Appendix C

2020 Addendum to Traffic Impact Study and

2019 Traffic Impact Study

2020 ADDENDUM

to the

TRAFFIC IMPACT STUDY (TIS)

for the

Bethlehem Steel Redevelopment Area
(Dated May 2019)

City of Lackawanna
Erie County, New York

Prepared for:

AECOM

Prepared by:

WATTS ARCHITECTURE & ENGINEERING

September 2020

Replace the text, figure and tables of "Section D. TRAFFIC PROJECTIONS" with the following:

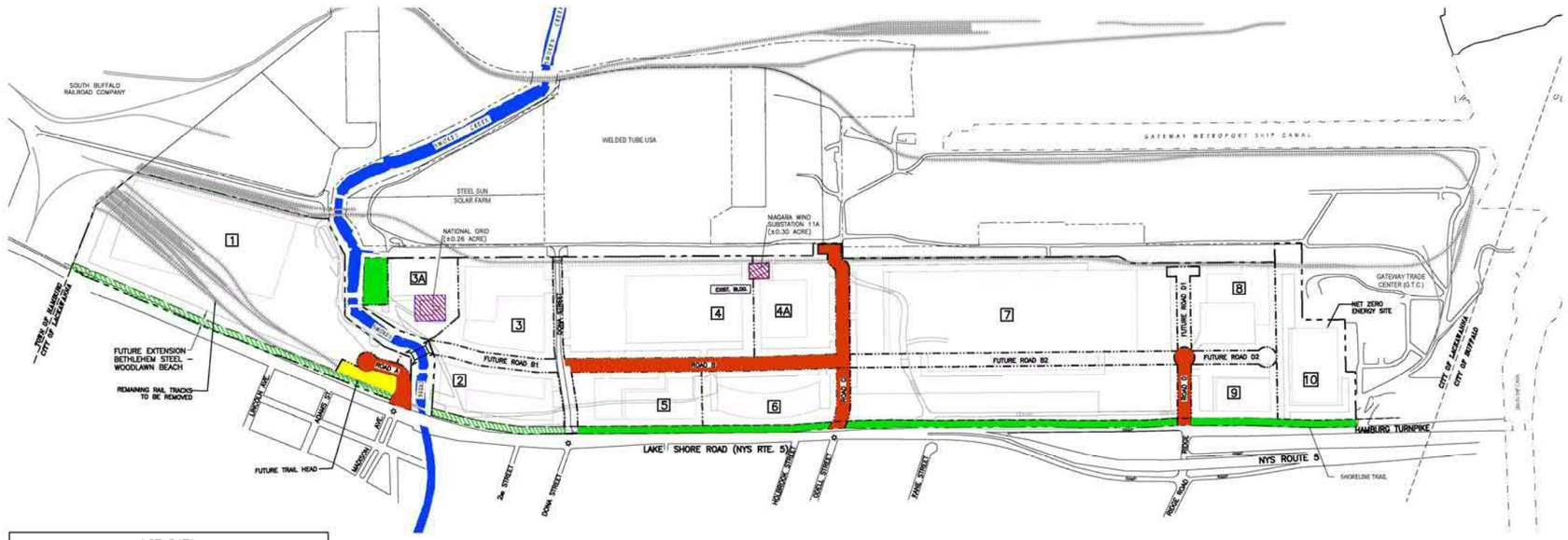
D. TRAFFIC PROJECTIONS (2020)

a. Growth Rate

GBNRTC Traffic Demand Model showed a negative (-0.4%) traffic growth along this corridor of NYS Route 5 in the project area. Therefore a zero (0.0%) traffic growth was used to develop the background traffic excepted at the full site buildout (2039).

b. Trip Generations

The vehicle trip generation was based on the project lot data in the DGEIS. The Institute of Transportation Engineers "Trip Generation Manual, 10th Edition" was used to estimate the traffic to be generated by the redeveloped area. Vehicle trip generation was estimated based on the assumed building gross floor area to be placed on the parcels to be developed, using the Average Rate values. These estimated trips were then applied to the analyzed intersection during the appropriate time period. Table 2 summarizes the trip generations for the analysis:



LOT DATA			
LOT NO.	GROSS AREA (ACRES)	DEVELOPABLE AREA* (ACRES)	EXISTING ZONING
1	41.7	33.4	BRA–MI
2	9.9	7.4	BRA–LI
3	13.1	10.5	BRA–MI
3A	5.8	4.6	BRA–MI
4	24.1	19.3	BRA–MI
4A	10.0	8.0	BRA–MI
5	8.5	6.4	BRA–LI
6	9.1	6.8	BRA–LI
7	66.6	51.9	BRA–LI & BRA–MI
8	10.8	8.6	BRA–MI
9	6.5	4.9	BRA–LI
10	11.7	8.5	BRA–LI & BRA–MI
SUBTOTAL	217.7	170.3	
EXISTING ROAD RIGHT OF WAY (DONA STREET)	2.4	N/A	N/A
PROPOSED ROAD RIGHT OF WAY	10.7	N/A	N/A
SHORELINE TRAIL (EXISTING AND FUTURE) & TRAIL HEAD PARKING	11.5	N/A	N/A
GREENSPACE	1.4	N/A	N/A
OUTPARCELS	1.4	N/A	N/A
TOTAL	245.1**	170.3	

* NOT INCLUDING PROPOSED STREET R.O.W. AND SHORELINE TRAIL EASEMENT
** GROSS AREA FOR LOTS 2, 3, 7, 8 & 9 INCLUDE RIGHT OF WAY FOR FUTURE PUBLIC STREETS (10.7 ACRES)

ZONING REQUIREMENTS	BRA–LI	BRA–MI
MINIMUM LOT SIZE	5 ACRES; OR 50 ACRES FOR PUD	8 ACRES, OR 50 ACRES FOR PUD
MINIMUM LOT FRONTAGE	300 FEET	500 FEET
MAXIMUM BUILDING HEIGHT	36 FEET OR 3 STORIES	60 FEET
MINIMUM FRONT YARD	30 FEET/ 50–FOOT SETBACK REQUIRED FROM NYS ROUTE 5 AND HAMBURG TURNPIKE ROW	50 FEET
MINIMUM SIDE YARD	25 FEET	50 FEET
MINIMUM REAR YARD	NA	50 FEET
MINIMUM BUFFER TO SMOKES CREEK GREENWAY CORRIDOR OVERLAY DISTRICT BOUNDARY	50 FEET	50 FEET
MINIMUM BUILDING COVERAGE	15%	18%
MAXIMUM LOT COVERAGE (INCLUDING PARKING)	75%	80%
MINIMUM LANDSCAPING COVERAGE	25%	20%

LEGEND:

- BUILDING
- PAVEMENT/PARKING AREAS
- GREENSPACE/LANDSCAPED AREAS
- ILDC PROPERTY BOUNDARY
- PROPOSED LOT BOUNDARY
- PROPOSED LOT NUMBER
- ZONING BOUNDARY
- EXISTING PRIVATE ROAD
- RAILROAD TRACK
- 50' WIDE EASEMENT BETHLEHEM SHORELINE TRAIL
- PROPOSED 1 ACRE TRAIL HEAD AREA
- POTENTIAL EXTENSION OF SHORELINE TRAIL EASEMENT
- WATER BODY
- UTILITY SUBSTATION
- PROPOSED PUBLIC STREET RIGHT–OF–WAY (100')
- POTENTIAL FUTURE PUBLIC STREET RIGHT–OF–WAY
- UNDEVELOPED / GREENSPACE
- EXISTING TRAFFIC SIGNAL
- POTENTIAL FUTURE BRIDGE

400' 0 400'
SCALE IN FEET

AECOM

PROJECT
Advanced Manufacturing Park - Infrastructure Master Plan

OWNER
Buffalo and Erie County Industrial Land Development Corporation
95 Perry Street, Suite 403
Buffalo, N.Y. 14203

CONSULTANT
AECOM
257 West Genesee Street, Suite 400
Buffalo, N.Y. 14202
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REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION

FIGURE 4

PROJECT NUMBER
605568845

SHEET TITLE
CONCEPT INFRASTRUCTURE MASTER PLAN (BUILD-OUT)
DRAFT - OCTOBER 2019

SHEET NUMBER
C-2A

ARCH D 24" x 36"

J:\Projects\60568845_BSRA_MP\90C_CAD_GIS\910_CAD\CAD\SUBMITTAL\C-2A.dwg 1:1 2/6/20 – 2 CRB

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Table 2: Newly Generated Trips from the development (trips in peak hour)

Lot Data				Building Size		Trip Ends - Industrial Park (130)				
Lot No.	Gross Area (Acres)	Developable Area (Acres)	Existing Zoning	40% of Developable Area		Total	AM Peak Hour		PM Peak Hour	
				40% (Acre)	40% (1000 SF GSF)		81% Entry	19% Exit	21% Entry	79% Exit
1	41.7	33.4	BRA-MI	13.36	581	232	188	44	48	184
2	9.9	7.4	BRA-LI	2.96	128	51	41	10	11	40
3	13.1	10.5	BRA-MI	4.20	182	73	59	14	15	58
3A	5.8	4.6	BRA-MI	1.84	80	32	26	6	7	25
4	24.1	19.3	BRA-MI	7.72	336	134	108	26	28	106
4A	10.0	8.0	BRA-MI	3.20	139	56	45	11	12	44
5	8.5	6.4	BRA-LI	2.56	111	44	36	8	9	35
6	9.1	6.8	BRA-LI	2.72	118	47	38	9	10	37
7	66.6	51.9	BRA-LI & BRA-MI	20.76	904	362	293	69	76	286
8	10.8	8.6	BRA-MI	3.44	149	60	48	12	13	47
9	6.5	4.9	BRA-LI	1.96	85	34	28	6	7	27
10	11.7	8.5	BRA-LI & BRA-MI	3.40	148	59	48	11	12	47

The Manual provides an approximate relationship between building size and trips generated based on studies conducted at facilities across the United States. The proposed development is deemed to be within the national average for Industrial Parks. The average trip generation rate listed in the Manual is deemed suitable for the Bethlehem Steel Redevelopment Area. Therefore, the average number of trip ends listed in the Manual, for both AM and PM peak hours, is approximately 0.4 per 1000 square feet of gross floor area.

c. **Trip Assignments**

Once generated, these new trips were assigned to the appropriate arriving and/or departing direction of the analyzed intersections during the AM and PM peak hour. (See Table 3 below.) Trip assignments for the proposed developments were considered to be 50/50 split between northbound and southbound based on engineering judgment.

Table 3: Newly Generated Trips (intersection allocation)

Intersection	Trip Ends for 130 - Industrial Park			
	AM ENTRY	PM EXIT	AM ENTRY	PM EXIT
Madison Ave /NY Route 5	188	44	48	184
Dona Street / NY Route 5	216	51	56	211
Odell Street / NY Route 5	283	67	74	277
Ridge Road / Fuhrmann Dr	271	64	70	264

*See Appendix D for additional information.

Replace the text and figures of "Section E. LOS ANALYSIS" with the following:

E. LOS ANALYSIS (2020)

The level of service analysis was completed using Synchro by Trafficware. Synchro is a macroscopic traffic analysis software that supports the methodologies put forth in the Highway Capacity Manual. This software is often used by state and local governments for traffic analysis.

The existing LOS analysis is based on traffic counts taken on May 24, 2017 and August 7, 2018. Individual AM and PM peak hours were determined for each intersection in the study. The AM and PM peak hours analyzed are:

- NY Route 5 / Madison Avenue intersection
    - AM Peak Hour - 7:00 - 8:00 am
    - PM Peak Hour - 4:30 - 5:30 pm

- NY Route 5 / Dona Street intersection
    - AM Peak Hour - 7:15 - 8:15 am
    - PM Peak Hour - 4:30 - 5:30 pm

- • NY Route 5 / Odell Street intersection
    - • AM Peak Hour - 7:15 - 8:15 am
    - • PM Peak Hour - 4:30 - 5:30 pm

The existing level of service analysis was completed assuming no changes to signal timings and phasing. There was an analysis completed for the background traffic, existing traffic with the normal traffic growth to 2039. Then the estimated traffic generated for the development was added to the background traffic and another analysis was performed. The future analyses included the Dona Street extension that was recently constructed along with a NY Route 5 southbound right turn lane at Dona Street. In addition, the existing center turn lane will be striped for an exclusive, left turn only at these three intersections on NY Route 5. The following figures illustrate the existing traffic, background traffic, generated traffic and combined traffic.

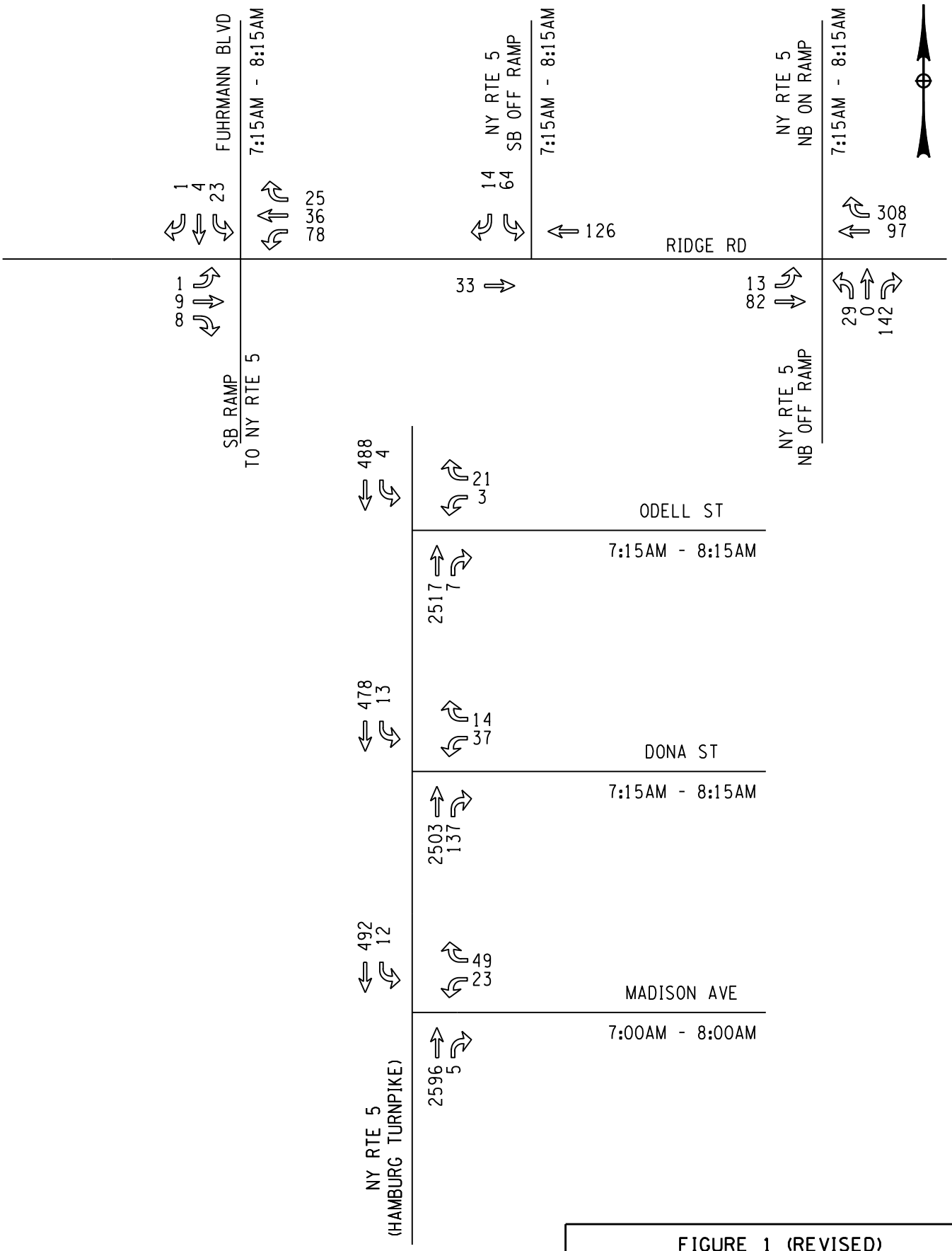

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FIGURE 1 (REVISED)

BETHLEHEM STEEL

AM PEAK HOUR (EXISTING)
TRAFFIC DISTRIBUTION

DATE: 2020 | NOT TO SCALE

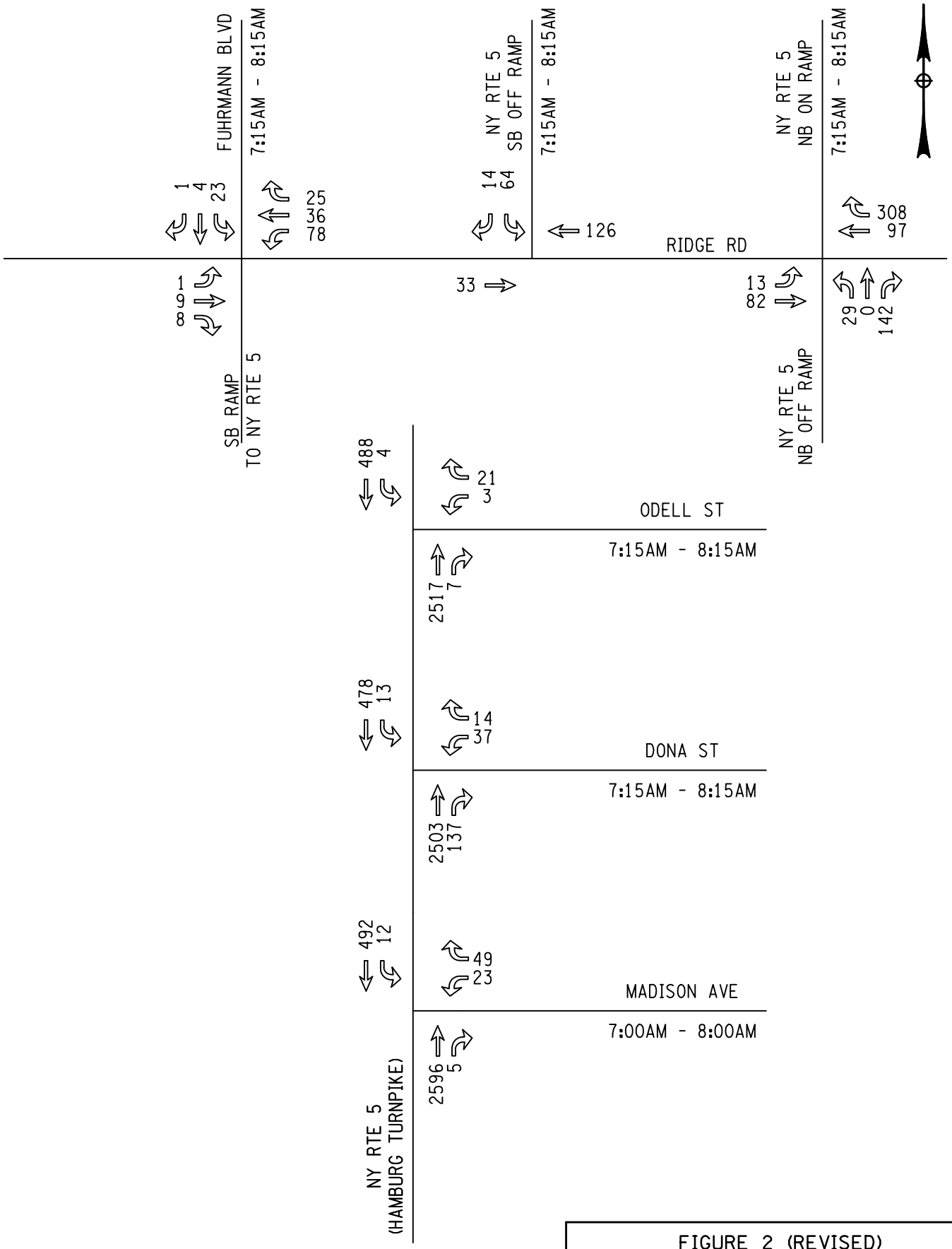

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FIGURE 2 (REVISED)

BETHLEHEM STEEL

AM PEAK HOUR (BACKGROUND 2039)
TRAFFIC DISTRIBUTION

DATE: 2020 | NOT TO SCALE

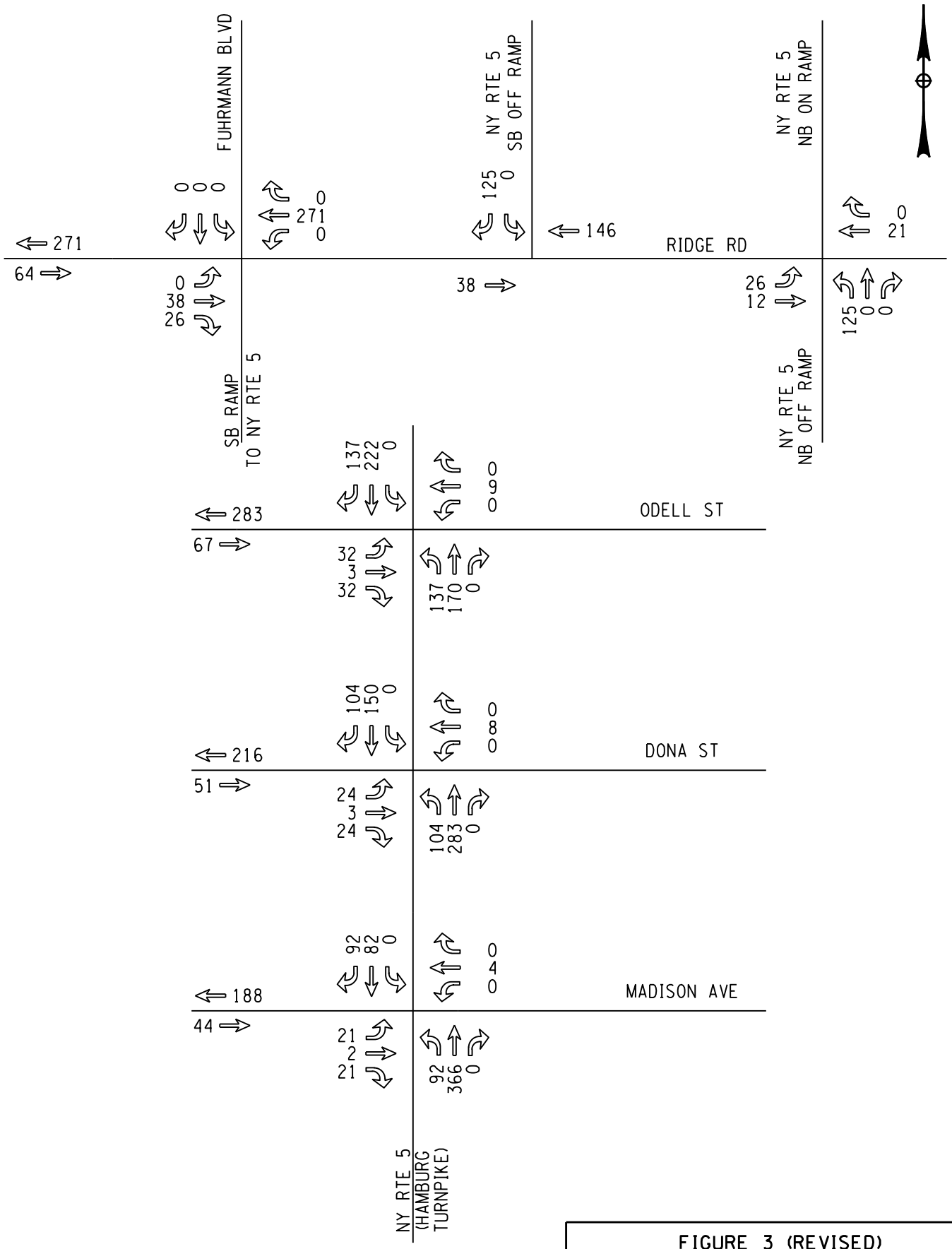

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FIGURE 3 (REVISED)

BETHLEHEM STEEL

AM PEAK HOUR (GENERATED)
TRAFFIC DISTRIBUTION

DATE: 2020 | NOT TO SCALE

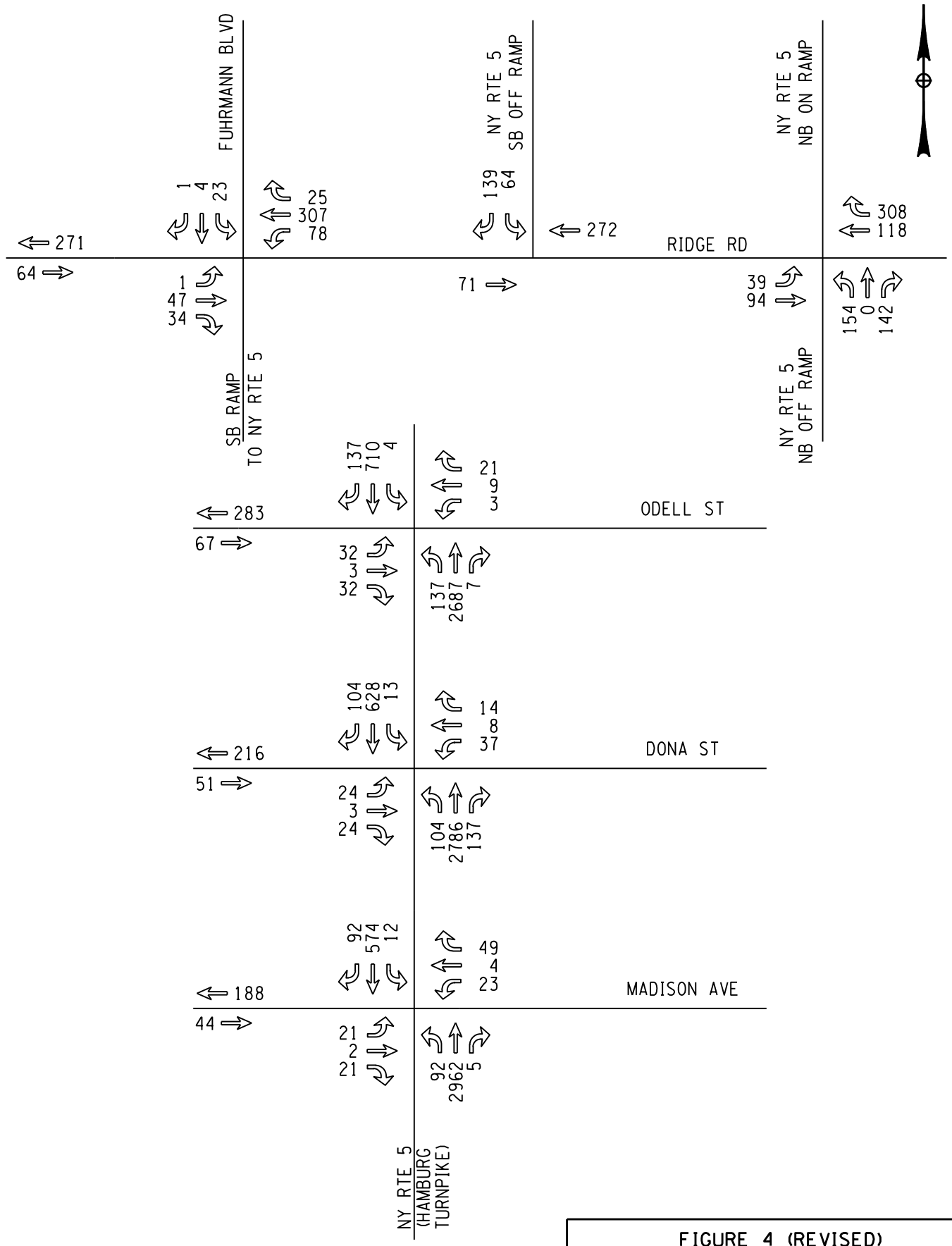

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FIGURE 4 (REVISED)

BETHLEHEM STEEL

AM PEAK HOUR (COMBINED)
TRAFFIC DISTRIBUTION

DATE: 2020 | NOT TO SCALE

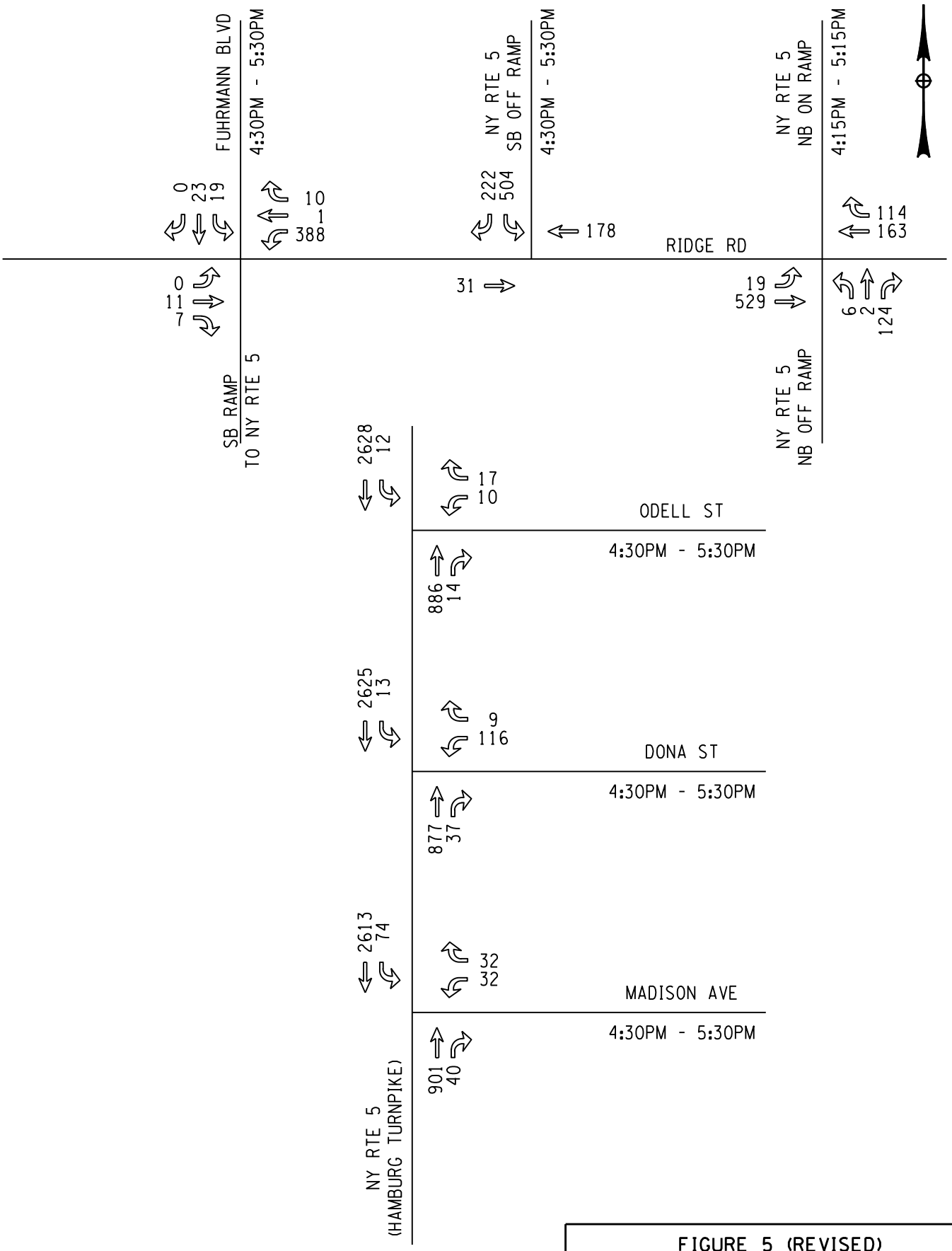

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FIGURE 5 (REVISED)

