



# Traffic Analysis Update

Broad Street Road Diet  
Windsor, Connecticut  
September 8, 2020

*Prepared for:*  
Mr. Adam Kessler, PE  
Assistant Town Engineer  
Town of Windsor  
275 Broad Street  
Windsor, Connecticut 06095

MMI #3600-19-02

*Prepared by:*  
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**MILONE & MACBROOM**

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September 8, 2020

Mr. Adam Kessler, PE  
Assistant Town Engineer  
Town of Windsor  
275 Broad Street  
Windsor, CT 06095

**RE: Update of Traffic Analysis  
Broad Street Road Diet  
Windsor, Connecticut  
MMI #3600-19-02**

Dear Mr. Kessler:

At your request, we have completed an update of traffic data and analyses associated with a proposed road diet on Broad Street (State Route 159) in Windsor, Connecticut.

In 2014, Milone & MacBroom, Inc. (MMI) conducted a traffic assessment and prepared preliminary layout plans (traffic signals, signage, and pavement markings) for a road diet on the segment of Broad Street (State Route 159) from Poquonock Avenue (State Route 75) to Batchelder Road. The project was not implemented, and the Town of Windsor is seeking to revive the project. Due to the 5-year time lapse, the Town of Windsor has requested for MMI to update the traffic analysis and previous recommendations before any design work is initiated. The 2014 preliminary road diet plan is presented in **Figure 1**.

As shown in Figure 1, the project proposes to reduce Broad Street (State Route 159) to one travel lane in each direction from Poquonock Avenue (State Route 75) to Batchelder Road with left-turn pockets and parallel parking on both sides of the street.

## **EXISTING CONDITIONS**

Existing traffic and roadway information on Broad Street (State Route 159) including vehicle and pedestrian volumes, intersection geometry, and signal plans were collected at each of the three signalized intersections within the corridor to create an existing conditions profile. The existing intersection geometry is shown in **Figure 2** and the existing signal timing plans are included in the Appendix on this report.

### **Existing Peak-Hour Traffic Volumes**

Manual turning movement counts for pedestrians and vehicles were performed at the following three signalized intersections within the study area:

1. Broad Street/Palisade Avenue (State Route 159) at Poquonock Avenue (State Route 75)
2. Broad Street (State Route 159) at Maple Avenue
3. Broad Street (State Route 159) at Batchelder Road

The counts were performed on Wednesday, December 4, 2019, from 7:00 a.m. to 9:00 a.m. and 4:00 p.m. to 6:00 p.m. during typical peak periods. Based on the counts, the morning peak hour was found to be from 7:30 a.m. to 8:30 a.m. and the evening peak hour was found to be from 4:45 p.m. to 5:45 p.m. The existing baseline peak-hour traffic volumes are shown in **Figure 3**. The raw count data is included in the Appendix.

### **Existing Traffic Analysis**

The study intersections were evaluated by means of capacity analysis techniques using *Synchro* traffic analysis software package. Using *Synchro 10* (Trafficware), the Levels of Service (LOS) were determined. LOS is used to provide a qualitative evaluation of the efficiency of operations of an intersection in terms of delay and inconvenience based on certain quantitative calculations. A description of the various LOS designations, A through F, is given in the Appendix. LOS A describes operations with very low average control delay per vehicle while LOS F describes operations with long average delays. **Table 1** summarizes the capacity analysis findings under Existing Conditions. The *Synchro* analysis worksheets are included in the Appendix.

**TABLE 1**  
**Existing Conditions**  
**Capacity Analysis Summary**

Intersection	Signalized LOS	
	Morning Peak Hour	Evening Peak Hour
<b>1. Broad Street (CT-159) at Poquonock Avenue (CT-75)</b>		
Eastbound Left/Through	D	D
Eastbound Right	B	A
Westbound Left/Through/Right	C	C
Northbound Left	D	D
Northbound Through/Right	A	A
Southbound Left/Through/Right	B	A
<i>Overall Intersection</i>	<i>B</i>	<i>B</i>
<b>2. Broad Street (CT-159) at Maple Avenue</b>		
Eastbound Left/Through/Right	C	C
Westbound Left	C	D
Westbound Through/Right	C	C
Northbound Left/Through/Right	A	A
Southbound Left/Through/Right	A	A
<i>Overall Intersection</i>	<i>A</i>	<i>A</i>
<b>3. Broad Street (CT-159) at Batchelder Road</b>		
Eastbound Left/Through/Right	C	D
Westbound Left/Through/Right	C	C
Northbound Left/Through/Right	A	A
Southbound Left/Through/Right	A	A
<i>Overall Intersection</i>	<i>A</i>	<i>A</i>

Notes: LOS calculations are based on the methodology outlined in the *Highway Capacity Manual*, 6<sup>th</sup> Edition and performed using *Synchro 10*.

As shown in Table 1, all movements currently operate at acceptable LOS (LOS A to LOS D).

### **FUTURE YEAR (2030) CONDITIONS**

A future (2030) planning year horizon was utilized for traffic analysis. It is expected that the proposed road diet improvements would be completed by then.

#### **Future Year (2030) Peak-Hour Volumes**

Future (2030) peak-hour intersection turning movement volumes for the study intersections were provided by the Connecticut Department of Transportation (CTDOT) Bureau of Policy and Planning. These volumes are shown in **Figure 4**.

#### **Future Year (2030) Baseline Traffic Analysis**

The Future Year (2030) Baseline scenario represents the future conditions of Broad Street (State Route 159) without the proposed road diet. Existing intersection geometry and signal timing was maintained for this scenario. The study intersections were evaluated under Future Year (2030) Baseline Conditions by means of capacity analysis techniques using *Synchro* traffic analysis software package to determine the LOS.

**Table 2** summarizes the capacity analysis findings under Future Year (2030) Baseline Conditions. The *Synchro* analysis worksheets are included in the Appendix. As shown in Table 2, all movements are expected to continue to operate at acceptable LOS (LOS A to LOS D) under Design Year (2030) Baseline Conditions.

**TABLE 2**  
**Future Year (2030) Baseline Conditions**  
**Capacity Analysis Summary**

Intersection	Signalized LOS	
	Morning Peak Hour	Evening Peak Hour
<b>1. Broad Street (CT-159) at Poquonock Avenue (CT-75)</b>		
Eastbound Left/Through	C	D
Eastbound Right	B	A
Westbound Left/Through/Right	C	C
Northbound Left	D	D
Northbound Through/Right	A	A
Southbound Left/Through/Right	B	B
<i>Overall Intersection</i>	<i>B</i>	<i>B</i>
<b>2. Broad Street (CT-159) at Maple Avenue</b>		
Eastbound Left/Through/Right	C	C
Westbound Left	C	D
Westbound Through/Right	C	C
Northbound Left/Through/Right	A	A
Southbound Left/Through/Right	A	A
<i>Overall Intersection</i>	<i>A</i>	<i>A</i>
<b>3. Broad Street (CT-159) at Batchelder Road</b>		
Eastbound Left/Through/Right	C	D
Westbound Left/Through/Right	C	C
Northbound Left/Through/Right	A	A
Southbound Left/Through/Right	A	A
<i>Overall Intersection</i>	<i>A</i>	<i>A</i>

Notes: LOS calculations are based on the methodology outlined in the *Highway Capacity Manual*, 6<sup>th</sup> Edition and performed using *Synchro 10*.

**Future Year (2030) Build (with Road Diet) Traffic Analysis**

The Future Year (2030) Build scenario represents the future conditions with the implementation of the proposed road diet. The road diet includes the reduction of Broad Street (State Route 159) to one travel lane in each direction from Poquonock Avenue (State Route 75) to Batchelder Road with left-turn pockets and parallel parking on both sides of the street. The proposed intersection geometry is shown in **Figure 5**. The study intersections were evaluated under Future Year (2030) Build Conditions by means of capacity analysis techniques using *Synchro* traffic analysis software package to determine the LOS.

**Table 3** summarizes the capacity analysis findings under Future Year (2030) Build Conditions with the Road Diet in place. The *Synchro* analysis worksheets are included in the Appendix. As shown in Table 3, all movements are expected to continue to operate at acceptable LOS (LOS A to LOS D) with the construction of the road diet.

**TABLE 3**  
**Future Year (2030) Build (with Road Diet) Conditions**  
**Capacity Analysis Summary**

Intersection	Signalized LOS	
	Morning Peak Hour	Evening Peak Hour
<b>1. Broad Street (CT-159) at Poquonock Avenue (CT-75)*</b>		
Eastbound Left/Through	C	D
Eastbound Right	B	A
Westbound Left/Through/Right	C	C
Northbound Left	A	A
Northbound Through/Right	A	B
Southbound Left	A	A
Southbound Through	B	B
Southbound Right	A	A
<i>Overall Intersection</i>	<i>B</i>	<i>B</i>
<b>2. Broad Street (CT-159) at Maple Avenue</b>		
Eastbound Left/Through/Right	C	C
Westbound Left	C	D
Westbound Through/Right	C	C
Northbound Left	A	A
Northbound Through/Right	A	A
Southbound Left	A	A
Southbound Through/Right	A	A
<i>Overall Intersection</i>	<i>A</i>	<i>A</i>
<b>3. Broad Street (CT-159) at Batchelder Road</b>		
Eastbound Left/Through/Right	C	D
Westbound Left/Through/Right	C	C
Northbound Left	A	A
Northbound Through	A	A
Northbound Right	A	A
Southbound Left/Through/Right	A	A
<i>Overall Intersection</i>	<i>A</i>	<i>A</i>

Notes: LOS calculations are based on the methodology outlined in the *Highway Capacity Manual*, 6<sup>th</sup> Edition and performed using *Synchro 10*.

\*Includes signal phasing and timing improvements

It should be noted that no signal phasing or timing changes are recommended at the intersections of Broad Street (State Route 159) at Maple Avenue and Batchelder Road. Signal phasing and timing revisions are recommended for the intersection of Broad Street (State Route 159) at Poquonock Avenue (State Route 75). Currently, the signal operates on an advance green for the northbound left turn and an eastbound right-turn overlap (Phase 1). With the construction of the proposed southbound left-turn pocket under the road diet, it is recommended to convert Phase 1 to protected northbound and southbound left turns with an eastbound right-turn overlap in lieu of the northbound advance green.

**Figure 6** displays the proposed phase diagram for the intersection of Broad Street (State Route 159) at Poquonock Avenue (State Route 75).

To review the vehicular queues that would result from the proposed road diet, intersection queue analysis was performed using *Synchro 10* (Trafficware) and the methodologies outlined in the *Highway Capacity Manual*. **Table 4** summarizes the queue results under Design Year (2030) with Road Diet Conditions. The *Synchro* analysis worksheets are included in the Appendix.

**TABLE 4**  
**Future Year (2030) Build (with Road Diet) Conditions**  
**Queue Summary**

Intersection	Storage Length	Percentile Queue	Queue Length (feet)	
			Morning Peak Hour	Evening Peak Hour
<b>1. Broad Street (CT-159) at Poquonock Avenue (CT-75)</b>				
Northbound Left	270'	50 <sup>th</sup>	22	25
		95 <sup>th</sup>	29	33
Southbound Left	50'	50 <sup>th</sup>	5	3
		95 <sup>th</sup>	14	10
Southbound Right	75'	50 <sup>th</sup>	5	0
		95 <sup>th</sup>	30	19
<b>2. Broad Street (CT-159) at Maple Avenue</b>				
Westbound Left	70'	50 <sup>th</sup>	10	49
		95 <sup>th</sup>	30	<b>91</b>
Northbound Left	100'	50 <sup>th</sup>	2	4
		95 <sup>th</sup>	6	11
Southbound Left	125'	50 <sup>th</sup>	1	2
		95 <sup>th</sup>	1	11
<b>3. Broad Street (CT-159) at Batchelder Road</b>				
Northbound Left	50'	50 <sup>th</sup>	3	4
		95 <sup>th</sup>	8	12

Notes: **Bold** values indicate queue greater than storage length.  
 Queue calculations are based on the methodology outlined in the *Highway Capacity Manual*, 6<sup>th</sup> Edition and performed using *Synchro 10*.

As shown in Table 4, all queues are expected to be less than the available storage length, except for the westbound left-turn movement at the intersection of Broad Street (State Route 159) and Maple Avenue. The 95<sup>th</sup> percentile queue is expected to exceed the available storage length by 21 feet.

**SUMMARY AND CONCLUSIONS**

MMI has completed an update of the traffic data and analysis associated with the proposed road diet on the segment of Broad Street (State Route 159) from Poquonock Avenue (State Route 75) to Batchelder Road. Based on the latest traffic data and our analysis, traffic within the Broad Street (State Route 159) corridor is expected to operate at acceptable LOS with the implementation of the road diet. Vehicle queues will mostly be accommodated within the available storage lengths. Additionally, the proposed

road diet will greatly enhance safety along Broad Street (State Route 159); improve mobility for pedestrians, bicyclists, and transit users; and add parallel parking along both sides of the street.

Very truly yours,

MILONE & MACBROOM, INC.



Kwesi Brown, PE, PTOE, Associate  
Manager of Transportation Engineering



Emily A. Foster, PE  
Project Engineer, Transportation

3600-19-02-s820-ltr

Attachments:

- Figure 1 – Preliminary Layout Plans
- Figure 2 – Existing Intersection Geometry
- Figure 3 – Existing Peak Hour Volumes
- Figure 4 – Design Year (2030) Peak Hour Volumes
- Figure 5 – Proposed Road Diet Intersection Geometry
- Figure 6 – Proposed Traffic Signal Revisions

Appendices:

- Existing Count Data
- Existing Signal Timing Data
- LOS Designations Descriptions
- *Synchro* Analysis Worksheets



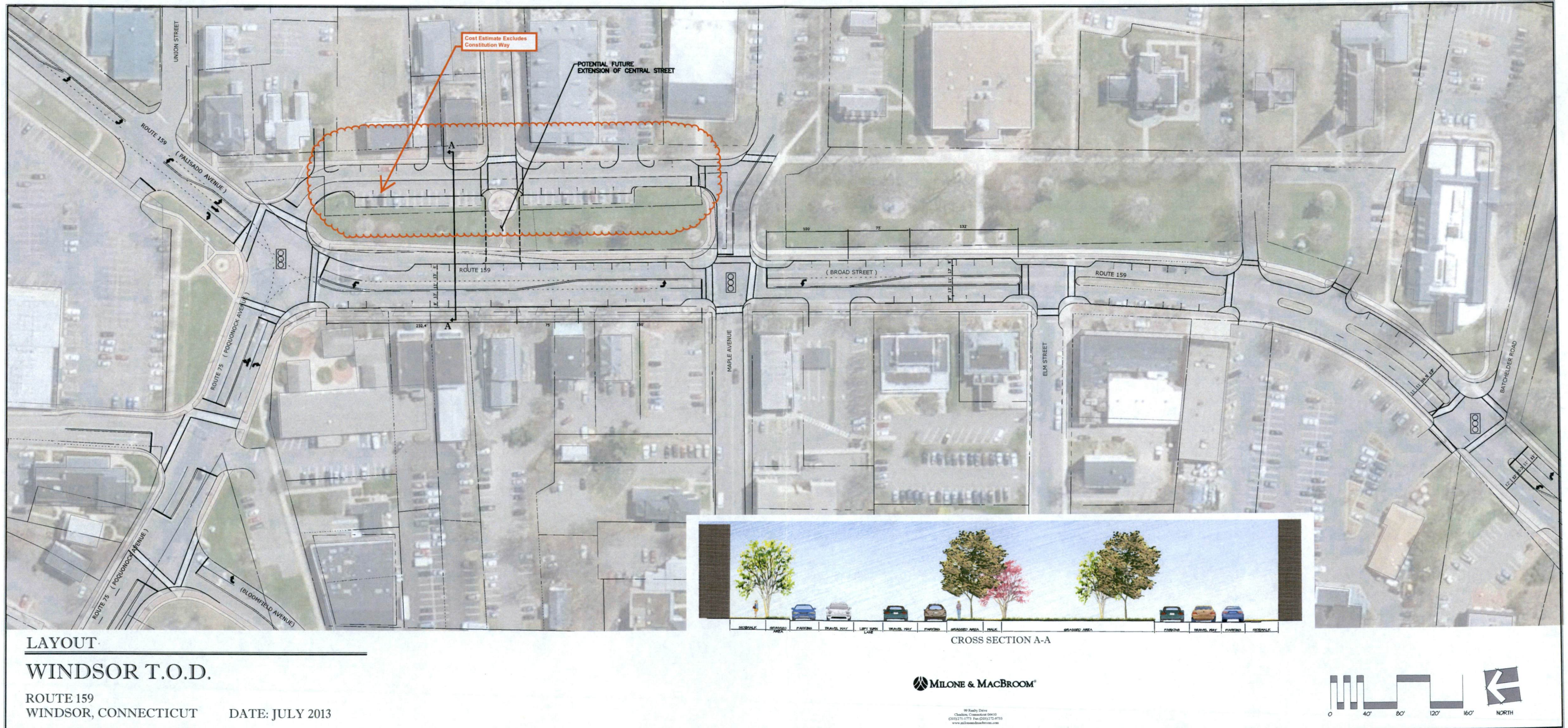
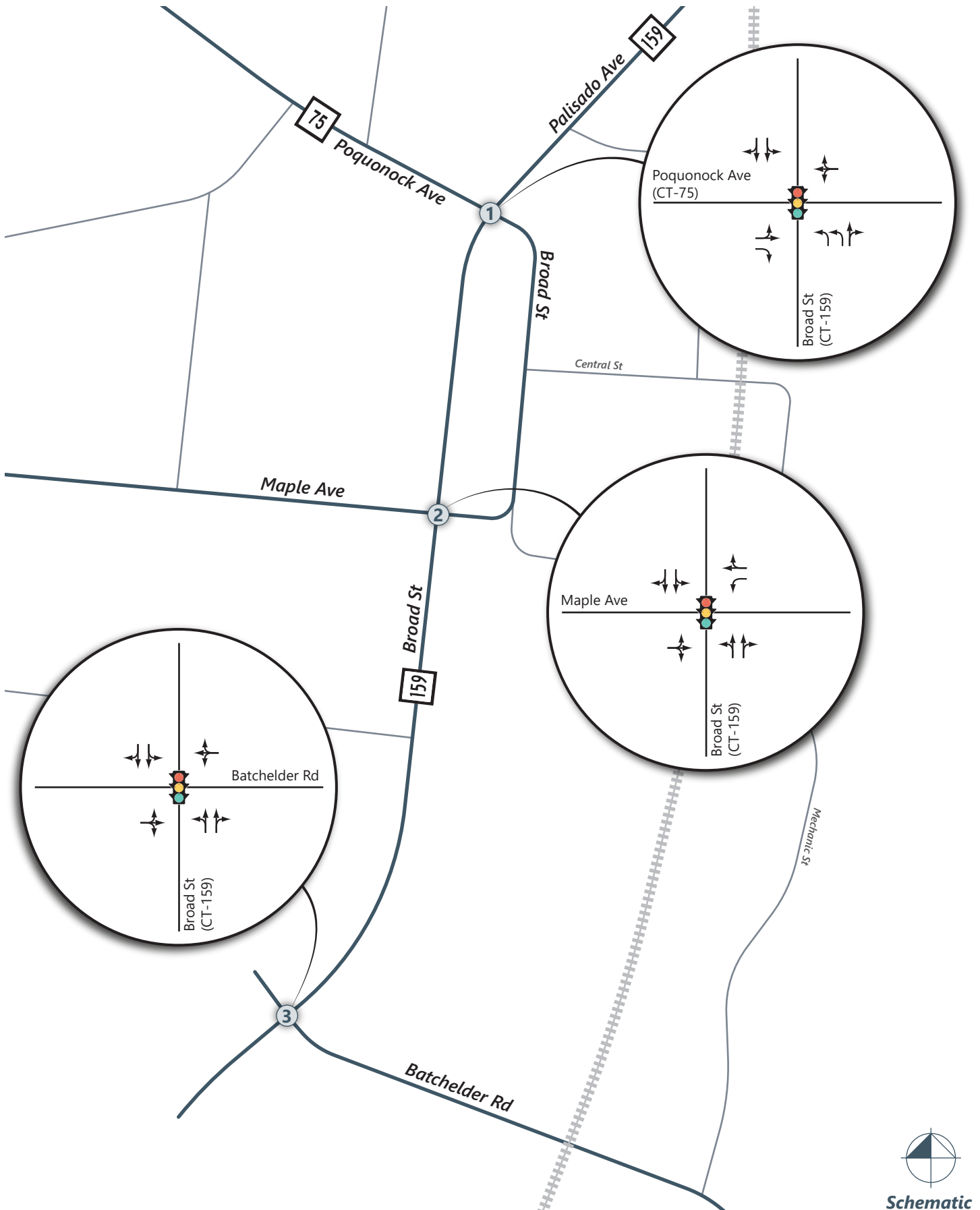
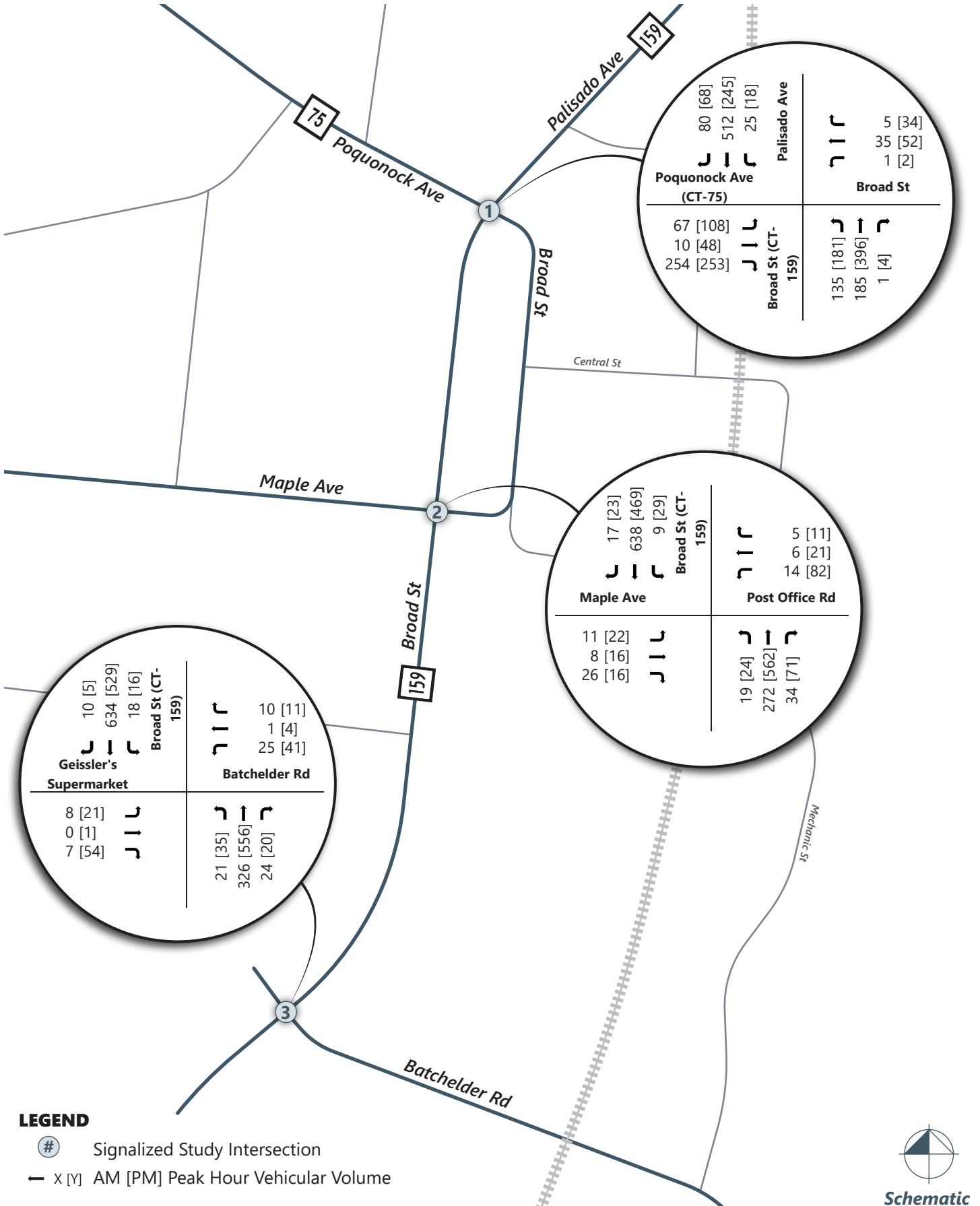


