GBNRTC

Greater Buffalo Niagara Regional Transportation Council

UPDATED Traffic Analysis Report on

Lancaster Village Center Development Plan

prepared by

Greater Buffalo-Niagara Regional Transportation Council
438 Main Street, Suite 503
Buffalo, New York 14202-3207

updated date

September 6, 2019

The Village of Lancaster has requested the Greater Buffalo Niagara Regional Transportation Council assess the impacts on traffic conditions regarding the proposed development within the village center. A complete traffic analysis was initially conducted in August of 2018, since then further refinements regarding the proposed development have taken precedence. The traffic assessment has therefore been updated to reflect modifications in roadway and parking lot configurations defined within the proposed development *(Wendel).* It remains as previously noted in the prior report, that even with the addition of forecasted traffic, reducing Pleasant Avenue West to a 2-lane facility with 1-lane roundabouts at the Aurora Street and Central Avenue intersections, will not detriment overall intersection delay or level-of-service. It will also greatly enhance pedestrian cross-ability and improve access to the proposed community center. The enabling of eastbound travel on W Main Street, and the geometrical configuration of the intersection, created the need to operationally analyze the Central Avenue/W Main Street/Clark Street intersection as two separate stop controlled junctions. This was largely due to the fact that eastbound and westbound through movements are actually making left then right turns on/off of Central Avenue.

The *Lancaster Village* Center document has been used as reference in the assessment. Through utilization of inputs cited in the document, a trip generation procedure was conducted by GBNRTC Staff using the Environmental Protection Agency's Mixed Use Development Trip Generation Model (Version Four) and the Institute of Transportation Engineer's Trip Generation Manual (Ninth Edition). Further detail regarding the trip generation process, description of the EPA tool, along with utilized inputs and methodology have been included within this report (pgs. 3-5).

The *West Main Street Extension Traffic Impact Study* (*Nussbaumer & Clarke*), has been referenced to create a baseline comparison for the operational analysis. Overall methodology and Synchro (TrafficWare) summary reports have been utilized as inputs. The same growth rate of 0.5%

(CAGR) was utilized in order to bring 2014 traffic counts to a 2019 existing conditions baseline. The same seasonal adjustment factor of 1.066, and heavy vehicle percentages by turning movement have been carried over as well. GBNRTC and NYSDOT intersection turning movement counts were utilized to populate volumes for Central Ave/Broadway and Aurora St/Broadway intersections with an identical growth rate applied. This data enabled GBNRTC Staff the ability to develop an existing conditions baseline traffic analysis model within the Vistro (PTV) platform. Results of the trip generation derived from the EPA Mixed Use Tool and the trip distribution generated from the GBNRTC Regional Model were then incorporated to create a representation of traffic at full build-out with proposed infrastructure modifications. Signal timing plans were optimized within the scenario to reflect forecasted turning movement volumes and modified intersection configuration.

Intersection Name	**Peak Hour**	**Traffic Impact Study (projected 2016)**			
		Control Type	**V/C**	**Delay (s/veh)**	**LOS**
N Aurora St/ St Marys St/ Pleasant Ave	AM	Signalized	0.533	18.7	**B**
	PM	Signalized	0.641	14.8	**B**
Pleasant Ave/ Central Ave	AM	Signalized	0.861	40.7	**D**
	PM	Signalized	0.748	30.9	**C**
W Main St/ Clark St/ Central Ave	AM	Two-way stop	0.05	13.1	**B**
	PM	Two-way stop	0.077	15.1	**C**
Broadway/ Aurora St	AM	Signalized	0.428	NA	NA
	PM	Signalized	0.599	NA	NA
Broadway/ Central Ave	AM	Signalized	0.434	NA	NA
	PM	Signalized	0.707	NA	NA

Intersection Name	Peak Hour	Full Build-out & Infrastructure Modifications (2019)			
		Control Type	V/C	Delay (s/veh)	LOS
N Aurora St/ St Marys St/ Pleasant Ave	AM	Roundabout	NA	8.9	**A**
	PM	Roundabout	NA	11.0	**B**
Pleasant Ave/ Central Ave	AM	Roundabout	NA	13.9	**B**
	PM	Roundabout	NA	15.3	**C**
W Main St/ Central Ave	AM	Two-way stop	0.002	12.1	**B**
	PM	Two-way stop	0.019	14.9	**B**
Clark St/ Central Ave	AM	Two-way stop	0.070	14.5	**B**
	PM	Two-way stop	0.125	22.1	**C**
W Main St/ Aurora St	AM	Roundabout	NA	5.7	**A**
	PM	Roundabout	NA	7.7	**A**
Broadway/ Aurora St	AM	Signalized	0.466	12.8	**B**
	PM	Signalized	0.675	25.6	**C**
Broadway/ Central Ave	AM	Signalized	0.461	9.0	**A**
	PM	Signalized	0.720	16.8	**B**

Trip Generation

To calculate new trips to the proposed Lancaster Village Center proposed development, GBNRTC Staff utilized the Environmental Protection Agency's Mixed Use Trip Generation Tool which is ideal for estimating new trips generated by mixed use developments.

About the Mixed Use Trip Generation Tool

To help give communities better tools to analyze new development, EPA, in cooperation with the Institute of Transportation Engineers, or ITE, worked with leading researchers and practitioners to develop new data and methods to estimate the trip-generation impacts of mixed-use developments. EPA analyzed six metropolitan regions, merging data from household travel surveys, GIS databases, and other sources to create consistent land use and travel measures.

The resulting linked models estimate internal capture of trips within mixed-use developments as well as walking and transit use for trips starting or ending in mixed-use developments. The models have

been validated against actual traffic counts at mixed-use developments across the country. The method is currently used in several regions in California, Washington, and New Mexico, and the Virginia DOT adopted it as a statewide standard for determining the traffic impacts of urban developments.

The EPA team put the models into a spreadsheet tool that makes it convenient for local government staff, consultants, and developers to estimate trips generated by a new mixed-use development. The spreadsheet estimates vehicle trips in the peak periods and for an entire day. The method also predicts trips by walking and transit and estimates the daily vehicle miles of travel associated with the development.

The tool requires information about the development site and its surrounding area, including geographic, demographic, and land use characteristics. It includes default national parameters for trip generation but allows the use of local values if available.

Input Assumptions

To develop the necessary inputs for the Mixed Use Trip Generation Tool, GBNRTC Staff utilized the *Lancaster Village Center* document, which outlines the project proposal and includes the approximate number of new buildings, number of residential units and square footage of commercial space. For this analysis, GBNRTC Staff used the following assumptions as model inputs:

Number of Dwelling Units	48
Total Retail Square Footage	18,000
Total Restaurant Square Footage*	9,000

**GBNRTC Staff assumed one third of commercial space would be dedicated for restaurant use.*

Results

The table below provides the results of EPA's Mixed Use Trip Generation Tool. This table presents all new trips generated, including new trips made by residents, employees and patrons. Using public transit information, the tool assumes a certain reduction in auto trips based on proximity to existing or proposed transit lines. The tool also accounts for walking trips, which is factored into the overall trip reduction factor. For this project, the tool estimated a 10% reduction in auto trips based on nearby public transit options and the assumption of walking trips. The total trips minus the 10% reduction is presented under the "Adjusted" column.

EPA Mixed Use Trip Generation Model (V4) Results
for Lancaster Village Center Project (Full Build-Out)

	External Vehicle Trips		
All Trips	Baseline	Adjusted	Reduction %
Daily	4,436	4,009	10%
AM Peak Hour	216	197	9%
PM Peak Hour	396	359	9%

The tool also presents new trips generated by residents only, as presented below.

	External Vehicle Trips		
Residential Trips Only	Baseline	Adjusted	Reduction %
Daily	405	362	10%
AM Peak Hour	43	39	10%
PM Peak Hour	32	29	10%

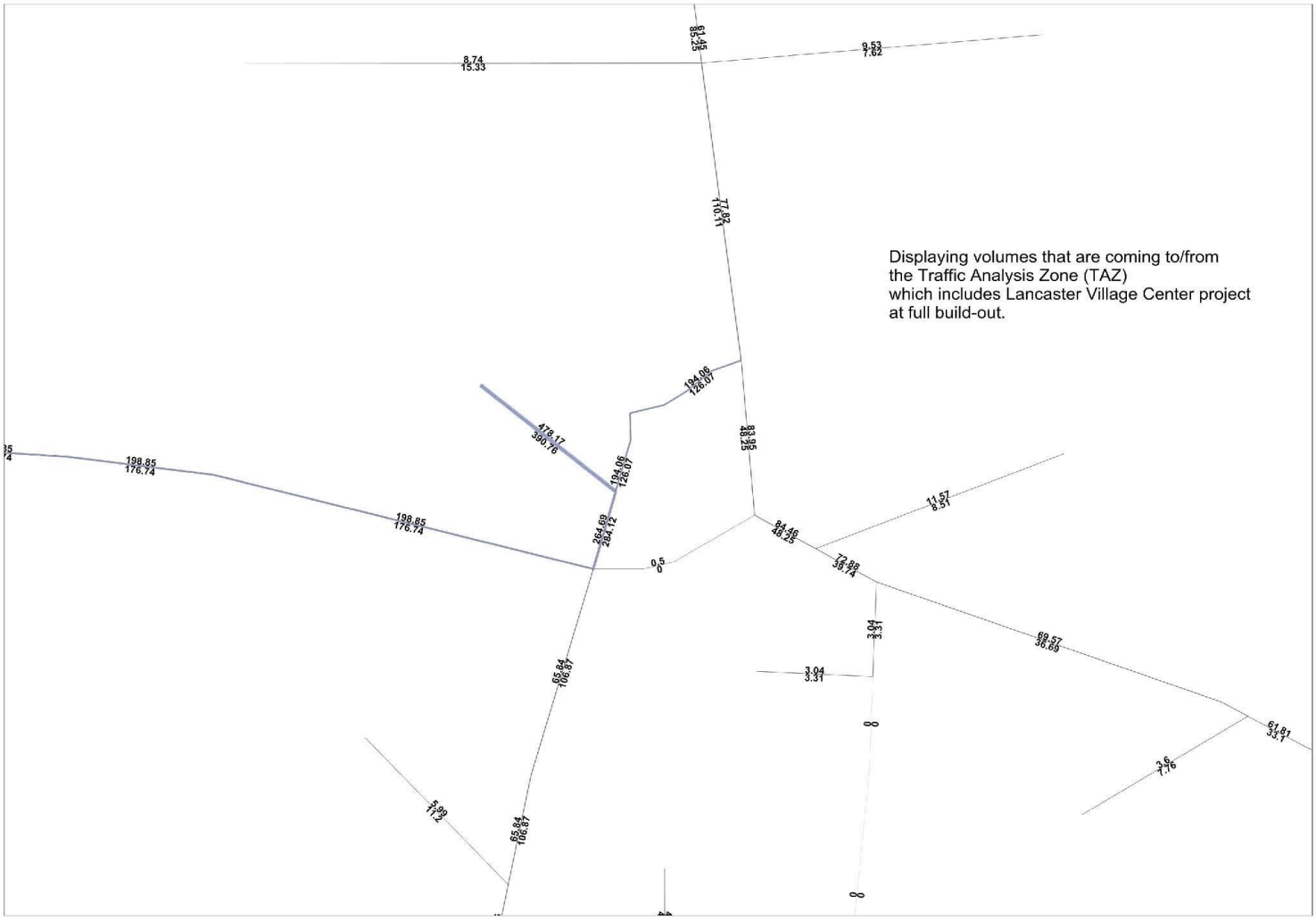
Trip Distribution

The GBNRTC Regional Model (TransCAD) was also utilized to determine the percentage of trips accessing the development that would be associated with specific origin/destination traffic analysis zones (TAZs). This aided in determining which links would service the additional volume and ultimately generate additional intersection turning movements when analyzing forecasted operations. Graphics pertaining to these outputs have also been attached (pgs. 7-10).