BETHLEHEM STEEL

PM PEAK HOUR (EXISTING)
TRAFFIC DISTRIBUTION

DATE: 2020 | NOT TO SCALE

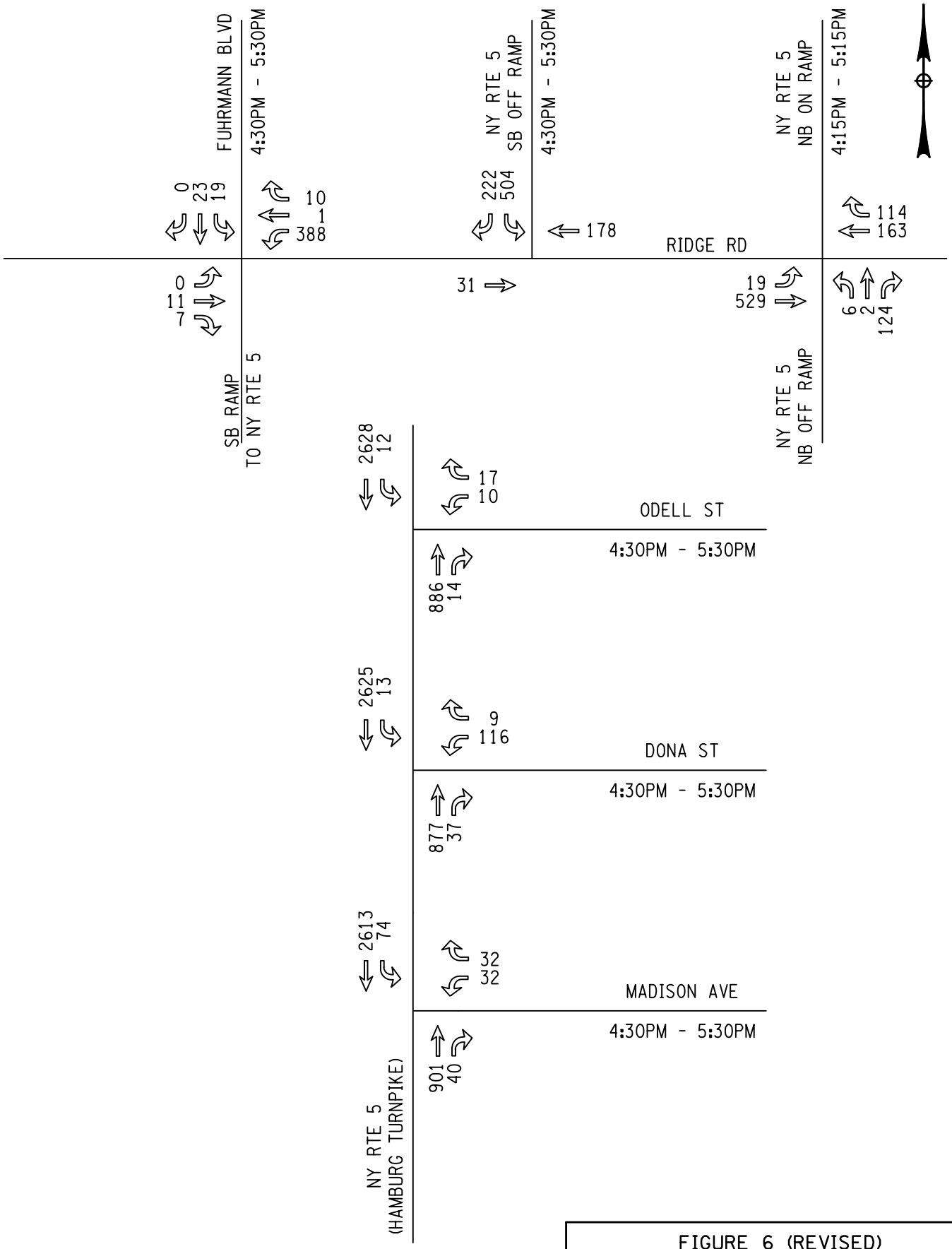

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FIGURE 6 (REVISED)

BETHLEHEM STEEL

PM PEAK HOUR (BACKGROUND 2039)
TRAFFIC DISTRIBUTION

DATE: 2020 | NOT TO SCALE

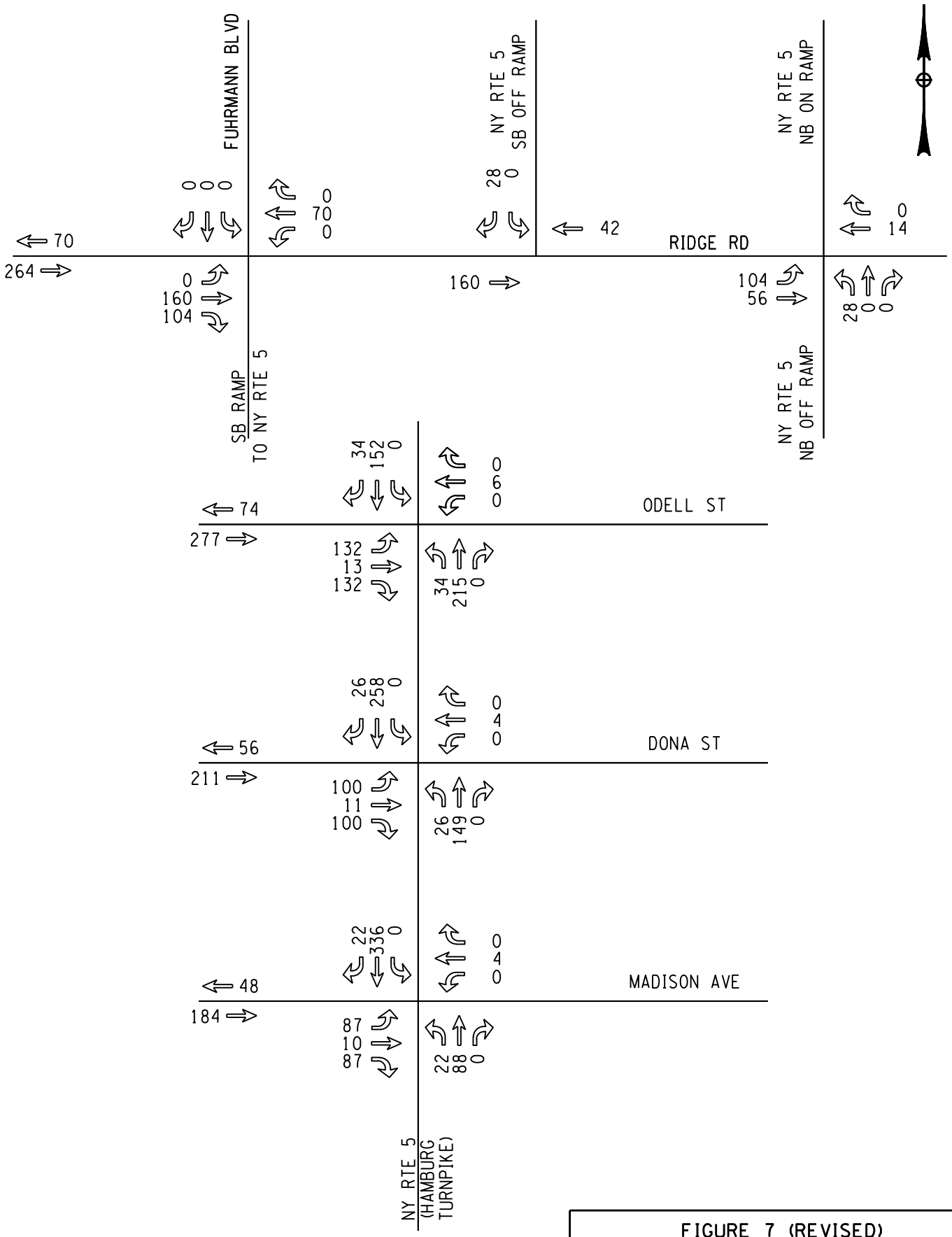

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FIGURE 7 (REVISED)

BETHLEHEM STEEL

PM PEAK HOUR (GENERATED)
TRAFFIC DISTRIBUTION

DATE: 2020 | NOT TO SCALE

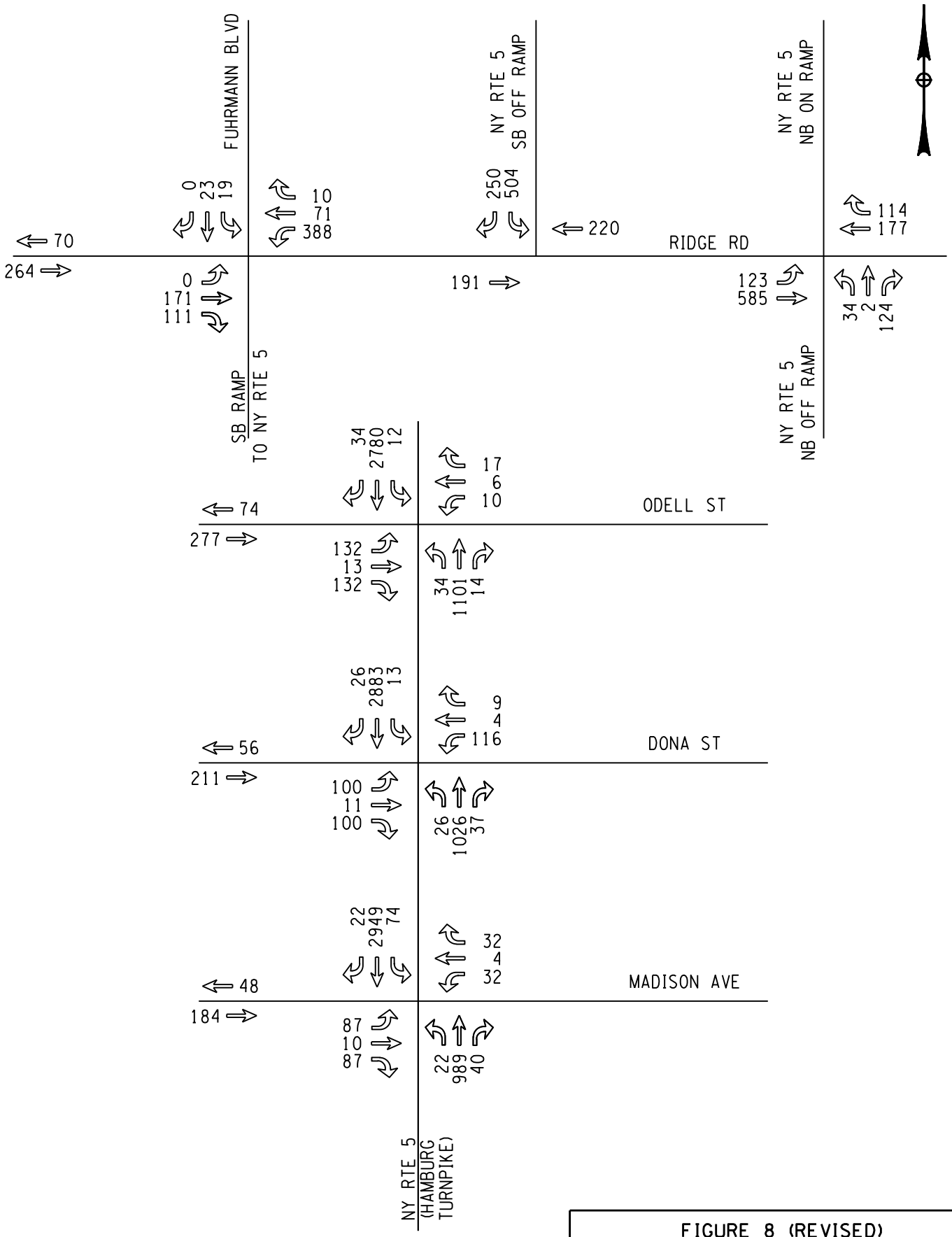

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FIGURE 8 (REVISED)

BETHLEHEM STEEL

PM PEAK HOUR (COMBINED)
TRAFFIC DISTRIBUTION

DATE: 2020 | NOT TO SCALE

a. **Existing LOS**

The existing AM LOS analysis shows no significant concern areas for the analyzed intersections. Each intersection operates at LOS A for all AM peak hours.

Traffic counts taken during the existing PM peak hour were reversed from the AM hour. Significant amounts of southbound traffic resulted in an 'E' LOS. As described above in the methodology section of the report, a LOS E represents operations at or near capacity (an unstable level). Vehicles are operating with the minimum spacing for maintaining uniform flow. Disruptions cannot be dissipated readily, often causing queues to form and service to deteriorate to LOS F. The difference in LOS between the AM and PM peak hours can be attributable to the fact that there are three (3) through lanes in the northbound direction, but only two (2) in the southbound direction, despite the fact that the PM southbound peak hour volumes are roughly equivalent to the northbound AM peak hour volumes.

See the tables after the recommendations that summarizes the existing AM and PM peak hour LOS for each approach and the intersection compared with the LOS for the background traffic and the LOS at full redevelopment:

b. **LOS after redevelopment**

The studied intersections were analyzed for the full redevelopment of the Bethlehem Steel Redevelopment Area (+/- 170 acres). The LOS analysis was completed for the year of 2039. Since full redevelopment at the site will take many years, 2039 is an estimated horizon year for full project buildout.

For the full redevelopment, 12 parcels were created as shown in the Site Plan. Traffic lot/traffic allocation is as shown in Table 3 above and in further detail in Appendix C. Our analysis shows the all intersections still operating with a minimal change to the LOS compared to the existing LOS during the AM peak hour.

The PM peak hour analysis shows that the three NY Route 5 intersection's capacity will be exceeded (LOS F). Given the existing LOS on for SB NY Route 5 (LOS E) any disruption to the traffic stream can cause a breakdown in the traffic flow (LOS F).

Given the scope of the redevelopment it is reasonable to assume there would be a fair amount of the existing traffic on NY Route 5 that would be diverted into the development. This would then reduce the added traffic to the intersections after redevelopment.

NYS Route Route 5 and Odell Street								
Approach		AM Peak Hour			PM Peak Hour			
		Existing	Background	Full-Build	Existing	Background	Full-Build	3 SB Lanes
		(2018)	(2039)	(2039)	(2018)	(2039)	(2039)	(2039)
EB	Odell Street	-	-	D	-	-	C	E
WB	Odell Street	C	C	E	C	D	C	D
NB	NYS Route 5	A	A	A	A	A	A	A
SB	NYS Route 5	A	A	A	D	D	F	C
Overall Intersection		A	A	A	D	D	F	D

NYS Route Route 5 and Dona Street								
Approach		AM Peak Hour			PM Peak Hour			
		Existing	Background	Full-Build	Existing	Background	Full-Build	3 SB Lanes
		(2018)	(2039)	(2039)	(2018)	(2039)	(2039)	(2039)
EB	Dona Street	-	-	C	-	-	B	D
WB	Dona Street	C	C	C	C	C	C	F
NB	NYS Route 5	A	A	B	A	A	B	A
SB	NYS Route 5	A	A	A	E	F	F	E
Overall Intersection		A	A	B	E	E	F	D

NYS Route Route 5 and Madison Street								
Approach		AM Peak Hour			PM Peak Hour			
		Existing	Background	Full-Build	Existing	Background	Full-Build	3 SB Lanes
		(2018)	(2039)	(2039)	(2018)	(2039)	(2039)	(2039)
EB	Madison Street	-	-	C	-	-	C	C
WB	Madison Street	C	C	C	D	D	C	C
NB	NYS Route 5	A	A	B	A	A	A	A
SB	NYS Route 5	A	A	A	E	E	F	D
Overall Intersection		A	B	B	E	E	F	C

Replace the text of "Section F. RECOMMENDATIONS" with the following:

F. RECOMMENDATIONS (2020)

The NY Route 5 intersections that were included in the study currently operate in an acceptable LOS during the AM peak hour. Although, these same intersections during the PM peak hour the southbound traffic operate at a LOS E.

The following options are suggested to improve the buildout levels of service at study intersections:

- Transportation demand management techniques can be used to reduce the number of vehicle trips generated by the development during the peak hours. Some of these include:
    - Mandate transit usage
    - Provide subsidies or other incentives for employees not to drive to work themselves.
    - Encourage carpooling/vanpooling.
    - Provide access to company fleet vehicles or car-share vehicles for employees who do not drive to work.
    - Modify work schedules (flextime, four-day work weeks, etc.)

- Consider adding a third southbound lane on NY Route 5 as possible solution.

- The addition of designated left turn and right turn lanes at the Ridge Road / SB NY Rte 5 Ramp intersection would likely improve the proposed levels of service.

- The addition of a 200-foot southbound right turn (deceleration) lane at Madison Avenue would likely improve the proposed levels of service.

Delete "Appendix C"

Replace "Appendix D", "Appendix E" and "Appendix F" with the following:

(Note the Ridge Road Intersections previously shown in "Appendix E" did not change.)

APPENDIX D
Distribution

Madison Intersection

		Total AM Volume		Intersection AM Volume			Total PM Volume		Intersection PM Volume	
		ENTRY	EXIT	ENTRY	EXIT		ENTRY	EXIT	ENTRY	EXIT
Lot 1	100%	188	44	188	44	Lot 1	48	184	48	184
Total				188	44	Total			48	184
50% North				94						
50% South				94						
Total coming from South				397.85						

Dona Intersection

		Total AM Volume		Intersection AM Volume			Total PM Volume		Intersection PM Volume	
		ENTRY	EXIT	ENTRY	EXIT		ENTRY	EXIT	ENTRY	EXIT
Lot 2	100%	41	10	41	10	Lot 2	11	40	11	40
Lot 3	100%	59	14	59	14	Lot 3	15	58	15	58
Lot 3A	100%	26	6	26	6	Lot 3A	7	25	7	25
Lot 4	50%	108	26	54	13	Lot 4	28	106	14	53
Lot 5	100%	36	8	36	8	Lot 5	9	35	9	35
Total				216	51	Total			56	211
50% North				108						
50% South				108						

Odell Intersection

		Total AM Volume		Intersection AM Volume			Total PM Volume		Intersection PM Volume	
		ENTRY	EXIT	ENTRY	EXIT		ENTRY	EXIT	ENTRY	EXIT
Lot 4	50%	108	26	54	13	Lot 4	28	106	14	53
Lot 4A	100%	45	11	45	11	Lot 4A	12	44	12	44
Lot 6	100%	38	9	38	9	Lot 6	10	37	10	37
Lot 7	50%	293	69	146.5	34.5	Lot 7	76	286	38	143
Total				283.5	67.5	Total			74	277
50% North				141.75						
50% South				141.75						

Ridge Intersection

		Total AM Volume		Intersection AM Volume			Total PM Volume		Intersection PM Volume	
		ENTRY	EXIT	ENTRY	EXIT		ENTRY	EXIT	ENTRY	EXIT
Lot 7	50%	293	69	146.5	34.5	Lot 7	76	286	38	143
Lot 8	100%	48	12	48	12	Lot 8	13	47	13	47
Lot 9	100%	28	6	28	6	Lot 9	7	27	7	27
Lot 10	100%	48	11	48	11	Lot 10	12	47	12	47
Total				270.5	63.5	Total			70	264
80% North				216.4						
20% South				54.1						

APPENDIX E
Synchro Analysis

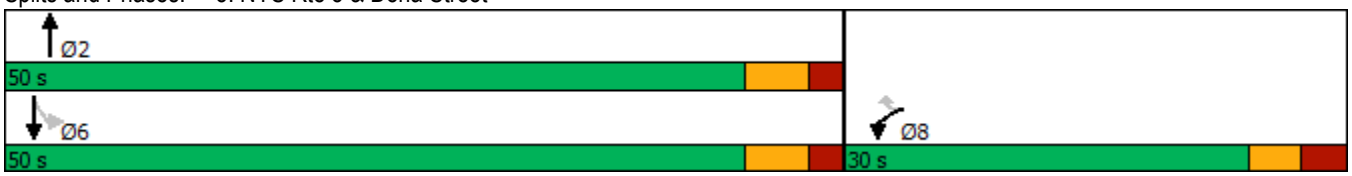
DONA STREET/NY RTE 5
EXISTING 2019
AM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	37	14	2503	137	13	478
Future Volume (vph)	37	14	2503	137	13	478
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.992			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	4991	0	1517	3195
Flt Permitted	0.950				0.071	
Satd. Flow (perm)	1612	1455	4991	0	113	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)			16			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		464			480
Travel Time (s)	13.0		7.9			8.2
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	49	17	3052	163	17	562
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	17	3215	0	17	562
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	30.0	30.0	50.0		50.0	50.0
Total Split (%)	37.5%	37.5%	62.5%		62.5%	62.5%
Maximum Green (s)	24.0	24.0	44.0		44.0	44.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	7.7	7.7	59.2		59.2	59.2
Actuated g/C Ratio	0.11	0.11	0.83		0.83	0.83
v/c Ratio	0.28	0.11	0.77		0.18	0.21
Control Delay	33.7	30.2	8.2		9.4	2.9
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	33.7	30.2	8.2		9.4	2.9
LOS	C	C	A		A	A
Approach Delay	32.8		8.2			3.1
Approach LOS	C		A			A

Intersection Summary	
Area Type: Other	
Cycle Length: 80	
Actuated Cycle Length: 71.1	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 7.9	Intersection LOS: A
Intersection Capacity Utilization 64.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: NYS Rte 5 & Dona Street



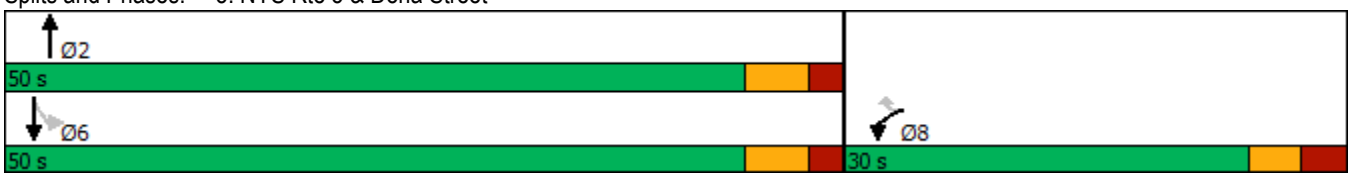
DONA STREET/NY RTE 5
BACKGROUND 2039
AM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	37	14	2503	137	13	478
Future Volume (vph)	37	14	2503	137	13	478
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.992			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	4991	0	1517	3195
Flt Permitted	0.950				0.071	
Satd. Flow (perm)	1612	1455	4991	0	113	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)			16			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		464			480
Travel Time (s)	13.0		7.9			8.2
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	49	17	3052	163	17	562
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	17	3215	0	17	562
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Number of Detectors	1	1	2		1	2
Detector Template	Left	Right	Thru		Left	Thru
Leading Detector (ft)	20	20	100		20	100
Trailing Detector (ft)	0	0	0		0	0
Detector 1 Position(ft)	0	0	0		0	0
Detector 1 Size(ft)	20	20	6		20	6
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0		0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0		0.0	0.0
Detector 2 Position(ft)			94			94
Detector 2 Size(ft)			6			6
Detector 2 Type			Cl+Ex			Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)			0.0			0.0
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	30.0	30.0	50.0		50.0	50.0
Total Split (%)	37.5%	37.5%	62.5%		62.5%	62.5%
Maximum Green (s)	24.0	24.0	44.0		44.0	44.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	7.7	7.7	59.2		59.2	59.2
Actuated g/C Ratio	0.11	0.11	0.83		0.83	0.83
v/c Ratio	0.28	0.11	0.77		0.18	0.21
Control Delay	33.7	30.2	8.2		9.4	2.9
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	33.7	30.2	8.2		9.4	2.9
LOS	C	C	A		A	A
Approach Delay	32.8		8.2			3.1
Approach LOS	C		A			A

Intersection Summary	
Area Type: Other	
Cycle Length: 80	
Actuated Cycle Length: 71.1	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 7.9	Intersection LOS: A
Intersection Capacity Utilization 64.7%	ICU Level of Service C
Analysis Period (min) 15	

Splits and Phases: 5: NYS Rte 5 & Dona Street



DONA STREET/NY RTE 5
COMBINED 2039
AM

Lanes, Volumes, Timings
5: NYS Rte 5 & Dona Street

08/27/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	2	21	37	8	14	104	2786	137	12	574	92
Future Volume (vph)	21	2	21	37	8	14	104	2786	137	12	574	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.862			0.902			0.993				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1606	0	1612	1589	0	1770	4996	0	1517	3195	1583
Flt Permitted				0.976			0.351			0.078		
Satd. Flow (perm)	1863	1606	0	1656	1589	0	654	4996	0	125	3195	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23			17			10				131
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		671			572			464			480	
Travel Time (s)		15.3			13.0			7.9			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	23	2	23	49	9	17	113	3398	163	16	675	100
Shared Lane Traffic (%)												
Lane Group Flow (vph)	23	25	0	49	26	0	113	3561	0	16	675	100
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	1.5		5.0	1.5		5.0	5.0	5.0
Minimum Split (s)	9.5	24.3		9.5	22.5		9.5	20.0		9.5	20.0	20.0
Total Split (s)	9.6	24.3		9.5	24.2		10.8	56.7		9.5	55.4	55.4
Total Split (%)	9.6%	24.3%		9.5%	24.2%		10.8%	56.7%		9.5%	55.4%	55.4%
Maximum Green (s)	5.1	18.3		5.0	18.2		6.3	50.7		5.0	49.4	49.4
Yellow Time (s)	3.5	3.2		3.5	3.2		3.5	3.9		3.5	3.9	3.9
All-Red Time (s)	1.0	2.8		1.0	2.8		1.0	2.1		1.0	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
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0		4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Min		None	Min	Min

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	8.4	6.3		8.7	6.3		58.4	58.5		54.3	49.9	49.9
Actuated g/C Ratio	0.11	0.08		0.12	0.08		0.79	0.79		0.73	0.67	0.67
v/c Ratio	0.11	0.16		0.26	0.17		0.19	0.90		0.09	0.31	0.09
Control Delay	28.7	19.2		31.0	24.0		4.3	17.2		5.3	8.7	1.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	28.7	19.2		31.0	24.0		4.3	17.2		5.3	8.7	1.2
LOS	C	B		C	C		A	B		A	A	A
Approach Delay		23.7			28.6			16.8			7.7	
Approach LOS		C			C			B			A	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 74.2
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 15.5 Intersection LOS: B
Intersection Capacity Utilization 83.5% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 5: NYS Rte 5 & Dona Street

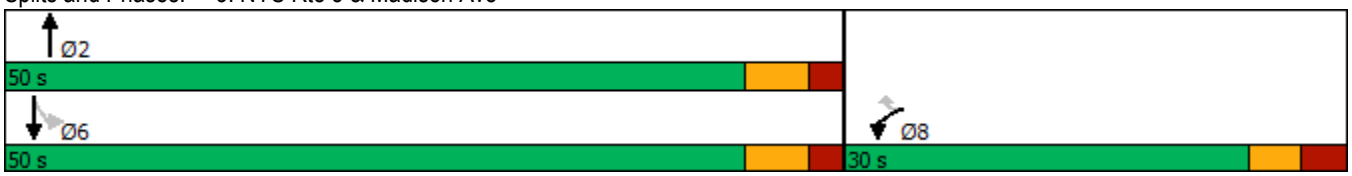
MADISON AVENUE/NY RTE 5
EXISTING 2019
AM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	23	49	2596	5	12	492
Future Volume (vph)	23	49	2596	5	12	492
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5036	0	1517	3195
Flt Permitted	0.950				0.073	
Satd. Flow (perm)	1612	1455	5036	0	117	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)			1			
Link Speed (mph)	30		40			40
Link Distance (ft)	493		659			438
Travel Time (s)	11.2		11.2			7.5
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	31	58	3166	6	16	579
Shared Lane Traffic (%)						
Lane Group Flow (vph)	31	58	3172	0	16	579
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	30.0	30.0	50.0		50.0	50.0
Total Split (%)	37.5%	37.5%	62.5%		62.5%	62.5%
Maximum Green (s)	24.0	24.0	44.0		44.0	44.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	8.2	8.2	57.4		57.4	57.4
Actuated g/C Ratio	0.12	0.12	0.82		0.82	0.82
v/c Ratio	0.16	0.34	0.77		0.17	0.22
Control Delay	29.1	33.6	8.7		9.3	3.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	29.1	33.6	8.7		9.3	3.2
LOS	C	C	A		A	A
Approach Delay	32.0		8.7			3.4
Approach LOS	C		A			A

