Seventy four percent of all accidents occurred during daylight hours with 70% occurring on dry pavement conditions. The East Main Street intersections with the Inner Loop/University Avenue and the Union Street intersection are experiencing accident rates above the state/county wide average rates.

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Inner Loop/University Intersection – of the 40 accidents that occurred at this intersection, 13(33%) were vehicles sideswiping/overtaking in the left turn lanes on the Inner Loop ramp approach and the University Avenue approach. These accidents are attributable to driver confusion, inattention to turning maneuvers, unsafe lane change or possible narrow lane widths. The other major accident type occurring at this intersection is rear-end accidents 13 (33%) of the total; driver inattention is noted as a contributing factor.

North Union Street Intersection – of the 23 accidents that occurred at this intersection, 8(35%) were vehicles sideswiping/overtaking on the North Union Street northbound approach and the East Main Street westbound approach. These accidents are attributable to driver confusion, inattention to turning maneuvers, unsafe lane changes or possible narrow lane widths. The other major accident type occurring at this intersection is rear-end accidents 8 (35%) of the total; driver inattention is noted as a contributing factor.

Monroe Avenue/Chestnut corridor – 50 accidents occurred over a 41-month period along the section from Chestnut north of Inner Loop to South Union Street intersection to the south. There were 20 (40%) rear-end accidents, 11(22%) right angle, 6(12%) sideswipe, 4(8%) right turn, 3(6%) fixed object, 2(4%) left turn, 1(2%) head on, 1(2%) bicycle, 1(2%) driveway and 1 unknown accident. The severity of these accidents included 66% property damage only, 32% resulted in injuries and one fatality (motorcycle) did occur. Sixty two percent of the accidents occurred during daylight hours, and with 68% occurring on dry pavement conditions. The South Union intersection with Monroe Avenue is experiencing an accident rate above the state/county wide average.

South Union Intersection – of the 20 accidents that occurred at this intersection, 8(40%) were right angle accidents with the South Union approach. These accidents are attributable to driver inattention and visibility constraints. The other major accident type occurring at this intersection is rear-end accidents 7 (35%) of the total; driver inattention is noted as a contributing factor.

Pitkin Street corridor – 12 accidents occurred over a 29-month period. There were 5(42%) rearend accidents, 3(25%) right angle, 1(8%) right turn, 1(8%) overtaking, 1(8%), pedestrian, 1(8%) unknown accident. Ninety two percent of the accidents involved property damage only, with 58% occurring during daylight hours, and with 58% occurring on dry pavement conditions. The East Avenue and Broad Street intersections with Pitkin Street are experiencing accident rates above the state/county wide average rates. Review of the accidents occurring at either intersection does not show a predominant accident pattern.

Union Street corridor – 61 accidents occurred over a 39-month period. There were 21(34%) right angle, 12(20%) rear-end, 10(16%) left turn, 4(6%) backing up, 3(5%) sideswipe, 3(5%) fixed object, 3(5%) right turn, 3(5%) unknown, 1 driveway and 1 overtaking accident. Eighty four percent of the accidents involved property damage only, and evenly distributed during daylight/evening hours, and with 74% occurred on dry pavement conditions. Further review of the actual reports suggests that the rear end accidents were primarily a result of following too closely. The University Avenue and East Avenue intersections with Union Street are experiencing accident rates above the state/county wide average rates.

University Avenue Intersection – of the 14 accidents that occurred at this intersection, 8(57%) were right angle accidents. These accidents are attributable to driver inattention

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and possible visibility constraints.

East Avenue Intersection – of the 17 accidents that occurred at this intersection, 12(71%) were right angle accidents. These accidents are attributable to driver inattention and possible visibility constraints related to bridge railing over the Inner Loop and building on the southeast quadrant.

I-490 corridor – 47 accidents occurred over a 33-month period. The 47 accidents consisted of 18(38%) fixed object accidents, 16(34%) rear-end, 8(17%) overtaking, 3(6%) unknown, 1 head-on and 1 sideswipe accident. The accident severity included 16(34%) injuries and 31(66%) property damage only. Sixty six percent of the accidents occurred during daylight hours, and with 60% occurring on dry pavement conditions. The majority of fixed object accidents involved unsafe travel speeds for the conditions (wet, construction, grade, or curvature of road).

STANTEC CONSULTING SERVICES INC.

Attachments: Accident Rate Calculations, Collision Diagrams, Detailed Accident History

ACCIDENT RATE CALCULATIONS

Project Name: Date:

Inner Loop 12/10/2008

Accidents	Intersection Rate (excludes midblock accident			· 特色的抗性多点	H-RILES	
16,950 x 3.4 x 365	East Main Street @	# Accidents Pe				٦
	University Ave/Filkin				0.33	ACC/MEV
# Accidents				21004900	0.26	⊒ Statewide Ra
Namer Loop/University 40		•				County Rate
3,450						-
Marcicle	Inner Loop/University				0.96	ACC/MEV
Mono Street #Accidents Per Million Entering Vehicles 23				41511450		
Monroe Avenue @ # Accidents * Accide		veriicies/Day #	Of fears Days/fear			
		# Accidents Pe	er Million Entering Vehicles		0.40	County Nate
Vehicles/Day	Union Street				0.83	ACC/MEV
# Accidents Per Million Entering Vehicles 8				27736350		
Pitkin Street @		Vehicles/Day #	of Years Days/Year			Statewide Ra
Broad Street					0.46	County Rate
16,450	-	_				7
	East Ave				0.44	ACC/MEV
Broad Street		,		18012750	0.24	_ Statowida Bo
# Accidents 4 x 1,000,000		Veriloies/Day #1	or rears Days/rear			
Accidents		# Accidents Pe	er Million Entering Vehicles		0.22	ooung nato
Vehicles/Day	Broad Street				0.66	ACC/MEY
Union Street @ # Accidents Per Million Entering Vehicles 14		·		6077250		
Monroe Avenue @ # Accidents Per Million Entering Vehicles 14		Vehicles/Day #	of Years Days/Year			Statewide Rat
University Ave					0.22	County Rate
Part	-					7
Rest Ave	University Ave				0.65	ACC/MEV
Hacidents Per Million Entering Vehicles 1.13 ACC/MEV				21462000	0.34	_ Statowide Pa
# Accidents Per Million Entering Vehicles 17000000 15001500 1.13 ACC/MEV		Verneica Day #1	or rears Days/rear			
13,700		# Accidents Pe	er Million Entering Vehicles			
Broad St	East Ave		=	17000000 _	1 13	ACC/MEV
# Accidents Per Million Entering Vehicles 3		,		15001500		
# Accidents Per Million Entering Vehicles 3		Vehicles/Day # 6	of Years Days/Year			
Monroe Avenue @ # Accidents Per Million Entering Vehicles Days/Year 0.22 County Rate		# Accidents Pa	er Million Entering Vehicles		0.22	County Rate
Nonroe Avenue @	Broad St	•		3000000		7
Monroe Avenue @			=	=	0.71	ACC/MEV
Monroe Avenue @		Vehicles/Day # o	of Years Days/Year	•	0.19	ີStatewide Rat
Name Loop Pitkin St. 7					0.22	County Rate
21,310	Monroe Avenue @	# Accidents Pe	er Million Entering Vehicles	_		
Note	Inner Loop/ Pitkin St.			7000000 _	0.26	ACC/MEV
# Accidents Per Million Entering Vehicles 5				26445710		_
$ \frac{\textit{Howell St.}}{\textit{South Union St.}} = \frac{\#\textit{Accidents}}{5} \times \frac{\textit{Per Million Entering Vehicles}}{1,000,000} = \frac{5000000}{14581750} = \boxed{\begin{array}{c} \textbf{0.34} \\ \textbf{0.34} \\ \textbf{0.22} \\ \textbf{0.34} \\ \textbf{0.22} \\ \textbf{County Rate} \\ \textbf{0.22} \\ \textbf{County Rate} \\ \textbf{0.34} \\ \textbf{0.22} \\ \textbf{County Rate} \\ \textbf{0.25} \\ \textbf{0.34} \\ \textbf{0.26} \\ \textbf{0.27} \\ \textbf{0.34} \\ \textbf{0.27} \\ \textbf{0.34} \\ \textbf{0.28} \\ \textbf{0.34} \\ \textbf{0.29} \\ \textbf{0.34} \\ \textbf{0.35} \\ \textbf{0.34} \\ \textbf{0.35} \\ \textbf{0.34} \\ \textbf{0.35} \\ \textbf{0.36} \\ \textbf{0.37} \\ \textbf{0.37} \\ \textbf{0.38} \\ \textbf{0.38} \\ \textbf{0.38} \\ \textbf{0.39} \\ $		Vehicles/Day # 6	of Years Days/Year			
Howell St. 5		# Accidents Pe	er Million Entering Vehicles		0.22	County Rate
11,750 x 3.4 x 365 14581750 0.34 ACC/MEV	Howell St.		-	5000000 [7
South Union St. # Accidents Per Million Entering Vehicles 20		11,750 x			0.34	ACC/MEV
South Union St. # Accidents 20 x 1,000,000 20 14,400 x 3.4 x 365 Vehicles/Day # of Years Days/Year = 20000000 17870400 200000 2000000 20000000 200000000 2000000		Vehicles/Day # o	of Years Days/Year	•		Statewide Rat
South Union St. 20 x 1,000,000 = 20000000 17870400 = 1.12 ACC/MEV Vehicles/Day # of Years Days/Year 0.34 Statewide R		B A 1 =			0.22	County Rate
14,400 x 3.4 x 365 = 17870400 = 1.12 ACC/MEV Vehicles/Day # of Years Days/Year 0.34 Statewide R	South Union St		_	20000000		ר
Vehicles/Day # of Years Days/Year 0.34 Statewide R	South Omon St.			=	1.12	ACC/MEV
·				17070400 [0.34	」 −Statewide Rat
0.40 County Rate			za zaro zayor roar		0.46	County Rate

Total Link Rate

(All midblock & intersection accidents)

Inner Loop - 940T Rt. 490-E. Main St.	# Accidents 30	Per Million Entering Vehicles x 1,000,000 _	30000000	= 2.48	ACC/MVM
	1 Length (miles)	x 10,200 x 3.25 x 365 Vehicles/Day # of Years Days/Year	12099750	2.72 0.00	Statewide Rate County Rate
1-490	# Accidents	Per Million Enterina Vehicles			

	Length (miles)	venicies/Day	# OT Years	Days/Year		0.00	County Rate
I-490 W.of River -E. of Clinton	# Accidents 47	Per Million Er × 1,000	ntering Vehicles 1,000	3	_ 47000000 _	1.08	ACC/MVM
	0.5 Length (miles)	x 86,970 x Vehicles/Day	t 2.75 x # of Years	365 Days/Year	43648069	2.72 0.00	Statewide Rate County Rate

