Appendix G:
Traffic Impact Study, Lochner Engineering, April 2015

Traffic Impact Study Report

Harbor Point Traffic Study from Lee Street to Route 790

City of Utica
Oneida County

June 11, 2015

LOCHNER

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Appendices

I. Proposed Project

The proposed project is the mixed use development of land located in Utica, New York. The proposed site is bounded by Genesee Street on the east, Conrail Railroad on the south and the Mohawk River to the north. Access to the site will be provided through roadway connections to Genesee Street at Lee Street, Wurz Avenue and Wells Avenue. For the purpose of this study, full build out was assumed to occur by 2020.

II. Purpose of Study

The purpose of this study is to identify the impacts the proposed development will have on traffic operations along Genesee Street. For the purposes of the study, the following intersections were studied:

- Genesee Street / Lee Street
- Genesee Street / Wurz Avenue
- Genesee Street / Wells Avenue
- Genesee Street / Harbor Lock Road
- Genesee Street / I-790 EB Ramp

The study will evaluate both the existing conditions and the future conditions resulting from full build out. Improvements, if required, to mitigate the impacts will be identified.

The New York State Department of Transportation has identified this section of Genesee Street as a high accident location. A separate accident study has been performed to identify accident patterns and to identify potential accident mitigation measures.

Figure 1 illustrates the proposed study area.

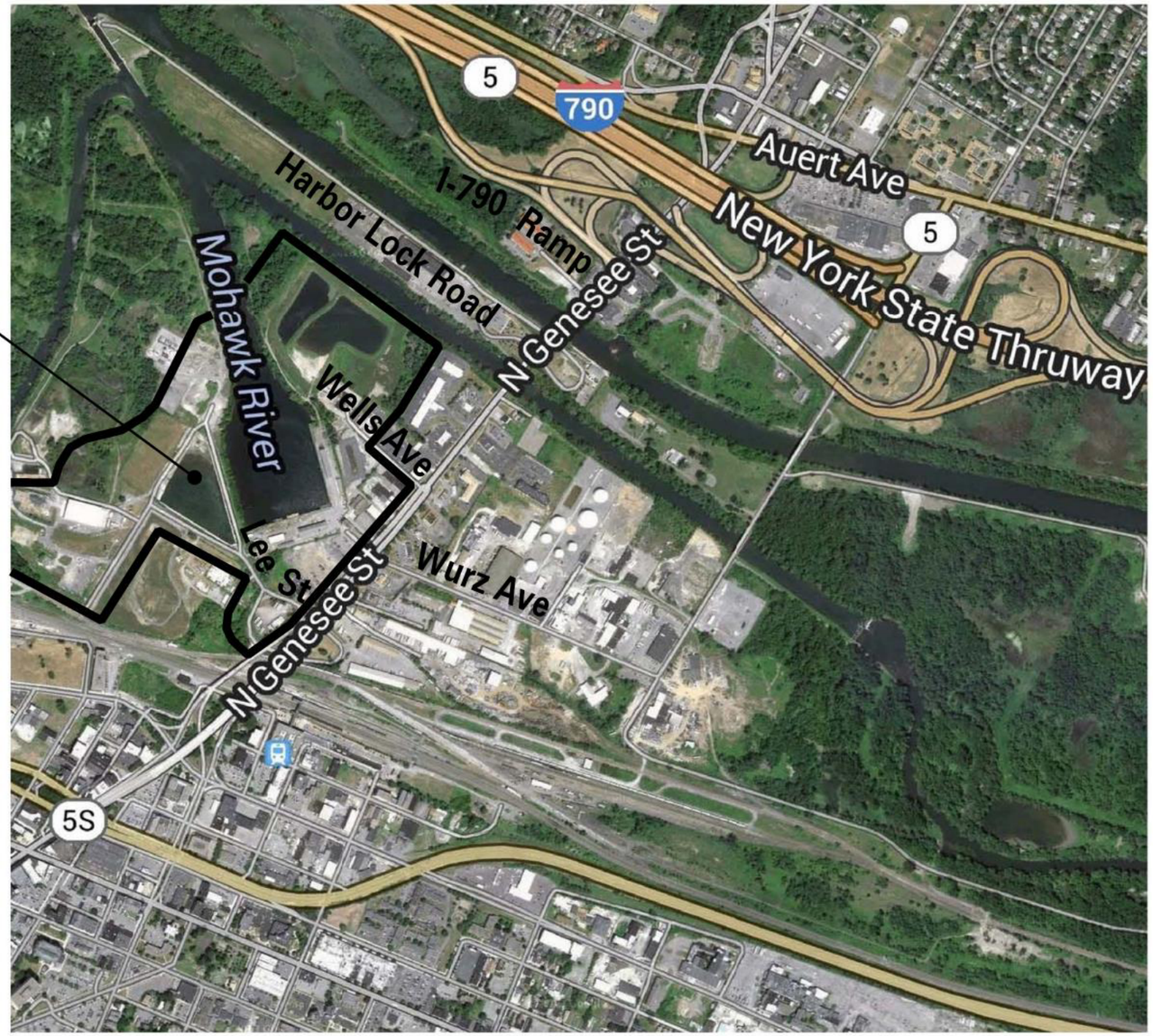
Figure 2 illustrates the proposed master plan for the site.

III. Definitions

Level of service or how well an intersection operates is measured by the amount of delay motorists experience.

Delay is defined as the additional travel time experienced by a driver, passenger, or pedestrian. Control delay is the delay a motorist experiences that is attributable to the presence of the traffic signal, stop sign and conflicting traffic. This includes time spent decelerating, in queue, and accelerating.

PROJECT SITE



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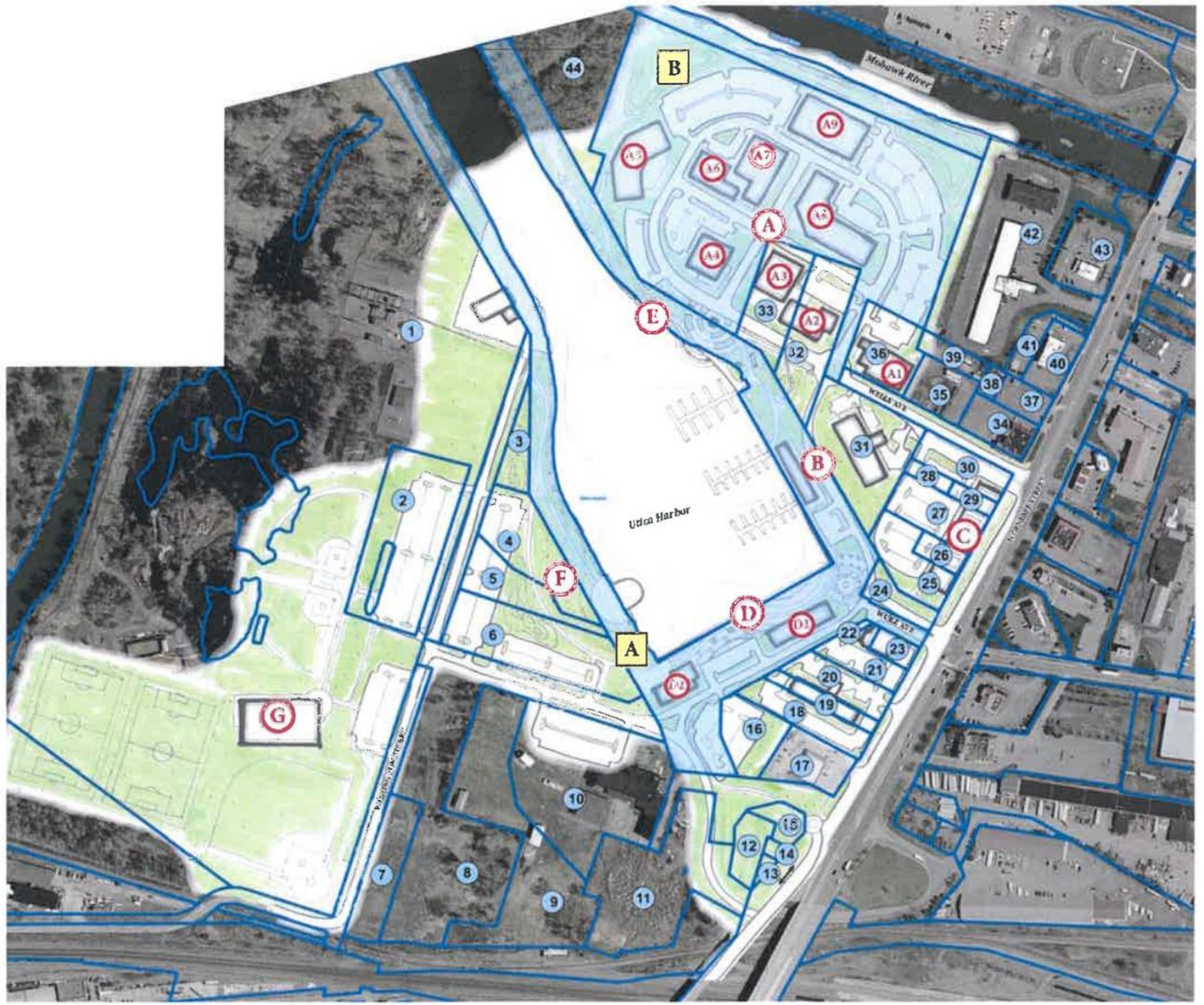
LOCATION MAP

HARBOR POINT TRAFFIC STUDY
CITY OF UTICA, ONEIDA COUNTY, NY

FIGURE
1

LAND USE KEY

- A1 - A4 RESIDENTIAL/BUSINESS
- A5 - A9 RESIDENTIAL
- B HARBOR OPERATIONS/MARINA
- C BUSINESS/RETAIL
- D RESTAURANT/UPSCALE FOOD MARKET
- E HARBOR PARK
- F AMPHITHEATER
- G BALL FIELD/INDOOR SPORTS COMPLEX



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SITE MASTER PLAN

HARBOR POINT TRAFFIC STUDY
CITY OF UTICA, ONEIDA COUNTY, NY

FIGURE 2

Control delay is used as the basis for determining levels of service. Control delay thresholds for the various levels of service are given in the following tables:

Level of Service thresholds at signalized intersections	
LOS	**Control Delay per vehicle (seconds per vehicle)**
A	≤ 10
B	> 10-20
C	> 20-35
D	> 35-55
E	> 55-80
F	> 80

Level of Service thresholds at unsignalized intersections	
LOS	**Control Delay per vehicle (seconds per vehicle)**
A	≤ 10
B	10-15
C	15-25
D	25-35
E	35-50
F	≥ 50

For signalized intersections, levels of service can generally be described as follows:

- Level A: Free flow
- Level B: Stable flow (slight delays)
- Level C: Stable flow (acceptable delays)
- Level D: Approaching unstable flow (tolerable delay, occasionally waiting through more than one signal cycle)
- Level E: Unstable flow (intolerable delay)
- Level F: Forced flow

In developed areas such as the Genesee Street corridor, level of service C is desirable and level D is considered acceptable.

IV. Existing Conditions

A. Existing Traffic Volumes

Existing traffic data was collected in February 2015 for the morning, midday, and evening peak periods. Existing traffic volumes are shown in Figure 3 for each of the key intersections within the study area.

B. Existing Corridor and Intersection Characteristics

Of the five intersections, only the Wurz Avenue intersection is controlled by a traffic signal. Each of the other four intersections operate under stop sign control on the minor approaches.

From Lee Street to north of Wells Avenue, Genesee Street is generally a five lane section with a center left turn lane or two-way left turn median and two through lanes in each direction. Genesee Street reduces to only two through lanes only in each direction between Wells Avenue and the Mohawk River Bridge and remains a four lane section for the remainder of the study area.

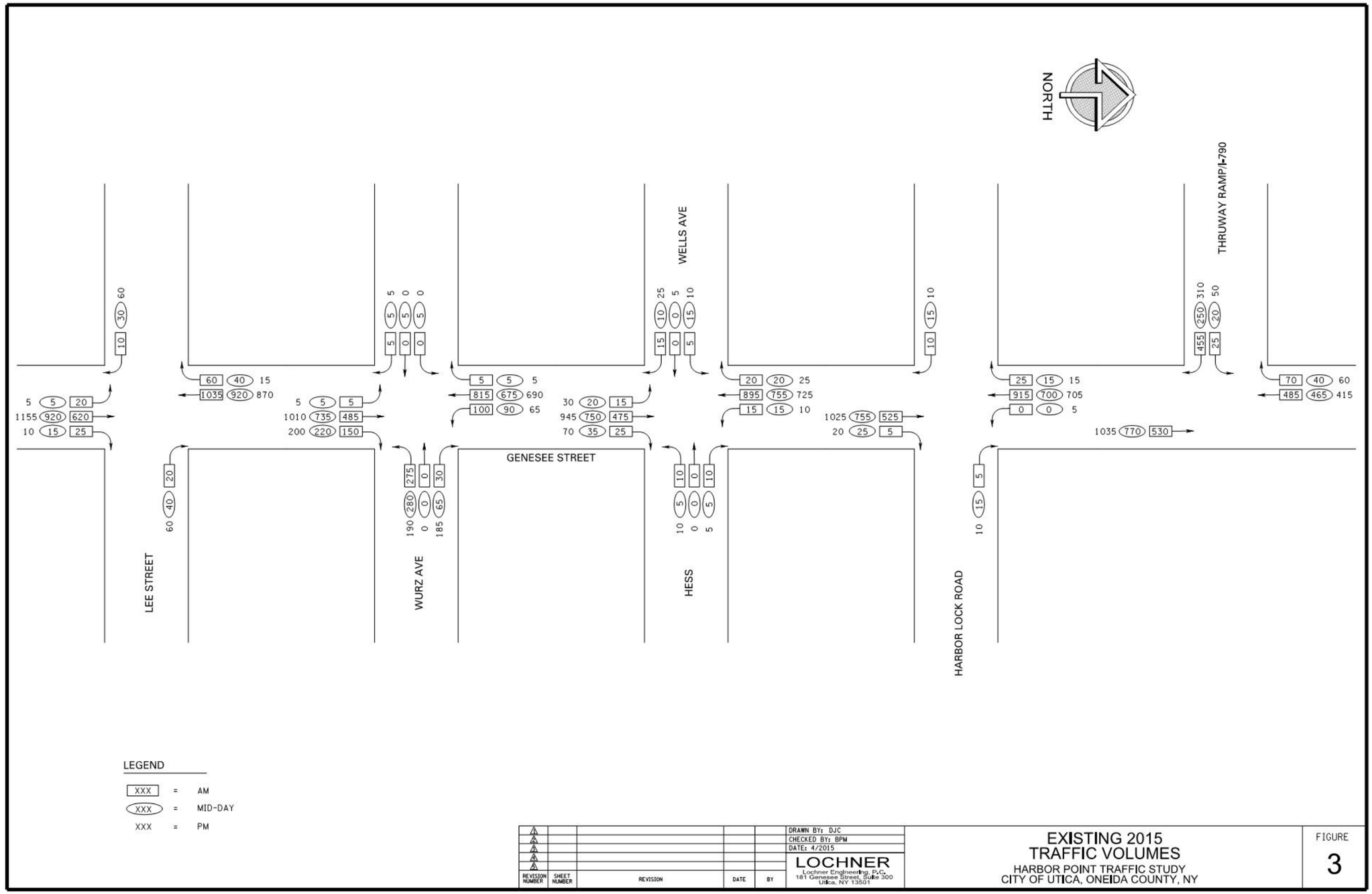
With the exception of a northbound Genesee Street left turn movement into Lee Street, the Lee Street intersection functions as a right in/right out only intersection. Wurz Avenue is a four-legged signalized intersection. Wells Avenue intersects Genesee Street opposite a driveway to the Hess gas station. This intersection operates as a four-legged stop sign controlled intersection. Harbor Lock Road is similar to Lee Street in that it functions with right turns in and right turns out only. Left turn prohibition signs are posted at this intersection. Despite the posting, a very small number of vehicles were seen making a southbound Genesee Street left turn onto Harbor Lock Road during the PM peak hour. The I-790/Thruway ramp intersection is a stop sign controlled three-legged intersection. Separate left and right turn lanes are provided on the ramp approach.

C. Existing Levels of Service

A SYNCHRO model was created to analyze existing traffic conditions along Genesee Street. The following addresses the conditions at each study intersection

1. Genesee Street/Lee Street: This intersection currently operates at a high level of service. As shown in Table 7, Page 17 both Lee Street approaches operate at level of service B except for the westbound right turn during the PM peak hour. During the PM, the existing level of service is a high level C. The northbound Genesee Street left turn movement operates at level A during each peak period.

2. Genesee Street/Wurz Avenue: This intersection currently operates at level of service B during each of the study periods.


NORTH
THRUWAY RAMP/I-790
WELLS AVE
GENESEE STREET
LEE STREET
WURZ AVE
HESS
HARBOR LOCK ROAD
LEGEND
XXX = AM
XXX = MID-DAY
XXX = PM
DRAWN BY: DJC
CHECKED BY: BPM
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EXISTING 2015
TRAFFIC VOLUMES
HARBOR POINT TRAFFIC STUDY
CITY OF UTICA, ONEIDA COUNTY, NY
FIGURE
3

3. Genesee Street/Wells Avenue/Hess Drive: The northbound and southbound Genesee Street left turn movements operate near the border of levels A and B during each of the peak periods. Wells Avenue operates at level C during the AM period and D during the mid-day and PM periods. The Hess Drive operates at levels C, D, and F during the AM, mid-day, and PM peak hours, respectively. Table 7 identifies the specific delays in seconds for each approach.

4. Genesee Street/Harbor Lock Road: Harbor Lock Road operates at a high level of service B for each study period.

5. Genesee Street/I-790 Ramp/Thruway: As shown in Table 7, the eastbound ramp right turn operates at level C or better for each of the three periods. The left-turn operates at level C during the AM and mid-day peak periods and level D during the PM peak.

V. Future Condition

A. Trip Generation

The proposed site development is depicted in Figure 2. Future trips generated by development of the site are based on trip generation rates obtained from the Institute of Transportation Engineers "Trip Generation Manual, 9th Edition". The proposed future land uses are as described in Table 1.

Table 1
Proposed Land Use Summary

Land Use Area	Land Use Type	
A1-A4	Residential - Apartments	93 units
	Business	52,000 SF
A5-A9	Residential/Mid-Rise	172 units
B	Marina	72 berths
C	Hotel	100 rooms
	Business	26,000 SF
D	Restaurant	16,000 SF
	Upscale Food Market	20 vendors
E	Waterfront Park	N/A
F	Amphitheater	1,000 seats
G	Sports Fields	5 fields
	Multi-Season Indoor Facility	2 acres

Based on the proposed land uses and trip generation rates, the number of future trips generated by the site were estimated. Table 2 summarizes the number of trips estimated to be generated during each of three peak periods. Appendix A provides trip generation calculations.

Table 2
Harbor Point Trip Generation Summary

Land Use Area	Type	AM Peak		Mid-Day Peak		PM Peak	
		In	Out	In	Out	In	Out
A1-A4	Residential - Apartments	8	17	8	21	20	14
	Business	0	0	178	193	64	82
A5-A9	Residential/Mid-Rise	18	40	19	46	42	30
B	Marina	2	4	8	4	9	5
C	Hotel	28	20	36	30	30	30
	Business	0	0	117	127	37	47
D	Restaurant	95	77	93	82	95	63
	Upscale Food Market	0	0	50	50	0	0
E	Waterfront Park	0	0	10	10	10	10
F	Amphitheater	0	0	0	0	60	5
G	Sports Fields	4	2	6	5	59	29
	Multi-Season Indoor Facility	0	0	2	2	6	6
	TOTALS	155	160	527	570	432	321

B. Trip Distribution

Trips generated by the Harbor Point site were distributed to each of the three streets which serve the site and are connected to Genesee Street. Trips from each of the land use areas were distributed to each street based on an estimated likelihood that the trips would utilize a particular street. Tables 3, 4, and 5 summarize the distribution of the trips to each roadway for each of the peak hours.

Table 3
Harbor Point Trip Distribution Summary – AM Peak

Land Use Area	Type	Traffic Distribution			AM Peak Trips		AM Peak by Entrance					
							Lee St		Wurz Ave		Wells Ave	
		Lee St	Wurz Ave	Wells Ave	In	Out	In	Out	In	Out	In	Out
A1-A4	Residential		20%	80%	8	17	0	0	2	3	6	14
	Business		20%	80%	0	0	0	0	0	0	0	0
A5-A9	Residential		20%	80%	18	40	0	0	4	8	14	32
B	Marina		60%	40%	2	4	0	0	1	2	1	2
C	Hotel		10%	90%	28	20	0	0	3	2	25	18
	Business		10%	90%	0	0	0	0	0	0	0	0
D	Restaurant	20%	70%	10%	95	77	19	15	67	54	10	8
	Upscale Food Market	20%	70%	10%	0	0	0	0	0	0	0	0
E	Waterfront Park		10%	90%	0	0	0	0	0	0	0	0
F	Amphitheater	60%	40%		0	0	0	0	0	0	0	0
G	Sports Field	60%	40%		4	2	2	1	2	1	0	0
	Multi-Season Indoor	60%	40%		0	0	0	0	0	0	0	0
					155	160	21	17	77	71	56	73

Table 4
Harbor Point Trip Distribution Summary – Mid-Day Peak

Land Use Area	Type	Traffic Distribution			Mid-Day Peak Trips		Mid-Day Peak by Entrance					
							Lee St		Wurz Ave		Wells Ave	
		Lee St	Wurz Ave	Wells Ave	In	Out	In	Out	In	Out	In	Out
A1-A4	Residential		20%	80%	8	21	0	0	2	4	6	17
	Business		20%	80%	178	193	0	0	36	39	142	154
A5-A9	Residential		20%	80%	19	46	0	0	4	9	15	37
B	Marina		60%	40%	8	4	0	0	5	2	3	2
C	Hotel		10%	90%	36	30	0	0	4	3	32	27
	Business		10%	90%	117	127	0	0	12	13	105	114
D	Restaurant	20%	70%	10%	93	82	19	16	65	57	9	8
	Upscale Food Market	20%	70%	10%	50	50	10	10	35	35	5	5
E	Waterfront Park		10%	90%	10	10	0	0	1	1	9	9
F	Amphitheater	60%	40%		0	0	0	0	0	0	0	0
G	Sports Field	60%	40%		6	5	4	3	2	2	0	0
	Multi-Season Indoor	60%	40%		2	2	1	1	1	1	0	0
					527	570	33	31	165	166	328	373

Table 5
Harbor Point Trip Distribution Summary – PM Peak

Land Use Area	Type	Traffic Distribution			PM Peak Trips		PM Peak by Entrance					
							Lee St		Wurz Ave		Wells Ave	
		Lee St	Wurz Ave	Wells Ave	In	Out	In	Out	In	Out	In	Out
A1-A4	Residential		20%	80%	20	14	0	0	4	3	16	11
	Business		20%	80%	64	82	0	0	13	16	51	66
A5-A9	Residential		20%	80%	42	30	0	0	8	6	34	24
B	Marina		60%	40%	9	5	0	0	5	3	4	2
C	Hotel		10%	90%	30	30	0	0	3	3	27	27
	Business		10%	90%	37	47	0	0	4	5	33	42
D	Restaurant	20%	70%	10%	95	63	19	13	67	44	10	6
	Upscale Food Market	20%	70%	10%	0	0	0	0	0	0	0	0
E	Waterfront Park		10%	90%	10	10	0	0	1	1	9	9
F	Amphitheater	60%	40%		60	5	36	3	24	2	0	0
G	Sports Field	60%	40%		59	29	35	17	24	12	0	0
	Multi-Season Indoor	60%	40%		6	6	4	4	2	2	0	0
					432	321	94	37	155	97	183	187

The directional distribution of existing Genesee Street traffic for each peak period was assumed to represent the origins of and destinations of trips generated by the Harbor Point Development. This resulted in the following assignments of trips to Genesee Street.

Time Period	Destined to		Originating From	
	North	South	North	South
AM	38%	62%	62%	38%
Mid-Day	53%	47%	47%	53%
PM	60%	40%	40%	60%

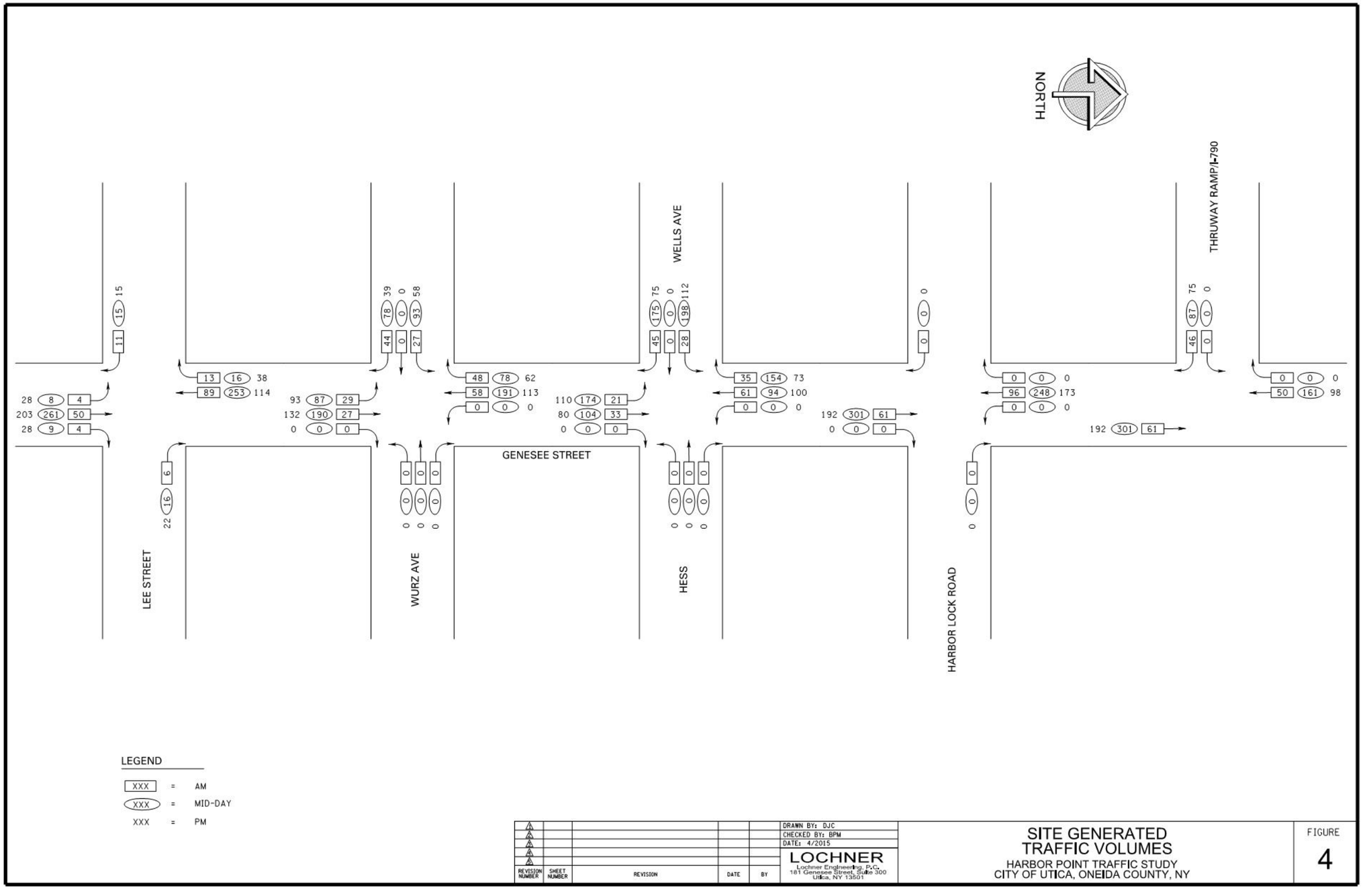
Utilizing the distribution on Genesee Street, the volumes of traffic entering and exiting the site via each of the driveways were established. Table 6 summarizes the distribution of future site generated traffic at each intersection with Genesee Street. Figure 4 depicts future site generated traffic volumes distributed throughout the Genesee Street corridor.