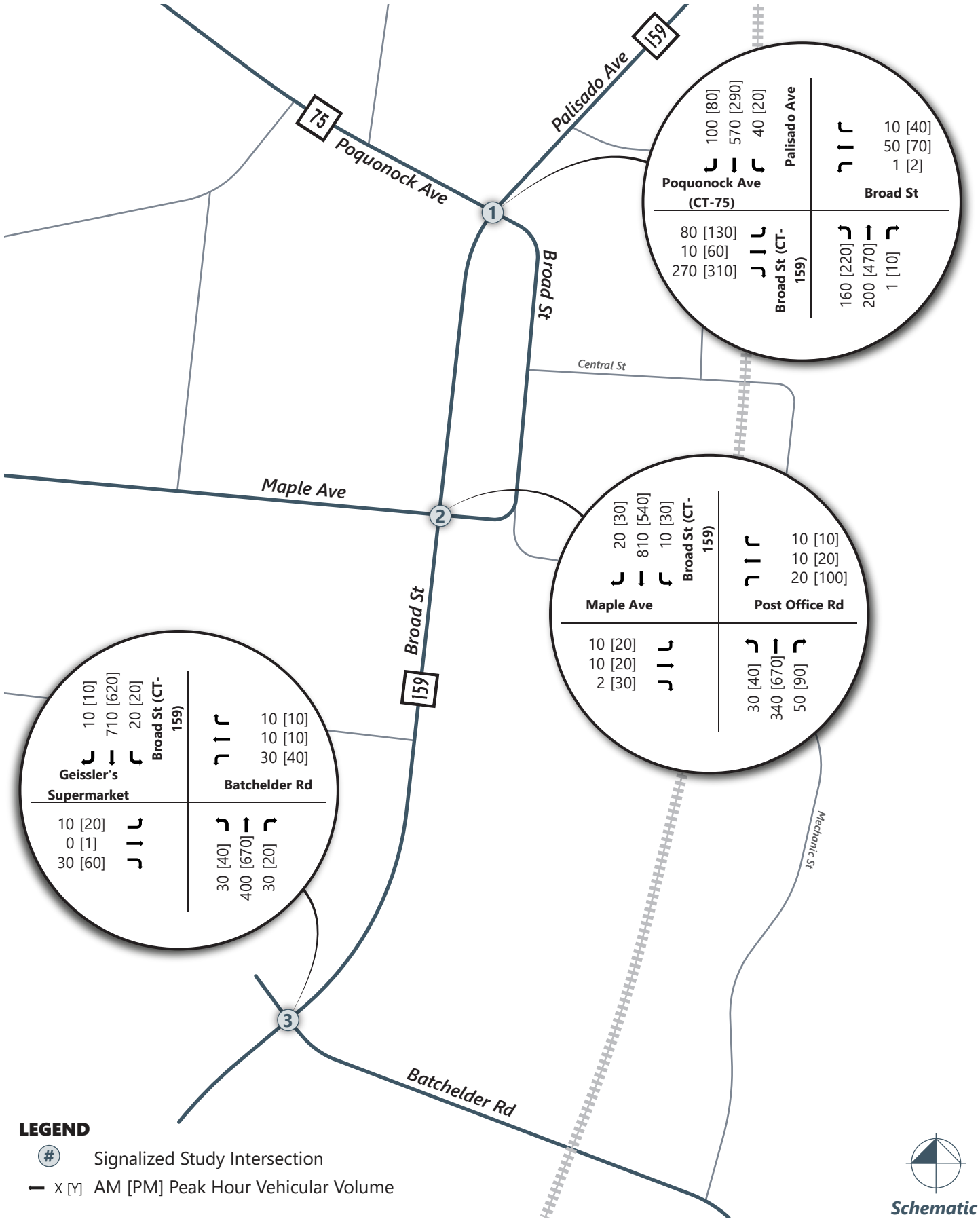
Figure 1  
Preliminary Layout Plans



**Figure 2**  
Existing Intersection Geometry



**Figure 3**  
Existing Peak Hour Volumes



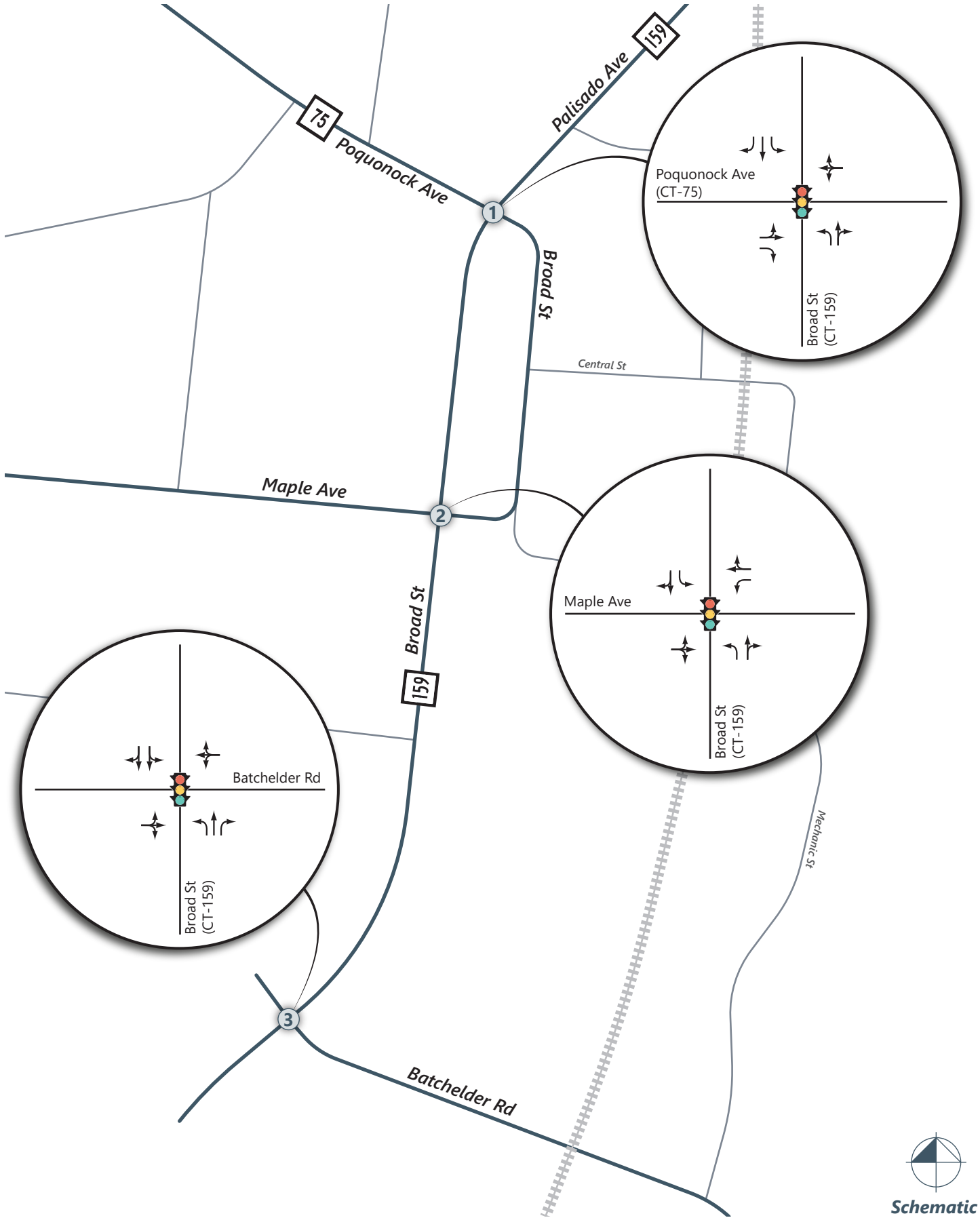
**LEGEND**

- # Signalized Study Intersection
- x [y] AM [PM] Peak Hour Vehicular Volume



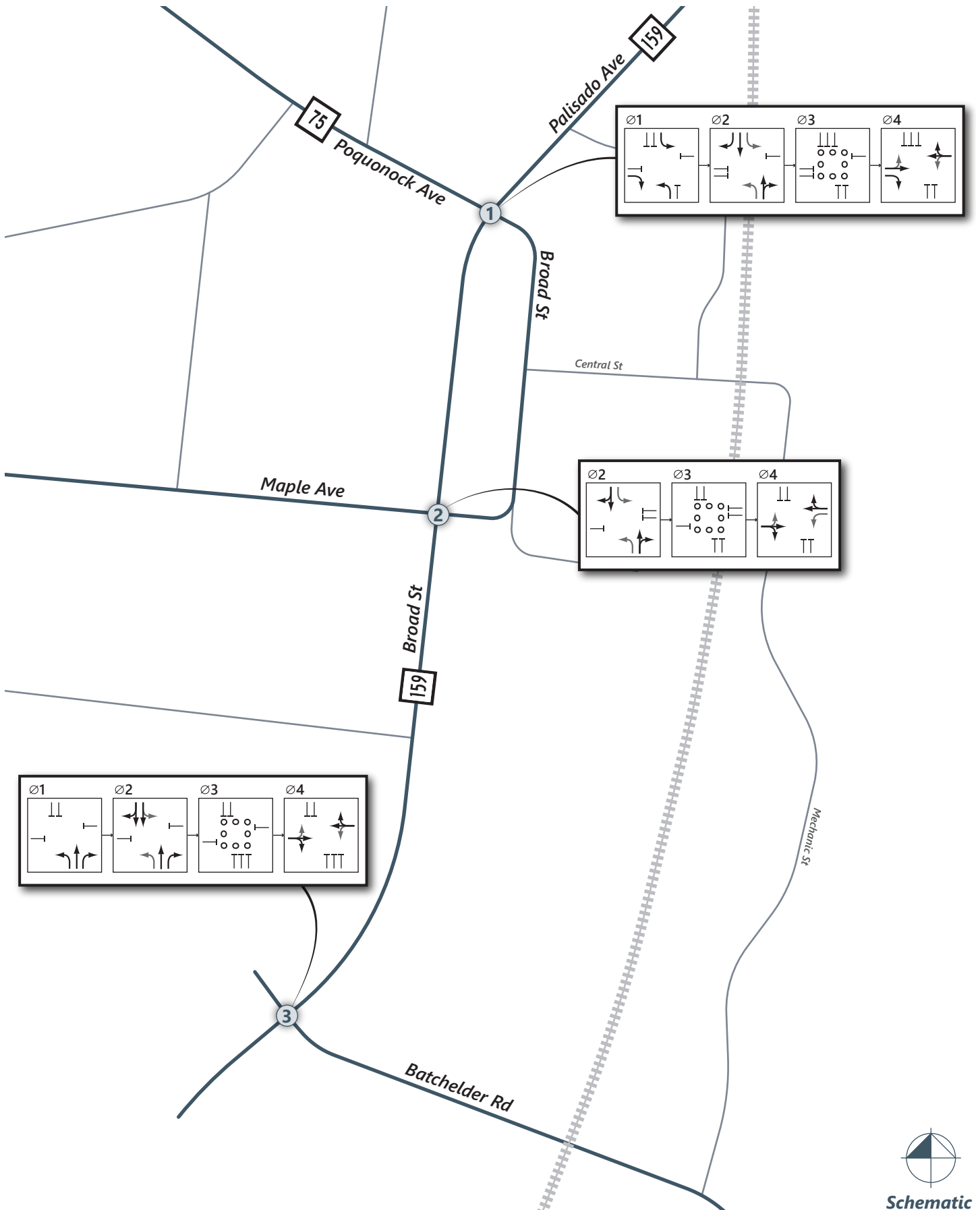
Schematic

**Figure 4**  
Design Year (2030) Peak Hour Volumes



**Figure 5**  
Proposed Road Diet Intersection Geometry





**Figure 6**  
Proposed Traffic Signal Revisions

# **APPENDIX**

File Name: h:\cvc all counts 2016\oct\_2019\1234-1.ppd

Start Date: 12/5/2019

Start Time: 7:00:00 AM

Site Code: 00000001

Comment 1: VEHICLE COUNTS - CARS

Comment 2: PEAK HOUR

Comment 3: 4:45 TO 5:45 P.M.

Comment 4:

Start Time	RTE. 159 SOUTHBOUND					BROAD ST. WESTBOUND					BROAD ST. NORTHBOUND					POQUONOCK AVE. EASTBOUND								
	Right	Thru	Left	Peds	0	Right	Thru	Left	Peds	0	Right	Thru	Left	Peds	0	Right	Thru	Left	Peds					
07:00 AM	11	75	2	0	0	3	2	4	0	0	1	1	0	0	0	18	28	17	0	23	0	0	4	0
07:15 AM	17	84	4	0	0	2	2	2	0	0	1	0	0	0	0	28	28	23	0	37	1	1	12	0
07:30 AM	26	127	6	0	0	1	1	5	0	0	0	0	0	0	0	45	45	28	0	60	2	2	13	0
07:45 AM	29	147	10	0	0	1	1	6	0	0	0	0	0	0	0	55	55	31	0	73	2	2	22	0
08:00 AM	14	140	5	0	0	0	0	9	0	0	0	0	0	0	0	45	45	29	0	42	1	1	17	0
08:15 AM	7	90	3	0	0	3	3	11	0	0	0	0	0	0	0	36	36	43	0	74	3	3	13	0
08:30 AM	17	98	6	0	0	4	4	6	0	0	0	0	0	0	0	23	23	30	0	58	3	3	14	0
08:45 AM	18	59	5	0	0	2	2	8	0	0	0	0	0	0	0	41	41	27	0	56	6	6	9	0
04:00 PM	20	59	4	1	1	2	2	12	0	0	0	0	0	0	0	75	75	35	2	84	6	6	15	0
04:15 PM	17	61	2	2	2	7	7	9	0	0	0	0	0	0	0	70	70	38	2	66	15	15	24	0
04:30 PM	23	62	4	0	0	8	8	11	0	0	0	0	0	0	0	83	83	39	1	60	9	9	26	1
04:45 PM	17	61	8	1	1	6	6	9	0	0	0	0	0	0	0	82	82	34	1	69	13	13	31	0
05:00 PM	13	58	3	0	0	11	11	15	0	0	0	0	0	0	0	104	104	49	0	66	12	12	28	0
05:15 PM	21	65	0	0	0	6	6	19	0	0	0	0	0	0	0	112	112	37	0	54	10	10	25	0
05:30 PM	17	60	7	0	0	11	11	5	0	0	0	0	0	0	0	97	97	60	0	63	10	10	24	0
05:45 PM	19	35	5	0	0	9	9	13	0	0	0	0	0	0	0	78	78	45	0	57	10	10	23	0





File Name: h:\cvc all counts 2016\oct 2019\1234-1.ppd

Start Date: 12/5/2019

Start Time: 7:00:00 AM

Site Code: 00000001

Comment 1: VEHICLE COUNTS - BUSES

Comment 2: PEAK HOUR

Comment 3: 4:45 TO 5:45 P.M.