V1 SPUN OUT OF CONTROL, HITTING WALL & FLIPPING ONTO IT'S ROOF. (2) Alcohol Involvement V1 STRUCK GUIDE RAIL, THEN STRUCK GUIDE RAIL WITH LEFT SIDE (2) Alcohol Involvement (19) V2 STRUCK V1 AT EXIT LANE FOR MONROE AVE. (7) Failure to Yield Right of Way (13) Passing or V1 LEFT IT'S LANE & STRUCK GUARD RAIL (2) Alcohol Involvement (13) Passing or Lane Usage V1 HIT ICY PATCH ON THE ROAD, SPUN OUT & HIT GUARD RAIL. (66) Pavement Slippery Page Number Acc. Main St to Acc. E. Ave (19) Unsafe Speed (13) Passing or Lane Usage Improper V1 PASS V2, LOST CONTROL STRIKING V2 (13) Passing or Lane Usage Improper Case No. Acc. Main St to Acc. E. Ave (20) Unsafe Lane Changing (19) Unsafe Speed P.I.N. File B Acc. Main St to Acc. E. Ave (19) Unsafe Speed (66) Pavement Slippery Acc. Main St to Acc. E. Ave (13) Passing or Lane Usage Improper Description Acc. Main St to Acc. E. Ave (9) Following Too Closely Acc. Main St to Acc. E. Ave (9) Following Too Closely Acc. Main St to Acc. E. Ave (66) Pavement Slippery To: 1-490 Street Name: Inner Loop (Rt. 940T) rmp from Main St (4) Driver Inattention Inner Loop E. Main St 1/13/200 66) Pavement Slippery ane Usage Improper **Unsafe Speed** Location: Milepost: Date of Report: Route Number: Improper Acc. Type <u>£</u> RAng REnd REnd Side Fixo Fixo Fixo Fix S Fixo Fixo Fixo Fixo Side Side Contributing Factors Apparent City of Rochester (10) 2 20,19 119,13 3 19,66 17,13 Diagram: Inner Loop 12,19 4 2,66 12,13 3 66 4 66 133 213 County of Monroe 29 თ <u>ම</u> ≥ ø æ → 4 8 2 7 9 Town of စ် PBO 90 900 90 PDO 3 S Ξ Ξ Ξ Ξ 三 Ξ Ξ Ē Ē <u>4</u> Φ ø S 21:30 19:00 1:40 16:15 1:00 16:05 18:29 12:05 7:49 5:43 0:29 16:16 14:23 22:40 (3) Time ACCIDENT HISTORY Sear-Brown Group PERIOD STUDIED 1/1/2005 3/7/2008 Months **DETAILS OF** 6/5/2006 2/8/2006 11/16/2006 9/22/2006 4/4/2005 7/5/2007 6/10/2005 10/19/2006 1/24/2007 12/16/2007 3/7/2008 6/2/2007 2/9/2007 4/8/2007 Date From <u>T</u>0: 39 6004 6009 6013 6019 6020 6012 6016 6021 6005 9009 6011 6017 6018 7

1490East Ramp-crashed into attenuator at diverge pt. (2) Alcohol Involvement (20) Unsafe Lane 2 Acc. Main St to Acc. E. Ave (2) Alcohol Involvement (13) Passing or Lane Usage Improper Ramp Chapman St to Access Buena St (19) Unsafe Speed (47) Tire Failure/Inadequate Access Ramp Chapman St to Access Buena St (13) Passing or Lane Usage Improper Page Number South overpass - going straight, hit curb, unsafe speed (19) Unsafe Speed (47) Tire Failure/Inadequate Access E. Ave to Ramp Chapman St. (19) Unsafe Speed (66) Pavement Slippery Case No. P.I.N. File 1490East Ramp - truck on fire in construction zone (60) Other Vehicular Bý Acc. Main St to Acc. E. Ave (19) Unsafe Speed (66) Pavement Slippery Acc. Main St to Acc. E. Ave (19) Unsafe Speed (66) Pavement Slippery Acc. Main St to Acc. E. Ave (19) Unsafe Speed (66) Pavement Slippery Ramp to Buena St - V1 hit debris in the road (64) Obstruction/Debris Access E. Ave to Ramp Chapman St. (66) Pavement Slippery Main St Ramp (19) Unsafe Speed (64) Obstruction/Debris Description To: 1-490 Slip Ramp from Pitkin (2) Alcohol Involvement Street Name: Inner Loop (Rt. 940T) Inner Loop E. Main St 1/13/200 Location: Milepost: Date of Report: Route Number: Changing Contributing Acc. Factors Type (11)REnd REnd FixO Unkn Unkn Fixo Fixo Fixo Fixo Fixo Fixo Side Side FixO Apparent City of Rochester (10) 1 19,66 1 19,66 2 19,66 4 19,66 3 19,64 119,47 12,13 119,47 1 2,20 Diagram: Inner Loop 113 4 66 64 2 60 County of Monroe 6 ₹ ب ته 8 ರ ರ Town of PDO PDO PDO PDO PBO PDO PDO PD0 PDO PDO PDO 1 PD0 ഗ (5) Ξ Ξ 4 Φ a s > 11:25 22:45 23:35 8:02 9:45 0:10 8:04 4:30 16:05 4:24 11:25 6:45 11:17 18:22 (3) Time ACCIDENT HISTORY Sear-Brown Group PERIOD STUDIED 1/1/2005 3/7/2008 Months **DETAILS OF** 7/5/2007 1/26/2007 2/15/2007 2/15/2007 1/20/2005 6/10/2005 7/27/2007 5/26/2007 10/19/2006 2/16/2007 1/1/2005 5/26/2007 12/20/2006 9/13/2006 From <u>ان</u> 39 6026 6023 6025 6028 6038 6039 6024 6027 6029 6032 6033 6034 6030

P.I.N.	Case No.	File	By	Page Number 3						ic Control Disregarded (20) Unsafe Lane	W of Clinton overpass - unsafe speed pavement slinnery (19) Unsafe Speed (66) Pavement Slinnery
Street Name: Inner Loop (Rt. 940T)		Location: Inner Loop	E. Main St To: 1-490	1/13/200				(12)	Description	E. Clinton Overpass- wrong way on Inner loop (17) Traffic Control Disregarded (20) Unsafe Lane Changing	Wernass - unsafe speed navement slipper
Street Name:	Route Number:	Location:	Milepost:	Date of Report: 1/13/200			-	(11) Acc.	Type	H-On E. Clinton Ove	FixO W of Clinton
Diagram: Inner Loop	County of Monroe	Town of City of Rochester		(5) (6) (7) (8) (9)	N D .	e v d r d r d w	ပ ပ	t n n n e Contributing Acc.	y d d d r Factors	4	2 4 2 319.66
DETAILS OF ACCIDENT HISTORY		Sear-Brown Group		<u>PERIOD STUDIED</u> From 1/1/2005 (4) (5)	3/7/2008 v Months e	u :-	υ -	(3)	Date Time S	1/5/2008 2:18 2 Inj	1/11/2008 6:31 1 Ini
ACC	3	Sear		A Y	To:			ξ	No. Date	6040	6041

Location: Inner Loop

13-Jan-09

Town: City of Rochester County: Monroe

			Milepost:	E. Main St	To: 1-4	190		
Time of Day	No. of Accidents	% of Total	Direction	# Veh	% of Total	Direction		% of Tota
6 AM - 10 AM	6	20	North:	0	0	NorthEast:	0	0
10:00 AM - 4 PM	5	17	South:	1	2.3	NorthWest:	1	2.3
4 PM - 7 PM	6	20	East:	8	19	SouthEast:	3	7
7 PM - 12 MID	5	17	West:	30	70	SouthWest:	0	0
12 MID - 6 AM	8	27	Unknown:	0	0			
Unspecified	0	0	!			Total	43	
Total	30							
13 7 (1)	NT CA 11 4				% of			% of
	r No. of Accidents		Acc. Type		Total	Acc. Type		Tota
Clear		50	Sideswipe:	5	17	Bicycle:	0	0
Cloudy		23	Rear End:	4	13	Right Turn:	0	0
Fog:		0	Right Angle:	1	3.3	Driveway:	0	0
Rain		13	Left Turn:	0	0	Backing:	0	0
Sleet:		0	Pedestrian:	0	0	Overtaking:	0	0
Snow		13	Fixed Object:	17	57	Unknown:	2	6.7
Unknown: Tota		0	Head on:	1	3.3	Total	30	
	No. of Accident		Accident S	•	No. of Acciden	0/0 o	f Total	
Dry:		55		Fatal:	0	C		
Muddy:		0	Non-Fatal	• •	13	4	-3	
Other:	0	0	Property dama		17	5	7	
Slush:		0	Non-rep	ortable:	0	0	1	
Snow/Ice:		24		Total	30			
Wet:	6	21						
Unknown:	0	0		f Vehicle	No. of Accident		f Total	
Tota	l 29			ger Cars:	43	9	8	
10ta	1 29		Commercial '	Vehicles:	1	2	3	
			!	Total	44			
Time of Year	No. of Accident	s	Light (Condition	No. of Accident	s % of	f Total	
Winter (Dec-Feb)	13	43	Dark Road	-Lighted:	16	5	3	
Spring (Mar-May)	5	17	Dark Road-U	nlighted:	0	0)	
Summer (Jun-Aug)	7	23		Dawn:	2	6	.7	
Fall (Sep-Nov)	5	17	I	Daylight:	12	4	0	
Tota	I 30		4	Dusk:	0	0	ļ	
1014	. 50		ī	Jnknown:	0	0		

ACCIDENT HISTORY **DETAILS OF**

Sear-Brown Group

Diagram: East Main

Town of City of Rochester County of Monroe

East Main St Corridor Street Name:

Route Number:

Location: East Main St

Milepost: University Ave To: Union Street

1/13/200 Date of Report:

(6) (8) (2)

(4) (5)

PERIOD STUDIED From 1/1/2005 S > ø _

Months 5/10/200

To: 41

Page Number Case No. P.I.R File Ву

		(12)	Description	V1 rear-ended v2 while V2 was stopped in traffic. (4) Driver Inattention (9) Following Too Closely	Vehicles turning left in adjoining lanes when v1 veered into v2. (18) Turning Improperly (20) Unsafe Lane Changing	V1 sideswiped the parked v2. (4) Driver Inattention	V1 was allowed to enter by v2 stopped vehicles in Lanes 1 & 2 but entering lane 3 struck V2 (69) View Obstructed/Limited (7) Failure to Yield Right of Way	(9) Following Too Closely	V2 in intersection when light turned red. V1 started before V2 cleared	V2 turned into the path of V1 (18) Turning Improperly	V1 struck v2. (4) Driver Inattention	V2 was sideswiped by v1. (18) Turning Improperly (13) Passing or Lane Usage Improper	(7) Failure to Yield Right of Way	(17) Traffic Control Disregarded	V1 clipped mirror on V2 while goig around a third unvolved vehicle. (4) Driver Inattention (20) Unsafe Lane Changing	V1 ran red light and struck V2 (7) Failure to Yield Right of Way (17) Traffic Control Disregarded	V1 struck V2 who had failed to stop for the red light. (17) Traffic Control Disregarded
	:	(11) Acc	Туре	REnd	Side \	Side	RAng /	REnd	Left	Left	RAng \	Side \	Left	RAng	Side	RAng \	RAng
_ + _ ((10)	O h Apparent	d r Factors	1 14,9	1 118,20	4 1 1 8	1 1 2 69,7 F	1 19	2 1 1	1 1,18	4 - 4	1 2 3, 18,13	1 4 2,7	1 217	1 2 24,20	1 2 37,17 R	1 1,17
·			ס	-			-	-	-	4	- -		4	- 	· ==	=	-
> 0 ·		- +	```	PDO	PDO	PDO	PDO	PDO		PDO	·	PDO	P 00	 	PDO	PDO	0
<u> </u>	_ ر	- Ф	S	2 P	2 P	2 D	2	2 <u>P</u>	2 -	2	2 Inj	2	2 PI	2 PD0	2	2 	2 PI
]			(3) Time	11:50	12:03	13:40	16:20	13:38	9:10 2 Inj	22:50	12:05	8:06	22:11	13:35	13:33	1:16	15:29 2 PDO
		6	Date	10/2/2005	9/19/2006	5/23/2007	1/3/2006	9/9/2005	• •	3/2/2007	6/2/2007	4/4/2007	3/6/2007	3/26/2006	6/10/2005	7/6/2005	9/17/2005
			Š.	1019	1021	1023	1033	1034	1035	1037	1038	1039	1040	1041	1042	1043	1044