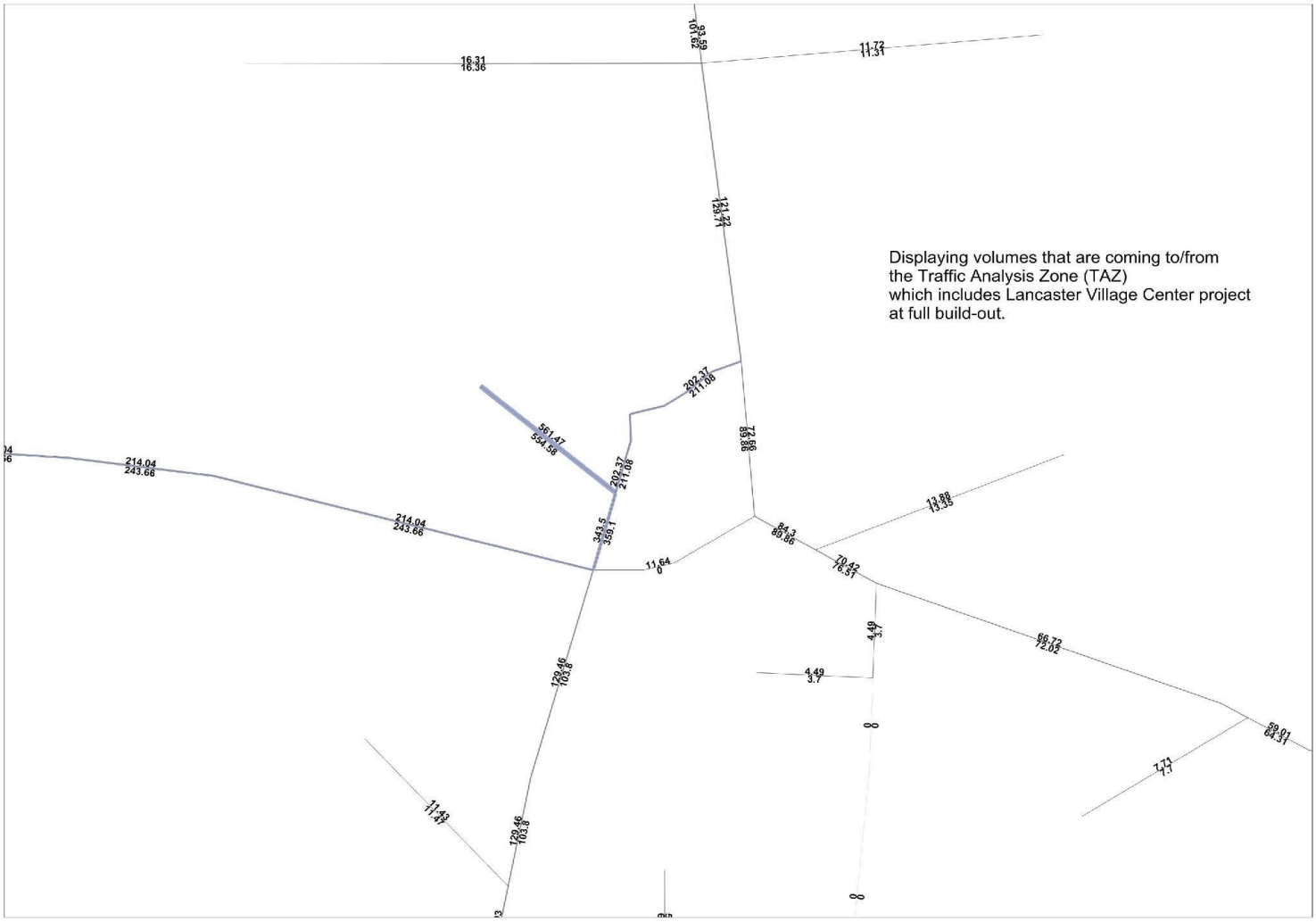
Localized trip distribution was conducted within the Vistro Software. Zones were first developed that represented the TAZs from the GBNRTC Regional Model with the Village Center development becoming the primary origin/destination. Primary distributions were then calculated based upon the percentage change in volume traveling to/from each origin/destination zone. This step became much more significant of a process with the refinements to roadway and parking lot configurations within the proposed development *(Wendel).* Points of access to the roadway network are now depictive of specific parking locations and how they are utilized. Parking capacities are also reflected by percentages within the forecasted development traffic distribution. In doing so, 60 different paths have been developed to/from the origin/destination zones based on parking access, capacities, proposed utilization and location. 30 graphic representations pertaining to each of the individual paths have been included, they represent both inbound and outbound directional trips (pgs. 11-15).

Operational Analysis

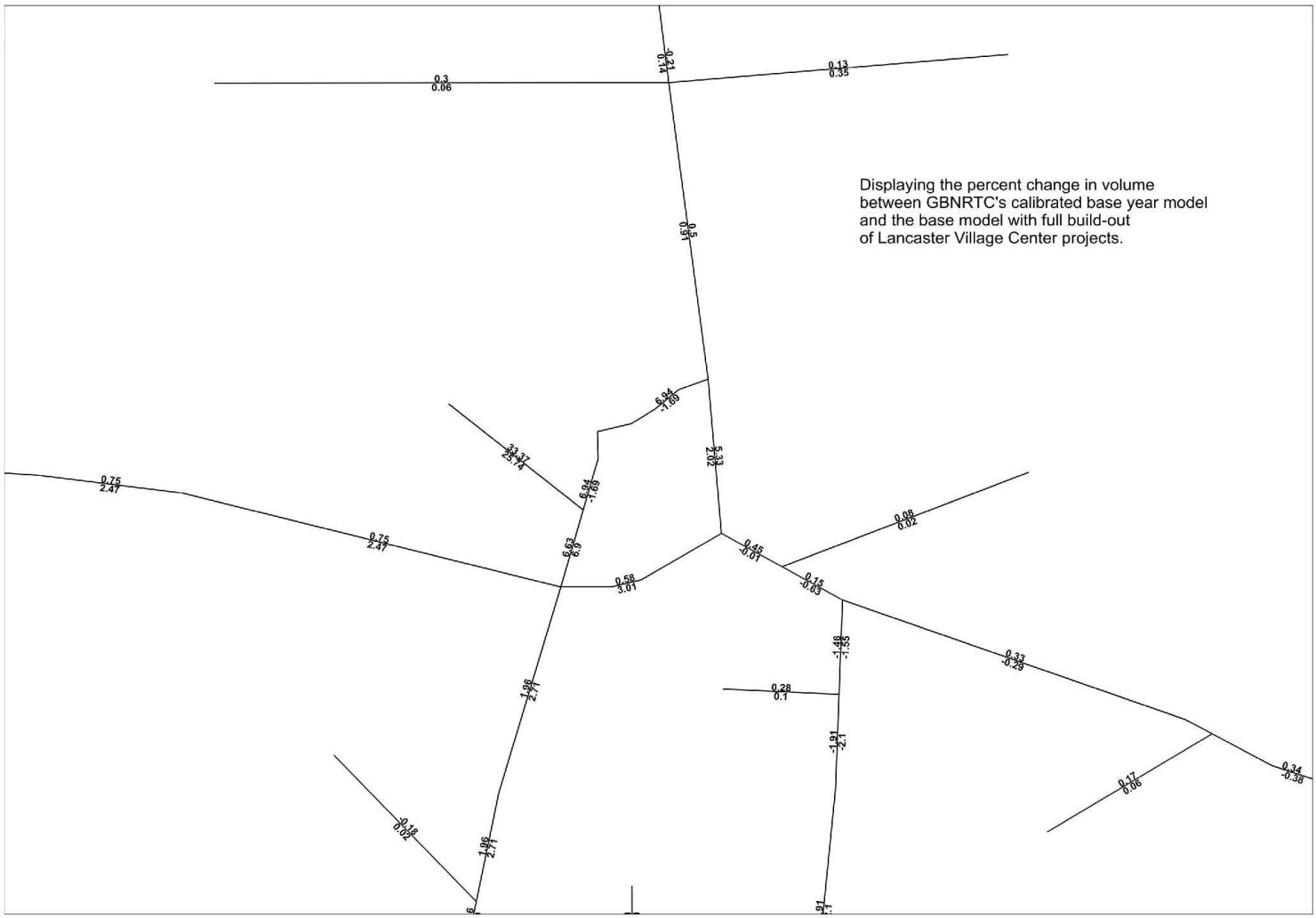
The AM & PM Peak Hour Forecasted Traffic Analysis Report including modeled outputs pertaining to the intersection analysis, trip generation, trip distribution, and overall traffic conditions have been attached (pgs. 16-23). The full AM & PM Peak Hour Intersection Level-of-Service Report has also been formulated and is attached to this document (pgs. 24-60).



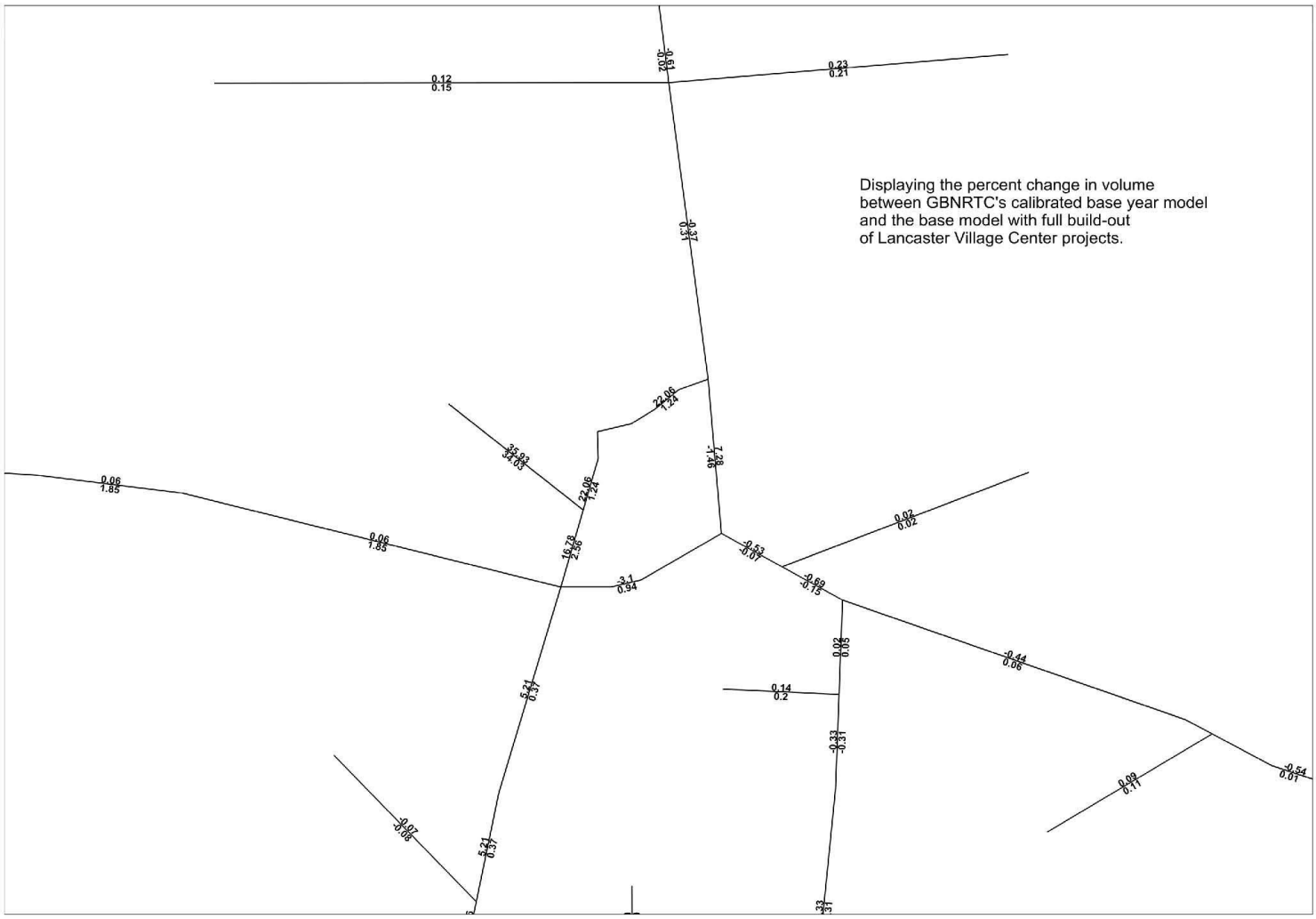
AM Peak Period Travel to/from Lancaster Village Center TAZ
Prepared using GBNRTC's Travel Demand Model
August 2018