Table 6
Summary of Trip Distribution To and From Genesee Street

Time Period	Total Trips						Destined to		Originating from		Lee St				Wurz Ave				Wells Ave			
	Lee St		Wurz Ave		Wells Ave						In		Out		In		Out		In		Out	
	In	Out	In	Out	In	Out	North	South	North	South	from North	from South	to North	to South	from North	from South	to North	to South	from North	from South	to North	to South
AM	21	17	77	71	56	73	38%	62%	62%	38%	13	8	6	11	48	29	27	44	35	21	28	45
Mid-Day	33	31	165	166	328	373	53%	47%	47%	53%	16	17	16	15	78	87	88	78	154	174	198	175
PM	94	37	155	97	183	187	60%	40%	40%	60%	38	56	22	15	62	93	58	39	73	110	112	75

C. Future Traffic Volumes

In addition to site generated trips, Genesee Street will see a general growth in traffic volumes. Background growth is estimated to be one percent per year. For analysis purpose, it is assumed that the site will experience full build-out by the year 2020. Existing 2015 traffic volumes were escalated by the background growth factor to obtain year 2020 volumes. Figure 5 illustrates future 2020 traffic volumes without the site generated traffic (No Build). Combining the future No Build volumes with the site generated traffic results in the 2020 future traffic volumes shown in Figure 6. These volumes were used to assess the impacts of the Harbor Point Development traffic on the future traffic operations along Genesee Street.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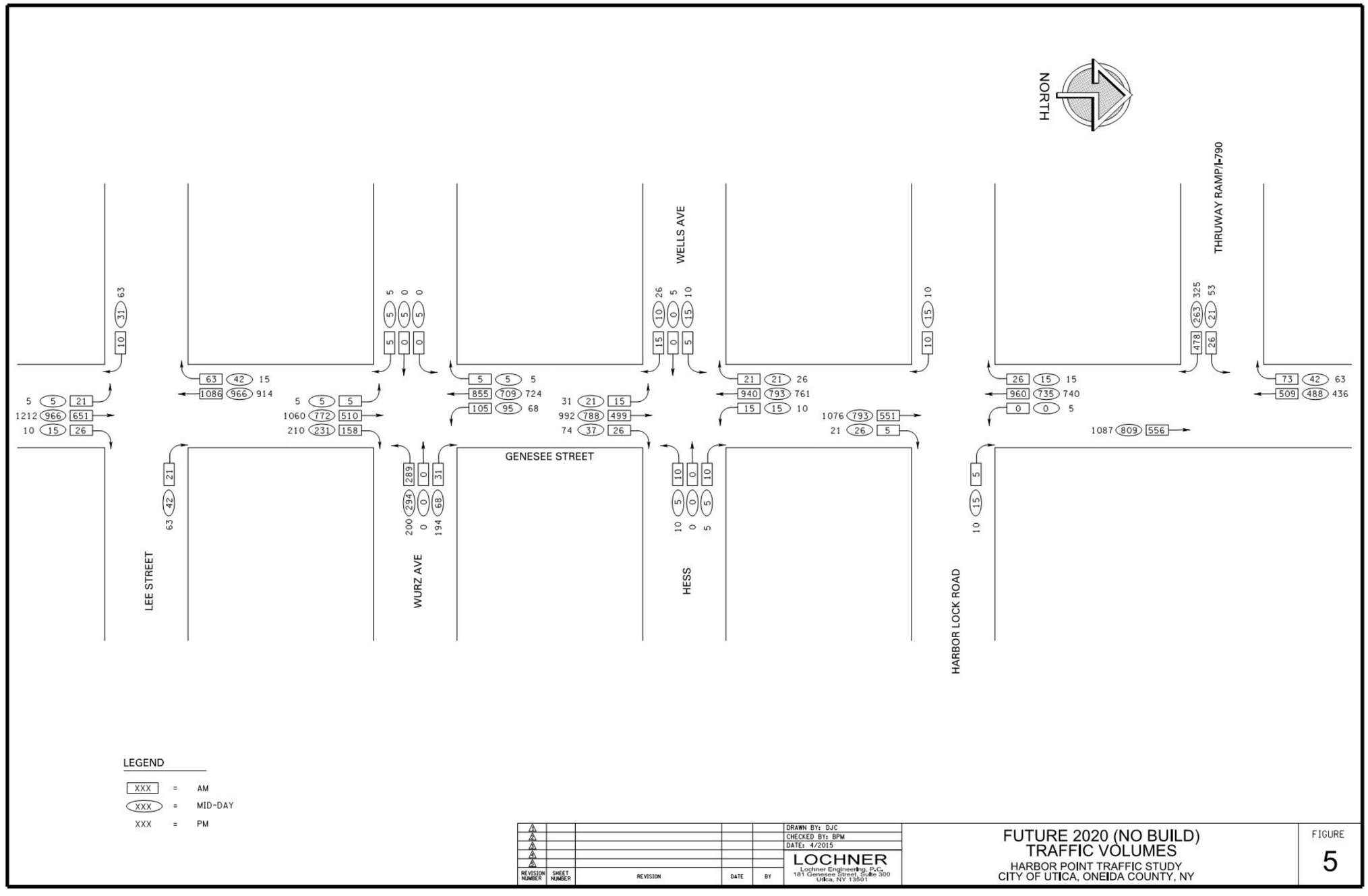
SITE GENERATED TRAFFIC VOLUMES
HARBOR POINT TRAFFIC STUDY
CITY OF UTICA, ONEIDA COUNTY, NY
FIGURE
4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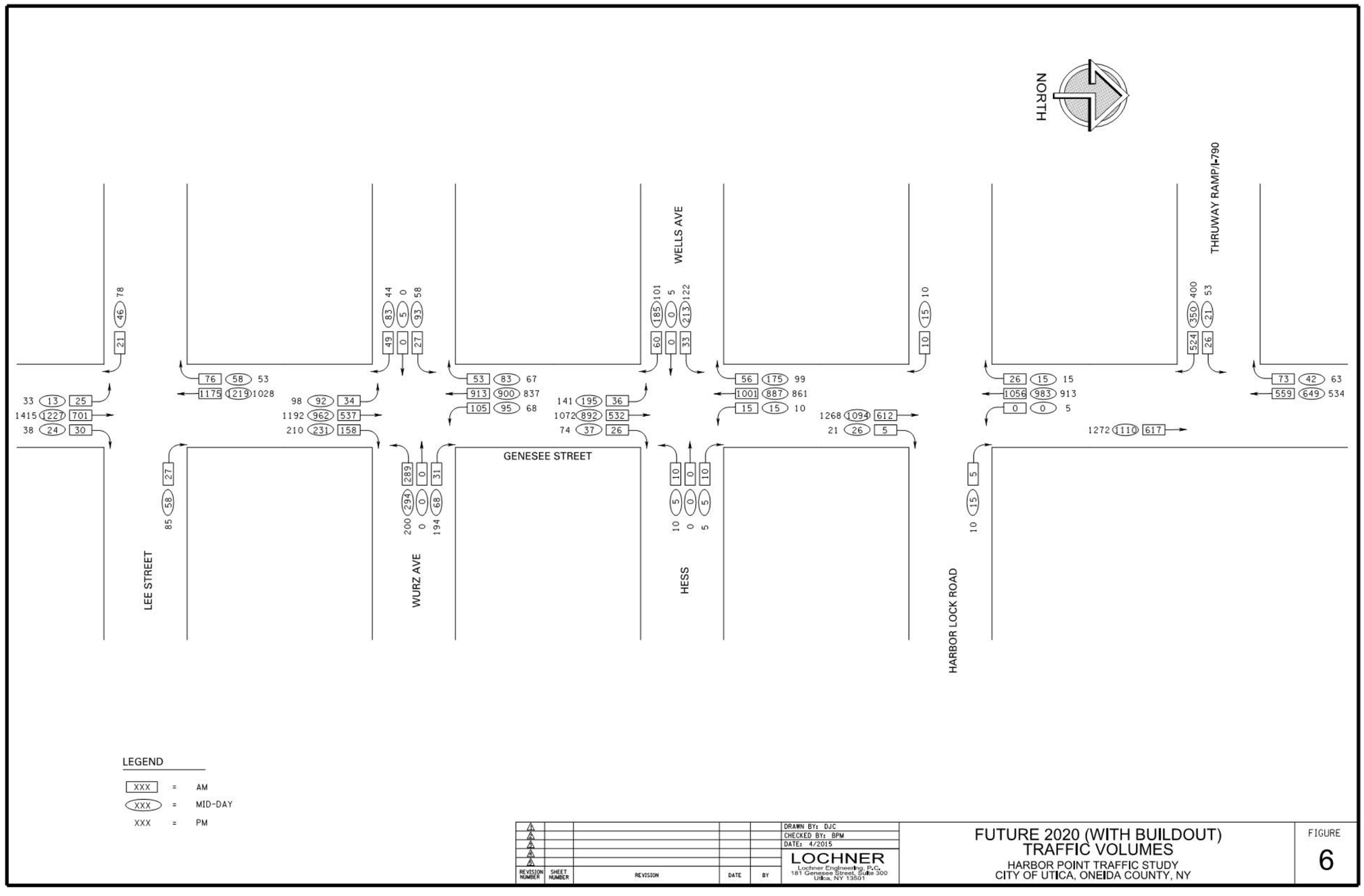
FUTURE 2020 (NO BUILD)
TRAFFIC VOLUMES
HARBOR POINT TRAFFIC STUDY
CITY OF UTICA, ONEIDA COUNTY, NY
FIGURE
5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FUTURE 2020 (WITH BUILDOUT)
TRAFFIC VOLUMES
HARBOR POINT TRAFFIC STUDY
CITY OF UTICA, ONEIDA COUNTY, NY
FIGURE
6

D. Future Traffic Conditions

Future traffic volumes, which combined site generated traffic with existing traffic volumes escalated to account for background growth were used to determine future traffic conditions. The analyses assumed that the Wells Avenue intersection, which will become a major entry way into the site would be signalized. Wells Avenue would be widened to provide a through/left turn lane and right turn lane. No other intersection geometric improvements or control type changes were proposed within the study area. The SYNCHRO model used to analyze existing conditions was modified to include those changes and future traffic volumes. The results of the analysis are included in Table 7. The following summarizes the results for each intersection.

1. Genesee Street/Lee Street: The northbound Genesee Street left turn movement will see its level of service drop from A under the existing condition to C in the future. This will happen for all three time periods. Lee Street movements will typically see levels of service drop from B to C with delay increases of under 6 seconds.

2. Genesee Street/Wurz Avenue: This intersection, which operates at level of service B for all existing peak periods will see the mid-day peak level of service drop to level C with a 5.7 second increase in overall delay. The morning and evening peak periods will continue to operate at level of service B.

3. Genesee Street/Wells Avenue/Hess Drive: Under traffic signal control and the separate lanes on the Wells Avenue approach, this intersection will operate at level of service B or better during each peak period. As shown in Table 7, each minor street approach will experience a significant improvement in level of service.

4. Genesee Street/Harbor Lock Road: Levels of service at this intersection will remain at level B. Increases in delays for Harbor Lock Road traffic will increase by less than 2 seconds.

5. Genesee Street/I-790 Ramp/Thruway: The right turn movement from the ramp will drop from B in the mid-day and PM peaks to C during both peak hours. The morning peak will remain at level C. The ramp left turn movement levels of service will drop to levels D and E. The morning and mid-day levels will be on the border between D and E while the evening peak hours level of service will be E. Following build-out of the Harbor Point site and should the Marcy Nanocenter site be developed, the undertaking of a signal warrant study for this intersection should be considered.

Table 7 Harbor Point – Level of Service Summary							
Intersection/Approach	Control	Existing			Future		
		AM	Midday	PM	AM	Midday	PM
Genesee St / Wurz Ave	Signal	B (13.6*)	B (15.7)	B (12.4)	B (17.9)	C (21.4)	B (14.4)
Genesee St / Lee St	Stop Sign						
EB Lee St Right Turn		B (14.7)	B (14.1)	B (14.3)	C (16.5)	C (17.8)	C (16.9)
WB Lee St Right Turn		B (11.7)	B (14.0)	C (17.0)	B (12.2)	C (17.8)	C (22.7)
NB Genesee St Left Turn		A (0.5)	A (0.1)	A (0.1)	C (20.4)	C (20.1)	C (17.6)
Genesee St / Wells Ave / HESS Station	Stop Sign/Signal**				A (8.7)	B (16.7)	B (13.7)
EB Wells Ave		C (19.4)	D (31.3)	D (33.3)	A (9.7)	C (23.1)	B (19.0)
WB HESS Drive		C (19.8)	D (25.9)	F (51.8)	A (0.2)	A (0.1)	A (0.2)
NB Genesee St Left Turn		B (10.4)	A (9.7)	A (9.6)	A (1.5)	B (11.3)	A (10.0)
SB Genesee St Left Turn		A (8.6)	A (9.7)	B (10.8)	B (12.7)	C (20.2)	B (17.6)
Genesee St / Harbor Lock Rd	Stop Sign						
EB Harbor Lock Rd Right Turn		B (12.2)	B (11.1)	B (11.0)	B (13.2)	B (12.7)	B (12.2)
WB Harbor Lock Rd Right Turn		B (10.1)	B (11.4)	B (12.9)	B (10.5)	B (13.5)	B (14.7)
Genesee St / Thruway / I-790 Ramp	Stop Sign						
EB Ramp Left Turn		C (18.3)	C (20.1)	D (26.1)	E (36.4)	D (34.2)	E (42.8)
EB Ramp Right Turn		C (22.0)	B (12.9)	B (13.8)	C (21.5)	C (19.5)	C (19.6)

*Average delay in seconds.
**Future condition will be signal control.

VI. Roundabout Alternative

A separate accident study for the Genesee Street corridor revealed that operating speeds on Genesee Street typically exceeded the posted speed limit of 35 mph. In addition, some locations such as the Genesee Street-Wurz Avenue intersection experienced a large number of rear end accidents. As noted in the accident study, sufficient information was not available to determine if speed played any role in the accidents at Wurz Avenue. As a measure to reduce speeds and possibly lessen the rear end accident potential, the introduction of a roundabout at the Genesee Street-Wurz Avenue intersection was studied. For study purposes, the roundabout was a two-lane roundabout with two lanes in each of the Genesee Street directions. The Wurz Avenue approaches were assumed to be single lane approaches.

The results showed that during the AM peak hour, the roundabout would function at a level of service B. The northbound and southbound Genesee Street approaches would operate at levels A and C, respectively. Both Wurz Avenue approaches would operate at level B.

During the mid-day peak, the roundabout would operate at level of service D. The westbound Wurz Avenue approach would operate at level of service F. The southbound Genesee Street approach would operate at level C while the northbound approach would operate at the border between levels C and D.

The PM peak hour would see the roundabout at an overall level of service F. The westbound Wurz Avenue approach would operate at F and the northbound Genesee Street approach would operate at level of service E.

Results of the roundabout analyses can be found in Appendix E. These low levels of service can be attributed to the heavy Genesee Street traffic which limits the gaps which Wurz Avenue traffic has to enter the roundabout and to the close proximity of queuing generated by the Genesee Street/Wells Avenue intersection.

A second roundabout for the Genesee Street/Wells Avenue/Hess Drive intersection was also considered. The footprint of the roundabout would have likely impacted both the Hess site and Delmonico's Restaurant without a significant realignment of Wells Avenue to the south. For this reason, it was not studied.

VII. Transit Service

Centro operates four bus routes along Genesee Street. The routes originate at Centro's Transit Hub on Elizabeth Street. The following routes provide service to and along the section of Genesee Street adjacent to the Harbor Point site.

Route No.	Destination
28	Herkimer Road
29	Riverside Center
129	Riverside Center / SUNY POLY
229	Riverside Center / SUNY POLY

Figure 7 depicts the existing transit route bus service typically starts around 5:40 AM and continues on Routes 28, 29, and 129 until 7 PM. Route 229 which provides service to Riverside Center and SUNY POLY continues services until 10:55 PM. Buses typically run their entire route in 40 minutes. Future bus stops within the Harbor Point site which could attract transit riders, such as the sports fields and indoor athletic facility, should be considered in the future.

VIII. Conclusions and Recommendations

Under existing conditions, Genesee Street typically operates at high levels of service. Because of high Genesee Street traffic volumes, some intersecting roadways under stop sign control experience lower levels of service.

For the future conditions which represent the build out of the Harbor Point site by the year 2020, it is proposed that the Genesee Street/Wells Avenue/Hess Drive intersection be brought under signal control. No other improvements were proposed for the future conditions. The results of the analyses show that Genesee Street will continue to operate at high levels of service. The Genesee Street/Wurz Avenue intersection will operate at levels B or C during the peak periods. All future movements, except for the Route I-790 ramp left turn, will operate at level C or better. The Route I-790 ramp left turn will operate at levels D and E in the future. Based on these findings, no improvements beyond the signalization of the Wells Avenue intersection and the widening of Wells Avenue to provide a through/left turn lane and a right turn lane are proposed.

REVISION NUMBER	SHEET NUMBER	REVISION	DATE	BY
1				
2				
3				
4				
5				

DRAWN BY: DJC
CHECKED BY: BPM
DATE: 4/2015

LOCHNER
Lochner Engineering, P.C.
181 Genesee Street, Suite 300
Utica, NY 13501

EXISTING CENTRO TRANSIT ROUTES

HARBOR POINT TRAFFIC STUDY
CITY OF UTICA, ONEIDA COUNTY, NY

FIGURE 7

Because of the accident history at the Route I-790 ramp intersection, limited sight distance caused by the bridge rail on the structure carrying Genesee Street over Reall Creek and the potential for increasing traffic volumes, it is recommended that a signal warrant study be performed as the Harbor Point development nears completion. The need for this study could be accelerated should development at the Marcy Nanocenter site occur.

The study also investigated the feasibility of constructing a roundabout at the Genesee Street/Wurz Avenue intersection to help mitigate the rear end accident pattern at this intersection and to introduce a traffic calming feature along Genesee Street to address the nearly 45 mph 85th percentile speed. As the analysis indicated, the roundabout would operate at low levels of service during the mid-day and PM peak periods. As a result, it is not being proposed for implementation.

Appendix A

Trip Generation

LOCHNER
181 Genesee Street, Suite 300
Utica, NY 13501-2104
P: 315-793-9500 F: 315-793-9530

Project: Harbor Point
Subject: Trip Generation
Calc. By: BPM Date: 2-24-15
Checked By: _____ Date: _____

Sheet 1 of 7
Job No. 10083

Reference

LAND USE A1 - A4

Residential 92,800 sf - Apartment - Mid-Rise @ ~~1200~~ 1020 sf/unit
Business 52,000 sf - Specialty Retail

Residential - UNITS = 92,800 × 1/1200 = ~~78~~ 93 units

AM (7-9AM) T = 0.41(x) - 13.06
= 0.41(~~78~~ 93) - 13.06
= ~~19~~ 25 trips

IN = 31% = ~~8~~ 6 trips
OUT = 69% = ~~17~~ 13 trips

PM (4-6PM) T = 0.48(x) - 11.07
= 0.48(~~78~~ 93) - 11.07
= ~~27~~ 34 trips

IN = 58% = ~~20~~ 16 trips
OUT = 42% = ~~14~~ 11 trips

MIDDAY -USE AM PEAK T = 0.46(x) - 14.01
= 0.46(~~78~~ 93) - 14.1
= ~~22~~ 29 trips

IN = 29% = ~~7~~ 8 trip
OUT = 71% = ~~15~~ 21 trips

Business - Area = 52,000 sf ⇒ X = 52

Weekday T = (42.78)(x) + 37.66
= 42.78(52) + 37.66
= 2262 trips

IN = 1131
OUT = 1131

AM 7-9 - N/A

Mid-day Use AM Peak T = 4.91(x) + 115.59
= 4.91(52) + 115.59
= 371 trips

IN = 48% = 178 trips
OUT = 52% = 193 trips

PM (4-6 PM) T = 2.40(x) + 21.48
= 2.40(52) + 21.48
= 146 trips

IN = 44% = 64 trips
OUT = 56% = 82 trips

LOCHNER
181 Genesee Street, Suite 300
Utica, NY 13501-2104
P: 315-793-9500 F: 315-793-9530

Project: Harbor Point
Subject: Trip Generation
Calc. By: BPM Date: 2-24-15
Checked By: Date:

Sheet 2 of 7
Job No. 10083

Reference

LAND USE A5-A9
Residential – Assume Mid Rise – 3+ stories
– Number of Units = 172

AM
(7-9AM)

$T = 0.41(X) - 13.06$
$T = 0.41(172) - 13.06$
$= 58$ trips

IN = 31% = 18 trips
OUT = 69% = 40 trips

PM
(4-6PM)

$T = 0.48(X) - 11.07$
$= 0.48(172) - 11.07$
$= 72$ trips

IN = 58% = 42 trips
OUT = 42% = 30 trips

Mid-Day
(Use AM Peak)

$T = 0.46(X) - 14.01$
$= 0.46(172) - 14.01$
$= 65$ trips

IN = 29% = 19 trips
OUT = 71% = 46 trips

LOCHNER
181 Genesee Street, Suite 300
Utica, NY 13501-2104
P: 315-793-9500 F: 315-793-9530

Project: Harbor Point
Subject: Trip Generation
Calc. By: BPM Date: 2-24-15
Checked By: Date:

Sheet 3 of 7
Job No. 10093

Reference

LAND USE C – HOTEL – 75% (104,000) = 78,000 No. of Rooms = 100
– Retail 25% (104,000) 26,000

HOTEL

AM (7-9 AM)

$T = 0.78(X) - 29.8$
$= 0.78(100) - 29.8$
$= 48$

IN = 58% = 28
OUT = 42% = 20

PM (4-6 PM)

$T = 0.3(X)$
$= 0.3(100)$
~~30~~ 30
~~45~~ 70

IN = 49% = ~~15~~ 30
OUT = 51% = ~~45~~ 36

Mid-day Use AM Peak

$Ln(T) = 0.91\ ln(X) + 0.01$
$= 0.91\ ln(100) + 0.01$
$= 66$

IN = 55% = 36
OUT = 45% = 30

Weekday

$T = 8.92(X)$
$= 8.92(100)$
$= 892$

IN = 50% = 446
OUT = 50% = 446

BUSINESS

Weekday

$T = 42.78(X) + 37.66$
$= 42.78(26) + 37.66$
$= 1150$ trips

IN = 575
OUT = 575

AM (7-9 AM) – N/A

Mid-day USE AM Peak

$T = 4.91(X) + 115.99$
$= 4.91(26) + 115.99$
$= 244$

IN = 48% = 117 trips
OUT = 52% = 127 trips

PM 4-6 PM

$T = 2.4(X) + 21.48$
$= 2.4(26) + 21.48$
$= 84$

IN = 44% = 37 trips
OUT = 56% = 47 trips

LOCHNER
181 Genesee Street, Suite 300
Utica, NY 13501-2104
P: 315-793-9500 F: 315-793-9530

Project: Harbor Point
Subject: Trip Generation
Calc. By: BPM Date: 2-24-15
Checked By: _____ Date: _____

Reference

LAND USE D - Restaurant AREA = 16,000 SF
- USE High Turn over (Sit-Down) Restaurant

WEEKDAY

T = 127.15 (x) IN = 1017
= 127.15 (16) OUT = 1017
= 2034 Trip.

AM
(7-9AM) T = 10.81 (x) IN = 55% = 95 trips
= 10.81 (16) OUT = 45% = 77 trips
= 172 trips

Mid-day - Percent y Daily Total = 8.6% IN = 53% = 93 trips
= 0.086 (2034) OUT = 47% = 82 trips
= 175 trips

PM
4-6PM T = 9.85 (x) IN = 60% = 95 trips
= 9.85 (16) OUT = 40% = 63 trips
= 158 trips

Farmers Market

- Assume Mid-day Only

Per Oneida Cty Farmers Market
5 trips / hr / vendor

- Assume 20 vendors = 20 x 5 trips/hr/vend = 100 trips

Assume 50% IN / 50% OUT

50 trips / 50 trips

LOCHNER
181 Genesee Street, Suite 300
Utica, NY 13501-2104
P: 315-793-9500 F: 315-793-9530

Project: Harbor Point
Subject: Trip Generation
Calc. By: BDM Date: 2-24-15
Checked By: _____ Date: _____

Sheet 5 of 7
Job No. 10283

Reference

LAND USE E - Waterfront Park
- Assume Park area for residents / employees working in Harbor Point Development
- Minimal outside trip generation
  - Assume 10 in / 10 out in Mid day / PM
- Marina - Assume 72 berths

Weekday

Trips = 2.96 (x)
= 2.96 (72)
= 214

IN = 107
OUT = 107

AM Peak

T = 0.08 (x)
= 0.08 (72)
= 6

IN = 33% = 2 trips
OUT = 67% = 4 trips

Mid-Day

T = 0.17 (x)
= 0.17 (72)
= 12 trips

IN = 64% = 8 trips
OUT = 36% = 4 trips

PM
4-6 PM

T = 0.19 (x)
= 0.19 (72)
= 14

IN = 60% = 9 trips
OUT = 40% = 5 trips

LOCHNER
181 Genesee Street, Suite 300
Utica, NY 13501-2104
P: 315-793-9500 F: 315-793-9530

Project: Harbor Point
Subject: Trip Generation
Calc. By: BPM Date: 2-24-15
Checked By: _____ Date: _____

Sheet 6 of 7
Job No. 10283

Reference

Land Use F - Amphitheater - Assume 1000 capacity
- Assume 4 people per vehicle = 250 vehicles
- Assume early evening performance (7 PM)
- peak hr arrives - 4 to 6 - say 25%

Trips = 60 trips - in
5 trips out (10% drop off)

Landuse G - Recreational Area
- 2 soccer fields
2 softball fields
1 base ball field
Multi-season Indoor Sport Facility (Assume 2 acres)

} say 5 fields

Soccer/SoftAball/base ball
Week day T = 71.33 X
= 71.33 (5)
= 356

IN = 50% = 178
OUT = 50% = 178

AM Peak - 1.12(X)
= 1.12(5) = 6

IN = 57% = 4 trip
OUT = 43% = 2 trip

Mid-day -
use AM Peak

T = 2.10 (X)
T = 2.10 (5)
T = 11 trip

IN = 53% = 6 trips
OUT = 47% = 5 trip

PM (4-6PM)

T = 17.70 (X)
= 17.70 (5)
= 88 trips

IN = 67% = 59 trips
OUT = 33% = 29 trips

LOCHNER
181 Genesee Street, Suite 300
Utica, NY 13501-2104
P: 315-793-9500 F: 315-793-9530

Project: Harbor Point
Subject: Trip Generation
Calc. By: BPM Date: 2-25-15
Checked By: _____ Date: _____

Reference

Land use: G - Multi season Indoor Sport Facility - 2 acres

Weekday T = 90.38 (x) IN = 50% = 90
= 90.38 (2) OUT = 50% = 90
= 180

AM N/A

Mid day (Use AM Peak) T = 1.92 (x) IN = 2 trip
= 1.92 (2) OUT = 2 trip
= 4

PM T = 5.77 (x) IN = 6 trips
= 5.77 (2) OUT = 6 trips
= 12

Appendix B

Existing Turning Movement Count Data

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : 64_01_7_9_lee
Site Code : 00000021
Start Date : 2/4/2015
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	N. Genesee From North					Lee St. E From East					N. Genesee From South					Lee St. From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	13	0	0	0	13	1	0	0	0	1	5	0	4	0	9	4	0	0	0	4	27
07:15 AM	29	0	0	0	29	1	0	0	0	1	10	0	11	0	21	4	0	0	0	4	55
07:30 AM	4	0	0	0	4	6	0	0	0	6	5	0	1	0	6	2	0	0	0	2	18
07:45 AM	12	0	0	0	12	11	0	0	0	11	5	0	1	0	6	0	0	0	0	0	29
Total	58	0	0	0	58	19	0	0	0	19	25	0	17	0	42	10	0	0	0	10	129
08:00 AM	2	0	0	0	2	9	0	0	0	9	4	0	1	0	5	6	0	0	0	6	22
08:15 AM	4	0	0	0	4	7	0	0	0	7	5	0	0	0	5	3	0	0	0	3	19
08:30 AM	7	0	0	0	7	4	0	0	0	4	0	0	0	0	0	6	0	0	0	6	17
08:45 AM	7	0	0	0	7	6	0	0	0	6	2	0	0	0	2	2	0	0	0	2	17
Total	20	0	0	0	20	26	0	0	0	26	11	0	1	0	12	17	0	0	0	17	75
Grand Total	78	0	0	0	78	45	0	0	0	45	36	0	18	0	54	27	0	0	0	27	204
Apprch %	100	0	0	0		100	0	0	0		66.7	0	33.3	0		100	0	0	0		
Total %	38.2	0	0	0	38.2	22.1	0	0	0	22.1	17.6	0	8.8	0	26.5	13.2	0	0	0	13.2	
Unshifted	77	0	0	0	77	37	0	0	0	37	35	0	18	0	53	24	0	0	0	24	191
% Unshifted	98.7	0	0	0	98.7	82.2	0	0	0	82.2	97.2	0	100	0	98.1	88.9	0	0	0	88.9	93.6
Bank 1	1	0	0	0	1	8	0	0	0	8	1	0	0	0	1	3	0	0	0	3	13
% Bank 1	1.3	0	0	0	1.3	17.8	0	0	0	17.8	2.8	0	0	0	1.9	11.1	0	0	0	11.1	6.4
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

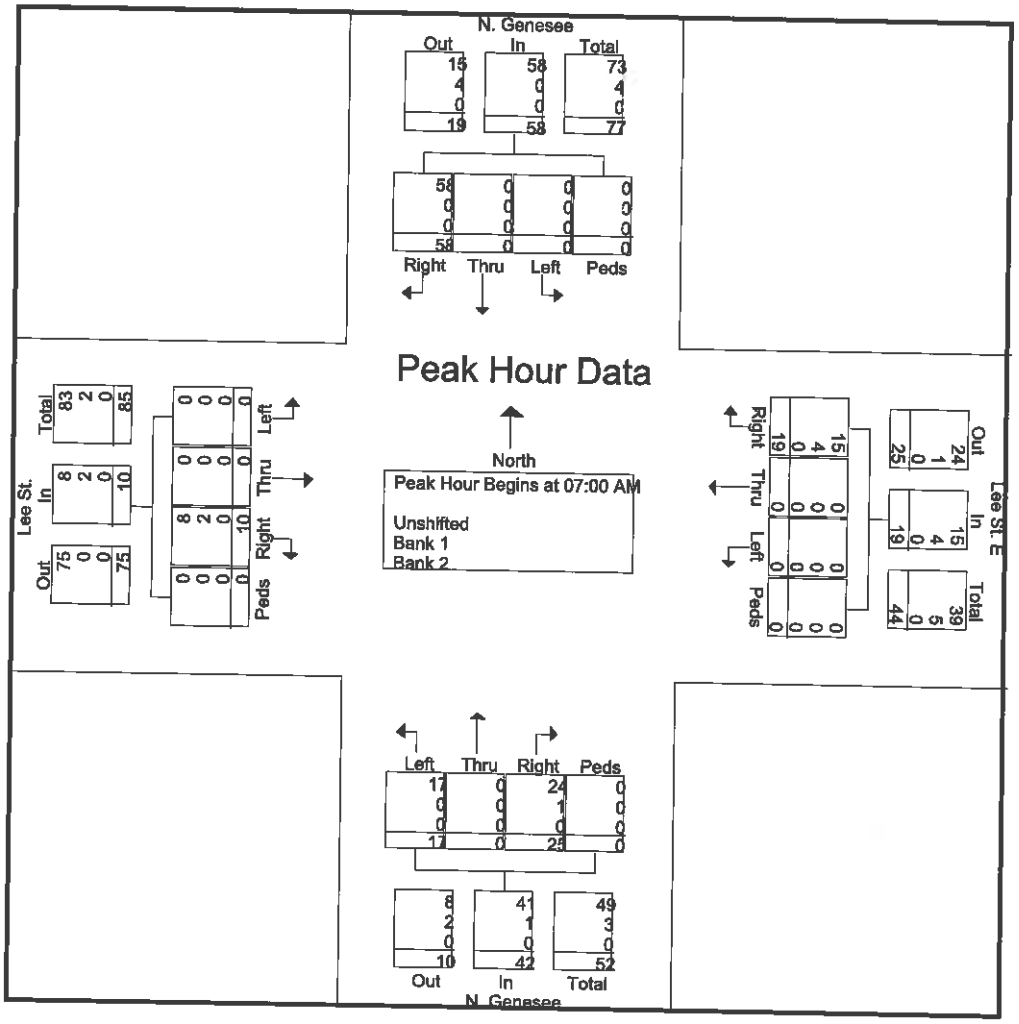
File Name : 64_01_7_9_lee
Site Code : 00000021
Start Date : 2/4/2015

	N. Genesee From North					Lee St. E From East					N. Genesee From South					Lee St. From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	13	0	0	0	13	1	0	0	0	1	5	0	4	0	9	**4**	0	0	0	**4**	27
07:15 AM	**29**	0	0	0	**29**	1	0	0	0	1	**10**	0	**11**	0	**21**	4	0	0	0	4	**55**
07:30 AM	4	0	0	0	4	6	0	0	0	6	5	0	1	0	6	2	0	0	0	2	18
07:45 AM	12	0	0	0	12	**11**	0	0	0	**11**	5	0	1	0	6	0	0	0	0	0	29
Total Volume	58	0	0	0	58	19	0	0	0	19	25	0	17	0	42	10	0	0	0	10	129
% App. Total	100	0	0	0		100	0	0	0		59.5	0	40.5	0		100	0	0	0		
PHF	.500	.000	.000	.000	.500	.432	.000	.000	.000	.432	.625	.000	.386	.000	.500	.625	.000	.000	.000	.625	.586
Unshifted	58	0	0	0	58	15	0	0	0	15	24	0	17	0	41	8	0	0	0	8	122
% Unshifted	100	0	0	0	100	78.9	0	0	0	78.9	96.0	0	100	0	97.6	80.0	0	0	0	80.0	94.6
Bank 1	0	0	0	0	0	4	0	0	0	4	1	0	0	0	1	2	0	0	0	2	7
% Bank 1	0	0	0	0	0	21.1	0	0	0	21.1	4.0	0	0	0	2.4	20.0	0	0	0	20.0	5.4
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : 64_01_7_9_lee
Site Code : 00000021
Start Date : 2/4/2015
Page No : 3



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Change These in The Preferences Window
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File Name : 64_01_11_1_lee
Site Code : 00002264
Start Date : 2/4/2015

Groups Printed- Unshifted - Bank 1 - Bank 2

	N. Genesee From North					Lee St. East From East					N. Genesee From South					Lee St. From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
11:00 AM	7	0	0	0	7	3	0	0	0	3	5	0	0	0	5	4	0	0	0	4	19
11:15 AM	7	0	0	0	7	3	0	0	0	3	1	0	1	0	2	5	0	0	0	5	17
11:30 AM	10	0	0	0	10	4	0	0	0	4	5	0	3	0	8	5	0	0	0	5	27
11:45 AM	8	0	0	0	8	7	0	0	0	7	3	0	0	0	3	8	0	0	0	8	26
Total	32	0	0	0	32	17	0	0	0	17	14	0	4	0	18	22	0	0	0	22	89
12:00 PM	10	0	0	0	10	13	0	0	0	13	4	0	0	0	4	6	0	0	0	6	33
12:15 PM	11	0	0	0	11	6	0	0	0	6	4	0	1	0	5	9	0	0	0	9	31
12:30 PM	7	0	0	0	7	10	0	0	0	10	4	0	2	0	6	6	0	0	0	6	29
12:45 PM	7	0	0	0	7	4	0	0	0	4	3	0	0	0	3	5	0	0	0	5	19
Total	35	0	0	0	35	33	0	0	0	33	15	0	3	0	18	26	0	0	0	26	112
Grand Total	67	0	0	0	67	50	0	0	0	50	29	0	7	0	36	48	0	0	0	48	201
Apprch %	100	0	0	0		100	0	0	0		80.6	0	19.4	0		100	0	0	0		
Total %	33.3	0	0	0	33.3	24.9	0	0	0	24.9	14.4	0	3.5	0	17.9	23.9	0	0	0	23.9	
Unshifted	59	0	0	0	59	46	0	0	0	46	26	0	6	0	32	45	0	0	0	45	182
% Unshifted	88.1	0	0	0	88.1	92	0	0	0	92	89.7	0	85.7	0	88.9	93.8	0	0	0	93.8	90.5
Bank 1	8	0	0	0	8	4	0	0	0	4	3	0	1	0	4	3	0	0	0	3	19
% Bank 1	11.9	0	0	0	11.9	8	0	0	0	8	10.3	0	14.3	0	11.1	6.2	0	0	0	6.2	9.5
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Default Comments
Change These in The Preferences Window
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File Name : 64_01_11_1_lee
Site Code : 00002264
Start Date : 2/4/2015