V1 & 2 colided in the intersection and claim both had a green light. (17) Traffic Control Disregarded V2 stopped quickly to avoid vehicle running a red light and was rearended by V2 (26) Reaction to Both vehicles were turning left and V2 drifted into v1's lane. (13) Passing or Lane Usage Improper V1&2 struck each other. Both drivers claimed that they had a green light. (17) Traffic Control V1 sideswiped V2 and left the scene (2) Alcohol Involvement (20) Unsafe Lane Changing V1 straight in a left turnlane and struck v2, in a left turnlane (18) Turning Improperly Page Number V1 ran the red light and was struck by v2 and V3. (17) Traffic Control Disregarded Case No. Disregarded (17) Traffic Control Disregarded (7) Failure to Yield Right of Way P.I.R V2 ran a red light and was struck by V1 (17) Traffic Control Disregarded File B To: Union Street Description (12)East Main St Corridor V1 backed into V2 (3) Backing Unsafely University Ave East Main St 1/13/200 (4) Driver Inattention Milepost: Street Name: Location: Date of Report: Route Number: Acc. Type RAng RAng REnd REnd RAng REnd RAng REnd Over REnd Back Side Side Side Contributing Apparent Factors City of Rochester (10) 1 17, 17,7 2 2,20 56 Diagram: East Main 3 17 County of Monroe 23 4 ~ (8)≥ ø **a** + 7 Town of 9 PD0 80 PDO PDO 2 PD0 PDO PDO PDO 17:16 2 PDO 2 PDO 2 PDO 3 Ξ Ξ Ę <u>4</u> 7 > ø S ~ က 2 ~ 2 ~ 7:35 23:35 20:06 7:45 17:12 13:50 9:02 12:33 16:06 18:15 17:15 ACCIDENT HISTORY Sear-Brown Group PERIOD STUDIED From 1/1/2005 5/10/200 Months **DETAILS OF** 3/27/2006 10/22/2005 10/25/2005 12/7/2005 12/27/2005 8/12/2006 11/2/2006 6/28/2007 7/27/2007 5/3/2007 5/29/2007 5/19/2006 1/2/2007 ٦٥: 4 1046 1059 1048 1049 1050 1052 1047 1051 1055 1056 1058 1054 1057 12

2

ACCIDENT HISTORY Sear-Brown Group **DETAILS OF**

Town of City of Rochester Diagram: East Main County of Monroe

Street Name: East Main St Corridor

Route Number:

East Main St Location: Milepost: University Ave To: Union Street

Date of Report: 1/13/200

(6) (8) (2)

(4) (5)

From 1/1/2005 To: 5/10/200

PERIOD STUDIED

Φ

Months

4

(10)

က Page Number Case No. P.I.N. File B

		(12)	Description	V1 U-turn from the right lane and turned infront of V2 (7) Failure to Yield Right of Way (20) Unsafe Lane Changing	V1 struck V2 with its trailer while they were both turning left (13) Passing or Lane Usage Improper	(13) Passing or Lane Usage Improper	V1 tried to make the light and Struck V2&3 (17) Traffic Control Disregarded (4) Driver Inattention	V1 merge to right lane and struck v2 (13) Passing or Lane Usage Improper	(9) Following Too Closely	(9) Following Too Closely	V3 sudden stop causing V2 to stop. V1 hit v2 which caused V2 ot hit V3 (9) Following Too Closely	(9) Following Too Closely	V1 avoiding another vehicle struck v2 who was the right lane. (26) Reaction to Other Univolved Vehicle	V1 drove by V2 and struck V1's mirror. (13) Passing or Lane Usage Improper	V2 stopped suddenly to let a NYS Trooper by and v1 struck V2 (4) Driver Inattention (9) Following Too Closely	V1 struck V2 as it made a left turn causing it to spin out and hit a parked car (69) View Obstructed/Limited (7) Failure to Yield Right of Way (69) View Obstructed/Limited	(7) Failure to Yield Right of Way
	(11)	Acc.	Type	Over La	Side V1	Over (1	RAng V1	Over V1	REnd (9	REnd (9	REnd V3	REnd (9	Side V1	Over V1	REnd V2	Left Ct	Left (7
	Apparent	Contributing	Factors	17,20 C	113	2 13 C	117,4	213 C	0	29	9	6	2 26 S	213 C	2 4,9	2 69, 7,69 L	117
	<u>۔</u>	o	_	-	_	-	-		-	-	-	7	7	~	4	7	_
	- 	_	ס	4	_	-	-	-	4	 	·		-	-	_	_	_
_	0	<u> </u>	0	~	-	-	-	4 -	-	-	-	 	-	4	· •	-	-
			_	ō	Q	Q	o	0	0	o	0	0	0	0	0		0
				PDO	PD0	PDO	PDO	PDO	PDO	PDO	PDO	2	PDO	PDO	PDO	<u>.</u>	PDO
_		a)	S	2	7	7	<u>က</u>	7	7	7	е С	2	7	7	7	с	7
		(3)	Time	13:59	9:00	16:02	13:34	22:40	10:32 2	10:32	16:30	13:00 2 PDO	10:02 2	19:05	13:35 2	8:30	8:10 2
		(2)	a	8/29/2007	4/22/2008	5/6/2008	5/10/2008	9/8/2006	7/2/2007	7/2/2007	11/20/2007	12/11/2007	1/11/2008	1/21/2008	2/9/2008	3/7/2008	7/12/2005
			9	1060	1061	1062	1063	1068	1071	1072	1074	1075	1076	1077	1078	1079	1081
						13)		

V2 stopped, V1 RE V2, unsafe speed, pavement slippery (19) Unsafe Speed (66) Pavement Slippery V2 stopped at red light, v1 RE v2, then backed up and sideswiped v2 as it passed it (2) Alcohol E. Main St. @ Pitkin St (17) Traffic Control Disregarded (17) Traffic Control Disregarded Page Number Case No. V2 stopped at light, V1 RE V2 following too closely (9) Following Too Closely P.I.N. File B V2 stopped, V1 lost control, spun around RE v2 (4) Driver Inattention V2 stopped and V1 tried to go around it but clipped the back of V2 Add Accidents under: University Ave + Union St Corridors To: Union Street Description (12) E. Main St. @ Pitkin St (2) Alcohol Involvement V1's mirror struck V2 (45) Oversized Vehicle East Main St Corridor Involvement (9) Following Too Closely **University Ave** East Main St 1/13/200 (2) Alcohol Involvement E. Main St. @ Union St. E. Main St. @ Union St V1 swerved into pole Milepost: Location: Date of Report: Street Name: Route Number: Acc. Type (11) Unkn REnd REnd RAng REnd REnd REnd REnd Unkn RAng Fixo Fixo Apparent Contributing Factors City of Rochester (10) 317,17 2 19,66 12,9 Diagram: East Main 145 County of Monroe 7 29 <u>6</u> ≥ a e + 8 ~ ರ O ರ Town of 9 8 PD0 PDO PDO PDO PDO PDO PDO 3 Ξ Ξ Ξ <u>=</u> <u>4</u> Φ Φ S ~ > N 7 ~ ~ ~ 16:06 14:56 19:27 1:09 21:14 18:32 7:35 9:00 23:50 9:20 13:45 (3) Time ACCIDENT HISTORY Sear-Brown Group PERIOD STUDIED 1/1/2005 5/10/200 **DETAILS OF** Months 2/2/2006 1/1/2005 9/1/2005 2/1/2006 4/14/2006 10/25/2005 2/27/2008 1/17/2007 8/29/2007 5/3/2007 2/27/2007 2/9/2007 (2) Date From T0: 1084 1093 1095 1099 1100 1103 1094 1097 1102 1104 1091 1101

Location: East Main St

12-Jan-09

Town: City of Rochester

County: Monroe

			Milepost:	University	Ave T	o: Union Street		
		% of			% of	75.1		% of
Time of Day	No. of Accidents	Total	Direction	# Veh	Total	Direction		Total
6 AM - 10 AM		21	North:	10	9.3	NorthEast:	1	0.9
10:00 AM - 4 PM	19	37	South:	19	18	NorthWest:	1	0.9
4 PM - 7 PM	10	19	East:	21	20	South East:	5	4.7
7 PM - 12 MID	10	19	West:	49	46	SouthWest:	1	0.9
12 MID - 6 AM	2	3.8	Unknown:	0	0			
Unspecified	0	0				Total	107	
Total	52							
Weather	r No. of Accidents		Acc. Type	# Veh	% of Total	Асс. Туре	# Vah	% of Total
Clear		55	Sideswipe:	9	17	Bicycle:		0
Cloudy:		32	Rear End:	18	33	Вісусіе: Right Turn:	0	0
Fog		0	Right Angle:	12	22	Right Turn: Driveway:	0	0
Rain		13	Left Turn:	5	9.3	Backing:	1	1.9
Sleet:		0	Pedestrian:	0	0	Overtaking:	5	9.3
Snow		0	Fixed Object:	2	3.7	Unknown:	2	3.7
Unknown:		0	Head on:	0	0	CHRHOWII.	2	3.7
Tota		Ü	·	Ū	v	Total	54	
Pavement	No. of Accidents	S	Accident S	Severity	No. of A	ccidents % o	f Total	~~~
Dry:	38	70	1 1 1	Fatal:		0 (
Muddy:		0	Non-Fatal		10	0 1	9	
Other:	0	0	Property damas		4.	4 8	81	
Slush:	0	0	Non-rep	•	(0 ()	
Snow/Ice:	3	5.6		Total	54	1		
Wet:	13	24	:			T	****	
Unknown:	0	0	Type of	Vehicle	No. of Ac	cidents % o	f Total	
			Passeng	er Cars:	103	8 1	00	
Tota	1 54		Commercial V	Vehicles:	() ()	
			1	Total	108	3		
Time of Year	No. of Accidents	······································	Light (Condition	No. of Ac	cidents % o	f Total	
Winter (Dec-Feb)	15	28	Dark Road	-Lighted:	13	2 2	2	
Spring (Mar-May)		30	Dark Road-U	0		0 0		
Summer (Jun-Aug)	11	20		Dawn:	(0		
Fall (Sep-Nov)	12	22		Daylight:	40	0 7	4	
•				Dusk:			.9	
Tota	1 54		U	nknown:			.9	

Diagram: University DETAILS OF ACCIDENT HISTORY Sear-Brown Group

County of Monroe Town of City of Rochester

Street Name: University Ave Corridor Route Number:

