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

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

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#### 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.



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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)							
Α	≤ 10							
В	> 10-20							
С	> 20-35							
D	> 35-55							
E	> 55-80							
F	> 80							

1

Level of Service thresholds at unsignalized intersections								
LOS	Control Delay per vehicle (seconds per vehicle)							
Α	≤ 10							
В	10-15							
С	15-25							
D	25-35							
E	35-50							
F	<u>&gt;</u> 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

- 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.



- 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, 9<sup>th</sup> 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								
В	Marina	72 berths								
С	Hotel	100 rooms								
	Business	26,000 SF								
D	Restaurant	16,000 SF								
	Upscale Food Market	20 vendors								
ш	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		AM	Peak	Mid-Da	y Peak	PM Peak					
Area	Туре	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				
В	Marina	2	4	8	4	9	5				
С	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.

						AIM Peak by Entrance						
		Traff	ic Distril	bution	AM Pea	ak Trips	Lee St		Wurz Ave		Wells Ave	
Land Use		Lee	Wurz	Wells								
Area	Туре	St	Ave	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
В	Marina		60%	40%	2	4	0	0	1	2	1	2
С	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 3

 Harbor Point Trip Distribution Summary – AM Peak

								Mid-E	Day Peak	k by En	trance	
Land		Traffic Distribution		Mid-D T	Mid-Day Peak Trips		Lee St		Wurz Ave		ls Ave	
Use Area	Туре	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
В	Marina		60%	40%	8	4	0	0	5	2	3	2
С	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 4

 Harbor Point Trip Distribution Summary – Mid-Day Peak

 Table 5

 Harbor Point Trip Distribution Summary – PM Peak

								PM	Peak by	/ Entra	nce	
Land		Traf	Traffic Distribution		PM Peak Trips		Lee St		Wurz Ave		Wells Ave	
Use	_	Lee	Wurz	Wells	_	<u> </u>						<u> </u>
Area	Гуре	St	Ave	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
В	Marina		60%	40%	9	5	0	0	5	3	4	2
С	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.

	Desti	ned to	Originating From			
Time Period	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.

							Summ	hary of	t I rip I	Distribi	ution	l o anc	l From	n Gene	esee S	treet						
			Tota	al Trip	s				Quint			Lee	e St			Wurz	z Ave			Wells	Ave	
	Le	e St	Wurz	z Ave	Well	s Ave	Desti	ned to	Origi	om	I	n	0	ut	-	n	0	ut	l	n	0	ut
Time											from	from	to	to	from	from	to	to	from	from	to	to
Period	In	Out	In	Out	In	Out	North	South	North	South	North	South	North	South	North	South	North	South	North	South	North	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

 Table 6

 Summary of Trip Distribution To and From Genesee Street

#### 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.



S Y NY	
FIGURE 4	0 0







DOUT)	524 (50) 400 26 (21) 53 THRUWAY RAMP/I-790
FIGURE 6	(42) 63 (649) 534

#### 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.

	Harbor Point -	Table 7 Level of	v Service Su	mmary			
			Existing			Future	-
Intersection/Approach	Control	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.



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RANSIT I	ROUTES	FIGURE

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 85<sup>th</sup> 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** 

LOCHNEF 181 Genesee Street, Utica, NY 13501-210 P: 315-793-9500 F: 31	₹ Suite 300 4 5-793-9530	Project: <u>Hav</u> Subject: <u>Tria</u> Calc. By: <u>BPM</u> Checked By:	bas Point Generation Date: <u>2-24-15</u> Date:	Sheet / Job No. ////	of 7
LANDUSE A Resident Business Residential	HI- A4 92,800 52,000 -UNITS = 90	5f - Apar 5f - Spen 1,800 x 1 1200	Amout - Miel ably Retail = 73 uni	-Rise @ 120	o st/unit
(7-9Am) 7=	0.41(x)-13.06 2.41(78)-13.06 19 trips 25	-	$TN = 31 \ 6 = 300 = 300$	8 to trips	
PM T= (4-6.PM) =	0.48 (x) - 11.07 0.48 (x) - 11.07 27 48 (20) - 11.07 27 493 34	J. 01	N = 58% = 100	20 the trips 14 the trips	
MIDDAY -USE AM PEAK	T = 0.46(x) - 0.46(x) - 0.46(x) =	14.01 I = 14.1 0	N = 29%	78 trip 21 tripr	
BUSINESS -	Area = 52,	occisf => X=	52		
<u>Neekday</u> <u>AIN 7-9</u>	$T = (42,78) \times + 3$ = 42,78(52) + = $2262 \times 10^{-1}$ - $N/A$	57,66 37.66 5	IN - 1131 OUT - 1131		
Mid-day Use Am Paik	T = 4.91(x) = 4.91(52) = 371 + 110	+ 115,59 + 115,59 Ps	JN= 48% OUT - 53%	= 178 +	kripse kripi
PM 4-Lopm	T= 2.40(x) +2 = 2.40(52)+2 = 146 Hipi	1. 48 1.48	IN = 44% OUT = 56%	= 64 typ: = 82 typ:	

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LAND USE AS-A9 Residential - 1: - Num	Assume Mid her of Units	Rise - 3 <sup>+</sup> stories = 172		
Am				
T = 2 R M $T = 2 41$	11 - 12 01	TAL - 31	2 = 12	4.00
T= 0.41	(172) - 13.06	00T - 69	10 - 40	trai
= 58	trips			
PM				
(4-6Pm) T= 0.48	3(x)-11.07	IN = 58%	= 42 top.	
= 0,48	(172)-11.07	OUT = 42%	= 30 trip	5
= 72	drips			
4 / 2				
Mid Day				
(15+ AM Veric) 1= 0,460	(x) - 14.01	IN = 296	= 19 +41.01	
= 0,46(	(1102) - 14,01	001 := 1112	= 46 trips	
65	drips			

LOCHNE 181 Genesee Stree Utica, NY 13501-2	<b>R</b> et, Suite 300 104	Project: <u>Havbo</u> Subject: <u>Tyup</u> Calc. By: <u>BPM</u> Checked By:	Date:	Sheet <u>3</u> Job No. <u>1009</u>	of <u>7</u>
<u>P: 315-793-9500</u> F: LAND US <u>F</u>	315-793-9530 C - HOTEL - - Retail o	25% (104,000) 25% (104,000)	= 78,000 26,000	No. of Room	Reference
HOTEL					
<u>AM</u> (7-9 AM)	T= 0,78(x) - 29 = 0,78(100) - 2 = 48	5.8 5.8	IN = 58% 00T = 42%	28 20	
PM (4-6 1m)	$ \frac{1}{7} = 0, \frac{1}{2}(\chi) = 0, \frac{3}{2}(100) $	I. O	N = 49% =	30 15 75 3	
Mid-day Use AM Park	-10 Ln (T) = 0.91 ln = 0.91 ln = 66	(x) + 0.01 (100) + 0.01	JN = 55% OUT - 45%	- 36 - 30	
Weekday	T= 8.12(X) = 8.92(100 = 892	)	JN= 50% =	446 44C	
Business Weekday	T= 42.78(×) + = 42.78(26) + = 1150 +	37,66 39.66 95	JN= 575 OUT = 575		
AM (7-9 Am)	- N/A				
Mid-day USE Am Prak	T= 4.91(x) +11 = 4.91(20) +1 = 244	5.99 15.99	IN= 48% = OUT = 52% =	117 trips 127 trips	
PM 4-6 Pm	T = 2.4(x) + 21.48 = 2.4(26) + 21.48 = 84	8	IN = 44% = 000	37 tope 47 trips	

Project: Harbor Point 4 of Sheet Subject: Trip Generation Job No. LOCHNER 1008 181 Genesee Street, Suite 300 Utica, NY 13501-2104 Reference P: 315-793-9500 F: 315-793-9530 - Restaurant AREA - 16,000 SF LAND USE D -USE High Tuin our (S. + - Down) Restaurant WEEKDAY T= 127,15(x) IN = 1014 = 127.15 (14) 00T - 1017 = 2034 Trip. AM IN = 55% = 95 tripe (7- 9AM) T= 10.81 (X) 001 = 45% = 77 tripi = 10, 81 (16) = 192 dripi Mid-day - Porcent of Daily Total = 8.6% IN= 53 6 = 93 kipi = 0.084 (2034) 007=47%-82 kr.pr = 175 Hips PM JN = 60% = 95 tripsOUT = 40% = 63 tripsT= 9,85(X) 4-681 = 9.85 (16) = 158 Kipi Farmers Market -Assume Mid-day Only Per Oneida Cty Farmers Market 5 tops/hv/vendar 100 hips -Assume 20 vendors = 20x5 trp/h/vend= Assume 50% IN/ 50% OUT sokips / 50 trips

Project: Harbor Paint Sheet 5 of Subject: Trip Generation Job No. 10083 LOCHNER Calc. By: BAM Date: 2-24-15 181 Genesee Street, Suite 300 Checked By: Date: Utica, NY 13501-2104 Reference P: 315-793-9500 F: 315-793-9530 - Water front Park LAND USE E -Assame Park aven for residuts / employees working in Harbor Point Developmit - Minimal outside trip generation -Assum 10 in 10 out in Midday (PM) - Maxina - Assume 72 boths Weekday Trips = 2.96 (x) IN= 107 005 = 107 = 2.96 (72) = 214 <u>AM leak</u> T= 0.08 (x) IN = 33% = 2 4rpiOUT = 67% = 4 4rpi= 0.08(72) = 6 Mid-Day TE 0.17/X IN= 64%== 8 4.p. DUT= 36% = 4 +.p. = 0.17(72) =12 tripi PM 4-6 PM T= 0,19(x) JN = 60% = 9 + pr00T = 40% = 5 + rpr= 0,19(72) - 14

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Project: Harber Point 6 of 7 Sheet Subject: Trip Generation Job No. 10083 LOCHNER Calc. By: BPM Date: 2-24-15 181 Genesee Street, Suite 300 Utica, NY 13501-2104 Checked By: Date: P: 315-793-9500 F: 315-793-9530 Reference Land Use F - Amphitheadur - Assume 1000 capacity -Assum 4 people por uchick = 250 vehicles - Assume early evening partismance (7 pm) -peak hu arrives - 4 & G - say 25% Trips = 60 trips - in 5 trips out (10% drop off) G - Recventernal Asea landuse -2 sour fuldi 2 softball fulds Suy 5 fields 1 base ballfuld Multi-season Indoor Sport Facility (Assume Laiver) Socca SyAball base ball IN= 50% = 178 T= 71,33 × = 71,33 (5) Week day 001- 50% = 178 - 356 JN= 57% = 4 trip OUT= 43% = 2 trip - 1.12(X) AM Prok = 1.12(5) = 6 Midday JN = 53% = 6 fr p = 0 OUT = 47% = 5 fr pUse HM Prok T = 2.10(x)T= 2.10 (5) T= 11 drip IN = 67% = 59 trip, $\delta vT = 33\% = 29 trip;$ Pm T= 17.70 (X) (1-6 Pm) = 17,70 (5) = 88 Kipi

LOCHNE 181 Genesee Street Utica, NY 13501-21 B: 315 702 0500	R , Suite 300 04	Project: <u>Hav</u> Subject: <u>7</u> rı, Caic. By: <u>B</u>	bw Point Date: 2-02 Date:	Sheet Job No.	7 of 7 1083
Land use	G - Molti	seasan Ina	low Sport	Facility -2	61141
Walday	T= 90.38 (X) = 90.38 (2) = 180	50	N = 50% = T = 50% =	90 90	
<u>AM</u>	n/A				
Mid day Use AM Peake)	T= 1.95 = 1.92 = 4	?())	IN= 2 h DUT= 2 h	np	
PM	T= 5,77 ( = 5,77 ( = 12	(x) 2)	IN= 6 OUT= 6	trps trp,	

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## Appendix B

**Existing Turning Movement Count Data** 

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

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

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



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File Name:64\_01\_4\_6\_lee Site Code :00002364 Start Date :2/4/2015 Page No :2

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File Name:64\_01\_4\_6\_lee Site Code :00002364 Start Date :2/4/2015 Page No :3

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

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

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File Name : combined\_1\_7\_9\_wurz Site Code : 00006501 Start Date : 2/4/2015 Page No : 2

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

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

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File Name:combined\_1\_11\_1\_wurz Site Code:00006502 Start Date:2/4/2015 Page No :1

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

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File Name : combined\_1\_11\_1\_wurz Site Code : 00006502 Start Date : 2/4/2015 Page No : 2

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

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

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



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File Name:63\_01\_4\_6\_wells Site Code :00006346 Start Date :2/4/2015 Page No :3

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File Name:combined\_7\_9\_harbor Site Code :00002464 Start Date :2/5/2015 Page No :1

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

File Name:combined\_7\_9\_harbor Site Code :00002464 Start Date :2/5/2015 Page No :2

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File Name:combined\_7\_9\_harbor Site Code:00002464 Start Date:2/5/2015 Page No :3



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

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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



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File Name:combined\_4\_6\_harbor Site Code :00002664 Start Date :2/5/2015 Page No :1

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

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			Int Total	196	100	067	41/	1403		345	373	358	395	1470		5/ 97			8507	91.8	235	8.7		0
			Ann. Total	67	5 7	2	771	403		114	104	104	92	414		/19		70.4	/00/	93	57	F	. c	0
			Peds		• <	> <	<b>,</b>	0	<	9	0	0	0	0	c		> <	-	-	0	0	C	6	) O
	06-I	om West	Left	~	5 kr	יי כ	n <u>s</u>	52	6	<b>م</b>	-	9	9	22	ţ	1 a	0'r	2	£ ;	C.16	4	8.5	6	0
		£	Thru	6				0	c	5 0	•	0	0	0	c	-			> (	0	0	0	e	0
			Right	69	12	211	128	378	201	3 9	501	98	86	392	022	01.0	36.90	117		1.64	53	6.9	0	0
			pp. Total	66	102	148	126	475	113	511	142	138	176	569	1044		36.3	015		0.70	129	12.4	0	0
			Peds A	0	¢	c		-	c		-	0	L	2	.*	, 60	2		ŗ	B	0	0	0	0
	Cenesee	om South	Leĥ	0	0	-		0	c		2	0	0	0	c	• c	- c	-	• •		0	0	0	0
	Ż	Ę	THE T	66	102	148	125	474	113	141	747	138	175	567	1041	60 7	36.2	912	710	0.10	129	12.4	0	0
			Right	0	0	0	0	0	C	, c	•	0	0	0	C		0	6	• <		0	0	0	0
			. Total	0	0	0	0	0	0			0	0	0	0	•	0	c		> '	0	0	0	0
		ļ	eds   App	0	0	0	0	0	0	-	<b>,</b>	>	0	0	0	0	0	0			0	0	0	0
	ŗ	n East	Left P	0	0	0	0	0	0		• •		0	0	0	0	0	0	c		÷	0	0	0
	ţ	Froi	Chru	0	0	0	0	0	0	0	, c	2	•	0	0	0	0	0	-		•	0	0	0
			ight	0	0	0	0	0	0	0			0	0	0	0	0	0	0		0	0	0	0
╞		_	otal R	98	120	147	160	525	117	127	114	011	121	487	012		35.2	963	95.2		47	4.8	0	0
			App. 7		_		_	_	-	~			_	_	-						_		_	_
	3 1	E	Peds	0	Ū	0	-		ç	С				-	~	0.2	0.1		100				0	9
Genes	The second	ION INO	Left	0	0	0	0	0	0	0		> <	> <	0	0	0	0	0	0		> '		0	0
			Thru	80	104	127	L39	450	106	112	104		114	430	886	87.5	30.8	849	95.8	76	5 :	42	0	0
			Right	18	16	20	20	74	11	15	12	3 5	1	2	124	12.3	4.3	112	90,3	5	1	7.6	0	0
		i	Start Time	07:00 AM	07:15 AM	07:30 AM	07:45 AM	Total	08:00 AM	08:15 AM	08-30 A M	TALE DOLOG	INIA CHOU		Grand Total	Apprch %	Total %	Unshifted	% Unshifted	Bank 1		% Bank I	Bank 2	% Bank 2

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Lochner Engineering 181 Genesee St. Utica, N.Y. 13501 Phone: **3**15-793-9500