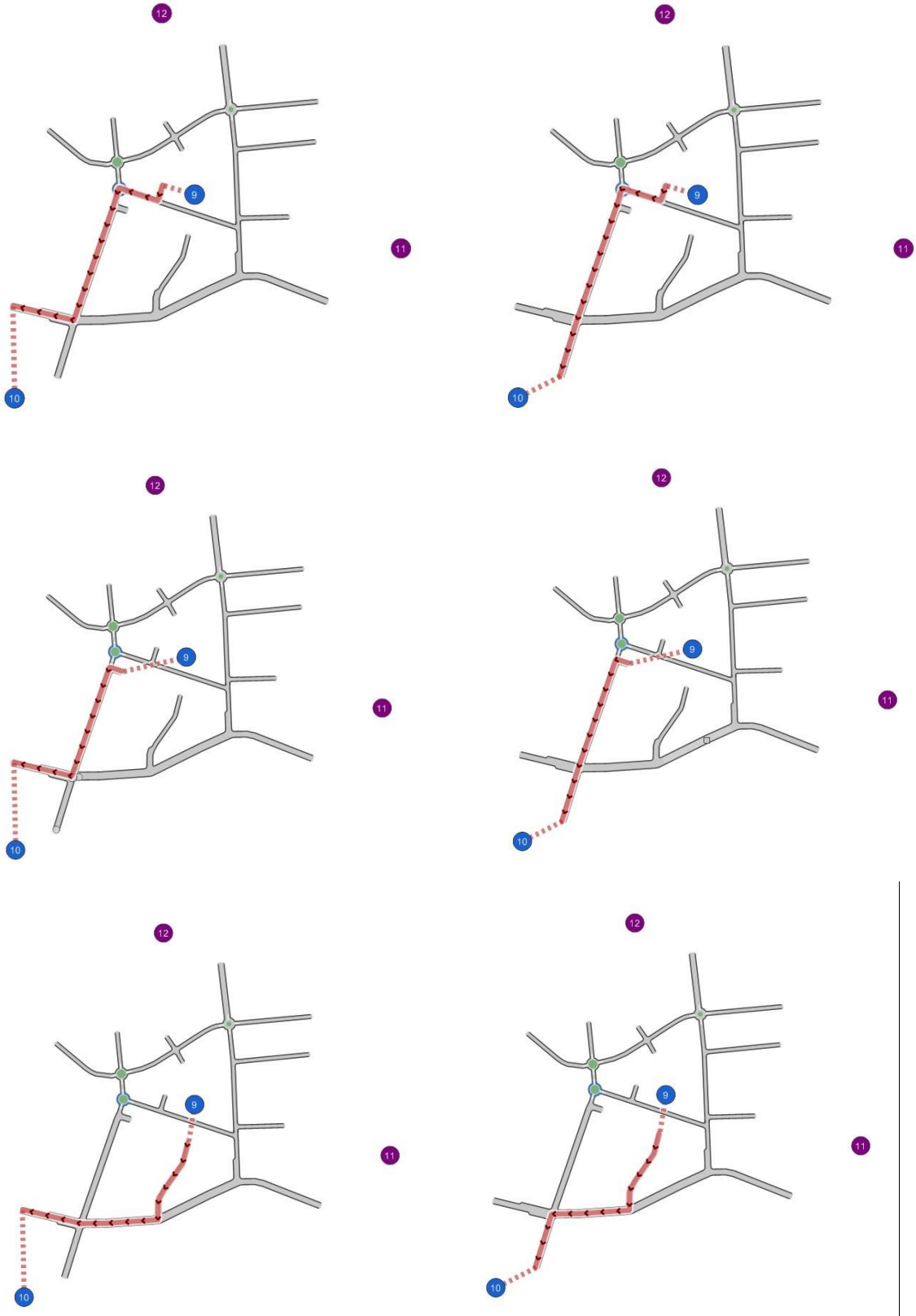
PM Peak Period Travel to/from Lancaster Village Center TAZ
Prepared using GBNRTC's Travel Demand Model
August 2018

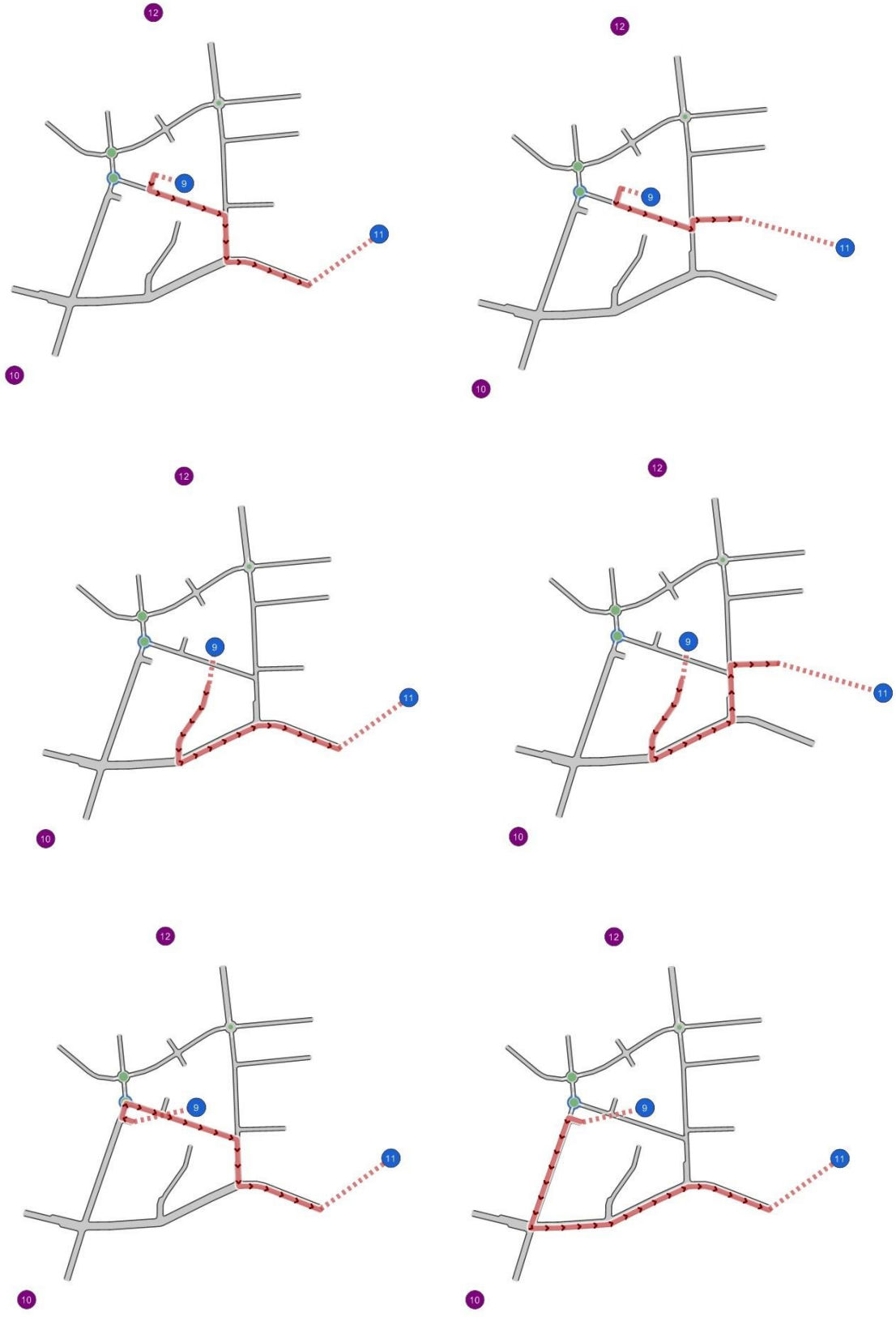


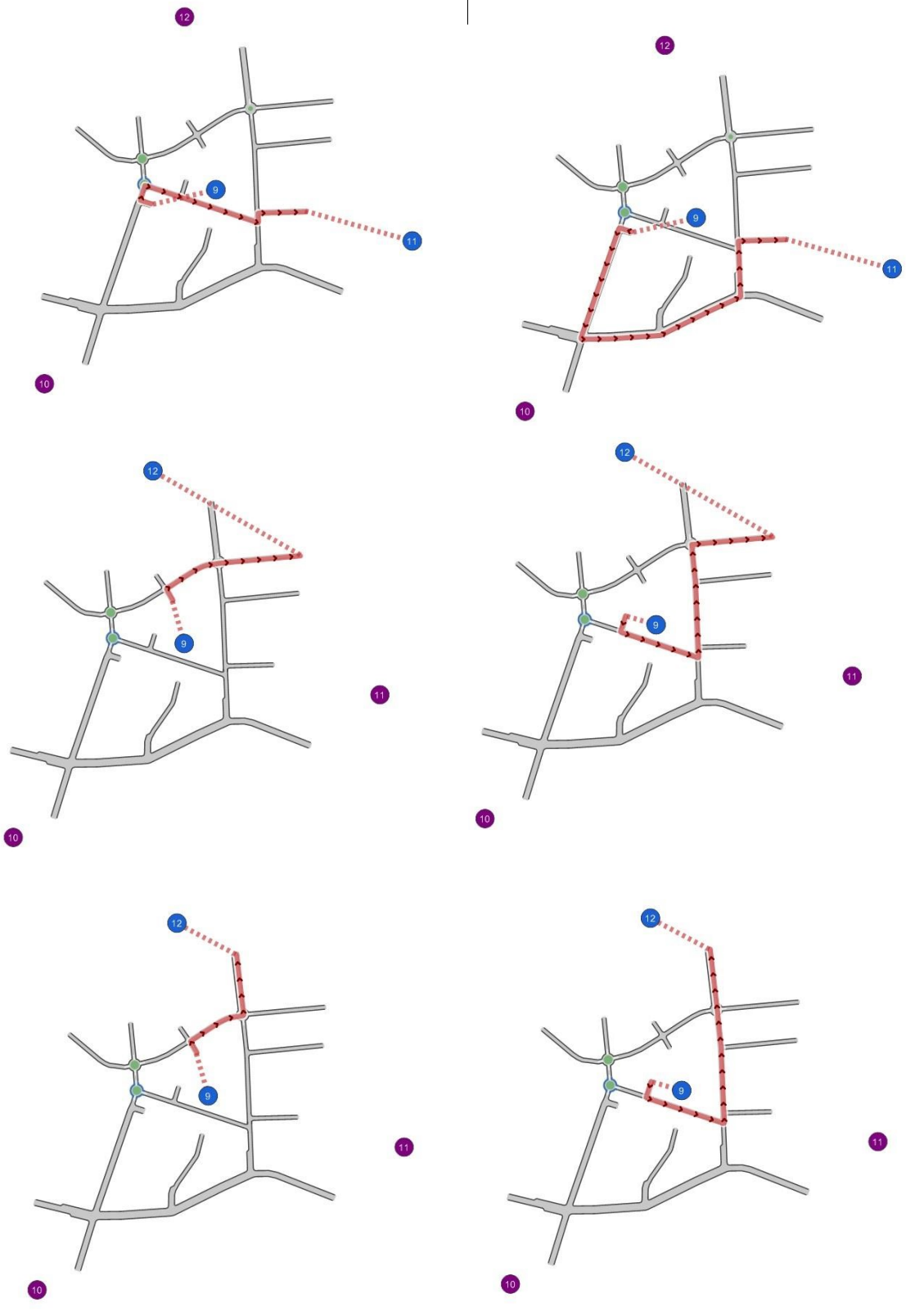
Lancaster Village Center Project's Impact on AM Peak Period Traffic Volumes
Prepared using GBNRTC's Travel Demand Model
August 2018

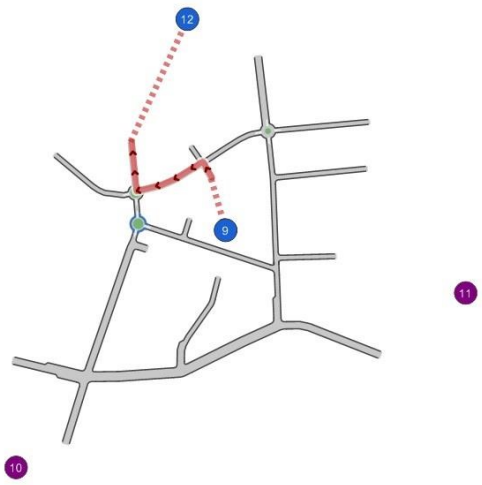


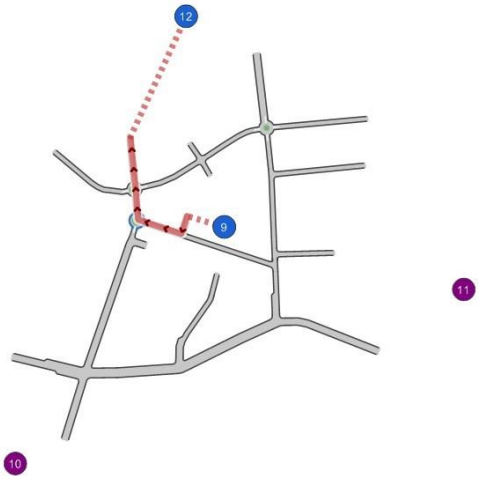
Lancaster Village Center Project's Impact on PM Peak Period Traffic Volumes
Prepared using GBNRTC's Travel Demand Model
August 2018