Location: University Ave

Case No. P.I.N File

			_							· ~~~				-						
	By	Page Number 1					safe Lane Changing	Traffic Control Disregarded	oper	tention	ay	ing Too Closely	tention		/ehicle 2. (9) Following Too Closely		e lane. V1 hit V2 on the left side. (18)			
Olliversity Ave	E. Main St To: Union St	1/13/200				(12) Description	V1 changed lanes and struck V2 (4) Driver Inattention (20) Unsafe Lane Changing	V1 struck V2 after V2 stopped for an emergency vehicle. (17) Traffic Control Disregarded	(20) Unsafe Lane Changing (13) Passing or Lane Usage Improper	V1 was cut off and stopped when struck by V2 (4) Driver Inattention	V1 merged over and struck V2. (7) Failure to Yield Right of Way	V2 stopped for pedestrians and V1 rear-ended V 2. (9) Following Too Closely	V2 was struck by Bicycle as v2 was turning left (4) Driver Inattention	oo Closely	V1 stopped abruptly and V2 rearended it, and V3 rear ended Vehicle 2.	(9) Following Too Closely (4) Driver Inattention	V1 in the left lane andwent straight, v2 turned left from middle lane. V1 hit V2 on the left side. (18) Turning Improperly (4) Driver inattention	(17) Traffic Control Disregarded	(4) Driver Inattention (17) Traffic Control Disregarded	V2 ran red light and struck V1 (17) Traffic Control Disregarded
Location. o	Milepost: E	Date of Report: 1					V1 changed lan	V1 struck V2 aft	(20) Unsafe Lar	V1 was cut off a	V1 merged over	V2 stopped for p	V2 was struck b	(9) Following Too Closely	V1 stopped abru	(9) Following To	V1 in the left lan Turning Improp	(17) Traffic Cor	(4) Driver Inatte	V2 ran red light
		Date o			;	(11) Acc. Type	Side	REnd	Over	REnd	Over	REnd	Bike	REnd	REnd	REnd	Over	RAng	RAng	RAng
		(6) (8)	· π σ	& •	C a (10)	n e Contributing d r Factors	1 24,20	1 117	2 2 20,13	2 24	1 17	100	1 24	1 29	2,9	2 39,4	2 418,4	1 1,17	2 34,17	1 1,17
,				 * TO	υ c		-	*	4	-	-	-		! _	-	-	4		····	~
;) (9)			υ (-	-	-	-	4	-	-	4	-	-	4	-	~	-
		(2)	ν _Φ	> o	<u>.</u>	- + >	PDO	PDO	PDO	PDO	PDO	PDO	PDO	PDO	PDO	<u></u>	PDO	PDO	<u></u>	PDO
	$\left\ \cdot \right\ $	4)	<u> </u>	1			13:15	12:39	13:40	7:57	21:12	8:49	14:40	23:55	16:13	18:49	22:20	2	10:13	8:20
		ED 05	80 13			(3) Time	i			ļ	i	i			1	<u> </u>	22	12:01	10.	1
seal-biowii Gioup		PERIOD STUDIED From 4/2/2005	5: 4/9/2008 Months			(2) Date	7/19/2005	8/15/2005	1/5/2006	1/18/2006	6/21/2006	7/20/2006	8/23/2006	12/29/2006	2/6/2007	3/24/2007	4/7/2007	7/9/2006	1/13/2007	3/3/2007
Seal		PE F	To: 37			£ 8	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
	<u> </u>			J					16			·			i				*	

P.I.N.	File	Ву	Page Number 2					The same of the sa			A CAMPANIAN CALAMAN CA			
University Ave Corridor	University Ave	E. Main St To: Union St	1/13/200				(12) Description	(7) Failure to Yield Right of Way	(20) Unsafe Lane Changing (7) Failure to Yield Right of Way		(7) Failure to Yield Right of Way	16648 rmp W. Main St. to NY940T E. Main St	16648 rmp W. Main St. to NY940T E. Main St	Add Accidents under: E. Main Street + Union St. Corridors
Street Name: Route Number:	Location:	Milepost:	Date of Report:			<u> </u>	Acc. Type	Left (7) Failure to	RAng (20) Unsafe	RAng	RAng (7) Failure to	Left 16648 rmp W	Over 16648 rmp W	Add Accident
علي		1	1			_		1	œ	DC	Œ	17	O	-
Diagram: University County of Monroe	ochester		(2) (9)	V 9 7 0 8 8 9 8 9 8 9 8 9 8 9 8 9 8 9 8 9 8 9	v h d f w	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	t n n n e Contributing Acc. y d d d r Factors Type	00 1 1 1 1,7	ıj 1 1 1 20,7	DO 4 1 4 1	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 4 1 1	DO 1 1 2 3	
Diagram: University County of Monroe	Town of City of Rochester		(4) (5) (6) (7)	e C 8 0 1	- 4-	0 C	e t n n e s y d d d d r	-	14:25 Inj 1 1 1 1, 20,7	-	1 1 17	22:40 lnj 4 1 1 1	1 2	
.	ochester	PERIOD STIDIED	(4) (5) (6) (7)	N 9	- 4-	0 C	t n n n e y d d d d r	PD0 1 1,	lnj	PD0 4	PDO 1 1 1 1 7	Ē	PDO 1 1 2	2022

Location: University Ave

13-Jan-09

Town: City of Rochester

County: Monroe

			Milepost:	E. Main St	To: Ut	nion St		
Time of Day	No. of Accidents	% of Total	Direction	# Veh	% of Total	Direction		% of Total
6 AM - 10 AM	4	20	North:	25	63	NorthEast:	1	2.5
10:00 AM - 4 PM	8	40	South:	3	7.5	NorthWest:	1	2.5
4 PM - 7 PM	3	15	East:	0	0	SouthEast:	1	2.5
7 PM - 12 MID		25	West:	9	23	SouthWest:	0	0
12 MID - 6 AM	0	0	Unknown:	0	0			
Unspecified	0	0				Total	40	
Total	20							
Waatha	No. of Accidents		A.a. Term	41.17-1-	% of	A	46 \$7 . 1	% of
			Acc. Type		Total	Acc. Type		Total
Clear:		50 30	Sideswipe: Rear End:	1	5	Bicycle:	1	5
Cloudy: Fog:		0	Right Angle:	6	30 30	Right Turn:	0	0
rog. Rain:		15	Left Turn:	6	10	Driveway:	0	0
Sleet:		0	Pedestrian:	2	0	Backing: Overtaking:	0	0 20
Snow:		5	Fixed Object:	0	0	Unknown:	4 0	0
Unknown:		0	Head on:	0	0	Chkhown.	U	U
Tota		U	i i i i i i i i i i i i i i i i i i i	U	U	Total	20	
Pavement	No. of Accidents		Accident S	Soverity	No. of Acciden	ts % of	Total	
Dry:	13	, 65	recident	Fatal:	0	0		
Muddy:	0	0	Non-Fatal		4	2		
Other:	0	0	Property damag	• •	16	8		
Slush:	0	0	Non-repo		0	0		
Snow/Ice:	1	5	1101110	Total	20	· ·		
Wet:	6	30	<u> </u>	1 0 tai				
Unknown:	0	0	Type of	Vehicle	No. of Accident	s % of	Total	
			1	er Cars:	41			
Total	20		Commercial V					
			!	Total				
Time of Vear	No. of Accidents		Light (Condition	No. of Accident	9/. of	Total	
Winter (Dec-Feb)	6	30	Dark Road		5	2		
Spring (Mar-May)	6	30	Dark Road-U		0	0	-	
Summer (Jun-Aug)	6	30	Dain Road-O	Dawn:	0	0		
Fall (Sep-Nov)	2	10	: :	Daylight:	15	7.	5	
			i i	Dusk:	0	0	-	
Total	20		U	nknown:	0	0		
				Tr.	otal 20			

Town of City of Rochester Diagram: East Ave/U County of Monroe DETAILS OF ACCIDENT HISTORY Sear-Brown Group

Street Name: East Ave Corridor

Route Number:

Location: East Ave/Union St

To: Union St. Milepost:

Date of Report: 1/13/200

(4) (8) (2)

9

(4) (5)

PERIOD STUDIED From 9/13/200

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4/2/2008 Months

To: 32 **ھ** +

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Page Number Case No. P.I.N. File Bý

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	(12)	Description	(17) Traffic Control Disregarded	V1 stopped abruptly rear ended by V2.	V1 was turning right and turned into V2 (4) Driver Inattention (18) Turning Improperly	V3 stopped to let V 1 into traffic, V2 struck V1 making a left (7) Failure to Yield Right of Way (4) Driver Inattention		V1 went the wrong way on N. Union, entered intersection and struck V2 (4) Driver Inattention		(64) Obstruction/Debris (7) Failure to Yield Right of Way		(17) Traffic Control Disregarded	(17) Traffic Control Disregarded	(7) Failure to Yield Right of Way	(17) Traffic Control Disregarded	(17) Traffic Control Disregarded
(11)	Acc.	Type	Left	REnd	Rght	Unkn	RAng	RAng	RAng	Left	RAng	RAng	RAng	Rght	RAng	RAng
C C a (10)	ing	d d r Factors	1 1 1 1 7	-	1 14,18	1 17,4		4-	4 4	1 2 3 64,7	-	1 1,17	1 1 17	1 1 27	1 2 217	1 2 2, 17
ပ ၀		0	4	-		-	4	4	4	4	-	_	:		-	4
L		>	PDO	į	PDO	PDO	PDO	PDO	PDO	j.	i <u>r</u>	PDO	PDO	PDO	PDO	PDO
υ –	(3)	Time S	2:38	20:01 2 Inj	8:06	18:03	22:10	4:00	22:45	20:59	11:53	20:10	15:43	16:21	10:15	20:14
		Date	8/5/2006	7/21/2006	9/13/2005	9/15/2005	9/16/2005	10/2/2005	1/6/2006	6/3/2006	6/5/2006	6/7/2006	8/24/2006	8/22/2006	11/20/2006	12/17/2006
		No.	3011	3012	3018	3019	3020	3021	3022	3023	3024	3025	3026	3027	3028	3029
					19											

V1 & 2 collided and caused V1 to spin out and strike parked V3 & 4. (17) Traffic Control Disregarded (7) Failure to Yield Right of Way v2 It out of drive, view obstructed by parked veh; was struck by V1 westbound (7) Failure to Yield Right of Way (69) View Obstructed/Limited 2 V1 hit V2, force V2 over the curb, hit parked V3&4 (17) Traffic Control Disregarded Page Number Case No. P.I.N B (7) Failure to Yield Right of Way (17) Traffic Control Disregarded (7) Failure to Yield Right of Way (69) View Obstructed/Limited Description East Ave @ N. Union St (17) Traffic Control Disregarded East Ave @ Union St (17) Traffic Control Disregarded To: Union St. East Ave @ Union St (18) Turning Improperly Add acidents found: Pitkin St. corridor East Ave/Union St East Ave Corridor 1/13/200 Street Name: Location: Date of Report: Route Number: Milepost: Acc. Type RAng RAng RAng RAng RAng RAng Left Left Contributing Apparent Factors Town of City of Rochester 3, 7,69 17,17 17,69 Diagram: East Ave/U 2,17 118 County of Monroe 6) ≥ Ð 8 S 0 PDO PDO 8 PDO <u>P</u> PDO 3 ഗ Ξ 4 Φ S 9 20:10 18:12 21:57 11:21 20:23 21:57 11:51 (3) Time ACCIDENT HISTORY Sear-Brown Group PERIOD STUDIED 9/13/200 4/2/2008 Months **DETAILS OF** 12/23/2006 1/4/2007 11/2/2005 4/22/2006 6/7/2006 5/8/2007 1/12/2007 4/2/2008 From To: 32 3033 3036 3031 3032 3034 3035 3037 3038 20