	N. Genesee From North					Lee St. East From East					N. Genesee From South					Lee St. From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:45 AM																					
11:45 AM	8	0	0	0	8	7	0	0	0	7	3	0	0	0	3	8	0	0	0	8	26
12:00 PM	10	0	0	0	10	**13**	0	0	0	**13**	**4**	0	0	0	4	6	0	0	0	6	**33**
12:15 PM	**11**	0	0	0	**11**	6	0	0	0	6	4	0	1	0	5	**9**	0	0	0	**9**	31
12:30 PM	7	0	0	0	7	10	0	0	0	10	4	0	**2**	0	**6**	6	0	0	0	6	29
Total Volume	36	0	0	0	36	36	0	0	0	36	15	0	3	0	18	29	0	0	0	29	119
% App. Total	100	0	0	0		100	0	0	0		83.3	0	16.7	0		100	0	0	0		
PHF	.818	.000	.000	.000	.818	.692	.000	.000	.000	.692	.938	.000	.375	.000	.750	.806	.000	.000	.000	.806	.902
Unshifted	29	0	0	0	29	34	0	0	0	34	15	0	2	0	17	27	0	0	0	27	107
% Unshifted	80.6	0	0	0	80.6	94.4	0	0	0	94.4	**100**	0	66.7	0	94.4	93.1	0	0	0	93.1	89.9
Bank 1	7	0	0	0	7	**2**	0	0	0	2	**0**	0	1	0	1	**2**	0	0	0	2	12
% Bank 1	19.4	0	0	0	19.4	5.6	0	0	0	5.6	**0**	0	33.3	0	5.6	6.9	0	0	0	6.9	10.1
Bank 2	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0

Harbor Point

Default Comments
Change These in The Preferences Window
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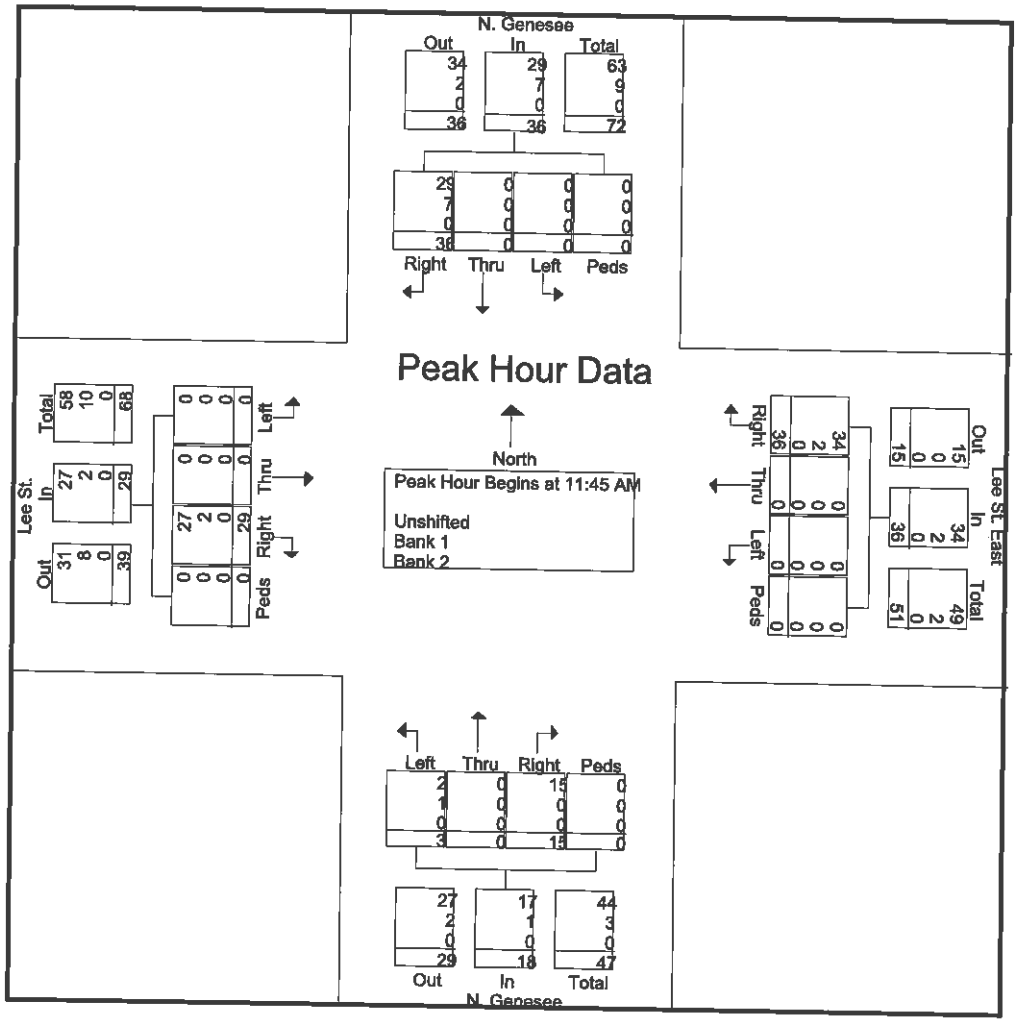
File Name : 64_01_11_1_lee
Site Code : 00002264
Start Date : 2/4/2015
Page No : 3



Harbor Point

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : 64_01_4_6_lee
Site Code : 00002364
Start Date : 2/4/2015
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	N. Genesee From North					Lee St. East From East					N. Genesee From South					Lee St. From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	5	0	0	0	5	42	0	0	0	42	1	0	1	1	3	33	0	0	0	33	83
04:15 PM	1	0	0	0	1	2	0	0	0	2	2	0	1	0	3	9	0	0	0	9	15
04:30 PM	3	0	0	0	3	10	0	0	0	10	2	0	0	0	2	10	0	0	0	10	25
04:45 PM	3	0	0	0	3	3	0	0	0	3	1	0	0	0	1	6	0	0	0	6	13
Total	12	0	0	0	12	57	0	0	0	57	6	0	2	1	9	58	0	0	0	58	136
05:00 PM	1	0	0	0	1	4	0	0	0	4	0	0	0	0	0	6	0	0	0	6	11
05:15 PM	1	0	0	0	1	3	0	0	0	3	3	0	0	0	3	1	0	0	0	1	8
05:30 PM	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
*** BREAK ***																					
Total	2	0	0	0	2	8	0	0	0	8	3	0	0	0	3	7	0	0	0	7	20
Grand Total	14	0	0	0	14	65	0	0	0	65	9	0	2	1	12	65	0	0	0	65	156
Apprch %	100	0	0	0		100	0	0	0		75	0	16.7	8.3		100	0	0	0		
Total %	9	0	0	0	9	41.7	0	0	0	41.7	5.8	0	1.3	0.6	7.7	41.7	0	0	0	41.7	
Unshifted	9	0	0	0	9	65	0	0	0	65	9	0	2	1	12	65	0	0	0	65	151
% Unshifted	64.3	0	0	0	64.3	100	0	0	0	100	100	0	100	100	100	100	0	0	0	100	96.8
Bank 1	5	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
% Bank 1	35.7	0	0	0	35.7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.2
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

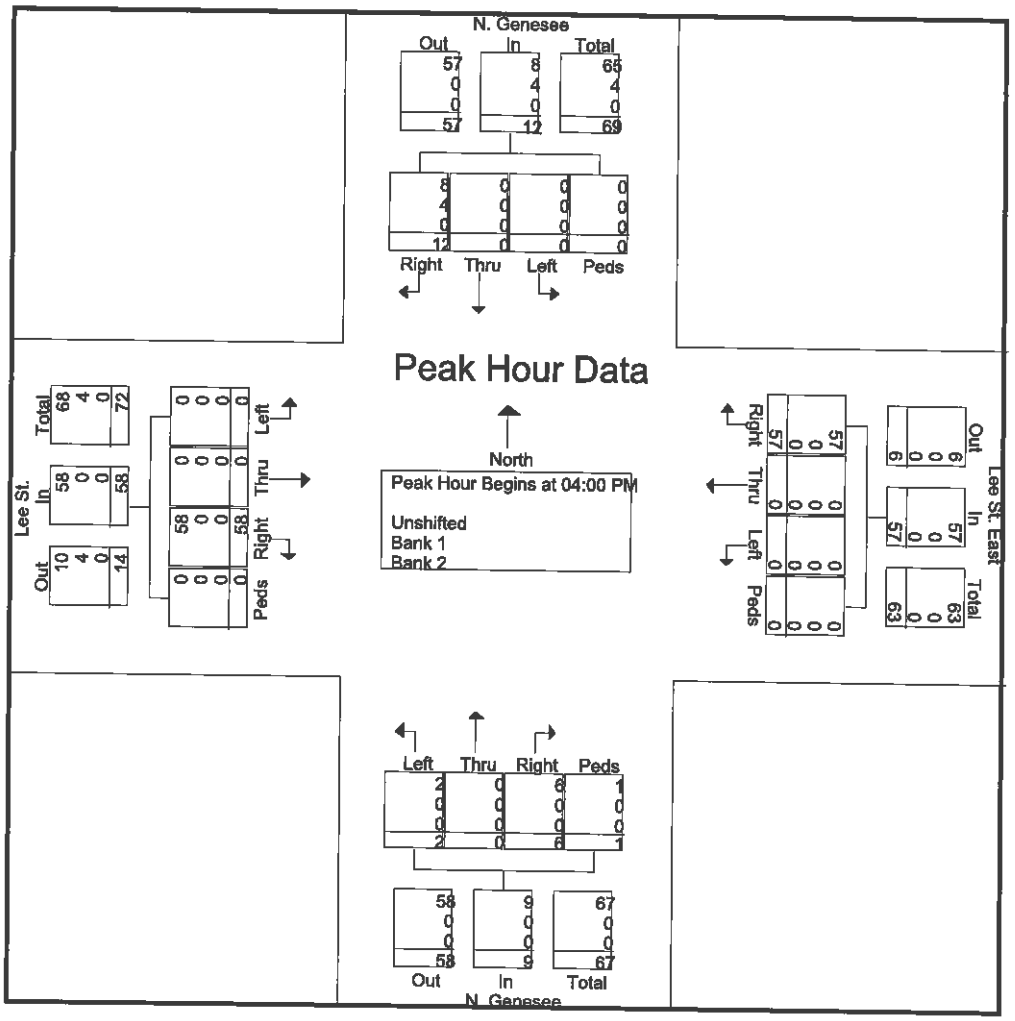
File Name : 64_01_4_6_lee
Site Code : 00002364
Start Date : 2/4/2015

	N. Genesee From North					Lee St. East From East					N. Genesee From South					Lee St. From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	5	0	0	0	5	42	0	0	0	42	1	0	1	1	3	33	0	0	0	33	83
04:15 PM	1	0	0	0	1	2	0	0	0	2	2	0	1	0	3	9	0	0	0	9	15
04:30 PM	3	0	0	0	3	10	0	0	0	10	2	0	0	0	2	10	0	0	0	10	25
04:45 PM	3	0	0	0	3	3	0	0	0	3	1	0	0	0	1	6	0	0	0	6	13
Total Volume	12	0	0	0	12	57	0	0	0	57	6	0	2	1	9	58	0	0	0	58	136
% App. Total	100	0	0	0		100	0	0	0		66.7	0	22.2	11.1		100	0	0	0		
PHF	.600	.000	.000	.000	.600	.339	.000	.000	.000	.339	.750	.000	.500	.250	.750	.439	.000	.000	.000	.439	.410
Unshifted	8	0	0	0	8	57	0	0	0	57	6	0	2	1	9	58	0	0	0	58	132
% Unshifted	66.7	0	0	0	66.7	100	0	0	0	100	100	0	100	100	100	100	0	0	0	100	97.1
Bank 1	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
% Bank 1	33.3	0	0	0	33.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.9
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : 64_01_4_6_lee
Site Code : 00002364
Start Date : 2/4/2015
Page No : 3



Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : combined_1_7_9_wurz
Site Code : 00006501
Start Date : 2/4/2015
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	N. Genesee From North					Wurz Ave. From East					N. Genesee From South					Wurz. Ave From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	1	105	9	0	115	3	0	24	0	27	23	81	0	0	104	0	0	0	0	0	246
07:15 AM	1	193	18	0	212	3	0	37	0	40	25	90	0	0	115	0	0	2	0	2	369
07:30 AM	0	204	12	0	216	6	0	43	0	49	24	110	2	0	136	0	0	0	0	0	401
07:45 AM	0	236	22	0	258	5	0	75	0	80	47	123	2	0	172	1	0	0	0	1	511
Total	2	738	61	0	801	17	0	179	0	196	119	404	4	0	527	1	0	2	0	3	1527
08:00 AM	1	184	30	0	215	6	0	63	0	69	30	124	0	0	154	1	0	0	0	1	439
08:15 AM	0	204	22	0	226	8	0	67	0	75	34	124	0	0	158	0	0	0	0	0	459
08:30 AM	0	189	23	0	212	7	0	66	0	73	35	110	0	0	145	0	0	0	0	0	430
08:45 AM	0	159	25	0	184	3	0	68	0	71	37	135	0	0	172	0	0	0	0	0	427
Total	1	736	100	0	837	24	0	264	0	288	136	493	0	0	629	1	0	0	0	1	1755
Grand Total	3	1474	161	0	1638	41	0	443	0	484	255	897	4	0	1156	2	0	2	0	4	3282
Apprch %	0.2	90	9.8	0		8.5	0	91.5	0		22.1	77.6	0.3	0		50	0	50	0		
Total %	0.1	44.9	4.9	0	49.9	1.2	0	13.5	0	14.7	7.8	27.3	0.1	0	35.2	0.1	0	0.1	0	0.1	
Unshifted	3	1381	146	0	1530	25	0	404	0	429	221	785	4	0	1010	2	0	2	0	4	2973
% Unshifted	100	93.7	90.7	0	93.4	61	0	91.2	0	88.6	86.7	87.5	100	0	87.4	100	0	100	0	100	90.6
Bank 1	0	93	15	0	108	16	0	39	0	55	34	112	0	0	146	0	0	0	0	0	309
% Bank 1	0	6.3	9.3	0	6.6	39	0	8.8	0	11.4	13.3	12.5	0	0	12.6	0	0	0	0	0	9.4
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

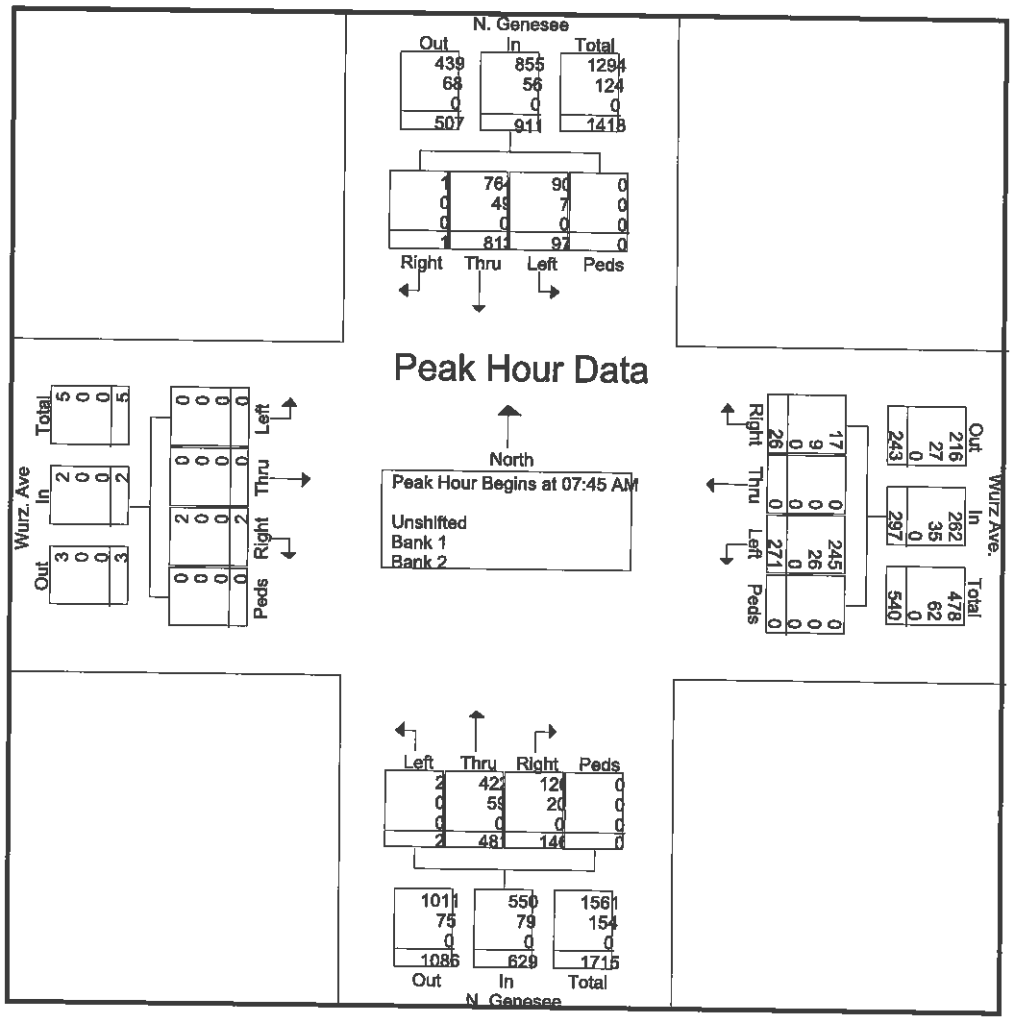
File Name : combined_1_7_9_wurz
Site Code : 00006501
Start Date : 2/4/2015

	N. Genesee From North					Wurz Ave. From East					N. Genesee From South					Wurz. Ave From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:45 AM																					
07:45 AM	0	**236**	22	0	**258**	5	0	**75**	0	**80**	**47**	123	**2**	0	**172**	**1**	0	0	0	**1**	**511**
08:00 AM	**1**	184	**30**	0	215	6	0	63	0	69	30	**124**	0	0	154	1	0	0	0	1	439
08:15 AM	0	204	22	0	226	**8**	0	67	0	75	34	124	0	0	158	0	0	0	0	0	459
08:30 AM	0	189	23	0	212	7	0	66	0	73	35	110	0	0	145	0	0	0	0	0	430
Total Volume	1	813	97	0	911	26	0	271	0	297	146	481	2	0	629	2	0	0	0	2	1839
% App. Total	0.1	89.2	10.6	0		8.8	0	91.2	0		23.2	76.5	0.3	0		100	0	0	0		
PHF	.250	.861	.808	.000	.883	.813	.000	.903	.000	.928	.777	.970	.250	.000	.914	.500	.000	.000	.000	.500	.900
Unshifted	1	764	90	0	855	17	0	245	0	262	126	422	2	0	550	2	0	0	0	2	1669
% Unshifted	100	94.0	92.8	0	93.9	65.4	0	90.4	0	88.2	86.3	87.7	100	0	87.4	100	0	0	0	100	90.8
Bank 1	0	49	7	0	56	9	0	26	0	**35**	20	59	0	0	79	0	0	0	0	0	170
% Bank 1	0	6.0	7.2	0	6.1	34.6	0	9.6	0	11.8	13.7	12.3	0	0	12.6	0	0	0	0	0	9.2
Bank 2	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	**0**	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : combined_1_7_9_wurz
Site Code : 00006501
Start Date : 2/4/2015
Page No : 3



Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : combined_1_11_1_wurz
Site Code : 00006502
Start Date : 2/4/2015
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	N. Genesee From North					Wurz Ave. From East					N. Genesee From South					Wurz Ave. From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
11:00 AM	0	127	15	0	142	10	0	52	0	62	35	131	0	0	166	1	0	0	0	1	371
11:15 AM	0	130	17	0	147	8	0	32	0	40	32	170	2	1	205	2	0	1	0	3	395
11:30 AM	2	155	23	1	181	10	0	38	0	48	42	175	0	1	218	0	0	0	0	0	447
11:45 AM	1	139	32	0	172	12	0	56	0	68	46	127	0	0	173	0	0	2	0	2	415
Total	3	551	87	1	642	40	0	178	0	218	155	603	2	2	762	3	0	3	0	6	1628
12:00 PM	2	156	28	0	186	9	0	50	0	59	57	218	1	0	276	1	0	1	0	2	523
12:15 PM	2	166	17	0	185	20	0	66	0	86	65	166	1	1	233	2	0	0	0	2	506
12:30 PM	0	183	17	0	200	12	0	81	0	93	50	182	0	4	236	0	0	0	0	0	529
12:45 PM	1	166	27	0	194	21	0	79	0	100	46	166	0	1	213	0	1	1	0	2	509
Total	5	671	89	0	765	62	0	276	0	338	218	732	2	6	958	3	1	2	0	6	2067
Grand Total	8	1222	176	1	1407	102	0	454	0	556	373	1335	4	8	1720	6	1	5	0	12	3695
Apprch %	0.6	86.9	12.5	0.1		18.3	0	81.7	0		21.7	77.6	0.2	0.5		50	8.3	41.7	0		
Total %	0.2	33.1	4.8	0	38.1	2.8	0	12.3	0	15	10.1	36.1	0.1	0.2	46.5	0.2	0	0.1	0	0.3	
Unshifted	6	1172	162	1	1341	85	0	420	0	505	331	1283	4	8	1626	5	1	5	0	11	3483
% Unshifted	75	95.9	92	100	95.3	83.3	0	92.5	0	90.8	88.7	96.1	100	100	94.5	83.3	100	100	0	91.7	94.3
Bank 1	2	50	14	0	66	17	0	34	0	51	42	52	0	0	94	1	0	0	0	1	212
% Bank 1	25	4.1	8	0	4.7	16.7	0	7.5	0	9.2	11.3	3.9	0	0	5.5	16.7	0	0	0	8.3	5.7
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

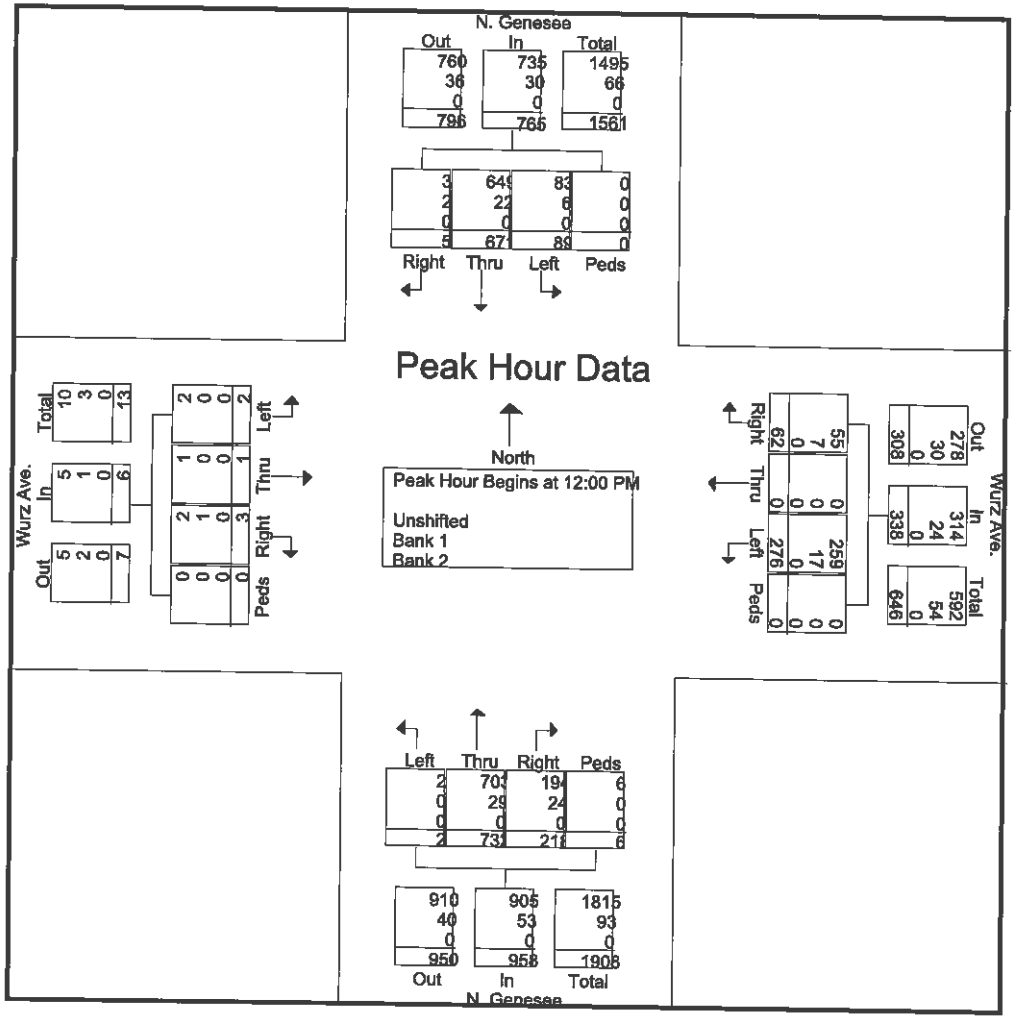
File Name : combined_1_11_1_wurz
Site Code : 00006502
Start Date : 2/4/2015

	N. Genesee From North					Wurz Ave. From East					N. Genesee From South					Wurz Ave. From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	**2**	156	**28**	0	186	9	0	50	0	59	57	**218**	**1**	0	**276**	1	0	**1**	0	**2**	523
12:15 PM	2	166	17	0	185	20	0	66	0	86	**65**	166	1	1	233	**2**	0	0	0	2	506
12:30 PM	0	**183**	17	0	**200**	12	0	**81**	0	93	50	182	0	**4**	236	0	0	0	0	0	**529**
12:45 PM	1	166	27	0	194	**21**	0	79	0	**100**	46	166	0	1	213	0	**1**	1	0	2	509
Total Volume	5	671	89	0	765	62	0	276	0	338	218	732	2	6	958	3	1	2	0	6	2067
% App. Total	0.7	87.7	11.6	0		18.3	0	81.7	0		22.8	76.4	0.2	0.6		50	16.7	33.3	0		
PHF	.625	.917	.795	.000	.956	.738	.000	.852	.000	.845	.838	.839	.500	.375	.868	.375	.250	.500	.000	.750	.977
Unshifted	3	649	83	0	735	55	0	259	0	314	194	703	2	6	905	2	1	2	0	5	1959
% Unshifted	60.0	96.7	93.3	0	96.1	88.7	0	93.8	0	92.9	89.0	96.0	100	100	94.5	66.7	100	100	0	83.3	94.8
Bank 1	2	22	6	0	30	7	0	17	0	24	24	29	0	0	53	1	0	0	0	1	108
% Bank 1	40.0	3.3	6.7	0	3.9	11.3	0	6.2	0	7.1	11.0	4.0	0	0	5.5	33.3	0	0	0	16.7	5.2
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : combined_1_11_1_wurz
Site Code : 00006502
Start Date : 2/4/2015
Page No : 3



Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : combined_1_4_6_wurz
Site Code : 00006503
Start Date : 2/4/2015
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	N. Genesee From North					Wurz Ave. From East					N. Genesee From South					Wurz Ave. From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	1	177	14	0	192	6	0	62	0	68	58	262	0	1	321	1	0	0	0	1	582
04:15 PM	0	151	14	0	165	12	0	36	0	48	50	232	0	1	283	0	0	0	0	0	496
04:30 PM	3	177	16	0	196	7	0	41	0	48	44	280	1	1	326	0	0	0	0	0	570
04:45 PM	0	181	19	1	201	6	0	48	0	54	44	236	0	0	280	0	0	0	0	0	535
Total	4	686	63	1	754	31	0	187	0	218	196	1010	1	3	1210	1	0	0	0	1	2183
05:00 PM	1	178	17	0	196	9	0	40	0	49	45	243	0	0	288	0	0	1	0	1	534
05:15 PM	0	146	25	0	171	12	0	39	0	51	42	184	1	0	227	1	0	1	0	2	451
05:30 PM	0	153	15	1	169	15	0	33	0	48	35	147	0	0	182	0	0	0	0	0	399
05:45 PM	1	145	29	0	175	11	0	27	0	38	36	161	1	0	198	0	0	1	0	1	412
Total	2	622	86	1	711	47	0	139	0	186	158	735	2	0	895	1	0	3	0	4	1796
Grand Total	6	1308	149	2	1465	78	0	326	0	404	354	1745	3	3	2105	2	0	3	0	5	3979
Apprch %	0.4	89.3	10.2	0.1		19.3	0	80.7	0		16.8	82.9	0.1	0.1		40	0	60	0		
Total %	0.2	32.9	3.7	0.1	36.8	2	0	8.2	0	10.2	8.9	43.9	0.1	0.1	52.9	0.1	0	0.1	0	0.1	
Unshifted	6	1268	137	2	1413	73	0	299	0	372	330	1696	3	3	2032	2	0	3	0	5	3822
% Unshifted	100	96.9	91.9	100	96.5	93.6	0	91.7	0	92.1	93.2	97.2	100	100	96.5	100	0	100	0	100	96.1
Bank 1	0	40	12	0	52	5	0	27	0	32	24	49	0	0	73	0	0	0	0	0	157
% Bank 1	0	3.1	8.1	0	3.5	6.4	0	8.3	0	7.9	6.8	2.8	0	0	3.5	0	0	0	0	0	3.9
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

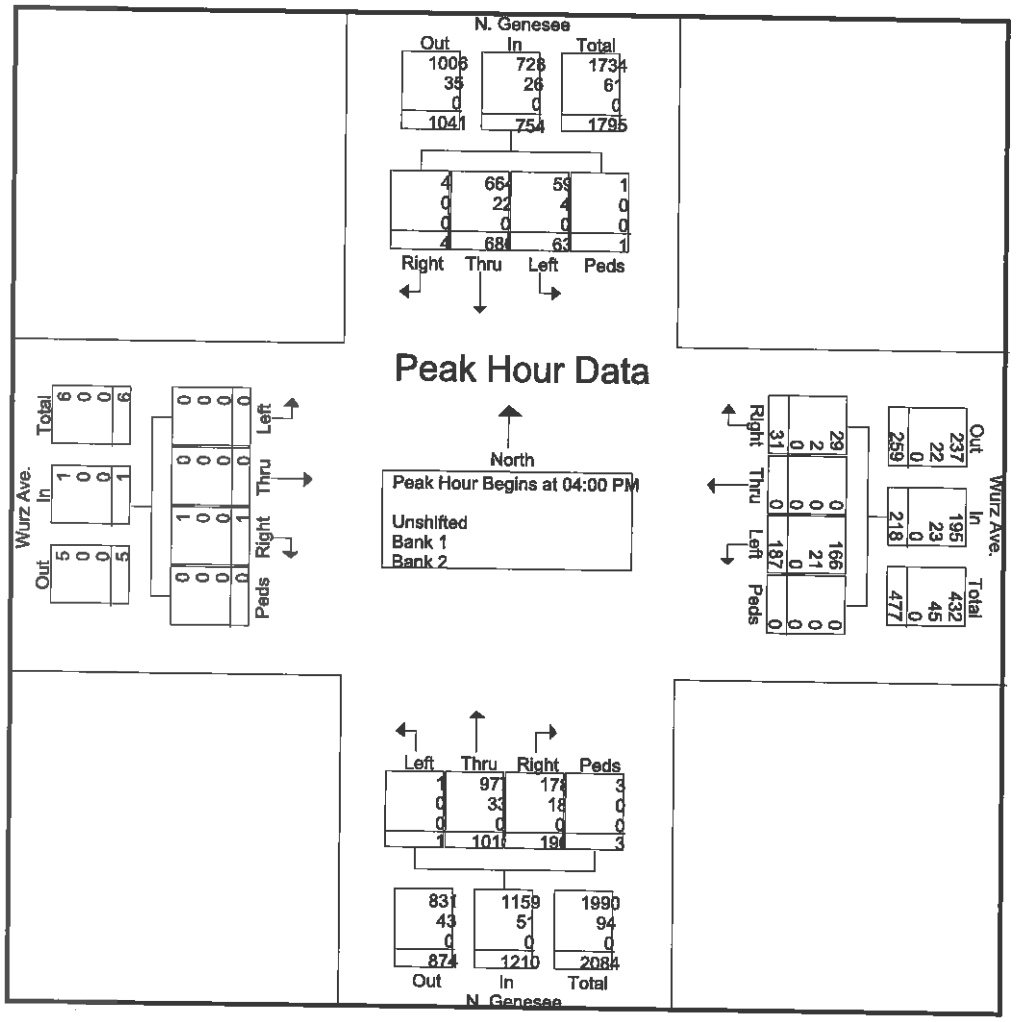
File Name : combined_1_4_6_wurz
Site Code : 00006503
Start Date : 2/4/2015