Comment 4:

Start Time	RTE. 159 SOUTHBOUND			BROAD ST. WESTBOUND			BROAD ST. NORTHBOUND			POQUONOCK AVE. EASTBOUND				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Peds	
07:00 AM	1	2	0	1	0	0	0	0	0	0	1	1	1	0
07:15 AM	1	0	0	0	1	0	0	1	0	0	1	1	0	0
07:30 AM	3	6	0	0	1	0	0	1	0	0	1	0	1	0
07:45 AM	0	2	0	0	1	0	0	2	2	0	1	1	0	0
08:00 AM	0	0	0	0	1	0	0	1	2	0	2	1	1	0
08:15 AM	1	0	1	0	1	0	0	0	0	0	1	0	0	0
08:30 AM	0	0	0	0	0	0	0	1	1	0	0	0	0	0
08:45 AM	0	0	0	0	1	0	0	1	1	0	0	1	0	0
04:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0
04:15 PM	0	1	0	0	1	0	0	1	1	0	1	0	0	0
04:30 PM	0	0	0	0	0	0	0	2	0	0	0	0	0	0
04:45 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0
05:00 PM	0	1	0	0	2	0	0	0	1	0	0	1	0	0
05:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
05:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	1	0	0	0	0	0	0	1	0	0

File Name: h:\tc all counts 2016\oct\_2019\1234-2.ppd

Start Date: 12/5/2019

Start Time: 7:00:00 AM

Site Code: 00000002

Comment 1: VEHICLE COUNTS-CARS

Comment 2: PEAK HOUR

Comment 3: 4:45 TO 5:45 P.M.

Comment 4:

Start Time	RTE.159 SOUTHBOUND			MAPLE ST. WESTBOUND			BROAD ST. NORTHBOUND			MAPLE ST. EASTBOUND				
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Peds	
07:00 AM	5	97	0	0	0	0	6	31	2	5	1	3	3	0
07:15 AM	1	115	4	1	2	4	9	44	2	11	3	3	0	
07:30 AM	3	174	0	2	2	1	10	63	5	9	0	4	3	
07:45 AM	9	172	3	0	1	2	12	69	2	8	6	1	2	
08:00 AM	5	157	5	2	1	5	8	74	6	6	0	1	1	
08:15 AM	0	130	1	1	2	5	3	62	6	3	2	3	1	
08:30 AM	7	143	4	0	1	4	8	52	13	11	2	3	4	
08:45 AM	5	105	5	1	3	6	6	70	15	5	5	2	1	
04:00 PM	4	140	7	2	5	16	24	115	6	2	2	4	0	
04:15 PM	5	123	7	6	4	19	19	106	10	1	6	1	2	
04:30 PM	4	113	6	7	6	10	11	117	6	6	10	4	0	
04:45 PM	8	119	10	4	5	26	21	113	7	5	9	4	1	
05:00 PM	9	120	3	2	7	32	20	148	7	6	2	8	0	
05:15 PM	5	113	8	1	7	11	15	157	6	4	1	4	1	
05:30 PM	1	116	8	4	2	13	15	143	4	1	4	6	0	
05:45 PM	2	85	12	4	1	16	9	117	6	7	1	3	0	





File Name: h:\cvc all counts 2016\oct\_2019\1234-3.ppd

Start Date: 12/5/2019

Start Time: 7:00:00 AM

Site Code: 00000003

Comment 1: VEHICLE COUNTS-CARS

Comment 2: PEAK HOUR

Comment 3: 4:45 TO 5:45 P.M.

Comment 4:

Start Time	RTE. 159 SOUTHBOUND			BATCHELER RD. WESTBOUND			BROAD ST. NORTHBOUND			DRIVEWAY EASTBOUND			
	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Right	Thru	Left	Peds
07:00 AM	3	93	2	1	0	4	2	33	2	0	0	1	0
07:15 AM	3	133	3	1	0	8	3	61	8	0	4	1	1
07:30 AM	4	161	5	0	0	3	5	72	3	0	2	0	6
07:45 AM	2	173	3	1	0	4	4	90	9	2	1	1	0
08:00 AM	2	154	6	4	1	8	5	84	3	1	4	0	2
08:15 AM	2	132	3	4	0	6	5	76	6	1	0	1	0
08:30 AM	1	125	5	2	2	9	12	77	11	1	18	0	1
08:45 AM	1	96	5	5	0	12	4	65	7	2	3	1	3
04:00 PM	2	127	1	2	3	7	6	108	6	2	15	2	0
04:15 PM	1	112	9	3	0	8	6	109	17	1	8	10	2
04:30 PM	1	101	3	6	2	12	5	114	6	0	12	6	0
04:45 PM	2	139	4	3	1	11	3	123	10	0	10	1	1
05:00 PM	2	147	5	5	1	14	5	149	8	0	13	6	1
05:15 PM	1	123	3	3	0	8	5	146	10	0	15	5	0
05:30 PM	0	117	4	0	2	4	4	137	7	0	16	4	0
05:45 PM	3	77	1	3	1	5	3	124	11	0	6	5	0





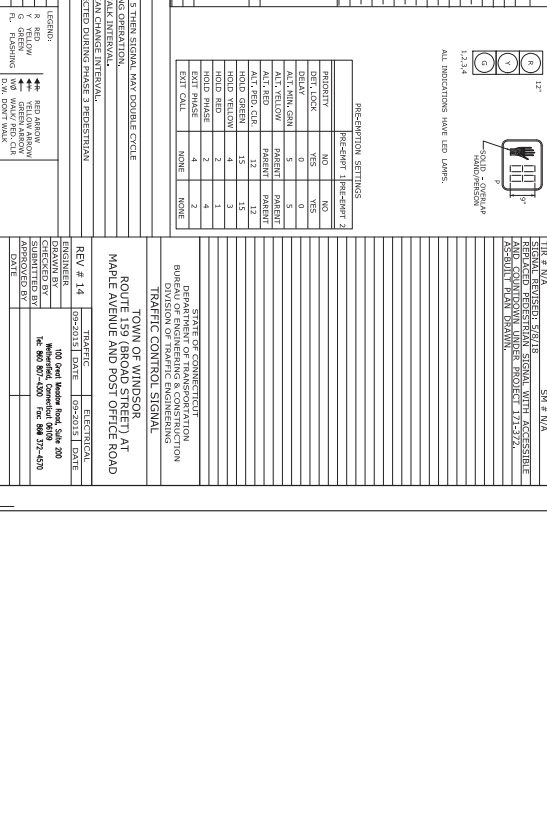


INTERSECTION # 164-211

REVISION #14

DATE: 12/20/18

**Movement Diagram**



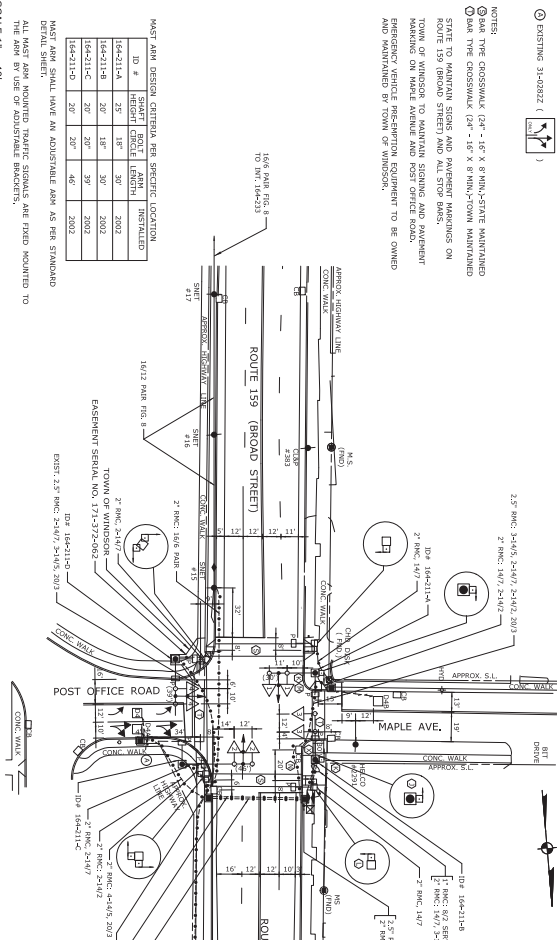
**RECALL SETTINGS**

RECALL	PHASE 2	PHASE 3	PHASE 4	PHASE 5	PHASE 6	PHASE 7	PHASE 8
PROTECT	NO	NO	NO	NO	NO	NO	NO
DEF. LOCK	YES	YES	YES	YES	YES	YES	YES
DEFL. DEL. DEL.	0	0	0	0	0	0	0
ALT. YELLOW	PARENT	PARENT	PARENT	PARENT	PARENT	PARENT	PARENT
ALT. RED	PARENT	PARENT	PARENT	PARENT	PARENT	PARENT	PARENT
ALT. RED DEL.	12	12	12	12	12	12	12
DEL. DEL.	15	15	15	15	15	15	15
DEL. YELLOW	4	3	3	3	3	3	3
DEL. RED	2	2	2	2	2	2	2
DEL. GREEN	4	4	4	4	4	4	4
DEL. CALL	NONE	NONE	NONE	NONE	NONE	NONE	NONE

ITEM	SIZE	DATE	DESCRIPTION	PHASE	TIME	TYPE	CLASS	SYSTEM	NOTES
1	6 X 6	3	PRESSURE	FLASH	2200-0600	M.F.	SA	164-211	IF WATER PHASE CALLED DURING PATTERN 1, 2, 3 OR 5 THEN SIGNAL MAY DOUBLE CYCLE
2	6 X 6	3	PRESSURE	FLASH	2200-0700	SA	SA	164-211	PRESERVATION TO BE INOPERATIVE DURING FLASHING OPERATION.
3	6 X 6	3	PRESSURE	FLASH	2200-0800	SU	SU	164-211	PRESERVATION TO BE INOPERATIVE DURING FLASHING OPERATION.

**NOTES:**

- ALL TYPE CROSSWALKS 8' - 18" X 8' MIN. SIGNATURE MAINTAINED
- ALL TYPE CROSSWALKS 8' - 18" X 8' MIN. SIGNATURE MAINTAINED
- STATE TO MAINTAIN SIGNS AND PAVERS MARKINGS ON ROUTE 159 BROAD STREET AND ALL STOP BAYS.
- TOWN OF WINDSOR TO MAINTAIN SIGNS AND PAVERS MARKINGS ON MAPLE AVENUE AND POST OFFICE ROAD.
- PAVERS ON MAPLE AVENUE AND POST OFFICE ROAD TO BE MAINTAINED BY TOWN OF WINDSOR.



**SCALE:** 1" = 40'

**LEGEND:**

NO.	DATE	DESCRIPTION
1	12/20/18	PRELIMINARY
2	12/20/18	REVISED

**STATE OF CONNECTICUT**

**DEPARTMENT OF TRANSPORTATION**

**TOWN OF WINDSOR**

**MAPLE AVENUE AND POST OFFICE ROAD**

**TRAFFIC CONTROL SIGNAL PLAN**

**PROJECT NO. 171-372**

**DRAWING NO. 171-372**

**SHEET NO.**

**REVISIONS**

NO.	DATE	DESCRIPTION
1	12/20/18	PRELIMINARY
2	12/20/18	REVISED

**TRAFFIC ENGINEER**

**NO. 101 Road Block, Box 500**

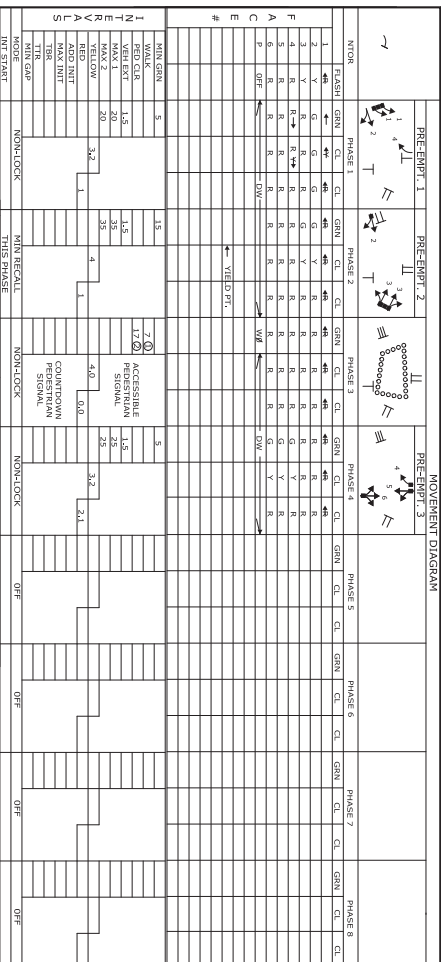
**WINDSOR, CT 06097-0500**

**TEL: 860-377-4500**

**FAX: 860-377-4500**

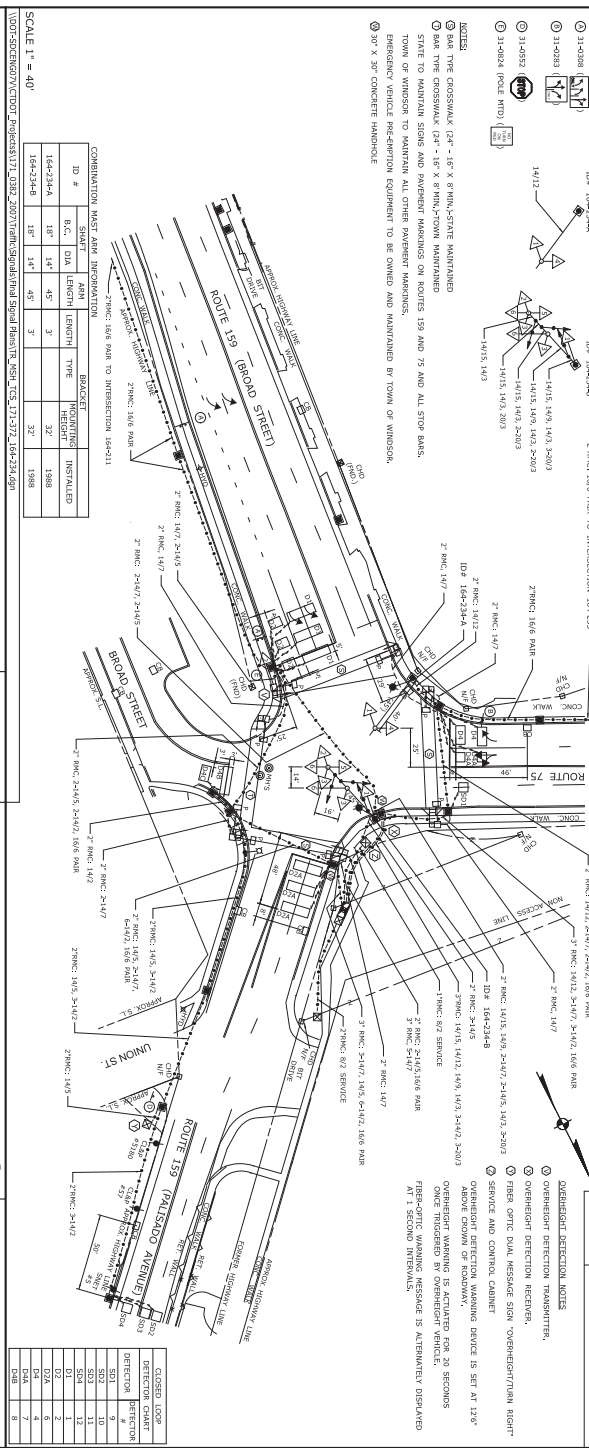


CONSTRUCTION NOTES :



ITEM	SIZE (X)X(Y)	FUNCTION	TI 1 IN E	DAYS	CYCLE SEC	PHASE SUC	PHASE SEQ	SEC. 1	SEC. 2	SEC. 3	SEC. 4	SEC. 5	SEC. 6	SEC. 7	SEC. 8	SEC. 9	SEC. 10	SEC. 11	SEC. 12
D1	18" X 6"	RESISTANCE	FLASH	2200-0600	DAILY	91	92	93	94	95	96	97	98	99	100	101	102	103	104
D2	18" X 6"	RESISTANCE	FLASH	ALL OTHER TIMES															
D3	18" X 6"	RESISTANCE	FLASH	ALL OTHER TIMES															
D4	18" X 6"	RESISTANCE	FLASH	ALL OTHER TIMES															
D5	18" X 6"	RESISTANCE	FLASH	ALL OTHER TIMES															
D6	18" X 6"	RESISTANCE	FLASH	ALL OTHER TIMES															
D7	18" X 6"	RESISTANCE	FLASH	ALL OTHER TIMES															
D8	18" X 6"	RESISTANCE	FLASH	ALL OTHER TIMES															
D9	18" X 6"	RESISTANCE	FLASH	ALL OTHER TIMES															
D10	18" X 6"	RESISTANCE	FLASH	ALL OTHER TIMES															
D11	18" X 6"	RESISTANCE	FLASH	ALL OTHER TIMES															
D12	18" X 6"	RESISTANCE	FLASH	ALL OTHER TIMES															
D13	18" X 6"	RESISTANCE	FLASH	ALL OTHER TIMES															
D14	18" X 6"	RESISTANCE	FLASH	ALL OTHER TIMES															
D15	18" X 6"	RESISTANCE	FLASH	ALL OTHER TIMES															

REVISION	DESCRIPTION	DATE
REV # 25	INTERSECTION # 164-234	
REV # 24	INTERSECTION # 164-234	
REV # 23	INTERSECTION # 164-234	
REV # 22	INTERSECTION # 164-234	
REV # 21	INTERSECTION # 164-234	
REV # 20	INTERSECTION # 164-234	
REV # 19	INTERSECTION # 164-234	
REV # 18	INTERSECTION # 164-234	
REV # 17	INTERSECTION # 164-234	
REV # 16	INTERSECTION # 164-234	
REV # 15	INTERSECTION # 164-234	
REV # 14	INTERSECTION # 164-234	
REV # 13	INTERSECTION # 164-234	
REV # 12	INTERSECTION # 164-234	
REV # 11	INTERSECTION # 164-234	
REV # 10	INTERSECTION # 164-234	
REV # 9	INTERSECTION # 164-234	
REV # 8	INTERSECTION # 164-234	
REV # 7	INTERSECTION # 164-234	
REV # 6	INTERSECTION # 164-234	
REV # 5	INTERSECTION # 164-234	
REV # 4	INTERSECTION # 164-234	
REV # 3	INTERSECTION # 164-234	
REV # 2	INTERSECTION # 164-234	
REV # 1	INTERSECTION # 164-234	



NO.	DATE	INTL. DESCRIPTION	REVISIONS
1			
2			
3			
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22			
23			
24			
25			

SCALE 1" = 40'

CONSTRUCTION NOTES:

1. ALL INDICATIONS HAVE LED LAMPS, FACE 2 HAS 7 WAKE 9' C/D-DRY LAMPS IN CHANNEL GREEN LANS.

2. PRE-EMPTION SETTINGS

PRE-EMPT	1	2	3	4	5	6	7	8
PRIORITY	NO	NO	NO	NO	NO	NO	NO	NO
DIRT. LOCK	YES	YES	YES	YES	YES	YES	YES	YES
DELAY	0	0	0	0	0	0	0	0
ACT. YELLOW	FAHRT	FAHRT	FAHRT	FAHRT	FAHRT	FAHRT	FAHRT	FAHRT
ACT. RED	PARNT	PARNT	PARNT	PARNT	PARNT	PARNT	PARNT	PARNT
ACT. YELLOW C/D	17	17	17	17	17	17	17	17
ACT. RED C/D	11	11	11	11	11	11	11	11
ACT. YELLOW	3.2	4	3.2	4	3.2	4	3.2	4
HOLD RED	1	1	1	1	1	1	1	1
HOLD PHASE	1	2	2	4	4	4	4	4
EXIT CALL	NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE

STATE OF CONNECTICUT  
DEPARTMENT OF TRANSPORTATION  
TRAFFIC CONTROL SIGNAL

TOWN OF WINDSOR  
ROUTE 159/BROAD STREET AND  
UNION ST.