Location: East Ave/Union

Locati	ion: East Ave/Un	ion			rown: eng	or recemester		
13-Jan-09					County: Mor	nroe		
			Milepost:		To: Un	ion St.		
Time of Day	No. of Accidents	% of Total	Direction	# Veh	% of Total	Direction	# Veh	% of Total
6 AM - 10 AM	1	4.5	North:	17	34	NorthEast:	1	2
10:00 AM - 4 PM	6	27	South:	5	10	NorthWest:	1	2
4 PM - 7 PM	3	14	East:	12	24	SouthEast:	0	0
7 PM - 12 MID	10	45	West:	14	28	SouthWest:	0	0
12 MID - 6 AM	2	9.1	Unknown:	0	0			
Unspecified	0	0				Total	50	
Total	22					Total	30	
Weather	No. of Accidents		Acc. Type	# Veh	% of Total	Acc. Type	# Veh	% of Total
Clear:	15	68	Sideswipe:	0	0	Bicycle:	0	0
Cloudy:	4	18	Rear End:	1	4.5	Right Turn:	2	9.1
Fog:	0	0	Right Angle:	14	64	Driveway:	0	0
Rain:	2	9.1	Left Turn:	4	18	Backing:	0	0
Sleet:	0	0	Pedestrian:	0	0	Overtaking:	0	0
Snow:	1	4.5	Fixed Object:	0	0	Unknown:	1	4.5
Unknown:	0	0	Head on:	0	0			
Total	22					Total	22	
Pavement	No. of Accidents	;	Accident S	Severity	No. of Accidents	s % of	Total	
Dry:	17	77		Fatal:	0	0		
Muddy:	0	0	Non-Fatal	Injury:	5	2	3	
Other:	0	0	Property damag	ge only:	17	7	7	
Slush:	0	0	Non-repo	ortable:	0	0		
Snow/Ice:	1	4.5		Total	22			
Wet:	4	18						
Unknown:	0	0	,	Vehicle	No. of Accidents	% of	Total	
Total	22			er Cars:	50	9		
10141	22		Commercial V	Vehicles:	3	5	.7	
				Total	53			
Time of Year	No. of Accidents	}	Light (Condition	No. of Accidents	% of	Total	
Winter (Dec-Feb)	5	23	Dark Road	-Lighted:	9	4	1	
Spring (Mar-May)	3	14	Dark Road-U	nlighted:	0	0		
Summer (Jun-Aug)	8	36	I .	Dawn:	0	0		
Fall (Sep-Nov)	6	27]	Daylight:	12	5	5	
Total	22			Dusk:	1	4	.5	
			; U	nknown:	0	0		

Town: City of Rochester

Total

22

V2 TURNED LEFT IN FRONT OF V1. V1 STRUCK V2 (13) Passing or Lane Usage Improper (17) Traffic V1 (MOTORCYCLE) STOPPED TO turn RIGHT INTO PARKING LOT (26) Reaction to Other Univolved V1 TURNED IN FRON OF V2 IN AN ATTEMPT TO TURN INTO A DRIVEWAY (18) Turning Improperly V2 TURNED LEFT IN FRONT OF V1, V1 STRUCK V2 (18) Turning Improperly (20) Unsafe Lane V2 TURN LEFT, V1 STRUCK V2 BOTH IN LEFT LANES (13) Passing or Lane Usage Improper V1 SWERVED TO AVOID V2, STRUCK CURB (26) Reaction to Other Univolved Vehicle V1 FAILED TO STOP FOR RED LIGHT & STRUCK V2 (7) Failure to Yield Right of Way V2 RAN RED LIGHT & STRUCK V1. V2 FLED SCENE (7) Failure to Yield Right of Way Page Number V1 EXITING LOT STRUCK V2 ENTERING PARKING LOT (18) Turning Improperly Case No. V1 WENT THRU RED LIGHT & STRUCK V2 (17) Traffic Control Disregarded P.I.R File V1 ENTERED V2'S LANE AND STRUCK V2 (20) Unsafe Lane Changing B Description To: E. Main St (12) V1 STRUCK PARKING SIGN (4) Driver Inattention V2 STRUCK V1 AS V1 WAS MAKING LEFT TURN V1 BACKED INTO V2 WHILE V2 WAS PARKED Union St. Corridor S. Union St Union St. 1/13/200 Control Disregarded Street Name: Location: Milepost: Date of Report: Route Number: Vehicle Acc. Type RAng RAng RAng Unkn RAng Over FixO Rght Dī Back Fixo Left Left Left Contributing Factors Apparent City of Rochester (10) 113,17 2 18,20 3 20 118 1 26 217 Diagram: Union St. County of Monroe 4 2 (8)≥ ø **a** → ᠣ T Town of 9 _ PD0 PDO PDO PDO PDO PDO PDO 80 PD0 PD0 PDO PDO PDO 3 Ξ <u>4</u> Φ S > Φ 8:48 0:20 16:15 0:00 8:10 23:45 13:36 17:25 2:20 10:54 8:47 21:00 22:34 (3) Time ACCIDENT HISTORY Sear-Brown Group PERIOD STUDIED 3/17/200 5/31/200 Months **DETAILS OF** 7/23/2006 12/16/2006 6/13/2006 4/20/2008 10/9/2006 11/3/2006 5/3/2007 6/11/2006 6/12/2007 11/30/2007 5/15/2007 7/28/2007 12/1/2007 From To: 39 4015 4018 4002 4005 4006 4009 4010 4011 4008 4012 4013 4016 4004

V2 STRUCK BY V1 WHICH THEN FLED SCENE (7) Failure to Yield Right of Way (17) Traffic Control V2 AVOID UNKNOWN VEHICLE, REAR-ENDED BY V1 (9) Following Too Closely (26) Reaction to Other Univolved Vehicle V1 WAS PARKED & V2 WAS STOPPED AT CORNER. V1 BACKED INTO V2 (4) Driver Inattention V1 HIGH RATE OF SPEED, SLID ICY ROAD, CURB (2) Alcohol Involvement (19) Unsafe Speed V1 CHANGED LANES & struck v2 (20) Unsafe Lane Changing (7) Failure to Yield Right of Way 2 V1 BACKING INTO DRIVEWAY & STRUCK V2 STOPPED IN TRAFFIC (3) Backing Unsafely V2 PARKED. V1 TURNED RIGHT INTO THE PARK LOT STRUCK V2 (4) Driver Inattention V1 BACKING DOWN STREET INTO V2. (2) Alcohol Involvement (3) Backing Unsafely Page Number V1 SWERVED OFF ROAD, OVER CURB, STRUCK TREE (2) Alcohol Involvement Case No. V1 WAS CHANGING LANES WHEN IT STRUCK V2 (20) Unsafe Lane Changing V2 STOPPED & TRAFFIC LIGHT & V1 REAR-ENDED V2 (4) Driver Inattention V1 STARTED TO SWITCH LANES & SIDESWIPED V2 (4) Driver Inattention P.I.N File B V2 STOPPED & V1 REAR-ENDED V2 (9) Following Too Closely Description To: E. Main St V1 (RTS BUS) REAR-ENDED V2. (4) Driver Inattention (12) Union St. Corridor S. Union St Union St. 1/13/200 Location: Street Name: Milepost: Date of Report: Disregarded Route Number: Acc. Type REnd REnd (11) REnd REnd RAng Unkn Side Back Back Fixo Side Side Left Left Contributing Apparent **Factors** City of Rochester (10) 4 2,19 39,26 17,17 3 20,7 2 2,3 2 20 Diagram: Union St. County of Monroe 4 6 ≥ ø Ø 7 8 Q σ Town of 9 PDO PDO **P**00 **P**00 PDO PDO PD0 PDO PDO PDO PDO PDO 3 Ξ Ξ 4 > Φ S 1:30 1:49 17:18 10:52 1:02 11:07 23:50 14:32 2:41 2:25 14:00 0:30 8:40 (3) Time ACCIDENT HISTORY Sear-Brown Group PERIOD STUDIED 3/17/200 5/31/200 Months **DETAILS OF** 3/31/2006 5/5/2006 10/30/2005 12/10/2005 5/31/2006 4/4/2008 8/26/2005 1/22/2008 5/20/2006 11/17/2005 6/9/2006 10/12/2007 8/12/2007 2/16/2007 From To: 39 4022 4023 4025 4027 4036 4021 4026 4028 4032 4035 4029 4033 4031

V1 TURNED LEFT, WRONG WAY, ONE WAY ST. SIDESWIPING V2 & V3 (2) Alcohol Involvement (19) V2 STOPPED TO AVOID ANOTHER V & WAS REAR-ENDED BY V1 (26) Reaction to Other Univolved V1 ATTEMPTED TO STOP & REAR-ENDED V2 (9) Following Too Closely (66) Pavement Slippery V1 TURNED THE WRONG WAY ONTO ONE-WAY STREET, THEN BACKED UP & STRUCK V2 (2) က Page Number V1 REAR-ENDED V2 PARKED. (2) Alcohol Involvement (47) Tire Failure/Inadequate V2 STOPPED AT RED LIGHT AND WAS REAR-ENDED BY V1. (4) Driver Inattention V2 PARKED WHEN V1 SWERVED V1 REAR-ENDED V2 (9) Following Too Closely Add accidents found: E. Main+ University+East Ave+Broad+Monroe corridors Case No. v1 VEHICLE WOULD NOT TURN & STRUCK CURB (5) Driver Inexperience P.I.N B V1 EXITED INNER LOOP & STRUCK V2 (9) Following Too Closely Description To: E. Main St V2 ENTERED INTERSECTION & WAS STRUCK BY V1. S. Union St @ Grifith St (9) Following Too Closely Alcohol Involvement (3) Backing Unsafely Union St. Corridor S. Union St Union St. 1/13/200 Unsafe Speed Location: Milepost: Date of Report: Street Name: Route Number: Vehicle Type Acc. 3 REnd RAng REnd REnd REnd REnd REnd REnd RAng Back Left Contributing Apparent **Factors** City of Rochester 12,19 2 2,47 29,66 4 26 Diagram: Union St. County of Monroe 6 10 6 Φ 2 8 σ 0 Town of 9 PDO PDO 8 PDO PDO PDO PDO <u>P</u> PBO 9 ഗ Ξ Ξ <u>4</u> > Φ 4:32 11:07 13:50 1:34 15:43 22:55 2:45 17:59 19:15 23:41 11:07 (3) Time ACCIDENT HISTORY Sear-Brown Group PERIOD STUDIED 3/17/200 5/31/200 **DETAILS OF** Months 1/2/2006 4/29/2006 5/31/2008 3/17/2005 3/11/2008 3/31/2006 4/5/2008 3/31/2006 3/15/2008 12/12/2007 2/22/2008 From <u>ن</u> 39 4038 4046 4037 4041 4043 4044 4045 4047 4049 4050 4052 4051

Location: Union St.