File Name:combined\_2\_7\_9\_NGen Site Code:00006504 Start Date:2/5/2015 Page No :2

		z	. Genese	0								Z.	Genesee					1-90			
	i	F	rom Nor	th			FI	rom East				Ł	om South	_			E	rom West			
t 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
Analysis	From 07	:00 AM b	o 08:45 A	VM - Peak	c 1 of 1			-					ĺ		!						
r for Entir	e Interset	tion Begi	ns at 07:5	30 AM																	
30 AM	20	127	¢	0	147	0	0	0	0	0	0	148	0	0	148	117	0	5	0	122	417
45 AM	20	139	0	1	160	0	0	0	0	0	0	125	0	I	126	128	0	10	0	138	424
00 AM	11	106	0	0	117	0	0	0	0	0	0	113	0	0	113	105	0	6	0	114	344
:15 AM	15	112	0	0	127	0	0	0	0	0	0	141	0	1	142	103	0	1	0	104	373
Volume	99	484	0	1	551	0	0	0	0	0	0	527	0	2	529	453	0	25	0	478	1558
. Total	12	87.8	0	0.2		0	0	0	0		0	9.66	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
shifted	63	467	0	1	531	0	0	0	0	0	0	465	0	7	467	420	0	21	0	441	1439
shifted	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	Ò	92.3	92.4
Bank 1	ŝ	17	0	0	50	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	LL	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
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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 :3



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

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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

		Int. Total	376	330	376	340	1340	380	384	421	349	1534		2874			741	95.4	133	46	c	•
		Vop. Total	48	0 5 5	0	99	244		71	81	49	280	-	524		18.2	485	92.6	30	74	c	
		Peds /					0	-	0	0	0	0		0	0	0		0	0	-		• c
06I	rom West	Left	~	9	: =	-	31	m	4	9	6	22		53	10.1	1.8	51	96.2	2	00 17	c	
	Ē	Thru			0	. 0	-	0	0	0	0	0		Ι	0.2	0	-	100	0	0	6	
		Right	,   4	48	17	43	212	61	67	75	55	258		470	89.7	16.4	433	92.1	37	7.9	0	• •
		App. Total	145	156	175	171	647	161	187	218	172	768		1415		49.2	1342	94.8	73	5.2	0	0
	-	Peds /	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
. Genesee	rom South	Left	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
N	Æ	Thru	145	156	175	171	647	191	187	218	172	768		1415	100	49,2	1342	94.8	73	5.2	0	0
		Right	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
		pp. Total	-	0	0	0	-	0	0	0	0	0	-	-		0	-	100	•	0	0	0
		Peds A	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	•	0	0	0
	rom East	Left	0	Ģ	Ģ	0	Q	0	0	0	0	0		Ç	0	0	0	0	0	0	Ģ	0
	Ъ	Thru	-	0	0	0	-	0	0	0	0	0		Ч	100	0	1	100	0	0	0	0
		Right	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
		pp. Total	82	125	113	128	448	125	126	122	113	486	-	934		32.5	913	97.8	21	2.2	0	0
		Peds A	0	1	0	0	1	0	I	0	1	7		ŝ	0.3	0.1	ŝ	100	0	0	0	0
Genesee	om North	Left	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
Ŋ.	出	Thru	76	115	109	117	417	114	117	113	105	449		866	92.7	30.1	847	97.8	19	2.2	¢	•
	·	Right	6	6	4	11	30	11	æ	9	6	35	;	65	7	2.3	63	96.9	2	3.1	0	0
		Start Time	11:00 AM	11:15 AM	11:30 AM	11:45 AM	Total	12:00 PM	12:15 PM	12:30 PM	12:45 PM	Total		Grand Total	Apprch %	Total %	Unshifted	% Unshifted	Bank 1	% Bank 1	Bank 2	% Bank 2

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\_NGen Site Code : 00006505 Start Date : 2/5/2015 Page No : 2

		Int. Total			349	380	384	421	1534		.911	1463	95.4	71	4.6	0	
		App. Total			50	64	71	81	266		.821	238	89.5	28	10.5	0	0
	st	Peds			0	0	0	0	0	0	000'	0	0	0	0	0	C
06I	From We	Left			7	ŝ	4	9	50	7.5	.714	18	90.06	7	10.0	0	0
		Thru			0	0	0	0	0	0	000.	0	0	0	0	0	C
		Right			43	61	67	75	246	92.5	.820	220	89.4	26	10.6	0	0
		App. Total			171	191	187	218	767		.880	735	95.8	32	4.2	0	0
ee	뱝	Peds			0	0	0	0	0	0	00 <u>0</u>	0	0	0	0	0	0
N. Genes	From Sou	Left			0	0	0	0	0	0	000	0	0	0	0	0	0
		Thru			171	191	187	218	767	100	.880	735	95.8	32	4.2	0	0
		Right			• 	0	0	0	0	0	000.	0	•	0	0	0	0
		App. Total			0	0	0	0	0		000	0	0	0	0	0	0
	st	Peds			0	0	0	0	0	0	000.	0	0	0	0	0	0
	From Eau	Left			0	0	0	0	0	0	000.	0	0	0	0	0	0
		Thru			0	0	0	0	0	0	000	0	0	0	0	0	0
		Right			0	0	0	0	0	0	000	0	°	0	•	°	0
		App. Total	1 of 1		128	125	126	122	501		616.	490	97.8	11	2.2	0	0
ę	Æ	Peds	PM - Peak	45 AM	0	0	1	0	1	0.2	.250	1	100	0	0	0	0
N. Genese	From Noi	Left	to 12:451	tins at 11:	0	0	0	0	0	0	000	0	0	0	0	0	0
1		Thru	1:00 AM	ction Beg	117	114	117	113	461	92	.985	451	97.8	10	2.2	0	0
		Right	is From 1.	ire Interse	11	11	<b>90</b>	6	39	7.8	.886	38	97.4	1	2.6	0	0
		Start Time	Peak Hour Analys	Peak Hour for Enti	11:45 AM	12:00 PM	12:15 PM	12:30 PM	Total Volume	% App. Total	HH	Unshifted	% Unshifted	Bank 1	% Bank 1	Bank 2	% Bank 2

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\_NGen Site Code :00006505 Start Date :2/5/2015 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

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File Name : combined 2 4 6 NGen Site Code : 00006506 Start Date : 2/5/2015 Page No : 1

Bank 2
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Groups

		Int Total	484	417	400	460	1853	524		381	325	1620		3473			3380	97.3	63		4	• •
		nn Total	8	2	8	6 8	343	76	2 21	74	219	315	_	658		18.9	630	95.7	36	1 1	r c	00
		Peds A	c				0	c	• c	• c	• c	0		0	0	0	0	0	-	• c		• •
190	rom West	Left	15	12	15	ູ	20	5	1	- oc	6	43		93	14.1	2.7	8	96.8	e	, t.		00
	щ	Thru	0	0	c	• c	0	c	• c		0	0		0	0	Ô	0	0	0			0
		Richt	11	89	74	80	293	54	88	89	52	272		565	85.9	16.3	540	92.6	25	44	6	00
		App. Total	277	208	287	263	1035	255	227	190	159	831		1866		53.7	1812	1.72	54	2.9	C	0
0	μ	Peds	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	6	0
N. Genese	From Sout	Left	0	0	0	0	0	0	0	0	0	0		0	0	•	Q	Q	0	0	0	0
4		Thru	277	208	287	263	1035	255	227	190	159	831		1866	100	53.7	1812	97.1	54	2.9	0	0
		Right	o	0	0	0	0	0	0	0	0	0		0	0	•	0	0	0	0	0	•
		App. Total	0	0	0	0	0	0	0	0	0	0		0		0	0	0	0	0	0	0
		Peds	0	0	Û	0	0	0	0	0	0	0		0	0	•	0	•	0	0	0	0
	From East	Left	0	0	0	0	0	0	0	0	0	0		0	0	-	0	•	0	0	0	0
		Thr	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
		Right	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
		App. Total	121	124	112	118	475	142	66	115	118	474		949		27.3	938	98.8	11	1.2	0	0
0	4 1	Peds	0	0	0	0	0	1	0	2	0	67		ι»	0.3	0.1	( <b>F</b> 1	8	0	0	0	0
J. Genese	From Nor	Left	0	0	0	0	0	0	0	0	0	0		0	0	0	0	0	0	0	0	0
4		Thru	104	112	102	101	419	118	16	90I	108	423		842	88.7	24.2	831	98.7	11	1.3	0	0
		Right	17	12	10	17	56	23	90	2	9	48		101	11	m	104	<u>8</u>	•	•	•	0
		Start Time	04:00 PM	04:15 PM	04:30 PM	04:45 PM	Total	00:00 PM	05:15 PM	05:30 PM	05:45 PM	Total	-	Grand Total	Apprch %	Total %	Unshifted	% Unshifted	Bank I	% Bank 1	Bank 2	% Bank 2

# Harbor Point

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

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File Name:combined 2\_4\_6\_NGen Site Code:00006506 Start Date:2/5/2015 Page No :2

		Int. Total			488	469	473	478	1858	0007	050	1877	08.1	36	1.9	-	0
		App. Total			89	8	76	102	355	2	870	346	97.5	0	2.5	-	0
		Peds			C	, c					00	0	0	c	0	c	0
06I	rom West	Left			51	~	12	14	64	13.8	817	40	100	0	0	¢	0
	ц	Thru			0	0	0	0	c	0	000	0	0	0	0	C	0
		Right			74	80	2	88	306	86.2	869	297	97.1	6	2.9	0	• •
		App. Total			287	263	255	227	1032		899	1009	97.8	23	2.2	0	0
	Ч	Peds			0	0	0	0	0	0	000	0	0	0	0	0	0
I. Genesed	rom Sout	Left			0	0	0	0	0	0	000	0	0	0	0	0	0
	H	Thru			287	263	255	227	1032	100	668.	1009	97.8	23	2.2	0	0
		Right			0	0	0	0	0	0	000	0	0	0	0	0	0
		App. Total			0	0	0	0	0		000.	0	0	0	0	0	0
		Peds			0	0	0	0	0	0	000	0	0	0	0	0	0
	From East	Left			0	0	0	0	0	0	000	0	0	0	0	0	0
	-	Thru			0	0	0	0	0	0	000.	0	0	0	0	0	0
		Right			0	0	0	0	0	0	000	0	0	0	0	0	0
		App. Total	of 1		112	118	142	99	471		.829	467	99.2	4	0.8	0	0
0	ų	Peds	M - Peak 1	0 PM	0	0		0	1	0.2	.250	1	100	0	0	0	0
I. Genesed	rom Nort	Left	o 05:45 Pl	ins at 04:3	0	0	0	0	0	0	000	0	0	0	0	0	0
4		Thru	1:00 PM to	ction Begi	102	101	118	91	412	87.5	.873	408	0.66	4	1.0	¢	0
		Right	S From 04	re Interset	10	17	23	~	58	12.3	.630	58	100	0	0	0	0
		Start Time	Peak Hour Analysi	Peak Hour for Enti	04:30 PM	04:45 PM	05:00 PM	05:15 PM	Total Volume	% App. Total	PHF	Unshifted	% Unshifted	Bank 1	% Bank 1	Bank 2	% Bank 2

# 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 2 4 6 NGen Site Code : 00006506 Start Date : 2/5/2015 Page No : 3



## Appendix C

**Existing Level of Service Calculations** 

LOCHNER

### AM

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

211012013	2/1	8/20	15
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	1	$\sim \infty$	2	1	×	٣	5	*	-	4	*	1
Movement	SEL.	SET	SER	NWL-	NWT	NWR	NEL	NET	NER	SWA	CUIT	CIAD
Lane Configurations		4		7	þ		3	44	and the state of t	- Stell	445	3840
Volume (vph)	0	0	5	275	Ó	30	5	485	150	100	245	Ê
Ideal Flow (vphpi)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1000	1000
Total Lost time (s)		5.0		5.0	5.0		5.0	50	50	51	50	1900
Lane Util. Factor		1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.01	
職		0.86		1.00	0.85		1.00	1.00	0.85	1.00	1:00	-
Fit Protected		1.00		0.95	1.00		0.95	1.00	1.00	0.05	1.00	
Satu. Flow (prot)		1611		1770	1583		1770	3539	1583	1770	5090	-
Fit Permitted		1.00		0.75	1.00		0.29	1.00	1.000	0.35	1.00	
Satd. Flow (perm)		1611		1404	1583		548	3539	1583	855	5000	_
Peak-hour factor, PHF	0.90	0.90	0.90	0.93	0.93	0.93	0.91	0.01	0.04	0.00	0.00	0.00
Adj. Flow (vph)	0	Ő	6	296	0	12	5	533	165	114	0.00	0.68
RTOR Reduction (vph)	0	4	0	0	23	0		000	07	114	920	0
Lane Group Flow (vph)	0	2	0	296	9	Ő	5	523	68	114	094	U
Turn Type	Perm	NA		Perm	NA		Dorm	NA	Dom	115	331	U
Protected Phases		8		· •	A	_	Feilli	11/4	Feini	pm+pt	NA	_
Permitted Phases	8			4			2	<u>*</u>	2	-	p	
Actuated Green, G (s)		20.2		20.2	20.2	_	28.3	09.2	20 2	0	600	-
Effective Green, g (s)		20.2		20.2	20.2	-	28.3	28.2	20.0	20.0	30,0	-
Actuated g/C Ratio	1.1.1	0.29		0.29	0'29		0.11	0.14	20.3	30.0	30.0	-
Clearance Time (s)		5.0		50	50		5.0	5.0	5.0	0.00	0.00	
Vehicle Extension (s)		4.0		40	40		2.0	4.0	3.0	0.0	0.0	-
Lane Grp Cap (vph)		471		411	463		224	4454	640	457		
V/s Ballo Prot	-	0:00	_	411	0.01		224	1431	049	45/	2856	_
v/s Ratio Perm				c0.21	VIN I		0.01	CI VU	0.04	UDZ	CU.18	
w/c Ratio		0.90		0.72	0.02		0.01	0.37	0.04	0.12	2.82	-
Uniform Delay, d1		17.3		21 0	17 /		40.4	0.37	0.40	0.29	0.33	
Progression Pactor		1.00		100	100		12.1	14.1	12.5	1.5	8.1	_
Incremental Delay, d2		0.0		6.5	0.0		0.1	0.2	1.00	1,00	1.00	
Delay (s)		17.3		28.4	17.4		43.0	14.9	0.1	0.1	0.3	_
Level of Service		B		_62%Z .	B		177	14.0	14.0	- 7.Þ	6.4	
Approach Delay (s)		173			27.3		D	12 D	в	A	A	_
Approach LOS		B			C			13.9 B			8.3	
ntersection Summary		-	1.1.1	-			-	D			M	
HCM 2000 Control Delay			13.2	HC	M 2000 Le	evel of Se	ervice		B		-	
ICM 2000 Volume to Capacity	atio		051									
Actuated Cycle Length (s)			69.0	Sur	n of lost til	me (s)		_	15.0			
ntersection Capacity Utilization			58.6%	ICU	Level of	Servica			8			
Analysis Period (min)			15	1.515	CALL R	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -			P			and the second second
Gritical Lane Group					_							

A	W)