	N. Genesee From North					Wurz Ave. From East					N. Genesee From South					Wurz Ave. From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:00 PM																					
04:00 PM	1	177	14	0	192	6	0	**62**	0	**68**	**58**	262	0	**1**	321	**1**	0	0	0	**1**	**582**
04:15 PM	0	151	14	0	165	**12**	0	36	0	48	50	232	0	1	283	0	0	0	0	0	496
04:30 PM	**3**	177	16	0	196	7	0	41	0	48	44	**280**	**1**	1	**326**	0	0	0	0	0	570
04:45 PM	0	**181**	**19**	**1**	**201**	6	0	48	0	54	44	236	0	0	280	0	0	0	0	0	535
Total Volume	4	686	63	1	754	31	0	187	0	218	196	1010	1	3	1210	1	0	0	0	1	2183
% App. Total	0.5	91	8.4	0.1		14.2	0	85.8	0		16.2	83.5	0.1	0.2		100	0	0	0		
PHF	.333	.948	.829	.250	.938	.646	.000	.754	.000	.801	.845	.902	.250	.750	.928	.250	.000	.000	.000	.250	.938
Unshifted	4	664	59	1	728	29	0	166	0	195	178	977	1	3	1159	1	0	0	0	1	2083
% Unshifted	100	96.8	93.7	100	96.6	93.5	0	88.8	0	89.4	90.8	96.7	100	100	95.8	100	0	0	0	100	95.4
Bank 1	0	22	4	0	26	2	0	21	0	23	18	33	0	0	51	0	0	0	0	0	100
% Bank 1	0	3.2	6.3	0	3.4	6.5	0	11.2	0	10.6	9.2	3.3	0	0	4.2	0	0	0	0	0	4.6
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : combined_1_4_6_wurz
Site Code : 00006503
Start Date : 2/4/2015
Page No : 3



Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : 63_01_7_9_wells
Site Code : 00006379
Start Date : 2/4/2015
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	N. Genesee From North					HESS From East					N. Genesee From South					WELLS From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	0	0	4	0	4	3	0	3	0	6	4	0	0	0	4	1	1	1	0	3	17
07:15 AM	1	0	3	0	4	2	0	1	0	3	4	0	2	0	6	4	0	4	0	8	21
07:30 AM	1	0	4	0	5	2	0	1	0	3	2	0	1	0	3	3	1	12	0	16	27
07:45 AM	2	0	1	0	3	2	0	1	0	3	2	0	1	0	3	2	0	2	0	4	13
Total	4	0	12	0	16	9	0	6	0	15	12	0	4	0	16	10	2	19	0	31	78
08:00 AM	6	0	4	0	10	1	0	3	0	4	5	0	1	0	6	6	0	2	0	8	28
08:15 AM	4	0	2	0	6	3	0	1	0	4	7	0	2	0	9	2	0	0	0	2	21
08:30 AM	3	0	2	0	5	1	0	1	0	2	8	0	4	0	12	3	0	2	0	5	24
08:45 AM	6	0	3	0	9	1	0	1	0	2	3	0	4	0	7	1	0	0	0	1	19
Total	19	0	11	0	30	6	0	6	0	12	23	0	11	0	34	12	0	4	0	16	92
Grand Total	23	0	23	0	46	15	0	12	0	27	35	0	15	0	50	22	2	23	0	47	170
Apprch %	50	0	50	0		55.6	0	44.4	0		70	0	30	0		46.8	4.3	48.9	0		
Total %	13.5	0	13.5	0	27.1	8.8	0	7.1	0	15.9	20.6	0	8.8	0	29.4	12.9	1.2	13.5	0	27.6	
Unshifted	23	0	23	0	46	15	0	12	0	27	35	0	15	0	50	22	2	23	0	47	170
% Unshifted	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

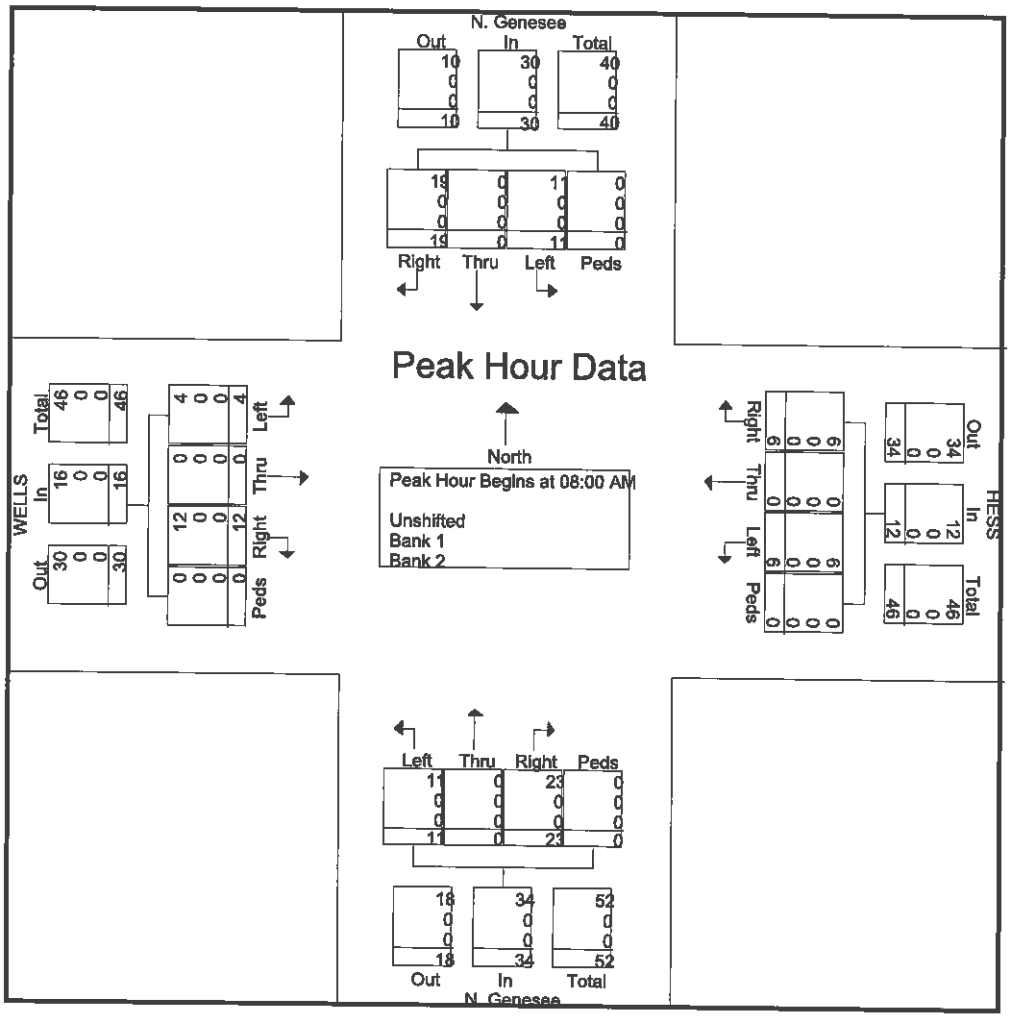
File Name : 63_01_7_9_wells
Site Code : 00006379
Start Date : 2/4/2015

	N. Genesee From North					HESS From East					N. Genesee From South					WELLS From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 08:00 AM																					
08:00 AM	**6**	0	**4**	0	**10**	1	0	**3**	0	**4**	5	0	1	0	6	**6**	0	**2**	0	**8**	**28**
08:15 AM	4	0	2	0	6	**3**	0	1	0	4	7	0	**2**	0	9	2	0	0	0	2	21
08:30 AM	3	0	2	0	5	1	0	1	0	**2**	**8**	0	**4**	0	**12**	3	0	2	0	5	24
08:45 AM	6	0	3	0	9	1	0	1	0	2	3	0	4	0	7	1	0	0	0	1	19
Total Volume	19	0	11	0	30	6	0	6	0	12	23	0	11	0	34	12	0	4	0	16	92
% App. Total	63.3	0	36.7	0		50	0	50	0		67.6	0	32.4	0		75	0	25	0		
PHF	.792	.000	.688	.000	.750	.500	.000	.500	.000	.750	.719	.000	.688	.000	.708	.500	.000	.500	.000	.500	.821
Unshifted	19	0	11	0	30	6	0	6	0	12	23	0	11	0	34	12	0	4	0	16	92
% Unshifted	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : 63_01_7_9_wells
Site Code : 00006379
Start Date : 2/4/2015
Page No : 3



Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : 63_01_11_1_wells
Site Code : 00063111
Start Date : 2/4/2015
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	N. Genesee From North					Hess From East					N. Genesee From South					Wells From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
11:00 AM	3	0	1	0	4	0	0	1	0	1	5	0	0	0	5	2	0	0	0	2	12
11:15 AM	3	0	3	0	6	0	0	1	0	1	8	0	0	0	8	1	0	4	0	5	20
11:30 AM	3	0	3	0	6	0	0	0	0	0	7	0	2	0	9	4	0	3	0	7	22
11:45 AM	6	0	4	0	10	2	0	1	0	3	12	0	5	0	17	2	0	3	0	5	35
Total	15	0	11	0	26	2	0	3	0	5	32	0	7	0	39	9	0	10	0	19	89
12:00 PM	6	0	2	0	8	1	0	1	0	2	9	0	3	0	12	3	0	1	0	4	26
12:15 PM	2	0	2	0	4	1	0	1	0	2	7	0	7	0	14	1	0	4	0	5	25
12:30 PM	6	0	2	0	8	0	0	0	0	0	7	0	2	0	9	3	0	2	0	5	22
Grand Total	29	0	17	0	46	4	0	5	0	9	55	0	19	0	74	16	0	17	0	33	162
Apprch %	63	0	37	0		44.4	0	55.6	0		74.3	0	25.7	0		48.5	0	51.5	0		
Total %	17.9	0	10.5	0	28.4	2.5	0	3.1	0	5.6	34	0	11.7	0	45.7	9.9	0	10.5	0	20.4	
Unshifted	29	0	17	0	46	4	0	5	0	9	54	0	18	0	72	15	0	17	0	32	159
% Unshifted	100	0	100	0	100	100	0	100	0	100	98.2	0	94.7	0	97.3	93.8	0	100	0	97	98.1
Bank 1	0	0	0	0	0	0	0	0	0	0	1	0	1	0	2	1	0	0	0	1	3
% Bank 1	0	0	0	0	0	0	0	0	0	0	1.8	0	5.3	0	2.7	6.2	0	0	0	3	1.9
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

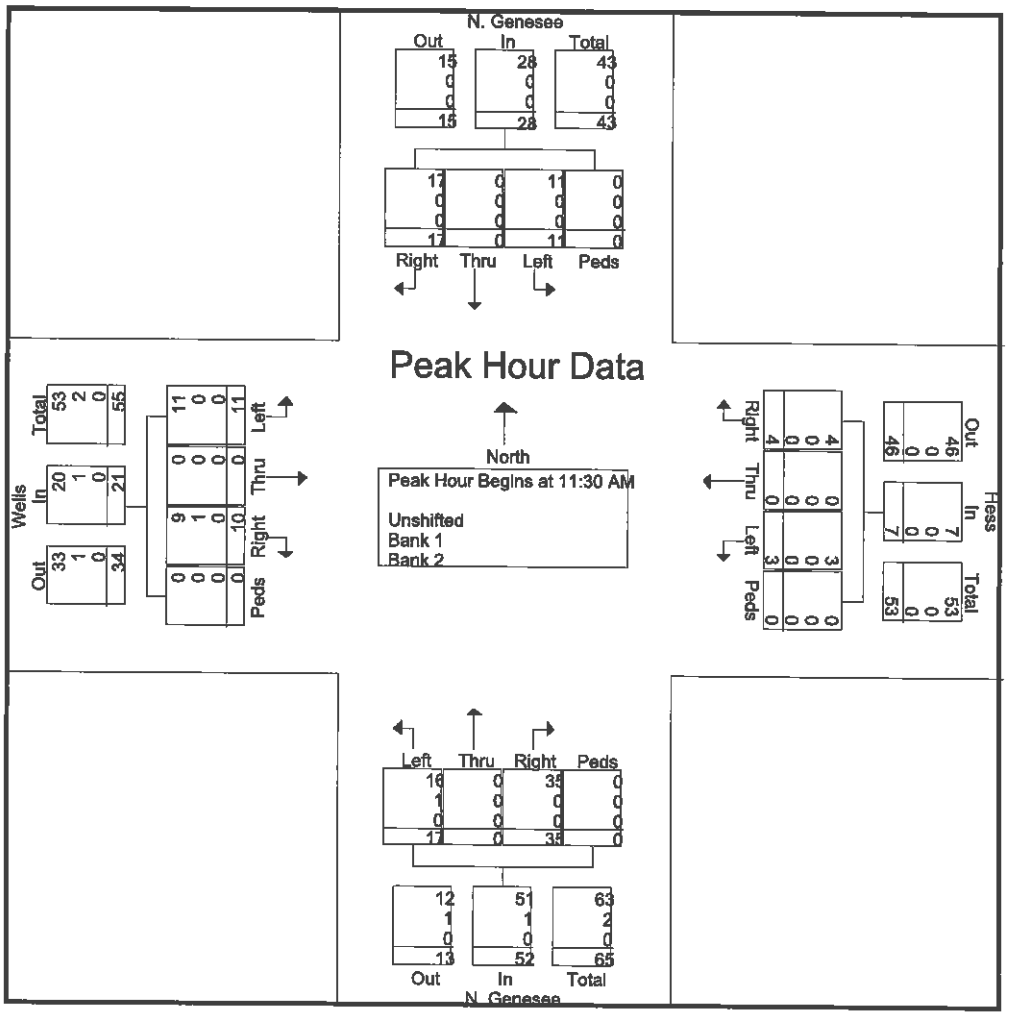
File Name : 63_01_11_1_wells
Site Code : 00063111
Start Date : 2/4/2015

	N. Genesee From North					Hess From East					N. Genesee From South					Wells From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:30 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:30 AM																					
11:30 AM	3	0	3	0	6	0	0	0	0	0	7	0	2	0	9	4	0	3	0	7	22
11:45 AM	6	0	4	0	10	2	0	1	0	3	12	0	5	0	17	2	0	3	0	5	35
12:00 PM	6	0	2	0	8	1	0	1	0	2	9	0	3	0	12	3	0	1	0	4	26
12:15 PM	2	0	2	0	4	1	0	1	0	2	7	0	7	0	14	1	0	4	0	5	25
Total Volume	17	0	11	0	28	4	0	3	0	7	35	0	17	0	52	10	0	11	0	21	108
% App. Total	60.7	0	39.3	0		57.1	0	42.9	0		67.3	0	32.7	0		47.6	0	52.4	0		
PHF	.708	.000	.688	.000	.700	.500	.000	.750	.000	.583	.729	.000	.607	.000	.765	.625	.000	.688	.000	.750	.771
Unshifted	17	0	11	0	28	4	0	3	0	7	35	0	16	0	51	9	0	11	0	20	106
% Unshifted	100	0	100	0	100	100	0	100	0	100	100	0	94.1	0	98.1	90.0	0	100	0	95.2	98.1
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0	0	0	1	2
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	5.9	0	1.9	10.0	0	0	0	4.8	1.9
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : 63_01_11_1_wells
Site Code : 00063111
Start Date : 2/4/2015
Page No : 3



Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : 63_01_4_6_wells
Site Code : 00006346
Start Date : 2/4/2015
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	N. Genesee From North					Hess From East					N. Genesee From South					Wells From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	3	0	2	0	5	3	0	1	0	4	10	0	8	0	18	1	0	3	0	4	31
04:15 PM	6	0	2	0	8	1	0	1	0	2	12	0	1	0	13	4	0	4	0	8	31
04:30 PM	8	0	2	0	10	1	0	2	0	3	15	0	5	0	20	6	0	1	0	7	40
04:45 PM	8	0	0	0	8	2	0	0	0	2	22	0	8	0	30	3	0	4	0	7	47
Total	25	0	6	0	31	7	0	4	0	11	59	0	22	0	81	14	0	12	0	26	149
05:00 PM	4	0	3	0	7	0	0	3	0	3	19	0	5	0	24	10	1	2	0	13	47
05:15 PM	4	0	4	0	8	0	0	1	0	1	10	0	10	0	20	6	0	3	0	9	38
05:30 PM	4	0	2	0	6	0	1	4	0	5	3	0	5	0	8	12	0	0	0	12	31
05:45 PM	2	0	0	0	2	0	0	0	0	0	8	0	3	0	11	10	0	6	0	16	29
Total	14	0	9	0	23	0	1	8	0	9	40	0	23	0	63	38	1	11	0	50	145
Grand Total	39	0	15	0	54	7	1	12	0	20	99	0	45	0	144	52	1	23	0	76	294
Apprch %	72.2	0	27.8	0		35	5	60	0		68.8	0	31.2	0		68.4	1.3	30.3	0		
Total %	13.3	0	5.1	0	18.4	2.4	0.3	4.1	0	6.8	33.7	0	15.3	0	49	17.7	0.3	7.8	0	25.9	
Unshifted	38	0	15	0	53	6	1	12	0	19	99	0	45	0	144	52	1	23	0	76	292
% Unshifted	97.4	0	100	0	98.1	85.7	100	100	0	95	100	0	100	0	100	100	100	100	0	100	99.3
Bank 1	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2
% Bank 1	2.6	0	0	0	1.9	14.3	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0.7
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

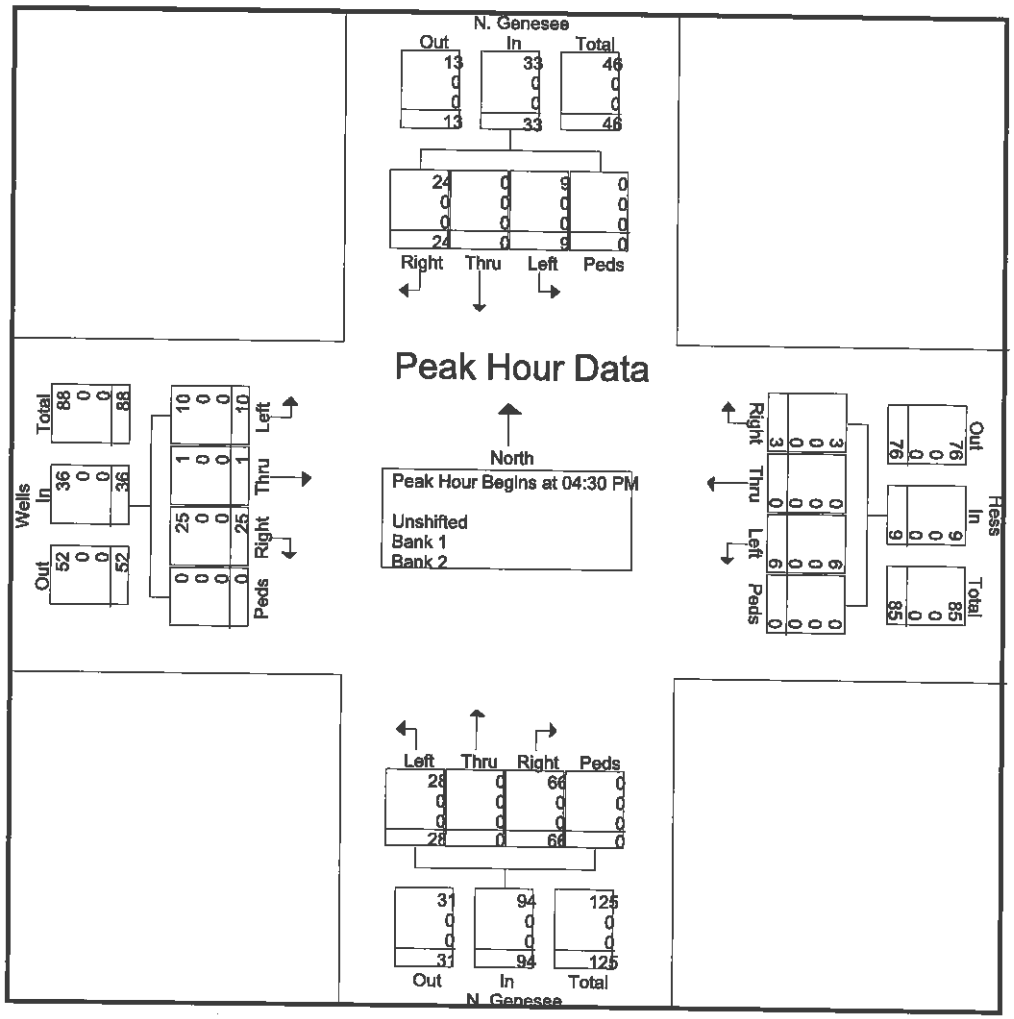
File Name : 63_01_4_6_wells
Site Code : 00006346
Start Date : 2/4/2015

	N. Genesee From North					Hess From East					N. Genesee From South					Wells From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	**8**	0	2	0	**10**	1	0	2	0	**3**	15	0	5	0	20	6	0	1	0	7	40
04:45 PM	8	0	0	0	8	**2**	0	0	0	2	**22**	0	8	0	**30**	**3**	0	**4**	0	7	**47**
05:00 PM	4	0	3	0	7	0	0	**3**	0	3	19	0	5	0	24	**10**	**1**	2	0	**13**	47
05:15 PM	4	0	**4**	0	8	0	0	1	0	1	10	0	**10**	0	20	6	0	3	0	9	38
Total Volume	24	0	9	0	33	3	0	6	0	9	66	0	28	0	94	25	1	10	0	36	172
% App. Total	72.7	0	27.3	0		33.3	0	66.7	0		70.2	0	29.8	0		69.4	2.8	27.8	0		
PHF	.750	.000	.563	.000	.825	.375	.000	.500	.000	.750	.750	.000	.700	.000	.783	.625	.250	.625	.000	.692	.915
Unshifted	24	0	9	0	33	3	0	6	0	9	66	0	28	0	94	25	1	10	0	36	172
% Unshifted	100	0	100	0	100	100	0	100	0	100	100	0	100	0	100	100	100	100	0	100	100
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : 63_01_4_6_wells
Site Code : 00006346
Start Date : 2/4/2015
Page No : 3



Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : combined_7_9_harbor
Site Code : 00002464
Start Date : 2/5/2015
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	N. Genesee From North					Harbor East From East					N. Genesee From South					Harbor West From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	14	0	0	0	14	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	16
07:15 AM	9	0	0	0	9	0	0	0	0	0	4	0	0	0	4	7	0	0	0	7	20
07:30 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	5
07:45 AM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2
Total	25	0	0	0	25	3	0	0	0	3	5	0	0	0	5	10	0	0	0	10	43
08:00 AM	1	0	0	0	1	1	0	0	0	1	2	0	0	0	2	0	0	0	0	0	4
08:15 AM	3	0	0	0	3	1	0	0	0	1	4	0	0	0	4	0	0	0	0	0	8
08:30 AM	2	0	0	0	2	3	0	0	0	3	2	0	0	0	2	5	0	0	0	5	12
08:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	2
Total	6	0	0	0	6	5	0	0	0	5	8	0	0	0	8	7	0	0	0	7	26
Grand Total	31	0	0	0	31	8	0	0	0	8	13	0	0	0	13	17	0	0	0	17	69
Apprch %	100	0	0	0		100	0	0	0		100	0	0	0		100	0	0	0		
Total %	44.9	0	0	0	44.9	11.6	0	0	0	11.6	18.8	0	0	0	18.8	24.6	0	0	0	24.6	
Unshifted	27	0	0	0	27	8	0	0	0	8	10	0	0	0	10	13	0	0	0	13	58
% Unshifted	87.1	0	0	0	87.1	100	0	0	0	100	76.9	0	0	0	76.9	76.5	0	0	0	76.5	84.1
Bank 1	4	0	0	0	4	0	0	0	0	0	3	0	0	0	3	4	0	0	0	4	11
% Bank 1	12.9	0	0	0	12.9	0	0	0	0	0	23.1	0	0	0	23.1	23.5	0	0	0	23.5	15.9
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : combined_7_9_harbor
Site Code : 00002464
Start Date : 2/5/2015

	N. Genesee From North					Harbor East From East					N. Genesee From South					Harbor West From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:00 AM																					
07:00 AM	14	0	0	0	14	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	16
07:15 AM	9	0	0	0	9	0	0	0	0	0	4	0	0	0	4	7	0	0	0	7	20
07:30 AM	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	5
07:45 AM	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	0	2
Total Volume	25	0	0	0	25	3	0	0	0	3	5	0	0	0	5	10	0	0	0	10	43
% App. Total	100	0	0	0		100	0	0	0		100	0	0	0		100	0	0	0		
PHF	.446	.000	.000	.000	.446	.375	.000	.000	.000	.375	.313	.000	.000	.000	.313	.357	.000	.000	.000	.357	.538
Unshifted	23	0	0	0	23	3	0	0	0	3	4	0	0	0	4	8	0	0	0	8	38
% Unshifted	92.0	0	0	0	92.0	100	0	0	0	100	80.0	0	0	0	80.0	80.0	0	0	0	80.0	88.4
Bank 1	2	0	0	0	2	0	0	0	0	0	1	0	0	0	1	2	0	0	0	2	5
% Bank 1	8.0	0	0	0	8.0	0	0	0	0	0	20.0	0	0	0	20.0	20.0	0	0	0	20.0	11.6
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : combined_7_9_harbor
Site Code : 00002464
Start Date : 2/5/2015
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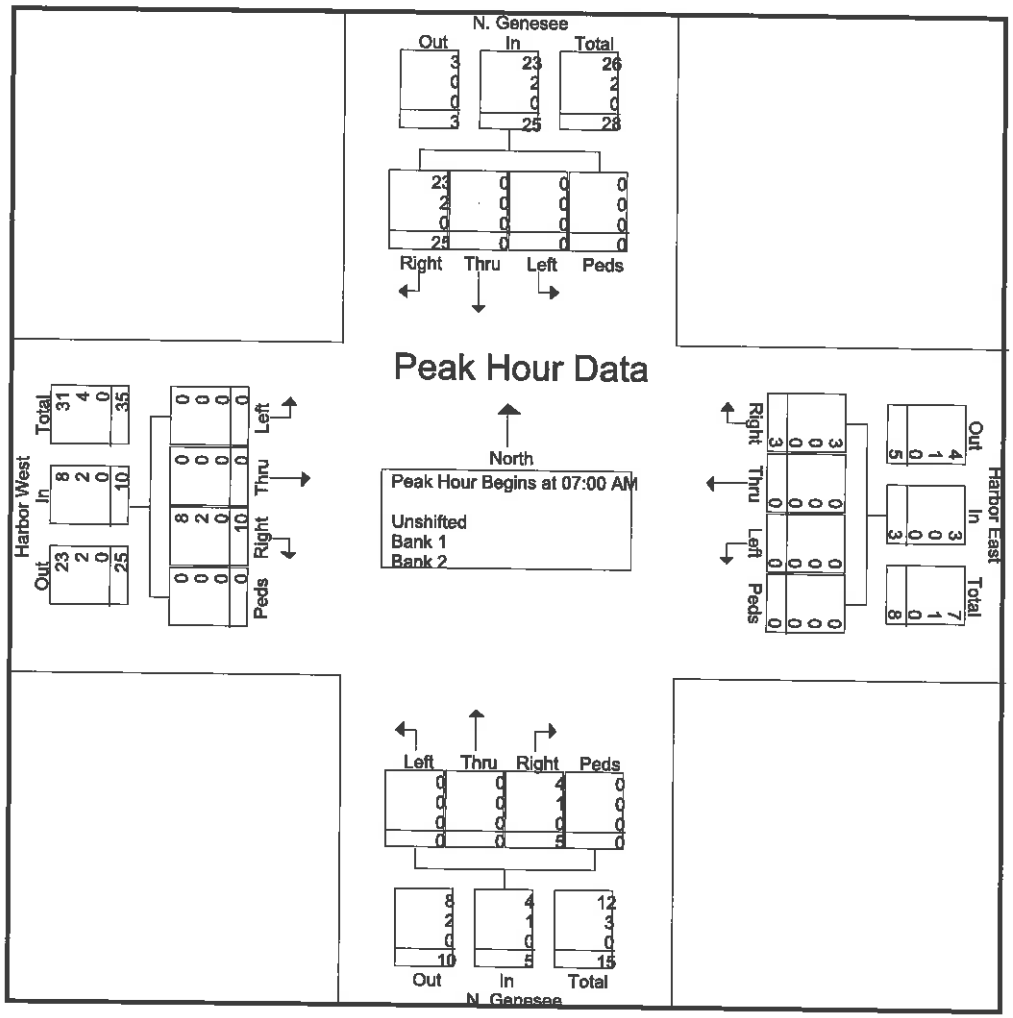

Harbor Point

Default Comments
Change These in The Preferences Window
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File Name : combined_11_1_harbor
Site Code : 00002564
Start Date : 2/5/2015
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	N. Genesee From North					Harbor East From East					N. Genesee From South					Harbor West From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
11:00 AM	1	0	0	0	1	1	0	0	0	1	1	0	0	0	1	1	0	0	0	1	4
11:15 AM	0	0	0	0	0	2	0	0	0	2	1	0	0	0	1	1	0	0	0	1	4
11:30 AM	4	0	0	0	4	1	0	0	0	1	5	0	0	0	5	1	0	0	0	1	11
11:45 AM	1	0	1	0	2	1	0	0	0	1	3	0	0	0	3	7	0	0	0	7	13
Total	6	0	1	0	7	5	0	0	0	5	10	0	0	0	10	10	0	0	0	10	32
12:00 PM	2	0	0	0	2	2	0	0	0	2	8	0	0	0	8	1	0	0	0	1	13
12:15 PM	5	0	0	0	5	3	0	0	0	3	4	0	0	0	4	3	0	0	0	3	15
12:30 PM	3	0	0	0	3	3	0	0	0	3	8	0	0	0	8	5	0	0	0	5	19
12:45 PM	2	0	0	0	2	7	0	0	0	7	2	0	0	0	2	4	0	0	0	4	15
Total	12	0	0	0	12	15	0	0	0	15	22	0	0	0	22	13	0	0	0	13	62
Grand Total	18	0	1	0	19	20	0	0	0	20	32	0	0	0	32	23	0	0	0	23	94
Apprch %	94.7	0	5.3	0		100	0	0	0		100	0	0	0		100	0	0	0		
Total %	19.1	0	1.1	0	20.2	21.3	0	0	0	21.3	34	0	0	0	34	24.5	0	0	0	24.5	
Unshifted	17	0	1	0	18	19	0	0	0	19	31	0	0	0	31	21	0	0	0	21	89
% Unshifted	94.4	0	100	0	94.7	95	0	0	0	95	96.9	0	0	0	96.9	91.3	0	0	0	91.3	94.7
Bank 1	1	0	0	0	1	1	0	0	0	1	1	0	0	0	1	2	0	0	0	2	5
% Bank 1	5.6	0	0	0	5.3	5	0	0	0	5	3.1	0	0	0	3.1	8.7	0	0	0	8.7	5.3
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