13-Jan-09

Town: City of Rochester

			Milepost:	S. Union S		To: E. M	⁄lain St		
Time of Dov	No of Assidants	% of Total	Divertion	# W ab	% of		Direction	# Veh	% 01
Time of Day	No. of Accidents		Direction		Total		NorthEast:	4	Tota 5.5
6 AM - 10 AM		13	North:	41	56		NorthWest:	5	6.8
10:00 AM - 4 PM		26	South:	9	12		SouthEast:	2	2.7
4 PM - 7 PM		10	East:	6	8.2		SouthWest:	0	0
7 PM - 12 MID 12 MID - 6 AM		18	West:	6	8.2		South West.	V	V
		33	Unknown:	0	0				
Unspecified		0	!				Total	73	
Total	39		OPPORTUNITY TOUR TOUR OWNERS AND						
Weather	No. of Accidents		Acc. Type	# Veh	% of Total		Acc. Type	# Veh	% of Tota
Clear:	19	49	Sideswipe:	3	7.7		Bicycle:	0	0
Cloudy:	15	38	Rear End:	11	28		Right Turn:	l	2.6
Fog:	0	0	Right Angle:	7	18		Driveway:	1	2.6
Rain:	3	7.7	Left Turn:	6	15		Backing:	4	10
Sleet:	0	0	Pedestrian:	0	0		Overtaking:	1	2.6
Snow:	2	5.1	Fixed Object:	3	7.7		Unknown:	2	5.1
Unknown:	0	0	Head on:	0	0		, man	20	
Tota	39						Total	39	
Pavement	No. of Accidents	s	Accident S	Severity	No. of	Accidents	% of	Total	
Dry:	28	74		Fatal:		0	0		
Muddy:	0	0	Non-Fatal	Injury:		5	1	3	
Other:	0	0	Property damag	ge only:		34	8	7	
Slush:	1	2.6	Non-repo	ortable:		0	0		
Snow/Ice:	1	2.6		Total		39			
Wet:	8	21							
Unknown:	0	0	Type of	Vehicle	No. of	Accidents	% of	Total	
Total	38		Passeng	er Cars:		73			
Total	36		Commercial V	Vehicles:					
				Total					
Time of Year	No. of Accidents	S	Light (Condition	No. of A	Accidents	% of	Total	
Winter (Dec-Feb)	8	21	Dark Road	-Lighted:		21	5.	4	
Spring (Mar-May)	16	41	Dark Road-Unlighted:			0	0		
Summer (Jun-Aug)	8	21		Dawn:		0	0		
Fall (Sep-Nov)	7	18	i !	Daylight:		18	46		
Total	39		1	Dusk:		0	0		
1 Otal	39		U	nknown:		0	0		

V1 MAKE A WRONG TURN ON A ONE WAY ST. V1 THEN MADE A U-TURN & STRUCK V2 (7) Failure V2 ATTEMPTED TO MAKE A LEFT TURN & WAS STRUCK BY V1 (4) Driver Inattention (7) Failure to Yield Right of Way V2 ran A RED LIGHT & STRUCK BY V1 (17) Traffic Control Disregarded (7) Failure to Yield Right of V1 EXITED PARKING LOT INTO PATH OF V2 (18) Turning Improperly (69) View Obstructed/Limited V2 STOPPED TO turn LEFT, V1 REAR-ENDED V2 (4) Driver Inattention (7) Failure to Yield Right of V2 WENT THRU RED LIGHT & WAS STRUCK BY V1. V2 THEN STRUCK V3 (17) Traffic Control V2 STOPPED, V1 LIGHT TURN GREEN & THOUGHT V2 HAD STARTED TO MOVE (4) Driver V2 STOPPED TO MAKE A LEFT TURN WHEN V1 REAR-ENDED V2 (4) Driver Inattention V1 WENT THRU A RED LIGHT & WAS STRUCK BY V2 (17) Traffic Control Disregarded V2 TURNED IN FRONT OF V1 & WAS STRUCK BY V1 (7) Failure to Yield Right of Way V1 ATTEMPTED TO ENTER TRAFFIC & STRUCK V2 (7) Failure to Yield Right of Way Page Number V2 STOPPED IN TRAFFIC & WAS REAR-ENDED BY V1 (9) Following Too Closely Case No. V1 WENT THRU RED LIGHT & STRUCK V2 (7) Failure to Yield Right of Way P.I.N File B V1 TURNED RIGHT & STRUCK PARKEd V2, PUSHING IT INTO V3 To: Alexander St. Description to Yield Right of Way (18) Turning Improperly Monroe Ave Corridor Monroe Ave Chestnut 1/13/200 Location: Milepost: Street Name: Disregarded Date of Report: Route Number: nattention Acc. Type RAng RAng RAng REnd RAng RAng REnd REnd REnd RAng Rght Rght Side Drvy Contributing Apparent Factors City of Rochester 2 18,69 17,18 Diagram: Monroe Av 1 17,7 24,7 14,7 217 County of Monroe 6 ≥ Φ 7 8 ರ Town of PDO PDO PDO PDO PDO PDO PDO PD0 PDO PDO (5) PDO ഗ Ξ Ē Ξ 4 Φ ø 22:45 22:59 10:15 8:48 23:05 13:44 12:22 19:52 15:00 90:0 19:43 9:02 17:51 15:21 (3) Time ACCIDENT HISTORY Sear-Brown Group PERIOD STUDIED 1/4/2005 5/28/200 Months **DETAILS OF** 5/18/2006 6/22/2007 7/8/2006 5/28/2008 1/4/2005 6/22/2006 7/28/2006 7/5/2005 12/31/2005 9/25/2005 12/22/2005 2/24/2006 11/7/2007 6/3/2006 From :0 **T**0: 4 5002 5014 5003 5004 5005 5006 5007 5008 5009 5010 5012 5013 5011 26

V2 SLOWED FOR TRAFFIC, V1 REAR-ENDED V2. (9) Following Too Closely (42) Brakes Defective V2 SLOWED FOR TRAFFIC, V1 REAR-ENDED V2. (9) Following Too Closely (42) Brakes Defective V2 STOPPED FOR LIGHT WHEN LIGHT TURNED GREEN, V1 REAR-ENDED V2 (9) Following Too V1 REAR-ENDED V2 (26) Reaction to Other Univolved Vehicle (26) Reaction to Other Univolved V1 WRONG WAY-ONE WAY ST., TURNED RIGHT & STRUCK PEDESTRIAN (4) Driver Inattention V1 (UNKNOWN) SIDESWIPED V2 & V3 AS both PARKED (13) Passing or Lane Usage Improper V2 PARKED. V1 REAR-ENDED V2, THEN STRUCK SIGN & WALL (2) Alcohol Involvement (13) 2 V1 PULLED INTO TRAFFIC FROM CURB & STRUCK V2 (7) Failure to Yield Right of Way V1 PULLED FROM CURB INTO TRAFFIC & STRUCK V2 (7) Failure to Yield Right of Way Page Number V2 STOPPED IN TRAFFIC & WAS REAR-ENDED BY V1 (9) Following Too Closely Case No. P.I.N. File B To: Alexander St. Description (12) V2 PARKED, STRUCK BY ANOTHER VEHICLE V1 REAR-ENDED V2 (9) Following Too Closely V2 PARKED. V1 STRUCK V2 & FLED SCENE. Monroe Ave Corridor V1 OVER CURB & STRUCK TREE Passing or Lane Usage Improper Monroe Ave Chestnut 1/13/200 Location: Milepost: Street Name: Date of Report: Route Number: Closel Type Contributing Acc. REnd (11) REnd REnd REnd REnd REnd REnd REnd Rght EXO S Rght Side Side Side Apparent **Factors** City of Rochester (10) 2 26,26 29,42 12,13 Diagram: Monroe Av 29,42 County of Monroe (8)ø o Town of 9 <u>B</u> PDO P00 PDO PDO PD0 PD0 PDO PDO <u>P</u> 3 Ξ Ξ Ξ Ξ <u>4</u> Φ > O 0:15 17:25 16:47 14:08 14:08 15:49 1:10 13:20 14:33 2:11 14:36 2:08 1:58 (3) Time ACCIDENT HISTORY Sear-Brown Group PERIOD STUDIED 1/4/2005 5/28/200 Months **DETAILS OF** 3/28/2007 3/14/2008 4/5/2008 6/13/2005 9/27/2005 10/7/2005 3/31/2008 7/22/2005 3/14/2008 7/13/2007 7/8/2005 12/21/2005 2/19/2006 9/28/2007 From To: 41 5016 5033 5019 5023 5017 5020 5025 5028 5024 5026 5029 5032 5031 27

V1 STRUCK V2 WHICH WAS IN THE INTERSECTION. (7) Failure to Yield Right of Way (7) Failure to V2 STOPPED, WHEN LIGHT CHANGED V2 ENTERED INTERSECTION & STRUCK BY V1 (17) Traffic V1 was parallel parking and struck V2, turning improperly, other vehicular (18) Turning Improperly V1 REAR-ENDED V2, PUSHING IT INTO V3 (9) Following Too Closely (66) Pavement Slippery V1 STOPPED MAKE A LEFT TURN. V2 PASS V1 ON LEFT. V1 THEN STRUCK V2 (60) Other V1 (BUS) ENTERED THE INTERSECTION & STRUCK V2. (17) Traffic Control Disregarded V1 SLIDE ON SLIPPERY PAVEMENT & STRUCK GUIDE RAIL. (66) Pavement Slippery Page Number Case No. V1 WENT THRU A RED LIGHT & STRUCK V2 (17) Traffic Control Disregarded P.I.N. D1 STRUCK THE MEDIAN and sign (13) Passing or Lane Usage Improper File B Ref. Mrkr. 31 4303 2042 (4) Driver Inattention (4) Driver Inattention V1 (MOTORCYCLE) LOST CONTROL & HIT CURB, LIGHT POLE Monroe Ave @ Linwood PI (14) Pedestrian's Error/Confusion To: Alexander St. Ref. Mrkr. 31 4303 2042 (7) Failure to Yield Right of Way Description /ehicular (13) Passing or Lane Usage Improper Monroe Ave Corridor Monroe Ave Chestnut 1/13/200 Ref. Mrkr. 31 4303 2042 (60) Other Vehicular Yield Right of Way Street Name: Milepost: Location: Date of Report: Route Number: Type Acc. 12 Unkn RAng RAng REnd RAng RAng REnd RAng REnd FixO Fixo Side Contributing Apparent Factors City of Rochester 2 60,13 4 18,60 39,66 Diagram: Monroe Av 4,4 <u>1</u>, 99 317 217 2,7 County of Monroe n (8)7 ਰ Town of 9 PBO PDO <u>8</u> <u>P</u> PDO PDO 5 Fat Ξ Ξ Ξ Ξ Ξ Ξ <u>4</u> ø Φ 20:08 9:58 19:06 14:13 17:26 2:30 10:01 11:40 11:22 17:34 15:54 21:20 (3) Time ACCIDENT HISTORY Sear-Brown Group PERIOD STUDIED 1/4/2005 5/28/200 Months **DETAILS OF** 9/5/2006 4/8/2007 3/19/2006 7/3/2006 9/19/2006 12/27/2005 3/16/2007 5/30/2006 5/25/2007 8/20/2007 10/26/2007 12/3/2007 8/17/2007 From . E 4 5048 5052 5036 5038 5040 5042 5044 5047 5049 5037 5041 5051 28