DRAWN BY: CP  
DESIGNED BY: CP  
DATE PLOTTED: 5/28/2017

PROJECT NO. INTERSECTION # 164-234  
SHEET NO. 2

TIME-SPACE DIAGRAM COVER SHEET

ROUTE: 159  
 SYSTEM: N-24  
 PROJ #:

HOURS OF OPERATION: 0640-0915  
 DAY(S) OF OPERATION: MON-FRI  
 TOWN(S): WINDSOR

CYCLE: 1  
 SPLIT: 1  
 OFFSET: 1  
 LENGTH: 60"  
 75"

INT #	ID #	LOCATION	PHASES (sec-%)									OFFSET (sec-%)	SPEED LIMIT (mph)	DISTANCE (ft)									
			Φ1	Φ2	Φ3	Φ4	Φ5	Φ6	Φ7	Φ8	Φ9												
164-229	092	RTE 159 @ 91 SB RAMPS	10	17%	27	45%		23	38%						57	95%	30	30	0				
164-214	093	RTE 159 @ MEADOW RD	10	17%	30	50%		20	33%						43	72%	30	30	880				
164-218	094	RTE 159 @ BARBER			45	75%		15	25%						51	85%	35	35	3150				
164-219	095	RTE 159 @ E. WOLCOTT			44	73%		16	27%						30	50%	35	35	850				
164-271	096	RTE 159 @ DEERFIELD	8	13%	30	50%		22	37%						37	62%	35	35	250				
164-220	097	RTE 159 @ RTE 218	12	20%	24	40%				10	17%				8	13%	16	27%	30	50%	35	35	465
164-221	098	RTE 159 @ SHOP CNTR S.			40	67%		20	33%						30	50%	35	35	575				
164-222	099	RTE 159 @ SHOP CNTR N.	8	13%	36	60%		16	27%						27	45%	35	35	510				
164-223	100	RTE 159 @ ROOD	15	20%	30	40%		15	20%	17	23%				17	23%	35	35	0				
164-231	101	RTE 159 @ RTE 178	11	15%	39	52%		25	33%						18	24%	35	35	3780				
164-233	102	RTE 159 @ BATCHELDER	8	11%	47	63%		20	27%						52	69%	30	30	4285				
164-211	103	RTE 159 @ MAPLE			60	80%		15	20%						59	79%	30	30	950				
164-234	104	RTE 159 @ RTE 75	18	24%	37	49%		20	27%						52	69%	30	30	550				
164-255	105	RTE 75 @ RTE 305			38	51%		15	20%						36	48%	30	30	310				
164-244	106	RTE 75 @ MACK ST			40	53%		9	12%						0	0%	30	30	1650				
164-227	091ML/107L	RTE 218 @ DEERFIELD*	FREE									0	0%	35	35	-							

TIME-SPACE DIAGRAM COVER SHEET

ROUTE: 159  
 SYSTEM: N-24  
 PROJ #:

HOURS OF OPERATION: 1515-1830  
 DAY(S) OF OPERATION: MON-FRI  
 TOWN(S): WINDSOR

CYCLE: 5  
 SPLIT: 5  
 OFFSET: 5  
 LENGTH: 65"  
 75"

INT #	ID #	LOCATION	PHASES (sec-%)									OFFSET (sec-%)	SPEED LIMIT (mph)	DISTANCE (ft)	
			Φ1	Φ2	Φ3	Φ4	Φ5	Φ6	Φ7	Φ8	Φ9				
164-229	092	RTE 159 @ 91 SB RAMPS	10 15%	32 49%		23 35%							59 91%	30 30	0
164-214	093	RTE 159 @ MEADOW RD	10 15%	35 54%		20 31%							7 11%	30 30	880
164-218	094	RTE 159 @ BARBER		49 75%		16 25%							3 5%	35 35	3150
164-219	095	RTE 159 @ E. WOLCOTT		49 75%		16 25%							5 8%	35 35	850
164-271	096	RTE 159 @ DEERFIELD		36 55%		20 31%							10 15%	35 35	250
164-220	097	RTE 159 @ RTE 218		28 43%				12 18%	28 43%				5 8%	35 35	465
164-221	098	RTE 159 @ SHOP CNTR S.		45 69%		20 31%							5 8%	35 35	575
164-222	099	RTE 159 @ SHOP CNTR N.		40 62%		17 26%							5 8%	35 35	510
164-223	100	RTE 159 @ ROOD	15 20%	30 40%		15 20%		17 23%	28 37%				0 0%	35 35	0
164-231	101	RTE 159 @ RTE 178	8 11%	37 49%		30 40%							7 9%	35 35	3780
164-233	102	RTE 159 @ BATCHELDER	8 11%	47 63%		20 27%							37 49%	30 30	4285
164-211	103	RTE 159 @ MAPLE		55 73%		20 27%							37 49%	30 30	950
164-234	104	RTE 159 @ RTE 75	18 24%	35 47%		22 29%							37 49%	30 30	550
164-255	105	RTE 75 @ RTE 305		38 51%	15 20%	7 9%			15 20%				14 19%	30 30	310
164-244	106	RTE 75 @ MACK ST		40 53%	9 12%	26 35%							51 68%	30 30	1650
164-227	091ML/107L	RTE 218 @ DEERFIELD*	FREE									0 0%	35 35	-	

# LEVEL OF SERVICE FOR SIGNALIZED INTERSECTIONS (MOTORIZED VEHICLE MODE)

Level of service for signalized intersections is defined in terms of control delay, which is a measure of driver discomfort, frustration, fuel consumption, and increased travel time. The delay experienced by a motorist is made up of a number of factors that relate to control, geometrics, traffic, and incidents. Total delay is the difference between the travel time actually experienced and the reference travel time that would result during base conditions: in the absence of traffic control, geometric delay, any incidents, and any other vehicles. Specifically, LOS criteria for traffic signals are stated in terms of the average control delay per vehicle, typically for a 15-min analysis period. Delay is a complex measure and depends on a number of variables, including the quality of progression, the cycle length, the green ratio, and the v/c ratio for the lane group. The criteria are given below.

<b>LEVEL-OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS MOTORIZED VEHICLE MODE</b>		
<b>LOS By Volume-to-Capacity Ratio<sup>1</sup></b>		<b>CONTROL DELAY (s/veh)</b>
<b>v/c ≤ 1.0</b>	<b>v/c &gt; 1.0</b>	
<b>A</b>	<b>F</b>	<b>≤ 10</b>
<b>B</b>	<b>F</b>	<b>&gt; 10 AND ≤ 20</b>
<b>C</b>	<b>F</b>	<b>&gt; 20 AND ≤ 35</b>
<b>D</b>	<b>F</b>	<b>&gt; 35 AND ≤ 55</b>
<b>E</b>	<b>F</b>	<b>&gt; 55 AND ≤ 80</b>
<b>F</b>	<b>F</b>	<b>&gt; 80</b>

<sup>1</sup> For approach-based and intersection-wide assessments, LOS is defined solely by control delay.

Specific descriptions of each LOS for signalized intersections are provided below:

**Level of Service A** describes operations with a control delay of 10 s/veh and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is exceptionally favorable or the cycle length is very short. If LOS A is the result of favorable progression, most vehicles arrive during the green indication and travel through the intersection without stopping.

**Level of Service B** describes operations with control delay between 10 and 20 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is low and either progression is highly favorable or the cycle length is short. More vehicles stop than with LOS A.

**Level of Service C** describes operations with control delay between 20 and 35 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when progression is favorable or the cycle length is moderate. Individual *cycle failures* (i.e., one or more queued vehicles are not able to depart as a result of insufficient capacity during the cycle) may begin to appear at this level. The number of vehicles stopping is significant, although many vehicles still pass through the intersection without stopping.

**Level of Service D** describes operations with control delay between 35 and 55 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high and either progression is ineffective or the cycle length is long. Many vehicles stop and individual cycle failures are noticeable.

**Level of Service E** describes operations with control delay between 55 and 80 s/veh and a volume-to-capacity ratio no greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is high, progression is unfavorable, and the cycle length is long. Individual cycle failures are frequent.

**Level of Service F** describes operations with control delay exceeding 80 s/veh or a volume-to-capacity ratio greater than 1.0. This level is typically assigned when the volume-to-capacity ratio is very high, progression is very poor, and the cycle length is long. Most cycles fail to clear the queue.

Reference: Highway Capacity Manual 6, Transportation Research Board, 2016.

Broad Street Road Diet  
1: Broad St (RT 159)/Palisado Ave (RT 159) & Poquonock Ave (RT 75)/Central Spring Plan: AM Peak Existing

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	10	254	1	35	5	135	185	1	25	512	80
Future Volume (vph)	67	10	254	1	35	5	135	185	1	25	512	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0	0	0	0	50	270	0	0	50	0	75
Taper Length (ft)	50	0	0	0	0	0	0	0	0	0	0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor			0.97		1.00			1.00			1.00	
Frt			0.850		0.983			0.999			0.981	
FIT Protected			0.958		0.999		0.950				0.998	
Satd. Flow (prot)	0	1785	1385	0	1593	0	3433	1628	0	0	3457	0
FIT Permitted			0.720		0.994		0.950				0.937	
Satd. Flow (perm)	0	1341	1344	0	1585	0	3433	1628	0	0	3246	0
Right Turn on Red			Yes		Yes		Yes	No		No	Yes	Yes
Satd. Flow (RTOR)			161		6			45			27	
Link Speed (mph)			30		25			563			507	
Link Distance (ft)			736		333			8.5			7.7	
Travel Time (s)			16.7		9.1							
Confl. Bikes (#/hr)			10		10			10			10	
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Parking (#/hr)			5		5		5	5		5		5
Adj. Flow (vph)	79	12	299	1	41	6	159	218	1	29	602	94
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	91	299	0	48	0	159	219	0	0	725	0
Number of Detectors	1	2	2	1	2		3	3		3	3	
Detector Template	Left	Left	Left	Left	Left		Left	Left		Left	Left	
Leading Detector (ft)	20	23	20	17	28	28	28	28		37	37	
Trailing Detector (ft)	0	4	4	0	-3	-5	-5	-5		3	3	
Detector 1 Position (ft)	0	4	4	0	-3	-5	-5	-5		3	3	
Detector 1 Size (ft)	20	6	6	20	6	6	6	6		6	6	
Detector 1 Type	Ci+Ex	Ci+Ex	Ci+Ex	Ci+Ex	Ci+Ex	Ci+Ex	Ci+Ex	Ci+Ex		Ci+Ex	Ci+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position (ft)	17	17	17	11	8	8	8	8		17	17	
Detector 2 Size (ft)	6	6	6	6	6	6	6	6		6	6	
Detector 2 Type	Ci+Ex	Ci+Ex	Ci+Ex	Ci+Ex	Ci+Ex	Ci+Ex	Ci+Ex	Ci+Ex		Ci+Ex	Ci+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 3 Position (ft)						22	22	22		31	31	
Detector 3 Size (ft)						6	6	6		6	6	
Detector 3 Type						Ci+Ex	Ci+Ex	Ci+Ex		Ci+Ex	Ci+Ex	
Detector 3 Channel												
Detector 3 Extend (s)						0.0	0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	prt+ov	Perm	NA	Prot	NA	NA		Perm	NA	
Protected Phases		4	1		4		1	12		2		

Lanes, Volumes, Timings  
MMI  
Synchro 10 Report  
Page 1

Broad Street Road Diet  
1: Broad St (RT 159)/Palisado Ave (RT 159) & Poquonock Ave (RT 75)/Central Spring Plan: AM Peak Existing

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4	4	4	4	4	4	1	2		2	2	
Detector Phase	4	4	4	4	4	4						
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0		15.0	15.0	
Minimum Split (s)	10.3	10.3	9.2	10.3	10.3	9.2	10.3	10.3		21.0	21.0	
Total Split (s)	20.0	20.0	18.0	20.0	20.0	18.0	20.0	20.0		37.0	37.0	
Total Split (%)	26.7%	26.7%	24.0%	26.7%	26.7%	24.0%	26.7%	26.7%		49.3%	49.3%	
Maximum Green (s)	14.7	14.7	13.8	14.7	14.7	13.8	14.7	14.7		31.0	31.0	
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2		4.0	4.0	
All-Red Time (s)	2.1	2.1	1.0	2.1	2.1	1.0	2.1	2.1		2.0	2.0	
Total Lost Time (s)	5.3	4.2	4.2	5.3	4.2	4.2	5.3	4.2		6.0	6.0	
Lead-Lag			Lead			Lead				Lag	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5		1.5	1.5	
Recall Mode	None	None	None	None	None	None	None	None		C-Min	C-Min	
Act Effort Green (s)	10.4	19.0	10.4	10.4	10.4	10.4	10.4	10.4		7.5	55.1	
Actuated g/C Ratio	0.14	0.25	0.14	0.14	0.14	0.14	0.14	0.14		0.10	0.73	
v/c Ratio	0.49	0.64	0.21	0.49	0.64	0.21	0.49	0.64		0.46	0.18	
Control Delay	37.6	15.7	26.4	37.6	15.7	26.4	37.6	15.7		3.7	11.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	37.6	15.7	26.4	37.6	15.7	26.4	37.6	15.7		3.7	11.1	
LOS	D	B	C	D	C	D	A	B		A	B	
Approach Delay	20.8	26.4	26.4	20.8	26.4	26.4	20.8	26.4		18.0	11.1	
Approach LOS	C	C	C	C	C	C	B	B		B	B	
Queue Length 50th (ft)	39	48	17	37	24	24	37	24		91	91	
Queue Length 95th (ft)	73	92	41	64	48	48	64	48		144	144	
Internal Link Dist (ft)	656	253	253	656	253	253	656	253		483	427	
Turn Bay Length (ft)			270									
Base Capacity (vph)	262	507	315	631	1195	1195	631	1195		1811	1811	
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	
Reduced v/c Ratio	0.35	0.59	0.15	0.25	0.18	0.18	0.25	0.18		0.40	0.40	
Intersection Summary												
Area Type:	Other											
Cycle Length:	75											
Actuated Cycle Length:	75											
Offset: 52 (69%):	Referenced to phase 2, NBSB Start of Yellow											
Natural Cycle:	45											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.64											
Intersection Signal Delay:	15.7											
Intersection Capacity Utilization:	51.0%											
Analysis Period (min):	15											

Lanes, Volumes, Timings  
MMI  
Synchro 10 Report  
Page 2



Broad Street Road Diet

2: Broad St (RT 159) & Maple Ave/Post Office Rd

Existing

Timing Plan: AM Peak

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
4	4	4	4	4	4	2	2	2	2	2
11	8	26	14	6	5	19	272	34	9	638
11	8	26	14	6	5	19	272	34	9	638
1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
0	0	0	70	1	0	0	100	0	125	0
0	0	0	0	0	0	0	0	0	0	0
25		25	25		50				50	
1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95
0.97	0.922	0.937	0.937	0.937	0.984	0.996			0.996	
0.988	0.950	0.950	0.950	0.950	0.997	0.999			0.999	
0	1446	0	1770	1723	0	3247	0	0	3299	0
0.914	0.914	0	1663	1723	0	2940	0	0	3137	0
0	1336	0	1663	1723	0	2940	0	0	3137	0
Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes
29		5		5		37		9		9
25		25		25		45		45		45
443		358		358		586		563		563
12.1		9.8		9.8		8.9		8.5		8.5
2		7		7						7
10		10		10		10		10		10
0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
5	5	5	5	5	5	5	5	5	5	5
12	9	29	15	7	5	21	299	37	10	701
19										19
0		50	0	15	12	0	0	357	0	730
1	1	1	1	1	1	1	1	1	1	1
20	31	31	24	0	24	0	24	0	24	0
0	25	25	25	25	-6	0	-6	0	-6	0
0	25	25	25	25	-6	0	-6	0	-6	0
20	6	6	6	6	6	5	6	6	6	6
0+Ex	0+Ex	0+Ex	0+Ex	0+Ex	0+Ex	0+Ex	0+Ex	0+Ex	0+Ex	0+Ex
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	6	6	6	6	6	6	6	6	6	6
6	6	6	6	6	6	6	6	6	6	6
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18		18		18		18		18		18
6		6		6		6		6		6
0+Ex		0+Ex		0+Ex		0+Ex		0+Ex		0+Ex
Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm

Lanes, Volumes, Timings

MMI

Synchro 10 Report

Page 3

Broad Street Road Diet

2: Broad St (RT 159) & Maple Ave/Post Office Rd

Existing

Timing Plan: AM Peak

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
4	4	4	4	4	4	2	2	2	2	2
4	4	4	4	4	4	2	2	2	2	2
7.0	7.0	7.0	7.0	7.0	7.0	15.0	15.0	15.0	15.0	15.0
11.0	11.0	11.0	11.0	11.0	11.0	21.0	21.0	21.0	21.0	21.0
15.0	15.0	15.0	15.0	15.0	15.0	60.0	60.0	60.0	60.0	60.0
20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	80.0%	80.0%	80.0%	80.0%	80.0%
11.0	11.0	11.0	11.0	11.0	11.0	54.0	54.0	54.0	54.0	54.0
3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0
1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4.0	4.0	4.0	4.0	4.0	4.0	6.0	6.0	6.0	6.0	6.0
2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
7.4	7.4	7.4	7.4	7.4	7.4	64.4	64.4	64.4	64.4	64.4
0.10	0.10	0.10	0.10	0.10	0.10	0.86	0.86	0.86	0.86	0.86
0.32	0.32	0.32	0.32	0.32	0.32	0.14	0.14	0.14	0.14	0.14
23.4	23.4	23.4	23.4	23.4	23.4	1.4	1.4	1.4	1.4	1.4
0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23.4	23.4	23.4	23.4	23.4	23.4	1.4	1.4	1.4	1.4	1.4
C	C	C	C	C	C	A	A	A	A	A
23.4	23.4	23.4	23.4	23.4	23.4	1.4	1.4	1.4	1.4	1.4
C	C	C	C	C	C	A	A	A	A	A
9	7	3	7	3	5	11	11	11	11	11
40	23	18	40	23	18	8	8	8	8	8
363		278		278		506	506	506	506	506
220	220	220	220	220	220	2530	2530	2530	2530	2530
0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0
0.23	0.23	0.23	0.05	0.05	0.05	0.14	0.14	0.14	0.14	0.14