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File Name : combined_11_1_harbor
Site Code : 00002564
Start Date : 2/5/2015
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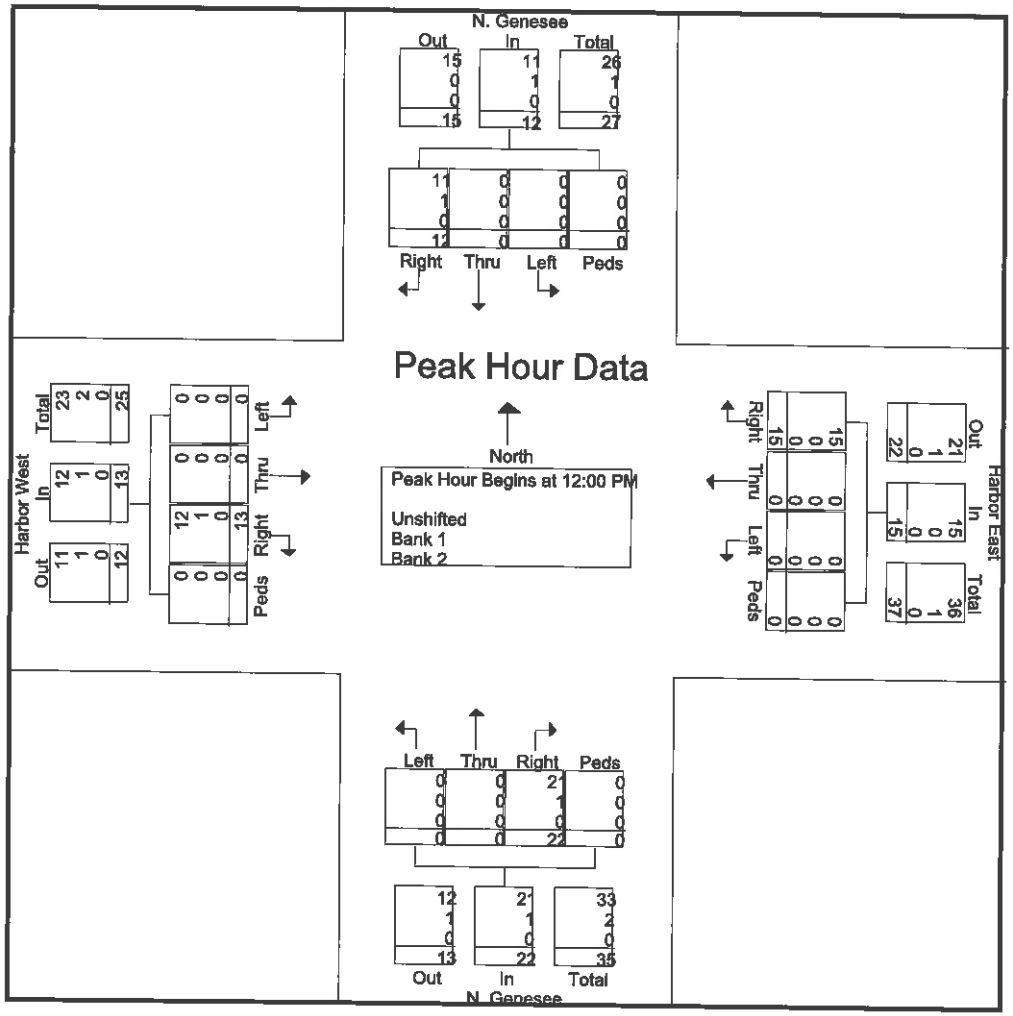
	N. Genesee From North					Harbor East From East					N. Genesee From South					Harbor West From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 12:00 PM																					
12:00 PM	2	0	0	0	2	2	0	0	0	2	**8**	0	0	0	**8**	1	0	0	0	1	13
12:15 PM	**5**	0	0	0	**5**	3	0	0	0	3	4	0	0	0	4	3	0	0	0	3	15
12:30 PM	3	0	0	0	3	3	0	0	0	3	8	0	0	0	8	**5**	0	0	0	**5**	**19**
12:45 PM	2	0	0	0	2	**7**	0	0	0	**7**	2	0	0	0	2	4	0	0	0	4	15
Total Volume	12	0	0	0	12	15	0	0	0	15	22	0	0	0	22	13	0	0	0	13	62
% App. Total	100	0	0	0		100	0	0	0		100	0	0	0		100	0	0	0		
PHF	.600	.000	.000	.000	.600	.536	.000	.000	.000	.536	.688	.000	.000	.000	.688	.650	.000	.000	.000	.650	.816
Unshifted	11	0	0	0	11	15	0	0	0	15	21	0	0	0	21	12	0	0	0	12	59
% Unshifted	91.7	0	0	0	91.7	100	0	0	0	100	**95.5**	0	0	0	95.5	92.3	0	0	0	92.3	95.2
Bank 1	1	0	0	0	1	0	0	0	0	0	1	0	0	0	1	1	0	0	0	1	3
% Bank 1	8.3	0	0	0	8.3	0	0	0	0	0	4.5	0	0	0	4.5	7.7	0	0	0	7.7	4.8
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Default Comments
Change These in The Preferences Window
Select File/Preference in the Main Scree
Then Click the Comments Tab

File Name : combined_11_1_harbor
Site Code : 00002564
Start Date : 2/5/2015
Page No : 3



Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : combined_4_6_harbor
Site Code : 00002664
Start Date : 2/5/2015
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	N. Genesee From North					Harbor East From East					N. Genesee From South					Harbor West From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	1	0	0	0	1	10	0	0	0	10	1	0	0	0	1	6	0	0	1	7	19
04:15 PM	3	0	0	0	3	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	4
04:30 PM	1	0	0	0	1	2	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3
04:45 PM	4	0	1	0	5	1	0	0	0	1	6	0	0	0	6	1	0	0	0	1	13
Total	9	0	1	0	10	13	0	0	0	13	8	0	0	0	8	7	0	0	1	8	39
05:00 PM	1	0	1	0	2	3	0	0	0	3	2	0	0	0	2	1	0	0	0	1	8
05:15 PM	4	0	1	0	5	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	6
05:30 PM	5	0	2	0	7	2	0	0	0	2	5	0	0	0	5	1	0	0	0	1	15
05:45 PM	5	0	0	0	5	1	0	0	0	1	8	0	0	0	8	4	0	0	0	4	18
Total	15	0	4	0	19	6	0	0	0	6	16	0	0	0	16	6	0	0	0	6	47
Grand Total	24	0	5	0	29	19	0	0	0	19	24	0	0	0	24	13	0	0	1	14	86
Apprch %	82.8	0	17.2	0		100	0	0	0		100	0	0	0		92.9	0	0	7.1		
Total %	27.9	0	5.8	0	33.7	22.1	0	0	0	22.1	27.9	0	0	0	27.9	15.1	0	0	1.2	16.3	
Unshifted	23	0	5	0	28	19	0	0	0	19	24	0	0	0	24	12	0	0	1	13	84
% Unshifted	95.8	0	100	0	96.6	100	0	0	0	100	100	0	0	0	100	92.3	0	0	100	92.9	97.7
Bank 1	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2
% Bank 1	4.2	0	0	0	3.4	0	0	0	0	0	0	0	0	0	0	7.7	0	0	0	7.1	2.3
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : combined_4_6_harbor
Site Code : 00002664
Start Date : 2/5/2015

	N. Genesee From North					Harbor East From East					N. Genesee From South					Harbor West From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 05:00 PM																					
05:00 PM	1	0	1	0	2	**3**	0	0	0	**3**	2	0	0	0	2	1	0	0	0	1	8
05:15 PM	4	0	1	0	5	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	6
05:30 PM	**5**	0	**2**	0	**7**	**2**	0	0	0	**2**	5	0	0	0	**5**	1	0	0	0	1	15
05:45 PM	5	0	0	0	5	1	0	0	0	1	**8**	0	0	0	**8**	**4**	0	0	0	**4**	**18**
Total Volume	15	0	4	0	19	6	0	0	0	6	16	0	0	0	16	6	0	0	0	6	47
% App. Total	78.9	0	21.1	0		100	0	0	0		100	0	0	0		100	0	0	0		
PHF	.750	.000	.500	.000	.679	.500	.000	.000	.000	.500	.500	.000	.000	.000	.500	.375	.000	.000	.000	.375	.653
Unshifted	15	0	4	0	19	6	0	0	0	6	16	0	0	0	16	5	0	0	0	5	46
% Unshifted	100	0	100	0	100	100	0	0	0	100	100	0	0	0	100	83.3	0	0	0	83.3	97.9
Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1
% Bank 1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	16.7	0	0	0	16.7	2.1
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

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File Name : combined_4_6_harbor
Site Code : 00002664
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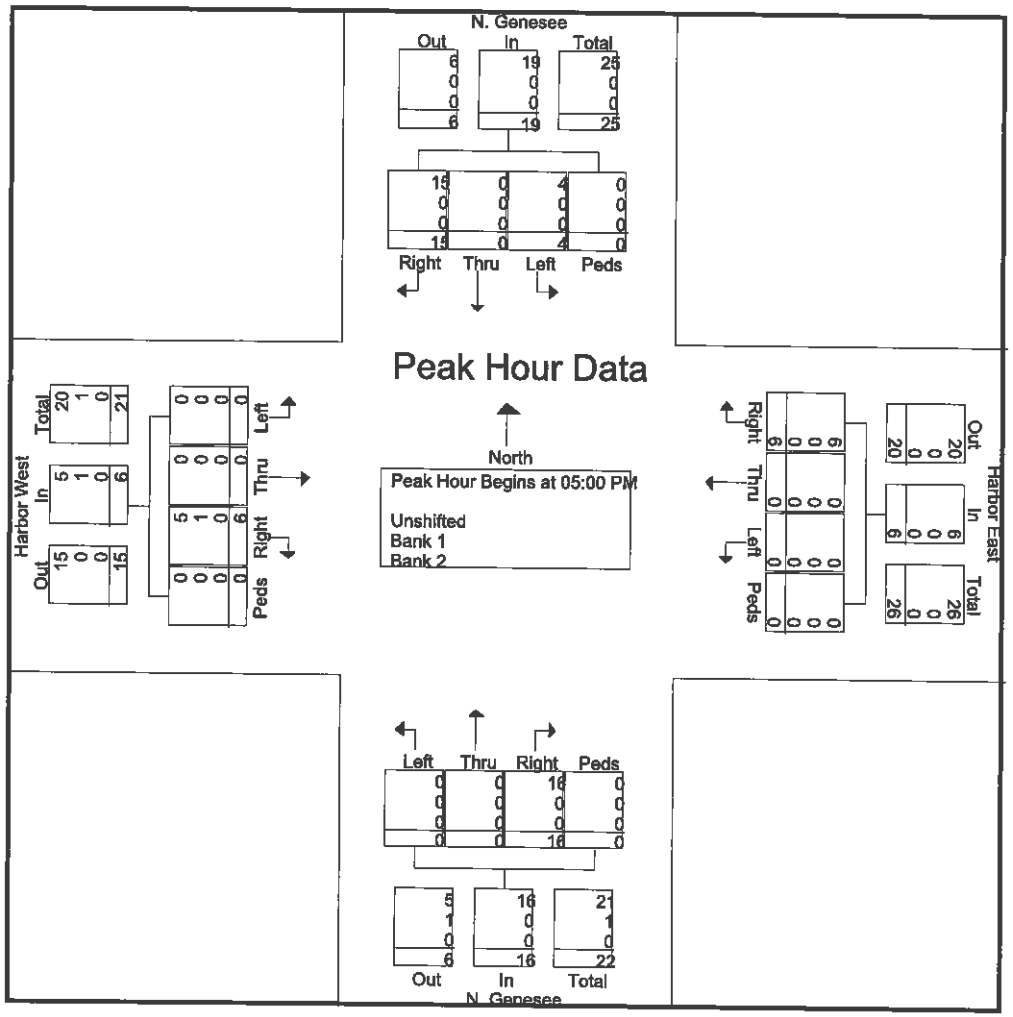

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : combined_2_7_9_NGen
Site Code : 00006504
Start Date : 2/5/2015
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	N. Genesee From North					From East					N. Genesee From South					I-90 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
07:00 AM	18	80	0	0	98	0	0	0	0	0	0	99	0	0	99	62	0	5	0	67	264
07:15 AM	16	104	0	0	120	0	0	0	0	0	0	102	0	0	102	71	0	5	0	76	298
07:30 AM	20	127	0	0	147	0	0	0	0	0	0	148	0	0	148	117	0	5	0	122	417
07:45 AM	20	139	0	1	160	0	0	0	0	0	0	125	0	1	126	128	0	10	0	138	424
Total	74	450	0	1	525	0	0	0	0	0	0	474	0	1	475	378	0	25	0	403	1403
08:00 AM	11	106	0	0	117	0	0	0	0	0	0	113	0	0	113	105	0	9	0	114	344
08:15 AM	15	112	0	0	127	0	0	0	0	0	0	141	0	1	142	103	0	1	0	104	373
08:30 AM	12	104	0	0	116	0	0	0	0	0	0	138	0	0	138	98	0	6	0	104	358
08:45 AM	12	114	0	1	127	0	0	0	0	0	0	175	0	1	176	86	0	6	0	92	395
Total	50	436	0	1	487	0	0	0	0	0	0	567	0	2	569	392	0	22	0	414	1470
Grand Total	124	886	0	2	1012	0	0	0	0	0	0	1041	0	3	1044	770	0	47	0	817	2873
Apprch %	12.3	87.5	0	0.2		0	0	0	0		0	99.7	0	0.3		94.2	0	5.8	0		
Total %	4.3	30.8	0	0.1	35.2	0	0	0	0	0	0	36.2	0	0.1	36.3	26.8	0	1.6	0	28.4	
Unshifted	112	849	0	2	963	0	0	0	0	0	0	912	0	3	915	717	0	43	0	760	2638
% Unshifted	90.3	95.8	0	100	95.2	0	0	0	0	0	0	87.6	0	100	87.6	93.1	0	91.5	0	93	91.8
Bank 1	12	37	0	0	49	0	0	0	0	0	0	129	0	0	129	53	0	4	0	57	235
% Bank 1	9.7	4.2	0	0	4.8	0	0	0	0	0	0	12.4	0	0	12.4	6.9	0	8.5	0	7	8.2
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
Phone: 315-793-9500

File Name : combined_2_7_9_NGen
Site Code : 00006504
Start Date : 2/5/2015

	N. Genesee From North					From East					N. Genesee From South					I-90 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	**20**	127	0	0	147	0	0	0	0	0	0	**148**	0	0	**148**	117	0	5	0	122	417
07:45 AM	20	**139**	0	**1**	**160**	0	0	0	0	0	0	125	0	**1**	126	**128**	0	**10**	0	**138**	**424**
08:00 AM	11	106	0	0	117	0	0	0	0	0	0	113	0	0	113	105	0	9	0	114	344
08:15 AM	15	112	0	0	127	0	0	0	0	0	0	141	0	1	142	103	0	1	0	104	373
Total Volume	66	484	0	1	551	0	0	0	0	0	0	527	0	2	529	453	0	25	0	478	1558
% App. Total	12	87.8	0	0.2		0	0	0	0		0	99.6	0	0.4		94.8	0	5.2	0		
PHF	.825	.871	.000	.250	.861	.000	.000	.000	.000	.000	.000	.890	.000	.500	.894	.885	.000	.625	.000	.866	.919
Unshifted	63	467	0	1	531	0	0	0	0	0	0	465	0	2	467	420	0	21	0	441	1439
% Unshifted	95.5	96.5	0	100	96.4	0	0	0	0	0	0	88.2	0	100	88.3	92.7	0	84.0	0	92.3	92.4
Bank 1	3	17	0	0	20	0	0	0	0	0	0	62	0	0	62	33	0	4	0	37	119
% Bank 1	4.5	3.5	0	0	3.6	0	0	0	0	0	0	11.8	0	0	11.7	7.3	0	16.0	0	7.7	7.6
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Lochner Engineering
181 Genesee St.
Utica, N.Y. 13501
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File Name : combined_2_7_9_NGen
Site Code : 00006504
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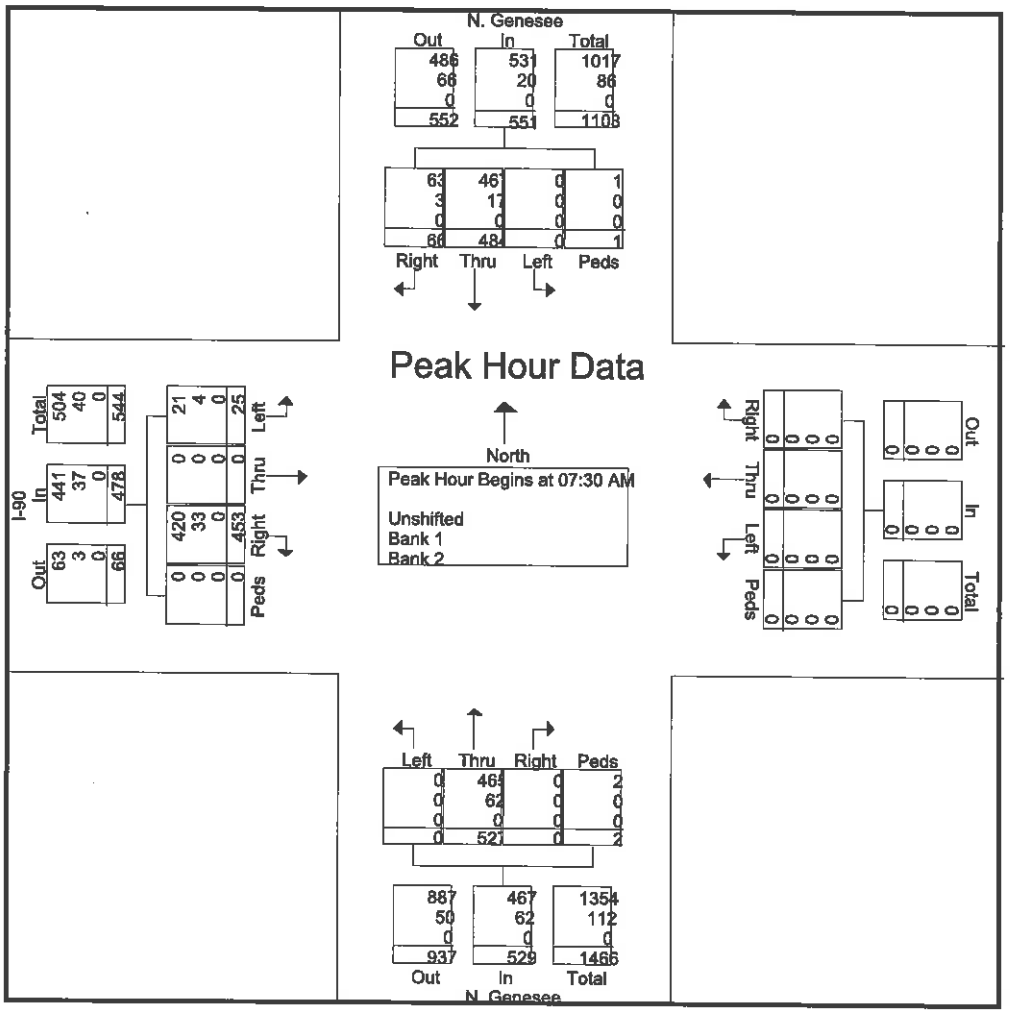

Harbor Point

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File Name : combined_11_1_NGen
Site Code : 00006505
Start Date : 2/5/2015
Page No : 1

Groups Printed- Unshifted - Bank 1 - Bank 2

	N. Genesee From North					From East					N. Genesee From South					I90 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
11:00 AM	6	76	0	0	82	0	1	0	0	1	0	145	0	0	145	44	1	3	0	48	276
11:15 AM	9	115	0	1	125	0	0	0	0	0	0	156	0	0	156	48	0	10	0	58	339
11:30 AM	4	109	0	0	113	0	0	0	0	0	0	175	0	0	175	77	0	11	0	88	376
11:45 AM	11	117	0	0	128	0	0	0	0	0	0	171	0	0	171	43	0	7	0	50	349
Total	30	417	0	1	448	0	1	0	0	1	0	647	0	0	647	212	1	31	0	244	1340
12:00 PM	11	114	0	0	125	0	0	0	0	0	0	191	0	0	191	61	0	3	0	64	380
12:15 PM	8	117	0	1	126	0	0	0	0	0	0	187	0	0	187	67	0	4	0	71	384
12:30 PM	9	113	0	0	122	0	0	0	0	0	0	218	0	0	218	75	0	6	0	81	421
12:45 PM	7	105	0	1	113	0	0	0	0	0	0	172	0	0	172	55	0	9	0	64	349
Total	35	449	0	2	486	0	0	0	0	0	0	768	0	0	768	258	0	22	0	280	1534
Grand Total	65	866	0	3	934	0	1	0	0	1	0	1415	0	0	1415	470	1	53	0	524	2874
Apprch %	7	92.7	0	0.3		0	100	0	0		0	100	0	0		89.7	0.2	10.1	0		
Total %	2.3	30.1	0	0.1	32.5	0	0	0	0	0	0	49.2	0	0	49.2	16.4	0	1.8	0	18.2	
Unshifted	63	847	0	3	913	0	1	0	0	1	0	1342	0	0	1342	433	1	51	0	485	2741
% Unshifted	96.9	97.8	0	100	97.8	0	100	0	0	100	0	94.8	0	0	94.8	92.1	100	96.2	0	92.6	95.4
Bank 1	2	19	0	0	21	0	0	0	0	0	0	73	0	0	73	37	0	2	0	39	133
% Bank 1	3.1	2.2	0	0	2.2	0	0	0	0	0	0	5.2	0	0	5.2	7.9	0	3.8	0	7.4	4.6
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Default Comments
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File Name : combined_11_1_NGen
Site Code : 00006505
Start Date : 2/5/2015
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	N. Genesee From North					From East					N. Genesee From South					I90 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 11:00 AM to 12:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 11:45 AM																					
11:45 AM	**11**	**117**	0	0	**128**	0	0	0	0	0	0	171	0	0	171	43	0	**7**	0	50	349
12:00 PM	11	114	0	0	125	0	0	0	0	0	0	191	0	0	191	61	0	**3**	0	64	380
12:15 PM	8	117	0	**1**	126	0	0	0	0	0	0	187	0	0	187	67	0	4	0	71	384
12:30 PM	9	113	0	0	122	0	0	0	0	0	0	**218**	0	0	**218**	**75**	0	6	0	**81**	**421**
Total Volume	39	461	0	1	501	0	0	0	0	0	0	767	0	0	767	246	0	20	0	266	1534
% App. Total	7.8	92	0	0.2		0	0	0	0		0	100	0	0		92.5	0	7.5	0		
PHF	.886	.985	.000	.250	.979	.000	.000	.000	.000	.000	.000	.880	.000	.000	.880	.820	.000	.714	.000	.821	.911
Unshifted	38	451	0	1	490	0	0	0	0	0	0	735	0	0	735	220	0	18	0	238	1463
% Unshifted	97.4	97.8	0	100	97.8	0	0	0	0	0	0	95.8	0	0	95.8	89.4	0	90.0	0	89.5	95.4
Bank 1	1	10	0	0	11	0	0	0	0	0	0	32	0	0	32	26	0	**2**	0	28	71
% Bank 1	2.6	2.2	0	0	2.2	0	0	0	0	0	0	4.2	0	0	4.2	10.6	0	10.0	0	10.5	4.6
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

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File Name : combined_11_1_NGen
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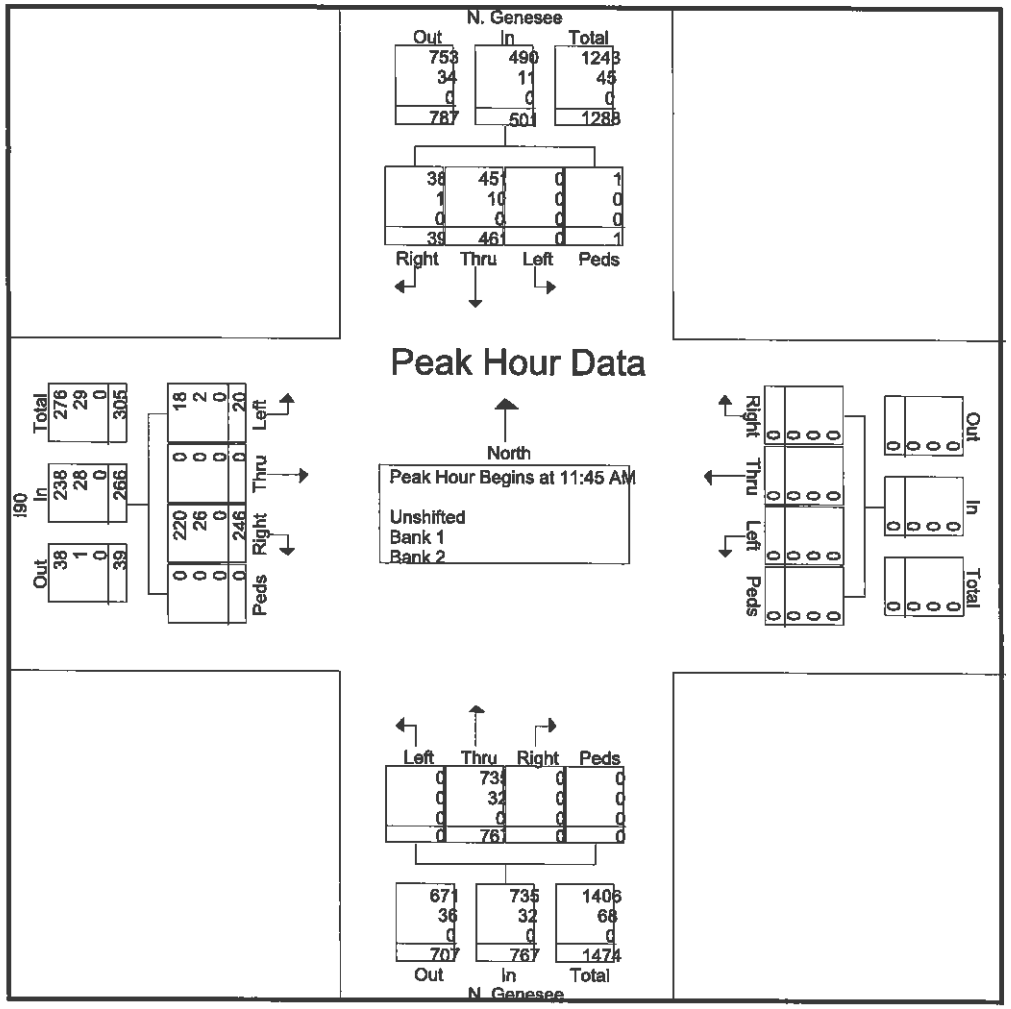

Harbor Point

Default Comments
Change These in The Preferences Window
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Then Click the Comments Tab

File Name : combined_2_4_6_NGen
Site Code : 00006506
Start Date : 2/5/2015
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Groups Printed- Unshifted - Bank 1 - Bank 2

	N. Genesee From North					From East					N. Genesee From South					I90 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
04:00 PM	17	104	0	0	121	0	0	0	0	0	0	277	0	0	277	71	0	15	0	86	484
04:15 PM	12	112	0	0	124	0	0	0	0	0	0	208	0	0	208	68	0	12	0	80	412
04:30 PM	10	102	0	0	112	0	0	0	0	0	0	287	0	0	287	74	0	15	0	89	488
04:45 PM	17	101	0	0	118	0	0	0	0	0	0	263	0	0	263	80	0	8	0	88	469
Total	56	419	0	0	475	0	0	0	0	0	0	1035	0	0	1035	293	0	50	0	343	1853
05:00 PM	23	118	0	1	142	0	0	0	0	0	0	255	0	0	255	64	0	12	0	76	473
05:15 PM	8	91	0	0	99	0	0	0	0	0	0	227	0	0	227	88	0	14	0	102	428
05:30 PM	7	106	0	2	115	0	0	0	0	0	0	190	0	0	190	68	0	8	0	76	381
05:45 PM	10	108	0	0	118	0	0	0	0	0	0	159	0	0	159	52	0	9	0	61	338
Total	48	423	0	3	474	0	0	0	0	0	0	831	0	0	831	272	0	43	0	315	1620
Grand Total	104	842	0	3	949	0	0	0	0	0	0	1866	0	0	1866	565	0	93	0	658	3473
Apprch %	11	88.7	0	0.3		0	0	0	0		0	100	0	0		85.9	0	14.1	0		
Total %	3	24.2	0	0.1	27.3	0	0	0	0	0	0	53.7	0	0	53.7	16.3	0	2.7	0	18.9	
Unshifted	104	831	0	3	938	0	0	0	0	0	0	1812	0	0	1812	540	0	90	0	630	3380
% Unshifted	100	98.7	0	100	98.8	0	0	0	0	0	0	97.1	0	0	97.1	95.6	0	96.8	0	95.7	97.3
Bank 1	0	11	0	0	11	0	0	0	0	0	0	54	0	0	54	25	0	3	0	28	93
% Bank 1	0	1.3	0	0	1.2	0	0	0	0	0	0	2.9	0	0	2.9	4.4	0	3.2	0	4.3	2.7
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

Default Comments
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File Name : combined_2_4_6_NGen
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	N. Genesee From North					From East					N. Genesee From South					I90 From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:30 PM																					
04:30 PM	10	102	0	0	112	0	0	0	0	0	0	**287**	0	0	**287**	74	0	**15**	0	89	**488**
04:45 PM	17	101	0	0	118	0	0	0	0	0	0	263	0	0	263	80	0	8	0	88	469
05:00 PM	**23**	**118**	0	**1**	**142**	0	0	0	0	0	0	255	0	0	255	64	0	12	0	76	473
05:15 PM	8	91	0	0	99	0	0	0	0	0	0	227	0	0	227	**88**	0	14	0	**102**	428
Total Volume	58	412	0	1	471	0	0	0	0	0	0	1032	0	0	1032	306	0	49	0	355	1858
% App. Total	12.3	87.5	0	0.2		0	0	0	0		0	100	0	0		86.2	0	13.8	0		
PHF	.630	.873	.000	.250	.829	.000	.000	.000	.000	.000	.000	.899	.000	.000	.899	.869	.000	.817	.000	.870	.952
Unshifted	58	408	0	1	467	0	0	0	0	0	0	1009	0	0	1009	297	0	49	0	346	1822
% Unshifted	100	99.0	0	100	99.2	0	0	0	0	0	0	97.8	0	0	97.8	97.1	0	100	0	97.5	98.1
Bank 1	0	4	0	0	4	0	0	0	0	0	0	23	0	0	23	9	0	0	0	9	36
% Bank 1	0	1.0	0	0	0.8	0	0	0	0	0	0	2.2	0	0	2.2	2.9	0	0	0	2.5	1.9
Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
% Bank 2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Harbor Point

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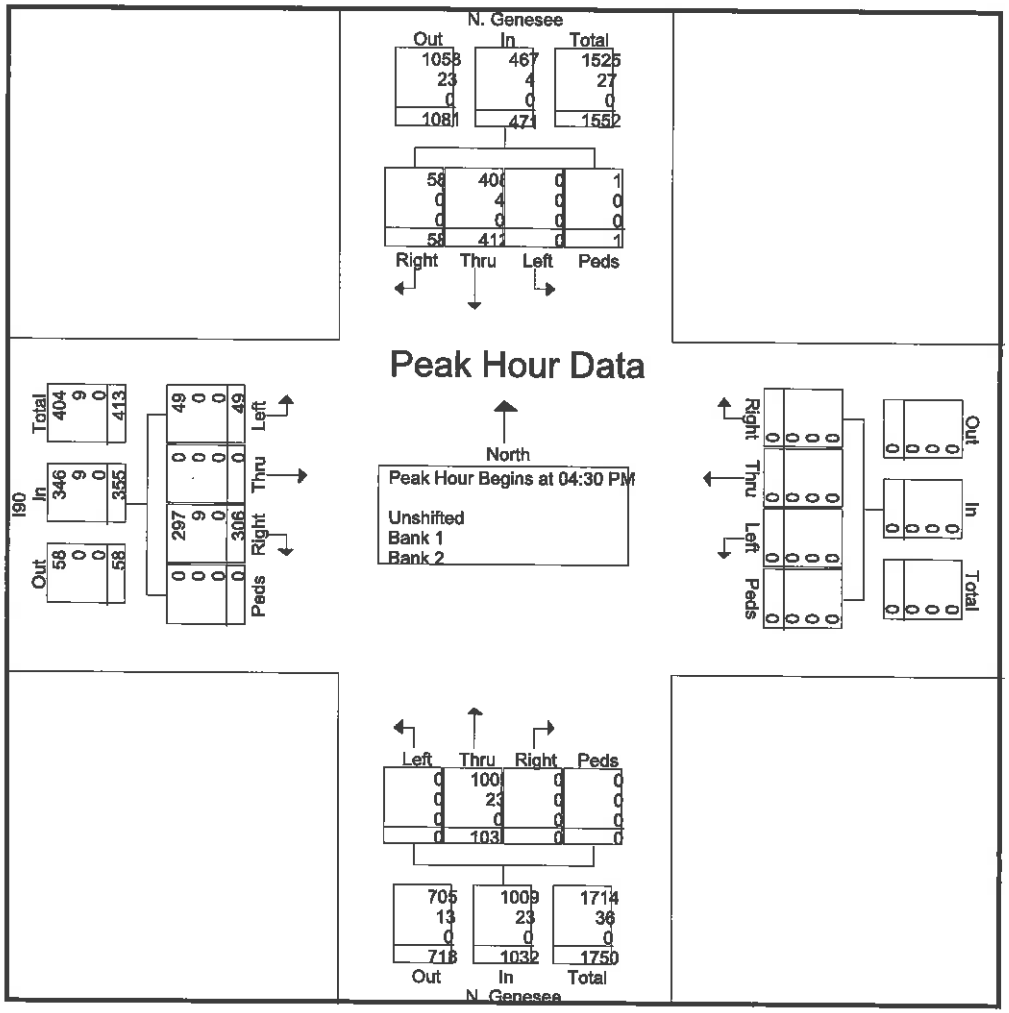