Intersection	0.4	FI	,	_	14.16							
intersection Delay, siven	0.4	ni	-	1	wi	~		NIS	-	-	SM	~
Movament	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SIM	SWT	CINE
Vol, ven/h	C	0 0	10	9	0	20	20	620	25	0	1035	BI
Conflicting Peds, #/hr	0	0	0	Ó		0	0	0	0		1000	00
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Fina	Free	Frain	Free	Free
RT Channelized			Stop	- 1997		Stop			Free	1100	1,100	None
Storage Length	÷		D	-		0	160	-	-	1		NOTIC
Veh in Median Storage, #	-	Ō	. ::::::::::::::::::::::::::::::::::::	-	Ō	-		0	- i.		<u>.</u>	
Grade, %	-	0	Į.		D		- <del>.</del>	0			ň	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	02	07
Heavy Vehicles, %	2	2	2	2	2	2	2	2	7	2	32	32
Mvmt Flow	0	0	11	Ò	0	22	22	674	27	Ő	1125	65
Major/Minor	Minor2			Minort	-		Majort			Make 2		
Conflicting Flow All	1473	1875	595	1167	1907	337	1100	0	ō.	£74	n	
Stage 1	1158	1158		717	717	M94.	1 / 214		V		ų	U
Stace 2	313	747	1	450	1100	2		- ž	3			-
Follow-up Headway	3.82	4 02	3.92	3.82	4 02	3.02	2 12	1		2 4 2	7	٣
Pot Capacity-1 Manauver	112	71	183	204	58	562	247	1.000		0.1Z		-
Stace 1	154	269	100.00	312	432	WHE	9.17			<b>190</b> 1	<u>.</u>	
State 2	815	437	121	510	280		100	1753				-
Time blocked-Platoon. %					200	. <u>.</u>						ida
Moy Cantadive Matterner	172	88	019	188	83	569	247	10 000	24		-	-
Mov Capacity-2 Maneuver	122	66		188	63	WHE.	944			2023		
Siace	143	28.9		200	202		1		-	-		
Stage 2	551	402	-	496	259	-	- -	-	- -	-		
Approach	92	_	_	104			110			200		
ICM Control Dolay c	54.7	_	_	14.77			NE	-		SW		
HCM LOS	B			11.7 B			0.5			0		
Minor Lane / Major Memt	-	MET	NET	NED	ANAL ST.	5014	(1) I I	Children .	-			
Separativ (veh/h)		247	inc.	NER	200	OCLN (	SAAF	SAAI	SWK	_		
CM Lane V/C Ratio		0.060	-		0.020	383	201		inge Stare			
Ch Control Delaw (c)		17 104			0.039	0.028	-	-	-	_	_	_
		Main	-	10	11.1	14./	9		Ŧ			
CHICKING CHIC CAMEL		A.06	2		B	В	A					
IVAN BOTH YOUR PLANE		1.42			0.12	0.087	0		7			
lotes		-					-	-	-	-	-	-

Volume Exceeds Capacity; 5: Delay Exceeds 300 Seconds; Error : Computation Not Defined

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11.7				1.4			4.1.4			< P	
U.I	FR	~	0	WB	~	~	NM	~	~	in	~
SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SW
5	0	15	10	0	10	15	475	25	15	895	20
0	Ö	0	0	0	0	0	0	0	0	0	(
Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
	-	None	-		None	-		None	-	-	None
-	-	-	-		-	190	-	-	20		
-	0	-		0	-	-	0	-	-	0	
-	0	-	-	0	-	-	0	-	-	0	
92	92	92	92	92	92	92	92	92	92	92	92
2	2	2	2	2	2	2	2	2	2	2	
5	0	16	11	Ó	11	16	516	27	16	973	2
Minor2		-	Minor1			Major1			Major2		
1307	1592	497	1082	1590	272	995	0	0	543	0	
1016	1016	-	563	563	-			-	-	-	
291	576		519	1027		+	-	-			
3.52	4.02	3.32	3.52	4.02	3.32	2.22	-	-	2.22	-	
117	106	519	172	107	726	691			1022	-	
255	314	-	478	507		-	-	-	-	-	
693	500		508	310	-	-	1.00		-	-	
	10									-	
112	102	519	162	103	726	691	345		1022	-	
112	102		162	103	-	-	1.00		-	-	
249	309	1.0	467	495	-		10		-	-	
667	488	1	484	305	-	•			-		
SE	-	-	NW	-	100	NE			SW	-	
19.4			19.8			0.3			01		
C			C								-
	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR	-	100	110
	691	-	÷	265	272	1022	+3	-			
	0.024		-	0.082	0.08	0.016	•3	-			
	10.336			19.8	19.4	8.58	-	-			
	В			С	С	A					
	0.072	-	-	0 266	0.258	0.049	-	É.			
	SE 5 0 Stop - - 92 2 5 Macr2 1307 1016 291 3.52 117 255 693 112 112 112 249 667 SE 19.4 C	SEL   SET     5   0     0   0     Stop   Stop     -   -     -   0     -   0     92   92     2   2     5   0     -   0     92   92     2   2     5   0     Macc2   2     1307   1592     1016   1016     291   576     3.52   4.02     117   106     255   314     693   500     112   102     112   102     249   309     667   488     SE   19.4     C   NEL     691   0.024     10.336   B     0.072   8	SEL   SET   SER     5   0   15     0   0   0     Stop   Stop   Stop     -   -   None     -   -   -     -   0   -     -   0   -     92   92   92     2   2   2     5   0   16     Macc2   -   -     1307   1592   497     1016   1016   -     291   576   -     3.52   4.02   3.32     117   106   519     255   314   -     693   500   -     112   102   519     112   102   -     249   309   -     667   488   -     92   92   -   -     19.4   C   -   -	SEL   SET   SER   NWL     5   0   15   10     0   0   0   0     -   None   -     -   0   -   -     -   0   -   -     -   0   -   -     -   0   -   -     -   0   -   -     -   0   -   -     -   0   -   -     -   0   -   -     -   0   -   -     -   0   -   -     92   92   92   92   2     2   2   2   2   2     5   0   16   11     1307   1592   497   1082     1016   1016   -   563     291   576   -   519     3.52   4.02   3.32	SEL   SET   SER   NWL   NWT     5   0   15   10   0     0   0   0   0   0     -   -   None   -   -     -   0   -   -   0     -   0   -   -   0     -   0   -   -   0     -   0   -   -   0     -   0   -   -   0     -   0   -   -   0     -   0   -   -   0     -   0   -   -   0     -   0   -   -   0     -   2   2   2   2   2     5   0   16   11   0     Minor   -   563   563   563     291   576   -   519   1027     3.52   4.02 <td>SEL   SET   SER   NWL   NWT   NWR     5   0   15   10   0   10     0   0   0   0   0   0   0     Stop   Stop   Stop   Stop   Stop   Stop   Stop     -   -   -   -   -   None   -   None     -   0   -   -   0   -   -   None     -   0   -   -   0   -   -   0   -     -   0   -   -   0   -   -   0   -     -   0   -   -   0   -   -   0   -     -   0   -   -   0   -   -   0   -     -   0   -   -   0   -   -   0   -   10   11     1016   1016   -   563</td> <td>SEL   SET   SER   NWL   NWT   NWR   NEL     5   0   15   10   0   10   15     0   0   0   0   0   0   0   0     Stop   Stop   Stop   Stop   Stop   Stop   Free     -   -   -   -   None   -   190     -   0   -   -   0   -   -     92   92   92   92   92   92   92   92   92     2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2</td> <td>SEL   SET   SER   NWL   NWT   NWR   NEL   NET     5   0   15   10   0   10   15   475     0   0   0   0   0   0   0   0   0     Stop   Stop   Stop   Stop   Stop   Stop   Free   Free     -   -   -   -   None   -   -   -     -   -   -   -   0   -   -   0     -   0   -   -   0   -   -   0     -   0   -   -   0   -   -   0     92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92</td> <td>SEL   SET   SER   NWL   NWF   NWR   NEL   NET   NER     5   0   15   10   0   10   15   475   25     0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0<!--</td--><td>SEL   SET   SER   NWL   NWT   NWR   NEL   NET   NER   SWL     5   0   15   10   0   10   15   475   25   15     0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   -   -   20   -   -   0   -   -   0   -   -   20   -   20   -   20   -   20   -   20   2   22   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2</td><td>SEL   SET   SER   NWL   NWT   NWR   NEL   NET   NER   SWL   SWT     5   0   15   10   0   10   15   475   25   15   895     0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   10   10   0   10   0   10</td></td>	SEL   SET   SER   NWL   NWT   NWR     5   0   15   10   0   10     0   0   0   0   0   0   0     Stop   Stop   Stop   Stop   Stop   Stop   Stop     -   -   -   -   -   None   -   None     -   0   -   -   0   -   -   None     -   0   -   -   0   -   -   0   -     -   0   -   -   0   -   -   0   -     -   0   -   -   0   -   -   0   -     -   0   -   -   0   -   -   0   -     -   0   -   -   0   -   -   0   -   10   11     1016   1016   -   563	SEL   SET   SER   NWL   NWT   NWR   NEL     5   0   15   10   0   10   15     0   0   0   0   0   0   0   0     Stop   Stop   Stop   Stop   Stop   Stop   Free     -   -   -   -   None   -   190     -   0   -   -   0   -   -     92   92   92   92   92   92   92   92   92     2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2	SEL   SET   SER   NWL   NWT   NWR   NEL   NET     5   0   15   10   0   10   15   475     0   0   0   0   0   0   0   0   0     Stop   Stop   Stop   Stop   Stop   Stop   Free   Free     -   -   -   -   None   -   -   -     -   -   -   -   0   -   -   0     -   0   -   -   0   -   -   0     -   0   -   -   0   -   -   0     92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92	SEL   SET   SER   NWL   NWF   NWR   NEL   NET   NER     5   0   15   10   0   10   15   475   25     0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0 </td <td>SEL   SET   SER   NWL   NWT   NWR   NEL   NET   NER   SWL     5   0   15   10   0   10   15   475   25   15     0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   -   -   20   -   -   0   -   -   0   -   -   20   -   20   -   20   -   20   -   20   2   22   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2</td> <td>SEL   SET   SER   NWL   NWT   NWR   NEL   NET   NER   SWL   SWT     5   0   15   10   0   10   15   475   25   15   895     0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   10   10   0   10   0   10</td>	SEL   SET   SER   NWL   NWT   NWR   NEL   NET   NER   SWL     5   0   15   10   0   10   15   475   25   15     0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   -   -   20   -   -   0   -   -   0   -   -   20   -   20   -   20   -   20   -   20   2   22   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2   2	SEL   SET   SER   NWL   NWT   NWR   NEL   NET   NER   SWL   SWT     5   0   15   10   0   10   15   475   25   15   895     0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   -   -   0   10   10   0   10   0   10

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

Intersection												
Intersection Delay, s/veh	0.1									_	_	
Movement	SEL	SET	SER	NW	NWT	NWR	NEL	NET	NER	SWI	SWT	SWE
Vol. Ven/n	0	0	10	(	) 0	5	0	525	ñ	Â	Q15	26
Conflicting Peds. #/hr	0	0	0	Ċ		0	0	0		<u>×</u>	0	40
Sign Control	Stop	Stop	Ston	Stor	Sion	Stop	Free	Free	Free	Fring	Free	Ērec
RT Channelized			Stop		1	Ston	-	-	None	T a set	1 1000	None
Storage Length	1		Ő			0	-		Hono	_		THOME
Veh in Median Storage, #		0			. 0	- <u>-</u>		0	-		0	_
Grade 36		0	4	-	. Ö			Ď		-	ñ	_
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy yericles, %	2	2	2	2	2	2	3	2	2	2	2	2
Mymt Flow	Ő	Ō	11	0	Ō	5	Ő	571	5	0	995	27
Major/Minor	Minor2	a constant	10000	Minori	-	_	Majort	_		Manag	_	_
Repticting Flow Al	1293	1584	511	1070	1695	799	1022	n		676	0	0
Stage 1	1008	1008	411	573	573	609	IVAL	. #	<u>y</u>		ų	, v
Stane 2	285	576		107	1022	-			-			
Follow-un Headway	3 52	1 02	3 32	3 52	4 02	2 22	2 11			0.00		
Pot Canacity 1 Manomer	190	107	5.52	3.02	4.02	3.32	2.22	-	-	L.LL		-
Stane 1	259	216		470	500	(1/4	-9/3		콧	- CHU		-
Oldge 1	200	510		4/2	200			-		-		
Time blocked Platoon %		000		020	<u>8</u> 44				. <u>.</u>	(*)		
	448	LAT	Eno		476	700		-	y	000	-	
Mov Capacity 2 Manouver	110	107	SH H3	474	106	1.44	913		E Burrow .			-
Mov Capacity-2 Maneuver		040	-	498	100	-		-	*	-	-	
Stage 2	693	500	-	94 <b>∡</b> 512	312	-	5.		*	-	-	
Approach	SE			NW		1.1.1	NE			SW		
HCM Control Delay, s	12.2			10.1			0			0		
HCM LOS	В			В		_		_			_	_
Minor Lane / Major Mymt	-	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR			-
Sanacity (vah/h)		675		m	709	595	693					_
HCM Lane V/C Ratio				3.	0.008	0.021		<u> </u>	- 12			
HCM Control Delay fai		Ō	Tr P	1. A	10.1	122	ñ	-	2			
HCM Lane LOS		A		- 2	B	B	A					
HCM 85th %tile Q(veh)		Ð	2	1	0.023	0.065	0	-				
Notes	-								_			
Volume Exceeds Capacity	S: Delay	Exceeds	300 Seg	onas; El	TOP: Com	putation N	ot Define	d				

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	5	None			-	None		
Storage Length	0		0	-	5			-			
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		
Mymt Flow	27		495	0	576			527	76		
Major/Minor	Minor2			Malori				Major2			
Conflicting Flow All	853		302	603	Ω				Ũ		
Stane 1	565			-	-						
Stane 2	288		-	_	-	_	_		-		
Follow up Headway	3 52		3 32	2 22	<i></i>				1		
Pot Cappaity 1 Manauwar	202		604	071	_	_		_	-		
Store 1	520		004	011				_	÷		
Stage 1	725		-		_			_			
Julyo Z	100			2	-			_			
Time blocked-Platoon, %	000	_	204	074							
Mov Capacity-1 Maneuver	230		094	8/1							
Mov Capacity-2 Maneuver	298	_	-	-	-	-	_	0.5			-
Stage 1	532		-	-	÷			1.5	1		
Stage 2	/35			-	-		-				
Approach	SE		10.5	NE	<i>N</i>	1 and	-	SW	100		 
HCM Control Delay, s	21.8			0				0			
HCM LOS	С			_		_		•.			
Minor Lane / Maior Mont	-	NEL	NET	SELDI	SELn2	SWT	SWR	-	-		1000
Capacity (yeh/h)		971		298	694	140	-				
HCM Lane V/C Ratio		91		0.091	0 713	-	/				
HCM Control Delay (e)		Ő		18.3	22	-	-				
HCM Lane LOS		Δ		0.0	6		-				
HCM 05th 9/tile Ofush)		2		0 208	5 007	-					
I IONI DOUT YOUR CALVEIT		ų		0,200	0.001						_
Notes											

-: Volume Exceeds Capacity, \$ : Delay Exceeds 300 Seconds; Error . Computation Not Defined

Mid-day

2/18/2015

	-		2	j.	×	ť	7	*	-	<u> </u>	×	1
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		4		٦	\$		٦	t†	Ť	٦	<b>†</b> †Ъ	
Volume (voh)	5	5	5	280	0	65	5	735	220	20	675	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		Ð	200		0	210		0	190		0
Storage Lanes	Ô		0	1	-	Ô			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
Ri		0.955			0.850				0.850		0.999	
Fit Protected		0.984		0.950			0.950		- 1046 X VA -	0.950		
Satd, Flow (prot)	0	1750	Q	1770	1583	0	1770	3539	1583	1770	5080	0
Fit Permitted	*	0.938	44.	0.748	_PROBAL!		0.371			0.210		
Satd. Flow (perm)	0	1669	Ó	1393	1583	0	691	3539	1583	391	5080	0
Right Turn on Red	. taaf -		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	0.98	0.98	0.85	0.85	0.85	0.87	0.87	0.87	0.96	0.96	0.96
Shared Lane Traffic (%)						. #*1*1	47	2022	. 42712.2.			
Lane Group Flow (vph)	0	15	0	329	76	0	6	845	253	94	708	Ô
Tum Type	Perm	NA	102	Perm	NA		Perm	NA	Perm	om+ot	NA	. 7
Projected Phases		8			4			2		9	6	
Permitted Phases	8	· · · · · ·		4	• =/0 =-		2		2	6		_
Detector Phase	8	8		4	4		2	2	2	1	6	
Switch Phase		· · · ·			ž.			·				
Minimum Initial (s)	10.0	10.0		4.0	40		10.0	10.0	10.0	8.0	10.0	
Minimum Split (s)	15.0	15.0		9.0	9.0		15.0	15.0	15.0	11.0	15.0	
Total Spat (s)	22.0	22.0		22.0	22.0		35.0	35.0	35.0	120	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	0.6	0.0	0.0	D.O	
Total Lost Time (s)		5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Lead/Lao							Lag	Part	Lag	182		
Lead-Lag Optimize?							Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	None		Min	Min	Min	None	CMin	
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		11.8	16.2	29	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		В		D	Α		B	B	A	A	A	
Approach Delay		16.8			39.2			13.1			7.4	100
Approach LOS		В			D			В			A	
Intersection Summary					Tel Te							
Area Type:	Other											
Cycle Length: 69												
Actuated Cycle Length: 69			_									