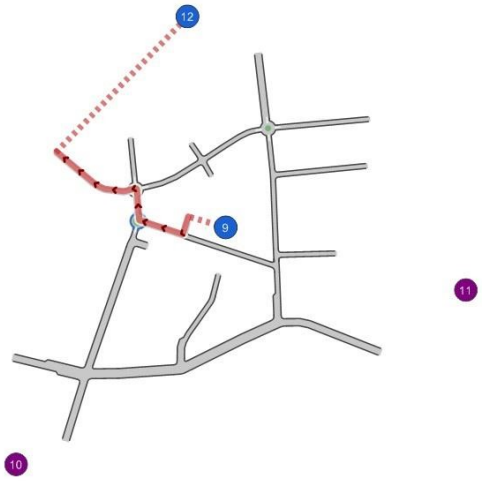

12
9
11
10
12
9
11
10
12
9
11
10
12
9
11
10
12
9
11
10

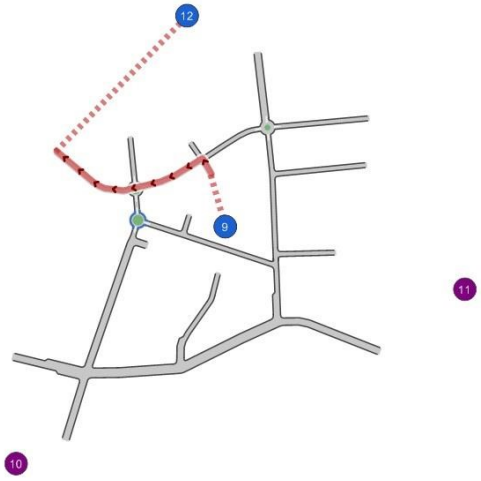

12
9
11
10
12
9
11
10
12
9
11
10
12
9
11
10
12
9
11
10

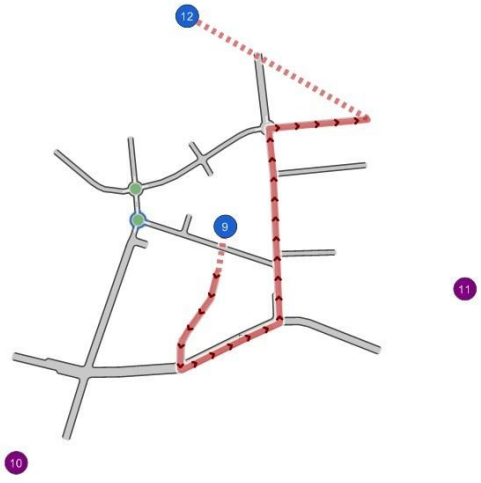

12
9
11
10
12
9
11
10
12
9
11
10
12
9
11
10
12
9
11
10

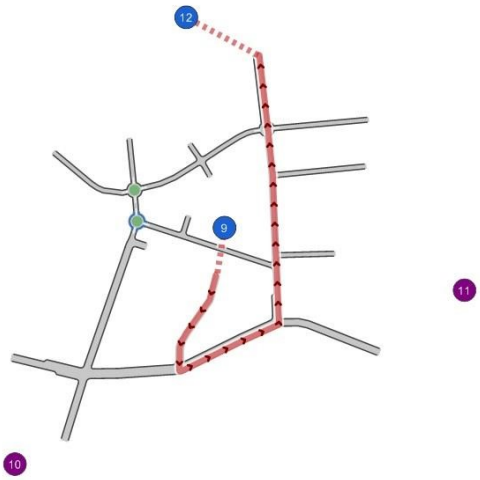

12
9
11
10

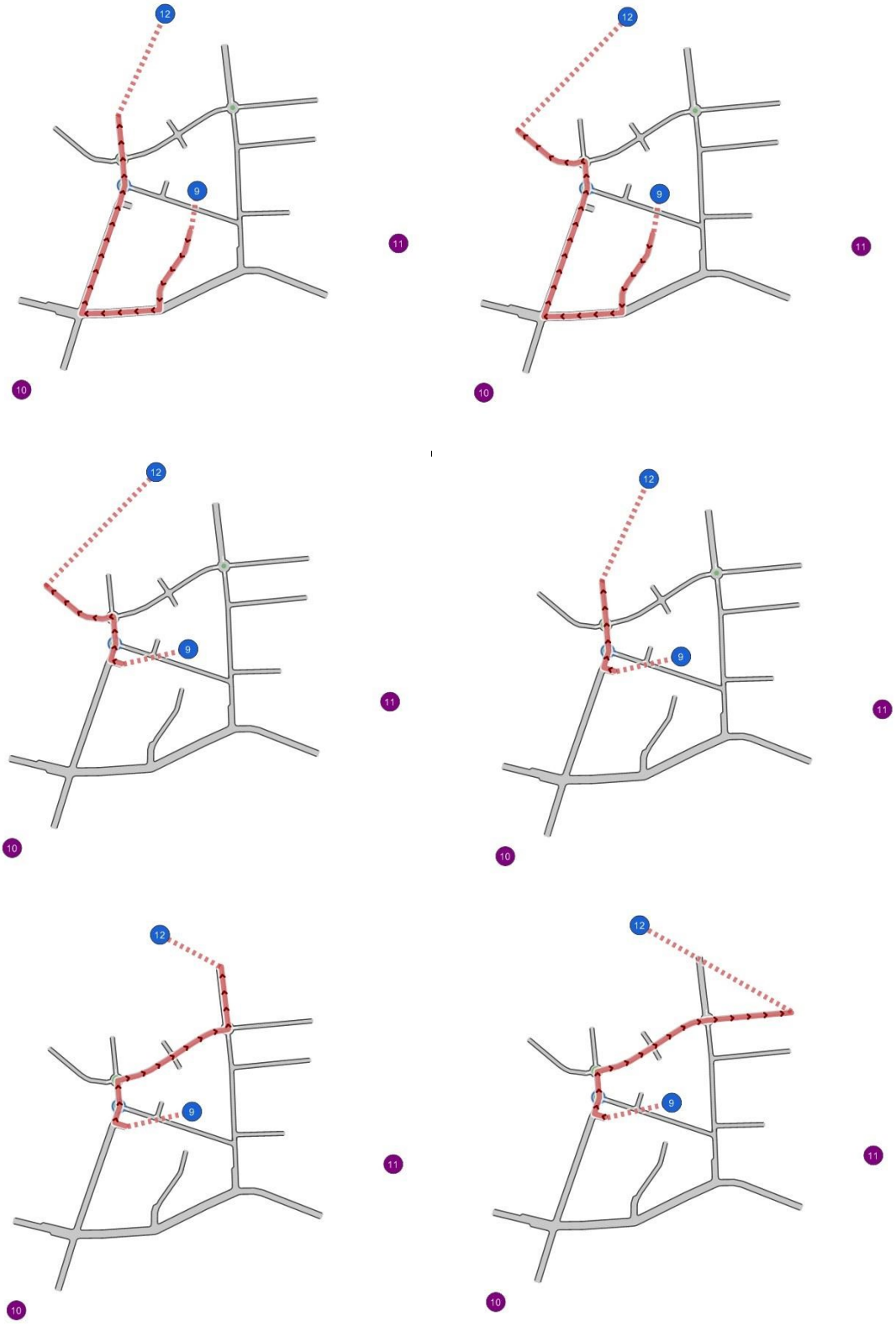

12
9
11
10


12
9
11
10


12
9
11
10


12
9
11
10


12
9
11
10


12
9
11
10
12
9
11
10
12
9
11
10
12
9
11
10
12
9
11
10

Traffic Analysis Report

Vistro File: C:\...\Developed Model2.vistro
Report File: C:\...\DevelopedAMPeakHr.pdf

Scenario 1 Forecasted AM Peak Hour Condition
9/6/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Aurora St/St Marys St/Pleasant Ave/ New Rd (2014)	Roundabout	HCM 6th Edition	NB Right		8.9	A
2	Pleasant Ave/ Central Ave (2014)	Roundabout	HCM 6th Edition	WB Right		13.9	B
3	Central Ave/Clark St (2014)	Two-way stop	HCM 6th Edition	WB Left	0.070	14.5	B
4	Central Ave/West Main St	Two-way stop	HCM 6th Edition	EB Left	0.002	12.1	B
5	Broadway/ Central Ave (2014)	Signalized	HCM 6th Edition	SB Right	0.461	9.0	A
6	Broadway/Aurora St (2007)	Signalized	HCM 6th Edition	SB Thru	0.466	12.8	B
7	N Aurora St/West Main St	Roundabout	HCM 6th Edition	NB Thru		5.7	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Traffic Analysis Report

Vistro File: C:\...\Developed Model2.vistro
Report File: C:\...\DevelopedAMPeakHr.pdf

Scenario 1 Forecasted AM Peak Hour Condition
9/6/2019

Trip Generation summary

Added Trips

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total Trips	% of Total Trips
9: Lancaster Village	Analyzing Zone			1.000	197.000	80.00	20.00	158	39	197	50.00
10: Southwest Added Traffic	Adjacent Zone			1.000	119.000	22.00	78.00	26	93	119	30.20
11: East Added Traffic	Adjacent Zone			1.000	34.000	15.00	85.00	5	29	34	8.63
12: North Added Traffic	Adjacent Zone			1.000	44.000	19.00	81.00	8	36	44	11.17
					Added Trips Total			**197**	**197**	**394**	**100.00**

Traffic Analysis Report

Vistro File: C:\...\Developed Model2.vistro
Report File: C:\...\DevelopedAMPeakHr.pdf

Scenario 1 Forecasted AM Peak Hour Condition
9/6/2019

Trip Distribution summary

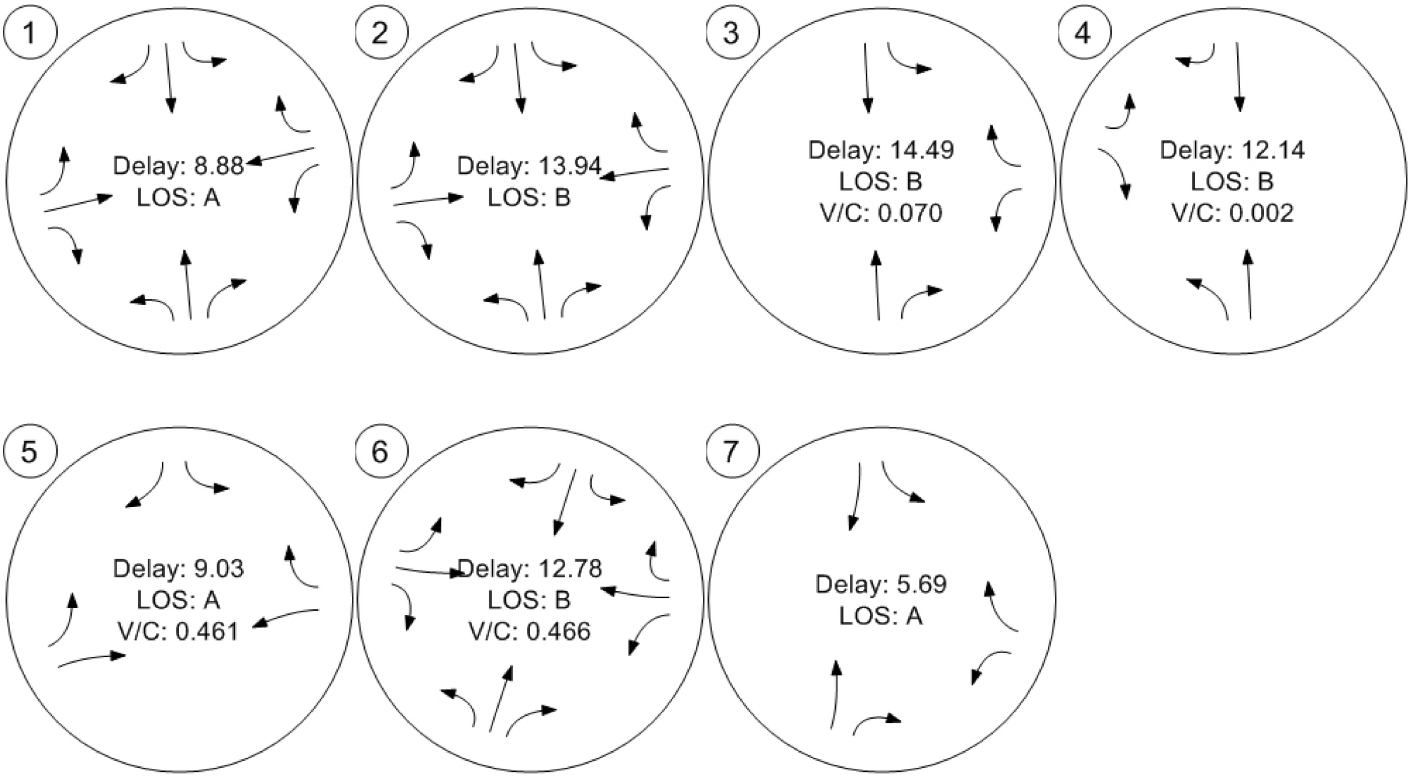
Zone / Gate	Zone 9: Lancaster Village			
	To Lancaster Village:		From Lancaster Village:	
	Share %	Trips	Share %	Trips
10: Southwest Added Traffic	58.86	93	68.00	26
11: East Added Traffic	18.35	29	12.00	5
12: North Added Traffic	22.78	36	20.00	8
Total	**100.00**	**158**	**100.00**	**39**