Lanes, Volumes, Timings

MMI

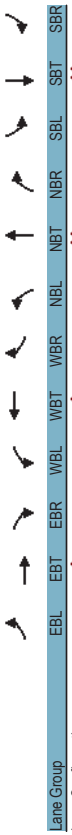
Synchro 10 Report

Page 4

Broad Street Road Diet  
 2: Broad St (RT 159) & Maple Ave/Post Office Rd



Broad Street Road Diet  
 3: Broad St (RT 159) & Geissler's Dwy/Batchelder Rd



Existing  
 Timing Plan: AM Peak

Existing  
 Timing Plan: AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	0	7	25	1	10	21	326	24	18	634	10
Future Volume (vph)	8	0	7	25	1	10	21	326	24	18	634	10
Ideal Flow (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	50	0	0	0	0	0
Storage Lanes	0	0	0	0	0	0	0	0	0	0	0	0
Taper Length (ft)	25		25			50				50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99		0.99			1.00				1.00		1.00
Frt	0.936		0.962			0.990				0.998		0.998
Flt Protected	0.974		0.967			0.997				0.999		0.999
Satd. Flow (prot)	0	1679	0	0	1719	0	0	3487	0	0	3527	0
Flt Permitted	0.813		0.783			0.908				0.939		0.939
Satd. Flow (perm)	0	1397	0	0	1390	0	0	3175	0	0	3315	0
Right Turn on Red		No			No			Yes				No
Satd. Flow (RTOR)								19				
Link Speed (mph)	25		25			45				45		45
Link Distance (ft)	277		529			599				370		370
Travel Time (s)	7.6		14.4			9.1				5.6		5.6
Confl. Peds. (#/hr)	4		1		1	4		8		3		3
Confl. Bikes (#/hr)	10		10		10	10		10		10		10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	9	0	8	27	1	11	23	368	26	20	697	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	0	0	39	0	0	407	0	0	728	0
Number of Detectors	1	2	1	1	1	3	0	3	0	3	0	0
Detector Template	Left	Left	Left	Left	Left	Left	Left	Left	Left	Left	Left	Left
Leading Detector (ft)	20	28	20	31	20	24	0	24	0	24	0	0
Trailing Detector (ft)	0	10	0	25	0	-6	0	-6	0	-6	0	0
Detector 1 Position(ft)	0	10	0	25	0	-6	0	-6	0	-6	0	0
Detector 1 Size(ft)	20	6	20	6	20	6	6	6	6	6	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	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 2 Position(ft)	22					6				6		
Detector 2 Size(ft)	6					6				6		
Detector 2 Type	Cl+Ex					Cl+Ex				Cl+Ex		
Detector 2 Channel						Cl+Ex				Cl+Ex		
Detector 2 Extend (s)	0.0					0.0				0.0		
Detector 3 Position(ft)	18					18				18		
Detector 3 Size(ft)	6					6				6		
Detector 3 Type	Cl+Ex					Cl+Ex				Cl+Ex		
Detector 3 Channel						Cl+Ex				Cl+Ex		
Detector 3 Extend (s)	0.0					0.0				0.0		
Turn Type	Perm	NA	Perm	NA	NA	D.P+P	NA	Perm	NA	Perm	NA	NA
Protected Phases	4		4		4	1		12		2		2

Lanes, Volumes, Timings  
 Synchro 10 Report  
 Page 5

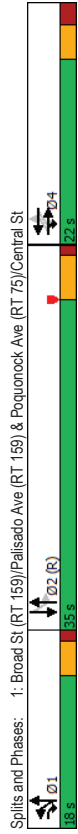
Lanes, Volumes, Timings  
 Synchro 10 Report  
 Page 6



Broad Street Road Diet  
1: Broad St (RT 159)/Palisado Ave (RT 159) & Poquonock Ave (RT 75)/Central St  
Timing Plan: PM Peak

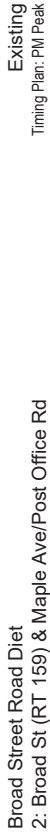


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	4.1	21.1	39.8	4.8	9.0	0.0	0.0	0.0	0.0	0.0	0.0
LOS	D	A	A	C	C	D	A	A	A	A	A	A
Approach Delay	19.2		21.1			15.7				9.0		
Approach LOS	B		C			B				A		
Queue Length 50th (ft)	71	0	23	46	54	33				33		
Queue Length 95th (ft)	122	39	58	78	78	68				68		
Internal Link Dist (ft)	656		253			427						
Turn Bay Length (ft)			270									
Base Capacity (vph)	330	635	363	631	1164	1733						
Stavation Cap Reductn	0	0	0	0	0	0						
Spillback Cap Reductn	0	0	0	0	0	0						
Storage Cap Reductn	0	0	0	0	0	0						
Reduced v/c Ratio	0.48	0.41	0.25	0.30	0.35	0.20						
<b>Intersection Summary</b>												
Area Type: Other												
Cycle Length: 75												
Actuated Cycle Length: 75												
Offset: 37 (49%), Referenced to phase 2, NBSB, Start of Yellow												
Natural Cycle: 45												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.68												
Intersection Signal Delay: 15.5												
Intersection Capacity Utilization 60.8%												
Analysis Period (min) 15												



Splits and Phases: 1: Broad St (RT 159)/Palisado Ave (RT 159) & Poquonock Ave (RT 75)/Central St

Broad Street Road Diet  
2: Broad St (RT 159) & Maple Ave/Post Office Rd  
Timing Plan: PM Peak



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	22	16	16	82	21	11	24	562	71	29	469	23
Future Volume (vph)	22	16	16	82	21	11	24	562	71	29	469	23
Ideal Flow (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	70	0	100	0	125	0	0	0	0
Storage Lanes	0	0	0	1	0	0	0	0	0	0	0	0
Taper Length (ft)	25		25			50		50				
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99		0.99			1.00		1.00			1.00	
Frt	0.960		0.949			0.984		0.984			0.993	
Flt Protected	0.980		0.950			0.998		0.998			0.997	
Satd. Flow (prot)	0	1523	0	1770	1751	0	0	3249	0	0	3281	0
Flt Permitted	0	0.856		0.852		0.924		0.924			0.893	
Satd. Flow (perm)	0	1328	0	1887	1751	0	0	3008	0	0	2939	0
Right Turn on Red		Yes		Yes		Yes		Yes			Yes	
Satd. Flow (RTOR)	17		12			36		36			13	
Link Speed (mph)	25		25			45		45			45	
Link Distance (ft)	443		358			586		586			563	
Travel Time (s)	12.1		9.8			8.9		8.9			8.5	
Confl. Peds. (#/hr)	4		4			2		2			2	
Confl. Bikes (#/hr)	10		10			10		10			10	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Parking (#/hr)	5	5	5			5		5			5	
Adj. Flow (vph)	24	17	17	89	23	12	26	611	77	32	510	25
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	58	0	89	35	0	0	714	0	0	567	0
Turn Type	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4		4			2		2			2	
Permitted Phases	4		4			2		2			2	
Detector Phase	4		4			2		2			2	
Switch Phase												
Minimum Initial (s)	7.0		7.0			15.0		15.0			15.0	
Minimum Split (s)	11.0		11.0			21.0		21.0			21.0	
Total Split (s)	20.0		20.0			55.0		55.0			55.0	
Total Split (%)	26.7%		26.7%			73.3%		73.3%			73.3%	
Maximum Green (s)	16.0		16.0			49.0		49.0			49.0	
Yellow Time (s)	3.0		3.0			4.0		4.0			4.0	
All-Red Time (s)	1.0		1.0			2.0		2.0			2.0	
Lost Time Adjust (s)	0.0		0.0			0.0		0.0			0.0	
Total Lost Time (s)	4.0		4.0			6.0		6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0		2.0			1.5		1.5			1.5	
Recall Mode	None		None			C-Max		C-Max			C-Max	
Act Effct Green (s)	8.9		8.9			59.5		59.5			59.5	
Actuated g/C Ratio	0.12		0.12			0.79		0.79			0.79	
v/c Ratio	0.34		0.47			0.30		0.30			0.24	
Control Delay	27.9		38.6			22.8		22.8			2.6	

Broad Street Road Diet  
2: Broad St (RT 159) & Maple Ave/Post Office Rd

Existing  
Timing Plan: PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	27.9	38.6	22.8	22.8	2.8	2.8	2.8	2.8	2.8	2.6	2.6	2.6
LOS	C	D	C	C	A	A	A	A	A	A	A	A
Approach Delay	27.9		34.1		2.8	2.8	2.8	2.8	2.8	2.6	2.6	2.6
Approach LOS	C		C		A	A	A	A	A	A	A	A
Queue Length 50th (ft)	18	40	10	36	55	52	52	52	52	17	17	17
Queue Length 95th (ft)	49	78	33	55	55	52	52	52	52	17	17	17
Internal Link Dist (ft)	363		278		506	483	483	483	483	483	483	483
Turn Bay Length (ft)	70		382		2392	2332	2332	2332	2332	2332	2332	2332
Base Capacity (vph)	296	338	382	382	2392	2332	2332	2332	2332	2332	2332	2332
Station Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.26	0.09	0.09	0.30	0.24	0.24	0.24	0.24	0.24	0.24	0.24
<b>Intersection Summary</b>												
Area Type: Other												
Cycle Length: 75												
Actuated Cycle Length: 75												
Offset: 37 (49%), Referenced to phase 2, NBSB, Start of Yellow												
Natural Cycle: 40												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.47												
Intersection Signal Delay: 6.4												
Intersection Capacity Utilization 53.6%												
Analysis Period (min) 15												



Broad Street Road Diet  
3: Broad St (RT 159) & Geissler's Dwy/Batchelder Rd

Existing  
Timing Plan: PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	EB	EB	EB	WB	WB	WB	NB	NB	NB	SB	SB	SB
Traffic Volume (vph)	21	1	54	41	4	11	35	566	20	16	529	5
Future Volume (vph)	21	1	54	41	4	11	35	566	20	16	529	5
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	50	0	0	0	0	0
Storage Lanes	0	0	0	0	0	0	0	0	0	0	0	0
Taper Length (ft)	25		25		50	50	50	50	50	50	50	50
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.98	0.98	0.98	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.904	0.904	0.974	0.974	0.985	0.985	0.999	0.999	0.999	0.999	0.999	0.999
Flt Protected	0.986	0.986	0.964	0.964	0.997	0.997	0.999	0.999	0.999	0.999	0.999	0.999
Satd. Flow (prot)	0	1628	0	0	1741	0	3508	0	0	3631	0	3631
Flt Permitted	0.900	0.900	0.807	0.807	0.901	0.901	0.930	0.930	0.930	0.930	0.930	0.930
Satd. Flow (perm)	0	1486	0	0	1453	0	3170	0	0	3287	0	3287
Right Turn on Red	No	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes	No
Satd. Flow (RTOR)							9	9	9	9	9	9
Link Speed (mph)	25		25		45	45	45	45	45	45	45	45
Link Distance (ft)	277		529		599	599	370	370	370	370	370	370
Travel Time (s)	7.6		14.4		9.1	9.1	5.6	5.6	5.6	5.6	5.6	5.6
Confl. Peds. (#/hr)	3	3	3	3	2	2	2	2	2	2	2	2
Confl. Bikes (#/hr)	10	10	10	10	10	10	10	10	10	10	10	10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	23	1	60	46	4	12	39	618	22	18	588	6
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	84	0	62	0	679	0	612	0	612	0	612
Turn Type	Perm	NA	Perm	NA	D.P+P	NA	Perm	NA	Perm	NA	Perm	NA
Protected Phases	4	4	4	4	2	1	12	2	2	2	2	2
Permitted Phases	4	4	4	4	4	2	2	2	2	2	2	2
Detector Phase	4	4	4	4	4	1	2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0	9.0	5.0	5.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	14.0	14.0	14.0	14.0	8.0	8.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	20.0	20.0	20.0	20.0	8.0	8.0	47.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	10.7%	10.7%	62.7%	62.7%	62.7%	62.7%	62.7%	62.7%
Maximum Green (s)	15.0	15.0	15.0	15.0	5.0	5.0	41.0	41.0	41.0	41.0	41.0	41.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lag
Lead/Lag					Lead	Lag	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?					Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	10.0	10.0	10.0	10.0	60.4	60.4	58.0	58.0	58.0	58.0	58.0	58.0
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.81	0.81	0.77	0.77	0.77	0.77	0.77	0.77
v/c Ratio	0.42	0.42	0.32	0.32	0.27	0.27	0.24	0.24	0.24	0.24	0.24	0.24
Control Delay	36.4	36.4	33.6	33.6	2.9	2.9	2.3	2.3	2.3	2.3	2.3	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Broad Street Road Diet  
3: Broad St (RT 159) & Geissler's Dwy/Batchelder Rd

Existing  
Timing Plan: PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	36.4			33.6			2.9			2.3		
LOS	D			C			A			A		
Approach Delay	36.4			33.6			2.9			2.3		
Approach LOS	D			C			A			A		
Queue Length 50th (ft)	37			27			34			22		
Queue Length 95th (ft)	74			59			64			25		
Internal Link Dist (ft)	197			449			519			290		
Turn Bay Length (ft)												
Base Capacity (vph)	297			290			2554			2542		
Starvation Cap Reductn	0			0			0			0		
Spillback Cap Reductn	0			0			0			0		
Storage Cap Reductn	0			0			0			0		
Reduced v/c Ratio	0.28			0.21			0.27			0.24		
<b>Intersection Summary</b>												
Area Type:	Other											
Cycle Length:	75											
Actuated Cycle Length:	75											
Offset:	37 (49%), Referenced to phase 2/NBSB, Start of Yellow											
Natural Cycle:	45											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.42											
Intersection Signal Delay:	5.9											
Intersection LOS:	A											
Intersection Capacity Utilization:	52.3%											
Analysis Period (min):	15											



Splits and Phases: 3: Broad St (RT 159) & Geissler's Dwy/Batchelder Rd

Broad Street Road Diet  
1: Broad St (RT 159)/Palisado Ave (RT 159) & Poquonock Ave (RT 75)/Central Spring Plan: AM Peak

2030 Baseline

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	80	10	270	1	50	10	160	200	1	40	570	100
Traffic Volume (vph)	80	10	270	1	50	10	160	200	1	40	570	100
Future Volume (vph)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Ideal Flow (vphpl)	150	0	0	0	0	0	50	270	0	50	0	75
Storage Length (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Storage Lanes	0	0	0	0	0	0	0	0	0	0	0	0
Taper Length (ft)	50			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.95	1.00	0.95
Ped Bike Factor				0.99			1.00			1.00		1.00
Frt				0.850			0.977			0.979		0.979
Flt Protected	0.958			0.999			0.950			0.997		0.997
Satd. Flow (prot)	0	1785	1385	0	1581	0	3433	1628	0	0	3446	0
Flt Permitted	0.790			0.986			0.950			0.923		0.923
Satd. Flow (perm)	0	1472	1381	0	1576	0	3433	1628	0	0	3190	0
Right Turn on Red			Yes			Yes			No			Yes
Satd. Flow (RTOR)			128			12				30		30
Link Speed (mph)	30			25			45			45		45
Link Distance (ft)	736			333			563			507		507
Travel Time (s)	16.7			9.1			8.5			7.7		7.7
Confl. Bikes (#/hr)			10			10			10		10	10
Peak-Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Parking (#/hr)		5	5	5	5	5	5	5	5	5	5	5
Adj. Flow (vph)	94	12	318	1	59	12	188	235	1	47	671	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	106	318	0	72	0	188	236	0	0	836	0
Number of Detectors	1	2	2	1	2		3	3		3	3	3
Detector Template	Left		Left									
Leading Detector (ft)	20	23	23	20	17		28	28		37	37	37
Trailing Detector (ft)	0	4	4	0	-3		-5	-5		3	3	3
Detector 1 Position (ft)	0	4	4	0	-3		-5	-5		3	3	3
Detector 1 Size (ft)	20	6	6	20	6		6	6		6	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 2 Position (ft)	17	17	17	11	11		8	8		17	17	17
Detector 2 Size (ft)	6	6	6	6	6		6	6		6	6	6
Detector 2 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	0.0
Detector 3 Position (ft)							22	22		31	31	31
Detector 3 Size (ft)							6	6		6	6	6
Detector 3 Type							Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex
Detector 3 Channel												
Detector 3 Extend (s)	Perm	NA	prn+ov	Perm	NA		Prot	NA		Perm	NA	NA
Turn Type		4	1		4		1	12		2		2
Protected Phases												



Broad Street Road Diet  
2: Broad St (RT 159) & Maple Ave/Post Office Rd

Broad Street Road Diet  
1: Broad St (RT 159)/Palisado Ave (RT 159) & Poquonock Ave (RT 75)/Central St

2030 Baseline  
Timing Plan: AM Peak

2030 Baseline  
Timing Plan: AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	10	2	20	10	10	30	340	50	10	810	20
Future Volume (vph)	10	10	2	20	10	10	30	340	50	10	810	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	70	0	100	0	100	0	125	0	0
Storage Lanes	0	0	0	1	0	0	0	0	0	0	0	0
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	1.00			0.98			1.00			1.00		
Ft Protected	0.989			0.925			0.982			0.996		
Ft Permitted	0.978			0.950			0.996			0.999		
Satd. Flow (prot)	0	1573	0	1770	1695	0	0	3236	0	0	3299	0
Flt Permitted	0	0.842	0	0.930	0	0	0	0.859	0	0	0.949	0
Satd. Flow (perm)	0	1351	0	1732	1695	0	0	2790	0	0	3134	0
Right Turn on Red		Yes		Yes			Yes			Yes		
Satd. Flow (RTOR)	2			11			50			8		
Link Speed (mph)	25			25			45			45		
Link Distance (ft)	443			358			586			563		
Travel Time (s)	12.1			9.8			8.9			8.5		
Conf. Peds. (#/hr)	3			3			9			9		
Conf. Bikes (#/hr)	10			10			10			10		
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Parking (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Adj. Flow (vph)	11	11	2	22	11	11	33	374	55	11	890	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	24	0	22	22	0	0	462	0	0	923	0
Number of Detectors	1	1	1	1	1	1	3	0	3	0	0	0
Detector Template	Left											
Leading Detector (ft)	20	31	31	31	31	24	0	24	0	24	0	0
Trailing Detector (ft)	0	25	25	25	25	-6	0	-6	0	-6	0	0
Detector 1 Position (ft)	0	25	25	25	25	-6	0	-6	0	-6	0	0
Detector 1 Size (ft)	20	6	6	6	6	6	5	6	5	6	6	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	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 2 Position (ft)							6			6		
Detector 2 Size (ft)							6			6		
Detector 2 Type							Cl+Ex			Cl+Ex		
Detector 2 Channel							Cl+Ex			Cl+Ex		
Detector 2 Extend (s)							0.0			0.0		
Detector 3 Position (ft)							18			18		
Detector 3 Size (ft)							6			6		
Detector 3 Type							Cl+Ex			Cl+Ex		
Detector 3 Channel							Cl+Ex			Cl+Ex		
Detector 3 Extend (s)							0.0			0.0		
Turn Type	Perm	NA	NA	Perm	NA	NA	Perm	NA	NA	Perm	NA	NA