Intersection Summary	
Area Type: Other	
Cycle Length: 80	
Actuated Cycle Length: 69.9	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 8.4	Intersection LOS: A
Intersection Capacity Utilization 63.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: NYS Rte 5 & Madison Ave



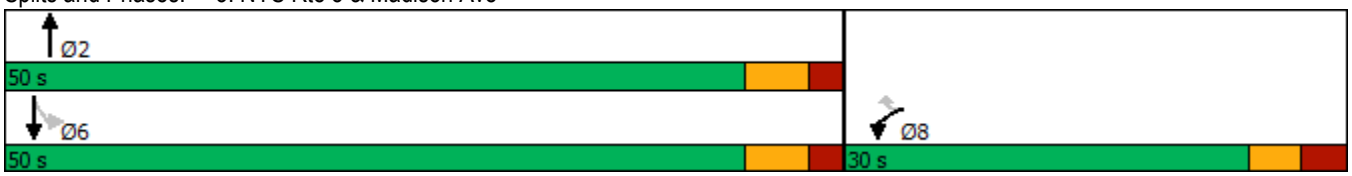
MADISON AVENUE/NY RTE 5
BACKGROUND 2039
AM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	23	49	2596	5	12	492
Future Volume (vph)	23	49	2596	5	12	492
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5036	0	1517	3195
Flt Permitted	0.950				0.073	
Satd. Flow (perm)	1612	1455	5036	0	117	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)			1			
Link Speed (mph)	30		40			40
Link Distance (ft)	493		659			438
Travel Time (s)	11.2		11.2			7.5
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	31	58	3166	6	16	579
Shared Lane Traffic (%)						
Lane Group Flow (vph)	31	58	3172	0	16	579
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	30.0	30.0	50.0		50.0	50.0
Total Split (%)	37.5%	37.5%	62.5%		62.5%	62.5%
Maximum Green (s)	24.0	24.0	44.0		44.0	44.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	8.2	8.2	57.4		57.4	57.4
Actuated g/C Ratio	0.12	0.12	0.82		0.82	0.82
v/c Ratio	0.16	0.34	0.77		0.17	0.22
Control Delay	29.1	33.6	8.7		9.3	3.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	29.1	33.6	8.7		9.3	3.2
LOS	C	C	A		A	A
Approach Delay	32.0		8.7			3.4
Approach LOS	C		A			A

Intersection Summary	
Area Type: Other	
Cycle Length: 80	
Actuated Cycle Length: 69.9	
Natural Cycle: 60	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.77	
Intersection Signal Delay: 8.4	Intersection LOS: A
Intersection Capacity Utilization 63.6%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 3: NYS Rte 5 & Madison Ave



MADISON AVENUE/NY RTE 5
COMBINED 2039
AM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	21	2	21	23	4	49	92	2962	5	12	574	29
Future Volume (vph)	21	2	21	23	4	49	92	2962	5	12	574	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.935				0.850					0.993	
Flt Protected		0.977			0.958		0.950			0.950		
Satd. Flow (prot)	0	1702	0	0	1642	1455	1770	5036	0	1517	3186	0
Flt Permitted		0.830			0.716		0.383			0.064		
Satd. Flow (perm)	0	1446	0	0	1227	1455	713	5036	0	102	3186	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		23				37		1			11	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		255			493			659			438	
Travel Time (s)		5.8			11.2			11.2			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	23	2	23	31	4	58	100	3612	6	16	675	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	48	0	0	35	58	100	3618	0	16	707	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0	5.0	18.0	18.0		18.0	18.0	
Minimum Split (s)	24.3	24.3		11.0	11.0	11.0	24.0	24.0		24.0	24.0	
Total Split (s)	24.3	24.3		24.3	24.3	24.3	63.7	63.7		63.7	63.7	
Total Split (%)	27.6%	27.6%		27.6%	27.6%	27.6%	72.4%	72.4%		72.4%	72.4%	
Maximum Green (s)	18.3	18.3		18.3	18.3	18.3	57.7	57.7		57.7	57.7	
Yellow Time (s)	3.2	3.2		3.2	3.2	3.2	3.9	3.9		3.9	3.9	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.8	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	
Total Lost Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		7.7			7.7	7.7	63.8	63.8		63.8	63.8	
Actuated g/C Ratio		0.10			0.10	0.10	0.80	0.80		0.80	0.80	
v/c Ratio		0.30			0.30	0.34	0.18	0.90		0.20	0.28	
Control Delay		25.3			39.2	21.9	4.0	13.1		10.2	3.3	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		25.3			39.2	21.9	4.0	13.1		10.2	3.3	
LOS		C			D	C	A	B		B	A	
Approach Delay		25.3			28.4			12.8			3.4	
Approach LOS		C			C			B			A	

Intersection Summary	
Area Type: Other	
Cycle Length: 88	
Actuated Cycle Length: 79.9	
Natural Cycle: 100	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.90	
Intersection Signal Delay: 11.8	Intersection LOS: B
Intersection Capacity Utilization 95.7%	ICU Level of Service F
Analysis Period (min) 15	

Splits and Phases: 3: NYS Rte 5 & Madison Ave

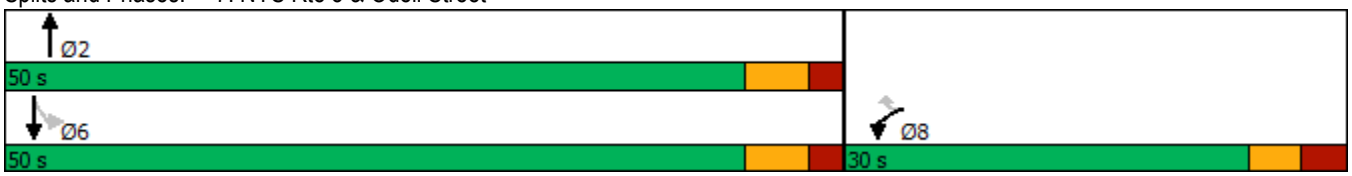
ODELL STREET/NY RTE 5
EXISTING 2019
AM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	3	21	2517	7	4	488
Future Volume (vph)	3	21	2517	7	4	488
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5036	0	1517	3195
Flt Permitted	0.950				0.067	
Satd. Flow (perm)	1612	1455	5036	0	107	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)			1			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		645			480
Travel Time (s)	13.0		11.0			8.2
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	4	25	3070	8	5	574
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	25	3078	0	5	574
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	30.0	30.0	50.0		50.0	50.0
Total Split (%)	37.5%	37.5%	62.5%		62.5%	62.5%
Maximum Green (s)	24.0	24.0	44.0		44.0	44.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	6.8	6.8	63.5		63.5	63.5
Actuated g/C Ratio	0.10	0.10	0.90		0.90	0.90
v/c Ratio	0.03	0.18	0.68		0.05	0.20
Control Delay	31.7	34.4	4.5		4.0	1.9
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	31.7	34.4	4.5		4.0	1.9
LOS	C	C	A		A	A
Approach Delay	34.0		4.5			1.9
Approach LOS	C		A			A

Intersection Summary	
Area Type: Other	
Cycle Length: 80	
Actuated Cycle Length: 70.8	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 4.4	Intersection LOS: A
Intersection Capacity Utilization 62.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: NYS Rte 5 & Odell Street



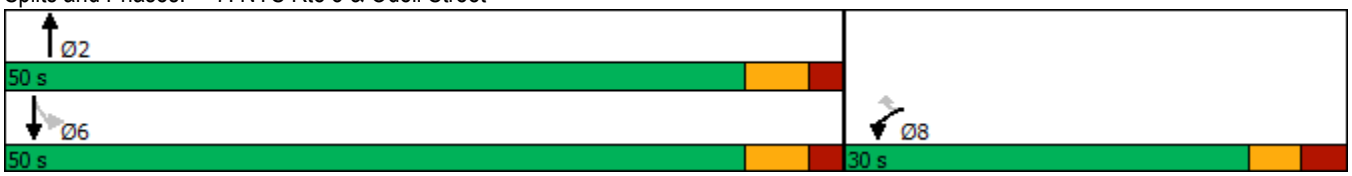
ODELL STREET/NY RTE 5
BACKGROUND 2039
AM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	3	21	2517	7	4	488
Future Volume (vph)	3	21	2517	7	4	488
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5036	0	1517	3195
Flt Permitted	0.950				0.067	
Satd. Flow (perm)	1612	1455	5036	0	107	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)			1			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		645			480
Travel Time (s)	13.0		11.0			8.2
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	4	25	3070	8	5	574
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	25	3078	0	5	574
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	30.0	30.0	50.0		50.0	50.0
Total Split (%)	37.5%	37.5%	62.5%		62.5%	62.5%
Maximum Green (s)	24.0	24.0	44.0		44.0	44.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	6.8	6.8	63.5		63.5	63.5
Actuated g/C Ratio	0.10	0.10	0.90		0.90	0.90
v/c Ratio	0.03	0.18	0.68		0.05	0.20
Control Delay	31.7	34.4	4.5		4.0	1.9
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	31.7	34.4	4.5		4.0	1.9
LOS	C	C	A		A	A
Approach Delay	34.0		4.5			1.9
Approach LOS	C		A			A

Intersection Summary	
Area Type: Other	
Cycle Length: 80	
Actuated Cycle Length: 70.8	
Natural Cycle: 55	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.68	
Intersection Signal Delay: 4.4	Intersection LOS: A
Intersection Capacity Utilization 62.1%	ICU Level of Service B
Analysis Period (min) 15	

Splits and Phases: 7: NYS Rte 5 & Odell Street



ODELL STREET/NY RTE 5
COMBINED 2039
AM

Lanes, Volumes, Timings
7: NYS Rte 5 & Site Driveway/Odell Street

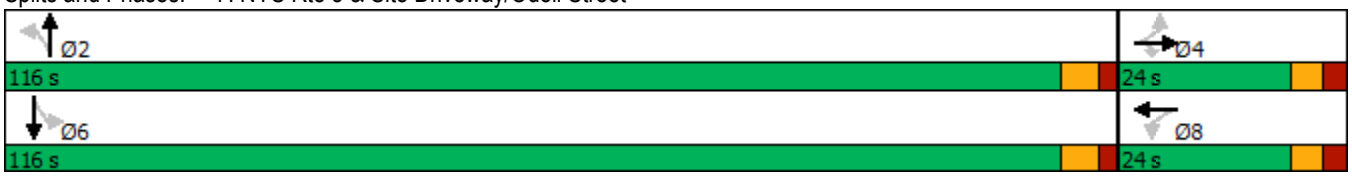
08/27/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	32	3	32	3	9	21	137	2687	7	4	710	137
Future Volume (vph)	32	3	32	3	9	21	137	2687	7	4	710	137
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	0.95
Frt			0.850		0.913						0.977	
Flt Protected		0.956			0.995		0.950			0.950		
Satd. Flow (prot)	0	1781	1583	0	1586	0	1770	5036	0	1517	3168	0
Flt Permitted		0.714			0.958		0.286			0.037		
Satd. Flow (perm)	0	1330	1583	0	1528	0	533	5036	0	59	3168	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			35		3			1			48	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		452			572			645			480	
Travel Time (s)		10.3			13.0			11.0			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	35	3	35	4	10	25	149	3277	8	5	835	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	38	35	0	39	0	149	3285	0	5	984	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	1.5	1.5		1.5	1.5		5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0	7.5	7.5		20.0	20.0		20.0	20.0	
Total Split (s)	24.0	24.0	24.0	24.0	24.0		116.0	116.0		116.0	116.0	
Total Split (%)	17.1%	17.1%	17.1%	17.1%	17.1%		82.9%	82.9%		82.9%	82.9%	
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0		110.0	110.0		110.0	110.0	
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2		3.9	3.9		3.9	3.9	
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8		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	
Total Lost Time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		9.1	9.1		9.1		110.9	110.9		110.9	110.9	
Actuated g/C Ratio		0.07	0.07		0.07		0.87	0.87		0.87	0.87	
v/c Ratio		0.40	0.24		0.35		0.32	0.75		0.10	0.36	
Control Delay		71.0	21.3		63.2		4.6	6.2		6.8	2.6	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		71.0	21.3		63.2		4.6	6.2		6.8	2.6	
LOS		E	C		E		A	A		A	A	
Approach Delay		47.2			63.2			6.1			2.7	
Approach LOS		D			E			A			A	

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 128	
Natural Cycle: 90	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.75	
Intersection Signal Delay: 6.5	Intersection LOS: A
Intersection Capacity Utilization 79.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: NYS Rte 5 & Site Driveway/Odell Street



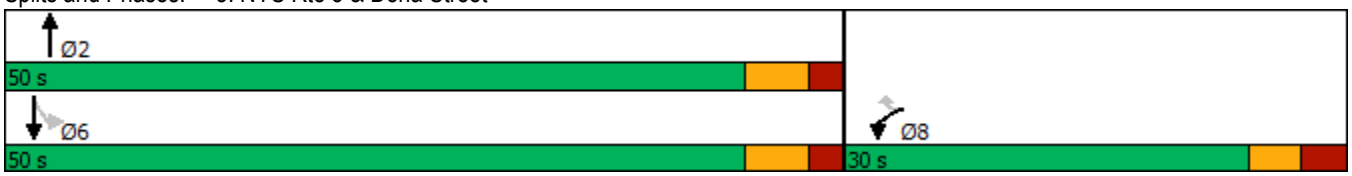
DONA STREET/NY RTE 5
EXISTING 2019
PM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	116	9	877	37	13	2625
Future Volume (vph)	116	9	877	37	13	2625
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.994			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5002	0	1517	3195
Flt Permitted	0.950				0.297	
Satd. Flow (perm)	1612	1455	5002	0	474	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		9	12			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		464			480
Travel Time (s)	13.0		7.9			8.2
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	117	9	886	37	13	2652
Shared Lane Traffic (%)						
Lane Group Flow (vph)	117	9	923	0	13	2652
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	30.0	30.0	50.0		50.0	50.0
Total Split (%)	37.5%	37.5%	62.5%		62.5%	62.5%
Maximum Green (s)	24.0	24.0	44.0		44.0	44.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	10.5	10.5	53.7		53.7	53.7
Actuated g/C Ratio	0.15	0.15	0.74		0.74	0.74
v/c Ratio	0.50	0.04	0.25		0.04	1.12
Control Delay	35.3	14.1	4.4		5.0	75.3
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	35.3	14.1	4.4		5.0	75.3
LOS	D	B	A		A	E
Approach Delay	33.8		4.4			75.0
Approach LOS	C		A			E

Intersection Summary	
Area Type: Other	
Cycle Length: 80	
Actuated Cycle Length: 72.2	
Natural Cycle: 140	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.12	
Intersection Signal Delay: 56.0	Intersection LOS: E
Intersection Capacity Utilization 89.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: NYS Rte 5 & Dona Street



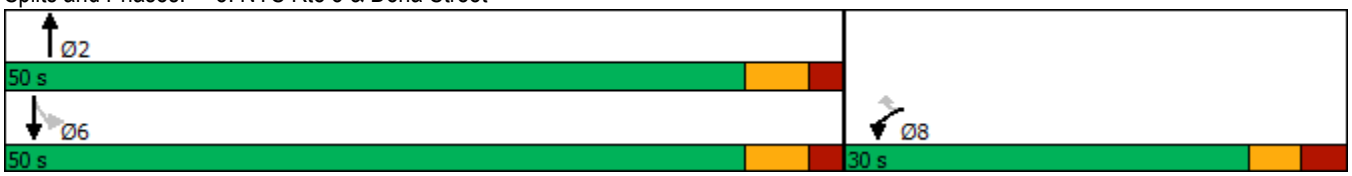
DONA STREET/NY RTE 5
BACKGROUND 2039
PM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	116	9	877	37	13	2625
Future Volume (vph)	116	9	877	37	13	2625
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.994			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5002	0	1517	3195
Flt Permitted	0.950				0.297	
Satd. Flow (perm)	1612	1455	5002	0	474	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		9	12			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		464			480
Travel Time (s)	13.0		7.9			8.2
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	117	9	886	37	13	2652
Shared Lane Traffic (%)						
Lane Group Flow (vph)	117	9	923	0	13	2652
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	8.0	8.0	20.0		20.0	20.0
Minimum Split (s)	26.0	26.0	26.0		26.0	26.0
Total Split (s)	30.0	30.0	50.0		50.0	50.0
Total Split (%)	37.5%	37.5%	62.5%		62.5%	62.5%
Maximum Green (s)	24.0	24.0	44.0		44.0	44.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	10.5	10.5	49.4		49.4	49.4
Actuated g/C Ratio	0.16	0.16	0.73		0.73	0.73
v/c Ratio	0.47	0.04	0.25		0.04	1.14
Control Delay	32.2	13.9	4.5		5.1	85.1
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	32.2	13.9	4.5		5.1	85.1
LOS	C	B	A		A	F
Approach Delay	30.9		4.5			84.7
Approach LOS	C		A			F

Intersection Summary	
Area Type: Other	
Cycle Length: 80	
Actuated Cycle Length: 67.7	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.14	
Intersection Signal Delay: 62.9	Intersection LOS: E
Intersection Capacity Utilization 89.2%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 5: NYS Rte 5 & Dona Street



DONA STREET/NY RTE 5
COMBINED 2039
PM

Lanes, Volumes, Timings
5: NYS Rte 5 & Dona Street

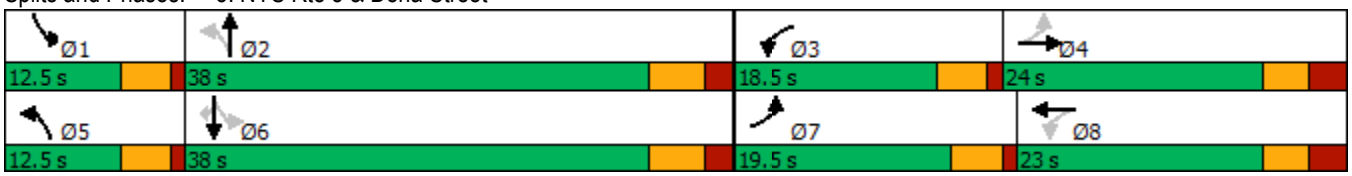
08/27/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	11	100	116	4	9	26	1026	37	13	2883	26
Future Volume (vph)	100	11	100	116	4	9	26	1026	37	13	2883	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.865			0.890			0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1611	0	1612	1557	0	1770	5007	0	1517	3195	1583
Flt Permitted	0.455			0.930			0.114			0.152		
Satd. Flow (perm)	848	1611	0	1578	1557	0	212	5007	0	243	3195	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		109			11			6				141
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		415			572			464			480	
Travel Time (s)		9.4			13.0			7.9			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	109	12	109	155	4	11	28	1251	44	17	3392	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	121	0	155	15	0	28	1295	0	17	3392	28
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	20.0		8.0	20.0	20.0
Minimum Split (s)	12.5	24.0		12.5	14.0		12.5	26.0		12.5	26.0	26.0
Total Split (s)	19.5	24.0		18.5	23.0		12.5	38.0		12.5	38.0	38.0
Total Split (%)	21.0%	25.8%		19.9%	24.7%		13.4%	40.9%		13.4%	40.9%	40.9%
Maximum Green (s)	15.0	18.0		14.0	17.0		8.0	32.0		8.0	32.0	32.0
Yellow Time (s)	3.5	3.2		3.5	3.2		3.5	3.9		3.5	3.9	3.9
All-Red Time (s)	1.0	2.8		1.0	2.8		1.0	2.1		1.0	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
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0		4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Min		None	Min	Min
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	21.5	8.8		14.3	9.1		38.1	35.2		37.3	33.0	33.0
Actuated g/C Ratio	0.30	0.12		0.20	0.13		0.54	0.50		0.52	0.46	0.46
v/c Ratio	0.21	0.41		0.48	0.07		0.10	0.52		0.06	2.28	0.03
Control Delay	18.9	14.1		30.8	21.0		9.8	15.1		9.6	598.5	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	18.9	14.1		30.8	21.0		9.8	15.1		9.6	598.5	0.1
LOS	B	B		C	C		A	B		A	F	A
Approach Delay		16.4			30.0			15.0			590.7	
Approach LOS		B			C			B			F	

Intersection Summary	
Area Type: Other	
Cycle Length: 93	
Actuated Cycle Length: 71.1	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 2.28	
Intersection Signal Delay: 399.0	Intersection LOS: F
Intersection Capacity Utilization 102.8%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 5: NYS Rte 5 & Dona Street



DONA STREET/NY RTE 5
COMBINED 2039 (ADD LANE)
PM

Lanes, Volumes, Timings
5: NYS Rte 5 & Dona Street

09/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	11	100	116	4	9	26	1026	37	13	2883	26
Future Volume (vph)	100	11	100	116	4	9	26	1026	37	13	2883	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt		0.865			0.890			0.995				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1611	0	1612	1557	0	1770	5007	0	1517	4590	1583
Flt Permitted	0.460			0.952			0.041			0.183		
Satd. Flow (perm)	857	1611	0	1615	1557	0	76	5007	0	292	4590	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		104			11			7				87
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		415			572			464			480	
Travel Time (s)		9.4			13.0			7.9			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	109	12	109	155	4	11	28	1251	44	17	3392	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	121	0	155	15	0	28	1295	0	17	3392	28
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	20.0		8.0	20.0	20.0
Minimum Split (s)	12.5	24.0		12.5	14.0		12.5	26.0		12.5	26.0	26.0
Total Split (s)	13.8	24.0		12.5	22.7		12.5	101.0		12.5	101.0	101.0
Total Split (%)	9.2%	16.0%		8.3%	15.1%		8.3%	67.3%		8.3%	67.3%	67.3%
Maximum Green (s)	9.3	18.0		8.0	16.7		8.0	95.0		8.0	95.0	95.0
Yellow Time (s)	3.5	3.2		3.5	3.2		3.5	3.9		3.5	3.9	3.9
All-Red Time (s)	1.0	2.8		1.0	2.8		1.0	2.1		1.0	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
Total Lost Time (s)	4.5	6.0		4.5	6.0		4.5	6.0		4.5	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Min		None	Min	Min
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	22.5	9.7		12.8	9.2		102.3	97.8		101.4	95.3	95.3
Actuated g/C Ratio	0.16	0.07		0.09	0.07		0.75	0.71		0.74	0.70	0.70
v/c Ratio	0.43	0.58		1.03	0.13		0.18	0.36		0.06	1.06	0.02
Control Delay	56.9	26.8		139.3	37.2		7.0	8.5		4.8	56.8	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	56.9	26.8		139.3	37.2		7.0	8.5		4.8	56.8	0.0
LOS	E	C		F	D		A	A		A	E	A
Approach Delay		41.1			130.3			8.5			56.0	
Approach LOS		D			F			A			E	

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 136.8	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.06	
Intersection Signal Delay: 45.6	Intersection LOS: D
Intersection Capacity Utilization 78.8%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 5: NYS Rte 5 & Dona Street

ODELL STREET/NY RTE 5
EXISTING 2019
PM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	27	886	14	12	2628
Future Volume (vph)	10	27	886	14	12	2628
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5024	0	1517	3195
Flt Permitted	0.950				0.248	
Satd. Flow (perm)	1612	1455	5024	0	396	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		32	10			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		645			480
Travel Time (s)	13.0		11.0			8.2
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	13	32	1080	17	16	3092
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	32	1097	0	16	3092
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	10.0	10.0	75.0		75.0	75.0
Total Split (%)	11.8%	11.8%	88.2%		88.2%	88.2%
Maximum Green (s)	4.0	4.0	69.0		69.0	69.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	4.0	4.0	85.5		85.5	85.5
Actuated g/C Ratio	0.04	0.04	0.90		0.90	0.90
v/c Ratio	0.19	0.35	0.24		0.04	1.07
Control Delay	51.5	26.7	1.3		1.7	51.1
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	51.5	26.7	1.3		1.7	51.1
LOS	D	C	A		A	D
Approach Delay	33.9		1.3			50.8
Approach LOS	C		A			D

Intersection Summary	
Area Type: Other	
Cycle Length: 85	
Actuated Cycle Length: 94.8	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 37.8	Intersection LOS: D
Intersection Capacity Utilization 86.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 7: NYS Rte 5 & Odell Street

ODELL STREET/NY RTE 5
BACKGROUND 2039
PM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	17	886	14	12	2628
Future Volume (vph)	10	17	886	14	12	2628
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5024	0	1517	3195
Flt Permitted	0.950				0.248	
Satd. Flow (perm)	1612	1455	5024	0	396	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		20	10			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		645			480
Travel Time (s)	13.0		11.0			8.2
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	13	20	1080	17	16	3092
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	20	1097	0	16	3092
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	10.0	10.0	75.0		75.0	75.0
Total Split (%)	11.8%	11.8%	88.2%		88.2%	88.2%
Maximum Green (s)	4.0	4.0	69.0		69.0	69.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	4.0	4.0	86.5		86.5	86.5
Actuated g/C Ratio	0.04	0.04	0.90		0.90	0.90
v/c Ratio	0.19	0.25	0.24		0.04	1.07
Control Delay	52.8	27.4	1.3		1.6	50.3
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	52.8	27.4	1.3		1.6	50.3
LOS	D	C	A		A	D
Approach Delay	37.4		1.3			50.0
Approach LOS	D		A			D

Intersection Summary	
Area Type: Other	
Cycle Length: 85	
Actuated Cycle Length: 95.7	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.07	
Intersection Signal Delay: 37.3	Intersection LOS: D
Intersection Capacity Utilization 86.0%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 7: NYS Rte 5 & Odell Street

ODELL STREET/NY RTE 5
COMBINED 2039
PM

Lanes, Volumes, Timings
7: NYS Rte 5 & Site Driveway/Odell Street

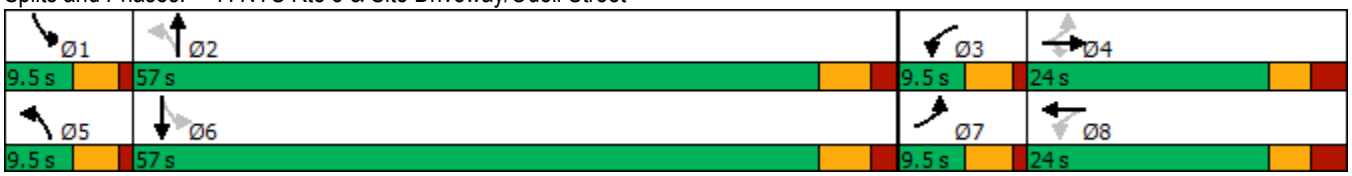
08/27/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	13	132	10	6	17	34	1101	14	12	2780	34
Future Volume (vph)	132	13	132	10	6	17	34	1101	14	12	2780	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	0.95
Frt			0.850		0.932			0.998			0.998	
Flt Protected		0.956			0.984		0.950			0.950		
Satd. Flow (prot)	0	1781	1583	0	1588	0	1770	5025	0	1517	3192	0
Flt Permitted		0.716			0.872		0.073			0.169		
Satd. Flow (perm)	0	1334	1583	0	1407	0	136	5025	0	270	3192	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			143		20			3			2	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		452			572			645			480	
Travel Time (s)		10.3			13.0			11.0			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	143	14	143	13	7	20	37	1343	17	16	3271	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	157	143	0	40	0	37	1360	0	16	3308	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	1.5		5.0	1.5		5.0	5.0	
Minimum Split (s)	9.5	24.0	24.0	9.5	7.5		9.5	20.0		9.5	20.0	
Total Split (s)	9.5	24.0	24.0	9.5	24.0		9.5	57.0		9.5	57.0	
Total Split (%)	9.5%	24.0%	24.0%	9.5%	24.0%		9.5%	57.0%		9.5%	57.0%	
Maximum Green (s)	5.0	18.0	18.0	5.0	18.0		5.0	51.0		5.0	51.0	
Yellow Time (s)	3.5	3.2	3.2	3.5	3.2		3.5	3.9		3.5	3.9	
All-Red Time (s)	1.0	2.8	2.8	1.0	2.8		1.0	2.1		1.0	2.1	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0		4.5	6.0		4.5	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)		14.3	14.3		14.3		58.5	55.1		57.6	53.3	
Actuated g/C Ratio		0.17	0.17		0.17		0.69	0.65		0.68	0.63	
v/c Ratio		0.70	0.37		0.16		0.20	0.42		0.06	1.65	
Control Delay		50.6	8.7		20.5		6.9	8.8		5.1	316.9	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		50.6	8.7		20.5		6.9	8.8		5.1	316.9	
LOS		D	A		C		A	A		A	F	
Approach Delay		30.6			20.5			8.8			315.4	
Approach LOS		C			C			A			F	

Intersection Summary	
Area Type: Other	
Cycle Length: 100	
Actuated Cycle Length: 85.1	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.65	
Intersection Signal Delay: 211.5	Intersection LOS: F
Intersection Capacity Utilization 104.4%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 7: NYS Rte 5 & Site Driveway/Odell Street