Zone / Gate	Zone 10: Southwest Added Traffic			
	To Southwest Added Traffic:		From Southwest Added Traffic:	
	Share %	Trips	Share %	Trips
9: Lancaster Village	100.00	26	100.00	93
11: East Added Traffic	0.00	0	0.00	0
12: North Added Traffic	0.00	0	0.00	0
Total	**100.00**	**26**	**100.00**	**93**

Zone / Gate	Zone 11: East Added Traffic			
	To East Added Traffic:		From East Added Traffic:	
	Share %	Trips	Share %	Trips
9: Lancaster Village	100.00	5	100.00	29
10: Southwest Added Traffic	0.00	0	0.00	0
12: North Added Traffic	0.00	0	0.00	0
Total	**100.00**	**5**	**100.00**	**29**

Zone / Gate	Zone 12: North Added Traffic			
	To North Added Traffic:		From North Added Traffic:	
	Share %	Trips	Share %	Trips
9: Lancaster Village	100.00	8	100.00	36
10: Southwest Added Traffic	0.00	0	0.00	0
11: East Added Traffic	0.00	0	0.00	0
Total	**100.00**	**8**	**100.00**	**36**

Traffic Conditions



Traffic Analysis Report

Vistro File: C:\...\Developed Model2.vistro
Report File: C:\...\DevelopedPMPeakHr.pdf

Scenario 3 Forecasted PM Peak Hour Condition
9/6/2019

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	N Aurora St/St Marys St/Pleasant Ave/ New Rd (2014)	Roundabout	HCM 6th Edition	SB Thru		11.0	B
2	Pleasant Ave/ Central Ave (2014)	Roundabout	HCM 6th Edition	EB Left		15.3	C
3	Central Ave/Clark St (2014)	Two-way stop	HCM 6th Edition	WB Left	0.125	22.1	C
4	Central Ave/West Main St	Two-way stop	HCM 6th Edition	EB Left	0.019	14.9	B
5	Broadway/ Central Ave (2014)	Signalized	HCM 6th Edition	SB Left	0.720	16.8	B
6	Broadway/Aurora St (2007)	Signalized	HCM 6th Edition	SB Thru	0.675	25.6	C
7	N Aurora St/West Main St	Roundabout	HCM 6th Edition	SB Thru		7.7	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Traffic Analysis Report

Vistro File: C:\...\Developed Model2.vistro
Report File: C:\...\DevelopedPMPeakHr.pdf

Scenario 3 Forecasted PM Peak Hour Condition
9/6/2019

Trip Generation summary

Added Trips

Zone ID: Name	Land Use variables	Code	Ind. Var.	Rate	Quantity	% In	% Out	Trips In	Trips Out	Total Trips	% of Total Trips
9: Lancaster Village	Analyzing Zone			1.000	359.000	53.70	46.30	193	166	359	50.00
10: Southwest Added Traffic	Adjacent Zone			1.000	223.000	46.00	54.00	103	120	223	31.06
11: East Added Traffic	Adjacent Zone			1.000	54.000	46.00	54.00	25	29	54	7.52
12: North Added Traffic	Adjacent Zone			1.000	82.000	46.00	54.00	38	44	82	11.42
					Added Trips Total			**359**	**359**	**718**	**100.00**

Traffic Analysis Report

Vistro File: C:\...\Developed Model2.vistro
Report File: C:\...\DevelopedPMPeakHr.pdf

Scenario 3 Forecasted PM Peak Hour Condition
9/6/2019

Trip Distribution summary

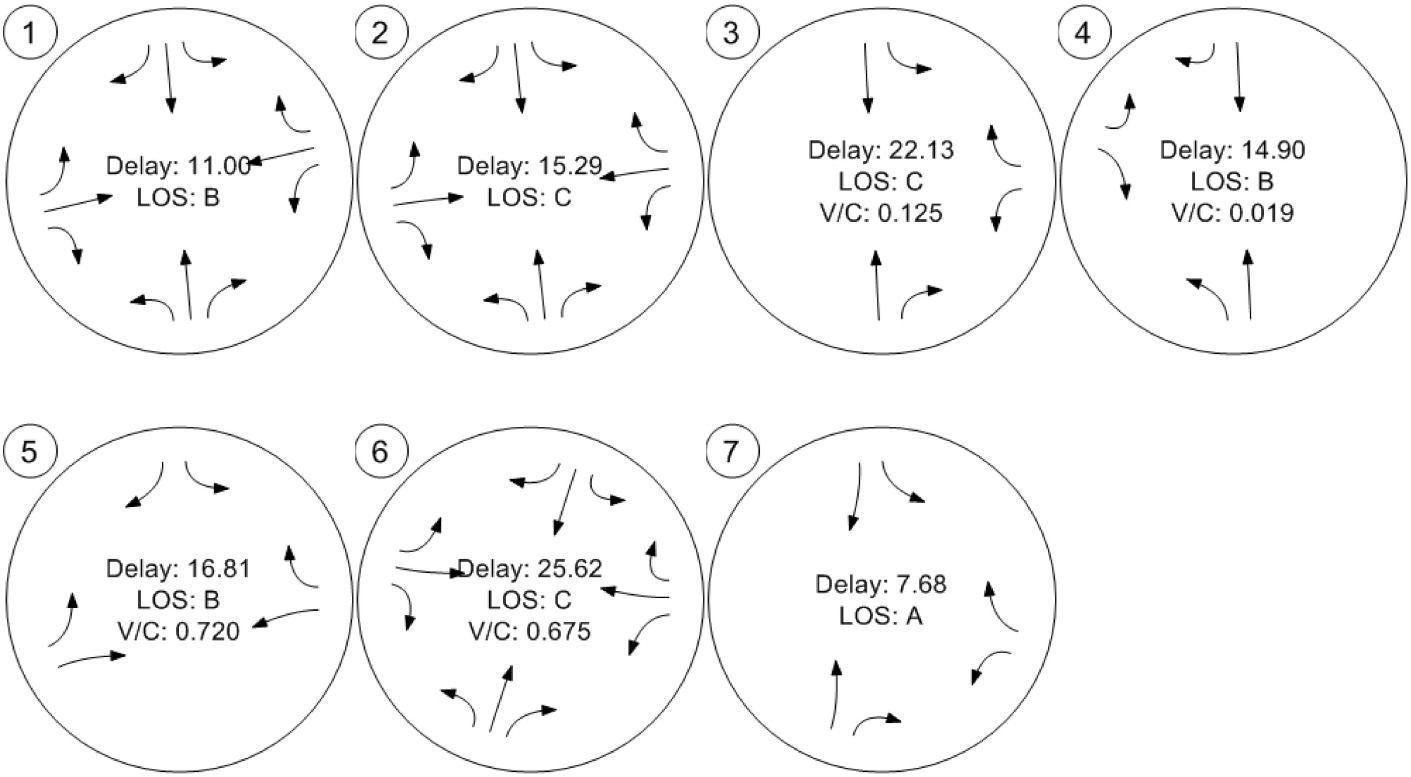
Zone / Gate	Zone 9: Lancaster Village			
	To Lancaster Village:		From Lancaster Village:	
	Share %	Trips	Share %	Trips
10: Southwest Added Traffic	62.18	120	62.05	103
11: East Added Traffic	15.03	29	15.06	25
12: North Added Traffic	22.80	44	22.89	38
Total	**100.00**	**193**	**100.00**	**166**

Zone / Gate	Zone 10: Southwest Added Traffic			
	To Southwest Added Traffic :		From Southwest Added Traffic :	
	Share %	Trips	Share %	Trips
9: Lancaster Village	100.00	103	100.00	120
11: East Added Traffic	0.00	0	0.00	0
12: North Added Traffic	0.00	0	0.00	0
Total	**100.00**	**103**	**100.00**	**120**

Zone / Gate	Zone 11: East Added Traffic			
	To East Added Traffic:		From East Added Traffic:	
	Share %	Trips	Share %	Trips
9: Lancaster Village	100.00	25	100.00	29
10: Southwest Added Traffic	0.00	0	0.00	0
12: North Added Traffic	0.00	0	0.00	0
Total	**100.00**	**25**	**100.00**	**29**

Zone / Gate	Zone 12: North Added Traffic			
	To North Added Traffic:		From North Added Traffic:	
	Share %	Trips	Share %	Trips
9: Lancaster Village	100.00	38	100.00	44
10: Southwest Added Traffic	0.00	0	0.00	0
11: East Added Traffic	0.00	0	0.00	0
Total	**100.00**	**38**	**100.00**	**44**

Traffic Conditions



Intersection Level Of Service Report

Intersection 1: N Aurora St/St Marys St/Pleasant Ave/ New Rd (2014)

Control Type:	Roundabout	Delay (sec / veh):	8.9
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	Aurora St			N Aurora St			St Marys St			Pleasant Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Aurora St			N Aurora St			St Marys St			Pleasant Ave		
Base Volume Input [veh/h]	6	202	270	14	147	11	8	25	11	226	51	30
Base Volume Adjustment Factor	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660
Heavy Vehicles Percentage [%]	0.00	2.00	7.00	14.00	8.00	18.00	13.00	0.00	0.00	9.00	0.00	0.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	1	1	1	1	3	0	0	1	3	5	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	7	220	295	16	163	12	9	29	15	251	55	33
Peak Hour Factor	0.5000	0.7000	0.8900	0.5800	0.8400	0.5500	0.4000	0.6300	0.3900	0.9000	0.7500	0.6800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	79	83	7	49	5	6	12	10	70	18	12
Total Analysis Volume [veh/h]	14	314	331	28	194	22	23	46	38	279	73	49
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	104			391			546			360		
Exiting Flow Rate [veh/h]	552			395			113			432		
Demand Flow Rate [veh/h]	7	220	295	16	163	12	9	29	15	251	55	33
Adjusted Demand Flow Rate [veh/h]	14	314	331	28	194	22	23	46	38	279	73	49

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.95	0.92	0.98	0.94
Entry Flow Rate [veh/h]	691	267	110	428
Capacity of Entry and Bypass Lanes [veh/h]	1242	927	792	956
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1186	850	776	898
X, volume / capacity	0.56	0.29	0.14	0.45

Movement, Approach, & Intersection Results

Lane LOS	A	A	A	A
95th-Percentile Queue Length [veh]	3.56	1.19	0.48	2.34
95th-Percentile Queue Length [ft]	89.12	29.77	11.93	58.41
Approach Delay [s/veh]	9.55	7.38	6.07	9.45
Approach LOS	A	A	A	A
Intersection Delay [s/veh]	8.88			
Intersection LOS	A			

Intersection Level Of Service Report
Intersection 2: Pleasant Ave/ Central Ave (2014)

Control Type:	Roundabout	Delay (sec / veh):	13.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes		

Intersection Setup

Name	Central Ave			Central Ave			Pleasant Ave			Pleasant Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Central Ave			Central Ave			Pleasant Ave			Pleasant Ave		
Base Volume Input [veh/h]	13	307	4	13	164	227	305	14	4	5	62	212
Base Volume Adjustment Factor	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660
Heavy Vehicles Percentage [%]	15.00	7.00	25.00	15.00	5.00	8.00	6.00	7.00	25.00	20.00	2.00	3.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	0	8	14	3	1	0	2	3	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	14	336	4	14	187	261	335	16	4	7	70	231
Peak Hour Factor	0.8100	0.9300	0.3300	0.7000	0.7700	0.7300	0.8300	0.7000	0.3300	0.3100	0.7400	0.7400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	90	3	5	61	89	101	6	3	6	24	78
Total Analysis Volume [veh/h]	17	361	12	20	243	358	404	23	12	23	95	312
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	476			144			306			834		
Exiting Flow Rate [veh/h]	298			1136			503			63		
Demand Flow Rate [veh/h]	14	336	4	14	187	261	335	16	4	7	70	231
Adjusted Demand Flow Rate [veh/h]	17	361	12	20	243	358	404	23	12	23	95	312