Lanes, Volumes, Timings  
MMI  
Synchro 10 Report  
Page 3

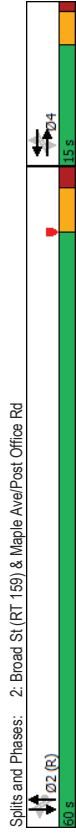
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Permitted Phases	4	4	4	4	4	4	1	2	2	2	2	2
Detector Phase	4	4	4	4	4	4						
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	21.0	21.0	15.0	15.0	15.0
Minimum Split (s)	10.3	10.3	9.2	10.3	10.3	9.2	18.0	37.0	37.0	37.0	37.0	37.0
Total Split (s)	20.0	20.0	18.0	20.0	20.0	18.0	24.0%	49.3%	49.3%	49.3%	49.3%	49.3%
Total Split (%)	26.7%	26.7%	24.0%	26.7%	26.7%	24.0%	26.7%	49.3%	49.3%	49.3%	49.3%	49.3%
Maximum Green (s)	14.7	14.7	13.8	14.7	14.7	13.8	13.8	31.0	31.0	31.0	31.0	31.0
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.1	2.1	1.0	2.1	2.1	1.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	4.2	4.2	5.3	5.3	4.2	4.2	Lag	Lag	Lag	Lag	Lag
Lead/Lag		Lead					Lead			Lag		Lag
Vehicle Extension (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Recall Mode	None	None	None	None	None	None	None	C-Min	C-Min	C-Min	C-Min	C-Min
Act Effort Green (s)	11.5	20.7	11.5	11.5	11.5	11.5	8.1	54.0	39.9	39.9	39.9	39.9
Actuated G/C Ratio	0.15	0.28	0.15	0.15	0.15	0.15	0.11	0.72	0.53	0.53	0.53	0.53
v/c Ratio	0.47	0.68	0.29	0.29	0.29	0.29	0.51	0.20	0.49	0.49	0.49	0.49
Control Delay	34.8	18.9	25.9	39.8	3.9	3.9	3.9	13.0	13.0	13.0	13.0	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.8	18.9	25.9	39.8	3.9	3.9	3.9	13.0	13.0	13.0	13.0	13.0
LOS	C	B	C	C	D	A	A	B	B	B	B	B
Approach Delay	22.8			25.9			19.8			13.0		
Approach LOS	C			C			B			B		
Queue Length 50th (ft)	45	66		24			44	29	120	120	120	120
Queue Length 95th (ft)	82	116		54			73	41	176	176	176	176
Internal Link Dist (ft)	656			253			483		427	427		
Turn Bay Length (ft)				270								
Base Capacity (vph)	288	505	318	631	1171	1171	1709			1709		
Starvation Cap Reducth	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reducth	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reducth	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.63	0.23	0.30	0.20	0.20	0.20	0.49	0.49	0.49	0.49	0.49

Lanes, Volumes, Timings  
MMI  
Synchro 10 Report  
Page 2

Broad Street Road Diet  
2: Broad St (RT 159) & Maple Ave/Post Office Rd

2030 Baseline  
Timing Plan: AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Protected Phases	4	4	4	4	4	4	2	2	2	2	2
Permitted Phases	4	4	4	4	4	4	2	2	2	2	2
Detector Phase	4	4	4	4	4	4	2	2	2	2	2
Switch Phase											
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	15.0	15.0	15.0	15.0	15.0	15.0	60.0	60.0	60.0	60.0	60.0
Total Split (%)	20.0%	20.0%	20.0%	20.0%	20.0%	20.0%	80.0%	80.0%	80.0%	80.0%	80.0%
Maximum Green (s)	11.0	11.0	11.0	11.0	11.0	11.0	54.0	54.0	54.0	54.0	54.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	6.0	6.0	6.0	6.0	6.0
Lead-Lag Optimize?											
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	7.1	7.1	7.1	7.1	7.1	7.1	64.7	64.7	64.7	64.7	64.7
Actuated g/C Ratio	0.09	0.09	0.09	0.09	0.09	0.09	0.86	0.86	0.86	0.86	0.86
v/c Ratio	0.18	0.13	0.13	0.13	0.13	0.13	0.19	0.19	0.34	0.34	0.34
Control Delay	33.0	33.0	33.0	33.0	33.0	33.0	1.4	1.4	1.5	1.5	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	33.0	33.0	33.0	33.0	33.0	1.4	1.4	1.5	1.5	1.5
LOS	C	C	C	C	C	C	A	A	A	A	A
Approach Delay	33.0	33.0	33.0	33.0	33.0	33.0	1.4	1.4	1.5	1.5	1.5
Approach LOS	C	C	C	C	C	C	A	A	A	A	A
Queue Length 50th (ft)	10	10	10	10	10	10	7	7	18	18	18
Queue Length 95th (ft)	31	30	30	30	30	30	11	11	52	52	52
Internal Link Dist (ft)	363	363	363	363	363	363	278	278	506	506	483
Turn Bay Length (ft)	70	70	70	70	70	70	2412	2412	2703	2703	2703
Base Capacity (vph)	199	254	257	257	257	257	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.09	0.09	0.09	0.09	0.09	0.19	0.19	0.34	0.34	0.34
<b>Intersection Summary</b>											
Area Type:	Other										
Cycle Length:	75										
Actuated Cycle Length:	75										
Offset:	59 (79%), Referenced to phase 2:NSSB, Start of Yellow										
Natural Cycle:	40										
Control Type:	Actuated-Coordinated										
Maximum v/c Ratio:	0.34										
Intersection Signal Delay:	2.8										
Intersection Capacity Utilization:	50.4%										
Analysis Period (min):	15										





Broad Street Road Diet  
3: Broad St (RT 159) & Geissler's Dwy/Batchelder Rd

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR	
<b>Lane Configurations</b>											
Traffic Volume (vph)	10	0	30	30	10	10	30	400	30	20	710
Future Volume (vph)	10	0	30	30	10	10	30	400	30	20	710
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	50	0	0	0	0
Taper Length (ft)	25	0	25	0	0	0	0	0	0	0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.98	0.899	0.99	0.973	0.973	0.990	0.990	0.998	0.998	1.00	0.998
Flt Protected	0.998	0.971	0.971	0.997	0.997	0.997	0.997	0.999	0.999	0.999	0.999
Satd Flow (prot)	0	1622	0	0	1749	0	0	3487	0	0	3527
Flt Permitted	0	0.902	0	0	0.791	0	0.884	0.884	0	0	0.935
Satd Flow (perm)	0	1478	0	0	1423	0	0	3091	0	0	3301
Right Turn on Red	No	No	No	No	No	No	No	Yes	Yes	No	No
Satd Flow (RTOR)	25	25	25	25	25	25	25	45	45	45	45
Link Speed (mph)	277	277	529	529	599	599	599	370	370	370	370
Travel Time (s)	7.6	7.6	14.4	14.4	9.1	9.1	9.1	5.6	5.6	5.6	5.6
Confl. Peds. (#/hr)	5	2	2	2	5	10	4	4	4	4	10
Confl. Bikes (#/hr)	10	10	10	10	10	10	10	10	10	10	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	11	0	33	33	11	11	33	440	33	22	780
Shared Lane Traffic (%)	0	44	0	0	55	0	0	506	0	0	813
Lane Group Flow (vph)	1	2	1	1	3	0	3	0	3	0	0
Number of Detectors	Left										
Detector Template	20	28	20	31	24	0	24	0	24	0	0
Leading Detector (ft)	0	10	0	25	-6	0	-6	0	-6	0	0
Trailing Detector (ft)	0	10	0	25	-6	0	-6	0	-6	0	0
Detector 1 Position (ft)	20	6	20	6	6	6	6	6	6	6	6
Detector 1 Size (ft)	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 1 Channel	Detector 1 Channel										
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position (ft)	22	6	22	6	6	6	6	6	6	6	6
Detector 2 Size (ft)	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 2 Channel	Detector 2 Channel										
Detector 2 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Detector 3 Position (ft)	18	6	18	6	6	6	6	6	6	6	6
Detector 3 Size (ft)	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex	Ch+Ex
Detector 3 Channel	Detector 3 Channel										
Detector 3 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Turn Type	Perm	NA	Perm	NA	NA	D.P+P	NA	NA	Perm	NA	Perm
Protected Phases	4	4	4	4	4	1	1	1	2	2	2

Lanes, Volumes, Timings  
MMI  
Synchro 10 Report  
Page 6

Broad Street Road Diet  
3: Broad St (RT 159) & Geissler's Dwy/Batchelder Rd

EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
<b>Permitted Phases</b>										
Detector Phases	4	4	4	4	4	1	2	2	2	2
Switch Phase	9.0	9.0	9.0	9.0	9.0	5.0	5.0	15.0	15.0	15.0
Minimum Initial (s)	14.0	14.0	14.0	14.0	14.0	8.0	8.0	21.0	21.0	21.0
Minimum Split (s)	20.0	20.0	20.0	20.0	20.0	8.0	8.0	47.0	47.0	47.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	26.7%	10.7%	10.7%	62.7%	62.7%	62.7%
Maximum Green (s)	15.0	15.0	15.0	15.0	15.0	5.0	5.0	41.0	41.0	41.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0	2.0
Lost Time Adj (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.0	6.0	6.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	0.0	0.0	26.0	26.0	26.0
Lead-Lag	Lead-Lag Optimize? Yes									
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Recall Mode	None	None	None	None	None	None	None	None	C-Max	C-Max
Act Effrt Green (s)	9.3	9.3	9.3	9.3	9.3	61.1	61.1	58.7	58.7	58.7
Actuated 9/C Ratio	0.12	0.12	0.12	0.12	0.12	0.81	0.81	0.78	0.78	0.78
v/c Ratio	0.24	0.24	0.31	0.31	0.31	0.20	0.20	0.31	0.31	0.31
Control Delay	33.0	33.0	34.9	34.9	34.9	2.3	2.3	3.0	3.0	3.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.0	33.0	34.9	34.9	34.9	2.3	2.3	3.0	3.0	3.0
LOS	C	C	C	C	C	A	A	A	A	A
Approach Delay	33.0	33.0	34.9	34.9	34.9	2.3	2.3	3.0	3.0	3.0
Approach LOS	C	C	C	C	C	A	A	A	A	A
Queue Length 50th (ft)	19	19	24	24	24	23	23	33	33	33
Queue Length 95th (ft)	47	47	56	56	56	38	38	79	79	79
Internal Link Dist (ft)	197	197	449	449	449	519	519	290	290	290
Turn Bay Length (ft)	295	295	284	284	284	2520	2520	2582	2582	2582
Base Capacity (vph)	0	0	0	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillover Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.15	0.19	0.19	0.19	0.20	0.20	0.31	0.31	0.31
<b>Intersection Summary</b>										
Area Type:	Other									
Cycle Length:	75									
Actuated Cycle Length:	75									
Offset: 52 (69%).	Referenced to phase 2, NBSB, Start of Yellow									
Natural Cycle:	45									
Control Type:	Actuated-Coordinated									
Maximum v/c Ratio:	0.31									
Intersection Signal Delay:	4.9									
Intersection LOS:	A									
ICU Level of Service:	A									
Intersection Capacity Utilization:	51.1%									
Analysis Period (min):	15									

Splits and Phases: 3: Broad St (RT 159) & Geissler's Dwy/Batchelder Rd  
MMI  
Lanes, Volumes, Timings  
Synchro 10 Report  
Page 7

Broad Street Road Diet  
 1: Broad St (RT 159)/Palisado Ave (RT 159) & Poquonock Ave (RT 75)/Central Spring Plan: PM Peak

Broad Street Road Diet  
 1: Broad St (RT 159)/Palisado Ave (RT 159) & Poquonock Ave (RT 75)/Central Spring Plan: PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	60	310	2	70	40	220	470	10	20	290	80
Future Volume (vph)	130	60	310	2	70	40	220	470	10	20	290	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0	0	0	0	50	270	0	0	50	0	75
Storage Lanes	0	1	0	0	0	1	0	0	0	0	0	0
Taper Length (ft)	50			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	1.00	1.00	0.95	0.95	0.95
Ped Bike Factor	1.00			0.99			1.00			1.00		1.00
Frt			0.850		0.952			0.397			0.969	
Flt Protected			0.967		0.999		0.950			0.997		
Satd. Flow (prot)	0	1801	1385	0	1527	0	3433	1624	0	0	3406	0
Flt Permitted	0	0.750	0.994		0.984		0.950			0.921		
Satd. Flow (perm)	0	1394	1385	0	1520	0	3422	1624	0	0	3146	0
Right Turn on Red		Yes	Yes		Yes		Yes	No	No	Yes	Yes	Yes
Satd. Flow (RTOR)			320		34					50		
Link Speed (mph)		30		25			45			45		
Link Distance (ft)		736		333			563			507		
Travel Time (s)		16.7		9.1			8.5			7.7		
Confl. Peds. (#/hr)	2	2	2	2	2	2	2	2	2	2	2	2
Confl. Bikes (#/hr)			10		10		10		10		10	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Parking (#/hr)			5		5		5		5		5	
Adj. Flow (vph)	134	62	320	2	72	41	227	485	10	21	299	82
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	196	320	0	115	0	227	495	0	0	402	0
Turn Type	Perm	NA	pl+ov	Perm	NA	Prot	NA	NA	Perm	NA	Perm	NA
Protected Phases		4	14		4		1	12		2		2
Permitted Phases	4	4	4	4	4	4	1	2	2	2	2	2
Detector Phase												
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	10.3	10.3	10.3	10.3	10.3	9.2	10.3	10.3	10.3	10.3	10.3	10.3
Total Split (s)	22.0	22.0	22.0	22.0	22.0	18.0	22.0	22.0	22.0	22.0	22.0	22.0
Total Split (%)	29.3%	29.3%	29.3%	29.3%	29.3%	24.0%	29.3%	29.3%	29.3%	29.3%	29.3%	29.3%
Maximum Green (s)	16.7	16.7	16.7	16.7	16.7	13.8	16.7	16.7	16.7	16.7	16.7	16.7
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2
All-Red Time (s)	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	5.3	5.3	5.3	5.3	4.2	5.3	5.3	5.3	5.3	5.3	5.3
Lead/Lag							Lead			Lag		Lag
Lead-Lag Optimize?												
Vehicle Extension (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Recall Mode	None	None	None	None	None	None	None	None	None	None	None	None
Act Effct Green (s)	13.5	27.7	13.5	13.5	13.5	8.9	13.5	13.5	13.5	13.5	13.5	13.5
Actuated g/C Ratio	0.18	0.37	0.18	0.18	0.18	0.12	0.18	0.18	0.18	0.18	0.18	0.18
v/c Ratio	0.78	0.45	0.38	0.38	0.38	0.56	0.44	0.44	0.44	0.44	0.44	0.44
Control Delay	50.8	3.9	22.3	22.3	22.3	42.3	5.6	5.6	5.6	5.6	5.6	5.6

Lanes, Volumes, Timings  
 Synchro 10 Report  
 Page 1

Broad Street Road Diet  
 1: Broad St (RT 159)/Palisado Ave (RT 159) & Poquonock Ave (RT 75)/Central Spring Plan: PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.8	3.9	22.3	22.3	22.3	42.3	5.6	5.6	5.6	5.6	5.6	5.6
LOS	D	A	A	C	C	D	A	A	A	B	B	B
Approach Delay	21.7			22.3			17.2			10.6		10.6
Approach LOS	C			C			B			B		B
Queue Length 50th (ft)	87	0	32	32	32	59	72	46	46	46	46	46
Queue Length 95th (ft)	#163	42	74	74	74	94	88	84	84	84	84	84
Internal Link Dist (ft)	656			253			483			427		427
Turn Bay Length (ft)							270					
Base Capacity (vph)	310	707	364			631	1126			1624		1624
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.45	0.32	0.32	0.32	0.36	0.44	0.44	0.44	0.44	0.44	0.44
Intersection Summary												
Area Type:	Other											
Cycle Length:	75											
Actuated Cycle Length:	75											
Offset:	37 (49%), Referenced to phase 2, NBSB, Start of Yellow											
Natural Cycle:	45											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.78											
Intersection Signal Delay:	17.3											
Intersection Capacity Utilization:	66.9%											
Analysis Period (min):	15											
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Lanes, Volumes, Timings  
 Synchro 10 Report  
 Page 2

Broad Street Road Diet  
2: Broad St (RT 159) & Maple Ave/Post Office Rd

2030 Baseline  
Timing Plan: PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	20	30	100	20	10	40	670	90	30	540	30
Future Volume (vph)	20	20	30	100	20	10	40	670	90	30	540	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	70	0	0	100	0	0	125	0	0
Storage Lanes	0	0	0	1	0	0	0	0	0	0	0	0
Taper Length (ft)	25	0	0	25	0	0	50	0	0	50	0	0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor	0.99	0.942	0.986	0.950	0.950	0.950	0.983	0.983	0.992	0.992	1.00	1.00
Flt Protected	0	0	0	0.950	0.950	0.950	0.998	0.998	0.997	0.997	0.997	0.997
Satd. Flow (prot)	0	1498	0	1770	1752	0	0	3246	0	0	3277	0
Flt Permitted	0	0.905	0.761	0.761	0.885	0.885	0.885	0.885	0.884	0.884	0.884	0.884
Satd. Flow (perm)	0	1374	0	1418	1752	0	0	2911	0	0	2906	0
Right Turn on Red							Yes	Yes	Yes	Yes	Yes	Yes
Satd. Flow (RTOR)	33	0	0	11	0	0	38	0	0	15	0	0
Link Speed (mph)	25	45	45	25	25	25	45	45	45	45	45	45
Link Distance (ft)	443	586	586	358	358	358	586	586	586	586	586	586
Travel Time (s)	12.1	8.9	8.9	9.8	9.8	9.8	8.9	8.9	8.9	8.5	8.5	8.5
Confl. Peds. (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Confl. Bikes (#/hr)	10	10	10	10	10	10	10	10	10	10	10	10
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Parking (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Adj. Flow (vph)	22	22	33	109	22	11	43	728	98	33	587	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	0	109	33	0	0	869	0	0	653	0
Turn Type	Perm	NA	Perm	NA	NA	Perm	NA	NA	Perm	NA	NA	Perm
Protected Phases	4	4	4	4	4	4	2	2	2	2	2	2
Permitted Phases	4	4	4	4	4	4	2	2	2	2	2	2
Detector Phase	4	4	4	4	4	4	2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	55.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%	73.3%	73.3%
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	49.0	49.0	49.0	49.0	49.0	49.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	10.0	10.0	10.0	10.0	10.0	10.0	58.4	58.4	58.4	58.4	58.4	58.4
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.13	0.13	0.78	0.78	0.78	0.78	0.78	0.78
v/c Ratio	0.36	0.36	0.58	0.14	0.14	0.14	0.38	0.38	0.38	0.29	0.29	0.29
Control Delay	23.2	23.2	42.1	21.5	21.5	21.5	3.5	3.5	3.5	2.8	2.8	2.8