ODELL STREET/NY RTE 5
COMBINED 2039 (ADD LANE)
PM

Lanes, Volumes, Timings
7: NYS Rte 5 & Site Driveway/Odell Street

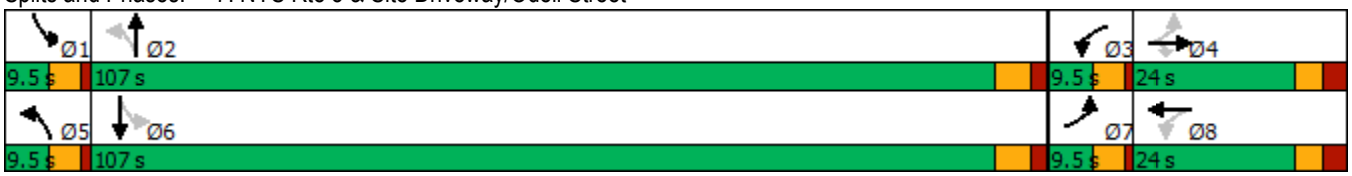
09/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	132	13	132	10	6	17	34	1101	14	12	2780	34
Future Volume (vph)	132	13	132	10	6	17	34	1101	14	12	2780	34
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850		0.932			0.998			0.998	
Flt Protected		0.956			0.984		0.950			0.950		
Satd. Flow (prot)	0	1781	1583	0	1588	0	1770	5025	0	1517	4586	0
Flt Permitted		0.738			0.769		0.038			0.178		
Satd. Flow (perm)	0	1375	1583	0	1241	0	71	5025	0	284	4586	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			93		20			3			2	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		452			572			645			480	
Travel Time (s)		10.3			13.0			11.0			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	143	14	143	13	7	20	37	1343	17	16	3271	37
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	157	143	0	40	0	37	1360	0	16	3308	0
Turn Type	pm+pt	NA	Perm	pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Detector Phase	7	4	4	3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	5.0	1.5		5.0	1.5		5.0	5.0	
Minimum Split (s)	9.5	24.0	24.0	9.5	7.5		9.5	20.0		9.5	20.0	
Total Split (s)	9.5	24.0	24.0	9.5	24.0		9.5	107.0		9.5	107.0	
Total Split (%)	6.3%	16.0%	16.0%	6.3%	16.0%		6.3%	71.3%		6.3%	71.3%	
Maximum Green (s)	5.0	18.0	18.0	5.0	18.0		5.0	101.0		5.0	101.0	
Yellow Time (s)	3.5	3.2	3.2	3.5	3.2		3.5	3.9		3.5	3.9	
All-Red Time (s)	1.0	2.8	2.8	1.0	2.8		1.0	2.1		1.0	2.1	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0		4.5	6.0		4.5	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		None	Min	
Walk Time (s)		7.0	7.0		7.0			7.0			7.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)		17.1	17.1		17.1		108.3	104.9		106.6	101.1	
Actuated g/C Ratio		0.12	0.12		0.12		0.79	0.76		0.77	0.73	
v/c Ratio		0.92	0.52		0.23		0.32	0.36		0.06	0.98	
Control Delay		110.6	29.0		36.6		13.3	6.1		3.5	30.3	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		110.6	29.0		36.6		13.3	6.1		3.5	30.3	
LOS		F	C		D		B	A		A	C	
Approach Delay		71.7			36.6			6.3			30.2	
Approach LOS		E			D			A			C	

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 137.7	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 0.98	
Intersection Signal Delay: 26.1	Intersection LOS: C
Intersection Capacity Utilization 81.0%	ICU Level of Service D
Analysis Period (min) 15	

Splits and Phases: 7: NYS Rte 5 & Site Driveway/Odell Street



MADISON AVENUE/NY RTE 5
EXISTING 2019
PM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	32	901	40	74	2613
Future Volume (vph)	32	32	901	40	74	2613
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.994			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5002	0	1517	3195
Flt Permitted	0.950				0.214	
Satd. Flow (perm)	1612	1455	5002	0	342	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		38	17			
Link Speed (mph)	30		40			40
Link Distance (ft)	493		659			438
Travel Time (s)	11.2		11.2			7.5
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	43	38	1099	48	99	3074
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	38	1147	0	99	3074
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		9.5	20.0
Total Split (s)	10.0	10.0	60.8		11.2	72.0
Total Split (%)	12.2%	12.2%	74.1%		13.7%	87.8%
Maximum Green (s)	4.0	4.0	54.8		6.7	66.0
Yellow Time (s)	3.2	3.2	3.9		3.5	3.9
All-Red Time (s)	2.8	2.8	2.1		1.0	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.5	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		None	Min
Walk Time (s)	7.0	7.0	7.0			7.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	4.0	4.0	64.3		73.5	73.2
Actuated g/C Ratio	0.05	0.05	0.75		0.85	0.85
v/c Ratio	0.57	0.37	0.31		0.26	1.13
Control Delay	69.7	23.3	5.0		3.0	77.5
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	69.7	23.3	5.0		3.0	77.5
LOS	E	C	A		A	E
Approach Delay	47.9		5.0			75.2
Approach LOS	D		A			E

Intersection Summary	
Area Type: Other	
Cycle Length: 82	
Actuated Cycle Length: 86.1	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 56.4	Intersection LOS: E
Intersection Capacity Utilization 85.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: NYS Rte 5 & Madison Ave

MADISON AVENUE/NY RTE 5
BACKGROUND 2039
PM

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	32	901	40	74	2613
Future Volume (vph)	32	32	901	40	74	2613
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.994			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5002	0	1517	3195
Flt Permitted	0.950				0.214	
Satd. Flow (perm)	1612	1455	5002	0	342	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		38	17			
Link Speed (mph)	30		40			40
Link Distance (ft)	493		659			438
Travel Time (s)	11.2		11.2			7.5
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	43	38	1099	48	99	3074
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	38	1147	0	99	3074
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		9.5	20.0
Total Split (s)	10.0	10.0	60.8		11.2	72.0
Total Split (%)	12.2%	12.2%	74.1%		13.7%	87.8%
Maximum Green (s)	4.0	4.0	54.8		6.7	66.0
Yellow Time (s)	3.2	3.2	3.9		3.5	3.9
All-Red Time (s)	2.8	2.8	2.1		1.0	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.5	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		None	Min
Walk Time (s)	7.0	7.0	7.0			7.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	4.0	4.0	64.3		73.5	73.2
Actuated g/C Ratio	0.05	0.05	0.75		0.85	0.85
v/c Ratio	0.57	0.37	0.31		0.26	1.13
Control Delay	69.7	23.3	5.0		3.0	77.5
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	69.7	23.3	5.0		3.0	77.5
LOS	E	C	A		A	E
Approach Delay	47.9		5.0			75.2
Approach LOS	D		A			E

Intersection Summary	
Area Type: Other	
Cycle Length: 82	
Actuated Cycle Length: 86.1	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 56.4	Intersection LOS: E
Intersection Capacity Utilization 85.6%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: NYS Rte 5 & Madison Ave

MADISON AVENUE/NY RTE 5
COMBINED 2039
PM

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	10	87	32	4	32	22	989	40	74	2949	22
Future Volume (vph)	87	10	87	32	4	32	22	989	40	74	2949	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.866			0.864			0.994			0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1613	0	1612	1490	0	1770	5002	0	1517	3194	0
Flt Permitted							0.071			0.176		
Satd. Flow (perm)	1863	1613	0	1696	1490	0	132	5002	0	281	3194	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		95			38			11			1	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		255			493			659			438	
Travel Time (s)		5.8			11.2			11.2			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	95	11	95	43	4	38	24	1206	48	99	3469	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	95	106	0	43	42	0	24	1254	0	99	3493	0
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	7	4		3	8		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	1.5		5.0	1.5		5.0	5.0	
Minimum Split (s)	9.5	24.3		9.5	7.5		9.5	20.0		9.5	20.0	
Total Split (s)	9.0	10.5		9.0	10.5		8.0	56.0		14.0	62.0	
Total Split (%)	10.1%	11.7%		10.1%	11.7%		8.9%	62.6%		15.6%	69.3%	
Maximum Green (s)	4.5	4.7		4.5	4.7		4.0	50.9		10.0	56.9	
Yellow Time (s)	3.5	3.0		3.5	3.0		3.0	3.0		3.0	3.0	
All-Red Time (s)	1.0	2.8		1.0	2.8		1.0	2.1		1.0	2.1	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.5	5.8		4.5	5.8		4.0	5.1		4.0	5.1	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		None	Min		None	Min	
Walk Time (s)		7.0			7.0			7.0			7.0	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		0			0			0			0	
Act Effct Green (s)	8.3	4.7		7.9	4.7		58.7	55.5		64.5	61.6	
Actuated g/C Ratio	0.10	0.06		0.10	0.06		0.72	0.68		0.79	0.75	
v/c Ratio	0.52	0.58		0.27	0.35		0.14	0.37		0.30	1.46	
Control Delay	43.7	25.5		36.1	24.0		5.4	8.4		5.6	225.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	43.7	25.5		36.1	24.0		5.4	8.4		5.6	225.6	
LOS	D	C		D	C		A	A		A	F	
Approach Delay		34.1			30.1			8.3			219.6	
Approach LOS		C			C			A			F	

Intersection Summary	
Area Type: Other	
Cycle Length: 89.5	
Actuated Cycle Length: 82	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.46	
Intersection Signal Delay: 156.9	Intersection LOS: F
Intersection Capacity Utilization 102.8%	ICU Level of Service G
Analysis Period (min) 15	

Splits and Phases: 3: NYS Rte 5 & Madison Ave

MADISON AVENUE/NY RTE 5
COMBINED 2039 (ADD LANE)
PM

Lanes, Volumes, Timings
3: NYS Rte 5 & Madison Ave

09/03/2020

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	87	10	87	32	4	32	22	989	40	74	2949	22
Future Volume (vph)	87	10	87	32	4	32	22	989	40	74	2949	22
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt		0.866			0.864			0.994				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1613	0	1612	1490	0	1770	5002	0	1517	4590	1583
Flt Permitted	0.635			0.870			0.070			0.174		
Satd. Flow (perm)	1183	1613	0	1476	1490	0	130	5002	0	278	4590	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		95			38			8				119
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		255			493			659			438	
Travel Time (s)		5.8			11.2			11.2			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	95	11	95	43	4	38	24	1206	48	99	3469	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	95	106	0	43	42	0	24	1254	0	99	3469	24
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		5	2		1	6	6
Switch Phase												
Minimum Initial (s)	5.0	6.2		5.0	6.2		5.0	14.9		5.0	14.9	14.9
Minimum Split (s)	9.5	20.0		9.5	20.0		9.5	20.0		9.5	20.0	20.0
Total Split (s)	9.0	23.3		9.0	23.3		8.0	57.0		14.0	63.0	63.0
Total Split (%)	8.7%	22.6%		8.7%	22.6%		7.7%	55.2%		13.6%	61.0%	61.0%
Maximum Green (s)	4.5	17.5		4.5	17.5		4.0	51.9		10.0	57.9	57.9
Yellow Time (s)	3.5	3.0		3.5	3.0		3.0	3.0		3.0	3.0	3.0
All-Red Time (s)	1.0	2.8		1.0	2.8		1.0	2.1		1.0	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
Total Lost Time (s)	4.5	5.8		4.5	5.8		4.0	5.1		4.0	5.1	5.1
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		None	Min		None	Min	Min
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		0			0			0			0	0
Act Effct Green (s)	10.6	7.4		9.9	7.4		59.8	56.6		65.7	62.9	62.9
Actuated g/C Ratio	0.12	0.09		0.12	0.09		0.70	0.66		0.77	0.74	0.74
v/c Ratio	0.52	0.47		0.24	0.26		0.14	0.38		0.31	1.03	0.02
Control Delay	43.1	18.2		34.2	19.1		6.6	9.8		6.6	40.4	0.0
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	43.1	18.2		34.2	19.1		6.6	9.8		6.6	40.4	0.0
LOS	D	B		C	B		A	A		A	D	A
Approach Delay		30.0			26.8			9.7			39.2	
Approach LOS		C			C			A			D	

Intersection Summary	
Area Type: Other	
Cycle Length: 103.3	
Actuated Cycle Length: 85.5	
Natural Cycle: 150	
Control Type: Actuated-Uncoordinated	
Maximum v/c Ratio: 1.03	
Intersection Signal Delay: 31.3	Intersection LOS: C
Intersection Capacity Utilization 82.1%	ICU Level of Service E
Analysis Period (min) 15	

Splits and Phases: 3: NYS Rte 5 & Madison Ave

APPENDIX F
Assumptions

Bethlehem Steel
Redevelopment Area

Traffic Study

Engineering Assumptions

1. Traffic conditions and patterns on the traffic count days (Wednesday, May 24, 2017 and Tuesday, August 7, 2018) are typical for weekday volumes.
2. The proposed development areas and lot sizes were developed by AECOM and based on information provided by the Erie County Industrial Land Development Corporation.
3. Type of developments are assumed and based on the City of Lackawanna zoning code, specifically sections dedicated to the Bethlehem Redevelopment Area.
4. Assumed development for the Bethlehem Steel Redevelopment Area is “Industrial Park - 130”. (“Industrial Park” returned the most conservative values.)
5. For the Bethlehem Steel Redevelopment Area, four entrances (Madison Avenue, Dona Street, Odell Street and Ridge Road) are evaluated with ten surrounding parcels being developed.
6. An assumed Growth Rate for future traffic estimates on NY Route 5 was determined to be 0%.
7. Future use and configuration of NY Route 5 north of the project area (Skyway) has not been considered.

TRAFFIC IMPACT STUDY (TIS)

for the

Bethlehem Steel Redevelopment Area

City of Lackawanna
Erie County, New York

Prepared for:

AECOM

Prepared by:

WATTS ARCHITECTURE & ENGINEERING

May 2019

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Appendix A – Project Location Map
Appendix B – Traffic Counts
Appendix C – ITE Trip Generations
Appendix D – Trip Distributions
Appendix E – Synchro Analysis
Appendix F - Assumptions

INTRODUCTION

Watts Architecture and Engineering (Watts) was retained by AECOM to perform a Traffic Impact Study (TIS) for the Erie County Industrial Development Agency. The TIS was prepared to assess the traffic impacts from the proposed Bethlehem Steel Redevelopment Area in the City of Lackawanna, New York.

PROJECT DESCRIPTION

The purpose of this report is to identify the potential traffic impacts associated with the anticipated development, specifically the impact from the future development to the existing signalized intersections of Madison Avenue, Dona Street and Odell Street with NY Route 5.

The impacts to the un-signalized intersections of Ridge Road with Fuhrmann Drive/NY Route 5 SB On Ramp, Ridge Road with NY Route 5 SB Off Ramp and Ridge Road with NY Route 5 On/Off Ramps with were also studied for this report.

The Dona Street extension (completion estimated for 2019) and the extension of Ridge Road, Odell Street and Madison Avenue will provide direct access to the development parcels totaling almost 170 acres of brownfield property when full site redevelopment is complete. This development is specially zoned as the Bethlehem Redevelopment Area with the following sub-districts; Light Industry District and Medium Industry District.

Refer to the Project Location Map in Appendix A.

A. PROJECT APPROACH

Based on the descriptions in the City of Lackawanna Zoning Code, a combination of Light and Medium Industry District appears to be the preferred type of redevelopment. The proposed building usages and estimated vehicle trip projections were established based on data provided for the development area. The estimate for each type facility was based on those building sizes and types and analyzed using the Institute of Traffic Engineers *Trip Generation Manual* (the Manual). The Manual presents trip generation data documented for existing facilities of various types including industrial land uses.

By utilizing tools like the Manual, vehicle trips for similar facilities can be estimated by correlating the data provided with the proposed types of facilities (i.e. office, research, and industrial) with the Manual's accepted traffic estimates for such facilities. In the case of general light industrial, the Manual presents estimates for trips generated in multiple ways: as a function of the property acreage, building's gross floor square footage, or number of employees. Generally speaking, each can generate different amounts of entering and exiting vehicular trips to and from the proposed site. However, when choices are available the most conservative option is chosen unless engineering judgment indicates otherwise. (The most conservative industrial option is Industrial Park - Land Use 130.)

The proposed Dona Street extension, Odell Street extension and Madison Avenue extension will create 4-legged intersections at the existing signalized intersections with the NY Route 5. NY Route 5 currently experiences a high volume of traffic. The intersection of Ridge Road with Fuhrmann Drive/ NY Route 5 SB On Ramp currently serves as a point of access to this site. Traffic counts were taken during the AM and PM peak hours at all four of these proposed site access intersections and the intersections of Ridge Road with NY Route 5 SB Off Ramp and Ridge Road with NY Route 5 On/Off in order to determine the existing level of service (LOS) and project a future LOS assuming full development of the area. The projected full site buildout has been assumed to be plus 20 years, therefore 2039.

B. STUDY METHODOLOGY

The Traffic Impact Study was completed using methodologies set forth in the *Highway Capacity Manual (HCM),* prepared by the Transportation Research Board, a unit of the National Research Council, which

serves the National Academy of Sciences and the National Academy of Engineers. The HCM provides a set of methodologies, and application procedures, for evaluating the multimodal performance of highway and street facilities in terms of highway capacity and quality of service.

The HCM quantifies the quality of traffic flow in terms of levels of service (LOS). There are six levels of service, with LOS A indicating very low levels of delays and LOS F indicating high levels of delays associated with congestion. These represent a qualitative measure of operational conditions within a traffic stream, and the perception of conditions by motorists and/or passengers. Levels of service and capacity for signalized intersections are calculated for each lane group (a lane group may be one or more movements), each intersection approach, and the intersection as a whole. The intersection level of service is merely a weighted average of the individual approaches and may not be considered a valid measure of the quality or acceptability of an intersection design since it can conceal poor operating conditions on individual approaches.

Levels of service at unsignalized intersections are only calculated for minor movements since the through movement on the major street is not affected by intersection traffic control. The level of service for signalized intersections and unsignalized intersections can be compared.

The level of service for freeway facilities is a measurement of density expressed as the number of passenger car equivalents/lane/mile. The corresponding level of service represents the congestion of the roadway.

LOS for Signalized Intersection

	LOS by Volume-to-Capacity Ratio (v/c)	
Control Delay (s/veh)	v/c ≤1.0	v/c >1.0
≤10	A	F
>10-20	B	F
>20-35	C	F
>35-55	D	F
>55-80	E	F
>80	F	F

HCM 2010, Exhibit 18-4, p. 18-6

LOS for non-signalized Intersections

	LOS by Volume-to-Capacity Ratio (v/c)[a, b]	
Control Delay (s/veh)	v/c ≤1.0	v/c >1.0
≤10	A	F
>10-15	B	F
>15-25	C	F
>25-35	D	F
>35-50	E	F
>50	F	F

NOTE: [a, b] For approaches and intersection-wide assessment, LOS is defined solely by control delay.
2-way stop control - HCM 2010, Exhibit 19-1, p. 19-2
[a] **All way stop control - HCM 2010, Exhibit 20-2, p. 20-3**
[b] **Roundabout control - HCM 2010, Exhibit 21-1, p. 21-1**

C. EXISTING CONDITIONS

The existing conditions at the four proposed access points are as follows:

a. Madison Avenue

In the existing condition, Madison Avenue tees into NY Route 5 from the east at a signalized intersection. Madison Avenue is a low-volume two lane street with low traffic volumes and a center grass median. NY Route 5 is a high-volume principal arterial roadway with three (3) through lanes in the northbound direction, two (2) through lanes in the southbound direction, and left turn lanes in each direction at Madison Avenue. NYSDOT counts on NY Route 5 show an AADT of over 42,000 vehicles per day. NY Route 5 is an important commuter route between the City of Buffalo and the towns and villages located to the south. The traffic volumes on NY Route 5 are highly directional in the AM and PM peak hours. The nearest signalized intersections are approximately 1,300 feet to the north at Dona Street and approximately 4,000 feet to the south at the entrance to Republic Steel.

Turning movement counts were taken at the NY Route 5 / Madison Avenue intersection on Tuesday, August 7, 2018 from 7:00 – 10:00 AM and 3:00 – 6:00 PM, to determine the AM and PM peak hours at the designated intersection and provide data to perform intersection Level of Service analyses. The AM and PM peak hours are as follows:

AM Peak Hour - 7:00 - 8:00 am
PM Peak Hour - 4:30 - 5:30 pm

b. **Dona Street**

Currently Dona Street tees into NY Route 5 from the east at a signalized intersection. Dona Street is a low-volume two lane street with low traffic volumes. NY Route 5 at this intersection is configured the same as the Madison Avenue intersection - three (3) through lanes in the northbound direction, two (2) through lanes in the southbound direction, and left turn lanes in each direction. As mentioned above, the NYSDOT counts on NY Route 5 show an AADT of over 42,000 vehicles per day. The nearest signalized intersections are approximately 1,900 feet to the north at Odell Street and approximately 1,300 feet to the south at Madison Ave.

Turning movement counts were taken at the NY Route 5 / Dona Street intersection on Tuesday, August 7, 2018 from 7:00 – 10:00 AM and 3:00 – 6:00 PM, to determine the AM and PM peak hours at the designated intersection and provide data to perform intersection Level of Service analyses. The AM and PM peak hours are as follows:

AM Peak Hour - 7:15 - 8:15 am
PM Peak Hour - 4:30 - 5:30 pm

c. Odell Street

In the existing condition, Odell Street tees into NY Route 5 from the east at a signalized intersection. The Odell Street intersection has the same traffic volumes and lane configuration as the two intersections previously mentioned.

Turning movement counts were taken at the NY Route 5 / Odell Street intersection on Wednesday, May 24, 2017 from 7:00 – 9:00 AM and 3:30 – 5:30 PM, to determine the AM and PM peak hours at the designated intersection and provide data to perform intersection Level of Service analyses. The AM and PM peak hours are as follows:

AM Peak Hour - 7:15 - 8:15 am
PM Peak Hour - 4:30 - 5:30 pm

d. **Ridge Road**

Ridge Road ends at the current main entrance to the Bethlehem Steel Redevelopment Area. The intersection is controlled by stop signs only. The north leg is Fuhrmann Drive and the south leg is a one-way entrance to NY Route 5 southbound. The east leg is Ridge Road and the west leg is the

entrance to the site. This intersection currently carries low traffic volumes.

Turning movement counts were taken at the this intersection on Tuesday, August 7, 2018 from 7:00 – 10:00 AM and 3:00 – 6:00 PM, to determine the AM and PM peak hours at the designated intersection and provide data to perform intersection Level of Service analyses. The AM and PM peak hours are as follows:

AM Peak Hour - 7:15 - 8:15 am
PM Peak Hour - 4:30 - 5:30 pm

e. Public Transportation

There are a number of NFTA Metro Bus routes that operate along NYS Route 5 in the area of the subject project:

- Rote #42 – Lackawanna (17 trips to Downtown Buffalo and 16 trips to Southgate Plaza)
- Route #74 – Hamburg (4 trips to Downtown Buffalo and 4 trips to Athol Springs Park & Ride)
- Route #76 – Lotus Bay (5 trips to Downtown Buffalo and 3 trips to Seneca Bingo)
- Route #106 – South-Suburban (1 AM trip Southbound and 1 PM trip Northbound) this only operates on school days as this primarily a school run.

D. TRAFFIC PROJECTIONS

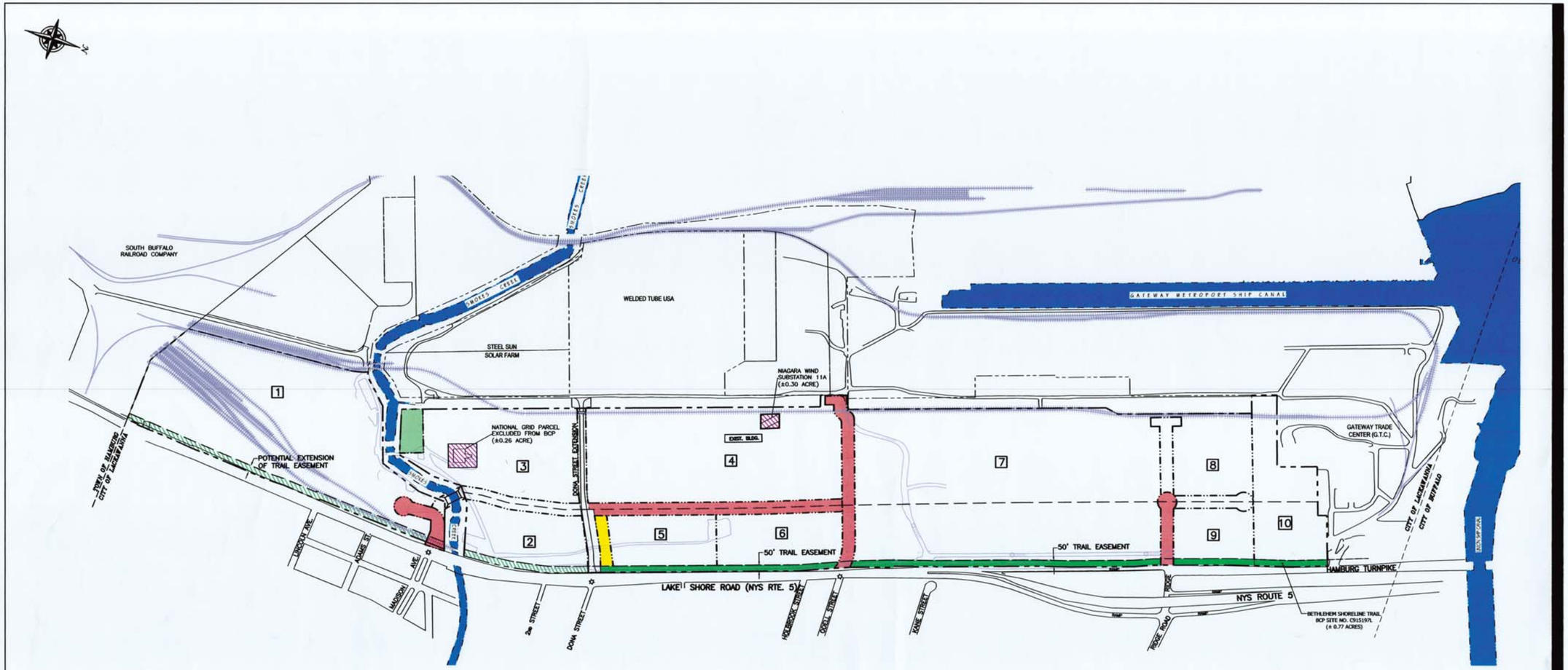
a. Growth Rate

NYSDOT and GBNRTC traffic data sources show that for the past forty years (1975 to 2015), the annual growth rate for this section of highway has varied from -2.2% to +5.2%. Based on these numbers, an average annual growth rate of +1.9% was calculated. While reviewing the AADT values from 1975 to 2015, we see and increase approximately 14,000 vehicles per day from 1975 to 2015. Based on these two numbers, we've determined the average annual growth rate of +1.0%. It is our belief that this annual growth rate is more appropriate and is better representative of future growth. This growth rate will be used when determining future AADT values and the background traffic volumes. (Refer to Appendix C.)

b. Trip Generations

The Institute of Transportation Engineers "Trip Generation Manual" was used to estimate the traffic to be generated by the redeveloped area. Trip generation was estimated based on acres to be developed, using the Average Rate values. Data used for these estimates is provided in Appendix C. These estimated trips were then applied to the analyzed intersection during the appropriate time period. Table 2 summarizes the trip generations for the analysis:

ARCH D 24" x 36"



LOT DATA			
LOT NO.	GROSS AREA* (ACRES)	DEVELOPABLE AREA (ACRES)	EXISTING ZONING
1	42.5	34.0	BRA–MI
2	8.8	6.6	BRA–LI
3	17.7	14.2	BRA–MI
4	34.4	27.5	BRA–MI
5	7.5	5.6	BRA–LI
6	9.1	6.8	BRA–LI
7	67.3	52.7	BRA–LI & BRA–MI
8	9.2	7.4	BRA–MI
9	5.8	4.4	BRA–LI
10	12.4	9.0	BRA–LI & BRA–MI
TOTALS	214.7	168.2	

* NOT INCLUDING PROPOSED STREET R.O.W. AND SHORELINE TRAIL EASMENT

LEGEND:

- ILDC PROPERTY BOUNDARY
- PROPOSED LOT BOUNDARY
- 2 PROPOSED LOT NUMBER
- ZONING BOUNDARY
- EXISTING PRIVATE ROAD
- RAILROAD TRACK
- 50' WIDE EASEMENT BETHLEHEM SHORELINE TRAIL
- PROPOSED 1 ACRE TRAIL HEAD AREA
- POTENTIAL EXTENSION OF SHORELINE TRAIL EASEMENT
- WATER BODY
- UTILITY SUBSTATION
- PROPOSED PUBLIC STREET RIGHT–OF–WAY (100')
- POTENTIAL FUTURE PUBLIC STREET RIGHT–OF–WAY
- UNDEVELOPED / GREENSPACE
- EXISTING TRAFFIC SIGNAL
- POTENTIAL FUTURE BRIDGE

400' 0 400'
SCALE IN FEET

Site Plan

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AECOM

PROJECT

Former Bethlehem Steel Property Redevelopment Area Master Plan

CLIENT

Erie County Industrial Land Development Corporation
95 Perry Street, Suite 403
Buffalo, N.Y. 14203

CONSULTANT

AECOM
257 West Genesee Street, Suite 400
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www.aecom.com

REGISTRATION

ISSUE/REVISION

I/R	DATE	DESCRIPTION

PROJECT NUMBER

605568845

SHEET TITLE

SITE PLAN

SHEET NUMBER

C-2

Table 2: Newly Generated Trips from the development (trips in peak hour)

Lot Data				Building Size		Trip Ends - Industrial Park (130)				
Lot No.	Gross Area (Acres)	Developable Area (Acres)	Existing Zoning	40% of Developable Area		Total	AM Peak Hour		PM Peak Hour	
				40% (Acre)	40% (GSF)		81% Entry	19% Exit	21% Entry	79% Exit
1	42.5	34.0	BRA-MI	13.60	592,418	237	192	45	50	187
2	8.8	6.6	BRA-LI	2.64	114,999	46	37	9	10	36
3	17.7	14.2	BRA-MI	5.68	247,422	99	80	19	21	78
4	34.4	27.5	BRA-MI	11.00	479,162	192	156	36	40	152
5	7.5	5.6	BRA-LI	2.24	97,575	39	32	7	8	31
6	9.1	6.8	BRA-LI	2.72	118,484	48	39	9	10	38
7	67.3	52.7	BRA-LI & BRA-MI	21.08	918,248	368	298	70	77	291
8	9.2	7.4	BRA-MI	2.96	128,938	52	42	10	11	41
9	5.8	4.4	BRA-LI	1.76	76,666	31	25	6	6	25
10	12.4	9.0	BRA-LI & BRA-MI	3.60	156,817	63	51	12	13	50

The Manual provides an approximate relationship between building size and trips generated based on studies conducted at facilities across the United States. The proposed development is deemed to be within the national average for Industrial Parks. The average trip generation rate listed in the Manual is deemed suitable for the Bethlehem Steel Redevelopment Area. Therefore, the average number of trip ends listed in the Manual, for both AM and PM peak hours, is approximately 0.4 per 1000 square feet of gross floor area.

c. **Trip Assignments**

Once generated, these new trips were assigned to the appropriate arriving and/or departing direction of the analyzed intersections during the AM and PM peak hour. (See Table 3 below.) During the AM peak hour 83% of existing NY Route 5 traffic is northbound and 15% is southbound with 2% assigned to east-west traffic. During the PM peak hour 72% of existing NY Route 5 traffic is southbound and 26% is northbound with 2% assigned to east-west traffic. Trip assignments for the proposed developments were based on current traffic patterns, assumed driver tendencies and engineering judgment.