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.93	0.93	0.94	0.97
Entry Flow Rate [veh/h]	420	665	467	444
Capacity of Entry and Bypass Lanes [veh/h]	850	1192	1011	590
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	791	1114	952	572
X, volume / capacity	0.49	0.56	0.46	0.75

Movement, Approach, & Intersection Results

Lane LOS	B	B	A	D
95th-Percentile Queue Length [veh]	2.77	3.57	2.48	6.63
95th-Percentile Queue Length [ft]	69.24	89.31	61.91	165.66
Approach Delay [s/veh]	11.38	10.01	9.30	26.69
Approach LOS	B	B	A	D
Intersection Delay [s/veh]	13.94			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 3: Central Ave/Clark St (2014)

Control Type:	Two-way stop	Delay (sec / veh):	14.5
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.070

Intersection Setup

Name	Central Ave		Central Ave		Clark St	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Central Ave		Central Ave		Clark St	
Base Volume Input [veh/h]	311	12	9	158	9	6
Base Volume Adjustment Factor	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	5.00	0.00	0.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	1	0	10	6	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	341	14	10	181	16	6
Peak Hour Factor	0.8600	0.7500	0.7500	0.7200	0.5600	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	99	5	3	63	7	3
Total Analysis Volume [veh/h]	397	19	13	251	29	12
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.01	0.00	0.07	0.02
d_M, Delay for Movement [s/veh]	0.00	0.00	8.16	0.00	14.49	11.31
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.03	0.03	0.29	0.29
95th-Percentile Queue Length [ft/ln]	0.00	0.00	0.85	0.85	7.27	7.27
d_A, Approach Delay [s/veh]	0.00		0.40		13.56	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.92					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 4: Central Ave/West Main St

Control Type:	Two-way stop	Delay (sec / veh):	12.1
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.002

Intersection Setup

Name	Central Ave		Central Ave			
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Central Ave		Central Ave			
Base Volume Input [veh/h]	3	323	149	1	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	2	9	7	1	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	18	325	158	8	1	3
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	5	81	40	2	0	1
Total Analysis Volume [veh/h]	18	325	158	8	1	3
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.00	0.00
d_M, Delay for Movement [s/veh]	7.58	0.00	0.00	0.00	12.14	9.10
Movement LOS	A	A	A	A	B	A
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	0.02	0.02
95th-Percentile Queue Length [ft/ln]	0.97	0.97	0.00	0.00	0.41	0.41
d_A, Approach Delay [s/veh]	0.40		0.00		9.86	
Approach LOS	A		A		A	
d_I, Intersection Delay [s/veh]	0.34					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Broadway/ Central Ave (2014)

Control Type:	Signalized	Delay (sec / veh):	9.0
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.461

Intersection Setup

Name	Central Ave		Broadway		Broadway	
Approach	Southbound		Westbound		Northeastbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Central Ave		Broadway		Broadway	
Base Volume Input [veh/h]	49	44	447	225	38	211
Base Volume Adjustment Factor	1.1910	1.1910	1.1910	1.1910	1.1910	1.1910
Heavy Vehicles Percentage [%]	10.00	5.00	5.00	1.00	3.00	7.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	9	8	15	2	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	62	62	551	288	48	257
Peak Hour Factor	0.7200	0.3900	0.7700	0.7300	0.6800	0.6100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	40	179	99	18	105
Total Analysis Volume [veh/h]	86	159	716	395	71	421
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0		0		0	
v_di, Inbound Pedestrian Volume crossing major street [	0		0		0	
v_co, Outbound Pedestrian Volume crossing minor stree	0		0		0	
v_ci, Inbound Pedestrian Volume crossing minor street [	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	ProtPerm	Permissive
Signal Group	2	0	4	0	3	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	0	5	0	5	5
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	3.0	0.0	3.0	0.0	3.0	3.0
All red [s]	1.0	0.0	1.0	0.0	1.0	1.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	3.0	3.0
Walk [s]	5	0	5	0	0	5
Pedestrian Clearance [s]	10	0	10	0	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	L	C
C, Cycle Length [s]	36	36	36	36	36	36
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	6	6	16	16	22	22
g / C, Green / Cycle	0.16	0.16	0.44	0.44	0.62	0.62
(v / s)_i Volume / Saturation Flow Rate	0.05	0.10	0.30	0.34	0.09	0.23
s, saturation flow rate [veh/h]	1667	1551	1825	1621	751	1795
c, Capacity [veh/h]	260	242	797	709	623	1113
d1, Uniform Delay [s]	13.43	14.19	8.15	8.62	2.69	3.37
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.74	3.02	1.11	1.95	0.08	0.21
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.33	0.66	0.70	0.78	0.11	0.38
d, Delay for Lane Group [s/veh]	14.17	17.21	9.26	10.58	2.77	3.58
Lane Group LOS	B	B	A	B	A	A
Critical Lane Group	No	Yes	No	Yes	Yes	No
50th-Percentile Queue Length [veh/ln]	0.55	1.17	2.40	2.66	0.08	0.55
50th-Percentile Queue Length [ft/ln]	13.75	29.35	60.00	66.59	1.97	13.73
95th-Percentile Queue Length [veh/ln]	0.99	2.11	4.32	4.79	0.14	0.99
95th-Percentile Queue Length [ft/ln]	24.76	52.82	108.00	119.86	3.55	24.71

Movement, Approach, & Intersection Results

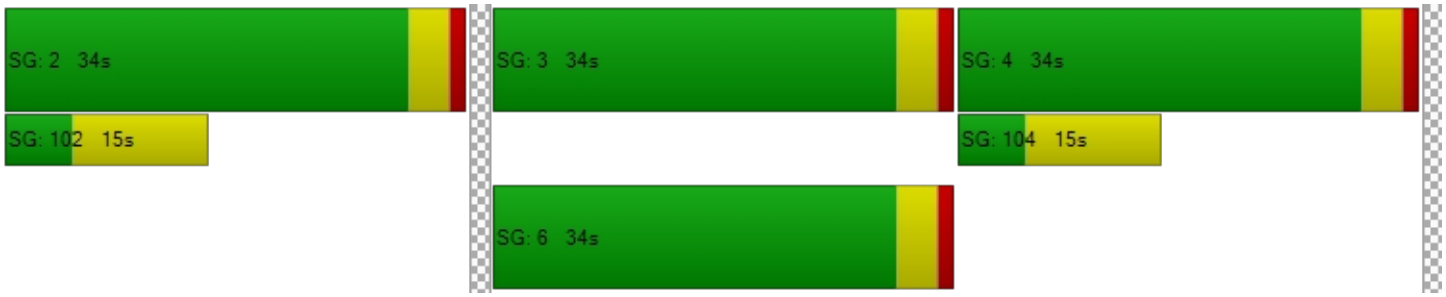
d_M, Delay for Movement [s/veh]	14.17	17.21	9.56	10.58	2.77	3.58
Movement LOS	B	B	A	B	A	A
d_A, Approach Delay [s/veh]	16.15		9.92		3.46	
Approach LOS	B		A		A	
d_I, Intersection Delay [s/veh]	9.03					
Intersection LOS	A					
Intersection V/C	0.461					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.223	2.468	2.466
Crosswalk LOS	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
l_b,int, Bicycle LOS Score for Intersection	4.132	5.049	4.944
Bicycle LOS	D	F	E

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Broadway/Aurora St (2007)

Control Type:	Signalized	Delay (sec / veh):	12.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.466

Intersection Setup

Name				Aurora St						Broadway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Aurora St						Broadway		
Base Volume Input [veh/h]	64	356	80	5	210	61	56	236	41	68	569	16
Base Volume Adjustment Factor	0.8110	0.8110	0.8110	0.8110	0.8110	0.8110	0.8110	0.8110	0.8110	0.8110	0.8110	0.8110
Heavy Vehicles Percentage [%]	2.00	6.00	1.00	20.00	10.00	5.00	14.00	8.00	7.00	7.00	5.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	18	7	3	5	14	51	18	0	2	5	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	324	76	7	185	66	99	220	35	60	494	17
Peak Hour Factor	0.8000	0.7900	0.8700	0.6300	0.7200	0.7600	0.8800	0.8800	0.5100	0.7400	0.8600	0.6700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	103	22	3	64	22	28	63	17	20	144	6
Total Analysis Volume [veh/h]	69	410	87	11	257	87	113	250	69	81	574	25
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	5	2	0	0	6	0	0	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	0	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No			No			No		No	No	
Maximum Recall	No	No			No			No		No	No	
Pedestrian Recall	No	No			No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	6.0	20.0	0.0	0.0	6.0	0.0	0.0	6.0	0.0	20.0	6.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	43	43	43	43	43	43	43	43	43	43
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	18	18	11	11	10	10	10	17	17	17
g / C, Green / Cycle	0.42	0.42	0.26	0.26	0.23	0.23	0.23	0.40	0.40	0.40
(v / s)_i Volume / Saturation Flow Rate	0.06	0.28	0.01	0.21	0.15	0.14	0.05	0.06	0.17	0.17
s, saturation flow rate [veh/h]	1215	1756	770	1675	740	1780	1526	1257	1825	1798
c, Capacity [veh/h]	567	734	168	433	215	409	350	612	722	711
d1, Uniform Delay [s]	7.56	10.14	11.97	14.84	15.17	14.82	13.34	8.23	9.39	9.39
k, delay calibration	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.10	1.10	0.16	3.33	1.98	1.49	0.27	0.10	0.39	0.39
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.12	0.68	0.07	0.79	0.52	0.61	0.20	0.13	0.42	0.42
d, Delay for Lane Group [s/veh]	7.66	11.24	12.13	18.17	17.15	16.31	13.62	8.33	9.78	9.79
Lane Group LOS	A	B	B	B	B	B	B	A	A	A
Critical Lane Group	No	Yes	No	No	Yes	No	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.30	3.02	0.07	2.97	0.96	1.99	0.48	0.38	1.63	1.61
50th-Percentile Queue Length [ft/ln]	7.62	75.58	1.85	74.22	24.07	49.86	12.00	9.55	40.76	40.26
95th-Percentile Queue Length [veh/ln]	0.55	5.44	0.13	5.34	1.73	3.59	0.86	0.69	2.93	2.90
95th-Percentile Queue Length [ft/ln]	13.71	136.04	3.32	133.59	43.33	89.74	21.60	17.19	73.37	72.47

Movement, Approach, & Intersection Results

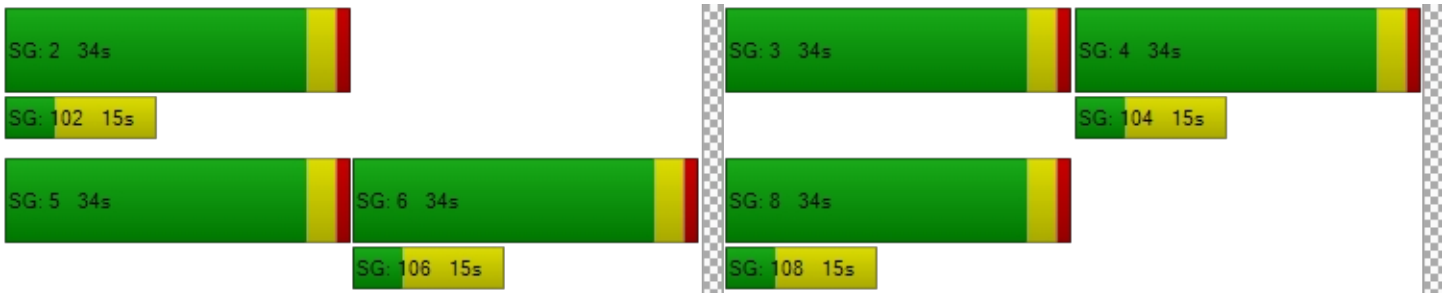
d_M, Delay for Movement [s/veh]	7.66	11.24	11.24	12.13	18.17	18.17	17.15	16.31	13.62	8.33	9.78	9.79
Movement LOS	A	B	B	B	B	B	B	B	B	A	A	A
d_A, Approach Delay [s/veh]	10.81			17.99			16.10			9.61		
Approach LOS	B			B			B			A		
d_I, Intersection Delay [s/veh]	12.78											
Intersection LOS	B											
Intersection V/C	0.466											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.290	2.396	2.558	2.399
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	667	667
d_b, Bicycle Delay [s]	20.00	20.00	20.00	20.00
l_b,int, Bicycle LOS Score for Intersection	2.494	2.145	2.272	2.121
Bicycle LOS	B	B	B	B