Lanes, Volumes, Timings  
MMI  
Synchro 10 Report  
Page 3

Broad Street Road Diet  
2: Broad St (RT 159) & Maple Ave/Post Office Rd

2030 Baseline  
Timing Plan: PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.2	23.2	42.1	21.5	21.5	21.5	3.5	3.5	3.5	2.8	2.8	2.8
LOS	C	C	D	C	C	C	A	A	A	A	A	A
Approach Delay	23.2	23.2	37.3	37.3	37.3	37.3	3.5	3.5	3.5	2.8	2.8	2.8
Approach LOS	C	C	D	D	D	D	A	A	A	A	A	A
Queue Length 50th (ft)	19	19	49	9	9	9	51	51	51	21	21	21
Queue Length 95th (ft)	53	53	91	31	31	31	73	73	73	61	61	61
Internal Link Dist (ft)	363	363	70	278	278	278	506	506	506	483	483	483
Turn Bay Length (ft)												
Base Capacity (vph)	319	319	302	382	382	382	2274	2274	2274	2265	2265	2265
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.24	0.36	0.09	0.09	0.09	0.38	0.38	0.38	0.29	0.29	0.29
Intersection Summary												
Area Type:	Other											
Cycle Length:	75											
Actuated Cycle Length:	75											
Offset:	37 (49%), Referenced to phase 2, NBSB, Start of Yellow											
Natural Cycle:	40											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.58											
Intersection Signal Delay:	6.9											
Intersection Capacity Utilization:	64.9%											
Analysis Period (min):	15											



Splits and Phases: 2: Broad St (RT 159) & Maple Ave/Post Office Rd

Lanes, Volumes, Timings  
MMI  
Synchro 10 Report  
Page 4

Broad Street Road Diet  
3: Broad St (RT 159) & Geissler's Dwy/Batchelder Rd

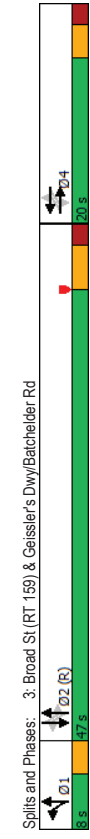
2030 Baseline  
Timing Plan: PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	1	60	40	10	10	40	670	20	20	620	10
Future Volume (vph)	20	1	60	40	10	10	40	670	20	20	620	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	50	0	0	0	0	0
Storage Lanes	0	0	0	0	0	0	0	0	0	0	0	0
Taper Length (ft)	25		25			50				50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95	0.95
Ped Bike Factor		0.98		0.99			1.00			1.00		
Frt	0.899		0.977				0.996			0.998		
Flt Protected	0.988		0.968				0.997			0.998		
Satd. Flow (prot)	0	1619	0	0	1755	0	0	3512	0	0	3523	0
Flt Permitted	0.914		0.804				0.880			0.920		
Satd. Flow (perm)	0	1498	0	0	1453	0	0	3135	0	0	3248	0
Right Turn on Red		No		No		No	Yes		Yes		No	No
Satd. Flow (RTOR)							8					
Link Speed (mph)	25		25				45			45		
Link Distance (ft)	277		529				599			370		
Travel Time (s)	7.6		14.4				9.1			5.6		
Confl. Peds. (#/hr)	4	4	4	4	4	4	3	3	3	3	3	3
Confl. Bikes (#/hr)	10		10			10		10		10		10
Peak Hour Factor	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	22	1	67	44	11	11	44	744	22	22	689	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	90	0	0	66	0	0	810	0	0	722	0
Turn Type	Perm	NA	Perm	NA	NA	D.P+P	NA	Perm	NA	Perm	NA	NA
Protected Phases	4	4	4	4	4	2	1	1	2	2	2	2
Permitted Phases	4	4	4	4	4	2	2	2	2	2	2	2
Detector Phase	4	4	4	4	4	1	2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0	9.0	9.0	5.0	5.0	15.0	5.0	15.0	5.0	15.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	8.0	8.0	21.0	8.0	21.0	8.0	21.0
Total Split (s)	20.0	20.0	20.0	20.0	20.0	8.0	8.0	47.0	8.0	47.0	8.0	47.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	26.7%	10.7%	10.7%	62.7%	10.7%	62.7%	10.7%	62.7%
Maximum Green (s)	15.0	15.0	15.0	15.0	15.0	5.0	5.0	41.0	5.0	41.0	5.0	41.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	3.0	4.0	3.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	0.0	0.0	6.0	0.0	6.0	0.0	6.0
Lead/Lag						Lead		Lag		Lag		Lag
Lead-Lag Optimize?						Yes		Yes		Yes		Yes
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Recall Mode	None	None	None	None	None	None	None	C-Max	None	C-Max	None	C-Max
Act Effct Green (s)	10.2	10.2	10.2	10.2	10.2	60.2	60.2	57.8	60.2	57.8	60.2	57.8
Actuated g/C Ratio	0.14	0.14	0.14	0.14	0.14	0.80	0.80	0.77	0.80	0.77	0.80	0.77
v/c Ratio	0.45	0.45	0.34	0.34	0.34	0.32	0.32	0.29	0.32	0.29	0.32	0.29
Control Delay	36.7	36.7	33.7	33.7	33.7	3.2	3.2	2.4	3.2	2.4	3.2	2.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Broad Street Road Diet  
3: Broad St (RT 159) & Geissler's Dwy/Batchelder Rd

2030 Baseline  
Timing Plan: PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	36.7		36.7			33.7		3.2		3.2		2.4
LOS	D		D			C		A		A		A
Approach Delay	36.7		36.7			33.7		3.2		3.2		2.4
Approach LOS	D		D			C		A		A		A
Queue Length 50th (ft)	40		40			29		43		43		26
Queue Length 95th (ft)	78		78			62		82		82		35
Internal Link Dist (ft)	197		197			449		519		519		290
Turn Bay Length (ft)												
Base Capacity (vph)	299		299			290		2519		2519		2504
Starvation Cap Reductn	0		0			0		0		0		0
Spillback Cap Reductn	0		0			0		0		0		0
Storage Cap Reductn	0		0			0		0		0		0
Reduced v/c Ratio	0.30		0.30			0.23		0.32		0.32		0.29
Intersection Summary	Other											
Area Type:	Other											
Cycle Length:	75											
Actuated Cycle Length:	75											
Offset:	37 (49%), Referenced to phase 2, NBSB, Start of Yellow											
Natural Cycle:	45											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.45											
Intersection Signal Delay:	5.8											
Intersection LOS:	A											
Intersection Capacity Utilization:	58.6%											
Analysis Period (min):	15											



Broad Street Road Diet  
 1: Broad St (RT 159)/Palisado Ave (RT 159) & Poquonock Ave (RT 75)/Central Spring Plan: AM Peak

Broad Street Road Diet  
 2030 Build (w/ Road Diet)  
 1: Broad St (RT 159)/Palisado Ave (RT 159) & Poquonock Ave (RT 75)/Central Spring Plan: AM Peak

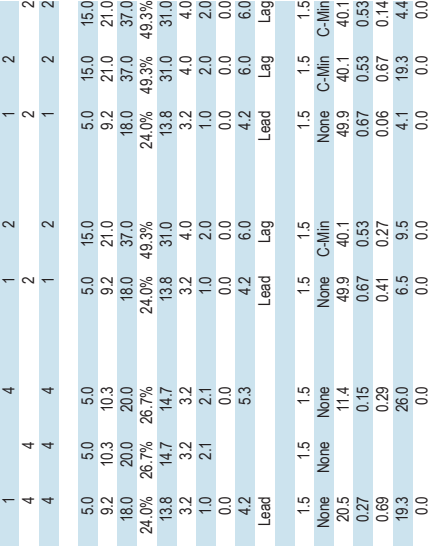
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	10	270	1	50	10	160	200	1	40	570	100
Future Volume (vph)	80	10	270	1	50	10	160	200	1	40	570	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0	0	0	50	270	0	50	0	50	0	75
Storage Lanes	0	1	0	0	1	0	1	0	0	1	0	1
Taper Length (ft)	50			25			50			50		
Lane Util. 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
Ped Bike Factor				0.99			1.00			1.00		0.97
Frt				0.850			0.977			0.999		0.850
Flt Protected				0.958			0.999			0.950		0.950
Satd. Flow (prot)	0	1785	1385	0	1581	0	1770	1628	0	1770	1863	1583
Flt Permitted				0.792			0.996			0.612		0.612
Satd. Flow (perm)	0	1475	1344	0	1576	0	484	1628	0	1140	1863	1537
Right Turn on Red				Yes			Yes			No		Yes
Satd. Flow (RTOR)				128			12			No		95
Link Speed (mph)				30			25			45		45
Link Distance (ft)				736			333			563		507
Travel Time (s)				16.7			9.1			8.5		7.7
Confl. Bikes (#/hr)				10			10			10		10
Peak Hour Factor	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Parking (#/hr)				5			5			5		5
Adj. Flow (vph)	94	12	318	1	59	12	188	235	1	47	671	118
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	106	318	0	72	0	188	236	0	47	671	118
Turn Type	Perm	NA	pm+ov	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm
Protected Phases				4			4			2		2
Permitted Phases	4	4	4	4	4	4	2	2	2	2	2	2
Detector Phase	4	4	4	4	4	4	1	2	2	1	2	2
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	5.0	15.0	15.0
Minimum Split (s)	10.3	10.3	9.2	10.3	9.2	10.3	9.2	21.0	9.2	21.0	21.0	21.0
Total Split (s)	20.0	20.0	18.0	20.0	20.0	18.0	37.0	37.0	18.0	37.0	37.0	37.0
Total Split (%)	26.7%	26.7%	24.0%	26.7%	26.7%	24.0%	49.3%	49.3%	24.0%	49.3%	49.3%	49.3%
Maximum Green (s)	14.7	14.7	13.8	14.7	14.7	13.8	31.0	31.0	13.8	31.0	31.0	31.0
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2	3.2	4.0	4.0	3.2	4.0	4.0	4.0
All-Red Time (s)	2.1	2.1	1.0	2.1	2.1	1.0	2.0	2.0	1.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.3	4.2	5.3	5.3	4.2	5.3	4.2	6.0	4.2	6.0	6.0	6.0
Lead/Lag				Lead			Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Vehicle Extension (s)	None	None	None	None	None	None	None	C-Min	None	C-Min	C-Min	C-Min
Recall Mode	None	None	None	None	None	None	None	C-Min	None	C-Min	C-Min	C-Min
Act Effect Green (s)	11.4	20.5	11.4	11.4	20.5	11.4	49.9	40.1	49.9	40.1	40.1	40.1
Actuated g/C Ratio	0.15	0.27	0.15	0.15	0.27	0.15	0.67	0.53	0.67	0.53	0.53	0.53
v/c Ratio	0.47	0.69	0.47	0.47	0.69	0.47	0.41	0.27	0.41	0.27	0.06	0.67
Control Delay	35.0	19.3	35.0	35.0	19.3	35.0	26.0	6.5	9.5	4.1	19.3	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Broad Street Road Diet  
 2030 Build (w/ Road Diet)  
 1: Broad St (RT 159)/Palisado Ave (RT 159) & Poquonock Ave (RT 75)/Central Spring Plan: AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	35.0	19.3	35.0	26.0	6.5	9.5	4.1	19.3	4.4	19.3	4.4	4.4
LOS	C	B	C	C	A	A	A	A	A	A	B	A
Approach Delay	23.2			26.0			8.2			16.3		
Approach LOS	C			C			A			B		
Queue Length 50th (ft)	45	68	24	24	22	38	5	21.6	5	21.6	5	5
Queue Length 95th (ft)	82	112	54	54	29	77	14	#371	14	#371	30	30
Internal Link Dist (ft)	656			253			483			427		
Turn Bay Length (ft)	289	497	318	318	562	871	931	997	866	931	997	866
Base Capacity (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.64	0.23	0.32	0.27	0.05	0.67	0.14	0.05	0.67	0.14	0.14

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	75
Offset:	52 (69%), Referenced to phase 2, NBSB, Start of Yellow
Natural Cycle:	55
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.69
Intersection Signal Delay:	16.4
Intersection Capacity Utilization:	63.8%
Analysis Period (min):	15
ICU Level of Service:	B
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	



Broad Street Road Diet  
2: Broad St (RT 159) & Maple Ave/Post Office Rd

2030 Build (w/ Road Diet)  
Timing Plan: AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	10	2	20	10	10	30	340	50	10	810	20
Future Volume (vph)	10	10	2	20	10	10	30	340	50	10	810	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	70	0	0	100	0	0	125	0	0
Storage Lanes	0	0	0	1	0	0	1	0	0	1	0	0
Taper Length (ft)	25	0	0	25	0	0	50	0	0	50	0	0
Lane Util. 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
Peak Bike Factor	0.99	0.99	0.97	0.97	0.97	0.97	0.981	0.981	0.981	0.981	0.981	0.981
Frt	0.989	0.989	0.925	0.925	0.925	0.925	0.981	0.981	0.981	0.981	0.981	0.981
Flt Protected	0	0	0	0	0	0	0	0	0	0	0	0
Satd. Flow (prot)	0	1571	0	1770	1676	0	1770	1594	0	1770	1622	0
Flt Permitted	0	0.842	0	0.930	0	0.280	0	0.280	0	0.513	0	0
Satd. Flow (perm)	0	1346	0	1732	1676	0	521	1594	0	956	1622	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	2	25	11	11	11	25	25	45	45	45	45	45
Link Speed (mph)	25	25	25	25	25	25	25	25	25	25	25	25
Link Distance (ft)	443	443	358	358	358	586	586	586	586	586	586	586
Travel Time (s)	12.1	12.1	9.8	9.8	9.8	8.9	8.9	8.9	8.9	8.9	8.9	8.9
Confl. Peds. (#/hr)	3	3	3	3	3	9	9	9	9	9	9	9
Confl. Bikes (#/hr)	10	10	10	10	10	10	10	10	10	10	10	10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Parking (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Adj. Flow (vph)	11	11	2	22	11	11	33	374	55	11	890	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	24	0	22	22	0	33	429	0	11	912	0
Turn Type	Perm	NA	Perm	NA	NA	Perm	NA	NA	Perm	NA	NA	NA
Protected Phases	4	4	4	4	4	2	2	2	2	2	2	2
Permitted Phases	4	4	4	4	4	2	2	2	2	2	2	2
Detector Phase	4	4	4	4	4	2	2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	15.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	15.0	15.0	15.0	15.0	15.0	60.0	60.0	60.0	60.0	60.0	60.0	60.0
Total Split (%)	20.0%	20.0%	20.0%	20.0%	20.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%
Maximum Green (s)	11.0	11.0	11.0	11.0	11.0	54.0	54.0	54.0	54.0	54.0	54.0	54.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Recall Mode	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	7.1	7.1	7.1	7.1	7.1	64.7	64.7	64.7	64.7	64.7	64.7	64.7
Actuated g/C Ratio	0.09	0.09	0.09	0.09	0.09	0.86	0.86	0.86	0.86	0.86	0.86	0.86
v/C Ratio	0.19	0.19	0.13	0.13	0.13	0.07	0.31	0.07	0.31	0.07	0.65	0.07
Control Delay	33.0	33.0	33.0	23.6	23.6	2.0	2.1	2.0	2.1	1.3	5.5	1.3

Broad Street Road Diet  
2: Broad St (RT 159) & Maple Ave/Post Office Rd

2030 Build (w/ Road Diet)  
Timing Plan: AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	33.0	33.0	33.0	23.6	23.6	2.0	2.1	2.0	2.1	1.3	5.6	1.3
LOS	C	C	C	C	C	A	A	A	A	A	A	A
Approach Delay	33.0	33.0	33.0	23.6	23.6	2.0	2.1	2.0	2.1	1.3	5.6	1.3
Approach LOS	C	C	C	C	C	A	A	A	A	A	A	A
Queue Length 50th (ft)	10	10	10	5	5	2	16	2	16	1	92	1
Queue Length 95th (ft)	31	31	31	30	25	6	26	6	26	m1	206	483
Internal Link Dist (ft)	363	363	363	278	278	70	506	70	506	125	1399	125
Turn Bay Length (ft)	199	199	199	254	255	449	1377	449	1377	824	1399	824
Base Capacity (vph)	0	0	0	0	0	0	0	0	0	0	0	36
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.12	0.12	0.09	0.09	0.07	0.31	0.07	0.31	0.01	0.67	0.01
Intersection Summary	Other											
Area Type:	Other											
Cycle Length:	75											
Actuated Cycle Length:	75											
Offset:	59 (79%), Referenced to phase 2; NBSB, Start of Yellow											
Natural Cycle:	60											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.65											
Intersection Signal Delay:	5.5											
Intersection Capacity Utilization:	60.1%											
Analysis Period (min):	15											
m	Volume for 95th percentile queue is metered by upstream signal.											
Splits and Phases:	2: Broad St (RT 159) & Maple Ave/Post Office Rd											
60 s												