Appendix C

Existing Level of Service Calculations

HCM Signalized Intersection Capacity Analysis
2: Genesee St & Wurz Ave

AM

2/18/2015

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	0	0	5	275	0	30	5	485	150	100	815	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.91	
Frt		0.86		1.00	0.85		1.00	1.00	0.85	1.00	1.00	
Flt Protected		1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)		1611		1770	1583		1770	3539	1583	1770	5080	
Flt Permitted		1.00		0.75	1.00		0.29	1.00	1.00	0.35	1.00	
Satd. Flow (perm)		1611		1404	1583		548	3539	1583	655	5080	
Peak-hour factor, PHF	0.90	0.90	0.90	0.93	0.93	0.93	0.91	0.91	0.91	0.88	0.88	0.88
Adj. Flow (vph)	0	0	6	296	0	32	5	533	165	114	926	6
RTOR Reduction (vph)	0	4	0	0	23	0	0	0	97	0	1	0
Lane Group Flow (vph)	0	2	0	296	9	0	5	533	68	114	931	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4			2		2	6		
Actuated Green, G (s)		20.2		20.2	20.2		28.3	28.3	28.3	38.8	38.8	
Effective Green, g (s)		20.2		20.2	20.2		28.3	28.3	28.3	38.8	38.8	
Actuated g/C Ratio		0.29		0.29	0.29		0.41	0.41	0.41	0.56	0.56	
Clearance Time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Vehicle Extension (s)		4.0		4.0	4.0		4.0	4.0	4.0	2.0	4.0	
Lane Grp Cap (vph)		471		411	463		224	1451	649	457	2856	
v/s Ratio Prot		0.00			0.01			c0.15		0.02	c0.18	
v/s Ratio Perm				c0.21			0.01		0.04	0.12		
v/c Ratio		0.00		0.72	0.02		0.02	0.37	0.10	0.25	0.33	
Uniform Delay, d1		17.3		21.9	17.4		12.1	14.1	12.5	7.5	8.1	
Progression Factor		1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2		0.0		6.5	0.0		0.1	0.2	0.1	0.1	0.3	
Delay (s)		17.3		28.4	17.4		12.2	14.3	12.6	7.6	8.4	
Level of Service		B		C	B		B	B	B	A	A	
Approach Delay (s)		17.3			27.3			13.9			8.3	
Approach LOS		B			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	69.0	Sum of lost time (s)	15.0
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Intersection Delay, s/veh	0.4

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	0	10	0	0	20	20	620	25	0	1035	60
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	Free	-	-	None
Storage Length	-	-	0	-	-	0	160	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	11	0	0	22	22	674	27	0	1125	65

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1471	1875	595	1167	1907	337	1190	0	0	674	0	0
Stage 1	1158	1158	-	717	717	-	-	-	-	-	-	-
Stage 2	313	717	-	450	1190	-	-	-	-	-	-	-
Follow-up Headway	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Capacity-1 Maneuver	134	71	383	204	68	562	317	-	-	661	-	-
Stage 1	154	269	-	312	432	-	-	-	-	-	-	-
Stage 2	616	432	-	510	259	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	122	66	383	188	63	562	317	-	-	661	-	-
Mov Capacity-2 Maneuver	122	66	-	188	63	-	-	-	-	-	-	-
Stage 1	143	269	-	290	402	-	-	-	-	-	-	-
Stage 2	551	402	-	496	259	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	14.7	11.7	0.5	0
HCM LOS	B	B		

Minor Lane / Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	317	-	-	662	383	661	-	-
HCM Lane V/C Ratio	0.069	-	-	0.039	0.028	-	-	-
HCM Control Delay (s)	17.191	-	-	11.7	14.7	0	-	-
HCM Lane LOS	C			B	B	A		
HCM 95th %tile Q(veh)	0.22	-	-	0.12	0.087	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection												
Intersection Delay, s/veh	0.7	EB		WB			NB			SB		
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	5	0	15	10	0	10	15	475	25	15	895	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	190	-	-	20	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	5	0	16	11	0	11	16	516	27	16	973	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1307	1592	497	1082	1590	272	995	0	0	543	0	0
Stage 1	1016	1016	-	563	563	-	-	-	-	-	-	-
Stage 2	291	576	-	519	1027	-	-	-	-	-	-	-
Follow-up Headway	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Capacity-1 Maneuver	117	106	519	172	107	726	691	-	-	1022	-	-
Stage 1	255	314	-	478	507	-	-	-	-	-	-	-
Stage 2	693	500	-	508	310	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	112	102	519	162	103	726	691	-	-	1022	-	-
Mov Capacity-2 Maneuver	112	102	-	162	103	-	-	-	-	-	-	-
Stage 1	249	309	-	467	495	-	-	-	-	-	-	-
Stage 2	667	488	-	484	305	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	19.4	19.8	0.3	0.1
HCM LOS	C	C		

Minor Lane / Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	691	-	-	265	272	1022	-	-
HCM Lane V/C Ratio	0.024	-	-	0.082	0.08	0.016	-	-
HCM Control Delay (s)	10.336	-	-	19.8	19.4	8.58	-	-
HCM Lane LOS	B			C	C	A		
HCM 95th %tile Q(veh)	0.072	-	-	0.266	0.258	0.049	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	0.1

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	0	10	0	0	5	0	525	5	0	915	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	11	0	0	5	0	571	5	0	995	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1293	1584	511	1070	1595	288	1022	0	0	576	0	0
Stage 1	1008	1008	-	573	573	-	-	-	-	-	-	-
Stage 2	285	576	-	497	1022	-	-	-	-	-	-	-
Follow-up Headway	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Capacity-1 Maneuver	120	107	508	175	106	709	675	-	-	993	-	-
Stage 1	258	316	-	472	502	-	-	-	-	-	-	-
Stage 2	696	500	-	523	312	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	119	107	508	171	106	709	675	-	-	993	-	-
Mov Capacity-2 Maneuver	119	107	-	171	106	-	-	-	-	-	-	-
Stage 1	258	316	-	472	502	-	-	-	-	-	-	-
Stage 2	693	500	-	512	312	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	12.2	10.1	0	0
HCM LOS	B	B		

Minor Lane / Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	675	-	-	709	508	993	-	-
HCM Lane V/C Ratio	-	-	-	0.008	0.021	-	-	-
HCM Control Delay (s)	0	-	-	10.1	12.2	0	-	-
HCM Lane LOS	A			B	B	A		
HCM 95th %tile Q(veh)	0	-	-	0.023	0.066	0	-	-

Notes
~: Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error: Computation Not Defined

Intersection	
Intersection Delay, s/veh	6.7

Movement	SEL	SER	NEL	NET	SWT	SWR
Vol, veh/h	25	455	0	530	485	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	27	495	0	576	527	76

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	853	302	603	0	-	0
Stage 1	565	-	-	-	-	-
Stage 2	288	-	-	-	-	-
Follow-up Headway	3.52	3.32	2.22	-	-	-
Pot Capacity-1 Maneuver	298	694	971	-	-	-
Stage 1	532	-	-	-	-	-
Stage 2	735	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	298	694	971	-	-	-
Mov Capacity-2 Maneuver	298	-	-	-	-	-
Stage 1	532	-	-	-	-	-
Stage 2	735	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	21.8	0	0
HCM LOS	C		

Minor Lane / Major Mvmt	NEL	NET	SELn1	SELn2	SWT	SWR
Capacity (veh/h)	971	-	298	694	-	-
HCM Lane V/C Ratio	-	-	0.091	0.713	-	-
HCM Control Delay (s)	0	-	18.3	22	-	-
HCM Lane LOS	A		C	C		
HCM 95th %tile Q(veh)	0	-	0.298	5.997	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error . Computation Not Defined

Mid-day

Lanes, Volumes, Timings
2: Genesee St & Wurz Ave

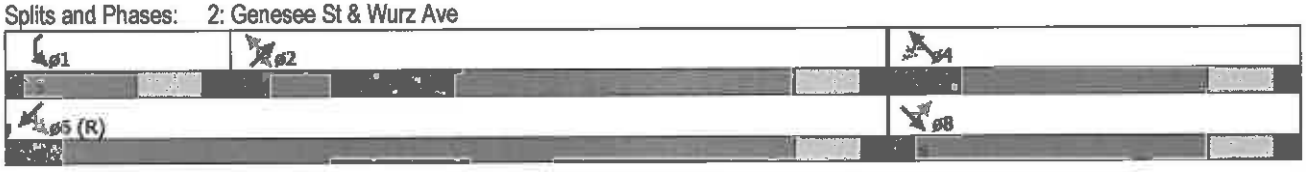
2/18/2015

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕		↰	↑		↰	↑↑	↱	↰	↑↑↑	
Volume (vph)	5	5	5	280	0	65	5	735	220	90	675	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	210		0	190		0
Storage Lanes	0		0	1		0	1		1	1		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	1.00	1.00	0.91	0.91
Frt		0.955			0.850				0.850		0.999	
Flt Protected		0.984		0.950			0.950			0.950		
Satd. Flow (prot)	0	1750	0	1770	1583	0	1770	3539	1583	1770	5080	0
Flt Permitted		0.938		0.748			0.371			0.210		
Satd. Flow (perm)	0	1669	0	1393	1583	0	691	3539	1583	391	5080	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5			273				253		3	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		257			909			607			600	
Travel Time (s)		5.8			20.7			11.8			11.7	
Peak Hour Factor	0.98	0.96	0.98	0.85	0.85	0.85	0.87	0.87	0.87	0.96	0.96	0.96
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	15	0	329	76	0	6	845	253	94	708	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4			2		2	6		
Detector Phase	8	8		4	4		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		4.0	4.0		10.0	10.0	10.0	6.0	10.0	
Minimum Split (s)	15.0	15.0		9.0	9.0		15.0	15.0	15.0	11.0	15.0	
Total Split (s)	22.0	22.0		22.0	22.0		35.0	35.0	35.0	12.0	47.0	
Total Split (%)	31.9%	31.9%		31.9%	31.9%		50.7%	50.7%	50.7%	17.4%	68.1%	
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)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Min	Min	Min	None	C-Min	
Act Effct Green (s)		19.2		19.2	19.2		30.6	30.6	30.6	39.8	39.8	
Actuated g/C Ratio		0.28		0.28	0.28		0.44	0.44	0.44	0.58	0.58	
v/c Ratio		0.03		0.85	0.12		0.02	0.54	0.30	0.27	0.24	
Control Delay		16.8		48.1	0.4		11.6	16.2	2.9	8.1	7.3	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		16.8		48.1	0.4		11.6	16.2	2.9	8.1	7.3	
LOS		B		D	A		B	B	A	A	A	
Approach Delay		16.8			39.2			13.1			7.4	
Approach LOS		B			D			B			A	

Intersection Summary	
Area Type:	Other
Cycle Length: 69	
Actuated Cycle Length: 69	

Offset: 0 (0%), Referenced to phase 6:SWTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 15.7 Intersection LOS: B
Intersection Capacity Utilization 60.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: Genesee St & Wurz Ave



Mid-day

Intersection												
Intersection Delay, s/veh	0.5	EB		WB			NB			SB		
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	0	30	0	0	40	5	920	15	0	920	40
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	Free	-	-	None
Storage Length	-	-	0	-	-	0	160	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	33	0	0	43	5	1000	16	0	1000	43

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1433	2033	522	1411	2054	500	1043	0	0	1000	0	0
Stage 1	1022	1022	-	1011	1011	-	-	-	-	-	-	-
Stage 2	411	1011	-	400	1043	-	-	-	-	-	-	-
Follow-up Headway	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Capacity-1 Maneuver	141	56	428	146	55	442	373	-	-	391	-	-
Stage 1	192	312	-	196	315	-	-	-	-	-	-	-
Stage 2	539	315	-	547	305	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	126	55	428	133	54	442	373	-	-	391	-	-
Mov Capacity-2 Maneuver	126	55	-	133	54	-	-	-	-	-	-	-
Stage 1	189	312	-	193	311	-	-	-	-	-	-	-
Stage 2	479	311	-	505	305	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	14.1	14	0.1	0
HCM LOS	B	B		

Minor Lane / Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	373	-	-	442	428	391	-	-
HCM Lane V/C Ratio	0.015	-	-	0.098	0.076	-	-	-
HCM Control Delay (s)	14.794	-	-	14	14.1	0	-	-
HCM Lane LOS	B			B	B	A		
HCM 95th %tile Q(veh)	0.044	-	-	0.325	0.246	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection												
Intersection Delay, s/veh	0.8											
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	15	0	10	5	0	5	20	750	35	15	755	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	190	-	-	20	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	16	0	11	5	0	5	22	815	38	16	821	22

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1315	1761	421	1321	1753	427	842	0	0	853	0	0
Stage 1	864	864	-	878	878	-	-	-	-	-	-	-
Stage 2	451	897	-	443	875	-	-	-	-	-	-	-
Follow-up Headway	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Capacity-1 Maneuver	116	84	581	115	84	576	789	-	-	782	-	-
Stage 1	315	369	-	309	364	-	-	-	-	-	-	-
Stage 2	557	357	-	564	365	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	111	80	581	109	80	576	789	-	-	782	-	-
Mov Capacity-2 Maneuver	111	80	-	109	80	-	-	-	-	-	-	-
Stage 1	306	361	-	300	354	-	-	-	-	-	-	-
Stage 2	536	347	-	542	358	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	31.3	25.9	0.2	0.2
HCM LOS	D	D		

Minor Lane / Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	789	-	-	183	164	782	-	-
HCM Lane V/C Ratio	0.028	-	-	0.059	0.166	0.021	-	-
HCM Control Delay (s)	9.692	-	-	25.9	31.3	9.702	-	-
HCM Lane LOS	A			D	D	A		
HCM 95th %tile Q(veh)	0.085	-	-	0.188	0.576	0.064	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	0.2

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	0	15	0	0	15	0	765	25	0	700	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	16	0	0	16	0	821	27	0	761	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1479	1617	389	1214	1611	424	777	0	0	848	0	0
Stage 1	769	769	-	834	834	-	-	-	-	-	-	-
Stage 2	710	848	-	380	777	-	-	-	-	-	-	-
Follow-up Headway	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Capacity-1 Maneuver	146	103	610	137	103	579	835	-	-	785	-	-
Stage 1	360	409	-	329	381	-	-	-	-	-	-	-
Stage 2	569	376	-	614	405	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	142	103	610	133	103	579	835	-	-	785	-	-
Mov Capacity-2 Maneuver	142	103	-	133	103	-	-	-	-	-	-	-
Stage 1	360	409	-	329	381	-	-	-	-	-	-	-
Stage 2	572	376	-	598	405	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	13.1	11.4	0	0
HCM LOS	B	B		

Minor Lane / Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	835	-	-	579	610	785	-	-
HCM Lane V/C Ratio	-	-	-	0.028	0.027	-	-	-
HCM Control Delay (s)	0	-	-	11.4	11.1	0	-	-
HCM Lane LOS	A			B	B	A		
HCM 95th %tile Q(veh)	0	-	-	0.087	0.082	0	-	-

Notes
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	2.3

Movement	SEL	SER	NEL	NET	SWT	SWR
Vol, veh/h	20	250	0	770	465	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	22	272	0	837	505	43

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	945	274	549	0	-	0
Stage 1	527	-	-	-	-	-
Stage 2	418	-	-	-	-	-
Follow-up Headway	3.52	3.32	2.22	-	-	-
Pot Capacity-1 Maneuver	260	724	1017	-	-	-
Stage 1	557	-	-	-	-	-
Stage 2	632	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	260	724	1017	-	-	-
Mov Capacity-2 Maneuver	260	-	-	-	-	-
Stage 1	557	-	-	-	-	-
Stage 2	632	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	13.4	0	0
HCM LOS	B		

Minor Lane / Major Mvmt	NEL	NET	SELn1	SELn2	SWT	SWR
Capacity (veh/h)	1017	-	260	724	-	-
HCM Lane V/C Ratio	-	-	0.084	0.375	-	-
HCM Control Delay (s)	0	-	20.1	12.9	-	-
HCM Lane LOS	A		C	B		
HCM 95th %tile Q(veh)	0	-	0.271	1.748	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

pm

Lanes, Volumes, Timings
2: Genesee St & Wurz Ave

2/18/2015

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔			↑			↑↑			↑↑↑	
Volume (vph)	0	0	5	190	0	185	5	1010	200	65	690	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	210		0	190		0
Storage Lanes	0		0	1		0	1		1	1		0
Taper Length (ft)	25			25			25			25		
Satd. Flow (prot)	0	1611	0	1770	1583	0	1770	3539	1583	1770	5080	0
Flt Permitted				0.754			0.359			0.157		
Satd. Flow (perm)	0	1611	0	1405	1583	0	669	3539	1583	292	5080	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		226			237				215		3	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		257			909			607			600	
Travel Time (s)		5.8			20.7			11.8			11.7	
Peak Hour Factor	0.94	0.94	0.94	0.80	0.80	0.80	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	0	0	5	238	0	231	5	1086	215	69	734	5
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	0	238	231	0	5	1086	215	69	739	0
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	pm+pt	NA	
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4			2		2	6		
Detector Phase	8	8		4	4		2	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		4.0	4.0		10.0	10.0	10.0	6.0	10.0	
Minimum Split (s)	15.0	15.0		9.0	9.0		15.0	15.0	15.0	11.0	15.0	
Total Split (s)	22.0	22.0		22.0	22.0		35.0	35.0	35.0	12.0	47.0	
Total Split (%)	31.9%	31.9%		31.9%	31.9%		50.7%	50.7%	50.7%	17.4%	68.1%	
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)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lag	Lag	Lag	Lead		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Min	Min	Min	None	C-Min	
Act Effct Green (s)		15.5		15.5	15.5		36.7	36.7	36.7	43.5	43.5	
Actuated g/C Ratio		0.22		0.22	0.22		0.53	0.53	0.53	0.63	0.63	
v/c Ratio		0.01		0.76	0.43		0.01	0.58	0.23	0.22	0.23	
Control Delay		0.0		41.3	5.9		11.2	14.2	2.7	7.1	6.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		0.0		41.3	5.9		11.2	14.2	2.7	7.1	6.0	
LOS		A		D	A		B	B	A	A	A	
Approach Delay		0.0			23.9			12.3			6.1	
Approach LOS		A			C			B			A	

Intersection Summary

Area Type: Other

Cycle Length: 69

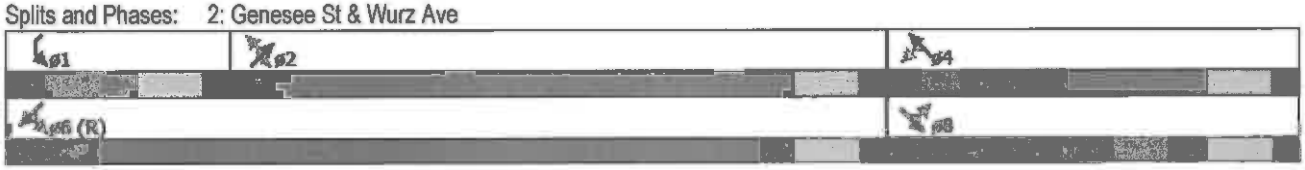
Actuated Cycle Length: 69

Offset: 0 (0%), Referenced to phase 6:SWTL, Start of Green

Natural Cycle: 55

Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.76	
Intersection Signal Delay: 12.4	Intersection LOS: B
Intersection Capacity Utilization 62.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 2: Genesee St & Wurz Ave



PM

HCM 2010 TWSC
6: Genesee St & Lee St

2/18/2015

Intersection												
Intersection Delay, s/veh	0.9	EB			WB			NB			SB	
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	0	60	0	0	60	5	1155	10	9	870	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	Free	-	-	None
Storage Length	-	-	0	-	-	0	160	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	65	0	0	65	5	1255	11	0	946	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1467	2220	481	1644	2228	628	962	0	0	1255	0	0
Stage 1	954	954	-	1266	1266	-	-	-	-	-	-	-
Stage 2	513	1266	-	378	962	-	-	-	-	-	-	-
Follow-up Headway	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Capacity-1 Maneuver	135	43	454	105	42	365	408	-	-	294	-	-
Stage 1	214	335	-	130	238	-	-	-	-	-	-	-
Stage 2	468	238	-	564	332	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	110	42	454	89	41	365	408	-	-	294	-	-
Mov Capacity-2 Maneuver	110	42	-	89	41	-	-	-	-	-	-	-
Stage 1	211	335	-	128	235	-	-	-	-	-	-	-
Stage 2	380	235	-	483	332	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	14.3	17	0.1	0
HCM LOS	B	C		

Minor Lane / Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	408	-	-	365	454	294	-	-
HCM Lane V/C Ratio	0.013	-	-	0.179	0.144	-	-	-
HCM Control Delay (s)	13.943	-	-	17	14.3	0	-	-
HCM Lane LOS	B			C	B	A		
HCM 95th %tile Q(veh)	0.04	-	-	0.642	0.498	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	1.3

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	10	5	25	10	0	5	30	945	70	10	725	25
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	190	-	-	20	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	11	5	27	11	0	5	33	1027	76	11	788	27

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1402	1991	408	1548	1967	552	815	0	0	1103	0	0
Stage 1	823	823	-	1130	1130	-	-	-	-	-	-	-
Stage 2	579	1168	-	418	837	-	-	-	-	-	-	-
Follow-up Headway	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Capacity-1 Maneuver	100	60	593	78	62	477	808	-	-	629	-	-
Stage 1	334	386	-	217	277	-	-	-	-	-	-	-
Stage 2	468	266	-	583	380	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	95	57	593	66	58	477	808	-	-	629	-	-
Mov Capacity-2 Maneuver	95	57	-	66	58	-	-	-	-	-	-	-
Stage 1	320	379	-	208	266	-	-	-	-	-	-	-
Stage 2	444	255	-	539	373	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	33.3	51.8	0.3	0.1
HCM LOS	D	F		

Minor Lane / Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	808	-	-	93	170	629	-	-
HCM Lane V/C Ratio	0.04	-	-	0.175	0.256	0.017	-	-
HCM Control Delay (s)	9.643	-	-	51.8	33.3	10.824	-	-
HCM Lane LOS	A			F	D	B		
HCM 95th %tile Q(veh)	0.126	-	-	0.6	0.971	0.053	-	-

Notes
~ : Volume Exceeds Capacity, $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	0.2

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	0	10	0	0	10	0	1026	20	5	705	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	11	0	0	11	0	1114	22	5	766	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1342	1921	391	1519	1918	533	783	0	0	1136	0	0
Stage 1	785	785	-	1125	1125	-	-	-	-	-	-	-
Stage 2	557	1136	-	394	793	-	-	-	-	-	-	-
Follow-up Headway	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Capacity-1 Maneuver	110	66	608	82	67	466	851	-	-	611	-	-
Stage 1	352	402	-	218	278	-	-	-	-	-	-	-
Stage 2	482	275	-	602	398	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	106	65	608	80	66	466	851	-	-	611	-	-
Mov Capacity-2 Maneuver	106	65	-	80	66	-	-	-	-	-	-	-
Stage 1	352	396	-	218	276	-	-	-	-	-	-	-
Stage 2	471	275	-	582	392	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	11	12.9	0	0.2
HCM LOS	B	B		

Minor Lane / Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	851	-	-	466	608	611	-	-
HCM Lane V/C Ratio	-	-	-	0.023	0.018	0.009	-	-
HCM Control Delay (s)	0	-	-	12.9	11	10.945	0.1	-
HCM Lane LOS	A			B	B	B	A	
HCM 95th %tile Q(veh)	0	-	-	0.072	0.055	0.027	-	-

Notes
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	3

Movement	SEL	SER	NEL	NET	SWT	SWR
Vol, veh/h	50	310	0	1035	415	60
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	54	337	0	1125	451	65

Major/Minor	Minor2	Major1			Major2	
Conflicting Flow All	1047	258	516	0	-	0
Stage 1	484	-	-	-	-	-
Stage 2	563	-	-	-	-	-
Follow-up Headway	3.52	3.32	2.22	-	-	-
Pot Capacity-1 Maneuver	224	741	1046	-	-	-
Stage 1	585	-	-	-	-	-
Stage 2	534	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	224	741	1046	-	-	-
Mov Capacity-2 Maneuver	224	-	-	-	-	-
Stage 1	585	-	-	-	-	-
Stage 2	534	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	15.5	0	0
HCM LOS	C		

Minor Lane / Major Mvmt	NEL	NET	SELn1	SELn2	SWT	SWR
Capacity (veh/h)	1046	-	224	741	-	-
HCM Lane V/C Ratio	-	-	0.243	0.455	-	-
HCM Control Delay (s)	0	-	26.1	13.8	-	-
HCM Lane LOS	A		D	B		
HCM 95th %tile Q(veh)	0	-	0.921	2.389	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds, Error : Computation Not Defined

Appendix D

Future Level of Service Calculations

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	27	0	49	289	0	31	34	537	158	105	913	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	210		0	190		0
Storage Lanes	0		0	1		0	1		1	1		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	1.00	1.00	0.91	0.91
Frt		0.913			0.850				0.850		0.992	
Flt Protected		0.982		0.950			0.950			0.950		
Satd. Flow (prot)	0	1670	0	1770	1583	0	1770	3539	1583	1770	5045	0
Flt Permitted		0.910		0.702			0.216			0.339		
Satd. Flow (perm)	0	1548	0	1308	1583	0	402	3539	1583	631	5045	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		109			305				174		13	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		257			909			607			800	
Travel Time (s)		5.8			20.7			11.8			11.7	
Peak Hour Factor	0.90	0.90	0.90	0.93	0.93	0.93	0.91	0.91	0.91	0.88	0.89	0.88
Adj. Flow (vph)	30	0	54	311	0	33	37	590	174	119	1038	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	84	0	311	33	0	37	590	174	119	1098	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2		2	6		
Detector Phase	8	8		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		4.0	4.0		6.0	3.0	3.0	6.0	10.0	
Minimum Split (s)	15.0	15.0		9.0	9.0		11.0	15.0	15.0	11.0	15.0	
Total Split (s)	32.0	32.0		32.0	32.0		11.0	27.0	27.0	11.0	27.0	
Total Split (%)	45.7%	45.7%		45.7%	45.7%		15.7%	38.6%	38.6%	15.7%	38.6%	
Maximum Green (s)	27.0	27.0		27.0	27.0		6.0	22.0	22.0	6.0	22.0	
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)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		2.0	3.0	3.0	2.0	4.0	
Recall Mode	None	None		None	None		None	None	None	None	C-Min	
Walk Time (s)								5.0	5.0			
Flash Dont Walk (s)								11.0	11.0			
Pedestrian Calls (#/hr)								0	0			
Act Effct Green (s)		21.9		21.9	21.9		33.8	29.0	29.0	36.3	33.7	
Actuated g/C Ratio		0.31		0.31	0.31		0.48	0.41	0.41	0.52	0.48	
v/c Ratio		0.15		0.76	0.05		0.12	0.40	0.23	0.28	0.45	
Control Delay		2.8		33.7	0.1		10.4	17.6	4.2	16.1	17.9	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		2.8		33.7	0.1		10.4	17.6	4.2	16.1	17.9	
LOS		A		C	A		B	B	A	B	B	

AM FUTURE

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		2.8			30.5			14.4			17.7	
Approach LOS		A			C			B			B	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 6:SWTL, Start of Green
Natural Cycle: 55
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 17.9 Intersection LOS: B
Intersection Capacity Utilization 59.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 2: Genesee St & Wurz Ave

AM FUTURE

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↰	↱		↔		↰	↑↑↱		↰	↑↑↱	
Volume (vph)	33	0	60	10	0	10	36	532	26	15	1001	56
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	190		0	20		0
Storage Lanes	0		1	0		0	1		0	1		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	0.95	0.95
Frt			0.850		0.932			0.993			0.992	
Flt Protected		0.950			0.976		0.950			0.950		
Satd. Flow (prot)	0	1770	1583	0	1694	0	1770	3514	0	1770	3511	0
Flt Permitted		0.743			0.896		0.160			0.420		
Satd. Flow (perm)	0	1384	1583	0	1556	0	298	3514	0	782	3511	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		109			10			12	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		306			128			600			529	
Travel Time (s)		7.0			2.9			11.7			10.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	36	0	65	11	0	11	39	578	28	16	1088	61
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	36	65	0	22	0	39	606	0	16	1149	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8			6			2		
Detector Phase	4	4	4	8	8		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	21.0	21.0	21.0	21.0	21.0		9.0	40.0		9.0	40.0	
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%		12.9%	57.1%		12.9%	57.1%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0		4.0	35.0		4.0	35.0	
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)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max	Max	Max		None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effct Green (s)		16.0	16.0		16.0		43.0	42.2		41.0	38.6	
Actuated g/C Ratio		0.23	0.23		0.23		0.61	0.60		0.59	0.55	
v/c Ratio		0.11	0.15		0.05		0.15	0.29		0.03	0.59	
Control Delay		22.6	2.6		0.2		2.6	1.5		5.3	12.8	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		22.6	2.6		0.2		2.6	1.5		5.3	12.8	
LOS		C	A		A		A	A		A	B	

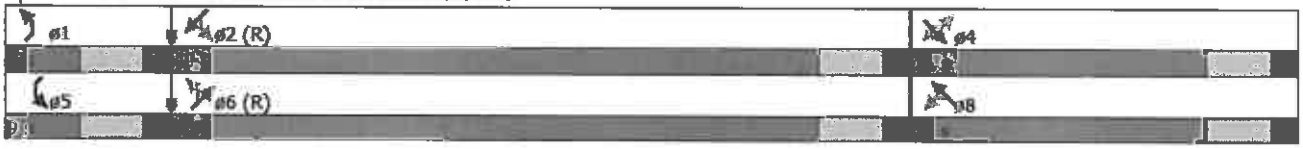
AM FUTURE

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		9.7			0.2			1.5			12.7	
Approach LOS		A			A			A			B	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 2:SWTL and 6:NETL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.59
Intersection Signal Delay: 8.7 Intersection LOS: A
Intersection Capacity Utilization 49.0% ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 9: Genesee St & Hess/Wells Ave



AM FUTURE

Intersection	
Intersection Delay, s/veh	0.6

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	0	21	0	0	27	25	701	30	0	1175	76
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	Free	-	-	None
Storage Length	-	-	0	-	-	0	160	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	23	0	0	29	27	762	33	0	1277	83

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1677	2134	680	1327	2176	381	1360	0	0	762	0	0
Stage 1	1318	1318	-	816	816	-	-	-	-	-	-	-
Stage 2	359	816	-	511	1360	-	-	-	-	-	-	-
Follow-up Headway	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Capacity-1 Maneuver	100	49	337	164	46	527	261	-	-	509	-	-
Stage 1	119	225	-	267	389	-	-	-	-	-	-	-
Stage 2	579	389	-	469	295	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	87	44	337	141	41	527	261	-	-	509	-	-
Mov Capacity-2 Maneuver	87	44	-	141	41	-	-	-	-	-	-	-
Stage 1	107	225	-	259	349	-	-	-	-	-	-	-
Stage 2	490	349	-	437	215	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	16.5	12.2	0.7	0
HCM LOS	C	B		