North Genesee 12:00 am 2/12/2015 Baseline Kyle Snyder

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 Capacity Utilization 60.0% Analysis Period (min) 15

Intersection LOS<sup>-</sup> B ICU Level of Service B

Splits and Phases: 2: Genesee St & Wurz Ave

601	262	A
4.05 (R)		 X 58
Charles and		

Mid-day

#### HCM 2010 TWSC 6: Genesee St & Lee St

Intersection Delay, s/veh	0.5	2P			wm			NB		5	15	
	1	-in	~	1	-		0	N/	-	~	~	~
Movement	SEL	SET	SER	NWE	NWT	NWR	NEL	NET	NER	SWL	SWT	SWF
Vol, veh/h	Q	Q	30	Ç	0	40	5	920	15	0	920	4
Conflicting Peds, #/hr	0	0	0	0	Ô	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		e e e e e e e e e e e e e e e e e e e	Ø	4	100	D	160			-	-	
Veh in Median Storage, #	-	0		-	0		27.77 JW-	0		-	0	
Grade %	÷	0			Û	1	in the second	Ō		1	Ő	
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	1
Mymt Flow	0	0	33	0	0	43	5	1000	16	Ó	1000	43
Major/Minor	Minor2			Minor1			Major1			Maior2		
Contlicting Flow All	1433	2033	522	1411	2054	500	1043	ũ	Ô	1000	- Q	0
Stage 1	1022	1022	18 M. 19	1011	1011						×.	
Stage 2	414	9046	* % *	400	1043	<u></u>	-	÷	2	12.4		
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	12.5	146	55	442	373	22	2	201		
Stage 1	192	312	AU-1725	196	315							
Stane 2	539	315		587	305	474 F	1	- 123)		2	*	
Time blocked-Platoon, %								-		ė		
Moy Capacity-1 Maheuver	128	55	493	133	54	442	373	1.12	1 VIN	301	1	
Mov Capacity-2 Maneuver	126	55	2935	133	54	- Ar 12		-	>			
Stace 1	120	312	54	193	311		5, . #	2	1			1
Stage 2	479	311	-	505	305		-	-	-	-	-	-
Approach	SE			NW			NE			SW		
CM Control Delay, s	14.1			14			0.1	-		0	_	
HCM LOS	В			В			<u>}**</u>	_	_			_
Minor Lane / Major Mvm		NEL	NET	NER	NWLn1	SELINT	SWL	SWT	SWR			
Senaray Avena		373			147	478	301		CHINA.	-	-	
HCM Lane V/C Ratio		0.015		. <i>л</i> .	0 008	0.076			2			
CM Control Delay Tel		14 704		-	12	121	ň	-				
HCM Lane LOS		B		Π.	B	P	A A					
HCM 95th %the Clouch		0.044	-		0 375	0.946	2					
				1		Artan	V				_	

Intersection									-			)
Intersection Delay, s/veh	0.8	后内	_	-	wh	~		Nº12	$\sim$	~	sh	
Movement	SEL	SET	SER	NWL	NWT	NWR	NEU	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, %	-	Ó	-	-	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
Mymt Flow	16	0	11	5	0	5	22	815	38	16	821	22
Major/Minor	Minor2	-	-	Minort	-	-	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	-	-	-	240		-	
Follow-up Headway	3.52	4 02	3.32	3.52	4.02	3.32	2.22			2.22	-	
Pot Canacity-1 Maneuver	116	84	581	115	84	576	789	-		782	-	
Stana 1	315	369		309	364	-		-	5.47		-	
Stane 2	557	357		564	365			-			e e	
Time blocked-Platoon %		001		001				-			•	
Mov Canacity-1 Maneuver	111	80	581	109	80	576	789	_		782	-	
Mov Capacity-2 Maneuver	111	80		109	80		-	-				
Stane 1	306	361	-	300	354		-			-	-	
Stage 2	536	347	÷i	542	358	•	-			-	-	
Approach	SF.	-	_	NW	_		NE	-		SW		
Citté Centrel Delau	24.2			95.0	-		0.2			ก่ว		
HCM LOS	D			23.9 D			V.Z			y. <u>c</u>		
Minor Lane / Major Mvmt		NEL	NET	NER	NWL01	SELn1	SWI.	SWT	SWR			
Capacity (veh/h)		789	1	2	183	164	782	12	-			
HCM Lane V/C Ratio		0.028	-	32	0.059	0.166	0.021	-	-			
HCM Control Delay (s)		9.692	-	-	25.9	31.3	9.702	-	-			
HCM Lane LOS		Α			D	D	A					
HCM 95th %tile Q(veh)		0.085	-	-	0 188	0.576	0.064	-	- 1			
Notes												

Intersection						-	_			-	_	-
Intersection Delay, s/veh	0.2				_							
Maxamant	CEL	(DET	10000	ERAN	THAT.	A. 11 A. 17%		110.00				
WEVENETIL	SCL.	301	DEN	NYW	NVVT	NWK	NEL	NET	NER	SWL	SWT	SWR
Confliction Dada #lbs		U	15		0	15	D	755	25	Q	700	15
Connicung Peas, #/nr	0	U	U	U	0	0	0	0	0	0	0	0
Digit Control	Sipp	Stop	Stop	Stop	Stop	Stop	Free	Frae	Free	Free	Free	Free
		-	Stop	-	- 4	Stop		-	None	-	-	None
Storage Length	35	7	0	1		0	5	-		÷		-
Ven in Median Storage, #	-	0	-	- 32	0		3	0	-	-	0	-
LSTade, %		0	2		0		-	Q	1	3	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
Mvmt Flow	0	0	16	0	0	16	0	821	27	0	761	16
Malor/Minor	Minor2	-		Minort	-	-	Maint	-	-	Maine?	-	-
Sopflicting Flow All	1179	1617	220	1214	1811	121	777		0	0.10	-	-
Stane 1	760	760		924	024	349	<u>. 199</u>	. 2	N.	060	<u> </u>	Ų
State 7	ATA	0.10	1.	004	004	-				2 -	-	
Follow-up Headway	2.52	4.02	2.22	2.50	4.02	2 20	0.00	(#2	~	10.00		
Dot Canacity 1 Managemen	1.02	4.UZ	3.32	3.32	4.02	3.32	2.22	-	-	2.22		-
Store 1	260	400	<u>ativ</u>	200		0/9	639	(*)	14			
Oldyb I	300	409	14	329	361		-		•	-	-	
Time blocked Distance 9/	908	<u>919</u>		014	制的	÷		141	-		7	1
Time Diocked-Platoon, 70		0000	to fail			1000		-	-	and the second sec	-	- 12
	142	103		133	1112	679	835		27 10 10 10 10 10 10 10 10 10 10 10 10 10	100		
viov Capacity-2 Maneuver	142	103	_	133	103		-	-	· p		-	
Stage 1	520	40.0					*		<u>4</u> 19		-	-
Stage 2	5/2	376	-	598	405		-	-	-	-	-	-
Approach	SE		1 23	NW.			NE			SW		
HCM Control Delay, s	1661			13.4	100		0			ō	100	_
HCM LOS	B			B							_	
Minor Lane / Major Mymt	_	NE	NET	NED	NWEST	CEI 14	(SIA)	CM/T	(OMID)			
Conpoint (uph/h)	-	005	11	THEIR	570	OCUAT	SAAT	CIAN F	DAAL			
	-	043			0.000	PHY						The second
				÷.	0.028	0.027	-	-	7	_	_	
		V	4 1	₹.	11.4	11.7	U	5	<u>#</u>			
		A		5	B	B	A			_		
ICMINDIT FADE LIVER!		N.	- 7		0.067	0.082	Q		2			
lotes								1 4-	1			

\*: Volume Exceeds Capacity; \$: Delay Exceeds 300 Seconds; Error ; Computation Not Delined

2/18/2015	
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The state of the s									_		
ntersection Delay, s/veh	2.3				_						
	200 Barriel 1					_	_	COLUMN TWO IS	10110	_	_
Movement	SEL	_	SER	NEL	NET		_	SWI	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	5		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		
Mainellane	Mintered			Makert				Calor 2			
Confliction Flow All	045		274	640	0			10035	0		
Condicing Flow All	540		2/4	049	V				v		
Stage 1	027		-	-	-		_	•		-	
Stage 2	410		0.00	0.00					1		-
Follow-up Headway	3.52	_	3.32	L.LL	-		_		12.1		
Pot Capacity-1 Maneuver	260		/24	1017	-				1		
Stage 1	557		-	-	-	_		<b>7</b> 5	-		
Stage 2	632		-	-					-		
Time blocked-Platoon, %					5	_		<b>7</b> 5	17.5	_	
Mov Capacity-1 Maneuver	260		724	1017	7				30		
Mov Capacity-2 Maneuver	260		<b>1</b>	-	-			3			
Stage 1	557		55		-			2	320		
Stage 2	632		•2	- 1		_	_	2			
Annoch	55	COLUMN	-	NE			-	SW	-		-
Department Delay a	12.4	-		0				Λ	-	-	1
HCM LOS	13.4 B			Ų				v			
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	÷)	3 <del>3</del>			_	
HCM Control Delay (s)		0	-	20.1	12.9	+	-				
HCM Lane LOS		Α		C	В						
HCM 95th %tile Q(veh)		0		0.271	1.748	•	-				
Notes							N				

inserte- out when		where a	- OLINE	I I W V V La	TAKKT	TRAFT	NCL	LAC 1	- NCR	DAAF	- SWI	- 2000
Lane Configurations		4		٦	7		٦	<u>††</u>	r.	٦	445	
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)	Ō		0	200		0	210		0	190	1000	0
Storage Lanes	0		0	1		0			1	1		ñ
Taper Length (ft)	25	A Contraction		25			25			25		
Satd. Flow (prot)		1611	0	1770	1583	0	1770	3539	1583	1770	5080	ñ
Ett Permitted				0.754	1000		0.359	0000	1000	0.157	0000	Ŷ
Satd. Flow (perm)	Ö	1611	0	1405	1583	0	669	3539	1583	202	5080	0
Right Turn on Red			Yes		1000	Ves		0000	Yoc	LVL	0000	Vac
Satd. Flow (RTOR)		226			237				215		3	100
Link Steed (moh)		30			30			35	210		25	
Link Distance (ft)		257			909			607			600	
Travel Time (s)		5.8			207			11.8			44.7	-
Peak Hour Eactor	0.94	0.94	0.94	0.80	0.80	0.80	0.02	0.02	0.02	0.04	1.1.1	0.04
Adi Fine (mh)	0.04	0.04	5.04	229	0.00	0.00	0.55	4008	0.50	0.94	U.94	0.94
Shared Lane Traffic (%)		U	2	230	U	231	2	1000	210	0a	1.34	Ð
and Grown Slowfundi	Ŕ	ŝ	ñ	020	524	٨	Ĕ	4040	DAE	80	200	- 6
	Dorm	NA	<u>N</u>	Dorm	<u> 221</u>	<u>N</u>	Dama	1000	219		139	0
Protocity Discor	Lêilli	N/A Q		renn	INA		Perm	IVA	Perm	pm+pt	NA	_
Permitted Diseases	0	<u> 9</u>			4	_	0	4		1	6	
Pointing Photos	0		_	4			2	8	2	6		_
Switch Phone	9			4	4		ž.	4	2		Ő	_
	48.0	18.0	_		4.95	_	40.0					_
Minimum Calif.(a)	10.0	1040		4.0	4.0		10.0	10,0	10.0	5.0	10,0	
Minimum Split (s)	10.0	15.0	_	9.0	9.0	_	15.0	15.0	15.0	11.0	15.0	
	22.0	22.0		22.0	22.0		35.0	35.0	35.0	120	47.0	_
Total Split (%)	31.9%	31.9%	_	31.9%	31.9%		50.7%	50.7%	50.7%	17.4%	68.1%	
	3.9	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	_
I otal Lost Time (s)		5.0	_	5.0	5.0		5.0	5.0	5.0	5.0	5.0	
		_				_	Lag	Lat		Loga	_	
Lead-Lag Optimize?	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	THE WAY					Yes	Yes	Yes	Yes		
Recall Mode	None	None		None	Mone		Min	M	Min	None	C-Min	
Act Effct Green (s)		15.5		15.5	15.5		36.7	36.7	36.7	43.5	43.5	
Aduation of 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		413	5.9		112	14.2	27	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		Α		D	Α		В	В	A	A	A	
Approach Delay		0.0			23.9			12.3			6.1	
Approach LOS		Α			C			В			Α	
ntersection Summary				and the second								
Area Type:	Other											
Sycle Langth: 69							_					- 1
Actuated Cycle Length: 69				5. 1								
Unset U (U%), Referenced	to phase 6:	swill, Sta	t of Gree	90								

Offset 0 (0%), Rei Natural Cycle: 55

North Genesee 12:00 pm 2/12/2015 Baseline Kyle Snyder

Synchro 8 Report Page 1

2/18/2015

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INAR PLAT

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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 & W	urz Ave
has Mar	3 Aug

401	R 92	35 94
ALEG (R)		¥ 188
- AU		

2/18/2015

Intersection Delay, shiph	0.0	1	-		1. A	100	_		110		e 0	
intersection Delay, siven	0.9	EB	~	~	WA	-	0	NA	-	-	20	-
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SW
Vol. veh/h	Ũ	Û	60	D	0	60	5	1155	10	9	870	1
Conflicting Peds, #/hr	0	Ō	0	0	0	0	0	0	0	0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Fre
RT Channelized	-	-	Stop	-	-	Stop		=	Free			Non
Storage Length	and the	i i i	0		-	0	160	-	4	1	-	
Veh in Median Storage, #	-	0	-		Ō			0			0	
Grade, %		0	- E	たず尻	0	4		b			0	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	9
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	
Mymt Flow	0	0	65	0	0	65	5	1255	11	Ó	946	1
Major/Minor	Minor2			Minor1		1	Major1			Major2		
Conflicting Flow All	1467	2220	481	1644	2228	628	962	0	0	1255	0	1
Stage 1	954	954	-	1266	1266	. 17994.			-		7	
State 2	513	1266	100	378	962	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	27 17	240		1	12	
Follow-up Headway	3.82	4.02	3.92	3.82	4.02	3.92	3.12			3.12	-	
Pole Canacity - Manauter	135	43	454	105	42	365	408	100	1	204	: 7	
Stage 1	214	335		130	238	.56551.75		-	-			
Seal 2	468	238	22	564	332	14	े ते यु जू	100		3.5	1	
Time blocked-Platoon, %	na ni Rin hiku a	· · · · · · · · · · · · · · · · · · ·							¥		-	
Notes and the second	110	42	454	89	科	385	408	5	1	701		
Mov Capacity-2 Maneuver	110	42	- 10 10 EF	89	41	. 2010.00		-	-		-	
States	21	325		128	235	4	£1	34		(a)	2	
Stage 2	380	235	-	483	332	-	-	-	-	-		
Approach	SE			NW			NE			SW		
CM Control Delay, s	14.3			17			0.1			0		_
HCM LOS	В			C							_	
Minor Lane / Major Mvmt		NEL	NET	NER	NWLAT	SELn1	SWL	SWIT	SWR			
SEDECTV (VENIN)		<u>¢Ū</u> \$	100		365	454	294		-			
HCM Lane V/C Ratio		0.013	_	-	0.179	0.144						
HCM CONTRO CHERY (S)		13.943	1		17	14.3	0	-	7			
HCM Lane LOS		В			C	B	A	4	2			
HCM 95th %tile O(veh)		0.04		7	0.642	0,498	Ő					
	-		-	. 4	.s 1974	<u></u>			*		_	-
NO/CO	-			-	_			_				