Table 3: Newly Generated Trips (intersection allocation)

Intersection	Trip Ends for 130 - Industrial Park			
	AM ENTRY	PM EXIT	AM ENTRY	PM EXIT
Madison Ave /NY Route 5	192	45	50	187
Dona Street / NY Route 5	227	53	59	221
Odell Street / NY Route 5	275	92	69	259
Ridge Road / Fuhrmann Dr	267	63	69	261

*See Appendix D for additional information.

E. LOS ANALYSIS

The level of service analysis was completed using Synchro by Trafficware. Synchro is a macroscopic traffic analysis software that supports the methodologies put forth in the Highway Capacity Manual. This software is often used by state and local governments for traffic analysis.

The existing LOS analysis is based on traffic counts taken on May 24, 2017 and August 7, 2018. Individual AM and PM peak hours were determined for each intersection in the study. The AM and PM peak hours are listed above in Section B - Existing Peak Hour.

The 2019 level of service analysis was completed assuming no changes to signal timings and phasing. There was an analysis completed for the background traffic, existing traffic with the normal traffic growth to 2039. Then the estimated traffic generated for the development was added to the background traffic and another analysis was performed. The future analyses included a southbound right turn lane at Dona Street, which is currently under construction. In addition, the existing center turn lane will be striped for an exclusive, left turn only at these three intersections on NY Route 5. The following figures illustrate the existing traffic, background traffic, generated traffic and combined traffic.