Sequence

Ring 1	2	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: N Aurora St/West Main St

Control Type:	Roundabout	Delay (sec / veh):	5.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	Aurora St		Aurora St			
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Aurora St		Aurora St			
Base Volume Input [veh/h]	480	0	0	202	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	52	3	9	17	1
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	482	52	3	211	17	1
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	121	13	1	53	4	0
Total Analysis Volume [veh/h]	482	52	3	211	17	1
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	3		17		492	
Exiting Flow Rate [veh/h]	233		493		56	
Demand Flow Rate [veh/h]	482	52	3	211	17	1
Adjusted Demand Flow Rate [veh/h]	482	52	3	211	17	1

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	0.98	0.98
Entry Flow Rate [veh/h]	545	219	19
Capacity of Entry and Bypass Lanes [veh/h]	1376	1356	836
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1349	1330	820
X, volume / capacity	0.40	0.16	0.02

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	1.93	0.57	0.07
95th-Percentile Queue Length [ft]	48.24	14.33	1.68
Approach Delay [s/veh]	6.39	4.03	4.60
Approach LOS	A	A	A
Intersection Delay [s/veh]	5.69		
Intersection LOS	A		

Intersection Level Of Service Report

Intersection 1: N Aurora St/St Marys St/Pleasant Ave/ New Rd (2014)

Control Type:	Roundabout	Delay (sec / veh):	11.0
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes		

Intersection Setup

Name	Aurora St			N Aurora St			St Marys St			Pleasant Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Aurora St			N Aurora St			St Marys St			Pleasant Ave		
Base Volume Input [veh/h]	11	118	263	46	202	3	9	93	13	325	48	9
Base Volume Adjustment Factor	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660
Heavy Vehicles Percentage [%]	0.00	2.00	7.00	14.00	8.00	18.00	13.00	0.00	0.00	9.00	0.00	0.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	3	6	2	4	0	0	2	4	7	1	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	15	132	292	52	223	3	10	103	18	360	53	11
Peak Hour Factor	0.5000	0.7000	0.8900	0.5800	0.8400	0.5500	0.4000	0.6300	0.3900	0.9000	0.7500	0.6800
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	47	82	22	66	1	6	41	12	100	18	4
Total Analysis Volume [veh/h]	30	189	328	90	265	5	25	163	46	400	71	16
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	294			537			825			251		
Exiting Flow Rate [veh/h]	768			237			107			617		
Demand Flow Rate [veh/h]	15	132	292	52	223	3	10	103	18	360	53	11
Adjusted Demand Flow Rate [veh/h]	30	189	328	90	265	5	25	163	46	400	71	16

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.95	0.92	0.99	0.93
Entry Flow Rate [veh/h]	576	394	237	524
Capacity of Entry and Bypass Lanes [veh/h]	1023	798	595	1069
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	973	731	590	994
X, volume / capacity	0.56	0.49	0.40	0.49

Movement, Approach, & Intersection Results

Lane LOS	B	B	B	A
95th-Percentile Queue Length [veh]	3.61	2.75	1.89	2.76
95th-Percentile Queue Length [ft]	90.36	68.72	47.32	69.11
Approach Delay [s/veh]	11.17	12.07	12.05	9.51
Approach LOS	B	B	B	A
Intersection Delay [s/veh]	11.00			
Intersection LOS	B			

Intersection Level Of Service Report
Intersection 2: Pleasant Ave/ Central Ave (2014)

Control Type:	Roundabout	Delay (sec / veh):	15.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes		

Intersection Setup

Name	Central Ave			Central Ave			Pleasant Ave			Pleasant Ave		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name	Central Ave			Central Ave			Pleasant Ave			Pleasant Ave		
Base Volume Input [veh/h]	10	273	6	66	337	367	289	80	50	10	34	104
Base Volume Adjustment Factor	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	9	2	0	10	17	15	3	0	2	4	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	11	306	8	71	376	416	329	90	54	13	41	113
Peak Hour Factor	0.6300	0.8900	0.5000	0.8300	0.9400	0.9400	0.8400	0.8000	0.7800	0.6300	0.7100	0.7900
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	86	4	21	100	111	98	28	17	5	14	36
Total Analysis Volume [veh/h]	17	344	16	86	400	443	392	113	69	21	58	143
Pedestrian Volume [ped/h]	0			0			0			0		

Intersection Settings

Number of Conflicting Circulating Lanes	1			1			1			1		
Circulating Flow Rate [veh/h]	603			98			517			768		
Exiting Flow Rate [veh/h]	500			897			528			219		
Demand Flow Rate [veh/h]	11	306	8	71	376	416	329	90	54	13	41	113
Adjusted Demand Flow Rate [veh/h]	17	344	16	86	400	443	392	113	69	21	58	143

Lanes

Overwrite Calculated Critical Headway	No	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	0.98	0.98	0.98
Entry Flow Rate [veh/h]	385	948	586	227
Capacity of Entry and Bypass Lanes [veh/h]	747	1249	815	631
Pedestrian Impedance	1.00	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	732	1225	799	619
X, volume / capacity	0.52	0.76	0.72	0.36

Movement, Approach, & Intersection Results

Lane LOS	B	C	C	B
95th-Percentile Queue Length [veh]	2.99	7.79	6.27	1.63
95th-Percentile Queue Length [ft]	74.71	194.80	156.81	40.70
Approach Delay [s/veh]	12.61	15.31	18.75	10.85
Approach LOS	B	C	C	B
Intersection Delay [s/veh]	15.29			
Intersection LOS	C			

Intersection Level Of Service Report
Intersection 3: Central Ave/Clark St (2014)

Control Type:	Two-way stop	Delay (sec / veh):	22.1
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.125

Intersection Setup

Name	Central Ave		Central Ave		Clark St	
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Central Ave		Central Ave		Clark St	
Base Volume Input [veh/h]	276	10	22	405	10	17
Base Volume Adjustment Factor	1.0660	1.0660	1.0660	1.0660	1.0660	1.0660
Heavy Vehicles Percentage [%]	2.00	0.00	0.00	5.00	0.00	0.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	6	0	12	6	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	310	17	23	453	17	18
Peak Hour Factor	0.8600	0.7500	0.7500	0.7200	0.5600	0.5000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	90	6	8	157	8	9
Total Analysis Volume [veh/h]	360	23	31	629	30	36
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.03	0.01	0.13	0.05
d_M, Delay for Movement [s/veh]	0.00	0.00	8.12	0.00	22.13	12.40
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	0.08	0.08	0.64	0.64
95th-Percentile Queue Length [ft/ln]	0.00	0.00	2.01	2.01	16.00	16.00
d_A, Approach Delay [s/veh]	0.00		0.38		16.82	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	1.23					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 4: Central Ave/West Main St

Control Type:	Two-way stop	Delay (sec / veh):	14.9
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.019

Intersection Setup

Name	Central Ave		Central Ave			
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Central Ave		Central Ave			
Base Volume Input [veh/h]	1	286	402	5	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	15	9	11	8	7	13
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	16	295	413	13	7	13
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	4	74	103	3	2	3
Total Analysis Volume [veh/h]	16	295	413	13	7	13
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.00	0.00	0.02	0.02
d_M, Delay for Movement [s/veh]	8.22	0.00	0.00	0.00	14.90	10.97
Movement LOS	A	A	A	A	B	B
95th-Percentile Queue Length [veh/ln]	0.04	0.04	0.00	0.00	0.12	0.12
95th-Percentile Queue Length [ft/ln]	1.07	1.07	0.00	0.00	3.05	3.05
d_A, Approach Delay [s/veh]	0.42		0.00		12.35	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.50					
Intersection LOS	B					

Intersection Level Of Service Report
Intersection 5: Broadway/ Central Ave (2014)

Control Type:	Signalized	Delay (sec / veh):	16.8
Analysis Method:	HCM 6th Edition	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.720

Intersection Setup

Name	Central Ave		Broadway		Broadway	
Approach	Southbound		Westbound		Northeastbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	1	0	0	1	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Curb Present	No		No		No	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Central Ave		Broadway		Broadway	
Base Volume Input [veh/h]	253	110	614	184	96	663
Base Volume Adjustment Factor	1.1910	1.1910	1.1910	1.1910	1.1910	1.1910
Heavy Vehicles Percentage [%]	1.00	7.00	2.00	1.00	2.00	3.00
Growth Factor	1.0200	1.0200	1.0200	1.0200	1.0200	1.0200
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	11	8	15	9	7
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	320	145	754	238	125	813
Peak Hour Factor	0.9000	0.8300	0.7700	0.8500	0.5500	0.8400
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	89	44	245	70	57	242
Total Analysis Volume [veh/h]	356	175	979	280	227	968
Presence of On-Street Parking	No	No	No	No	No	No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0		0		0	
v_di, Inbound Pedestrian Volume crossing major street [	0		0		0	
v_co, Outbound Pedestrian Volume crossing minor stree	0		0		0	
v_ci, Inbound Pedestrian Volume crossing minor street [	0		0		0	
v_ab, Corner Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	ProtPerm	Permissive
Signal Group	2	0	4	0	3	6
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-
Minimum Green [s]	5	0	5	0	5	5
Maximum Green [s]	30	0	30	0	30	30
Amber [s]	3.0	0.0	3.0	0.0	3.0	3.0
All red [s]	1.0	0.0	1.0	0.0	1.0	1.0
Split [s]	0	0	0	0	0	0
Vehicle Extension [s]	3.0	0.0	3.0	0.0	3.0	3.0
Walk [s]	5	0	5	0	0	5
Pedestrian Clearance [s]	10	0	10	0	0	10
Rest In Walk	No		No			No
I1, Start-Up Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
I2, Clearance Lost Time [s]	2.0	0.0	2.0	0.0	2.0	2.0
Minimum Recall	No		No		No	No
Maximum Recall	No		No		No	No
Pedestrian Recall	No		No		No	No
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	0.0	0.0	0.0	0.0	0.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	R	C	C	L	C
C, Cycle Length [s]	53	53	53	53	53	53
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	2.00	2.00	2.00	2.00	0.00	2.00
g_i, Effective Green Time [s]	13	13	22	22	32	32
g / C, Green / Cycle	0.25	0.25	0.42	0.42	0.60	0.60
(v / s)_i Volume / Saturation Flow Rate	0.20	0.11	0.34	0.36	0.31	0.52
s, saturation flow rate [veh/h]	1795	1526	1870	1734	741	1855
c, Capacity [veh/h]	447	380	792	734	507	1114
d1, Uniform Delay [s]	18.73	16.96	13.35	13.90	4.86	8.88
k, delay calibration	0.11	0.11	0.16	0.19	0.12	0.40
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	3.28	0.87	2.66	5.19	0.66	7.52
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.80	0.46	0.80	0.86	0.45	0.87
d, Delay for Lane Group [s/veh]	22.01	17.83	16.01	19.09	5.53	16.40
Lane Group LOS	C	B	B	B	A	B
Critical Lane Group	Yes	No	No	No	No	Yes
50th-Percentile Queue Length [veh/ln]	4.05	1.71	5.93	6.62	0.88	8.42
50th-Percentile Queue Length [ft/ln]	101.22	42.82	148.19	165.52	21.91	210.52
95th-Percentile Queue Length [veh/ln]	7.29	3.08	9.92	10.84	1.58	13.18
95th-Percentile Queue Length [ft/ln]	182.20	77.08	248.01	271.01	39.43	329.50