North Genesee 12:00 pm 2/12/2015 Baseline Kyle Snyder

Intersection Delay, s/veh   1.3     Movement   SEL   SET   SER   NWL   NWT   NWR   NEL   NET   NER   SWL   SWT	Intersection												i i
Movement   SEI   SEI   SEI   SEI   SEI   NWL   NWL   NWR   NEL   NER   SWL   SW	Intersection Delay, s/veh	1.3		_									
Vol, veh/n   10   5   25   10   0   5   30   945   70   10   725   25     Conflicting Peds, #fhr   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0	Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Conflicting Peds, #hr   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0   0	Vol. veh/h	10	5	25	10	0	5	30	945	70	10	725	25
Sign Control   Stop	Conflicting Peds. #/hr	Ò	0	0	0	0	0	0	0	0	0	0	0
RT Channelized - None - 20 - - - 20 - - - 20 - - - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - - 0 - 10 0 0 0 0 0 0 0 10 0 0 3 2 2 <td>Sign Control</td> <td>Stop</td> <td>Stop</td> <td>Stop</td> <td>Stop</td> <td>Stop</td> <td>Stop</td> <td>Free</td> <td>Free</td> <td>Free</td> <td>Free</td> <td>Free</td> <td>Free</td>	Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
Storage Length - - - - 190 - 20 -   Veh In Median Storage, # - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 0 333 1027 76 11 788 27 11 0 5 33 1100 0 0 1103 0 0 33 33 1130 1130 - - - - - - -	RT Channelized	-		None			None	-	-	None	-	-	None
Veh in Median Storage, # 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 - 0 1 0 5 33 1027 76 11 788 27 1 0 5 33 1027 76 11 788 27 1 0 5 33 1030 0 0 33 1030 0 0 33 1030 0 0 1033 0 0 1033 0	Storage Length	-		-	-	-	-	190	-	-	20		-
Grade. %   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   -   0   11   76   11   768   27   11   0   5   33   1027   76   11   788   27     Conflicting Flow All   1402   1991   408   1548   1967   552   815   0   0   1103   0   0   0   0   0   0   533   78   62   477   808   -   629   -   -   -   -   -	Veh in Median Storage, #	-	0	-		0	-		0	-	-	0	
Peak Hour Factor   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92   92	Grade, %	-	0			0	-	+	0	-		Ö	-
Heavy Vehicles, % 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 <th2< th=""> 2 <th2< th=""></th2<></th2<>	Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Mmit Flow   11   5   27   11   0   5   33   1027   76   11   788   27     Maior/Minor   Minor/2   Minor/1   Maior/1   Maior/1   Maior/2   Maior/2<	Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Majort Macri   Minori   Majori   M	Mvmt Flow	11	5	27	11	Ò	5	33	1027	76	11	788	27
Conflicting Flow All   1402   1991   408   1548   1967   552   815   0   0   1103   0   0     Stage 1   823   823   -   1130   1130   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -	Major/Minor	Minor2			Minor1			Major1			Major2		
Stage 1 823 823 - 1130 1130 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -	Conflicting Flow All	1402	1991	408	1548	1967	552	815	0	0	1103	0	0
Stage 2 579 1168 418 837 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 - 2.22 2.22 -	Stage 1	823	823	-	1130	1130							
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Pot Capacity-1 Maneuver 100 60 593 78 62 477 808 - - 629 - - 53age 1 334 386 - 217 277 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -	Follow-up Headway	3.52	4.02	3.32	3.52	4.02	3.32	2.22	-		2.22		-
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Time blocked-Platoon, % - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - <td>Stage 2</td> <td>468</td> <td>266</td> <td>-</td> <td>583</td> <td>380</td> <td>-</td> <td></td> <td>-</td> <td></td> <td></td> <td>-</td> <td></td>	Stage 2	468	266	-	583	380	-		-			-	
Mov Capacity-1 Maneuver 95 57 593 66 58 477 808 - 629 - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - -	Time blocked-Platoon. %	. 1								:*			
Mov Capacity-2 Maneuver   95   57   66   58   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -<	Mov Capacity-1 Maneuver	95	57	593	66	58	477	808	-		629	-	
Stage 1   320   379   -   208   266   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   3   3   3   0.3   0.1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1   1	Mov Capacity-2 Maneuver	95	57		66	58	-	-			-	-	
Stage 2   444   255   -   539   373   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -	Stage 1	320	379	-	208	266	-	•	-		-	-	
Approach   SE   NW   NE   SW.     HCM Control Delay, s   33.3   51.8   0.3   0.1     HCM LOS   D   F   F   0.1     Mnor Lane / Major Mvmt   NEL   NET   NER   NWL   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 205th % tile Q(veh)   0.126   -   0.6   0.971   0.053   -   -	Stage 2	444	255	-	539	373			•	₿ <del>,</del>			2
HCM Control Delay, s 33.3 51.8 0.3 0.1   HCM LOS D F F F F   Mnor Lane / Major Mvmit NEL NEL NET NEL NEL NEL NEL 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 - - 0.6 0.971 0.053 - -   HCM 95th %tile Q(veh) 0.126 - - 0.6 0.971 0.053 - -   Notes - - 0.6 0.971 0.053 - - -	Approach	SE		-	NW	-	-	NE	-		SW	-	
Minor Lane / Major Mvmit   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 Lane V/C Ratio   0.04   -   -   0.175   0.256   0.017   -     HCM Lane V/C Ratio   0.04   -   -   0.175   0.256   0.017   -     HCM Lane LOS   A   F   D   B   -   -   -     HCM Jane LOS   A   F   D   B   -   -   -     HCM 95th % tile Q(veh)   0.126   -   -   0.6   0.971   0.053   -   -	HCM Control Delay s	33.3			51.8			0.3			01	-	100
Mnor Lane / Major Mvmit   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   -   -   -   0.6   0.971   0.053   -   -   -   Notes   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   - <td>HCM LOS</td> <td>D</td> <td>_</td> <td></td> <td>F</td> <td></td> <td></td> <td>0.0</td> <td></td> <td></td> <td></td> <td></td> <td></td>	HCM LOS	D	_		F			0.0					
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   -   -	Minor Lane / Maior Mymt	-	NEL	NET	NER	NWin1	SELn1	SWL	SWT	SWR	-	-	-
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   -   -	Capacity (veh/h)	_	808			60	170	629	23	-	10.000		
HCM Control Delay (s)   9.643   -   51.8   33.3   10.824   -   -     HCM Lane LOS   A   F   D   B   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -   -	HCM Lane V/C Ratio		0.04	-		0 175	0 256	0.017		-			
HCM Lane LOS   A   F   D   B     HCM 95th %tile Q(veh)   0.126   -   0.6   0.971   0.053   -   -     Notes   -   -   0.6   0.971   0.053   -   -	HCM Control Delay (s)		9 643	5	22	51.8	33.3	10 824			_		
HCM 95th %tile Q(veh) 0.126 0.6 0.971 0.053 Notes	HCM Lane LOS		Δ			F	D	8					
Notes	HCM 95th %tile Q(veh)		0.126	-	- 12	0.6	0.971	0.053	-	-			
Notes	Statute and Long Advant	_		_				0.000	_				_
	Notes					I.							

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

Intersection		1			11000		-	-		1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1		-
Intersection Delay, s/veh	0.2				_		_		_		_	_
Movement	SEL	SET	SER	NW	NWT	NVVF	R NEL	NET	NER	SWL	SWT	SWR
Vol. veh/b	Q	Q	10	(	) ()	10	) ()	1025	20	5	705	16
Conflicting Peds, #/hr	0	0	0	Č	) 0		) Ô			0	0	
Sign Control	Stop	Stop	Stop	Stop	Stop	Stor	Frae	-77-53	Free	Frae	Eree	Free
RT Channelized		=	Stop		·	Stor	)		None		1.1.4	None
Skirage Length	(1)	ेत्र इ.	D			(	Ĵ -	13 4				
Veh in Median Storage, #	-	0		-	0		2(s.	0	ž.,		0	-
Grade, %	1	Ũ	1		0	1.*	1	Ď			ň	1
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
NEW AVAILABLE IN	2	2	2	2	2	1	2	5	2	5		2
Mvmt Flow	Õ	Ő	11	0	0	11	0	1114	22	5	766	16
Major/Minor	Minor2			Minor			Major1			Major2		
Southenno Flow Al	1342	1921	391	1519	1918	568	783	ō	n	1136	0	0
Stage 1	785	785		1125	1125	indiputad				1.121	<u>M.</u>	N.
State 2	557	1136	100	394	793		s.				_	
Follow-up Headway	3.52	4.02	3.32	3 52	4 02	3 32	2 22			2.22		. 2
The Concentral Memories	110	66	108	82	67	ARS	831	120		2.22		
Stage 1	352	402	. 2771	218	278		MAREN.			241		يونو دي
Sieve 2	482	275	1.12	802	308		2					18
Time blocked-Platoon, %	. 2224.										1	r.
	106	85	608	80		100	<b>KPA</b>		-	<b>E</b>		-
Mov Capacity-2 Maneuver	106	65		80	66				2		R.	- 7
State			14	218	978		23		3		-5	
Stage 2	471	275	-	582	392	-	-		-	-		-
Approach	SE			NW			NE			SW)		
HC VPonto Delay, s	11			12.9		_	0			0.0	_	
HCMLOS	B			B			v	_				
Minor Lane / Major Mymt		NEL	NET	NER	NWINT	SELAT	SWI	CWT	OWD			
Summer provint of		831		114413	ARE	000	C11	SINT	OWA		_	
CM Lane V/C Ratio			3		0.022	0.010	0.000		<b>□</b> .\\			
Chi Control Dates Ist		A			0.023	0.010	0.009		-	_	_	-
ICM Lane LOS		Δ			特徴	D	- AJ 3440	N.A				
ICAN DEAD % Bie Cityon		Ô		σ	0,072	0.055	0.027	A	÷.			
lotes			4.4								-	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1. A	and the second sec					All months which the					_

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

2/1	8/20	15
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Intersection					A., 1.						
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			1	None		
Storage Length	0		0	-	•			Ŧ	-		
/eh in Median Storage, #	0		30	-	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		
						12		1000200		-	
läajor/Minor	Minor2			Majori			M	ajor2			
Conflicting Flow All	1047		258	516	0			182	0		
Stage 1	484				-			1.5	-		
Stage 2	563			-	-			-	-		
Follow-up Headway	3.52		3.32	2.22	-			-	-		
Pot Capacity-1 Maneuver	224		741	1046	-			-	-		
Stage 1	585		1.4	iii	-			-	-		
Stage 2	534		-					-	-		
Time blocked-Platoon, %					£				-		
Mov Capacity-1 Maneuver	224		741	1046	-			-	-		
Mov Capacity-2 Maneuver	224		-	-	÷			-	-		
Stage 1	585			-	-			-	-		
Stage 2	534	_		-	*	_	_	-	-	_	-
	-	_	_	Alter		_	_	Cial.		_	
Approach	36		_	ZNEE	_	_	_	CIVY.			
HCM Control Delay, s	15.5			Û.				Ų			
HCM LOS	С										
Minor Lane / Major Mymt		NEL	NET	SELDI	SELn2	SWT	SWR				
Capacity (veh/h)		1046	=	224	741	100					
HCM Lane V/C Ratio		1741	2	0.243	0.455	-	-				
HCM Control Delay (s)		0	-	26 1	13,8	-	-				
HCM Lane LOS		Ä		D	В						
HCM 95th %tile Q(veh)		Ó	-	0.921	2.389	-	-				
Nation											
Mahara Dasada Orana	ten R a Dete	· Dunnelle	- 200 0-	nonde E.	mari Cam	autotion 1	lot Dofined				

## Appendix D

**Future Level of Service Calculations** 

LOCHNER

3/23/2015
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	-	×.	2	-	×	ť	3	*	4	4	×	1
Lane Group	SEL	SET!	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		ф		٦	1+		٦	11	7	٦	ተተኈ	
Volume (vph)	27	0	49	289	Ő	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		Ŏ	200		Ö	210		ð	190		0
Storage Lanes	Ô		0	1		Ö	1		1			0
Taper Length (ft)	25			25			25			25	í ———	
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
Fit		0.913			0.850				0.850	1.00	0.992	0.01
Fit Protected		0.982		0.950	and a state in the second		0.950	•		0.950		
Satd Flow (prot)	ă	1670	ð	1770	1583	0	1770	3539	1583	1770	5045	ň
Flt Permitted		0.910		0 702	1000		0.216	0000	1000	0.339	ARCEN.	
Satd' Flow (perm)	Ď	1548	Å	1308	1.44	ň	402	3530	1583	631	5045	0
Right Turn on Red		19.1.9	Yes	is the short of		Vac		~~~~	Vec	44.4		Ves
Said Elow (RTOR)		109	100		305	100			174		13	163
Link Sneed (mph)		30			30			35	187	_	25	
Link Distance (ft)		257			Sing			607			500	
Travel Time (s)		58			20.7			11.8			117	_
Peak Hour Cartor	6.91	1.90		A 112	0.03	104	601	0.04	0.04	195	h 00	A 00
Adi Flow (vnh)	30	0	54	211	0	22	27	500	17/	410	1020	60
Stand Lane Traffic (%)	00				<u>v</u> _	55	31	590	1/4	113	1030	00
ane Group Flow (uph)	0	8/		211	22	0	27	600	174	110	1000	ò
Lanc Group Flow (vpm)	Donn	NIS		Barris	NA		- IC	090 M#	1/4	in the second	617	U
Protected Phases	1. March 10	8		L. MARIN	A		PHI IN	2		911791	NA C	
Permitted Phases		· ·		2		_	5	4	6	8	0	_
Detector Phase	8	8		4	-		5	2			6	
Switch Phace	0	Ů				_	0		4			
Minimum Initial (e)	10.0	10.0		40	10		8.0	2.0	20	60	10.0	
Minimum Solit (s)	10.0	46.4		4.0	4.0	_	110	12.5	45 0	44.0	10.0	_
Total Split (c)	32.0	22.0		22.0	22.0		11.0	27.0	27.0	11.0	27.0	
Total Split (S)	45 7M	AE 70	-	JZ.U	JE YO		45 70/	20.20	20.002	15.70	21.0	_
Maximum Groon (e)	27.0	27.0	_	27.0	27.0		6.0	20.0 %	30.076	10.170 ·	22.078	
	21.0	27.0		21.0	21.0	_	0.0	22.0	22.0	0.0	22.0	-
All Pod Time (c)	1.5	<u>. 선생</u>		15	15		1.5	3.3	- 45	1.5	2.0	
oct Time Aduct (e)	1.0	0.0		1.0	1.0		1.5	1.0	6.1	1.0	1.0	_
Total Loct Time (e)		¥:¥ 5.0		50	5.0		50	5.0	5.0	<u><u> </u></u>	5.0	
Logifi an		5.0		0.0	0.0	1	U.C	0.0	5.0	5.0	5.0	_
Lead Lag Ontimize?	_						Vee	<u>Lan</u>	Vaa	Vee		
Lobusto Extension (et	10	40		*0	14		105	30	165	105	Tes	
Peopli Media	None	Nono		None	None		Z.V	Nana	3.0	2.V	4.0	
	NOUE	NOUG		None	None		None	None	None	None	C-IVIII	_
Floop Dont Walk (a)			-					14.0	3.0			
Padantrian Catle (#/hr)	_		_	_				11.0	11.0			
A of Effet Crean (a)		04.0		04.0	04.0		22.0	00.0	U	00.0	00.7	
ACLENCLOREEN (S)		21.9		21.9	Z1.9		33.8	29.0	29.0	30.3	33.7	
Mouated gru Kato		0.45		0.31	0.3		0.48	0.41	0.41	0.52	0.48	
WC Kallo		0.15		0.76	0.05	_	0.12	0.40	0.23	0.28	0.45	
Delaro Delay		2.0		33.1	U.1		10.4	1/0	4.2	16.1	17.9	
		0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	-
TOGH Delay		2.8		33./	01		10.4	17.6	4.2	16.1	17.9	
LUS		A		C	A		В	В	A	В	В	