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4 V1 stoped at signal then drove forward and struck V2, inattatention, failure to yield (4) Driver Inattention (7) Failure to Yield Right of Way V1 rear ended V2 who was stopped at light. V1 states breaks defective (42) Brakes Defective Page Number Case No. P.I.R V1 struck median and sign post, driver inattention (4) Driver Inattention B To: Alexander St. Description Additional Accidents on Union Street summary Monroe Ave Corridor Monroe Ave Chestnut 1/13/200 Location: Milepost: Date of Report: Street Name: Route Number: Acc. Type REnd REnd (11) ų Š Contributing Apparent **Factors** Town of City of Rochester Diagram: Monroe Av 14,7 142 County of Monroe (8)≥ Φ ರ œ PD0 PDO <u>P</u> (5) ഗ 4 Φ ø 23:14 15:00 0:15 (3) Time ACCIDENT HISTORY Sear-Brown Group PERIOD STUDIED 1/4/2005 5/28/200 Months **DETAILS OF** 5/21/2007 7/4/2006 11/3/2005 From <u>٦</u>٥: 4 5053 5054 5055 5056

29

Location: Monroe Ave

13-Jan-09

Town: City of Rochester

			Milepost:	Chestnut	To:	Alexander St.		
Time of Day	No. of Accidents	% of Total	Direction	# Veh	% of Total	Direction	# Veh	% of Total
6 AM - 10 AM	[4	9.1	North:	9	11	NorthEast:	2	2.4
10:00 AM - 4 PM	17	39	South:	13	16	NorthWest:	4	4.9
4 PM - 7 PM		11	East:	39	48	SouthEast:	2	2.4
7 PM - 12 MID	9	20	West:	12	15	SouthWest:	1	1.2
12 MID - 6 AM		20	Unknown:	0	0			
Unspecified	0	0				Total	82	
Total	l 44							
Weather	r No. of Accidents		Acc. Type	# Veh	% of Total	Acc. Type	# Veh	% of Total
Clear:	22	50	Sideswipe:	5	11	Bicycle:	1	2.2
Cloudy:	15	34	Rear End:	17	38	Right Turn:	4	8.9
Fog:	0	0	Right Angle:	11	24	Driveway:	1	2.2
Rain:	5	11	Left Turn:	1	2.2	Backing:	0	0
Sleet:	0	0	Pedestrian:	0	0	Overtaking:	0	0
Snow:	2	4.5	Fixed Object:	3	6.7	Unknown:	1	2.2
Unknown:	0	0	Head on:	1	2.2			
Total	l 44					Total	45	
Pavement	No. of Accidents	8	Accident S	Severity	No. of Accide	ents % of	f Total	77.82
Dry:	30	68		Fatal:	1	2	.2	
Muddy:	0	0	Non-Fatal	Injury:	14	3	1	
Other:	0	0	Property damag	•	30	6	7	
Slush:	0	0	Non-repo	ortable:	0	0		
Snow/Ice:	1	2.3		Total	45			
Wet:	13	30						
Unknown:	0	0		Vehicle	No. of Accider	its % of	f Total	
Total	44			er Cars:	87			
			Commercial V	Vehicles:				
			î	Total				
Time of Year	No. of Accidents	3	Light (Condition	No. of Accider	nts % of	Total	
Winter (Dec-Feb)	9	20	Dark Road	-Lighted:	17	3	9	
Spring (Mar-May)	13	29	Dark Road-U	nlighted:	0	0		
Summer (Jun-Aug)	14	31		Dawn:	0	0	0	
Fall (Sep-Nov)	9	20	. 1	Daylight:	27	6	1	
Total	45			Dusk:	0	0		
			U	nknown:	0	0		
				То	otal 44			

V1 FAILED TO STOP AT STOP SIGN, WENT ACROSS INTERSECTION & HIT THE FIRE HYDRANT (13) V1 SIDESWIPED V2. V2 DROVE OVER MEDIAN & OVER A STREET SIGN (4) Driver Inattention (20) V1 making left out of lot went wrong way down browd st hit v2 going EB (17) Traffic Control Disregarded (13) Passing or Lane Usage Improper V1 TURNED LEFT & DROVE OVER MEDIAN & SIGN. (17) Traffic Control Disregarded Page Number Case No. P.I.N File Ву (17) Traffic Control Disregarded (17) Traffic Control Disregarded V1 SLID ON BLACK ICE INTO CURB (66) Pavement Slippery Description Add accidents found: Pitkin St + Union St Corridors To: Union St (12) E. Broad St Corridor Passing or Lane Usage Improper East Broad St Savanah St 1/13/200 Unsafe Lane Changing Location: Street Name: Milepost: Date of Report: Route Number: Acc. Type RAng Fixo Unkn Fixo Side Left Contributing Apparent Factors City of Rochester 9 117, 17 117,13 Diagram: East Broad 3 4,20 1 66 County of Monroe (8)≥ Ð ب ع 7 Town of 9 PDO **P**00 PBO PDO PDO PD0 3 4 ø ပ Φ S 23:39 14:05 2:55 14:05 12:40 ACCIDENT HISTORY Sear-Brown Group PERIOD STUDIED 10/23/20 5/23/200 Months **DETAILS OF** 11/4/2006 10/23/2005 5/23/2008 2/19/2006 10/15/2007 (2) Date From <u>۲</u>٥: 32 7005 7008 7004 2009 7010 2006 7007 31

Location: East Broad St

13-Jan-09

Town: City of Rochester

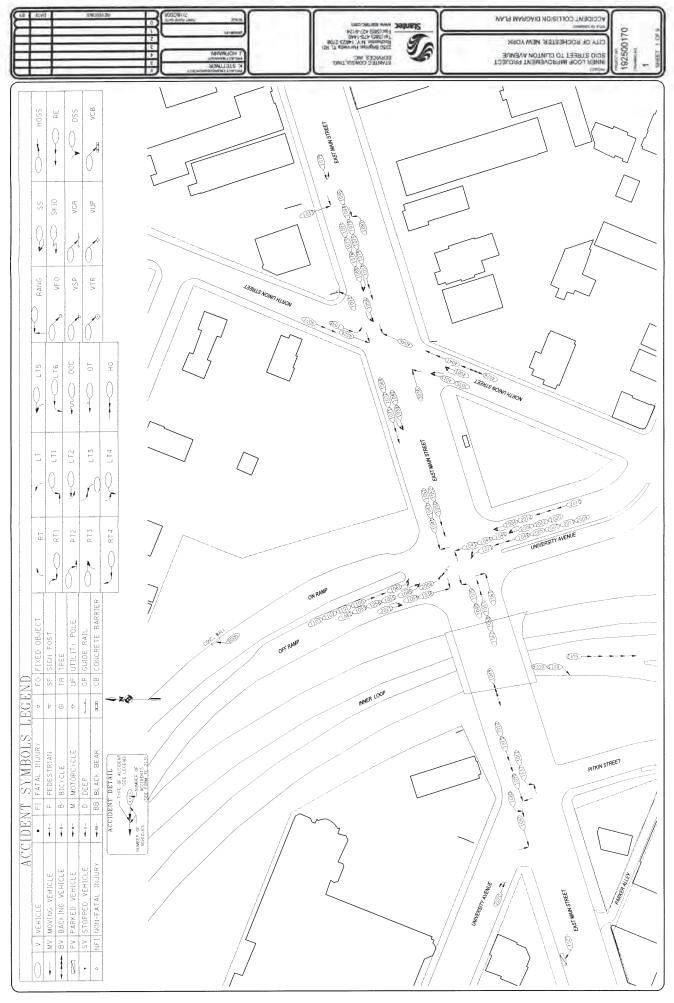
			Milepost:	Savanah St		To: Uni	on St		
Time of Day	No. of Accidents	% of Total	Direction	# Veh	% of Total		Direction	# Veh	% of Total
6 AM - 10 AM	0	0	North:	1	11		NorthEast:	0	0
10:00 AM - 4 PM	3	50	South:	1	11		NorthWest:	0	0
4 PM - 7 PM	0	0	East:	5	56		SouthEast:	0	0
7 PM - 12 MID	1	17	West:	2	22		SouthWest:	0	0
12 MID - 6 AM	2	33	Unknown:	0	0				
Unspecified	0	0					Total	9	
Tota	I 6						1 otal	,	
	NT. CA 1	······································		11 3 7 3	% of				% of
	r No. of Accidents		Acc. Type		Total		Acc. Type		Total
Clauder		83	Sideswipe:	1	17		Bicycle:	0	0
Cloudy		0	Rear End:	0	0		Right Turn:	0	0
Fog:		0	Right Angle:	1	17		Driveway:	0	0
Rain		17	Left Turn:	1	17		Backing:	0	0
Sleet:		0	Pedestrian:	0	0		Overtaking:	0	0
Snow:		0	Fixed Object:	2	33		Unknown:	1	17
Unknown: Tota		0	Head on:	0	0		Total	6	
Pavement	No. of Accidents	<u> </u>	Accident	Severity	No. of	Accidents	% of	Total	
Dry:		67		Fatal:		0	0		
Muddy:		0	Non-Fatal			0	0		
Other:		0	Property dama			6		00	
Slush:	0	0	Non-rep	-		0	0		
Snow/Ice:	1	17	1	Total		6	·		
Wet:	1	17		10141			2.47		
Unknown:	0	0	Type of	f Vehicle	No. of	Accidents	% of	Total	
			7.5	ger Cars:		9			
Total	6		Commercial						
			:	Total					
Time of Year	No. of Accidents	 }	Light (Condition	No. of	Accidents	— % of	Total	
Winter (Dec-Feb)		17	Dark Road			3	50		
Spring (Mar-May)		33	Dark Road-U	_		0	0		
Summer (Jun-Aug)		0		Dawn:		0	0		
Fall (Sep-Nov)	3	50		Daylight:		3	50	C	
Total				Dusk:		0	0		
ı ota	6		: !	nknown:		0	0		
			•	To	otal	6			