Minor Lane / Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	261	-	-	527	337	509	-	-
HCM Lane V/C Ratio	0.104	-	-	0.056	0.068	-	-	-
HCM Control Delay (s)	20.39	-	-	12.2	16.5	0	-	-
HCM Lane LOS	C			B	C	A		
HCM 95th %tile Q(veh)	0.345	-	-	0.176	0.217	0	-	-

Notes
~ : Volume Exceeds Capacity, $: Delay Exceeds 300 Seconds, Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	0.1

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	0	10	0	0	5	0	612	5	0	1056	26
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	11	0	0	5	0	665	5	0	1148	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1495	1833	588	1242	1844	335	1176	0	0	671	0	0
Stage 1	1162	1162	-	668	668	-	-	-	-	-	-	-
Stage 2	333	671	-	574	1176	-	-	-	-	-	-	-
Follow-up Headway	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Capacity-1 Maneuver	85	75	452	131	74	661	590	-	-	915	-	-
Stage 1	207	267	-	414	455	-	-	-	-	-	-	-
Stage 2	654	453	-	471	263	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	84	75	452	128	74	661	590	-	-	915	-	-
Mov Capacity-2 Maneuver	84	75	-	128	74	-	-	-	-	-	-	-
Stage 1	207	267	-	414	455	-	-	-	-	-	-	-
Stage 2	649	453	-	460	263	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	13.2	10.5	0	0
HCM LOS	B	B		

Minor Lane / Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	590	-	-	661	452	915	-	-
HCM Lane V/C Ratio	-	-	-	0.008	0.024	-	-	-
HCM Control Delay (s)	0	-	-	10.5	13.2	0	-	-
HCM Lane LOS	A			B	B	A		
HCM 95th %tile Q(veh)	0	-	-	0.025	0.074	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds, Error : Computation Not Defined

AM FUTURE

Intersection	
Intersection Delay, s/veh	10.9

Movement	SEL	SER	NEL	NET	SWT	SWR
Vol, veh/h	26	524	0	617	559	73
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	28	570	0	671	608	79

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	982	343	687	0	-	0
Stage 1	647	-	-	-	-	-
Stage 2	335	-	-	-	-	-
Follow-up Headway	3.52	3.32	2.22	-	-	-
Pot Capacity-1 Maneuver	246	653	903	-	-	-
Stage 1	483	-	-	-	-	-
Stage 2	697	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	246	653	903	-	-	-
Mov Capacity-2 Maneuver	246	-	-	-	-	-
Stage 1	483	-	-	-	-	-
Stage 2	697	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	35.7	0	0
HCM LOS	E		

Minor Lane / Major Mvmt	NEL	NET	SELn1	SELn2	SWT	SWR
Capacity (veh/h)	903	-	246	653	-	-
HCM Lane V/C Ratio	-	-	0.115	0.872	-	-
HCM Control Delay (s)	0	-	21.5	35.4	-	-
HCM Lane LOS	A		C	E		
HCM 95th %tile Q(veh)	0	-	0.384	10.302	-	-

Notes
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

AM FUTURE

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↕			↰	↱		↰	↑↑	↱	↰	↑↑↱	
Volume (vph)	93	5	83	294	0	68	92	962	231	95	900	83
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	210		0	190		0
Storage Lanes	0		0	1		0	1		1	1		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	1.00	1.00	0.91	0.91
Frt		0.938			0.850				0.850		0.987	
Flt Protected		0.975		0.950			0.950			0.950		
Satd. Flow (prot)	0	1704	0	1770	1583	0	1770	3539	1583	1770	5019	0
Flt Permitted		0.809		0.651			0.207			0.145		
Satd. Flow (perm)	0	1414	0	1213	1583	0	386	3539	1583	270	5019	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		67			224				266		24	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		257			909			607			600	
Travel Time (s)		5.8			20.7			11.8			11.7	
Peak Hour Factor	0.98	0.98	0.98	0.85	0.85	0.85	0.87	0.87	0.87	0.96	0.96	0.96
Adj. Flow (vph)	95	5	85	346	0	80	106	1106	266	99	938	86
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	185	0	346	80	0	106	1106	266	99	1024	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2		2	6		
Detector Phase	8	8		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		4.0	4.0		6.0	3.0	3.0	6.0	10.0	
Minimum Split (s)	15.0	15.0		9.0	9.0		11.0	15.0	15.0	11.0	15.0	
Total Split (s)	29.0	29.0		29.0	29.0		11.0	30.0	30.0	11.0	30.0	
Total Split (%)	41.4%	41.4%		41.4%	41.4%		15.7%	42.9%	42.9%	15.7%	42.9%	
Maximum Green (s)	24.0	24.0		24.0	24.0		6.0	25.0	25.0	6.0	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)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		2.0	3.0	3.0	2.0	4.0	
Recall Mode	None	None		None	None		None	None	None	None	C-Min	
Walk Time (s)								5.0	5.0			
Flash Dont Walk (s)								11.0	11.0			
Pedestrian Calls (#/hr)								0	0			
Act Effct Green (s)		22.7		22.7	22.7		33.3	28.5	28.5	33.3	28.5	
Actuated g/C Ratio		0.32		0.32	0.32		0.48	0.41	0.41	0.48	0.41	
v/c Ratio		0.37		0.88	0.12		0.35	0.77	0.33	0.39	0.50	
Control Delay		13.4		47.9	0.4		12.4	24.4	3.6	18.6	18.3	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		13.4		47.9	0.4		12.4	24.4	3.6	18.6	18.3	
LOS		B		D	A		B	C	A	B	B	

MIDDAY FUTURE

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		13.4			39.0			19.8			18.3	
Approach LOS		B			D			B			B	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 6:SWTL, Start of Green			
Natural Cycle: 65			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.88			
Intersection Signal Delay: 21.4		Intersection LOS: C	
Intersection Capacity Utilization 67.3%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 2: Genesee St & Wurz Ave

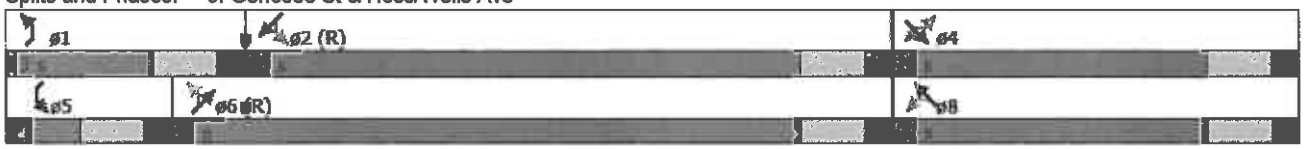
MIDDAY FUTURE

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↰	↱		↔		↰	↑↑↱		↰	↑↑↱	
Volume (vph)	213	0	185	5	0	5	195	892	37	15	887	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	190		0	20		0
Storage Lanes	0		1	0		0	1		0	1		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	0.95	0.95
Frt			0.850		0.932			0.994			0.975	
Flt Protected		0.950			0.976		0.950			0.950		
Satd. Flow (prot)	0	1770	1583	0	1694	0	1770	3518	0	1770	3451	0
Flt Permitted		0.751			0.870		0.114			0.267		
Satd. Flow (perm)	0	1399	1583	0	1510	0	212	3518	0	497	3451	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			178		109			8			41	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		306			128			690			529	
Travel Time (s)		7.0			2.9			11.7			10.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	232	0	201	5	0	5	212	970	40	16	964	190
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	232	201	0	10	0	212	1010	0	16	1154	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8			6			2		
Detector Phase	4	4	4	8	8		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	22.0	22.0	22.0	22.0	22.0		13.0	39.0		9.0	35.0	
Total Split (%)	31.4%	31.4%	31.4%	31.4%	31.4%		18.6%	55.7%		12.9%	50.0%	
Maximum Green (s)	17.0	17.0	17.0	17.0	17.0		8.0	34.0		4.0	30.0	
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)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max	Max	Max		None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effct Green (s)		17.0	17.0		17.0		42.8	41.2		34.2	30.2	
Actuated g/C Ratio		0.24	0.24		0.24		0.61	0.59		0.49	0.43	
v/c Ratio		0.68	0.39		0.02		0.70	0.49		0.05	0.76	
Control Delay		36.4	7.8		0.1		34.1	6.5		6.3	20.4	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		36.4	7.8		0.1		34.1	6.5		6.3	20.4	
LOS		D	A		A		C	A		A	C	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		23.1			0.1			11.3			20.2	
Approach LOS		C			A			B			C	

Intersection Summary			
Area Type:	Other		
Cycle Length: 70			
Actuated Cycle Length: 70			
Offset: 0 (0%), Referenced to phase 2:SWTL and 6:NETL, Start of Green			
Natural Cycle: 60			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 0.76			
Intersection Signal Delay: 16.7		Intersection LOS: B	
Intersection Capacity Utilization 71.9%		ICU Level of Service C	
Analysis Period (min) 15			

Splits and Phases: 9: Genesee St & Hess/Wells Ave



MIDDAY FUTURE

Intersection	
Intersection Delay, s/veh	0.8

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	0	46	0	0	58	13	1227	24	0	1219	58
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	Free	-	-	None
Storage Length	-	-	0	-	-	0	160	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	50	0	0	63	14	1334	26	0	1325	63

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1919	2719	694	1892	2750	667	1388	0	0	1334	0	0
Stage 1	1357	1357	-	1362	1362	-	-	-	-	-	-	-
Stage 2	562	1362	-	530	1388	-	-	-	-	-	-	-
Follow-up Headway	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Capacity-1 Maneuver	71	20	530	74	20	344	253	-	-	269	-	-
Stage 1	112	215	-	111	214	-	-	-	-	-	-	-
Stage 2	437	214	-	457	208	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	56	19	530	60	19	344	253	-	-	269	-	-
Mov Capacity-2 Maneuver	56	19	-	60	19	-	-	-	-	-	-	-
Stage 1	106	215	-	105	202	-	-	-	-	-	-	-
Stage 2	337	202	-	388	208	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	17.8	17.8	0.2	0
HCM LOS	C	C		

Minor Lane / Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	253	-	-	344	330	269	-	-
HCM Lane V/C Ratio	0.056	-	-	0.183	0.152	-	-	-
HCM Control Delay (s)	20.069	-	-	17.8	17.8	0	-	-
HCM Lane LOS	C			C	C	A		
HCM 95th %tile Q(veh)	0.176	-	-	0.661	0.528	0	-	-

Notes
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

MID DAY FUTURE

Intersection	
Intersection Delay, s/veh	0.2

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	0	15	0	0	15	0	1094	26	0	983	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	16	0	0	16	0	1189	28	0	1068	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1672	2294	542	1737	2288	609	1085	0	0	1217	0	0
Stage 1	1077	1077	-	1203	1203	-	-	-	-	-	-	-
Stage 2	595	1217	-	534	1085	-	-	-	-	-	-	-
Follow-up Headway	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Capacity-1 Maneuver	63	39	485	56	39	438	639	-	-	569	-	-
Stage 1	234	293	-	196	256	-	-	-	-	-	-	-
Stage 2	458	252	-	498	291	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	61	39	485	54	39	438	639	-	-	569	-	-
Mov Capacity-2 Maneuver	61	39	-	54	39	-	-	-	-	-	-	-
Stage 1	234	293	-	196	256	-	-	-	-	-	-	-
Stage 2	441	252	-	481	291	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	12.7	13.5	0	0
HCM LOS	B	B		

Minor Lane / Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	639	-	-	438	485	569	-	-
HCM Lane V/C Ratio	-	-	-	0.037	0.034	-	-	-
HCM Control Delay (s)	0	-	-	13.5	12.7	0	-	-
HCM Lane LOS	A			B	B	A		
HCM 95th %tile Q(veh)	0	-	-	0.116	0.104	0	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

MIDDAY FUTURE

Intersection	
Intersection Delay, s/veh	3.5

Movement	SEL	SER	NEL	NET	SWT	SWR
Vol, veh/h	21	360	0	1110	649	42
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	23	380	0	1207	705	46

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1331	376	751	0	-	0
Stage 1	728	-	-	-	-	-
Stage 2	603	-	-	-	-	-
Follow-up Headway	3.52	3.32	2.22	-	-	-
Pot Capacity-1 Maneuver	146	622	854	-	-	-
Stage 1	439	-	-	-	-	-
Stage 2	509	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	146	622	854	-	-	-
Mov Capacity-2 Maneuver	146	-	-	-	-	-
Stage 1	439	-	-	-	-	-
Stage 2	509	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	20.3	0	0
HCM LOS	C		

Minor Lane / Major Mvmt	NEL	NET	SELn1	SELn2	SWT	SWR
Capacity (veh/h)	854	-	146	622	-	-
HCM Lane V/C Ratio	-	-	0.156	0.612	-	-
HCM Control Delay (s)	0	-	34.2	19.5	-	-
HCM Lane LOS	A		D	C		
HCM 95th %tile Q(veh)	0	-	0.537	4.153	-	-

Notes
~: Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error: Computation Not Defined

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		↔		↰	↑		↰	↑↑	↱	↰	↑↑↑	
Volume (vph)	58	0	44	200	0	194	98	1192	210	88	837	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	210		0	190		0
Storage Lanes	0		0	1		0	1		1	1		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	1.00	1.00	0.91	0.91
Frt		0.942			0.850				0.850		0.989	
Flt Protected		0.972		0.950			0.950			0.950		
Satd. Flow (prot)	0	1706	0	1770	1583	0	1770	3539	1583	1770	5029	0
Flt Permitted		0.632		0.733			0.253			0.119		
Satd. Flow (perm)	0	1109	0	1365	1583	0	471	3539	1583	222	5029	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		109			195				226		23	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		257			909			607			600	
Travel Time (s)		5.8			20.7			11.8			11.7	
Peak Hour Factor	0.94	0.94	0.94	0.80	0.80	0.80	0.93	0.93	0.93	0.94	0.94	0.94
Adj. Flow (vph)	62	0	47	250	0	242	105	1282	226	72	890	71
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	109	0	250	242	0	105	1282	226	72	961	0
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8			4			2		2	6		
Detector Phase	8	8		4	4		5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	10.0	10.0		4.0	4.0		6.0	3.0	3.0	6.0	10.0	
Minimum Split (s)	15.0	15.0		9.0	9.0		11.0	15.0	15.0	11.0	15.0	
Total Split (s)	23.0	23.0		23.0	23.0		11.0	36.0	36.0	11.0	36.0	
Total Split (%)	32.9%	32.9%		32.9%	32.9%		15.7%	51.4%	51.4%	15.7%	51.4%	
Maximum Green (s)	18.0	18.0		18.0	18.0		6.0	31.0	31.0	6.0	31.0	
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)	1.5	1.5		1.5	1.5		1.5	1.5	1.5	1.5	1.5	
Lost Time Adjust (s)		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lag							Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?							Yes	Yes	Yes	Yes	Yes	
Vehicle Extension (s)	4.0	4.0		4.0	4.0		2.0	3.0	3.0	2.0	4.0	
Recall Mode	None	None		None	None		None	None	None	None	C-Min	
Walk Time (s)								5.0	5.0			
Flash Dont Walk (s)								11.0	11.0			
Pedestrian Calls (#/hr)								0	0			
Act Effct Green (s)		16.5		16.5	16.5		39.5	34.7	34.7	39.5	34.7	
Actuated g/C Ratio		0.24		0.24	0.24		0.56	0.50	0.50	0.56	0.50	
v/c Ratio		0.32		0.78	0.46		0.28	0.73	0.25	0.28	0.38	
Control Delay		7.6		43.0	9.1		8.1	18.6	2.7	13.4	7.0	
Queue Delay		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		7.6		43.0	9.1		8.1	18.6	2.7	13.4	7.0	
LOS		A		D	A		A	B	A	B	A	

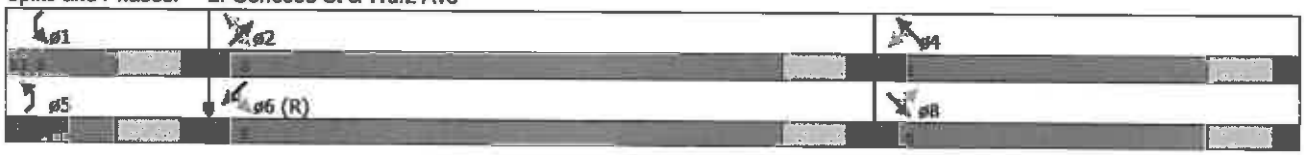
PM FUTURE

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		7.6			26.3			15.7			7.4	
Approach LOS		A			C			B			A	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset: 0 (0%), Referenced to phase 6:SWTL, Start of Green
Natural Cycle: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 14.4 Intersection LOS: B
Intersection Capacity Utilization 75.0% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 2: Genesee St & Wurz Ave



PM FUTURE

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Volume (vph)	122	5	101	10	0	5	141	1072	74	10	861	99
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	190		0	20		0
Storage Lanes	0		1	0		0	1		0	1		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	0.95	0.95
Frt			0.850		0.958			0.990			0.984	
Flt Protected		0.954			0.967		0.950			0.950		
Satd. Flow (prot)	0	1777	1583	0	1726	0	1770	3504	0	1770	3483	0
Flt Permitted		0.722			0.829		0.145			0.180		
Satd. Flow (perm)	0	1345	1583	0	1479	0	270	3504	0	335	3483	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			110		109			14			22	
Link Speed (mph)		30			30			35			35	
Link Distance (ft)		306			128			600			529	
Travel Time (s)		7.0			2.9			11.7			10.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	133	5	110	11	0	5	153	1165	80	11	936	108
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	138	110	0	16	0	153	1245	0	11	1044	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		1	6		5	2	
Permitted Phases	4		4	8			6			2		
Detector Phase	4	4	4	8	8		1	6		5	2	
Switch Phase												
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	21.0	21.0	21.0	21.0	21.0		9.0	21.0		9.0	21.0	
Total Split (s)	21.0	21.0	21.0	21.0	21.0		14.0	40.0		9.0	35.0	
Total Split (%)	30.0%	30.0%	30.0%	30.0%	30.0%		20.0%	57.1%		12.9%	50.0%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0		9.0	35.0		4.0	30.0	
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)	1.5	1.5	1.5	1.5	1.5		1.5	1.5		1.5	1.5	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	Max	Max	Max	Max		None	C-Max		None	C-Max	
Walk Time (s)	5.0	5.0	5.0	5.0	5.0			5.0			5.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0			0	
Act Effct Green (s)		16.0	16.0		16.0		44.0	42.2		35.2	31.2	
Actuated g/C Ratio		0.23	0.23		0.23		0.63	0.60		0.50	0.45	
v/c Ratio		0.45	0.25		0.04		0.46	0.59		0.04	0.67	
Control Delay		28.7	6.7		0.2		16.8	9.2		6.0	17.8	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		28.7	6.7		0.2		16.8	9.2		6.0	17.8	
LOS		C	A		A		B	A		A	B	

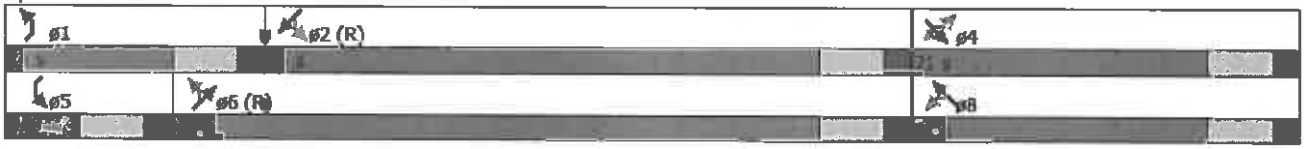
PM FUTURE

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay		19.0			0.2			10.0			17.6	
Approach LOS		B			A			A			B	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 70
Offset. 0 (0%), Referenced to phase 2:SWTL and 6:NETL, Start of Green
Natural Cycle: 60
Control Type. Actuated-Coordinated
Maximum v/c Ratio: 0.67
Intersection Signal Delay 13.7 Intersection LOS: B
Intersection Capacity Utilization 57.2% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 9: Genesee St & Hess/Wells Ave



Intersection	
Intersection Delay, s/veh	1.4

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	0	79	0	0	85	33	1415	38	0	1028	53
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	Free	-	-	None
Storage Length	-	-	0	-	-	0	160	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	85	0	0	92	36	1538	41	0	1117	58

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1833	2756	588	2057	2765	769	1175	0	0	1538	0	0
Stage 1	1146	1146	-	1610	1610	-	-	-	-	-	-	-
Stage 2	687	1610	-	447	1155	-	-	-	-	-	-	-
Follow-up Headway	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
Pot Capacity-1 Maneuver	61	19	387	58	19	295	322	-	-	213	-	-
Stage 1	157	272	-	74	162	-	-	-	-	-	-	-
Stage 2	367	162	-	513	264	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	51	17	387	41	17	295	322	-	-	213	-	-
Mov Capacity-2 Maneuver	51	17	-	41	17	-	-	-	-	-	-	-
Stage 1	139	272	-	66	144	-	-	-	-	-	-	-
Stage 2	224	144	-	401	264	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	16.9	22.7	0.4	0
HCM LOS	C	C		

Minor Lane / Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	322	-	-	295	387	213	-	-
HCM Lane V/C Ratio	0.111	-	-	0.313	0.219	-	-	-
HCM Control Delay (s)	17.577	-	-	22.7	16.9	0	-	-
HCM Lane LOS	C			C	C	A		
HCM 95th %tile Q(veh)	0.372	-	-	1.301	0.824	0	-	-

Notes
~ : Volume Exceeds Capacity, $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

PM FUTURE

Intersection	
Intersection Delay, s/veh	0.2

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/h	0	0	10	0	0	10	0	1268	21	5	913	15
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	Stop	-	-	Stop	-	-	None	-	-	None
Storage Length	-	-	0	-	-	0	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	0	11	0	0	11	0	1378	23	5	992	16

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1700	2412	504	1897	2410	701	1009	0	0	1401	0	0
Stage 1	1011	1011	-	1390	1390	-	-	-	-	-	-	-
Stage 2	689	1401	-	507	1020	-	-	-	-	-	-	-
Follow-up Headway	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	-
Pot Capacity-1 Maneuver	60	32	513	42	32	381	683	-	-	484	-	-
Stage 1	257	315	-	150	208	-	-	-	-	-	-	-
Stage 2	402	205	-	516	312	-	-	-	-	-	-	-
Time blocked-Platoon, %								-	-		-	-
Mov Capacity-1 Maneuver	57	31	513	40	31	381	683	-	-	484	-	-
Mov Capacity-2 Maneuver	57	31	-	40	31	-	-	-	-	-	-	-
Stage 1	257	307	-	150	208	-	-	-	-	-	-	-
Stage 2	391	205	-	493	305	-	-	-	-	-	-	-

Approach	SE	NW	NE	SW
HCM Control Delay, s	12.2	14.7	0	0.2
HCM LOS	B	B		

Minor Lane / Major Mvmt	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR
Capacity (veh/h)	683	-	-	381	513	484	-	-
HCM Lane V/C Ratio	-	-	-	0.029	0.021	0.011	-	-
HCM Control Delay (s)	0	-	-	14.7	12.2	12.522	0.1	-
HCM Lane LOS	A			B	B	B	A	
HCM 95th %tile Q(veh)	0	-	-	0.088	0.065	0.034	-	-

Notes

~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

Intersection	
Intersection Delay, s/veh	4.4

Movement	SEL	SER	NEL	NET	SWT	SWR
Vol, veh/h	53	400	0	1272	534	63
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	Stop	-	None	-	None
Storage Length	0	0	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	58	435	0	1383	580	68

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1306	324	649	0	-	0
Stage 1	615	-	-	-	-	-
Stage 2	691	-	-	-	-	-
Follow-up Headway	3.52	3.32	2.22	-	-	-
Pot Capacity-1 Maneuver	151	672	933	-	-	-
Stage 1	502	-	-	-	-	-
Stage 2	459	-	-	-	-	-
Time blocked-Platoon, %				-	-	-
Mov Capacity-1 Maneuver	151	672	933	-	-	-
Mov Capacity-2 Maneuver	151	-	-	-	-	-
Stage 1	502	-	-	-	-	-
Stage 2	459	-	-	-	-	-

Approach	SE	NE	SW
HCM Control Delay, s	22.3	0	0
HCM LOS	C		

Minor Lane / Major Mvmt	NEL	NET	SELn1	SELn2	SWT	SWR
Capacity (veh/h)	933	-	151	672	-	-
HCM Lane V/C Ratio	-	-	0.382	0.647	-	-
HCM Control Delay (s)	0	-	42.8	19.6	-	-
HCM Lane LOS	A		E	C		
HCM 95th %tile Q(veh)	0	-	1.624	4.741	-	-

Notes
~ : Volume Exceeds Capacity; $: Delay Exceeds 300 Seconds; Error : Computation Not Defined

PM FUTURE

Appendix E

Roundabout Analysis

MOVEMENT SUMMARY

Site: Wurz Ave Roundabout - AM

Network: AM Network

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Genesee St													
3	L2	37	2.0	37	2.0	0.385	7.6	LOS A	1.4	35.8	0.21	0.12	18.3
8	T1	590	2.0	590	2.0	0.385	7.5	LOS A	1.4	35.8	0.21	0.12	20.1
18	R2	174	2.0	174	2.0	0.385	7.5	LOS A	1.3	33.5	0.20	0.11	28.4
Approach		801	2.0	801	2.0	0.385	7.5	LOS A	1.4	35.8	0.21	0.12	23.1
East: Wurz Ave													
1	L2	311	2.0	311	2.0	0.498	12.7	LOS B	2.0	49.8	0.58	0.62	20.5
6	T1	1	2.0	1	2.0	0.498	12.7	LOS B	2.0	49.8	0.58	0.62	22.4
16	R2	33	2.0	33	2.0	0.498	12.7	LOS B	2.0	49.8	0.58	0.62	20.5
Approach		345	2.0	345	2.0	0.498	12.7	LOS B	2.0	49.8	0.58	0.62	20.5
North: Genesee St													
7	L2	60	2.0	60	2.0	0.711	17.5	LOS C	4.9	124.9	0.66	0.72	25.1
4	T1	1038	2.0	1038	2.0	0.711	17.4	LOS C	4.9	124.9	0.65	0.71	14.5
14	R2	119	2.0	119	2.0	0.711	17.3	LOS C	4.7	119.0	0.63	0.69	14.6
Approach		1217	2.0	1217	2.0	0.711	17.4	LOS C	4.9	124.9	0.65	0.71	15.4
West: Wurz Ave													
5	L2	30	2.0	30	2.0	0.195	11.1	LOS B	0.5	12.1	0.65	0.65	11.1
2	T1	1	2.0	1	2.0	0.195	11.1	LOS B	0.5	12.1	0.65	0.65	23.8
12	R2	54	2.0	54	2.0	0.195	11.1	LOS B	0.5	12.1	0.65	0.65	11.1
Approach		86	2.0	86	2.0	0.195	11.1	LOS B	0.5	12.1	0.65	0.65	11.5
All Vehicles		2449	2.0	2449	2.0	0.711	13.3	LOS B	4.9	124.9	0.49	0.50	18.5

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LEVEL OF SERVICE

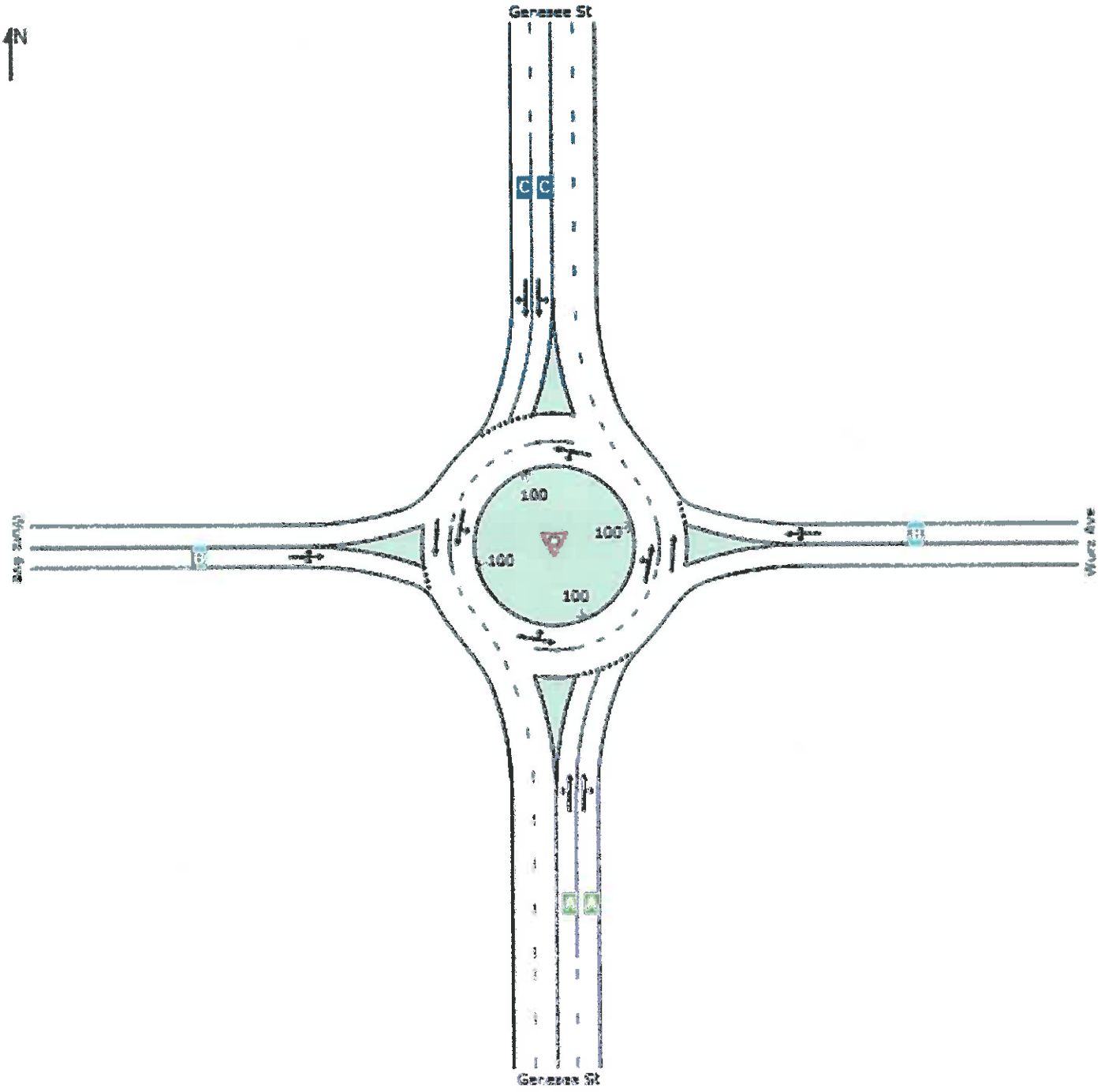
Site: Wurz Ave Roundabout - AM

Network: AM Network

New Site
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	A	B	C	B	B



Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

DELAY (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

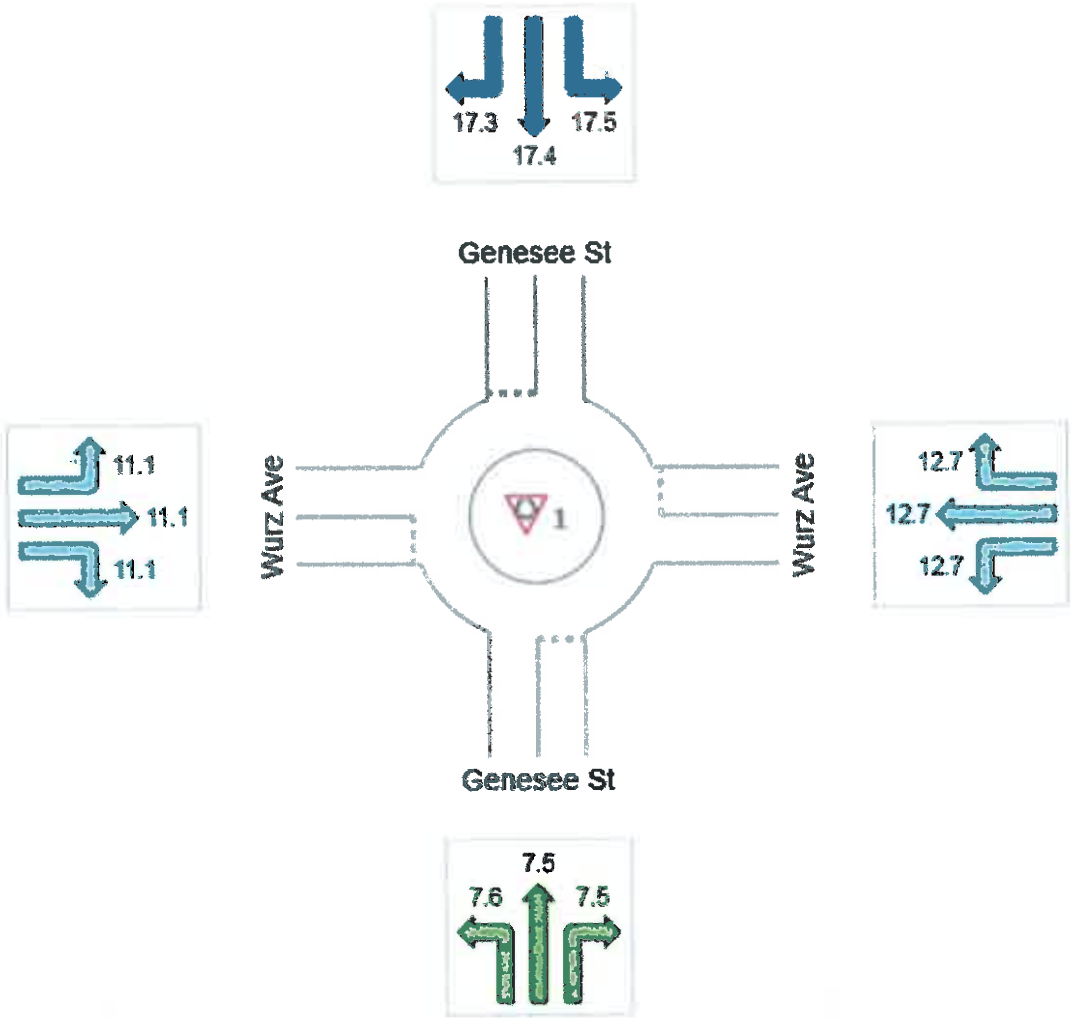
Site: Wurz Ave Roundabout - AM

Network: AM Network

New Site
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	7.5	12.7	17.4	11.1	13.3
LOS	A	B	C	B	B