North Genesee 2/12/2015 Baseline Kyle Snyder

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AM FUTURE

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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			В			В	
Intersection Summary					_	1 A			_	-17		
Area Type:	Other											
Cycle Length: 70						_						
Actuated Cycle Length: 70	0											
Offset: 0 (0%), Reference	d to phase 6:	SWTL, St	art of Gre	en								
Natural Cycle: 55												_
Control Type: Actuated-C	oordinated						1					-
Maximum v/c Ratio: 0.76												_
Intersection Signal Delay:	17.9			lr.	tersection	LOS. B						-
Intersection Capacity Utili	zation 59.0%			ÌC	CU Level (	of Service	В					
Analysis Period (min) 15			1.47 - A									

Splits and Phases: 2: Genesee St & Wurz Ave

Lø1	Ma	A Bas	
15			
) es	#46 (R)	1 08	
S			

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3/23/2015

#### Lanes, Volumes, Timings 9: Genesee St & Hess/Wells Ave

3/23/2013	3/	23	20	15
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	4	X	2	1	•	- ť	7	×		<u> </u>	×	1
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		स	۴		4		Ĩ	ተቅ		ী	ŤÞ	
Volume (voh)	33	Ö	60	10	0	10	36	532	26	15	1001	56
Ideal Flow (vphpi)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ff)	Û		0	Ď		0	190		Ö	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
24			0.850		0.932			0.993			0.992	
Fit Protected	_	0.950			0.976		0.950			0.950		
Said Flow (prot)	0	1770	1583	Ø	1694	Ŭ	1770	3514	ð	1770	3511	0
Fit Permitted	2	0.743	. (Parta)		0.896		0.160			0.420	<u></u>	
State Show ( Contras)	0	1384	1583	ß	1556	0	208	3514	ð	782	3511	0
Right Turn on Red			Yes		. <u>1999</u>	Yes		787.01	Yes	1.1975.		Yes
Soul Elow (RTOR)	_		109		109			10			12	
Link Speed (mnh)		30			30	_	_	35			35	_
Lint Distance (ff)		306			128		-	600			529	
Travel Time (s)	_	7.0			29	_		11.7	_		10.3	_
Hear Hour Factor	0.09	6 62	0.00	600	110	0.92	600	0.99	6.09	102	0.07	0.92
Adi Flow (vph)	36	0.00	65	11	0	11	30	578	28	16	1088	61
Charger I and Traffic Rea	00							010	- 20		1000	
Long Croup Flow (uph)	0	26	66	0	22	0	30	606	0	16	11/0	- 0
	Dom	NA	Bana	Christia	MA	U.	-	MA	0	ninant	NA	, in the second se
Distanted Discon	TRU			P CALLER	8		4	R I		5	2	_
Demailed Phoneon			Á	9	0	_				5	-	
Potestor Phone	4	4		0	Q		1	6		5	2	
					. 0	_						
Minimum Initial (a)	40	4.0	10	40	4.0		4.0	10		40	40	
	4.0	94.0	4.0	94.0	4.0		4.0	91.0	_	4.0	94.0	_
Total Calit (a)	21.0	21.0	21.0	21.0	21.0		0.0	40.0		0.0	40.0	_
	21.0	21.0	21.0	21.0	21.0	-	44.000	40.0	_	5.0	57 40/	_
	16.0	10.070	30.0.0	16.0	16.0		4.0	25.0		16.2.4	25.0	_
Maximum Green (S)	10.0	10.0	10.0	10.0	10.0		4.0	30.0	_	4.0	35.0	
All Ded Time (a)	3,0	1.5	4.9	4.5	4.5		15	1.5		1.5	15	_
All-Red Time (S)	6.1	6.1	1.0	1.5	6.6		1.0	1.0		1.0	0.0	
		50	<u><u><u></u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u><u></u></u>		6.0		5.0	0.0		0.0	U.U E O	
Total Lost Time (s)		5.0	5.0		5.0		U.C	5.0	_	5.0	0.0	
							COCC Vac			Long	Lay	
		6.6					Tes	TES		Tes	105	
Manucia Excension (S)	3.0	3,0	3.0	0.0	4.0		3.9	3.0		24	0.0	
Recall Mode	Max	Max	Max	Max	Max		None	C-Max		None	C-Max	-
Walk Time (5)	5.0	5.0	5.0	<b>b.</b> U	5.0			5.0			0.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0	_	_	11.0	_
Pedestran Calls (#hr)	9	0	D	<u>Q</u>	0			0		14.0	0	
Act Effet 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		0.51	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		С	A		A		A	Α		Α	В	

North Genesee 2/12/2015 Baseline Kyle Snyder

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AM FUTURE

#### Lanes, Volumes, Timings 9: Genesee St & Hess/Wells Ave

		×	2	-	×	ť	3	*	~	Ę.	¥	1
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		Α			A			A			В	
Intersection Summary				_0_11								
Area Type:	Other											_
Cycle Length. 70												
Actuated Cycle Length:	70											_
Offset: 0 (0%), Reference	ed to phase 2:	SWTL and	6:NETL	. Start of	Green					_		
Natural Cycle: 60	· · · · · · · · · · · · · · · · · · ·				5. T. T. T.							_
Control Type: Actuated-	Coordinated						-					
Maximum v/c Ratio: 0.5	9											_
Intersection Signal Dela	v: 87			le le	tersection	LOS: A						_
Intersection Capacity Ut	ilization 49.0%			IC	U Level	of Service	A					_
Analysis Period (min) 15	5					_						_

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

<b>J</b> ø1	4,62 (R)	Mi ga	
405	54 #6 (R)	108	
23			

#### HCM 2010 TWSC 6: Genesee St & Lee St

Intersection					-		=					
Intersection Delay, s/veh	0.6				_			_				
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWA
voi, yen/n	0	Û	21	0	Ū	27	25	701	30	Q	1175	76
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Cantrol	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized		-	Stop	and the Re-		Stop			Free	-		None
Storage Length	i i	1	Ó			0	16D		-	ie .	÷	
Veh in Median Storage, #		0	-		0	-		Õ	-	-	0	
Drade %		0	1	1	Ő			Õ	-	Ę	Õ	_
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	Ž	2
Mvmt Flow	0	0	23	0	0	29	27	762	33	0	1277	83
Major/Minor	Minor2		11	Minort			Major1			Major2		
Southaling Flow All	1677	2134	680	1327	2176	381	1360	Q	D	762	0	0
Stage 1	1318	1318		816	816	25 <u>2</u> 1	10000			Water,		
Slage 2	3.4	816	-	511	1360	-			7	- 5	-	_
Follow-up Headway	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3 12	-	_
The second second second	100	60	337	164	26	527	261			SIA	1	_
Stage 1	119	225	_ 24.51	267	389							
State 2	571	200		469	215							- 4
Time blocked-Platoon. %		interiori	14		1.1.1			-		• •	-	_
The Autor Start Autors	87	21	337	14	4	527	281			508		
Mov Capacity-2 Maneuver	87	44	10.70%	141	41					57.8	-	_
Shades	107	225		1.0	919		-			140		÷-
Stage 2	490	349	-	437	215		•		-	-	-	-
Annash	CE.	-		ARAI	_		NC		-	CUU		
HCM Control Dolay a	10.5	_		40.0			0.7			0		-
HCM LOS	16.5 C			B			.u.r			U //		
Minor Lana / Major Munt		NEL	NET	NER	NW of	CEInt	SWA	SWT	SWD			
Reports (vonin)	_	7962.5	T T T W	CTAMES!	697	227	600	0001	SAMA	_	_	
HCML and V/C Potio		0 104		+,	0.050	0.000	1000		•/_			
	_	0.104	-	-	0.000	0.000	-	_	-			_
		64.33	*	**		19.0	10	.*	-			
		U BAIE			D 4 D	U NAT	A	7				
A CARE ACTU TO THE CALVERY		Veriff 3		-	9,179	4.411	0	-			-	
Notes	100					1						The Party
S. · Mahima Evacada Casadi	ul 🕄 i Dislas	L'Excondi	200 C	anda T	main + Constitution	mukalian M	at ClaBain	4				

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

North Genesee 2/12/2015 Baseline Kyle Snyder AM - FUTVRE

Intersection						-	E	_		THE R.		100
Intersection Delay, s/veh	0.1											
Movement	SEL	SET	SER	NIME	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Vol, veh/n	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	-	-	Ó	-
Grade, %	-	0		-	0	-	+	Ö	-	140	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	Û	1148	28
Major/Minor	Minor2			Minor1			Majort			Maice2	_	
Conflicting Flow All	1495	1833	588	1242	1844	335	1176	0	0	671	0	0
Stage 1	1162	1162		668	668						<b>v</b>	
Stage 2	333	671	=	574	1176	1		-	-	_		1
Follow-up Headway	3.52	4.02	3.32	3.52	4 02	3.32	2 22			2 22		
Pot Canacity-1 Maneuver	85	75	452	131	74	661	590			915		
Stage 1	207	267		414	455							
Stage 2	654	453		471	263	1				_	157	72
Time blocked-Platoon %		100			200		_	_	_			
Mov Capacity-1 Maneuver	84	75	452	128	74	661	590			015		7.
Mov Capacity-2 Maneuver	84	75	IVL	128	74		000					1
Stane 1	207	267	24	414	455	-	12			-		22
Stage 2	649	453		460	263	_		_	-		Val	
Cuigo 2				400	200							
Approach	SE	111.2		NW			NE			SW		
HCM Control Delay, s	13.2			10.5			0			0		
HCM LOS	В			В				_				
Minor Lane / Major Mymt	and an am	NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR			
Capacity (ven/h)		590			661	452	915	-	-		V	
HCM Lane V/C Ratio			-	-	0.008	0.024	-	-	-			
HCM Control Delay (s)		Ó			10.5	13.2	0	-				
HCM Lane LOS		Ā			B	B	Ă					
HCM 95th %tile Q(veh)		0	-	-	0.025	0.074	0	5	-			
Notes					100							

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

Intersection		100		1	C MI		12.11				
intersection Delay, s/veh	10.9							_			
Movement	SEL	CALL	SER	NEL	NET	100		SWT	SWR	n en en	
Vol. veh/b	26		524	0	617			559	73		
Conflicting Peds. #/hr	0		0	Ô	0			0	0		
Sian Control	Stop		Stop	Free	Free			Free	Free		
RT Channelized			Stop	<u>1.1.77</u> .	None				None		
Starsan 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	ž			2	2		
Mymt Flow	28	_	570	0	671			608	79		
Malor/Minor	Minor2		-	Mainet				Mainr2			
Somicing Flow All	087	_	242	687	0			The state of the s	ñ		
Stare 1	647		943	abi "	0						
Stane 2	145		1.3								
Follow-up Headway	3 52		3 32	2 22							
Out Portor the 1 Monater	246		0.02	003					_		
State 1	483			900					. 2		
Storm 9	897		2	1	1			_	1		
Time blocked Platoon %				2					1		
			653	PUD				A.1 25	2		
Mov Canacity-2 Maneuver	246			000					5		
Stara 1	440	- V	943	2				12	~		
Stage 2	697			-					-		
Annoach	SE			ME		-	-	SM			
HCM Control Delay	35.7	_		ท	-			D	_		
HCM LOS	E						_		_		_
Minor Lace / Major Mymt	1.00	NEL	NET	SELn1	SELn2	SWT	SWR	_			
ระการเห็น สมเสรียก		903	and the second	246	555	E CAL	7	-			
-ICM Lane V/C Ratio			-	0.115	0.872	-					
CM Control Delay (e)		Ő	1	215	364		+			_	
-ICM Lane LOS		Ă	ينغب ا	C	F	ъ.					
ICM 95th %tile O(veb)		ß		0.384	10 302	1. 2	*				
	_	¥					35				
Votes		1	Sec. 1	100	- English				12		
· : youme Exceeds Capacit	Y; \$ : Delay	Exceeds	300 Sec	conas, Er	ror ; Comp	sutation N	ot Define	a			

North Genesee 2/12/2015 Baseline Kyle Snyder Synchro 8 Report Page 1

AM FUTURE

	<b>.</b>	1	2	Jes.	•	ť	3	×	4	<u> </u>	×	1
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWF
Lane Configurations		ф		٦	1		7	11	1	۲	ተተኈ	
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)	Ő		Ő	200		0	210		Ő	190		0
Storage Lanes	Ő		0	1		Ö	1		1	<b>1</b>	-	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
24		0.938			0.850				0.850		0 987	
Fit Protected		0.975		0.950	. <u>. 867.2.6</u>		0.950			0.950		
Said Flow (prof)	Ő	1704	0	1770	1583	Ð	1770	3539	1583	1770	5019	0
Fit Permitted	- 2 -	0.809		0.651		7	0.207			0.145	and and address of	
Said Enwinem	Ő	1414	16	1213	1583	Ő	386	3539	1573	276	5019	0
Right Turn on Red			Yes			Yes			Yes	- 16M.		Yes
Said Flow (RTOR)		87	100		771	100			266		24	
Link Speed (mph)		30			30			35			35	_
Link Dickanen (H)	-	967		_	90G		-	807	_		600	
Traval Time (s)		5.8	-		20.7			11.8			117	_
	1.08	8 08	1.52	0.85	1.45	0.85	1.97	1.17			616	0.06
Adi Elow (vob)	05	5	85	346	0	80	106	1106	266	00	038	86
Character and Traffic Ma	30		00		0		100	1100	200		000	
Long Croup Flow (uph)		195	0	246	90	ò.	106	1106	266	00	1024	0
Lane Gloup Flow (april	Dertin	MA		Born	NTA		NIT ANT	NIA	200	55	NA NA	
Protocted Discon		9		( California	15.04 A		5	2	F CHINI	- 41	6	
Downline Dhanan		0		A	277.1	_	9	4	7	A		_
Detector Phase		Q	_	1	A		5	2	2	4	6	_
	0		_	4	· · · ·	_	J	2	. 4		<u> </u>	-
Minimum Initial (a)	10.0	10.0	-	40	40		60	20	3.0	6.0	10.0	
	10.0	10.0		4.0	1.0		0.0	16.0	16 1	11.4	10.0	_
Total Calit (a)	20.0	20.0		20.0	20.0		11.0	20.0	20.0	11.0	30.0	
Total Spill (S)	23.0	29.0		29.0	49 44		46 70	12:00	47 04	12 942	12:0%	_
Maximum Croop (a)	24.0	24.0		94.4 0	24.0		6.0	25.0	25.0	6.0	25.0	-
	24.0	24.0	_	24.0	24.0	_	0.0	20.0	20.0	0.0	20.0	_
	1.5	4.5		1.5	4.5		1.5	1.5	1.5	1.5	1.5	
All-Red Time (S)	1.5	1.5		1.5	1.0		1.0	1.0	0.0	1.0	1.5	_
Tabel and Time (a)		5.0		<u><u>v</u>.v</u>	50		5.0	5.0	5.0	50	50	
TOTAL LOST TIME (S)		5.0	_	5.0	5.0		J.U	0.0	0.0	5.0	J.U	
Lond Lon Ontining?							Vee	. Here	Vee	Voo	Voo	
Lead-Lay Opumizer	YA	1 A		14	48		ba	9 6	90	105	105	_
Persent extension for	<u>94</u>	None		None	None		Nono	Nono	Nene	None	C Min	_
	None	None	_	None	NOUE	_	None	NONE	None	none	C-IVIIII	_
Fleek Deet Wells (a)								40	14.0	_		
Flash Lont Walk (S)		_	_	_				11.0	11.0			
		00.7		00.7	00.7		00.0	20.5	00.5	22.2	00 E	
Act Effet Green (S)		22.1		22.1	22.1	_	33.3	28.5	28.5	33.3	28.5	_
Actuated g/C Kato		0.32		0.32	0.32		0.48	0.41	0.41	0.48	0.41	
V/C Katio		0.3/		0.88	0.12	_	0.35	0.77	0.33	0.39	0.50	_
Lonard Delay		13.4		47.9	0.4		124	24.4	3.6	18.0	18.3	
Queue Delay		0.0	_	0.0	0.0		0.0	0.0	0.0	0.0	0.0	_
l otal Delay		13.4		47.9	0.4		12.4	24.4	3.6	18.6	18.3	
LOS		в		D	A		В	C	A	В	В	