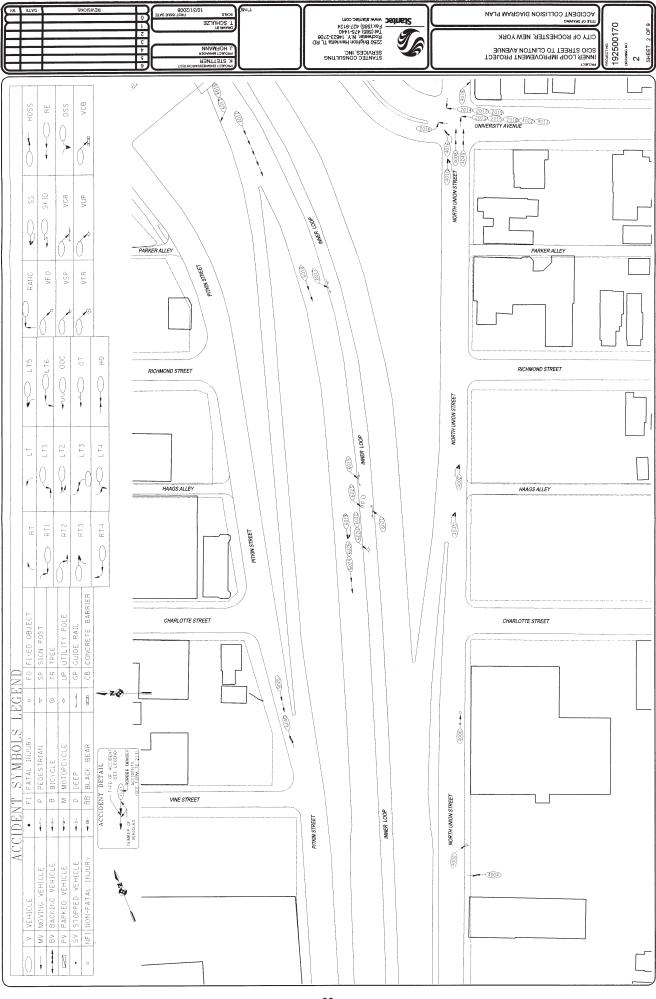
V1 FAILED TO STOP AT STOP SIGN, WENT ACROSS INTERSECTION & HIT THE FIRE HYDRANT (13) V1 SIDESWIPED V2. V2 DROVE OVER MEDIAN & OVER A STREET SIGN (4) Driver Inattention (20) V1 making left out of lot went wrong way down browd st hit v2 going EB (17) Traffic Control Disregarded (13) Passing or Lane Usage Improper V1 TURNED LEFT & DROVE OVER MEDIAN & SIGN. (17) Traffic Control Disregarded Page Number Case No. P.I.R File B (17) Traffic Control Disregarded (17) Traffic Control Disregarded V1 SLID ON BLACK ICE INTO CURB (66) Pavement Slippery To: Chestnut/Mon Description Add accidents found: Pitkin St + Union St Corridors Passing or Lane Usage Improper E. Main St Pitkin St Pitkin St 1/13/200 Unsafe Lane Changing Location: Milepost: Street Name: Date of Report: Route Number: Contributing Acc. Factors Type 13 RAng Unkn Fixo Fixo Side Left Apparent City of Rochester (10) 117,17 117,13 34,20 99 County of Monroe Diagram: Pitkin St (8) ≥ Φ Ø b 7 Town of 9 O 0 $\boldsymbol{\sigma}$ <u>8</u> <u>B</u> PDO PDO PDO PDO (5) <u>4</u> ۵ Φ 23:39 2:55 12:40 14:05 14:05 (3) Time ACCIDENT HISTORY Sear-Brown Group PERIOD STUDIED From 10/23/20 5/23/200 Months **DETAILS OF** 5/4/2007 11/4/2006 10/23/2005 5/23/2008 2/19/2006 10/15/2007 T0: 32 7005 7009 9004 7007 2008 7010 33

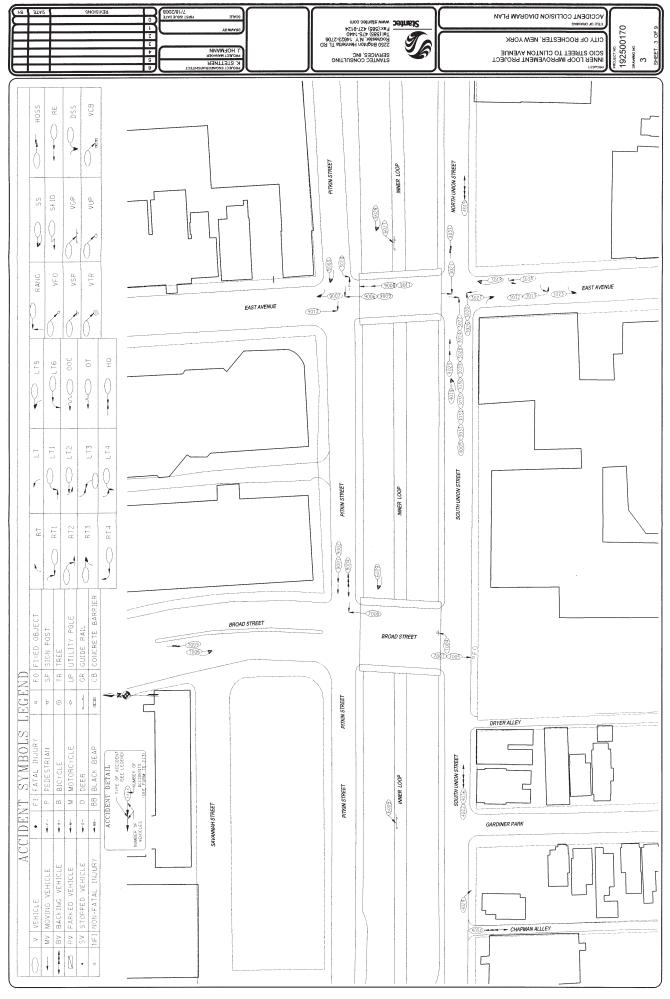
Location: Pitkin St Town: City of Rochester

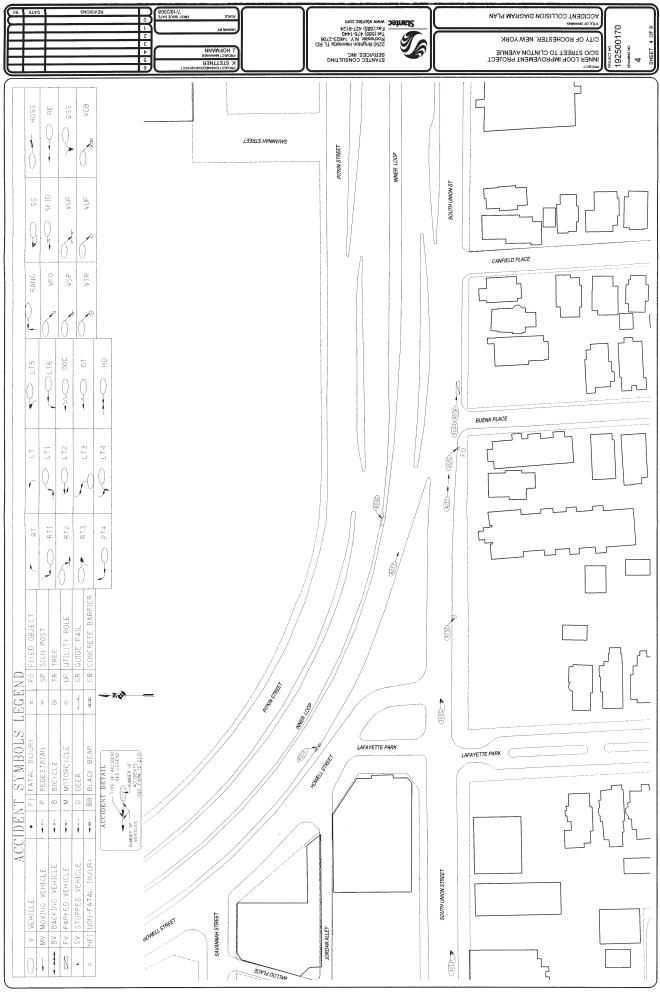
13-Jan-09

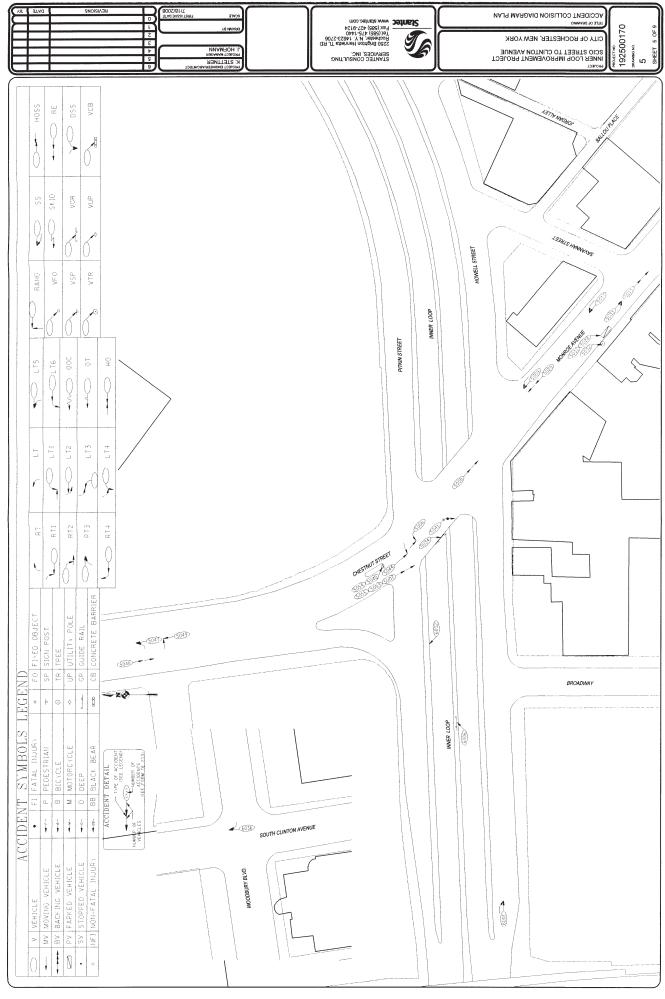
		% of	Milepost:	E. Main St	To: C	hestnut/Monro		% of
Time of Day	No. of Accidents	Total	Direction	# Veh	Total	Direction	# Veh	Total
6 AM - 10 AM	2	17	North:	0	0	NorthEast:	0	0
10:00 AM - 4 PM	5	42	South:	10	43	NorthWest:	0	0
4 PM - 7 PM	1	8.3	East:	3	13	SouthEast:	0	0
7 PM - 12 MID	3	25	West:	9	39	SouthWest:	1	4.3
12 MID - 6 AM	1	8.3	Unknown:	0	0			
Unspecified	0	0				Total	23	
Total	12							
	No. of Accidents	_	Асс. Туре	# Veh	% of Total	Acc. Type	# Veh	% of Total
Clear:	5	42	Sideswipe:	0	0	Bicycle:	0	0
Cloudy:	3	25	Rear End:	5	42	Right Turn:	1	8.3
Fog:	0	0	Right Angle:	3	25	Driveway:	0	0
Rain:	2	17	Left Turn:	0	0	Backing:	0	0
Sleet:	0	0	Pedestrian:	1	8.3	Overtaking:	1	8.3
Snow:	2	17	Fixed Object:	0	0	Unknown:	1	8.3
Unknown:	0	0	Head on:	0	0	7 5. ()	10	
Total	12					Total	12	
Pavement	No. of Accidents	;	Accident	Severity	No. of Acciden	ts % of	Total	
Dry:	7	58		Fatal:	0	0		
Muddy:	0	0	Non-Fata	Injury:	1	8	.3	
Other:	0	0	Property dama	ge only:	11	9	2	
Slush:	0	0	Non-rep	ortable:	0	0		
Snow/Ice:	2	17		Total	12			
Wet:	3	25		W /s				
Unknown:	0	0	Type of	f Vehicle	No. of Accidents	s % of	Total	
Total	12		Passeng	ger Cars:	23			
1 otai	12		Commercial	Vehicles:				
				Total				
Time of Year	No. of Accidents		Light	Condition	No. of Accidents		Total	
Winter (Dec-Feb)	4	33	Dark Road	-Lighted:	5	42	2	
Spring (Mar-May)	4	33	Dark Road-U	nlighted:	0	0		
Summer (Jun-Aug)	2	17		Dawn:	0	0		
Fall (Sep-Nov)	2	17		Daylight:	7	5	8	
Total	12	İ		Dusk:	0	0		
			Ų	Jnknown:	0	0		
				an.	tal 12			











ANSI D - 22" X 34"