Movement, Approach, & Intersection Results

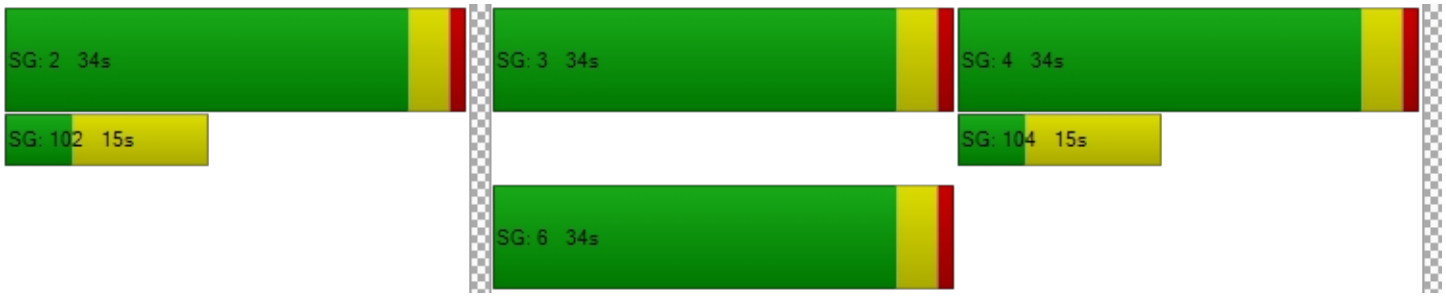
d_M, Delay for Movement [s/veh]	22.01	17.83	17.11	19.09	5.53	16.40
Movement LOS	C	B	B	B	A	B
d_A, Approach Delay [s/veh]	20.63		17.55		14.33	
Approach LOS	C		B		B	
d_I, Intersection Delay [s/veh]	16.81					
Intersection LOS	B					
Intersection V/C	0.720					

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.428	2.781	2.705
Crosswalk LOS	B	C	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	0	0	0
d_b, Bicycle Delay [s]	45.00	45.00	45.00
l_b,int, Bicycle LOS Score for Intersection	4.132	5.171	6.104
Bicycle LOS	D	F	F

Sequence

Ring 1	2	3	4	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	-	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 6: Broadway/Aurora St (2007)

Control Type:	Signalized	Delay (sec / veh):	25.6
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.675

Intersection Setup

Name				Aurora St						Broadway		
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	1	0	0	1	0	1	1	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Curb Present	No			No			No			No		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name				Aurora St						Broadway		
Base Volume Input [veh/h]	58	197	66	10	316	84	65	566	111	114	335	17
Base Volume Adjustment Factor	0.8110	0.8110	0.8110	0.8110	0.8110	0.8110	0.8110	0.8110	0.8110	0.8110	0.8110	0.8110
Heavy Vehicles Percentage [%]	0.00	0.00	0.00	0.00	1.00	1.00	2.00	3.00	0.00	1.00	3.00	0.00
Growth Factor	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	23	8	5	20	57	66	23	0	7	20	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Right-Turn on Red Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	50	193	65	13	291	129	122	510	95	105	308	20
Peak Hour Factor	0.7300	0.7500	0.6600	0.8300	0.7300	0.7800	0.8600	0.9300	0.7700	0.8100	0.8400	0.7100
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	64	25	4	100	41	35	137	31	32	92	7
Total Analysis Volume [veh/h]	68	257	98	16	399	165	142	548	123	130	367	28
Presence of On-Street Parking	No		No	No		No	No		No	No		No
On-Street Parking Maneuver Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
Local Bus Stopping Rate [/h]	0	0	0	0	0	0	0	0	0	0	0	0
v_do, Outbound Pedestrian Volume crossing major stree	0			0			0			0		
v_di, Inbound Pedestrian Volume crossing major street [	0			0			0			0		
v_co, Outbound Pedestrian Volume crossing minor stree	0			0			0			0		
v_ci, Inbound Pedestrian Volume crossing minor street [	0			0			0			0		
v_ab, Corner Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Located in CBD	No
Signal Coordination Group	-
Cycle Length [s]	90
Coordination Type	Free Running
Actuation Type	Fully actuated
Offset [s]	0.0
Offset Reference	LeadGreen
Permissive Mode	SingleBand
Lost time [s]	0.00

Phasing & Timing

Control Type	ProtPer	Permis	Permis	Permis	Permis	Permis	Permis	Permis	Permis	ProtPer	Permis	Permis
Signal Group	5	2	0	0	6	0	0	4	0	3	8	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	-	-	-	-	-	-	Lead	-	-
Minimum Green [s]	5	5	0	0	5	0	0	5	0	5	5	0
Maximum Green [s]	30	30	0	0	30	0	0	30	0	30	30	0
Amber [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
All red [s]	1.0	1.0	0.0	0.0	1.0	0.0	0.0	1.0	0.0	1.0	1.0	0.0
Split [s]	0	0	0	0	0	0	0	0	0	0	0	0
Vehicle Extension [s]	3.0	3.0	0.0	0.0	3.0	0.0	0.0	3.0	0.0	3.0	3.0	0.0
Walk [s]	0	5	0	0	5	0	0	5	0	0	5	0
Pedestrian Clearance [s]	0	10	0	0	10	0	0	10	0	0	10	0
Rest In Walk		No			No			No			No	
I1, Start-Up Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
I2, Clearance Lost Time [s]	2.0	2.0	0.0	0.0	2.0	0.0	0.0	2.0	0.0	2.0	2.0	0.0
Minimum Recall	No	No			No			No		No	No	
Maximum Recall	No	No			No			No		No	No	
Pedestrian Recall	No	No			No			No		No	No	
Detector Location [ft]	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector Length [ft]	6.0	20.0	0.0	0.0	6.0	0.0	0.0	6.0	0.0	20.0	6.0	0.0
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Exclusive Pedestrian Phase

Pedestrian Signal Group	0
Pedestrian Walk [s]	0
Pedestrian Clearance [s]	0

Lane Group Calculations

Lane Group	L	C	L	C	L	C	R	L	C	C
C, Cycle Length [s]	76	76	76	76	76	76	76	76	76	76
L, Total Lost Time per Cycle [s]	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00	4.00
l1_p, Permitted Start-Up Lost Time [s]	0.00	0.00	2.00	0.00	2.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Lost Time [s]	0.00	2.00	2.00	2.00	2.00	2.00	2.00	0.00	2.00	2.00
g_i, Effective Green Time [s]	34	34	26	26	25	25	25	34	34	34
g / C, Green / Cycle	0.44	0.44	0.34	0.34	0.33	0.33	0.33	0.45	0.45	0.45
(v / s)_i Volume / Saturation Flow Rate	0.07	0.20	0.02	0.31	0.14	0.30	0.08	0.13	0.11	0.11
s, saturation flow rate [veh/h]	995	1812	1043	1792	989	1855	1615	1036	1855	1809
c, Capacity [veh/h]	334	805	283	613	330	611	532	374	837	816
d1, Uniform Delay [s]	12.26	14.67	16.82	24.15	20.21	24.37	18.59	12.41	12.90	12.91
k, delay calibration	0.11	0.11	0.11	0.31	0.11	0.27	0.11	0.11	0.11	0.11
I, Upstream Filtering Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d2, Incremental Delay [s]	0.30	0.38	0.08	14.74	0.89	11.08	0.22	0.55	0.15	0.15
d3, Initial Queue Delay [s]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, platoon ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PF, progression factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00

Lane Group Results

X, volume / capacity	0.20	0.44	0.06	0.92	0.43	0.90	0.23	0.35	0.24	0.24
d, Delay for Lane Group [s/veh]	12.56	15.05	16.91	38.89	21.10	35.45	18.81	12.96	13.05	13.06
Lane Group LOS	B	B	B	D	C	D	B	B	B	B
Critical Lane Group	Yes	No	No	Yes	No	Yes	No	Yes	No	No
50th-Percentile Queue Length [veh/ln]	0.66	4.01	0.19	11.61	1.97	10.68	1.54	1.28	1.99	1.95
50th-Percentile Queue Length [ft/ln]	16.39	100.23	4.66	290.27	49.34	267.11	38.49	32.08	49.71	48.79
95th-Percentile Queue Length [veh/ln]	1.18	7.22	0.34	17.20	3.55	16.05	2.77	2.31	3.58	3.51
95th-Percentile Queue Length [ft/ln]	29.50	180.42	8.39	429.97	88.81	401.13	69.28	57.74	89.47	87.82

Movement, Approach, & Intersection Results

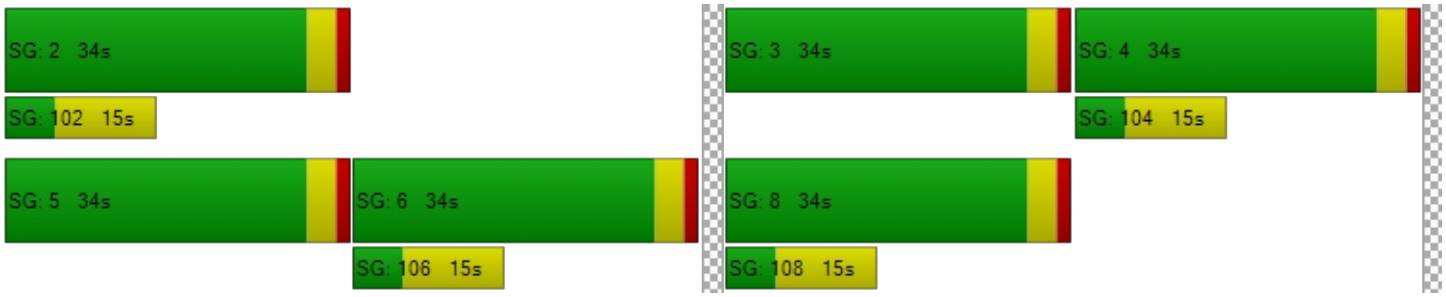
d_M, Delay for Movement [s/veh]	12.56	15.05	15.05	16.91	38.89	38.89	21.10	35.45	18.81	12.96	13.05	13.06
Movement LOS	B	B	B	B	D	D	C	D	B	B	B	B
d_A, Approach Delay [s/veh]	14.65			38.28			30.42			13.03		
Approach LOS	B			D			C			B		
d_I, Intersection Delay [s/veh]	25.62											
Intersection LOS	C											
Intersection V/C	0.675											

Other Modes

g_Walk,mi, Effective Walk Time [s]	9.0	9.0	9.0	9.0
M_corner, Corner Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
M_CW, Crosswalk Circulation Area [ft²/ped]	0.00	0.00	0.00	0.00
d_p, Pedestrian Delay [s]	36.45	36.45	36.45	36.45
l_p,int, Pedestrian LOS Score for Intersection	2.357	2.471	2.612	2.445
Crosswalk LOS	B	B	B	B
s_b, Saturation Flow Rate of the bicycle lane [bicycles/h]	2000	2000	2000	2000
c_b, Capacity of the bicycle lane [bicycles/h]	667	667	667	667
d_b, Bicycle Delay [s]	20.00	20.00	20.00	20.00
l_b,int, Bicycle LOS Score for Intersection	2.258	2.517	2.901	1.993
Bicycle LOS	B	B	C	A

Sequence

Ring 1	2	-	3	4	-	-	-	-	-	-	-	-	-	-	-	-
Ring 2	5	6	8	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ring 4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



Intersection Level Of Service Report
Intersection 7: N Aurora St/West Main St

Control Type:	Roundabout	Delay (sec / veh):	7.7
Analysis Method:	HCM 6th Edition	Level Of Service:	A
Analysis Period:	15 minutes		

Intersection Setup

Name	Aurora St		Aurora St			
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name	Aurora St		Aurora St			
Base Volume Input [veh/h]	392	0	0	697	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	69	3	11	60	3
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	402	69	3	708	60	3
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	101	17	1	177	15	1
Total Analysis Volume [veh/h]	402	69	3	708	60	3
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Number of Conflicting Circulating Lanes	1		1		1	
Circulating Flow Rate [veh/h]	3		61		410	
Exiting Flow Rate [veh/h]	783		413		73	
Demand Flow Rate [veh/h]	402	69	3	708	60	3
Adjusted Demand Flow Rate [veh/h]	402	69	3	708	60	3

Lanes

Overwrite Calculated Critical Headway	No	No	No
User-Defined Critical Headway [s]	4.00	4.00	4.00
Overwrite Calculated Follow-Up Time	No	No	No
User-Defined Follow-Up Time [s]	3.00	3.00	3.00
A (intercept)	1380.00	1380.00	1380.00
B (coefficient)	0.00102	0.00102	0.00102
HV Adjustment Factor	0.98	0.98	0.98
Entry Flow Rate [veh/h]	481	726	65
Capacity of Entry and Bypass Lanes [veh/h]	1376	1297	909
Pedestrian Impedance	1.00	1.00	1.00
Capacity per Entry Lane [veh/h]	1349	1272	891
X, volume / capacity	0.35	0.56	0.07

Movement, Approach, & Intersection Results

Lane LOS	A	A	A
95th-Percentile Queue Length [veh]	1.59	3.62	0.23
95th-Percentile Queue Length [ft]	39.67	90.53	5.70
Approach Delay [s/veh]	5.84	9.16	4.70
Approach LOS	A	A	A
Intersection Delay [s/veh]	7.68		
Intersection LOS	A		