North Genesee 2/12/2015 Future Kyle Snyder

MIDDAY FUTURE

	4	X	2	1	×	5	3	×	~	Ę.	×	70
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SW
Approach Delay		13.4			39.0			19.8			18.3	
Approach LOS		В			D			В			В	_
Intersection Summary	61	-	-	10 10	1.00		-			-	-	
Area Type:	Other								_		_	
Cycle Length 70					_					_		
Actuated Cycle Lengt	h: 70											_
Offset 0 (0%), Refere	nced to phase 6:	SWTL, St	art of Gre	en								
Natural Cycle: 65												_
Control Type: Actuate	d-Coordinated									-		
Maximum v/c Ratio: 0	.88			_								_
Intersection Signal De	lay: 21.4			ĺn	tersection	LOS C					_	
Intersection Capacity	Utilization 67.3%			IC	U Level	of Service	C					_
Analysis Period (min)	15											

Splits and Phases: 2: Genesee St & Wurz Ave

401	182	An
is 🖉		
J #5	M. 46 (R)	¥ 08
., <sub>f</sub> ∃		

MIDDAY FUTURE

# Lanes, Volumes, Timings 9: Genesee St & Hess/Wells Ave

3/23/2015	5
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	4	X	2	1	×	- ť	7	×	-	6	×	1
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		र्भ	1		4		۲	41		٦	4Ť	
Volume (vph)	213	Ō	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)	Ď	T T	Ő	0		0	190		D	20		Ö
Storage Lanes	0		1	Ó	-	0	1		0	1	- `	Ő
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
Fit			0.950		0.932			0.994			0.975	
Fit Protected		0.950			0.976		0.950			0.950		
Satd. Flow (prot)	0	1770	1583	0	1694	Ő	1770	3518	Ű	1770	3451	0
Fit Permitted		0.751			0.870		0.114	85.6	· .	0.267		2
Said. Flow (perm)	Ô	1399	1013	0	1510	0	212	3518	D	497	3451	0
Right Turn on Red	. 2		Yes	_3		Yes			Yes		78.1987.7	Yes
Said, Flow (RTOR)			178		109			8	-		41	
Link Speed (mph)		30	. <u>A</u> ak.de>		30			35			35	
Link Distance (ft)		306			128	-		600			529	
Travel Time (s)		7.0			2.9			11.7			10.3	
Peak Four Factor	0.92	0.02	0.42	1.52	0.2	0.92	0.92	0.92	0.92	1512	0.92	0.92
Adi. Flow (vph)	232	0	201	5	0	5	212	970	40	16	964	190
Shared Lane Traffic (%)										10		100
Lane Group Flow (vph)	0	232	201	0	10	0	212	1010	0	16	1154	0
Auto Jacob	Perm	NA		Pism	MA		pm-tot	NA		moint	MA	
Protected Phases	_ NATURE .	4			8		1	6		5	2	
Permitter Phases	4		4	8			6			5		
Detector Phase	4	4	4	8	8		1	6		5	2	
Semen Phase							<u>.</u>				_	-
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0		4.0	40		40	4.0	
Minimum Solit /si	210	21.1	21	21 1	21.0	_	90	210		60	21.0	
Total Solit (s)	22.0	22.0	22.0	22.0	22.0		13.0	39.0		90	35.0	
Total Solt (%)	31.4%	31.4%	3145	31 492	31.4%	_	18.6%	55.7%		12 9%	50.0%	_
Maximum Green (s)	17.0	17.0	17.0	17.0	17.0		80	34.0		40	30.0	
Velow Time (s)	35	25		35	3.5	_	3.5	15		16	3.5	
All-Red Time (s)	1.5	1.5	1.5	1.5	1.5		15	15		15	1.5	-
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	6A	
Total Lost Time (s)	-	50	50		50		5.0	50		50	50	
				-	010	_	Lead			i maid	Lan	
Lead-Lac Optimize?							Yes	Yes		Yes	Yes	
Vehirde Extension (s)	3.6	3.0	3.1	80	30		30	30		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	50	50		Tiono	50		HOILO	50	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0			11.0	_
Pedestrian Calls (#/hr)	a	à	A	6	0			0		-	h	
Act Effct Green (s)		17.0	17.0		17.0		42.8	412		34 2	30.2	
Actuated o/C Ratio	_	0 24	0'24		0 94		0.61	0.59		01.2	0.43	
v/c Ratio		0.68	0.39	-	0.02		0.70	0.40		0.05	0.76	
Bontrol Delay		36 4	78		61		34.1	85		6.2	20.4	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay	-	36.4	78		0.0		34 1	85		89	20.4	
LOS		D	A		A		C	A		A	C	

#### North Genesee 2/12/2015 Future Kyle Snyder MIDDAY FUTURE

#### Lanes, Volumes, Timings 9: Genesee St & Hess/Wells Ave

	<b></b>	×	2	-	×	ť	3	*	~	<u>k</u>	×	*
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay	- 10	23.1			0.1			11.3			20.2	
Approach LOS		С			Α			В			С	
Intersection Summary		Total Property in	1-11	-			1	1.7.1	1	_	S	1.00
Area Type:	Other											
Cycle Length 70												
Actuated Cycle Length	n: 70											
Offset: 0 (0%), Refere	nced to phase 2:	SWTL and	d 6:NETL	, Start of	Green							
Natural Cycle: 60												
Control Type: Actuated	d-Coordinated											
Maximum v/c Ratio: 0.	.76											
Intersection Signal De	lay: 16.7			lr	tersection	LOS: B						
Intersection Capacity	Utilization 71.9%			ic	CU Level	of Service	Ċ					
Analysis Period (min)	15											

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

J #1	4.62 (R)	Xa
1.5		
605	₩ø6@R)	1000

3/23/2015

#### HCM 2010 TWSC 6: Genesee St & Lee St

Intersection									100			
Intersection Delay, s/veh	0.8					_	1.0					
Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWF
Vol, voh/n	Ũ	Ű	46	Ũ	Q	58	13	1227	24	0	1219	58
Conflicting Peds, #/hr	Ō	0	0	0	0	0	0	0	Ō	0	0	(
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized		-	Stop			Stop			Free			None
Storage Length		4	Ô		18	D	160		-		7	
Veh in Median Storage, #	_	0	-	_	0			0		-	0	
Grade X	-	Ó			0		÷	0	14 - 14 17		0	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heater Validies: %	2	2	2	2	2	2	2	2	2	2	2	2
Mymt Flow	Ő	0	50	0	0	63	14	1334	26	0	1325	63
Major/Minor	Minor2			Minori			Major1			Major2		_
Conflicting Flow All	1919	2719	694	1892	2750	667	1388	0	۵	1334	D	6
Stage 1	1357	1357	10.52	1362	1362					- Anne A		
State 2	562	1362		530	1.000	19 AN		140		1	-	
Follow-up Headway	3.82	4 02	3.92	3.82	4 02	3 92	3.12			3 12	-	
Per sanaran Manajuar	74	26		74		244	253			250	. g	
Stane 1	112	215	and the second second	111	214				-		2	
Sana	197	514		457	924		- 2			2		
Time blocked-Platoon %			194	1.66			E.,		-	5_	2 E	
	58	1	0	AA	66	QAA	260	_		200	4.5	_
Moy Capacity-2 Maneuver	56	10		60	10	6.2.2		-		<u> </u>		
Stata 1	118	ME		4/18			-			_		1
Stano 2	337	202	15.00	200	208				2	2		
Judge 2	507	202	_	000	200	_						
Approach	SE			NW			NE			SW		
HCM Control Delay, s	17.8			17.8			0.2			Q		
HCMLOS	C			С				-			-	_
Minor Lene / Major Mvmt		NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR	0.075		
Habasin (vehila)		253		ę	344	330	269					
HCM Lane V/C Ratio		0.056	-	-	0.183	0.152	<u>A.30200</u>	-	-			_
Hell Control Delay (s)		20.089		4	12.8	\$7.8	ð	2	-			
HCM Lane LOS		С			C	C	Â		el so			
HCM Sigh Kille Qiven)		0 176		÷.	0.661	0,528	Ó		-			
Notos		. ALAN LEAR -	-			· · · · · · · · · · · · · · · · · · ·						
Mahuma Euroada Danasii	n C. Dala	. Eveneda	208 0	and as T		madetten N	at Dates		_		-	

Volume Exceeds Capacity; \$ : Delay Exceeds 300 Seconds; Error : Computation Not Defined
Intersection	1	-		and the second data								
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	Ó	0	Ö	0	Ö	0	0	0	0	0	0	C
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-		Stop	-	-	Stop	-	-	None		•	None
Storage Length	-	-	Ó	-		0		-	•	-	-	
Veh in Median Storage, #	-	0	-	-	0		-	0	-	-	0	
Grade, %		0	-	1.12	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			Minort	1	-	Major1			Major2		
Conflicting Flow All	1672	2294	542	1737	2288	609	1085	0	0	1217	Û	0
Stage 1	1077	1077	-	1203	1203	-				-	-	
Stage 2	595	1217	-	534	1085	÷.,	4					10
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		12
Stage 1	234	293	-	196	256			-	-		-	
Stage 2	458	252		498	291		-					- 23
Time blocked-Platoon, %									-			
Mov Capacity-1 Maneuver	61	39	485	54	39	438	639	-	÷	569	1 C 🖕	13
Mov Capacity-2 Maneuver	61	39	-	54	39				121			1
Stage 1	234	293	-	196	256		÷.	1	121	÷		12
Stage 2	441	252	-	481	291	12	12			-		-
Approach.	SE		Tank	NW			NE			SW		
HCM Control Delay, s	12.7			13.5	8		0			0		
HCM LOS	В		_	В				_				
Minor Lane / Major Mymt		NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR			
Capacity (veh/h)		639	u)		438	485	569	-		_		
HCM Lane V/C Ratio		,		-	0.037	0.034	-	-	242			
HCM Control Delay (s)		0	-	-	13.5	12.7	0	-	-			
HCM Lane LOS		A			В	В	A					
HCM 95th %tile Q(veh)		0	-	-	0.116	0.104	Ó					
Notes			-	-						194		

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

North Genesee 2/12/2015 Future Kyle Snyder

Intersection		-	100		1000			T CH		
Intersection Delay, s/veh	3.5				_	_				
Movement	SEL		SER	NEL	NET			SWT	SWR	
Vol, veh/k	21		350	0	1110			649	42	
Conflicting Peds. #/hr	0		0	Ō	0	_		0	14	
Sign Control	Stop		Stop	Free	Free			Free	Eree	
RT Channelized			Stop		None			1100	None	
Storage Length	0		0		110110			_		
Veh in Median Storage, #	0			.ذ. =	0			0		
Grade. %	0		2	-	â			A		
Peak Hour Factor	92		92	92	92			02	02	
TRANSPORT OF A LANGE	2		9	5	3			32	32	
Mymt Flow	23		380	0	1207			705	46	
	LV			0	1207			100	40	_
Major/Minor	Minor2			Matazet				Mainel		
Conflicting Flow All	1334	-	376	761	D	100	-	majure	0	-
Stage 1	729		919	1594					<b>U</b>	
Shine 7	603			-	-	-		-	-	_
	2 52		2 22	2.00	Ħ				.*	
olow-up riedoway	3.32		3.32	2.22			_	-		
Cierce 4	110		022	DD#				325	ę	
olaye i	439	-		-	-		_	-	-	
Diddel Z	909							100	<b>-</b>	
Time Diockeu-Flatoon, 70	414	-	200	A.W.a		_	_	-	*	
MAN LANDAUTY - MANDELIVER	140	_	and a	854	171			1.00	4	
Nov Capacity-2 Maneuver	140	_	-		-	_	_	-	-	
Olarso D	431	_			175			-		
Stage 2	509				-		_	-		
oproach	SE			NE		A		SW		-
ICM Control Delay, s	20.3			Q				0	-	
ICM LOS	C	_						Ŷ		
Annual States of Mandaca Manual		(Alleria	1000	Religion	-					
MINA CERT MAIOT MINITI	-	MEL	NET	SELNI	SELAZ	SWI	SWR			
		854	2	140		-	100			
UM Lane V/C Katio				0.156	0.612	-				
CAN GONTO LICEAY (S)		0		34,2	19.5		÷			
CM Lane LOS	_	A	_	D	С					
CAN Holh While Ci(veh)		0	-	0,537	4.153	•				
otes	Dette	1.00		-	1.00			-	-	
· Mahuma Evanada Conadh	r \$ . Delay	Exceede	300 Soo	onde: En	nr · Com	utation M	of Defin	d	-	-

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

3/23/201	5
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	<b>1</b>	X	2	1	×	<b>t</b>	3	×		<u> </u>	×	1
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		4		٦	10		ኘ	<b>*</b>	1	1	444	
Volume (voh)	58	D	44	200	0	194	98	1192	210	68	837	67
(deal Flow (vohp))	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storade Length (ft)	Ó		Ŭ	200		Ō	210		Õ	190		0
Storage Lanes	0		Ö	1		0	1		1	1		0
Taper Length (18)	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
		0.942			0.850				0.850		0.989	
Fit Protected		0.972		0.950			0.950			0.950	n an grantfa a bhairtean a	
Said (Flow (orot)	0	1706	Ö	1770	1583	D	1770	3539	1583	1770	5029	0
Flt Permitted		0.632		0.733			0.253	)		0.119	. , Riani ta iza z	
Service and (nerro)	0	1109	Ô	1385	1583	Ð	471	3539	1583	222	5029	Ō
Right Turn on Red		<u> </u>	Yes			Yes			Yes			Yes
Sald Flow (RTOR)		109			195				228		23	
Link Sneed (mph)		30			30			35		•	35	
Link Dictance (ff)		257			909			607			600	
Travel Time (s)		5.8			20.7			11.8			11.7	_
Deale Hour Farter	0.04	DAL	1.04	0.80	6:30	0.20		Diek.	0.95	1.94	6.94	0.94
Adj Flow (vph)	62	0	47	250	0	242	105	1282	226	72	890	71
	UL.			200								
Lone Group Flow (uph)	ñ	100	0	250	242	0	105	1282	226	72	961	0
Lane Croup Flow (vpi)	Perm	MA		Perm	NA		DENANT	NA	Permit	nmini	MA	
Protocted Phases	1.1111	8	_	L ANN IS	4		5	2	A hereiter	1	6	
Pomilied Phases	i i			1			2		2	6		_
Detector Phase	8	8		4	4		5	2	2	 1	6	
Deleter Proce	v											
Minimum Initial (s)	10.0	10.0		40	4.0		60	3.0	3.0	6.0	10.0	_
	46.4	15.0		9.0	66		410	销商	15.5	110	15.0	
Total Solit (s)	23.0	23.0		23.0	23.0		11.0	36.0	36.0	11.0	36.0	
	32.04	32 94		32 9%	32.9%		95.7%	514%	51 4.94	15.7%	51.4%	
Maximum Green (s)	18.0	18.0		18.0	18.0		60	31.0	31.0	60	31.0	
	10.0	3.5		5.5	35		3.5	33		33	15	
All Red Time (s)	1.5	15		1.5	15	_	1.5	15	15	15	1.5	_
oet Time taffiret fet		80		AA	8.0		0.0	00	0.0	00	0.0	
Total Lost Time (s)		5.0		5.0	50		5.0	50	5.0	50	50	
Lost Time (a)		0.0		0.0	0.0		1 april	1	lan	Load	lan	
Lead an Ontimize?							Yes	Yes	Yes	Yes	Yes	_
Vehicle Fitopeion (s)	24	A A		40	4.0		20	30	3.0	20	4.0	_
Pecall Mode	None	None		None	None		None	None	None	None	C-Min	
	NONC	HUIG		NONG	THOIL!		THORIC	5.0	5.8	TIONO	U IVIIII	
Flach Dont Walk (c)								11.0	11.0			
Dodopinion Calls (film)								0	0			
Act Effet Green (s)		16.5		16.5	16.5		39.5	34.7	347	39.5	347	
Act Elicit Green (S)		0.54		0.24	0.94		0.5.5	0.50	9.50	0.56	0.60	_
Nuclear and Nation		0.22		0.79	0.46		0.28	0.72	0.00	0.28	0.28	
V/C Reluc		0.32		42 6	0.40		0.20	188	97	124	7.0	
Quoue Deley		(			0.0		0.0	0.0	0.0	0.0	0.0	
Gueue Delay		7.0		42.0	0.0		0.0	12 6	9.7	12.4	7.0	
LOC	-	0.1		4.3.0	7-1 A		0.1 A	10.0	4.1 A	10.4	7.U A	
LUS		A		U	A		A	D	A	D	A	