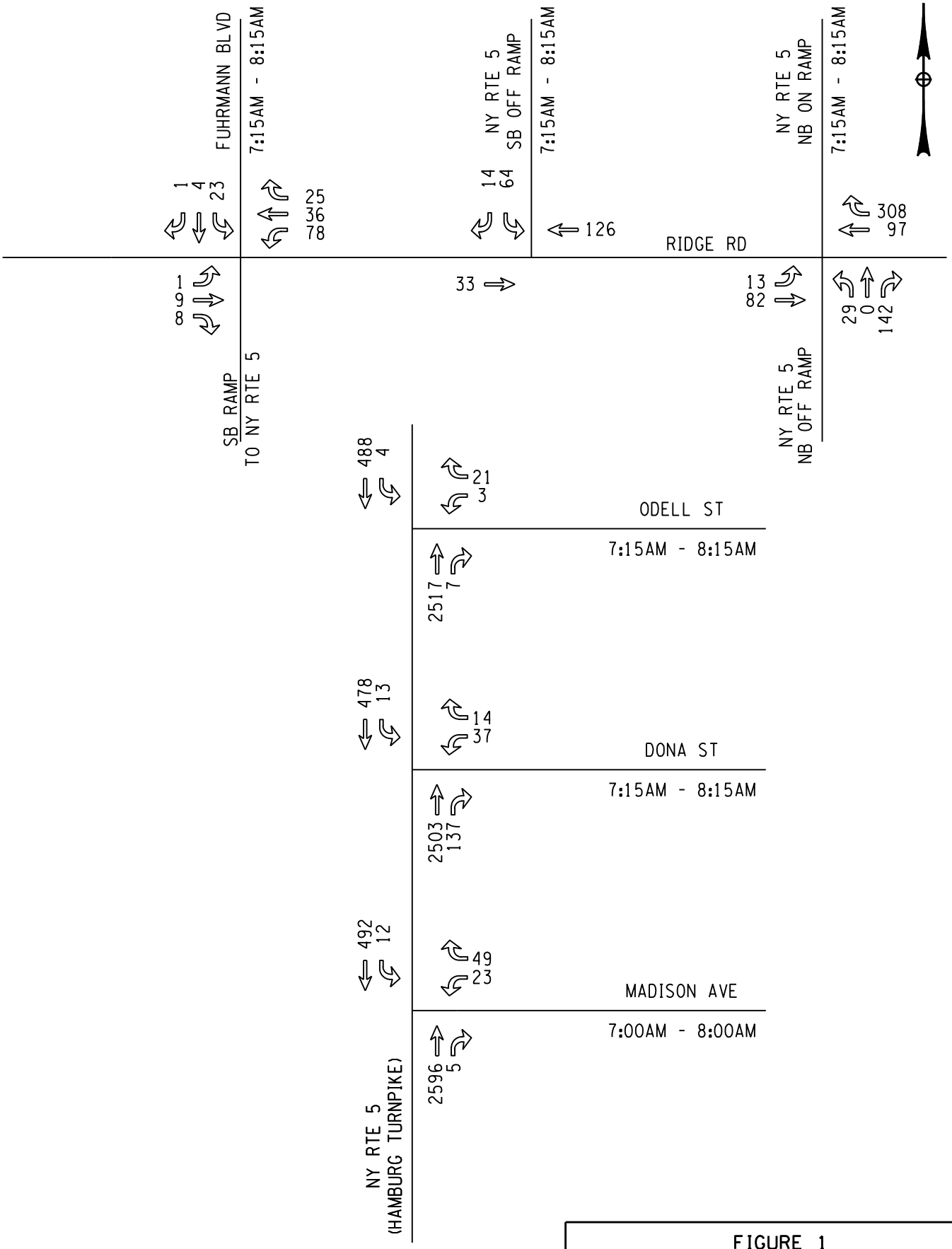


FIGURE 1

BETHLEHEM STEEL

AM PEAK HOUR (EXISTING)
TRAFFIC DISTRIBUTION

DATE: 2019 | NOT TO SCALE

WATTS ARCHITECTURE
& ENGINEERING
BUFFALO, NEW YORK

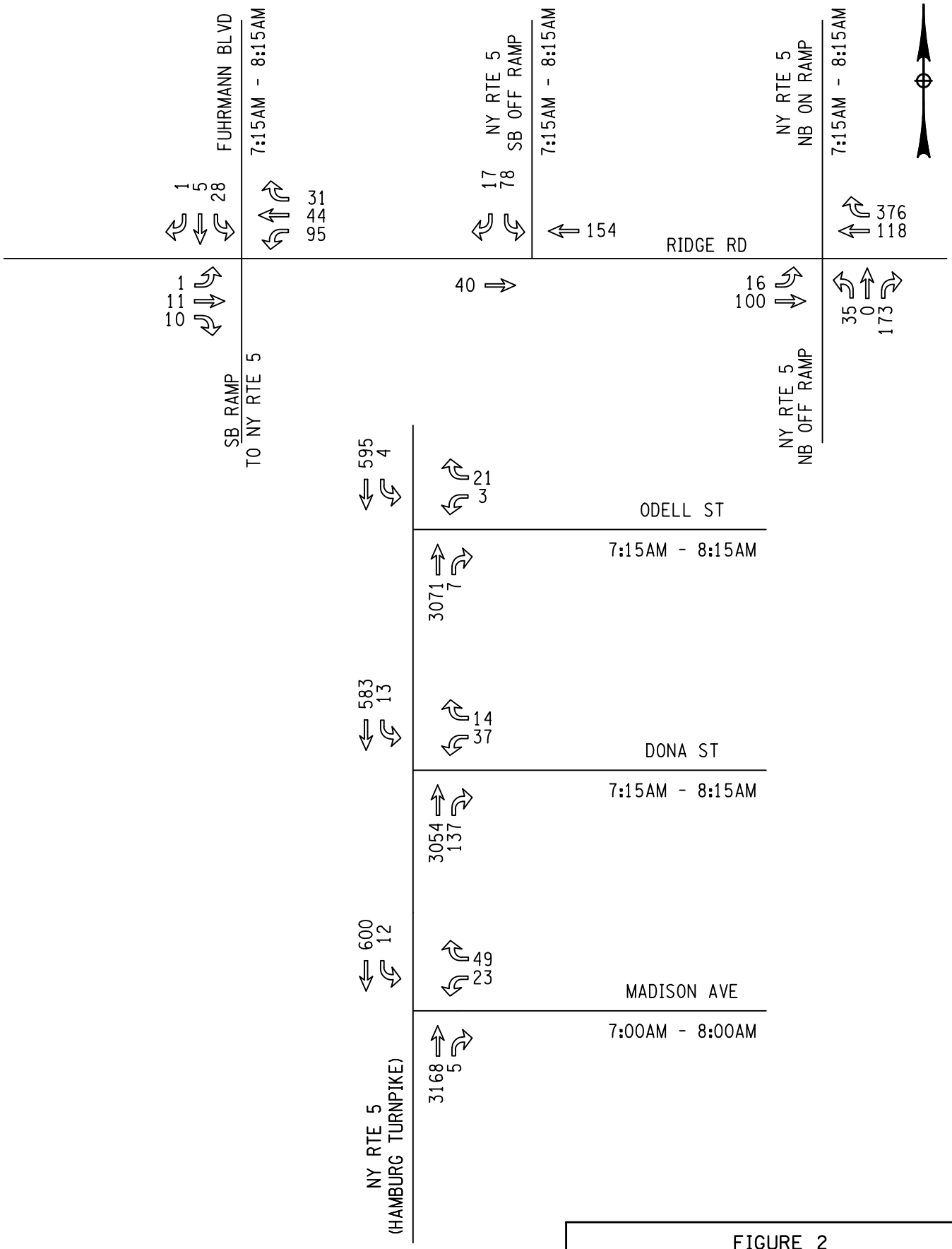


FIGURE 2

BETHLEHEM STEEL

AM PEAK HOUR (BACKGROUND 2039)
TRAFFIC DISTRIBUTION

DATE: 2019 | NOT TO SCALE

WATTS ARCHITECTURE
& ENGINEERING
BUFFALO, NEW YORK

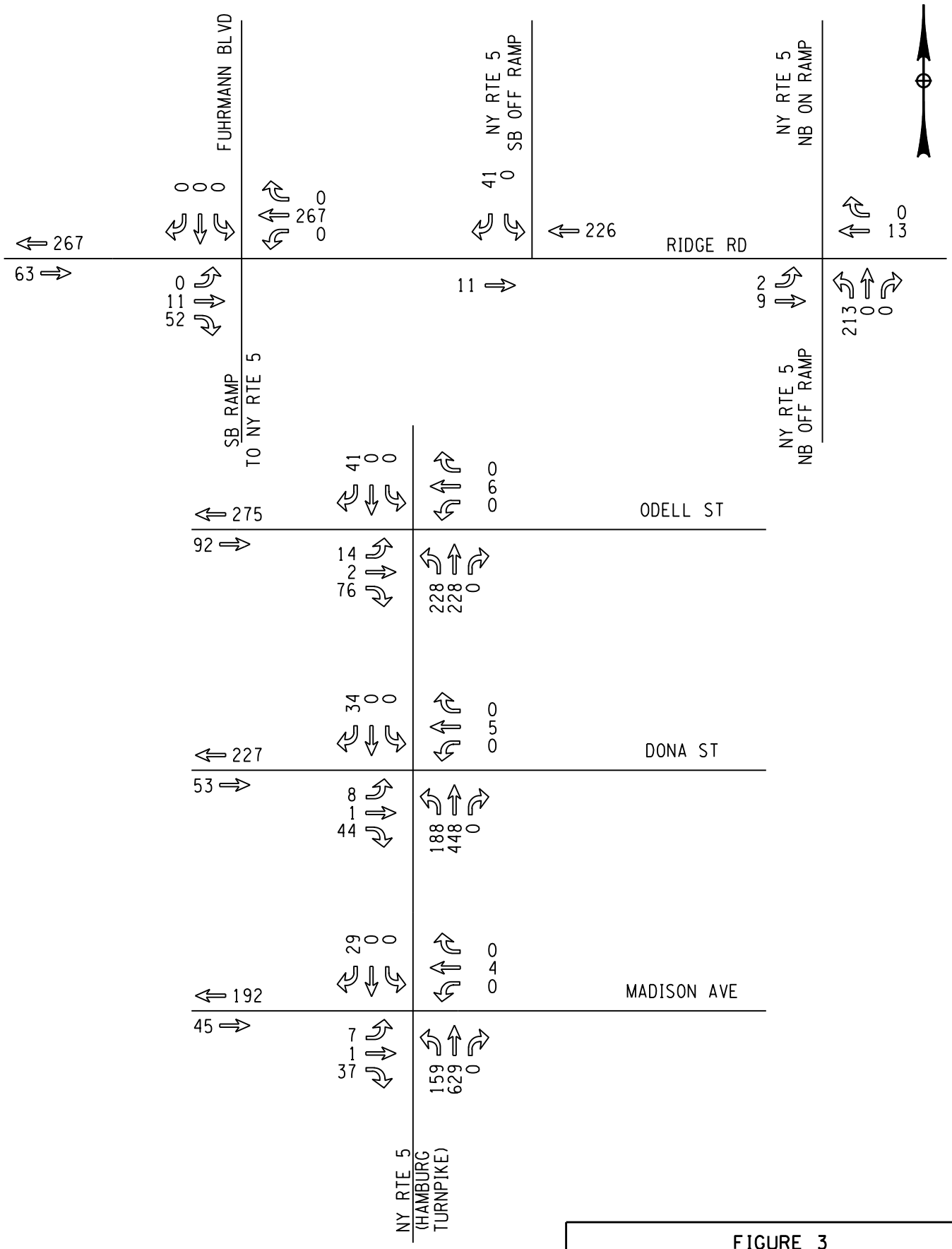


FIGURE 3

BETHLEHEM STEEL

AM PEAK HOUR (GENERATED)
TRAFFIC DISTRIBUTION

DATE: 2019 | NOT TO SCALE

WATTS ARCHITECTURE
& ENGINEERING
BUFFALO, NEW YORK

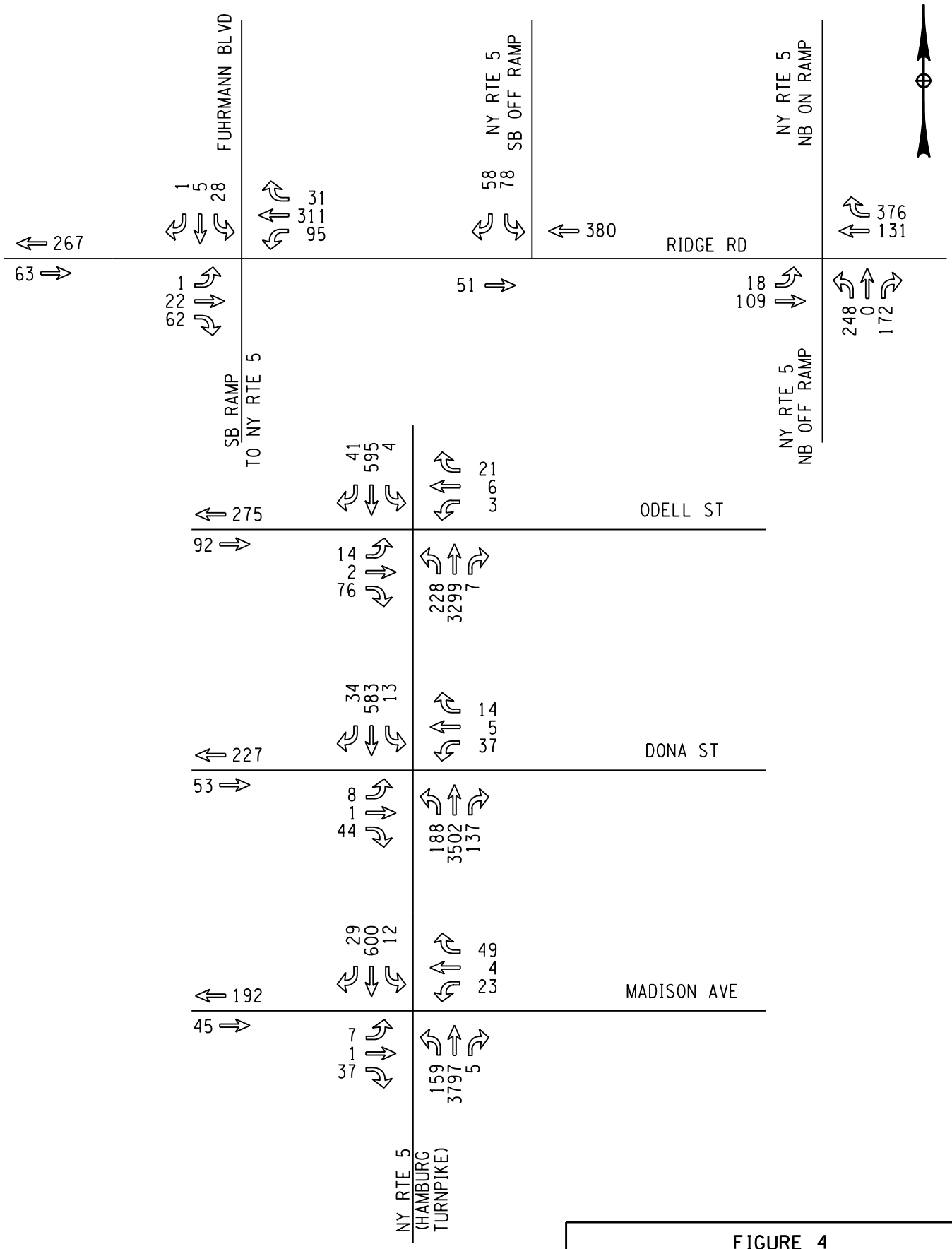


FIGURE 4

BETHLEHEM STEEL

AM PEAK HOUR (COMBINED)
TRAFFIC DISTRIBUTION

DATE: 2019 | NOT TO SCALE

WATTS ARCHITECTURE
& ENGINEERING
BUFFALO, NEW YORK

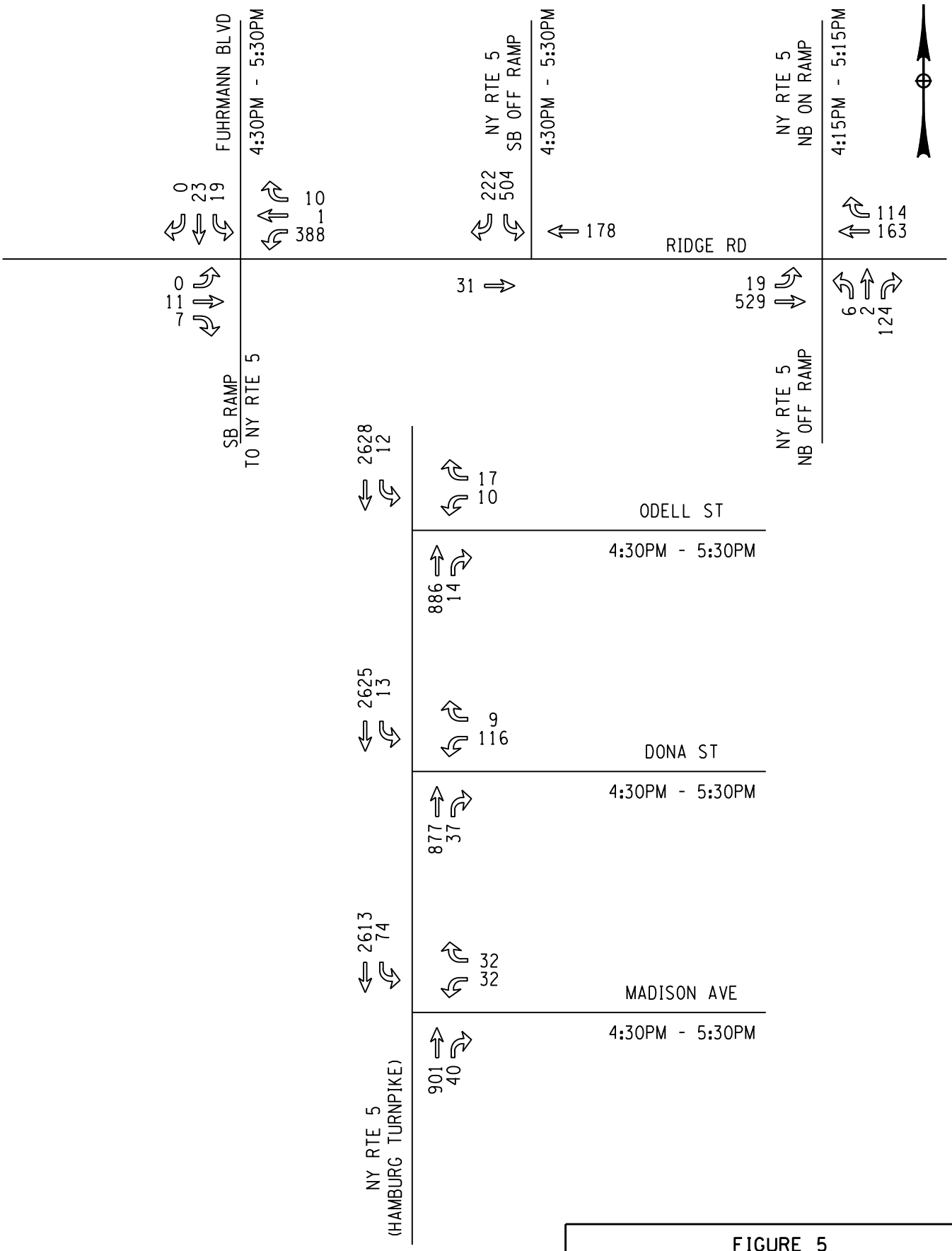


FIGURE 5

BETHLEHEM STEEL

PM PEAK HOUR (EXISTING)
TRAFFIC DISTRIBUTION

DATE: 2019 | NOT TO SCALE

WATTS ARCHITECTURE
& ENGINEERING
BUFFALO, NEW YORK

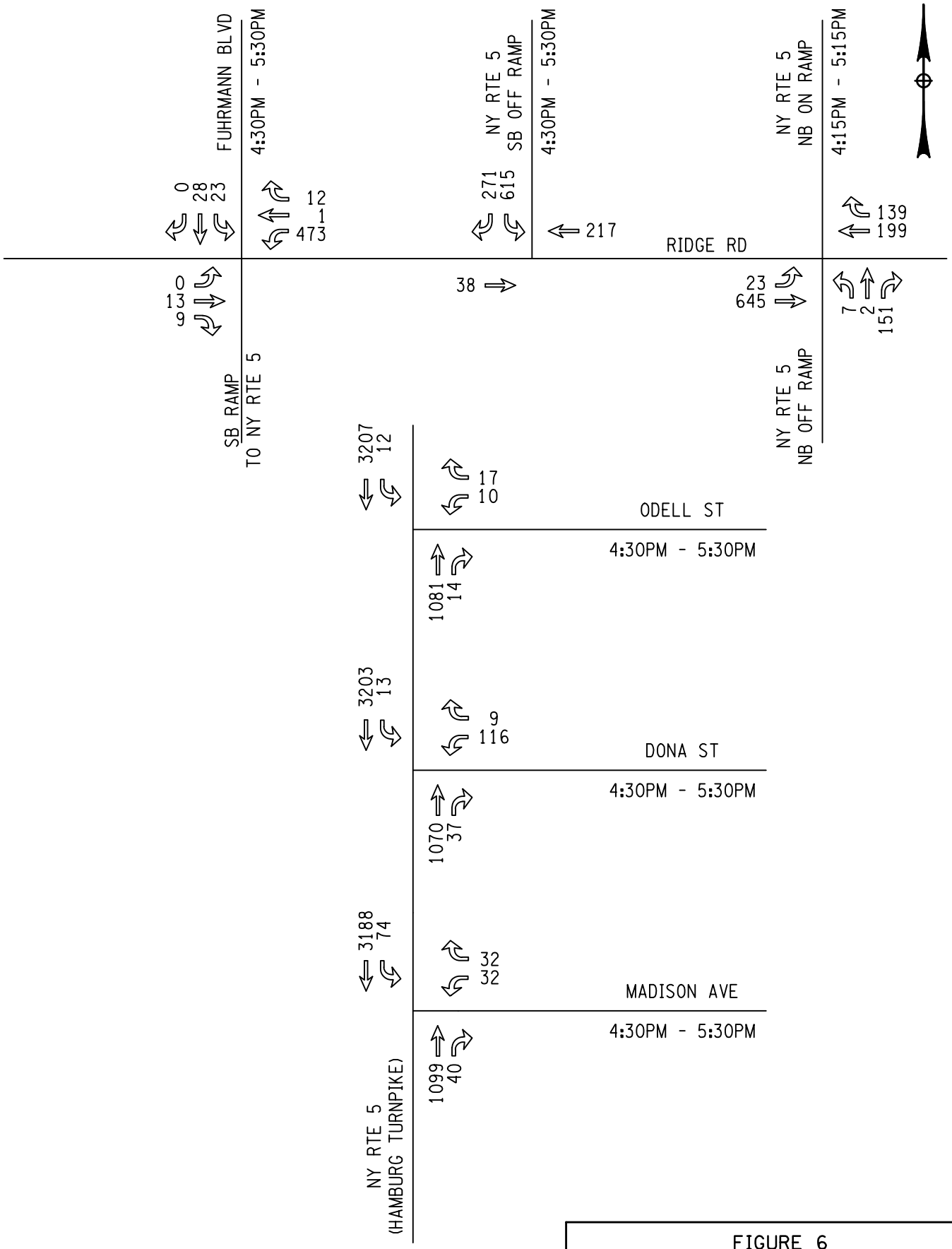


FIGURE 6

BETHLEHEM STEEL

PM PEAK HOUR (BACKGROUND 2039)
TRAFFIC DISTRIBUTION

DATE: 2019 | NOT TO SCALE

WATTS ARCHITECTURE
& ENGINEERING
BUFFALO, NEW YORK

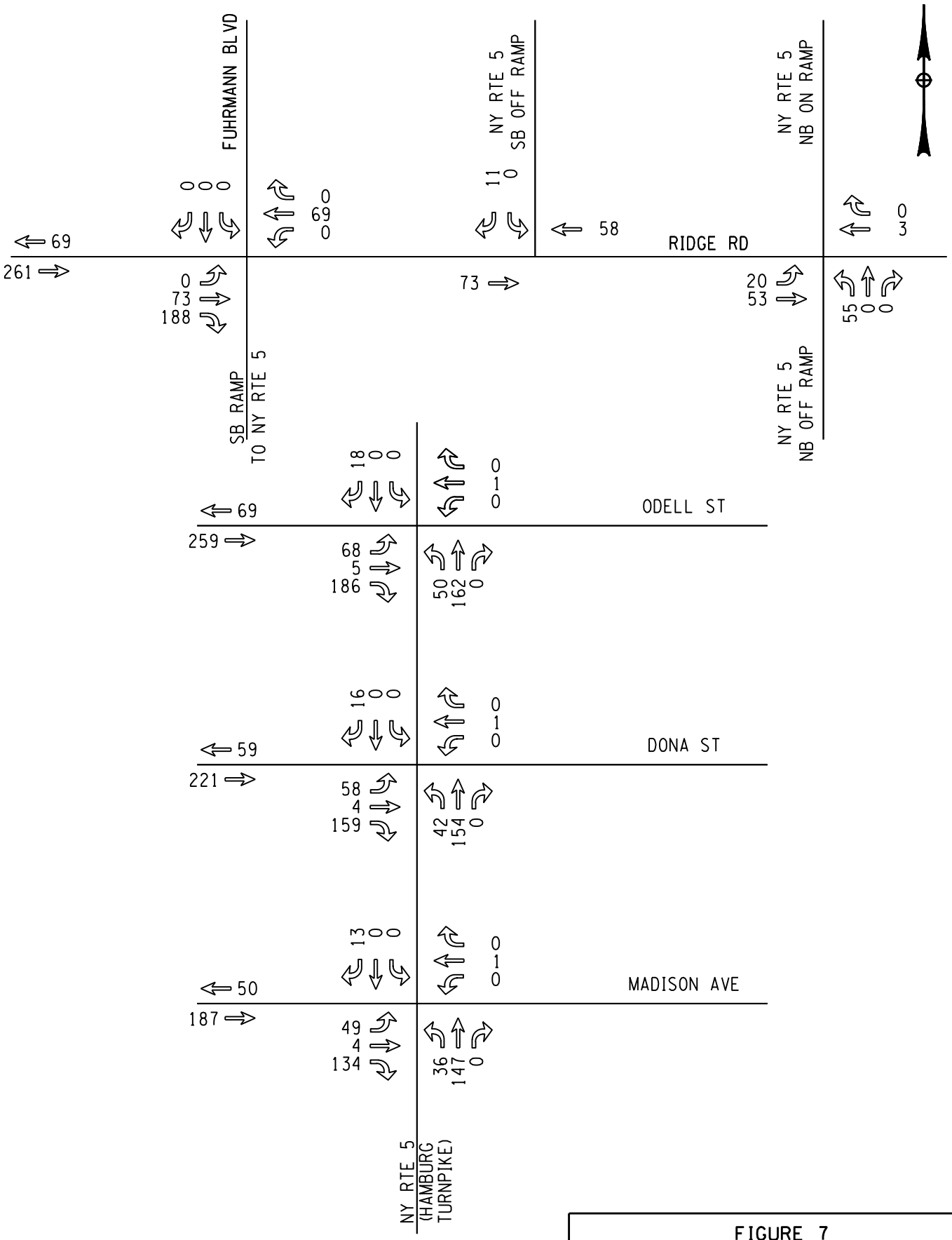


FIGURE 7

BETHLEHEM STEEL

PM PEAK HOUR (GENERATED)
TRAFFIC DISTRIBUTION

DATE: 2019 | NOT TO SCALE

WATTS ARCHITECTURE
& ENGINEERING
BUFFALO, NEW YORK

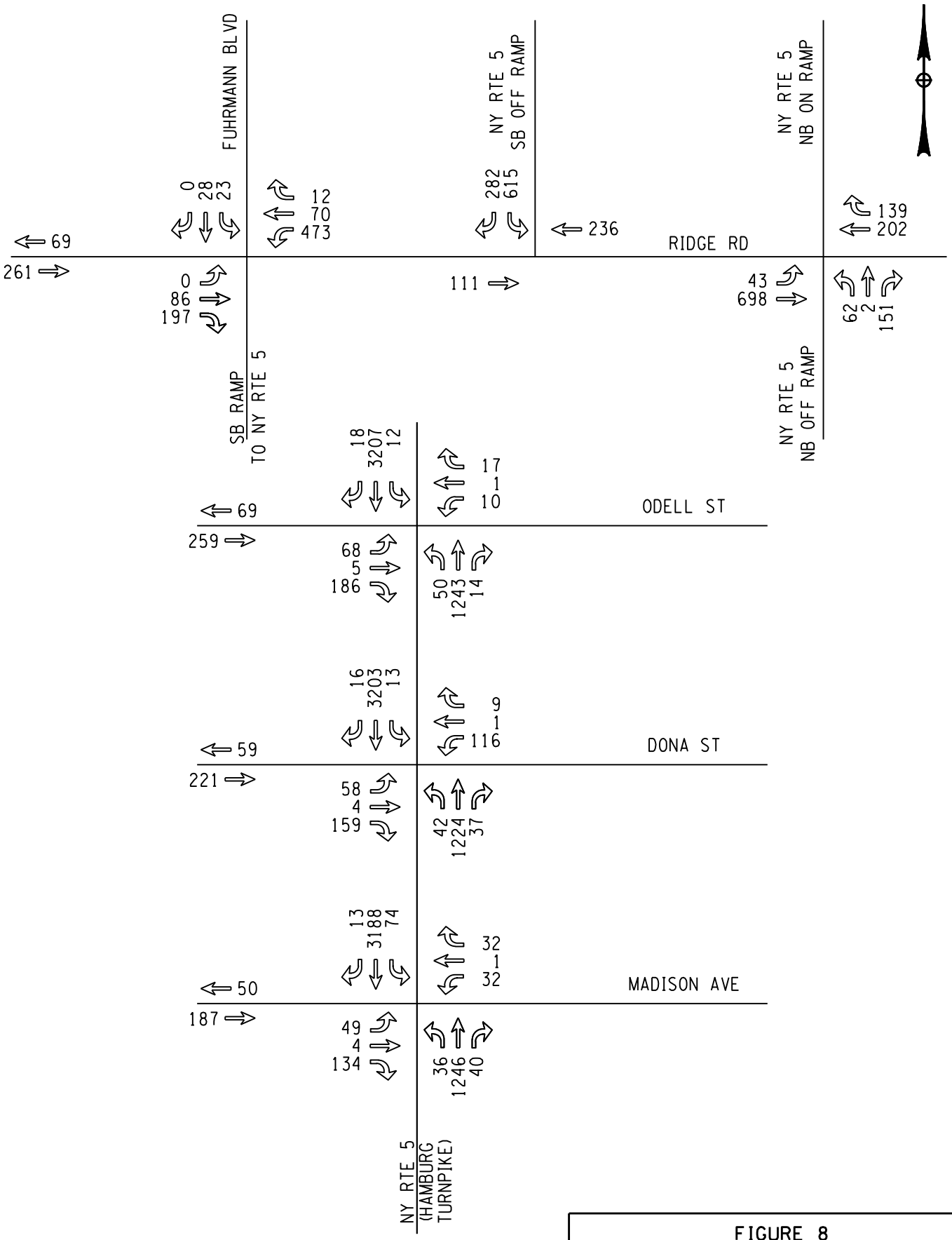


FIGURE 8	
BETHLEHEM STEEL	
PM PEAK HOUR (COMBINED) TRAFFIC DISTRIBUTION	
DATE: 2019	NOT TO SCALE

WATTS ARCHITECTURE
& ENGINEERING
BUFFALO, NEW YORK

a. **Existing LOS**

The existing AM LOS analysis shows no significant concern areas for the analyzed intersections. Each intersection operates at LOS A for all AM peak hours.

Traffic counts taken during the existing PM peak hour were reversed from the AM hour. Significant amounts of southbound traffic resulted in an 'E' LOS. As described above in the methodology section of the report, a LOS E represents operations at or near capacity (an unstable level). Vehicles are operating with the minimum spacing for maintaining uniform flow. Disruptions cannot be dissipated readily, often causing queues to form and service to deteriorate to LOS F. The difference in LOS between the AM and PM peak hours can be attributable to the fact that there are three (3) through lanes in the northbound direction, but only two (2) in the southbound direction, despite the fact that the PM southbound peak hour volumes are roughly equivalent to the northbound AM peak hour volumes.

Table 4 below summarizes the existing AM and PM peak hour LOS for each approach and the intersection:

Table 4: Existing - AM & PM Peak Hour LOS Analysis

Intersection	Approach				Intersection LOS
	EB	WB	NB	SB	
Madison Avenue / NY Route 5 – AM Peak	-	C	A	A	A
Madison Avenue / NY Route 5 – PM Peak	-	D	A	E	E
Dona Street / NY Route 5 – AM Peak	-	C	A	A	A
Dona Street / NY Route 5 – PM Peak	-	C	A	E	E
Odell Street / NY Route 5 – AM Peak	-	C	B	A	A
Odell Street / NY Route 5 – PM Peak	-	C	A	E	E
Ridge Road / Fuhrmann Drive – AM Peak	A	A	-	A	A
Ridge Road / Fuhrmann Drive – PM Peak	A	B	-	A	B
Ridge Road / SB NY Rte 5 Ramp – AM Peak	A	A	-	A	A
Ridge Road / SB NY Rte 5 Ramp – PM Peak	A	A	-	D	D
Ridge Road / NY Rte 5 Ramps – AM Peak	A	A	A	-	A
Ridge Road / NY Rte 5 Ramps – PM Peak	A	A	B	-	B

Traffic analysis results are theoretical and based on mathematical equations and computer representations of those answers. Field observations may not substantiate these values.

b. **LOS after redevelopment**

The studied intersections were analyzed for the full redevelopment of the Bethlehem Steel Redevelopment Area (+/- 170 acres). The LOS analysis was completed for the year of 2039. Since full redevelopment at the site will take many years, 2039 is an estimated horizon year for full project buildout.

For the full redevelopment, 10 parcels were created as shown in the Site Plan. Traffic lot/traffic allocation is as shown in Table 3 above and in further detail in Appendix C. Our analysis shows the all intersections still operating within acceptable LOS during the AM peak hour.

The PM peak hour analysis shows that the three NY Route 5 intersection's capacity will be exceeded (LOS F). As previously mentioned above, the issue is not with the increase traffic generated from the redevelopment but rather then increase in NY Route 5 traffic and the lack of the 3rd southbound lane. Attempts at adjusting signal timing resulted in no improvement to the Level of Service. The addition of a 3rd southbound lane on NY Route 5 is reflected in the LOS numbers below. It is our belief that this lane is warranted and is the only possible way to improve LOS values to acceptable values.

Table 5 below summarizes the proposed (after complete site redevelopment) existing AM and PM peak hour LOS for each approach and the intersection:

Table 5: After Redevelopment and with a 3rd SB lane on NY Route 5 - AM & PM Peak Hour LOS Analysis

Intersection	Approach				Intersection LOS
	EB	WB	NB	SB	
Madison Avenue / NY Route 5 – AM Peak	C	E	D	A	D
Madison Avenue / NY Route 5 – PM Peak	C	C	B	F	F
Dona Street / NY Route 5 – AM Peak	B	C	E	A	D
Dona Street / NY Route 5 – PM Peak	E	F	B	E	D
Odell Street / NY Route 5 – AM Peak	C	E	B	A	B
Odell Street / NY Route 5 – PM Peak	F	C	A	E	D
Ridge Road / Fuhrmann Drive – AM Peak	A	B	-	A	B
Ridge Road / Fuhrmann Drive – PM Peak	A	B	-	A	B
Ridge Road / SB NY Rte 5 Ramp – AM Peak	B	B	-	B	B
Ridge Road / SB NY Rte 5 Ramp – PM Peak	B	B	-	F	F
Ridge Road / NY Rte 5 Ramps – AM Peak	A	A	B	-	B
Ridge Road / NY Rte 5 Ramps – PM Peak	A	A	B	-	C

Traffic analysis results are theoretical and based on mathematical equations and computer representations of those answers. Field observations may not substantiate these values.

The AM level of service under the full redevelopment is operating at an overall LOS D. While the PM level of service under the same redevelopment with a 3rd southbound lane added on NY Route 5 is operating at an overall LOS F.

F. RECOMMENDATIONS

Even with the addition of the 3rd southbound lane on NY Route 5, the future traffic growth and full redevelopment of the Bethlehem Steel Redevelopment Area is projected to cause a LOS F during the PM peak hour at Madison Avenue and at the Ridge Road / SB NY Rte 5 Ramp. All other intersections rate at a LOS of D or higher. The LOS changes are due to the forecasted increased traffic on NY Route 5 and not necessarily the increases associated with the Bethlehem redevelopment.

The following options are likely to improve the levels of service at these two intersections:

- The addition of designated left turn and right turn lanes at the Ridge Road / SB NY Rte 5 Ramp intersection would likely improve the proposed levels of service.

- The addition of a 200-foot southbound right turn (deceleration) lane at Madison Avenue would likely improve the proposed levels of service.

APPENDIX A
Project Location Map

Watts Architecture & Engineering
95 Perry Street
Buffalo, New York

Project Location Map

BETHLEHEM STEEL REDEVELOPMENT AREA
City of Lackawanna,
Erie County, New York

Not to Scale	May 2019

APPENDIX B
Traffic Counts

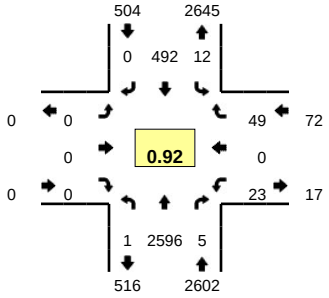
Type of peak hour being reported: Intersection Peak

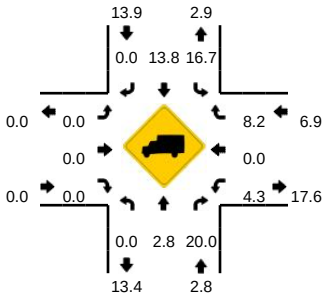
Method for determining peak hour: Total Entering Volume

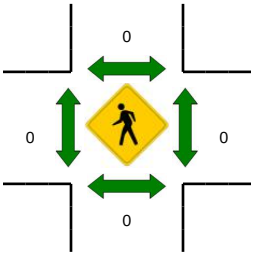
LOCATION: NYS Route 5 -- Madison Ave
CITY/STATE: Lackawanna, NY

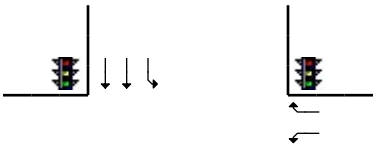
QC JOB #: 14642813
DATE: Tue, Aug 07 2018

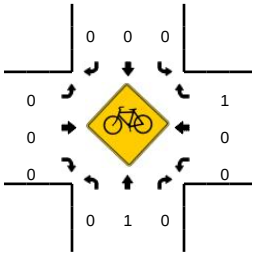
Peak-Hour: 7:00 AM -- 8:00 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

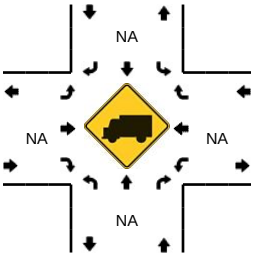


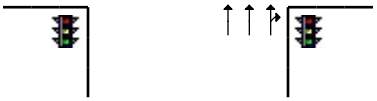


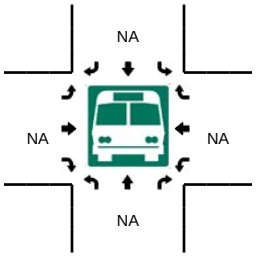












15-Min Count Period Beginning At	NYS Route 5 (Northbound)				NYS Route 5 (Southbound)				Madison Ave (Eastbound)				Madison Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	617	1	0	0	137	0	0	0	0	0	0	5	0	16	0	776	
7:15 AM	0	692	1	0	3	126	0	0	0	0	0	0	5	0	11	0	838	
7:30 AM	0	705	2	0	6	129	0	0	0	0	0	0	8	0	9	0	859	
7:45 AM	0	582	1	1	3	100	0	0	0	0	0	0	5	0	13	0	705	3178
8:00 AM	0	613	2	0	7	140	0	0	0	0	0	0	6	0	6	0	774	3176
8:15 AM	0	521	5	0	9	130	0	0	0	0	0	0	6	0	4	0	675	3013
8:30 AM	0	452	1	0	4	107	0	0	0	0	0	0	7	0	9	0	580	2734
8:45 AM	0	370	3	0	6	125	0	0	0	0	0	0	4	0	14	0	522	2551
9:00 AM	0	325	3	0	4	138	0	0	0	0	0	0	4	0	10	0	484	2261
9:15 AM	0	307	0	0	4	122	0	0	0	0	0	0	2	0	5	0	440	2026
9:30 AM	0	244	0	0	3	132	0	0	0	0	0	0	4	0	12	0	395	1841
9:45 AM	0	231	3	0	6	123	0	0	0	0	0	0	5	0	8	0	376	1695

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	2820	8	0	24	516	0	0	0	0	0	0	32	0	36	0	3436
Heavy Trucks	0	108	0		8	72	0		0	0	0		4	0	8		200
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 8/17/2018 1:16 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

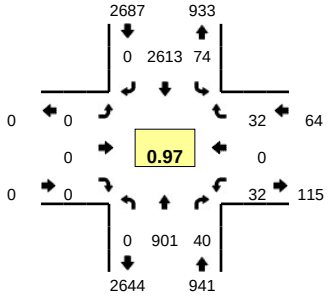
Type of peak hour being reported: Intersection Peak

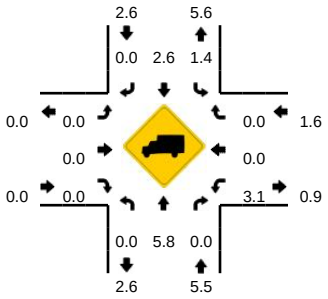
Method for determining peak hour: Total Entering Volume

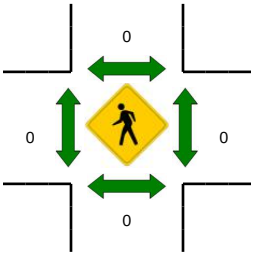
LOCATION: NYS Route 5 -- Madison Ave
CITY/STATE: Lackawanna, NY

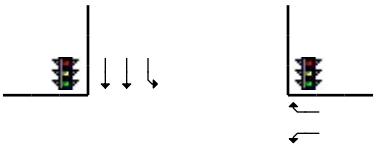
QC JOB #: 14642815
DATE: Tue, Aug 07 2018

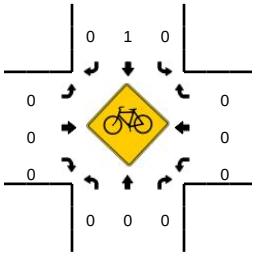
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

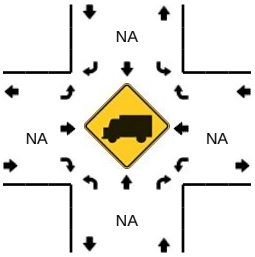


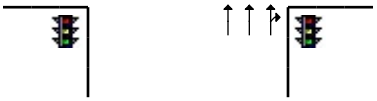


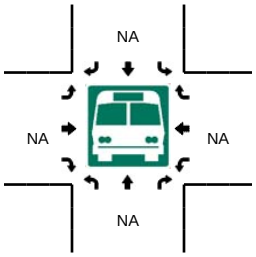












15-Min Count Period Beginning At	NYS Route 5 (Northbound)				NYS Route 5 (Southbound)				Madison Ave (Eastbound)				Madison Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	217	9	0	6	455	0	0	0	0	0	0	4	0	11	0	702	
3:15 PM	0	204	4	0	13	536	0	0	0	0	0	0	3	0	7	0	767	
3:30 PM	0	208	4	0	5	580	0	0	0	0	0	0	3	0	7	0	807	
3:45 PM	0	222	3	0	13	540	0	0	0	0	0	0	6	0	6	0	790	3066
4:00 PM	0	261	11	0	19	533	0	0	0	0	0	0	5	0	8	0	837	3201
4:15 PM	0	185	7	0	11	668	0	0	0	0	0	0	10	0	10	0	891	3325
4:30 PM	0	225	7	0	15	658	0	0	0	0	0	0	7	0	7	1	920	3438
4:45 PM	0	231	8	0	21	658	0	0	0	0	0	0	6	0	6	0	930	3578
5:00 PM	0	209	12	0	19	633	0	0	0	0	0	0	7	0	12	0	892	3633
5:15 PM	0	236	13	0	19	664	0	0	0	0	0	0	11	0	7	0	950	3692
5:30 PM	0	199	4	0	11	627	0	0	0	0	0	0	11	0	14	0	866	3638
5:45 PM	0	194	7	0	9	642	0	0	0	0	0	0	11	0	13	0	876	3584

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	944	52	0	76	2656	0	0	0	0	0	0	44	0	28	0	3800
Heavy Trucks	0	48	0		4	64	0		0	0	0		0	0	0		116
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 8/17/2018 1:16 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

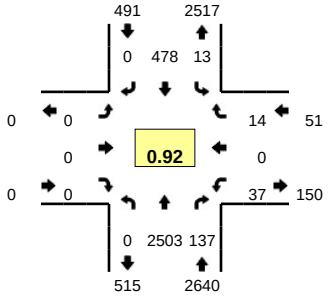
Type of peak hour being reported: Intersection Peak

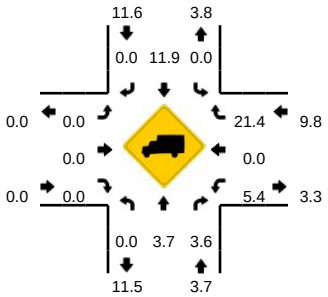
Method for determining peak hour: Total Entering Volume

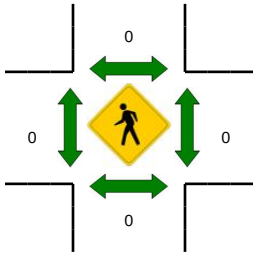
LOCATION: NYS Route 5 -- Dona St
CITY/STATE: Lackawanna, NY

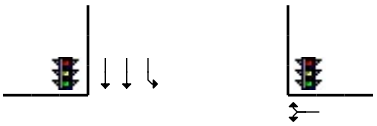
QC JOB #: 14642804
DATE: Tue, Aug 07 2018

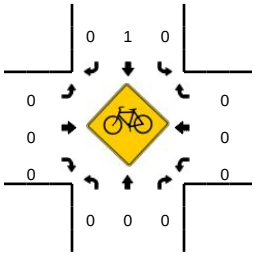
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

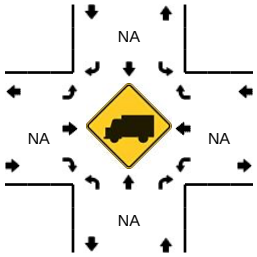


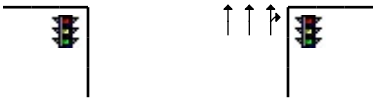


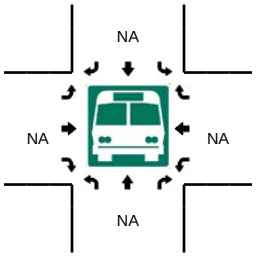












15-Min Count Period Beginning At	NYS Route 5 (Northbound)				NYS Route 5 (Southbound)				Dona St (Eastbound)				Dona St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	565	44	0	6	134	0	0	0	0	0	0	8	0	6	0	763	
7:15 AM	0	661	46	0	5	125	0	0	0	0	0	0	6	0	4	0	847	
7:30 AM	0	681	39	0	3	122	0	0	0	0	0	0	14	0	4	0	863	
7:45 AM	0	569	28	0	1	92	0	0	0	0	0	0	8	0	3	0	701	3174
8:00 AM	0	592	24	0	4	139	0	0	0	0	0	0	9	0	3	0	771	3182
8:15 AM	0	504	31	0	4	131	0	0	0	0	0	0	7	0	1	0	678	3013
8:30 AM	0	443	21	0	6	101	0	0	0	0	0	0	11	0	7	0	589	2739
8:45 AM	0	358	24	0	8	131	0	0	0	0	0	0	10	0	5	0	536	2574
9:00 AM	0	300	25	0	6	128	0	0	0	0	0	0	9	0	4	0	472	2275
9:15 AM	0	288	16	0	7	118	0	0	0	0	0	0	11	0	4	0	444	2041
9:30 AM	0	238	17	0	5	130	0	0	0	0	0	0	13	0	1	0	404	1856
9:45 AM	0	229	13	0	6	109	0	0	0	0	0	0	14	0	4	0	375	1695

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	2724	156	0	12	488	0	0	0	0	0	0	56	0	16	0	3452
Heavy Trucks	0	108	8		0	72	0		0	0	0		4	0	8		200
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 8/17/2018 1:16 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

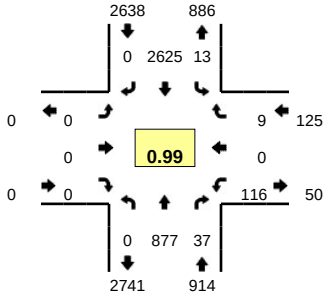
LOCATION: NYS Route 5 -- Dona St

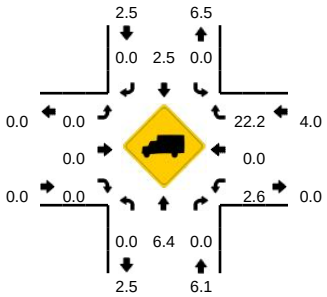
CITY/STATE: Lackawanna, NY

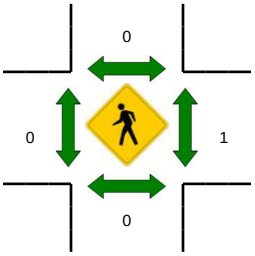
QC JOB #: 14642806

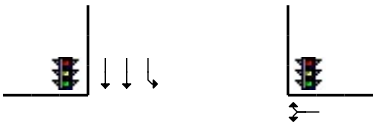
DATE: Tue, Aug 07 2018

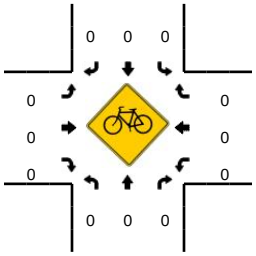
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

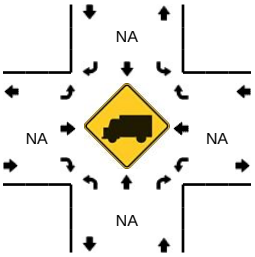


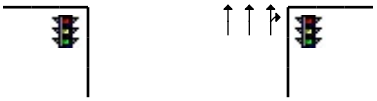


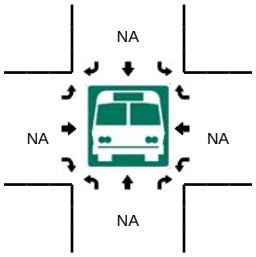












15-Min Count Period Beginning At	NYS Route 5 (Northbound)				NYS Route 5 (Southbound)				Dona St (Eastbound)				Dona St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	213	11	0	4	454	0	0	0	0	0	0	21	0	5	0	708	
3:15 PM	0	198	13	0	3	540	0	0	0	0	0	0	23	0	4	0	781	
3:30 PM	0	203	20	0	1	552	0	0	0	0	0	0	25	0	5	0	806	
3:45 PM	0	201	14	0	7	531	0	0	0	0	0	0	17	0	5	0	775	3070
4:00 PM	0	253	17	0	4	526	0	0	0	0	0	0	33	0	5	0	838	3200
4:15 PM	0	181	7	0	4	649	0	0	0	0	0	0	23	0	2	0	866	3285
4:30 PM	0	223	9	0	4	658	0	0	0	0	0	0	35	0	2	0	931	3410
4:45 PM	0	217	9	0	3	667	0	0	0	0	0	0	22	0	1	0	919	3554
5:00 PM	0	227	9	0	4	631	0	0	0	0	0	0	30	0	4	0	905	3621
5:15 PM	0	210	10	0	2	669	0	0	0	0	0	0	29	0	2	0	922	3677
5:30 PM	0	200	15	0	5	598	0	0	0	0	0	0	42	0	9	0	869	3615
5:45 PM	0	208	8	0	4	635	0	0	0	0	0	0	23	0	4	0	882	3578

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	892	36	0	16	2632	0	0	0	0	0	0	140	0	8	0	3724
Heavy Trucks	0	72	0		0	72	0		0	0	0		8	0	0		152
Pedestrians		0				0				0				4			4
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 8/17/2018 1:16 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

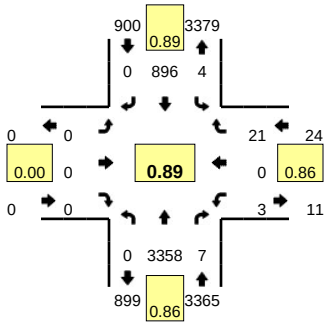
LOCATION: Rte 5 (Hamburg Tpke) -- Odell St

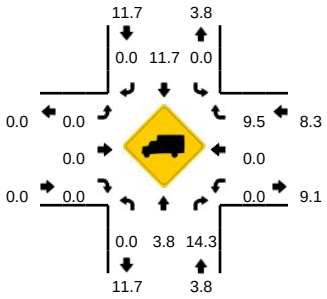
CITY/STATE: Lackawanna, NY

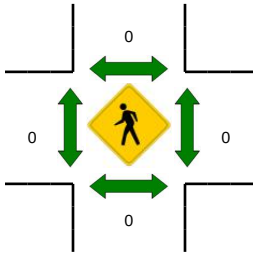
QC JOB #: 14417001

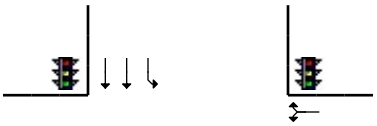
DATE: Wed, May 24 2017

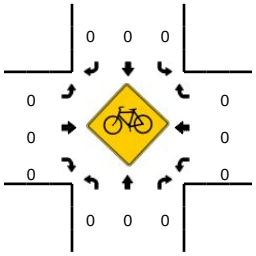
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:30 AM -- 7:45 AM

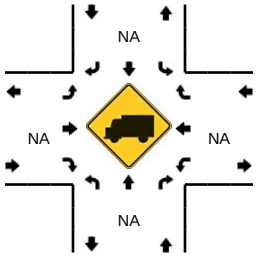


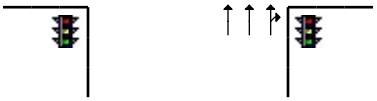


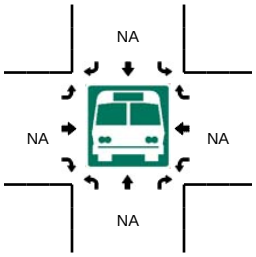












15-Min Count Period Beginning At	Rte 5 (Hamburg Tpke) (Northbound)				Rte 5 (Hamburg Tpke) (Southbound)				Odell St (Eastbound)				Odell St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	655	1	0	2	170	0	0	0	0	0	0	1	0	3	0	832	
7:15 AM	0	792	4	0	1	221	0	0	0	0	0	0	1	0	5	0	1024	
7:30 AM	0	974	0	0	0	218	0	0	0	0	0	0	1	0	6	0	1199	
7:45 AM	0	836	0	0	2	254	0	0	0	0	0	0	1	0	5	0	1098	4153
8:00 AM	0	756	3	0	1	203	0	0	0	0	0	0	0	0	5	0	968	4289
8:15 AM	0	672	0	0	1	230	0	0	0	0	0	0	1	0	3	0	907	4172
8:30 AM	0	628	4	0	2	206	0	0	0	0	0	0	2	0	7	0	849	3822
8:45 AM	0	492	4	0	2	218	0	0	0	0	0	0	2	0	1	0	719	3443

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	3896	0	0	0	872	0	0	0	0	0	0	4	0	24	0	4796
Heavy Trucks	0	136	0		0	64	0		0	0	0		0	0	4		204
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 5/30/2017 6:05 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

Type of peak hour being reported: Intersection Peak

Method for determining peak hour: Total Entering Volume

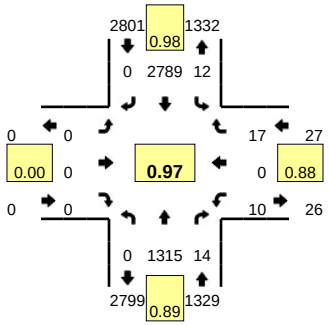
LOCATION: Rte 5 (Hamburg Tpke) -- Odell St