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

QUEUE DISTANCE (%ILE)

Largest 95% Back of Queue for any lane used by movement (feet)

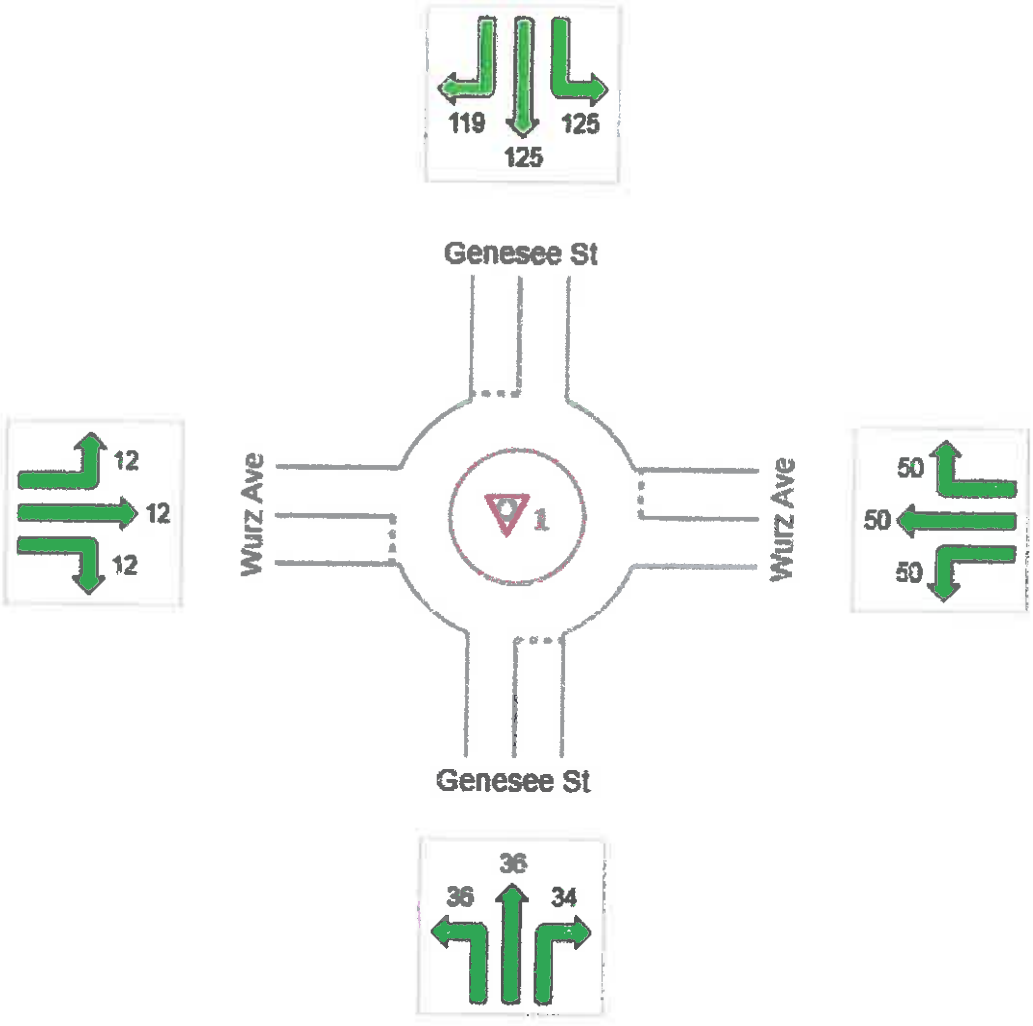
Site: Wurz Ave Roundabout - AM

Network: AM Network

New Site
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Vehicle Queue (%ile)	36	50	125	12	125



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0] Continuous

MOVEMENT SUMMARY

Site: Wurz Ave Roundabout - Midday

Network: Midday Network

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop Queued	Effective Stop Rate per veh	Average Speed mph
South: Genesee St													
3	L2	106	2.0	106	2.0	0.836	23.6	LOS C	8.2	208.2	0.72	0.64	12.9
8	T1	1106	2.0	1106	2.0	0.836	24.9	LOS C	24.7	628.4	0.82	0.90	11.9
18	R2	266	2.0	266	2.0	0.836	27.1	LOS D	24.7	628.4	1.00	1.35	21.0
Approach		1477	2.0	1477	2.0	0.836	25.2	LOS D	24.7	628.4	0.85	0.96	14.5
East: Wurz Ave													
1	L2	346	2.0	346	2.0	1.040	87.5	LOS F	14.7	374.3	1.00	2.12	9.2
6	T1	1	2.0	1	2.0	1.040	87.5	LOS F	14.7	374.3	1.00	2.12	10.2
16	R2	80	2.0	80	2.0	1.040	87.5	LOS F	14.7	374.3	1.00	2.12	9.2
Approach		427	2.0	427	2.0	1.040	87.5	LOS F	14.7	374.3	1.00	2.12	9.2
North: Genesee St													
7	L2	99	2.0	99	2.0	0.701	18.0	LOS C	4.5	114.5	0.68	0.76	24.8
4	T1	937	2.0	937	2.0	0.701	17.8	LOS C	4.5	114.5	0.67	0.75	14.3
14	R2	86	2.0	86	2.0	0.701	17.7	LOS C	4.3	109.4	0.66	0.73	14.5
Approach		1123	2.0	1123	2.0	0.701	17.8	LOS C	4.5	114.5	0.67	0.75	15.8
West: Wurz Ave													
5	L2	95	2.0	95	2.0	0.410	15.5	LOS C	1.2	30.9	0.71	0.76	9.6
2	T1	5	2.0	5	2.0	0.410	15.5	LOS C	1.2	30.9	0.71	0.76	21.9
12	R2	85	2.0	85	2.0	0.410	15.5	LOS C	1.2	30.9	0.71	0.76	9.6
Approach		185	2.0	185	2.0	0.410	15.5	LOS C	1.2	30.9	0.71	0.76	10.3
All Vehicles		3212	2.0	3212	2.0	1.040	30.3	LOS D	24.7	628.4	0.80	1.03	13.0

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LEVEL OF SERVICE

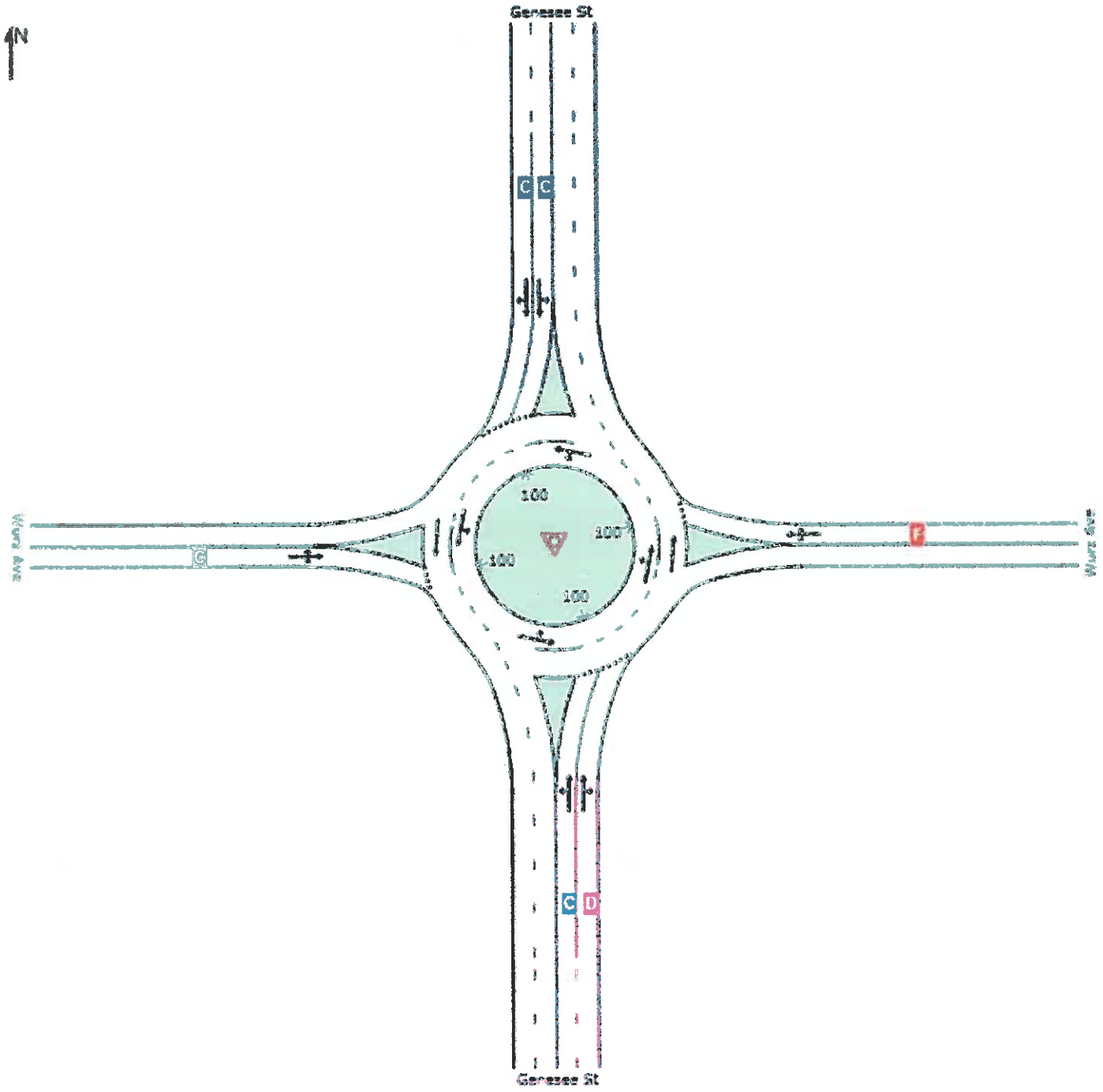
Site: Wurz Ave Roundabout - Midday

Network: Midday Network

New Site
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	D	F	C	C	D



Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.

DELAY (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

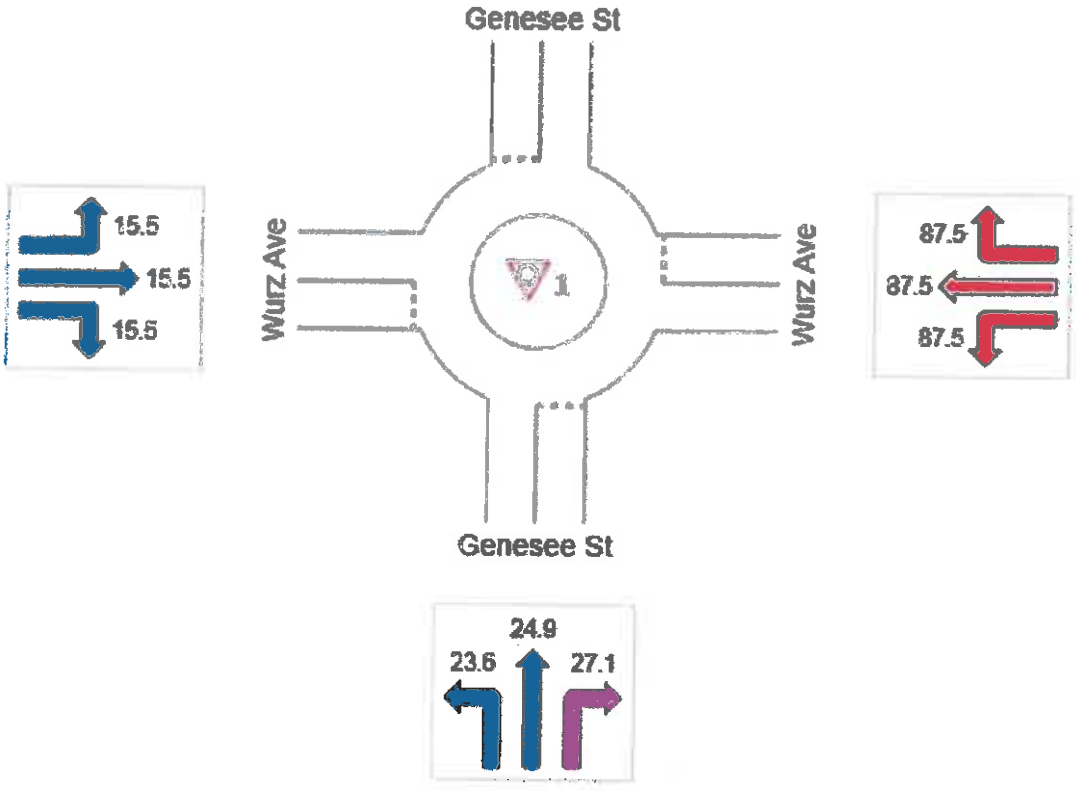
Site: Wurz Ave Roundabout - Midday

Network: Midday Network

New Site
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	25.2	87.5	17.8	15.5	30.3
LOS	D	F	C	C	D



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

QUEUE DISTANCE (%ILE)

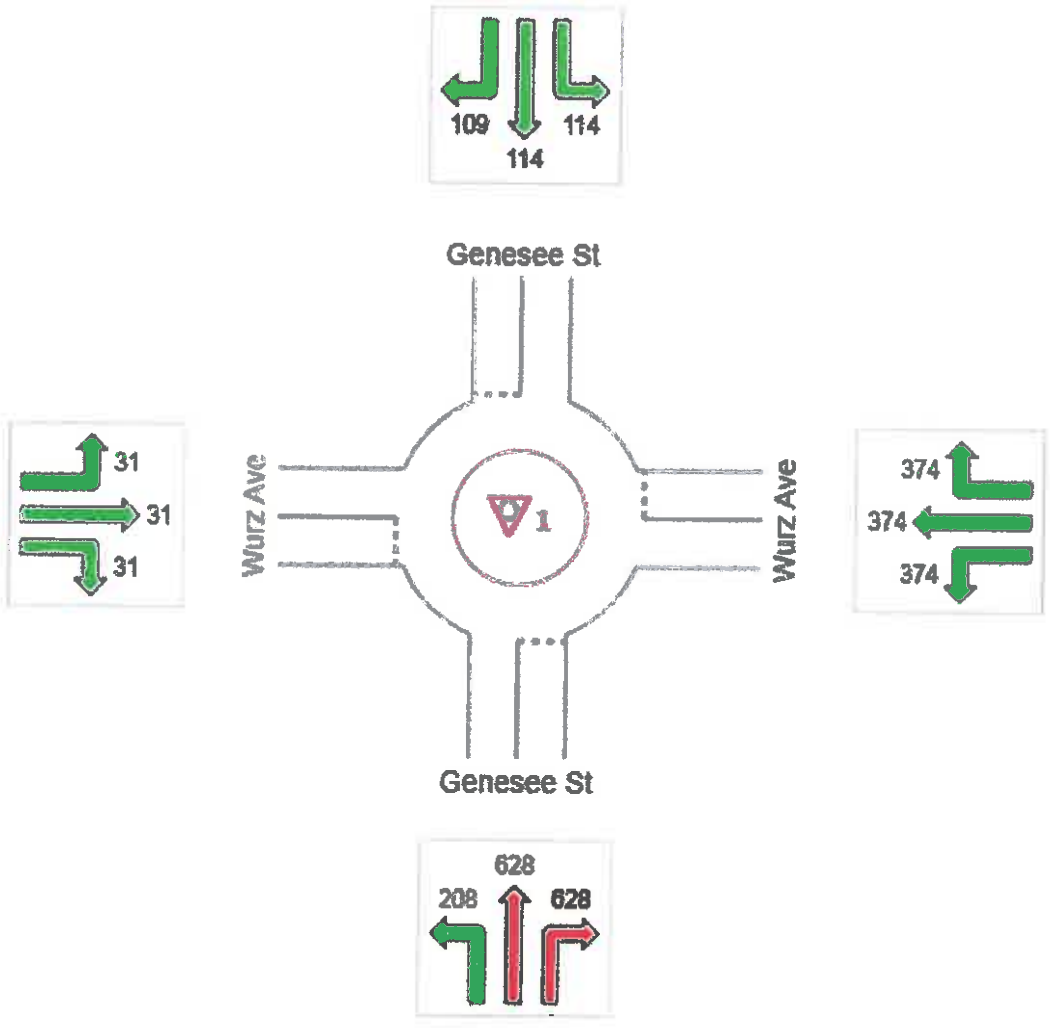
Largest 95% Back of Queue for any lane used by movement (feet)

Site: Wurz Ave Roundabout - Midday | **Network: Midday Network**

New Site
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Vehicle Queue (%ile)	628	374	114	31	628



Colour code based on Queue Storage Ratio

[< 0.6] [0.6 – 0.7] [0.7 – 0.8] [0.8 – 0.9] [0.9 – 1.0] [> 1.0] Continuous

MOVEMENT SUMMARY

Site: Wurz Ave Roundabout - PM

Network: PM Network

New Site
Roundabout

Movement Performance - Vehicles													
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Arrival Flows Total veh/h	HV %	Deg Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance ft	Prop. Queued	Effective Stop Rate per veh	Average Speed mph
South: Genesee St													
3	L2	105	2.0	105	2.0	0.924	35.1	LOS E	38.6	981.3	1.00	1.27	10.6
8	T1	1282	2.0	1282	2.0	0.924	36.3	LOS E	54.0	1370.7	1.00	1.41	9.5
18	R2	226	2.0	226	2.0	0.924	38.1	LOS E	54.0	1370.7	1.00	1.62	18.4
Approach		1613	2.0	1613	2.0	0.924	36.5	LOS E	54.0	1370.7	1.00	1.43	11.3
East: Wurz Ave													
1	L2	250	2.0	250	2.0	1.459	251.9	LOS F	55.3	1404.9	1.00	4.51	4.0
6	T1	1	2.0	1	2.0	1.459	251.9	LOS F	55.3	1404.9	1.00	4.51	4.6
16	R2	243	2.0	243	2.0	1.459	251.9	LOS F	55.3	1404.9	1.00	4.51	4.0
Approach		494	2.0	494	2.0	1.459	251.9	LOS F	55.3	1404.9	1.00	4.51	4.0
North: Genesee St													
7	L2	72	2.0	72	2.0	0.573	12.1	LOS B	2.9	74.8	0.50	0.47	27.3
4	T1	890	2.0	890	2.0	0.573	12.1	LOS B	2.9	74.8	0.49	0.45	17.1
14	R2	71	2.0	71	2.0	0.573	12.0	LOS B	2.8	70.9	0.47	0.44	16.6
Approach		1034	2.0	1034	2.0	0.573	12.1	LOS B	2.9	74.8	0.49	0.45	18.3
West: Wurz Ave													
5	L2	62	2.0	62	2.0	0.212	9.9	LOS A	0.5	13.7	0.59	0.59	11.8
2	T1	1	2.0	1	2.0	0.212	9.9	LOS A	0.5	13.7	0.59	0.59	24.0
12	R2	47	2.0	47	2.0	0.212	9.9	LOS A	0.5	13.7	0.59	0.59	11.8
Approach		110	2.0	110	2.0	0.212	9.9	LOS A	0.5	13.7	0.59	0.59	12.1
All Vehicles		3250	2.0	3250	2.0	1.459	60.6	LOS F	55.3	1404.9	0.82	1.56	8.4

Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement
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Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 2010).
Roundabout Capacity Model: US HCM 2010.
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

LEVEL OF SERVICE

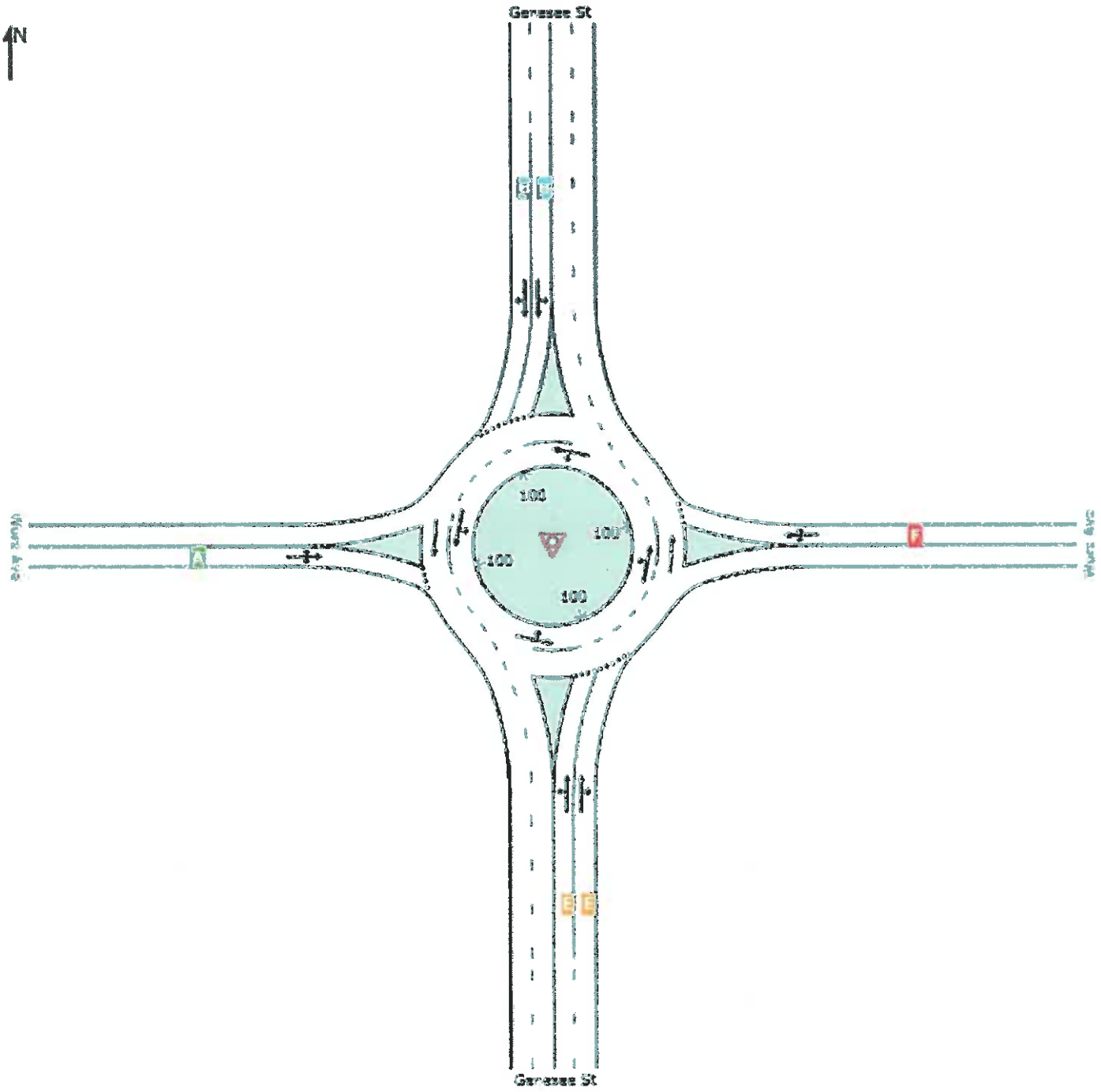
Site: Wurz Ave Roundabout - PM

Network: PM Network

New Site
Roundabout

All Movement Classes

	South	East	North	West	Intersection
LOS	E	F	B	A	F



Level of Service (LOS) Method: Delay & v/c (HCM 2010).
Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.
LOS F will result if v/c > irrespective of lane delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 2010).
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

DELAY (CONTROL)

Average control delay per vehicle, or average pedestrian delay (seconds)

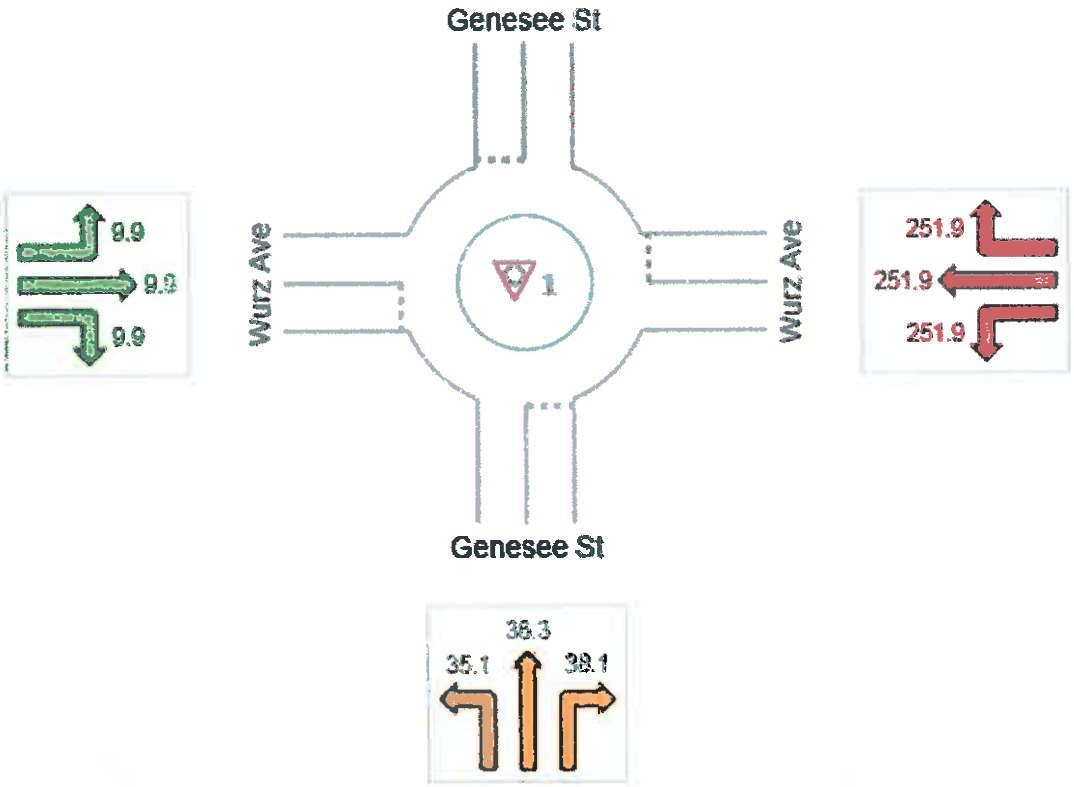
Site: Wurz Ave Roundabout - PM

Network: PM Network

New Site
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	36.5	251.9	12.1	9.9	60.6
LOS	E	F	B	A	F



Colour code based on Level of Service

LOS A | LOS B | LOS C | LOS D | LOS E | LOS F | Continuous

Level of Service Method: Delay & v/c (HCM 2010)
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Roundabout Level of Service Method: Same as Sign Control
HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

QUEUE DISTANCE (%ILE)

Largest 95% Back of Queue for any lane used by movement (feet)

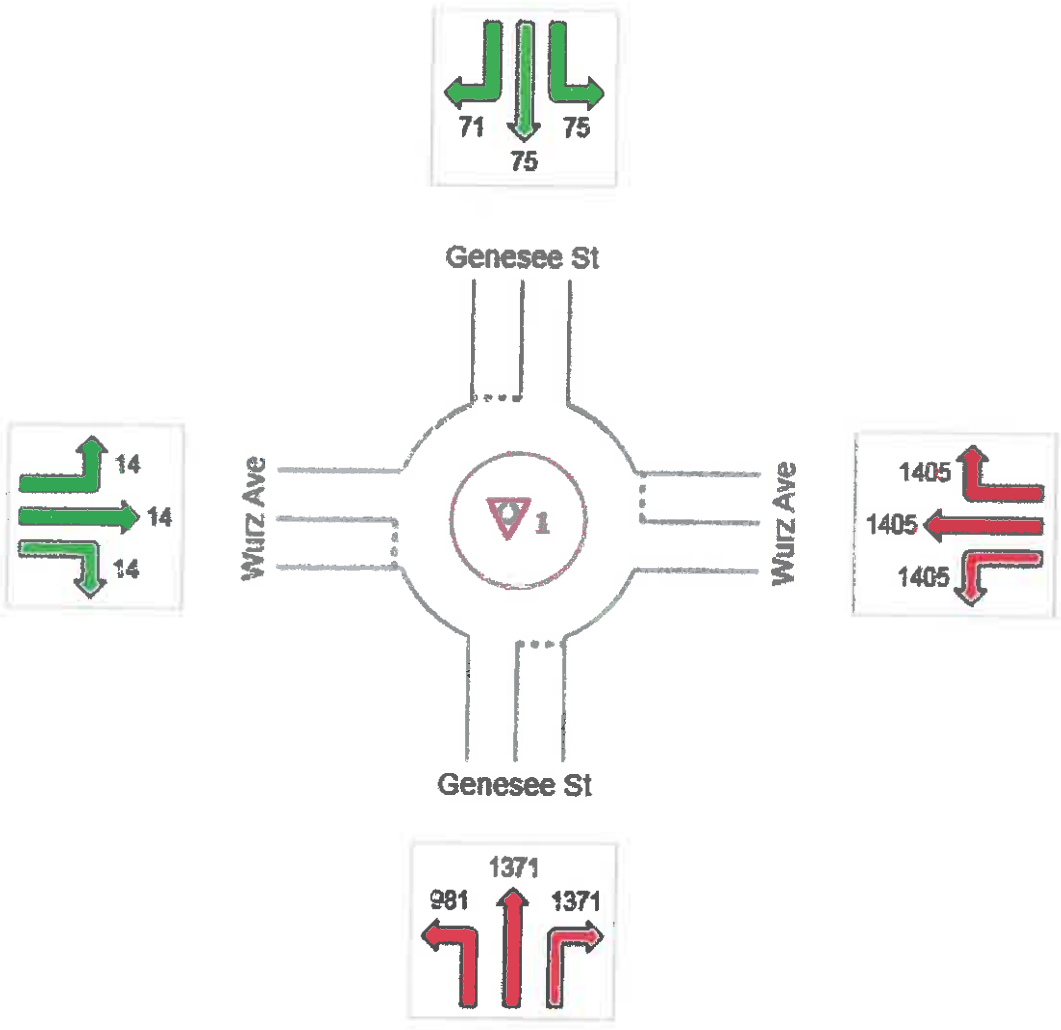
Site: Wurz Ave Roundabout - PM

Network: PM Network

New Site
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Vehicle Queue (%ile)	1371	1405	75	14	1405



Colour code based on Queue Storage Ratio

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