Broad Street Road Diet  
3: Broad St (RT 159) & Geissler's Dwy/Batchelder Rd

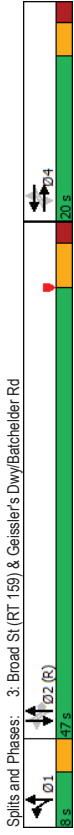
2030 Build (w/ Road Diet)  
Timing Plan: AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	0	30	10	10	10	30	400	30	20	710	10
Future Volume (vph)	10	0	30	10	10	10	30	400	30	20	710	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	50	0	0	0	0	0
Storage Lanes	0	0	0	0	0	0	1	0	0	0	0	0
Taper Length (ft)	25			25			50			50		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.95	0.95
Ped Bike Factor	0.98			0.99			1.00		0.97	1.00		1.00
Frt	0.899			0.973			0.850		0.850	0.998		0.998
FIT Protected	0.988			0.971			0.950		0.950	0.999		0.999
Satd. Flow (prot)	0	1622	0	0	1742	0	1770	1863	1583	0	3527	0
FIT Permitted	0.902			0.791			0.335		0.335	0.938		0.938
Satd. Flow (perm)	0	1477	0	0	1417	0	622	1863	1535	0	3311	0
Right Turn on Red						No			Yes			No
Satd. Flow (RTOR)								73				
Link Speed (mph)	25			25			45		45			45
Link Distance (ft)	277			529			599		599			370
Travel Time (s)	7.6			14.4			9.1		9.1			5.6
Confl. Peds. (#/hr)	5	2	2	2	5	10	4	4	4	4	4	10
Confl. Bikes (#/hr)	10			10			10		10			10
Peak Hour Factor	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Adj. Flow (vph)	11	0	33	33	11	11	33	440	33	22	780	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	44	0	0	55	0	33	440	33	0	813	0
Turn Type	Perm	NA	Perm	NA	NA	D.P+P	NA	custom	Perm	NA		NA
Protected Phases	4	4	4	4	4	2	1	1	2	2	2	2
Permitted Phases	4	4	4	4	4	2	2	2	2	2	2	2
Detector Phase	4	4	4	4	4	1	2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	9.0	9.0	9.0	9.0	9.0	5.0	5.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	14.0	14.0	14.0	14.0	14.0	8.0	8.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	20.0	20.0	20.0	20.0	20.0	8.0	8.0	47.0	47.0	47.0	47.0	47.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	26.7%	10.7%	10.7%	62.7%	62.7%	62.7%	62.7%	62.7%
Maximum Green (s)	15.0	15.0	15.0	15.0	15.0	5.0	5.0	41.0	41.0	41.0	41.0	41.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	0.0	0.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	5.0	5.0	5.0	5.0	5.0	3.0	3.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag						Lead	Lag	Lag	Lag	Lag	Lag	Lag
Lead-Lag Optimize?						Yes						
Vehicle Extension (s)	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effct Green (s)	9.3	9.3	9.3	9.3	9.3	59.3	61.1	55.2	55.2	55.2	55.2	55.2
Actuated g/C Ratio	0.12	0.12	0.12	0.12	0.12	0.79	0.81	0.74	0.74	0.74	0.74	0.74
v/c Ratio	0.24	0.31	0.31	0.31	0.31	0.06	0.29	0.03	0.33	0.33	0.33	0.33
Control Delay	33.0	34.9	34.9	34.9	34.9	2.4	3.0	0.4	6.2	6.2	6.2	6.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Broad Street Road Diet  
3: Broad St (RT 159) & Geissler's Dwy/Batchelder Rd

2030 Build (w/ Road Diet)  
Timing Plan: AM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	33.0			34.9			2.4	3.0	0.4	6.2		6.2
LOS	C			C			A	A	A	A		A
Approach Delay	33.0			34.9			2.8			6.2		6.2
Approach LOS	C			C			A			A		A
Queue Length 50th (ft)	19			24			3	44	0	56		56
Queue Length 95th (ft)	47			56			8	80	3	114		114
Internal Link Dist (ft)	197			449			519			290		290
Turn Bay Length (ft)							50					
Base Capacity (vph)	295			283			575	1517	1148	2435		2435
Starvation Cap Reductn	0			0			0	0	0	0		0
Spillback Cap Reductn	0			0			0	0	0	0		0
Storage Cap Reductn	0			0			0	0	0	0		0
Reduced v/c Ratio	0.15			0.19			0.06	0.29	0.03	0.33		0.33
Intersection Summary	Other											
Area Type:	Other											
Cycle Length:	75											
Actuated Cycle Length:	75											
Offset:	52 (69%), Referenced to phase 2, NBSB, Start of Yellow											
Natural Cycle:	45											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.33											
Intersection Signal Delay:	6.9											
Intersection LOS:	A											
Intersection Capacity Utilization:	54.7%											
Analysis Period (min):	15											



Splits and Phases: 3: Broad St (RT 159) & Geissler's Dwy/Batchelder Rd

Broad Street Road Diet  
 1: Broad St (RT 159)/Palisado Ave (RT 159) & Poquonock Ave (RT 75)/Central Spring Plan: PM Peak

Broad Street Road Diet  
 2030 Build (w/ Road Diet)  
 1: Broad St (RT 159)/Palisado Ave (RT 159) & Poquonock Ave (RT 75)/Central Spring Plan: PM Peak

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	60	310	2	70	40	220	470	10	20	290	80
Future Volume (vph)	130	60	310	2	70	40	220	470	10	20	290	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150	0	0	0	0	50	270	0	0	50	0	75
Storage Lanes	0	1	0	0	0	1	0	0	0	1	0	1
Taper Length (ft)	50	0	0	25	0	0	50	0	0	50	0	0
Lane Util. 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
Ped Bike Factor	1.00	0.99	0.99	1.00	1.00	1.00	0.997	1.00	1.00	1.00	1.00	0.850
Frt	0.850	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.952	0.850
FIT Protected	0	1801	1385	0	1527	0	1770	1624	0	1770	1863	1583
Satd. Flow (prot)	0.750	0.994	0.994	0.547	0.547	0.547	0.378	0.378	0.378	0.378	0.378	0.378
FIT Permitted	0	1394	1385	0	1520	0	1018	1624	0	704	1863	1533
Satd. Flow (perm)	Yes	Yes	Yes	Yes	Yes	Yes	No	No	No	No	Yes	Yes
Right Turn on Red	320	34	320	34	320	34	320	34	320	34	320	34
Satd. Flow (RTOR)	30	25	30	25	30	25	45	45	30	25	30	25
Link Speed (mph)	736	333	736	333	736	333	563	563	736	333	736	333
Link Distance (ft)	16.7	9.1	16.7	9.1	16.7	9.1	8.5	8.5	16.7	9.1	16.7	9.1
Travel Time (s)	2	2	2	2	2	2	2	2	2	2	2	2
Confl. Peds. (#/hr)	10	10	10	10	10	10	10	10	10	10	10	10
Confl. Bikes (#/hr)	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Peak Hour Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Growth Factor	5	5	5	5	5	5	5	5	5	5	5	5
Parking (#/hr)	134	62	320	2	72	41	227	485	10	21	299	82
Adj. Flow (vph)	0	196	320	0	115	0	227	495	0	21	299	82
Shared Lane Traffic (%)	Perm	NA	pt+ov	Perm	NA	pm+pt	NA	pm+pt	NA	pm+pt	NA	Perm
Lane Group Flow (vph)	4	4	4	4	4	4	1	2	1	2	1	2
Turn Type	4	4	4	4	4	4	2	2	2	2	2	2
Protected Phases	4	4	4	4	4	4	1	2	1	2	1	2
Permitted Phases	4	4	4	4	4	4	1	2	1	2	1	2
Detector Phase	4	4	4	4	4	4	1	2	1	2	1	2
Switch Phase	5.0	5.0	5.0	5.0	5.0	5.0	5.0	15.0	5.0	15.0	5.0	15.0
Minimum Initial (s)	10.3	10.3	10.3	10.3	10.3	10.3	9.2	20.0	9.2	20.0	9.2	20.0
Minimum Split (s)	22.0	22.0	22.0	22.0	22.0	22.0	18.0	35.0	18.0	35.0	18.0	35.0
Total Split (s)	29.3%	29.3%	29.3%	29.3%	29.3%	29.3%	24.0%	46.7%	24.0%	46.7%	24.0%	46.7%
Total Split (%)	16.7	16.7	16.7	16.7	16.7	16.7	13.8	30.0	13.8	30.0	13.8	30.0
Maximum Green (s)	3.2	3.2	3.2	3.2	3.2	3.2	3.2	4.0	3.2	4.0	3.2	4.0
Yellow Time (s)	2.1	2.1	2.1	2.1	2.1	2.1	1.0	1.0	1.0	1.0	1.0	1.0
All-Red Time (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Lost Time Adjust (s)	5.3	5.3	5.3	5.3	5.3	5.3	4.2	5.0	4.2	5.0	4.2	5.0
Total Lost Time (s)	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
Lead/Lag	None	None	None	None	None	None	None	C-Min	None	C-Min	None	C-Min
Lead-Lag Optimize?	13.5	26.3	13.5	13.5	26.3	13.5	47.8	39.5	47.8	39.5	47.8	39.5
Recall Mode	0.18	0.35	0.18	0.18	0.35	0.18	0.64	0.53	0.64	0.53	0.64	0.53
Act Effect Green (s)	0.78	0.46	0.78	0.46	0.78	0.46	0.31	0.58	0.31	0.58	0.31	0.58
Actuated g/C Ratio	50.8	4.2	50.8	4.2	50.8	4.2	4.4	11.5	4.4	11.5	4.4	11.5
v/C Ratio	50.8	4.2	50.8	4.2	50.8	4.2	4.4	11.5	4.4	11.5	4.4	11.5
Control Delay												

Lanes, Volumes, Timings  
 Synchro 10 Report  
 Page 1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.8	4.2	50.8	4.2	50.8	4.2	4.4	11.5	4.4	11.5	4.4	11.5
LOS	D	A	A	C	C	A	B	A	B	A	B	A
Approach Delay	21.9	0	21.9	0	21.9	0	9.3	0	9.3	0	10.1	0
Approach LOS	C	C	C	C	C	C	A	A	A	B	B	B
Queue Length 50th (ft)	87	0	87	0	87	0	25	66	3	75	0	0
Queue Length 95th (ft)	#163	43	#163	43	#163	43	m33	221	10	146	19	0
Internal Link Dist (ft)	656	0	656	0	656	0	253	483	0	427	0	0
Turn Bay Length (ft)	310	688	310	688	310	688	270	50	682	980	851	0
Base Capacity (vph)	0	0	0	0	0	0	841	854	0	0	0	0
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.47	0.63	0.47	0.63	0.47	0.27	0.58	0.03	0.31	0.10	0.10
Intersection Summary	Other											
Area Type:	Other											
Cycle Length:	75											
Actuated Cycle Length:	75											
Offset:	37 (49%), Referenced to phase 2:NBSB, Start of Yellow											
Natural Cycle:	60											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.78											
Intersection Signal Delay:	14.0											
Intersection Capacity Utilization:	58.6%											
Analysis Period (min):	15											
ICU Level of Service:	B											
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												
m Volume for 95th percentile queue is metered by upstream signal.												

Lanes, Volumes, Timings  
 Synchro 10 Report  
 Page 2



Broad Street Road Diet  
2: Broad St (RT 159) & Maple Ave/Post Office Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	20	20	30	100	20	10	40	670	90	30	540	30
Future Volume (vph)	20	20	30	100	20	10	40	670	90	30	540	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	70	0	0	100	0	125	0	0	0
Storage Lanes	0	0	0	1	0	0	1	0	1	0	0	0
Taper Length (ft)	25		25				50		50			
Lane Util. 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
Ped Bike Factor	0.98	0.942	0.98	0.98	0.98	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt				0.950			0.982		0.992			
Flt/Protected			0.996	0.950			0.950		0.950			
Satd. Flow (prot)	0	1490	0	1770	1741	0	1770	1596	0	1770	1614	0
Flt/Permitted	0	0.905	0.761	0.401			0.401		0.293			
Satd. Flow (perm)	0	1363	0	1418	1741	0	746	1596	0	546	1614	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)	33			11			19		45		8	
Link Speed (mph)	45		25		25		45		566		563	
Link Distance (ft)	443		358		358		586		8.9		8.5	
Travel Time (s)	12.1		9.8		9.8		8.9		5		5	
Confl. Peds. (#/hr)	5		5		5		5		5		5	
Confl. Bikes (#/hr)	10		10		10		10		10		10	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Parking (#/hr)	5	5	5	5	5	5	5	5	5	5	5	5
Adj. Flow (vph)	22	22	33	109	22	11	43	728	98	33	587	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	77	0	109	33	0	43	826	0	33	620	0
Turn Type	Perm	NA	Perm	NA	NA	Perm	NA	NA	Perm	NA	NA	NA
Protected Phases	4	4	4	4	4	4	2	2	2	2	2	2
Permitted Phases	4	4	4	4	4	4	2	2	2	2	2	2
Detector Phase	4	4	4	4	4	4	2	2	2	2	2	2
Switch Phase												
Minimum Initial (s)	7.0	7.0	7.0	7.0	7.0	7.0	15.0	15.0	15.0	15.0	15.0	15.0
Minimum Split (s)	11.0	11.0	11.0	11.0	11.0	11.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	20.0	20.0	20.0	20.0	20.0	20.0	55.0	55.0	55.0	55.0	55.0	55.0
Total Split (%)	26.7%	26.7%	26.7%	26.7%	26.7%	26.7%	73.3%	73.3%	73.3%	73.3%	73.3%	73.3%
Maximum Green (s)	16.0	16.0	16.0	16.0	16.0	16.0	49.0	49.0	49.0	49.0	49.0	49.0
Yellow Time (s)	3.0	3.0	3.0	3.0	3.0	3.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	2.0	2.0	2.0	2.0	2.0	2.0	1.5	1.5	1.5	1.5	1.5	1.5
Recall Mode	None	None	None	None	None	None	C-Max	C-Max	C-Max	C-Max	C-Max	C-Max
Act Effect Green (s)	10.0	10.0	10.0	10.0	10.0	10.0	58.4	58.4	58.4	58.4	58.4	58.4
Actuated g/C Ratio	0.13	0.13	0.13	0.13	0.13	0.13	0.78	0.78	0.78	0.78	0.78	0.78
v/C Ratio	0.37	0.37	0.58	0.14	0.14	0.14	0.07	0.66	0.08	0.49	0.08	0.49
Control Delay	23.3	23.3	42.1	21.5	21.5	21.5	3.5	6.9	3.3	4.6	3.3	4.6

Broad Street Road Diet  
2: Broad St (RT 159) & Maple Ave/Post Office Rd

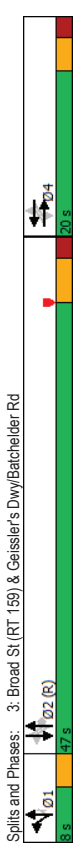
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	23.3	23.3	42.1	21.5	21.5	21.5	3.5	6.9	3.3	4.6	3.3	4.6
LOS	C	C	D	C	C	A	A	A	A	A	A	A
Approach Delay	23.3		37.3			6.7			4.6			
Approach LOS	C		D			A			A			
Queue Length 50th (ft)	19		49			4			2			
Queue Length 95th (ft)	53		91			m11			m11			
Internal Link Dist (ft)	363		278			506			483			
Turn Bay Length (ft)			70			100			125			
Base Capacity (vph)	316		380			580			425			
Starvation Cap Reductn	0		0			0			0			
Spillback Cap Reductn	0		0			0			0			
Storage Cap Reductn	0		0			0			0			
Reduced v/c Ratio	0.24		0.36			0.07			0.08			
Intersection Summary												
Area Type:	Other											
Cycle Length:	75											
Actuated Cycle Length:	75											
Offset:	37 (49%), Referenced to phase 2; NBSB, Start of Yellow											
Natural Cycle:	60											
Control Type:	Actuated-Coordinated											
Maximum v/c Ratio:	0.66											
Intersection Signal Delay:	9.1											
Intersection Capacity Utilization:	61.3%											
Analysis Period (min):	15											
m	Volume for 95th percentile queue is metered by upstream signal.											
Splits and Phases:	2: Broad St (RT 159) & Maple Ave/Post Office Rd											

Broad Street Road Diet  
3: Broad St (RT 159) & Geissler's Dwy/Batchelder Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Lane Configurations											
Traffic Volume (vph)	20	1	60	40	10	10	40	670	20	20	620
Future Volume (vph)	20	1	60	40	10	10	40	670	20	20	620
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	0	0	0	0	50	0	0	0	0
Storage Lanes	0	0	0	0	0	0	1	0	1	0	0
Taper Length (ft)	25		25				50			50	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95
Ped Bike Factor	0.98		0.99				1.00		0.97	1.00	
Frt	0.899		0.977				0.850		0.850	0.998	
FIT Protected	0.998		0.968				0.950		0.998	0.998	
Satd. Flow (prot)	0	1619	0	0	1750	0	1770	1863	1583	0	3523
FIT Permitted	0.914		0.804				0.371		0.924	0.924	
Satd. Flow (perm)	0	1498	0	0	1449	0	690	1863	1539	0	3262
Right Turn on Red			No			No			Yes		No
Satd. Flow (RTOR)			25				45		29		45
Link Speed (mph)	277		529				599		370		370
Link Distance (ft)	7.6		14.4				9.1		5.6		5.6
Travel Time (s)			4				3		3		3
Confl. Peds. (#/hr)	10		10				10		10		10
Confl. Bikes (#/hr)	0.90		0.90				0.90		0.90		0.90
Peak Hour Factor	100%		100%				100%		100%		100%
Growth Factor	100%		100%				100%		100%		100%
Adj. Flow (vph)	22		67				44		744		22
Shared Lane Traffic (%)											
Lane Group Flow (vph)	0	90	0	0	66	0	44	744	22	0	722
Turn Type	Perm	NA	Perm	NA	D.P+P	NA	Perm	Perm	NA	Perm	NA
Protected Phases	4	4	4	4	2	12	2	2	2	2	2
Permitted Phases	4	4	4	4	4	4	4	4	4	4	4
Detector Phase											
Switch Phase											
Minimum Initial (s)	9.0		9.0				5.0		15.0		15.0
Minimum Split (s)	14.0		14.0				8.0		21.0		21.0
Total Split (s)	20.0		20.0				8.0		47.0		47.0
Total Split (%)	26.7%		26.7%				10.7%		62.7%		62.7%
Maximum Green (s)	15.0		15.0				5.0		41.0		41.0
Yellow Time (s)	3.0		3.0				3.0		4.0		4.0
All-Red Time (s)	2.0		2.0				0.0		2.0		2.0
Lost Time Adjust (s)	0.0		0.0				0.0		0.0		0.0
Total Lost Time (s)	5.0		5.0				3.0		6.0		6.0
Lead/Lag									Lag		Lag
Lead-Lag Optimize?							Yes				
Vehicle Extension (s)	2.5		2.5				2.5		2.5		2.5
Recall Mode	None		None				None		C-Max		C-Max
Act Effct Green (s)	10.2		10.2				60.2		53.0		53.0
Actuated g/C Ratio	0.14		0.14				0.77		0.80		0.71
v/c Ratio	0.45		0.34				0.07		0.50		0.31
Control Delay	36.7		33.8				2.9		5.0		5.3
Queue Delay	0.0		0.0				0.0		0.0		0.0

Broad Street Road Diet  
3: Broad St (RT 159) & Geissler's Dwy/Batchelder Rd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
Total Delay	36.7		33.8				2.9		5.0		5.3
LOS	D		C				A		A		A
Approach Delay	36.7		33.8				4.8		5.3		5.3
Approach LOS	D		C				A		A		A
Queue Length 50th (ft)	40		29				4		95		65
Queue Length 95th (ft)	78		62				12		204		103
Internal Link Dist (ft)	197		449				519		290		290
Turn Bay Length (ft)	299		289				604		1496		1241
Base Capacity (vph)	0		0				0		0		0
Starvation Cap Reductn	0		0				0		0		0
Spillback Cap Reductn	0		0				0		0		0
Storage Cap Reductn	0		0				0		0		0
Reduced v/c Ratio	0.30		0.23				0.07		0.50		0.31
Intersection Summary	Other										
Area Type:	Other										
Cycle Length:	75										
Actuated Cycle Length:	75										
Offset:	37 (49%), Referenced to phase 2,NBSB, Start of Yellow										
Natural Cycle:	45										
Control Type:	Actuated-Coordinated										
Maximum v/c Ratio:	0.50										
Intersection Signal Delay:	7.8										
Intersection LOS:	A										
Intersection Capacity Utilization:	50.5%										
Analysis Period (min):	15										



Splits and Phases: 3: Broad St (RT 159) & Geissler's Dwy/Batchelder Rd

Phase	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBR
D1	4	4	4	4	4	4	2	12	2	2	2
D2 (R)											
D4											