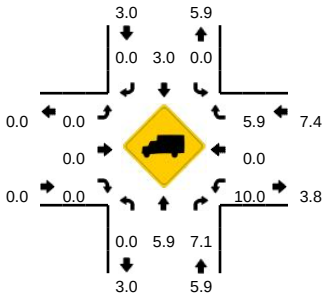
CITY/STATE: Lackawanna, NY

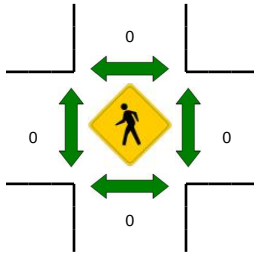
QC JOB #: 14417002

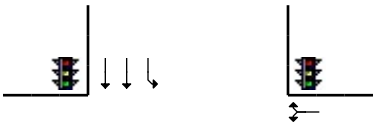
DATE: Tue, May 23 2017

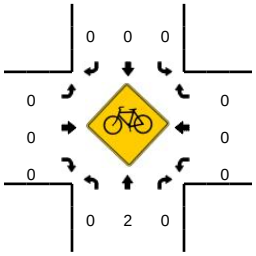
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:15 PM -- 5:30 PM

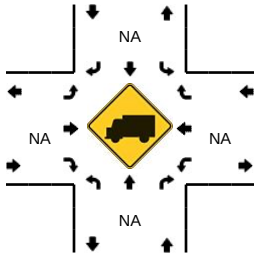


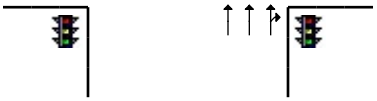


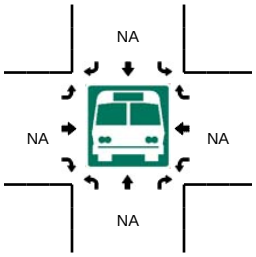












15-Min Count Period Beginning At	Rte 5 (Hamburg Tpke) (Northbound)				Rte 5 (Hamburg Tpke) (Southbound)				Odell St (Eastbound)				Odell St (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:30 PM	0	302	6	0	5	621	0	0	0	0	0	0	5	0	2	0	941	
3:45 PM	0	373	5	0	7	681	0	0	0	0	0	0	6	0	9	0	1081	
4:00 PM	0	317	6	0	6	601	0	0	0	0	0	0	6	0	8	0	944	
4:15 PM	0	301	4	0	3	713	0	0	0	0	0	0	5	0	9	0	1035	4001
4:30 PM	0	338	3	0	6	691	0	0	0	0	0	0	6	0	4	0	1048	4108
4:45 PM	0	323	6	0	4	691	0	0	0	0	0	0	1	0	1	0	1026	4053
5:00 PM	0	303	2	0	0	702	0	0	0	0	0	0	2	0	7	0	1016	4125
5:15 PM	0	351	3	0	2	705	0	0	0	0	0	0	1	0	5	0	1067	4157

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	1404	12	0	8	2820	0	0	0	0	0	0	4	0	20	0	4268
Heavy Trucks	0	108	0		0	76	0		0	0	0		0	0	4		188
Pedestrians		0				0				0				0			0
Bicycles	0	1	0		0	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 5/30/2017 6:05 AM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

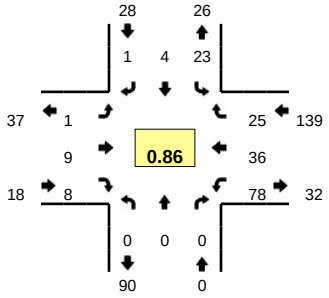
Type of peak hour being reported: Intersection Peak

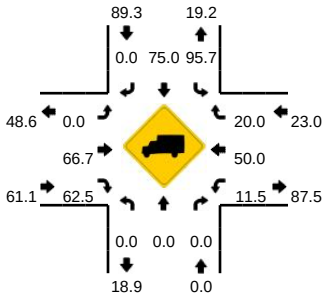
Method for determining peak hour: Total Entering Volume

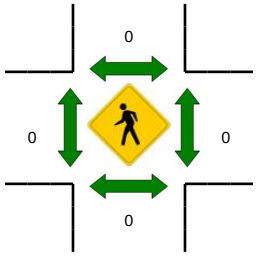
LOCATION: Fuhrmann Dr -- Ridge Rd
CITY/STATE: Lackawanna, NY

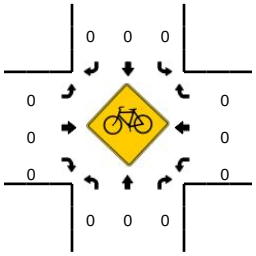
QC JOB #: 14642801
DATE: Tue, Aug 07 2018

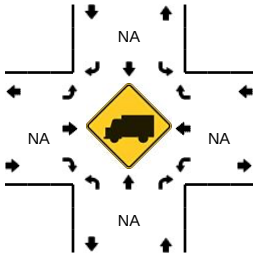
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:15 AM -- 7:30 AM

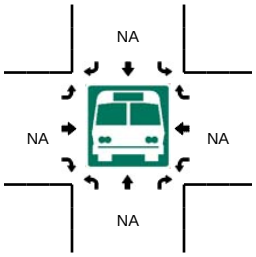












15-Min Count Period Beginning At	NY Rte 5 Ramp (Northbound)				Fuhrmann Dr (Southbound)				Ridge Rd (Eastbound)				Ridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	4	1	0	0	0	3	0	0	13	6	5	0	32	
7:15 AM	0	0	0	0	8	0	1	0	1	2	1	0	21	11	9	0	54	
7:30 AM	0	0	0	0	11	2	0	0	0	1	3	0	12	10	2	0	41	
7:45 AM	0	0	0	0	0	2	0	0	0	2	2	0	28	9	9	0	52	179
8:00 AM	0	0	0	0	4	0	0	0	0	4	2	0	17	6	5	0	38	185
8:15 AM	0	0	0	0	3	1	0	0	2	2	4	0	21	10	7	0	50	181
8:30 AM	0	0	0	0	6	0	2	0	0	2	1	0	16	6	3	0	36	176
8:45 AM	0	0	0	0	8	2	0	0	1	1	5	0	17	8	2	0	44	168
9:00 AM	0	0	0	0	2	4	1	0	0	0	4	0	23	6	8	0	48	178
9:15 AM	0	0	0	0	2	3	0	0	0	3	4	0	22	4	6	0	44	172
9:30 AM	0	0	0	0	1	4	0	0	0	3	2	0	20	2	10	1	43	179
9:45 AM	0	0	0	0	7	0	0	0	0	3	2	0	22	6	6	0	46	181

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	32	0	4	0	4	8	4	0	84	44	36	0	216
Heavy Trucks	0	0	0		32	0	0		0	8	0		8	16	8		72
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 8/17/2018 1:16 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

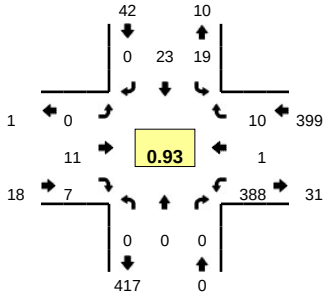
Type of peak hour being reported: Intersection Peak

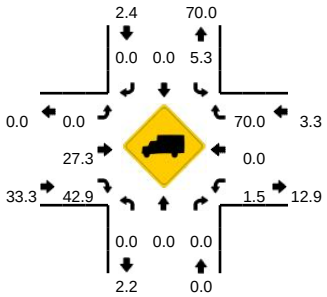
Method for determining peak hour: Total Entering Volume

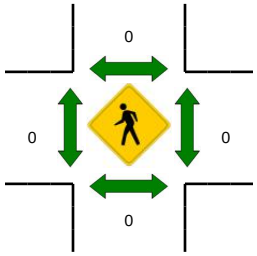
LOCATION: Fuhrmann Dr -- Ridge Rd
CITY/STATE: Lackawanna, NY

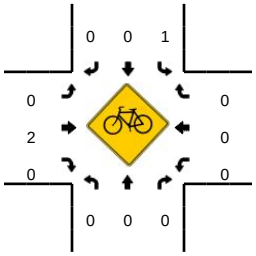
QC JOB #: 14642803
DATE: Tue, Aug 07 2018

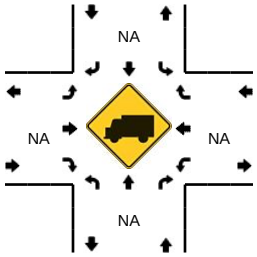
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

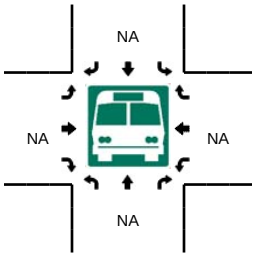












15-Min Count Period Beginning At	NY Rte 5 Ramp (Northbound)				Fuhrmann Dr (Southbound)				Ridge Rd (Eastbound)				Ridge Rd (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	0	0	0	12	10	0	0	0	5	3	0	27	4	10	1	72	
3:15 PM	0	0	0	0	2	10	0	0	0	3	3	0	36	2	6	1	63	
3:30 PM	0	0	0	0	12	12	0	0	1	3	5	0	42	2	2	0	79	
3:45 PM	0	0	0	0	5	4	1	0	0	8	1	0	25	1	2	0	47	261
4:00 PM	0	0	0	0	3	2	0	0	0	6	4	0	36	2	3	0	56	245
4:15 PM	0	0	0	0	12	3	1	0	0	3	0	0	56	5	4	0	84	266
4:30 PM	0	0	0	0	9	5	0	0	0	3	4	0	90	0	3	1	115	302
4:45 PM	0	0	0	0	3	6	0	0	0	4	1	0	100	0	3	0	117	372
5:00 PM	0	0	0	0	6	4	0	0	0	1	2	0	110	0	1	0	124	440
5:15 PM	0	0	0	0	1	8	0	0	0	3	0	0	87	1	3	0	103	459
5:30 PM	0	0	0	0	3	5	0	0	0	2	1	0	74	1	2	0	88	432
5:45 PM	0	0	0	0	2	1	0	0	1	4	5	0	57	0	2	0	72	387

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	24	16	0	0	0	4	8	0	440	0	4	0	496
Heavy Trucks	0	0	0		0	0	0		0	0	0		0	0	0		0
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		1	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 8/17/2018 1:16 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

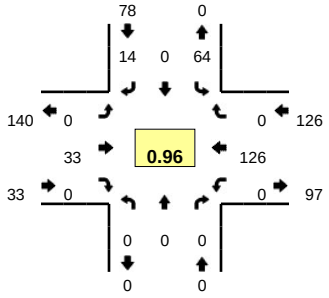
Type of peak hour being reported: Intersection Peak

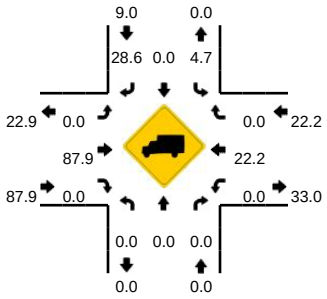
Method for determining peak hour: Total Entering Volume

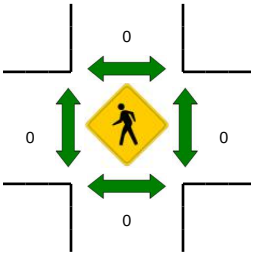
LOCATION: NYS Route 5 SB Off-Ramp -- Ridge Ave
CITY/STATE: Lackawanna, NY

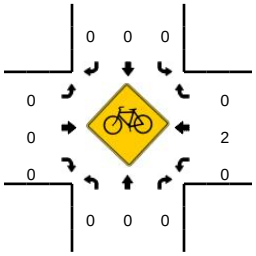
QC JOB #: 14642807
DATE: Tue, Aug 07 2018

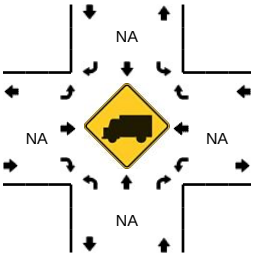
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 8:00 AM -- 8:15 AM

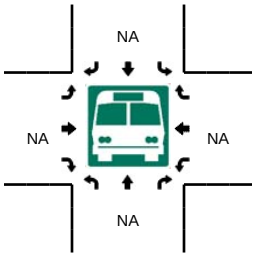












15-Min Count Period Beginning At	NYS Route 5 SB Off-Ramp (Northbound)				NYS Route 5 SB Off-Ramp (Southbound)				Ridge Ave (Eastbound)				Ridge Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	0	0	0	0	11	0	3	0	0	6	0	0	0	20	0	0	40	
7:15 AM	0	0	0	0	11	0	1	0	0	9	0	0	0	40	0	0	61	
7:30 AM	0	0	0	0	22	0	6	0	0	14	0	0	0	19	0	0	61	
7:45 AM	0	0	0	0	5	0	3	0	0	2	0	0	0	43	0	0	53	215
8:00 AM	0	0	0	0	26	0	4	0	0	8	0	0	0	24	0	0	62	237
8:15 AM	0	0	0	0	17	0	2	0	0	4	0	0	0	36	0	0	59	235
8:30 AM	0	0	0	0	24	0	3	0	0	7	0	0	0	22	0	0	56	230
8:45 AM	0	0	0	0	12	0	1	0	0	11	0	0	0	27	0	0	51	228
9:00 AM	0	0	0	0	20	0	5	0	0	2	0	0	0	30	0	0	57	223
9:15 AM	0	0	0	0	13	0	5	0	0	4	0	0	0	28	0	0	50	214
9:30 AM	0	0	0	0	17	0	2	0	0	5	0	0	0	24	0	0	48	206
9:45 AM	0	0	0	0	9	0	4	0	0	11	0	0	0	36	0	0	60	215

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	104	0	16	0	0	32	0	0	0	96	0	0	248
Heavy Trucks	0	0	0		0	0	8		0	28	0		0	20	0		56
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 8/17/2018 1:16 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

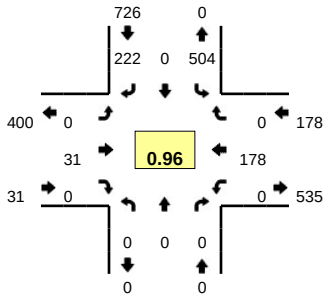
Type of peak hour being reported: Intersection Peak

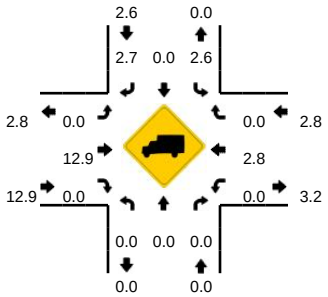
Method for determining peak hour: Total Entering Volume

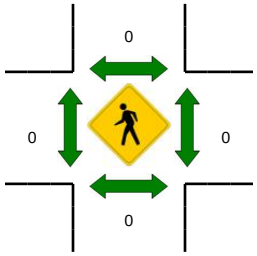
LOCATION: NYS Route 5 SB Off-Ramp -- Ridge Ave
CITY/STATE: Lackawanna, NY

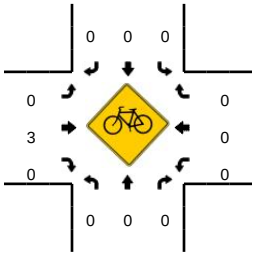
QC JOB #: 14642809
DATE: Tue, Aug 07 2018

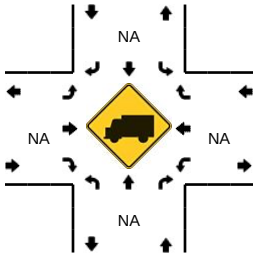
Peak-Hour: 4:30 PM -- 5:30 PM
Peak 15-Min: 5:00 PM -- 5:15 PM

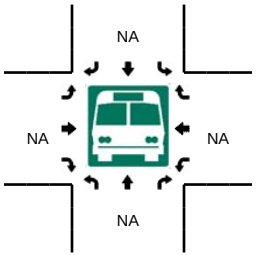












15-Min Count Period Beginning At	NYS Route 5 SB Off-Ramp (Northbound)				NYS Route 5 SB Off-Ramp (Southbound)				Ridge Ave (Eastbound)				Ridge Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	0	0	0	0	61	0	6	0	0	18	0	0	0	34	0	0	119	
3:15 PM	0	0	0	0	93	0	2	0	0	6	0	0	0	44	0	0	145	
3:30 PM	0	0	0	0	94	0	2	0	0	13	0	0	0	48	0	0	157	
3:45 PM	0	0	0	0	87	0	1	0	0	14	0	0	0	29	0	0	131	552
4:00 PM	0	0	0	0	92	0	4	0	0	10	0	0	0	35	0	0	141	574
4:15 PM	0	0	0	0	142	0	35	0	0	15	0	0	0	29	0	0	221	650
4:30 PM	0	0	0	0	127	0	47	0	0	14	0	0	0	47	0	0	235	728
4:45 PM	0	0	0	0	113	0	66	0	0	6	0	0	0	40	0	0	225	822
5:00 PM	0	0	0	0	127	0	56	0	0	8	0	0	0	52	0	0	243	924
5:15 PM	0	0	0	0	137	0	53	0	0	3	0	0	0	39	0	0	232	935
5:30 PM	0	0	0	0	117	0	43	0	0	5	0	0	0	37	0	0	202	902
5:45 PM	0	0	0	0	104	0	32	0	0	7	0	0	0	30	0	0	173	850

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	0	0	0	0	508	0	224	0	0	32	0	0	0	208	0	0	972
Heavy Trucks	0	0	0		12	0	0		0	0	0		0	0	0		12
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	1	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 8/17/2018 1:16 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

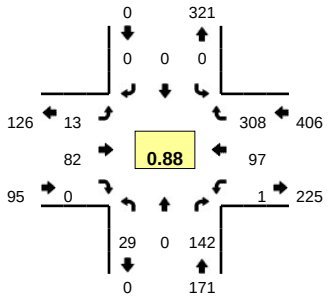
Type of peak hour being reported: Intersection Peak

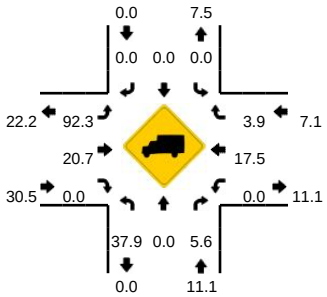
Method for determining peak hour: Total Entering Volume

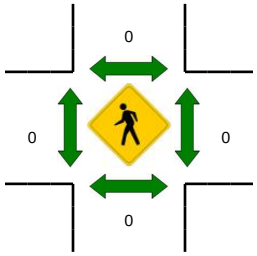
LOCATION: NYS Route 5 NB Ramps -- Ridge Ave
CITY/STATE: Lackawanna, NY

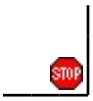
QC JOB #: 14642810
DATE: Tue, Aug 07 2018

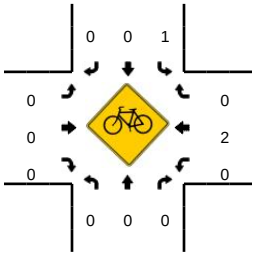
Peak-Hour: 7:15 AM -- 8:15 AM
Peak 15-Min: 7:15 AM -- 7:30 AM

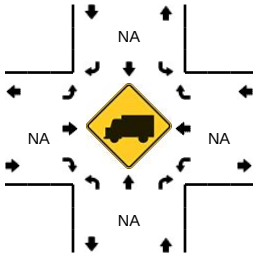


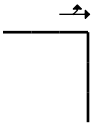


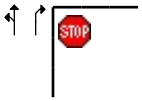


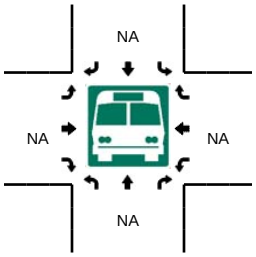












15-Min Count Period Beginning At	NYS Route 5 NB Ramps (Northbound)				NYS Route 5 NB Ramps (Southbound)				Ridge Ave (Eastbound)				Ridge Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
7:00 AM	1	0	29	0	0	0	0	0	6	16	0	0	0	19	60	0	131	
7:15 AM	13	0	32	0	0	0	0	0	8	17	0	0	0	26	96	0	192	
7:30 AM	4	0	29	0	0	0	0	0	4	23	0	0	0	14	89	0	163	
7:45 AM	7	0	47	0	0	0	0	0	0	7	0	0	0	37	63	1	162	648
8:00 AM	5	0	34	0	0	0	0	0	1	35	0	0	0	20	60	0	155	672
8:15 AM	7	0	27	0	0	0	0	0	2	22	0	0	0	26	39	1	124	604
8:30 AM	3	1	28	0	0	0	0	0	2	29	0	0	0	24	60	0	147	588
8:45 AM	8	0	29	0	0	0	0	0	5	17	0	0	0	21	51	0	131	557
9:00 AM	4	0	31	0	0	0	0	0	1	16	0	0	0	25	34	0	111	513
9:15 AM	3	0	31	0	0	0	0	0	3	16	0	0	0	24	40	0	117	506
9:30 AM	3	0	25	0	0	0	0	0	3	22	0	0	0	30	33	0	116	475
9:45 AM	9	0	30	0	0	0	0	0	4	12	0	0	0	22	32	0	109	453

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	52	0	128	0	0	0	0	0	32	68	0	0	0	104	384	0	768
Heavy Trucks	12	0	4		0	0	0		28	12	0		0	20	16		92
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		1	0	0		0	0	0		0	0	0		1
Railroad																	
Stopped Buses																	

Comments:

Report generated on 8/17/2018 1:16 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

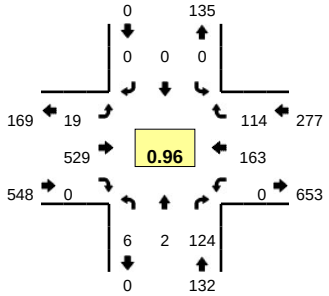
Type of peak hour being reported: Intersection Peak

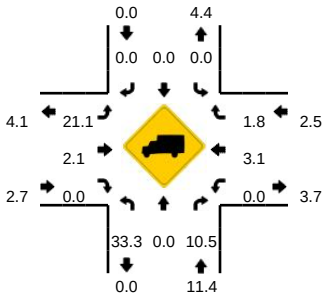
Method for determining peak hour: Total Entering Volume

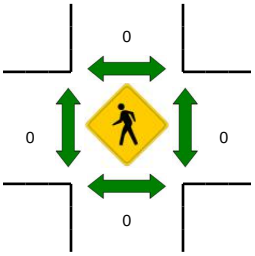
LOCATION: NYS Route 5 NB Ramps -- Ridge Ave
CITY/STATE: Lackawanna, NY

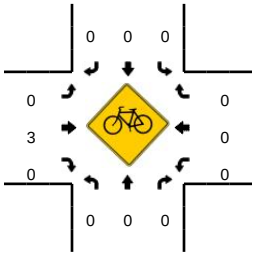
QC JOB #: 14642812
DATE: Tue, Aug 07 2018

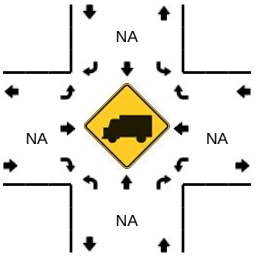
Peak-Hour: 4:15 PM -- 5:15 PM
Peak 15-Min: 4:30 PM -- 4:45 PM

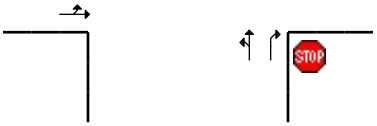


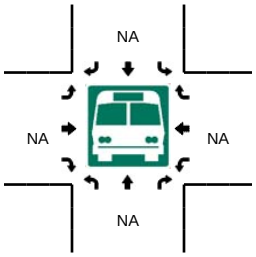












15-Min Count Period Beginning At	NYS Route 5 NB Ramps (Northbound)				NYS Route 5 NB Ramps (Southbound)				Ridge Ave (Eastbound)				Ridge Ave (Westbound)				Total	Hourly Totals
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U		
3:00 PM	4	1	28	0	0	0	0	0	6	74	0	0	0	28	22	0	163	
3:15 PM	4	0	29	0	0	0	0	0	3	107	0	0	0	41	27	0	211	
3:30 PM	0	0	32	0	0	0	0	0	1	101	0	0	0	44	29	0	207	
3:45 PM	1	3	29	0	0	0	0	0	6	102	0	0	0	25	23	0	189	770
4:00 PM	2	0	38	0	0	0	0	0	3	98	0	0	0	39	24	0	204	811
4:15 PM	4	0	33	0	0	0	0	0	8	153	0	0	0	19	30	0	247	847
4:30 PM	1	1	22	0	0	0	0	0	6	133	0	0	0	52	35	0	250	890
4:45 PM	0	1	38	0	0	0	0	0	4	108	0	0	0	36	27	0	214	915
5:00 PM	1	0	31	0	0	0	0	0	1	135	0	0	0	56	22	0	246	957
5:15 PM	0	0	39	0	0	0	0	0	0	146	0	0	0	30	27	0	242	952
5:30 PM	1	3	32	0	0	0	0	0	2	116	0	0	0	34	36	0	224	926
5:45 PM	1	0	26	0	0	0	0	0	5	100	0	0	0	34	25	0	191	903

Peak 15-Min Flowrates	Northbound				Southbound				Eastbound				Westbound				Total
	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	Left	Thru	Right	U	
All Vehicles	4	4	88	0	0	0	0	0	24	532	0	0	0	208	140	0	1000
Heavy Trucks	4	0	4		0	0	0		0	16	0		0	12	0		36
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

Report generated on 8/17/2018 1:16 PM

SOURCE: Quality Counts, LLC (http://www.qualitycounts.net) 1-877-580-2212

APPENDIX C
ITE Trip Generation

HISTORICAL DATA

	YEAR	AADT	ANNUAL GROWTH RATE
1	2015	42204	
			2.6%
2	2009	36150	
			-2.2%
3	2002	42100	
			3.2%
4	2001	40800	
			5.2%
5	1999	36900	
			1.5%
6	1996	35300	
			2.0%
7	1993	33300	
			1.5%
8	1991	32300	
			2.9%
9	1989	30500	
			3.3%
10	1986	27700	
			-1.9%
11	1980	31000	
			0.2%
12	1977	30800	
			4.9%
13	1975	28000	

34389	1.9%	Ave. of all the growth rates from 40 years of data
	1.0%	Ave. Growth Rate from 1975 to 2015

FUTURE

YEAR	AADT	ANNUAL GROWTH RATE	
2015	42204		
		1.0%	Ave. Growth Rate from 1975 to 2015
2019	43918		
		1.0%	Ave. Growth Rate from 1975 to 2015
2039	53588		

WATTS ARCHITECTURE & ENGINEERING
95 Perry Street Suite 300
Buffalo, New York 14203
(716) 206-5100
FAX (716) 206-5199
www.watts-ae.com

JOB
SUBJECT
CALCULATED BY DATE
CHECKED BY DATE
SHEET NO OF

Determine Directional Flow (on NY Route 5)

AM Peak – Madison Ave 7:00 to 8:00 AM

Thru NB Total = 2596 – 84%

Thru SB Total = 492 – 16%

Thru Total = 3088 – 100%

AM Peak – Dana St 7:15 to 8:15 AM

Thru NB Total = 2503 – 84%

Thru SB Total = 478 – 16%

Thru TOTAL = 2981 – 100%

AM Peak – Odell St 7:15 to 8:15 AM

Thru NB TOTAL = 3358 – 79%

Thru SB TOTAL = 896 – 21%

Thru TOTAL = 4254 – 100%

for Trip Assignments

AM

SAY

NB – 83%
SB – 15%
E/W – 2%

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Buffalo, New York 14203
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FAX (716) 206-5199
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JOB
SUBJECT
CALCULATED BY DATE
CHECKED BY DATE
SHEET NO OF

Determine Directional Flow (on NY Route 5)

PM Peak – Madison Ave 4:30 to 5:30 pm

Thru NB – 901 – 26%

Thru SB – 2613 – 74%

Thru – 3514 – 100%

PM Peak – Dana St 4:30 to 5:30 pm

Thru NB – 877 – 25%

Thru SB – 2625 – 75%

Thru – 3502 – 100%

PM Peak – Odell St. 4:30 to 5:30 pm

Thru NB – 1315 – 32%

Thru SB – 2789 – 68%

Thru – 4104 – 100%

For Trip Assignments

PM

SAT

NB - 26%
SB - 72%
F/W - 2%

DELUXE FOR BUSINESS 1-800-888-6327

Ref. No: G 33330287

LOT DATA

LOT NO.	GROSS AREA (ACRES)	DEVELOPABLE AREA (ACRES)	EXISTING ZONING
1	42.5	34.0	BRA-MI
2	8.8	6.6	BRA-LI
3	17.7	14.2	BRA-MI
4	34.4	27.5	BRA-MI
5	7.5	5.6	BRA-LI
6	9.1	6.8	BRA-LI
7	67.3	52.7	BRA-LI & BRA-MI
8	9.2	7.4	BRA-MI
9	5.8	4.4	BRA-LI
10	12.4	9.0	BRA-LI & BRA-MI
TOTALS	214.7	168.2	

Building Size	
40% of Developable Area	
40%	
Acre	GSF
13.60	592,418
2.64	114,999
5.68	247,422
11.00	479,162
2.24	97,575
2.72	118,484
21.08	918,248
2.96	128,938
1.76	76,666
3.60	156,817

Lot Data				Building Size		Trip Ends - Industrial Park (130)				
Lot No.	Gross Area (Acres)	Developable Area (Acres)	Existing Zoning	40% of Developable Area		Total	AM Peak Hour		PM Peak Hour	
				40% (Acre)	40% (GSF)		81% Entry	19% Exit	21% Entry	79% Exit
1	42.5	34.0	BRA-MI	13.60	592,418	237	192	45	50	187
2	8.8	6.6	BRA-LI	2.64	114,999	46	37	9	10	36
3	17.7	14.2	BRA-MI	5.68	247,422	99	80	19	21	78
4	34.4	27.5	BRA-MI	11.00	479,162	192	156	36	40	152
5	7.5	5.6	BRA-LI	2.24	97,575	39	32	7	8	31
6	9.1	6.8	BRA-LI	2.72	118,484	48	39	9	10	38
7	67.3	52.7	BRA-LI & BRA-MI	21.08	918,248	368	298	70	77	291
8	9.2	7.4	BRA-MI	2.96	128,938	52	42	10	11	41
9	5.8	4.4	BRA-LI	1.76	76,666	31	25	6	6	25
10	12.4	9.0	BRA-LI & BRA-MI	3.60	156,817	63	51	12	13	50