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

	<u>м</u>	X	2	-	×	۲	3	×	~	Ę.	×	1	
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWF	
Approach Delay		7.6			26.3			15.7			7.4		
Approach LOS		A			С			В			A		
Intersection Summary			-	-	_		-					1000	
Area Type:	Other		_		_		-		_	_		-	
Cycle Length: 70													
Actuated Cycle Length	n: 70	· L											
Offset 0 (0%), Referen	nced to phase 6:5	SWTL, St	art of Gre	en									
Natural Cycle: 60													
Control Type: Actuated	d-Coordinated		-				-		_		_		
Maximum v/c Ratio: 0.	78										-		
Intersection Signal Del	lay 14.4			İn	tersection	LOS B							
Intersection Capacity I	Utilization 75.0%			ĨC	U Level	of Service	D			_			
Analysis Period (min)	15						1						

Splits and Phases: 2: Genesee St & Wurz Ave

6,01	X.62	Nes	
<u>4</u>			
<b>7</b> ø5	14,96 (R)	N sB	

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3/23/2015

### Lanes, Volumes, Timings 9: Genesee St & Hess/Wells Ave

3/23/2015

	<b>.</b>	×.	2	- 25	×	<b>t</b>	3	*	-	6	×	1
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations		ধ	1		\$		<u> </u>	<b>†</b> Ъ		٦	<b>†</b> Þ	
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)	Q		Ø	0		0	190		0	20		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		1
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
Fit			0.850		0 958			0.990			0.984	
Fit Protected		0.954	· · · · · · · · · · · · · · · · · · ·		0.967		0.950			0.950		
Satid, Flow (prot)	Q	\$777	1583	0	1726	0	1770	3504	0	1770	3483	Õ
Flt Permitted		0.722			0.829		0.145			0.180	- and and - Million or an	
Satd, Flow (perm)	0	1345	1583	0	1479	0	270	3504	Ó	335	3483	0
Right Turn on Red	.11.	a	Yes			Yes			Yes			Yes
Satur Flow (RTOR)			110		109			14			22	
Link Speed (mph)		30	the subject		30			35			35	
Link Distance (ft)		306			128			600	_		529	
Travel Time (s)		7.0			2.9			11.7			10.3	
Peak Hour Factor	0.02	0.92	1.12	0.92	0.12	0.92	0.92	0.92	1.2	4.92	0.92	0.92
Adj. Flow (vph)	133	5	110	11	0	5	153	1165	80	11	936	108
Shared Lane Traffic SA												
Lane Group Flow (vph)	0	138	110	0	16	0	153	1245	0	11	1044	0
Tum Type	Perm	NA	Pan	Perm	NA		Dra+pt	NA		pen+et	NA	-
Protected Phases	12194 1461	4	. Line We may	1.225.8	8		1	6		5	2	
Penditied Phases	4		4	8		_	6			2	3	
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	210	210	210		9.0	21.0		0.0	21.0	
Total Split (s)	21.0	21.0	21.0	21.0	21.0		14.0	40.0		9.0	35.0	
Total Solit (%)	30.0%	30.0%	31.0%	30.0%	30.0%		20.0%	57.1%		12.2%	50.0%	
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0		9.0	35.0		4.0	30.0	
(eitzer Time (s)	3.5	13	3.5	\$5	35		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.D		00	0.0	
Total Lost Time (s)		5.0	5.0		5.0		5.0	5.0		5.0	5.0	
Load							Lead	Lat		Logd	Lan	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (\$)	3.0	3.0	10	3.0	3.0		3.0	30		3.0	30	
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)	D	0	Ő	0	Q			0			0	
Act Effct Green (s)	<b>A</b>	16.0	16.0		16.0		44.0	42.2		35.2	31.2	
Actuated o/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	87		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		С	A		Α		В	Α		A	В	

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### Lanes, Volumes, Timings 9: Genesee St & Hess/Wells Ave

		X	2	1	×	₹	3	*	~	<u>k</u>	×	×
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach Delay	0.000	19.0			0.2			10.0			17.6	
Approach LOS		В			A			A			В	
Intersection Summary	1.00	1274		IAL		-		L.L. MAR		-		
Area Type:	Other											
Cycle Length: 70		_										
Actuated Cycle Length:	70			_								_
Offset. 0 (0%), Reference	ed to phase 2:	SWTL and	6:NETL	Start of	Green					_		
Natural Cycle: 60				•••••••••								_
Control Type: Actuated-	Coordinated											
Maximum v/c Ratio: 0.6	7											_
Intersection Signal Dela	v 13.7			In	tersection	LOS: B			7			
Intersection Capacity Ut	ilization 57.2%			IC	U Level	of Service	B					_
Analysis Period (min) 15	5											

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

7 01	14.52 (R)	× 44	
1.1		11112; W	
4ø5	9 85 (R)	A-108	

3/23/2015

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	78	0	0	85	33	1415	38	Q	1028	53
Conflicting Peds, #/hr	0	0	0	0	Ō	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
Second Length			D		*	Õ	160	1	<u></u>	16		+
Veh in Median Storage, #	-	0	-	-	0	-	-	0	× .	-	0	-
	5	Q	÷	Ť	Q	2 47 		0			0	
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
	2	2	. 3	2	2		2	2	2	2	2	2
Mymt Flow	0	0	85	0	0	92	36	1538	41	0	1117	58
Major/Minor	Minut2			Minor1			Major1			Major2		
Domining Flow All	1833	2756	688	2057	2765	769	1175	0	Q	1538	0	0
Stage 1	1146	1146		1610	1610	724° X _	÷:	2		-		
State 2	587	1610	-	447	175	4	18 10		4	200 E	4	
Follow-up Headway	3.82	4.02	3.92	3.82	4.02	3.92	3.12	-	-	3.12	-	-
	8	19	387	58	19	295	322	4	77	213		-
Stage 1	157	272	. 194-44	74	162			-	-	=	-	
5262	367	162		513	284	-	-	1.14	10			÷
Time blocked-Platoon, %	and there a	- MARIE 189		ps. 7.94	. elader			-	-		-	
	5	1	37	41	17	205	322	6	-	210	2	
Mov Capacity-2 Maneuver	51	17	-	41	17		10%,	-	-		-	-
Sale	139	272	÷			-	23	Ę	-			
Stage 2	224	144	-	401	264		-	4		-	-	-
Approach	SE			NW		-	NE	1		SW	8.1	
HCM Control Delay s	18.9			22.7			0.4			0	7.1.2	
HCMLOS	С			С								_
Minor Lane / Major Mymt		NEL	NET	NER	NWLn1	SELn1	SWL	SWT	SWR	Links	a second	
Sanasiby (yeh/h)		322	-		225	387	213		F			
HCM Lane V/C Ratio		0.111	-	-2-	0.313	0,219	-		5			
In Commission		17.57		4	27	16.5	ě					
HCM Lane LOS		C		. C.	C	C	Â					
Heal Isth Sole C(vel)		0.372		3. 7	1.301	0,824	D		1			
Notes	_		_		1	Sec.	1000	-		-	-	

Volume Exceeds Capacity, 5 : Delay Exceeds 300 Seconds; Error : Computation Not Defined

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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	Ø	0	10	0	1268	21	5	913	15
Conflicting Peds. #/hr	Ö	0	0	0	0	0	Ő	0		0	0	0
Sign Control	Stop	Stop	Stoo	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized			Stop		-	Stop	-		None	1100	1100	None
Storage Length	-	-	0	-	-	0			-	-		
Veh in Median Storage, #	-	Ò	-	-	0	· · · · ·		0	-		ö	_
Grade, %	-	0	-	-	0		-	Ő	-	-	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	Ō	1378	23	5	992	16
Major/Minor	Minor2	_		Minort		1 march	Majort		_	Major2	-	-
Conflicting Flow All	1700	2412	504	1807	2410	701	1000	0	0	1401	0	
Stage 1	1011	1011	-	1390	1300	101	1003	<u>y</u>	v	1401	U.	U
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			181	-	- 1
Stage 1	257	315	-	150	208	-			-		_	
Stage 2	402	205	2	516	312	27		5		_		
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	e.	493	305	•	-	-	-	-	*	
Approach	SE		-	NW			NE		-	SW		
HCM Control Delay, s	12.2			14.7			0			0.2		_
HCM LOS	В			В						0.2		_
Minor-Lane / Major Mymt	100	NEL	NET	NER	NWL01	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)		Ō	-	-	14.7	12.2	12.522	0.1	-			
HCM Lane LOS		A			B	B	B	Å				
HCM 95th %tile Q(veh)		0			0.088	0.065	0.034		-			
Notes	-					··- ··/ ·				100		
Walnus Francis Concert		P	000.0		-					_	-	-

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

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₽m FUTURE

Intersection								100	Y			
Intersection Delay, s/veh	4.4											
The second second second												
Movement	SEL		SER	NEL	NET			SWT	SWR			
Vol, veh/h	53		400	Û	1272			534	63		_	
Conflicting Peds, #/hr	0		0	0	0			0	0			
Sign Control	Stop		Stop	Free	Free			Enere	Free		_	_
RT Channelized			Stop	<u>117</u>	None			-	None			_
Storage Length	0		Ō					12		-		-
Veh in Median Storage, #	Ő				0			0	-			
Grade, %	Û		į.	÷	0			D	-			-
Peak Hour Factor	92		92	92	92			92	92			
Heavy Vehicles, %	2		2	2	2		-	2	2			
Mymt Flow	58		435	0	1383			580	68	_		
Major/Minor	Minor2			Majori				Major2		Sec. 1		
Somiching Flow All	1306		324	649	0	-		THE STATE	0			
Stage 1	615							74	Y.			
State 2	691					_			- 1			-
Follow-up Headway	3.52		3.32	2.22								_
Pot Capacity-1 Maneuver	151		672	833				1				
Stage 1	502											
Stage 2	459		1.81	-					10 2			
Time blocked-Platoon, %	. Avista .				-			-				-
Mos Canadity-1 Maneuver	151	1000	672	933	L.		_	ž				
Mov Capacity-2 Maneuver	151		2 (B), 25	. e. 41.42	-			-	-	_		-
Stage 1	502		18	77								
Stage 2	459	_		-	-		_	-	<u>.</u>	_	_	_
Approach	SE			NE	-	-	Local	SW	-	-		_
HCM Control Delay, s	22.3		_	0				ű.				_
HCMLOS	C	_			_			<u>v</u>	_			_
Minor Long / Maior Munt	_	ALCI	NET	CEI of	CE1 42	CIAT	CMD					
	-	022	(()))))))))	164	COLLINE .	CANA T	SWIK	_		_		
ICM Lane V/C Ratio		200		0.200	0.647			_	_			_
Chi Cartino Dalay fel		0		0.302	0.04/	-			_	_	_	
		N A		144 Q	19-0	1.	949 2017					_
1CM 95th %tile Q(veh)		Ô	(±	1,624	4.741		1					
Jotae	-	-				-	-	-	-	-	-	-

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

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PM FUTURE

# Appendix E

**Roundabout Analysis** 

LOCHNER

## **MOVEMENT SUMMARY**

# Site: Wurz Ave Roundabout - AM

New Site Roundabout

Mov	ement Pe	nformance	- Veh	icles									
Mov ID	OD Mev	Demand Total Veh/h	Flows HV %	Arriva Total veh/h	I Flows HV %	Deg Satn Vic	Average Delay sec	Level of Service	95% Back Vehicles Vehicles	of Qumile Distance	Prop Queued	Effective Stop Rate	Avurage Speed
Sout	h: Genesea	e St		and the second								Action Section Action	TIMA SAIN
3	L2	37	2.0	37	2.0	0.385	7.6	LOSA	1.4	35.8	0.21	0.12	18.3
8	<b>T1</b>	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	LOSA	1.3	33.5	0.20	0.11	28.4
Аррг	oach	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	12	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
Appre	bach	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	12	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
Appro	bach	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	12	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
Appro	bach	86	2.0	86	2.0	0.195	11.1	LOS B	0.5	12.1	0.65	0.65	11.5
All Va	hicles	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.

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# LEVEL OF SERVICE

# 😵 Site: Wurz Ave Roundabout - AM

New Site Roundabout

#### All Movement Classes



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.

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## **DELAY (CONTROL)**

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

Site: Wurz Ave Roundabout - AM

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	В	8



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.

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# **QUEUE DISTANCE (%ILE)**

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

Site: Wurz Ave Roundabout - AM

New Site Roundabout

### 00 Network: AM Network

#### All Movement Classes

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



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## MOVEMENT SUMMARY

# 🏾 Site: Wurz Ave Roundabout - Midday

New Site Roundabout

Mov	ement Po	rformance	- Veh	icles									
Mov 1D	OD Mav	Demand Total Veh/h	Flows HV	Arriva Totai veh/h	I Flows HV	Deg Satn v/c	Average Delay sec	Level of Service	95% Bad Vehicles veh	col Queue Distance	Prop Queued	Effective Stop Rate	Average Speed
Sout	h: Genesee	e St						N				a sharth can	Contract Section
3	12	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
Appro	oach	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
Appro	bach	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	12	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	LOSC	4.5	114.5	0.67	0.75	14.3
14	R2	86	2.0	86	2.0	0.701	17.7	LOSC	4.3	109.4	0.66	0.73	14.5
Appro	bach	1123	2.0	1123	2.0	0.701	17.8	LOSC	4.5	114.5	0.67	0.75	15.8
West	Wurz Ave												
5	1.2	95	2.0	95	2.0	0.410	15.5	LOS C	1.2	30.9	0.71	0.76	9.6
2	<b>T1</b> ·	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
Appro	ach	185	2.0	185	2.0	0.410	15.5	LOSC	1.2	30.9	0.71	0.76	10.3
All Ve	hicles	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.

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## LEVEL OF SERVICE

# 😵 Site: Wurz Ave Roundabout - Midday

New Site Roundabout

#### All Movement Classes



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

New Site Roundabout

### **\$\$** Network: Midday Network

#### All Movement Classes

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



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.

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# QUEUE DISTANCE (%ILE)

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

😵 Site: Wurz Ave Roundabout - Midday

New Site Roundabout

### 수 Network: Midday Network

#### All Movement Classes

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



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## MOVEMENT SUMMARY

# Site: Wurz Ave Roundabout - PM

New Site Roundabout

Move	ement Pe	rformance	- Veh	icles									
Mov ID	OD Mov	President () Totel veh/h	Flows HV	Arriva Total veh/h	1 Flows HV %	Deg Satn Wo	Average Delay soc	Level of Service	95% Back Vehiclos veh	of Queue Distance It	Prop. Outpued	Effective Stop Rate	Average Speed mph
South	Genesee	e St										in the second se	
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	1 <b>282</b>	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
Appro	ach	1 <b>613</b>	2.0	1613	2.0	0.924	36.5	LOS E	54.0	1370.7	1.00	1.43	11.3
East	Murz 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
Appro	ach	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
Appro	ach	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	12	62	2.0	62	2.0	0.212	9.9	LOSA	0.5	13.7	0.59	0.59	11.8
2	T1	1	2.0	1	2.0	0.212	9.9	LOSA	0.5	13.7	0.59	0.59	24.0
12	R2	47	2.0	47	2.0	0.212	9.9	LOSA	0.5	13.7	0.59	0.59	11.8
Approa	ach	110	2.0	110	2.0	0.212	9.9	LOSA	0.5	13.7	0.59	0.59	12.1
All Veh	licles	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

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.

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## LEVEL OF SERVICE

# Site: Wurz Ave Roundabout - PM

New Site Roundabout

#### All Movement Classes



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.

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## **DELAY (CONTROL)**

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

😵 Site: Wurz Ave Roundabout - PM

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	В	A	F



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.

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# **QUEUE DISTANCE (%ILE)**

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

Site: Wurz Ave Roundabout - PM

New Site Roundabout

#### All Movement Classes

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



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