``

APPENDIX D
Distribution

Madison Intersection

		Total AM Volume		Intersection AM Volume				Total PM Volume		Intersection PM Volume	
		ENTRY	EXIT	ENTRY	EXIT			ENTRY	EXIT	ENTRY	EXIT
Lot 1	100%	192	45	192	45	Lot 1	100%	50	187	50	187
Total				192	45	Total				50	187

Dona Intersection

		Total AM Volume		Intersection AM Volume				Total PM Volume		Intersection PM Volume	
		ENTRY	EXIT	ENTRY	EXIT			ENTRY	EXIT	ENTRY	EXIT
Lot 2	100%	37	9	37	9	Lot 2	100%	10	36	10	36
Lot 3	100%	80	19	80	19	Lot 3	100%	21	78	21	78
Lot 4	50%	156	36	78	18	Lot 4	50%	40	152	20	76
Lot 5	100%	32	7	32	7	Lot 5	100%	8	31	8	31
Total				227	53	Total				59	221

Odell Intersection

		Total AM Volume		Intersection AM Volume				Total PM Volume		Intersection PM Volume	
		ENTRY	EXIT	ENTRY	EXIT			ENTRY	EXIT	ENTRY	EXIT
Lot 4	50%	156	36	78	18	Lot 4	50%	40	152	20	76
Lot 6	100%	48	39	48	39	Lot 6	100%	10	38	10	38
Lot 7	50%	298	70	149	35	Lot 7	50%	77	291	38.5	145.5
Total				275	92	Total				68.5	259.5

Ridge Intersection

		Total AM Volume		Intersection AM Volume				Total PM Volume		Intersection PM Volume	
		ENTRY	EXIT	ENTRY	EXIT			ENTRY	EXIT	ENTRY	EXIT
Lot 7	50%	298	70	149	35	Lot 7	50%	77	291	38.5	145.5
Lot 8	100%	42	10	42	10	Lot 8	100%	11	41	11	41
Lot 9	100%	25	6	25	6	Lot 9	100%	6	25	6	25
Lot 10	100%	51	12	51	12	Lot 10	100%	13	50	13	50
Total				267	63	Total				68.5	261.5

APPENDIX E
Synchro Analysis

DONA STREET/NY RTE 5
EXISTING 2019
AM

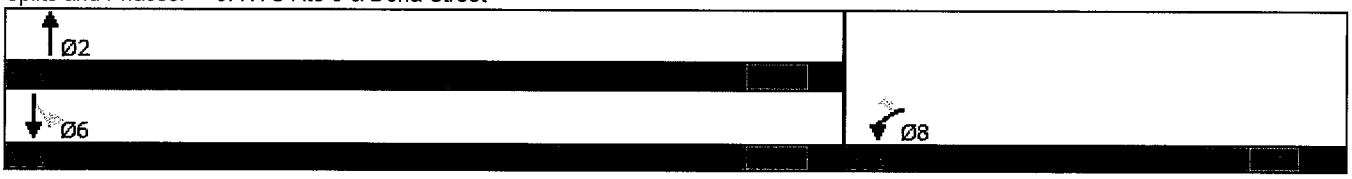
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↰	↱	↑↑↑↳		↰	↑↑
Traffic Volume (vph)	37	14	2503	137	13	478
Future Volume (vph)	37	14	2503	137	13	478
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.992			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	4991	0	1517	3195
Flt Permitted	0.950				0.071	
Satd. Flow (perm)	1612	1455	4991	0	113	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)			16			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		464			480
Travel Time (s)	13.0		7.9			8.2
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	49	17	3052	163	17	562
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	17	3215	0	17	562
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	30.0	30.0	50.0		50.0	50.0
Total Split (%)	37.5%	37.5%	62.5%		62.5%	62.5%
Maximum Green (s)	24.0	24.0	44.0		44.0	44.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	7.7	7.7	59.2		59.2	59.2
Actuated g/C Ratio	0.11	0.11	0.83		0.83	0.83
v/c Ratio	0.28	0.11	0.77		0.18	0.21
Control Delay	33.7	30.2	8.2		9.4	2.9
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	33.7	30.2	8.2		9.4	2.9
LOS	C	C	A		A	A
Approach Delay	32.8		8.2			3.1
Approach LOS	C		A			A

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 71.1
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 7.9 Intersection LOS: A
Intersection Capacity Utilization 64.7% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 5: NYS Rte 5 & Dona Street



DONA STREET/NY RTE 5
BACKGROUND 2039
AM

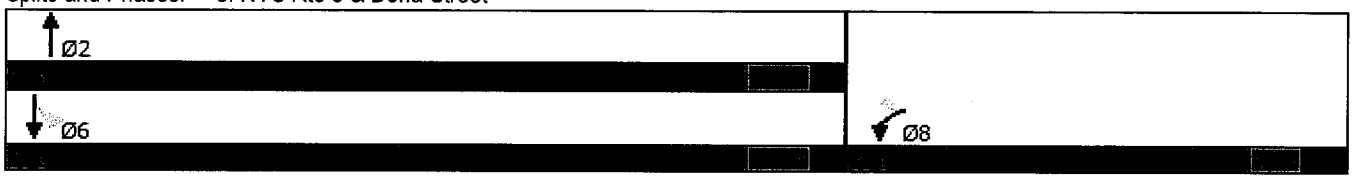
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	37	14	3054	137	13	583
Future Volume (vph)	37	14	3054	137	13	583
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.994			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5002	0	1517	3195
Flt Permitted	0.950				0.071	
Satd. Flow (perm)	1612	1455	5002	0	113	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)			13			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		464			480
Travel Time (s)	13.0		7.9			8.2
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	49	17	3724	163	17	686
Shared Lane Traffic (%)						
Lane Group Flow (vph)	49	17	3887	0	17	686
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	30.0	30.0	50.0		50.0	50.0
Total Split (%)	37.5%	37.5%	62.5%		62.5%	62.5%
Maximum Green (s)	24.0	24.0	44.0		44.0	44.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	7.7	7.7	59.2		59.2	59.2
Actuated g/C Ratio	0.11	0.11	0.83		0.83	0.83
v/c Ratio	0.28	0.11	0.93		0.18	0.26
Control Delay	33.7	30.2	16.0		9.4	3.0
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	33.7	30.2	16.0		9.4	3.0
LOS	C	C	B		A	A
Approach Delay	32.8		16.0			3.2
Approach LOS	C		B			A

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 71.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.93
Intersection Signal Delay: 14.3 Intersection LOS: B
Intersection Capacity Utilization 75.4% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 5: NYS Rte 5 & Dona Street



DONA STREET/NY RTE 5
COMBINED 2039
AM

Lanes, Volumes, Timings
5: NYS Rte 5 & Dona Street

05/29/2019

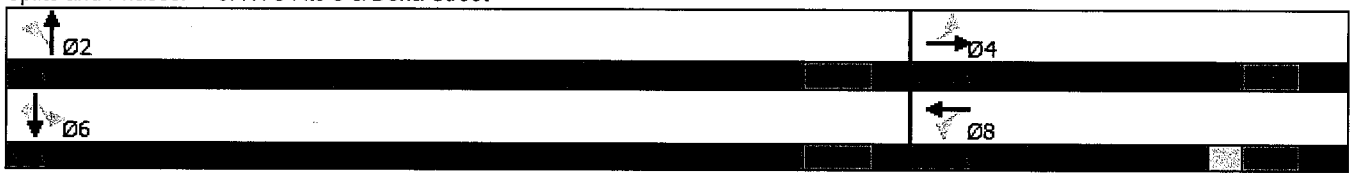
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	8	1	44	37	5	14	188	3502	137	13	583	13
Future Volume (vph)	8	1	44	37	5	14	188	3502	137	13	583	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.853			0.884			0.994				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1589	0	1612	1542	0	1770	5002	0	1517	3195	1583
Flt Permitted	0.743			0.725			0.391			0.078		
Satd. Flow (perm)	1384	1589	0	1230	1542	0	728	5002	0	125	3195	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		48						13				44
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		671			572			464			480	
Travel Time (s)		15.3			13.0			7.9			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	9	1	48	49	5	17	204	4271	163	17	686	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	9	49	0	49	22	0	204	4434	0	17	686	14
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		12			12			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		1.5	1.5		1.5	1.5		5.0	5.0	5.0
Minimum Split (s)	24.3	24.3		22.5	22.5		20.0	20.0		20.0	20.0	20.0
Total Split (s)	24.3	24.3		22.5	22.5		50.0	50.0		50.0	50.0	50.0
Total Split (%)	32.7%	32.7%		30.3%	30.3%		67.3%	67.3%		67.3%	67.3%	67.3%
Maximum Green (s)	18.3	18.3		16.5	16.5		44.0	44.0		44.0	44.0	44.0
Yellow Time (s)	3.2	3.2		3.2	3.2		3.9	3.9		3.9	3.9	3.9
All-Red Time (s)	2.8	2.8		2.8	2.8		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
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	Min

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)	7.9	7.9		8.1	8.1		53.9	53.9		53.9	53.9	53.9
Actuated g/C Ratio	0.12	0.12		0.12	0.12		0.81	0.81		0.81	0.81	0.81
v/c Ratio	0.05	0.21		0.33	0.12		0.35	1.10		0.17	0.27	0.01
Control Delay	25.2	11.0		32.1	26.4		6.3	61.9		9.4	3.6	0.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	25.2	11.0		32.1	26.4		6.3	61.9		9.4	3.6	0.2
LOS	C	B		C	C		A	E		A	A	A
Approach Delay		13.2			30.3			59.4			3.7	
Approach LOS		B			C			E			A	

Intersection Summary

Area Type: Other
Cycle Length: 74.3
Actuated Cycle Length: 66.7
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 51.3 Intersection LOS: D
Intersection Capacity Utilization 98.6% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 5: NYS Rte 5 & Dona Street



MADISON AVENUE/NY RTE 5
EXISTING 2019
AM

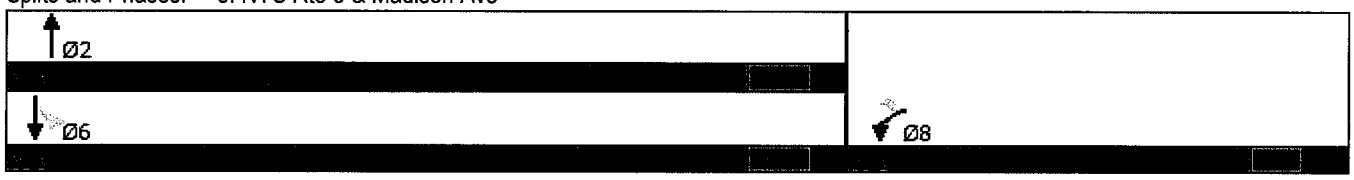
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	23	49	2596	5	12	492
Future Volume (vph)	23	49	2596	5	12	492
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5036	0	1517	3195
Flt Permitted	0.950				0.073	
Satd. Flow (perm)	1612	1455	5036	0	117	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)			1			
Link Speed (mph)	30		40			40
Link Distance (ft)	493		659			438
Travel Time (s)	11.2		11.2			7.5
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	31	58	3166	6	16	579
Shared Lane Traffic (%)						
Lane Group Flow (vph)	31	58	3172	0	16	579
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	30.0	30.0	50.0		50.0	50.0
Total Split (%)	37.5%	37.5%	62.5%		62.5%	62.5%
Maximum Green (s)	24.0	24.0	44.0		44.0	44.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	8.2	8.2	57.4		57.4	57.4
Actuated g/C Ratio	0.12	0.12	0.82		0.82	0.82
v/c Ratio	0.16	0.34	0.77		0.17	0.22
Control Delay	29.1	33.6	8.7		9.3	3.2
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	29.1	33.6	8.7		9.3	3.2
LOS	C	C	A		A	A
Approach Delay	32.0		8.7			3.4
Approach LOS	C		A			A

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 69.9
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 8.4 Intersection LOS: A
Intersection Capacity Utilization 63.6% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 3: NYS Rte 5 & Madison Ave



MADISON AVENUE/NY RTE 5
BACKGROUND 2039
AM

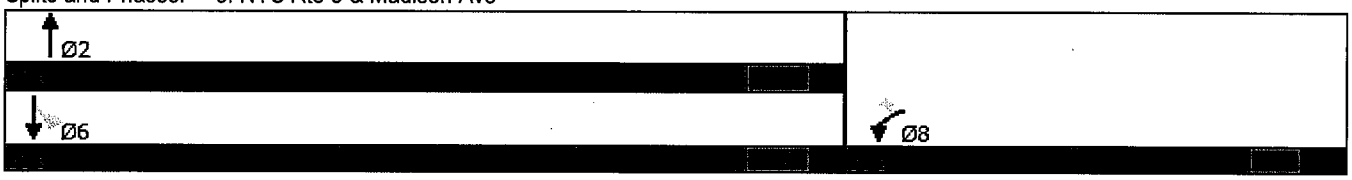
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	23	49	3168	5	12	600
Future Volume (vph)	23	49	3168	5	12	600
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5036	0	1517	3195
Flt Permitted	0.950				0.073	
Satd. Flow (perm)	1612	1455	5036	0	117	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	30		40			40
Link Distance (ft)	493		659			438
Travel Time (s)	11.2		11.2			7.5
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	31	58	3863	6	16	706
Shared Lane Traffic (%)						
Lane Group Flow (vph)	31	58	3869	0	16	706
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Right	Left	Right	Left	Left
Median Width(ft)	12		12			12
Link Offset(ft)	0		0			0
Crosswalk Width(ft)	16		16			16
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	9		9	15	
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	30.0	30.0	50.0		50.0	50.0
Total Split (%)	37.5%	37.5%	62.5%		62.5%	62.5%
Maximum Green (s)	24.0	24.0	44.0		44.0	44.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	8.2	8.2	57.4		57.4	57.4
Actuated g/C Ratio	0.12	0.12	0.82		0.82	0.82
v/c Ratio	0.16	0.34	0.94		0.17	0.27
Control Delay	29.1	33.6	16.9		9.3	3.4
Queue Delay	0.0	0.0	0.0		0.0	0.0
Total Delay	29.1	33.6	16.9		9.3	3.4
LOS	C	C	B		A	A
Approach Delay	32.0		16.9			3.5
Approach LOS	C		B			A

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 69.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 15.1 Intersection LOS: B
Intersection Capacity Utilization 74.7% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: NYS Rte 5 & Madison Ave



MADISON AVENUE/NY RTE 5
COMBINED 2039
AM

Lanes, Volumes, Timings
3: NYS Rte 5 & Madison Ave

05/29/2019

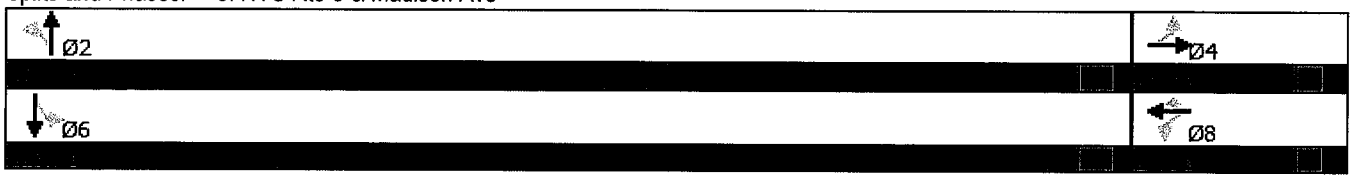
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	7	1	36	23	4	49	159	3797	5	12	600	29
Future Volume (vph)	7	1	36	23	4	49	159	3797	5	12	600	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.890				0.850					0.993	
Flt Protected		0.992			0.958		0.950			0.950		
Satd. Flow (prot)	0	1645	0	0	1642	1455	1770	5036	0	1517	3186	0
Flt Permitted		0.933			0.820		0.371			0.033		
Satd. Flow (perm)	0	1547	0	0	1405	1455	691	5036	0	53	3186	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		39				22					11	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		255			493			659			438	
Travel Time (s)		5.8			11.2			11.2			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	8	1	39	31	4	58	173	4630	6	16	706	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	48	0	0	35	58	173	4636	0	16	738	0
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		1.5	1.5	1.5	1.5	1.5		5.0	5.0	
Minimum Split (s)	24.3	24.3		7.5	7.5	7.5	20.0	20.0		20.0	20.0	
Total Split (s)	24.3	24.3		24.3	24.3	24.3	125.7	125.7		125.7	125.7	
Total Split (%)	16.2%	16.2%		16.2%	16.2%	16.2%	83.8%	83.8%		83.8%	83.8%	
Maximum Green (s)	18.3	18.3		18.3	18.3	18.3	119.7	119.7		119.7	119.7	
Yellow Time (s)	3.2	3.2		3.2	3.2	3.2	3.9	3.9		3.9	3.9	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.8	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	
Total Lost Time (s)		6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	Min	Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0	11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		9.2			9.2	9.2	121.3	121.3		121.3	121.3	
Actuated g/C Ratio		0.07			0.07	0.07	0.87	0.87		0.87	0.87	
v/c Ratio		0.35			0.38	0.50	0.29	1.05		0.35	0.26	
Control Delay		30.0			74.3	56.8	3.6	42.8		26.3	2.3	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		30.0			74.3	56.8	3.6	42.8		26.3	2.3	
LOS		C			E	E	A	D		C	A	
Approach Delay		30.0			63.4			41.4			2.8	
Approach LOS		C			E			D			A	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 138.7
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 36.5 Intersection LOS: D
Intersection Capacity Utilization 101.7% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 3: NYS Rte 5 & Madison Ave



RIDGE ROAD/NY RTE 5 RAMPS
EXISTING 2019
AM

Intersection	
Int Delay, s/veh	2.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	13	82	0	0	97	308	29	0	142	0	0	0
Future Vol, veh/h	13	82	0	0	97	308	29	0	142	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	14	89	0	0	105	335	32	0	154	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	440	0	-	-	-	0	170	557	45
Stage 1	-	-	-	-	-	-	117	117	-
Stage 2	-	-	-	-	-	-	53	440	-
Critical Hdwy	4.14	-	-	-	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.22	-	-	-	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	1116	-	0	0	-	-	804	437	1015
Stage 1	-	-	0	0	-	-	895	798	-
Stage 2	-	-	0	0	-	-	963	576	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1116	-	-	-	-	-	794	0	1015
Mov Cap-2 Maneuver	-	-	-	-	-	-	794	0	-
Stage 1	-	-	-	-	-	-	883	0	-
Stage 2	-	-	-	-	-	-	963	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.1	0	9.3
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	794	1015	1116	-	-	-
HCM Lane V/C Ratio	0.04	0.152	0.013	-	-	-
HCM Control Delay (s)	9.7	9.2	8.3	0	-	-
HCM Lane LOS	A	A	A	A	-	-
HCM 95th %tile Q(veh)	0.1	0.5	0	-	-	-

RIDGE ROAD/NY RTE 5 RAMPS
BACKGROUND 2039
AM

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	16	100	0	0	118	376	35	0	173	0	0	0
Future Vol, veh/h	16	100	0	0	118	376	35	0	173	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	17	109	0	0	128	409	38	0	188	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	537	0	-	-	-	0	207	680	55
Stage 1	-	-	-	-	-	-	143	143	-
Stage 2	-	-	-	-	-	-	64	537	-
Critical Hdwy	4.14	-	-	-	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.22	-	-	-	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	1027	-	0	0	-	-	762	372	1000
Stage 1	-	-	0	0	-	-	869	778	-
Stage 2	-	-	0	0	-	-	951	521	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1027	-	-	-	-	-	748	0	1000
Mov Cap-2 Maneuver	-	-	-	-	-	-	748	0	-
Stage 1	-	-	-	-	-	-	853	0	-
Stage 2	-	-	-	-	-	-	951	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.3	0	9.5
HCM LOS			A

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	748	1000	1027	-	-	-
HCM Lane V/C Ratio	0.051	0.188	0.017	-	-	-
HCM Control Delay (s)	10.1	9.4	8.6	0.1	-	-
HCM Lane LOS	B	A	A	A	-	-
HCM 95th %tile Q(veh)	0.2	0.7	0.1	-	-	-

RIDGE ROAD/NY RTE 5 RAMPS
COMBINED 2039
AM

Intersection	
Int Delay, s/veh	4.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	18	109	0	0	131	376	248	0	172	0	0	0
Future Vol, veh/h	18	109	0	0	131	376	248	0	172	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	20	118	0	0	142	409	270	0	187	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	551	0	-	-	-	0	229	709	59
Stage 1	-	-	-	-	-	-	158	158	-
Stage 2	-	-	-	-	-	-	71	551	-
Critical Hdwy	4.14	-	-	-	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.22	-	-	-	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	1015	-	0	0	-	-	739	358	994
Stage 1	-	-	0	0	-	-	854	766	-
Stage 2	-	-	0	0	-	-	943	514	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1015	-	-	-	-	-	723	0	994
Mov Cap-2 Maneuver	-	-	-	-	-	-	723	0	-
Stage 1	-	-	-	-	-	-	836	0	-
Stage 2	-	-	-	-	-	-	943	0	-

Approach	EB	WB	NB
HCM Control Delay, s	1.3	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	723	994	1015	-	-	-
HCM Lane V/C Ratio	0.373	0.188	0.019	-	-	-
HCM Control Delay (s)	12.9	9.5	8.6	0.1	-	-
HCM Lane LOS	B	A	A	A	-	-
HCM 95th %tile Q(veh)	1.7	0.7	0.1	-	-	-

ODELL STREET/NY RTE 5
EXISTING 2019
AM

Lanes, Volumes, Timings
7: NYS Rte 5 & Odell Street

05/29/2019

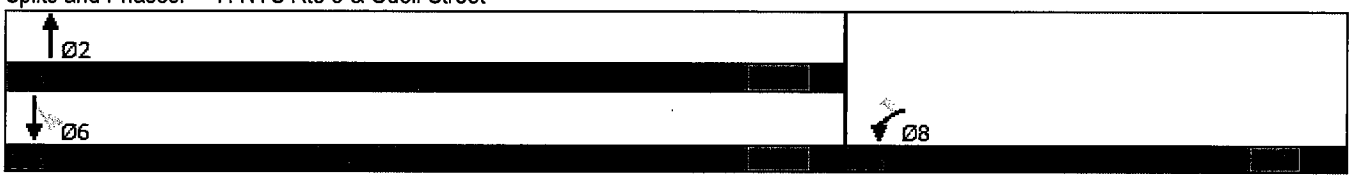
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	3	21	2517	7	4	488
Future Volume (vph)	3	21	2517	7	4	488
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5036	0	1517	3195
Flt Permitted	0.950				0.067	
Satd. Flow (perm)	1612	1455	5036	0	107	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)			1			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		645			480
Travel Time (s)	13.0		11.0			8.2
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	4	25	3070	8	5	574
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	25	3078	0	5	574
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	30.0	30.0	50.0		50.0	50.0
Total Split (%)	37.5%	37.5%	62.5%		62.5%	62.5%
Maximum Green (s)	24.0	24.0	44.0		44.0	44.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	6.8	6.8	63.5		63.5	63.5
Actuated g/C Ratio	0.10	0.10	0.90		0.90	0.90
v/c Ratio	0.03	0.18	0.68		0.05	0.20
Control Delay	31.7	34.4	4.5		4.0	1.9
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	31.7	34.4	4.5		4.0	1.9
LOS	C	C	A		A	A
Approach Delay	34.0		4.5			1.9
Approach LOS	C		A			A

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 70.8
Natural Cycle: 55
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 4.4 Intersection LOS: A
Intersection Capacity Utilization 62.1% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 7: NYS Rte 5 & Odell Street



ODELL STREET/NY RTE 5
BACKGROUND 2039
AM

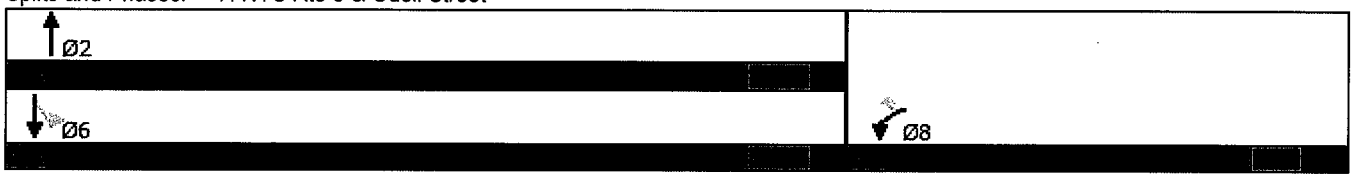
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	3	21	3071	7	4	595
Future Volume (vph)	3	21	3071	7	4	595
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850				
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5036	0	1517	3195
Flt Permitted	0.950				0.067	
Satd. Flow (perm)	1612	1455	5036	0	107	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)			1			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		645			480
Travel Time (s)	13.0		11.0			8.2
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	4	25	3745	8	5	700
Shared Lane Traffic (%)						
Lane Group Flow (vph)	4	25	3753	0	5	700
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	30.0	30.0	50.0		50.0	50.0
Total Split (%)	37.5%	37.5%	62.5%		62.5%	62.5%
Maximum Green (s)	24.0	24.0	44.0		44.0	44.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	6.8	6.8	63.5		63.5	63.5
Actuated g/C Ratio	0.10	0.10	0.90		0.90	0.90
v/c Ratio	0.03	0.18	0.83		0.05	0.24
Control Delay	31.7	34.4	8.4		4.0	2.0
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	31.7	34.4	8.4		4.0	2.0
LOS	C	C	A		A	A
Approach Delay	34.0		8.4			2.0
Approach LOS	C		A			A

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 70.8
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 7.6 Intersection LOS: A
Intersection Capacity Utilization 72.8% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 7: NYS Rte 5 & Odell Street



ODELL STREET/NY RTE 5
COMBINED 2039
AM

Lanes, Volumes, Timings
7: NYS Rte 5 & Site Driveway/Odell Street

05/29/2019

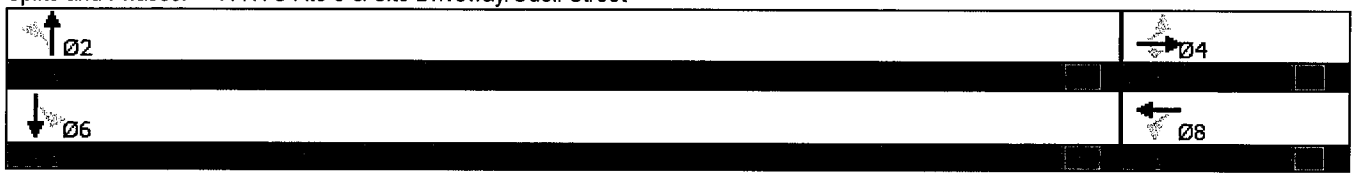
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	14	2	76	3	6	21	228	3299	7	4	595	41
Future Volume (vph)	14	2	76	3	6	21	228	3299	7	4	595	41
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	0.95
Frt			0.850		0.906						0.991	
Flt Protected		0.958			0.994		0.950			0.950		
Satd. Flow (prot)	0	1785	1583	0	1565	0	1770	5036	0	1517	3185	0
Flt Permitted		0.725			0.960		0.369			0.036		
Satd. Flow (perm)	0	1350	1583	0	1511	0	687	5036	0	57	3185	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			83		1			1			16	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		452			572			645			480	
Travel Time (s)		10.3			13.0			11.0			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	15	2	83	4	7	25	248	4023	8	5	700	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	17	83	0	36	0	248	4031	0	5	745	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	1.5	1.5		1.5	1.5		5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0	7.5	7.5		20.0	20.0		20.0	20.0	
Total Split (s)	24.0	24.0	24.0	24.0	24.0		116.0	116.0		116.0	116.0	
Total Split (%)	17.1%	17.1%	17.1%	17.1%	17.1%		82.9%	82.9%		82.9%	82.9%	
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0		110.0	110.0		110.0	110.0	
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2		3.9	3.9		3.9	3.9	
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8		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	
Total Lost Time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		8.4	8.4		8.4		110.0	110.0		110.0	110.0	
Actuated g/C Ratio		0.06	0.06		0.06		0.84	0.84		0.84	0.84	
v/c Ratio		0.20	0.46		0.37		0.43	0.95		0.10	0.28	
Control Delay		62.6	20.3		67.4		5.3	15.4		7.0	2.4	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		62.6	20.3		67.4		5.3	15.4		7.0	2.4	
LOS		E	C		E		A	B		A	A	
Approach Delay		27.5			67.4			14.8			2.5	
Approach LOS		C			E			B			A	

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 130.5
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 13.6 Intersection LOS: B
Intersection Capacity Utilization 87.8% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 7: NYS Rte 5 & Site Driveway/Odell Street



RIDGE ROAD/FUHRMANN BLVD
EXISTING 2019
AM

Intersection	
Intersection Delay, s/veh	7.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⬌			⬌						⬌	
Traffic Vol, veh/h	1	9	8	78	36	25	0	0	0	23	4	1
Future Vol, veh/h	1	9	8	78	36	25	0	0	0	23	4	1
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	10	9	85	39	27	0	0	0	25	4	1
Number of Lanes	0	1	0	0	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	7	7.8	7.6
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	6%	56%	82%
Vol Thru, %	50%	26%	14%
Vol Right, %	44%	18%	4%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	18	139	28
LT Vol	1	78	23
Through Vol	9	36	4
RT Vol	8	25	1
Lane Flow Rate	20	151	30
Geometry Grp	1	1	1
Degree of Util (X)	0.021	0.168	0.037
Departure Headway (Hd)	3.844	4.006	4.371
Convergence, Y/N	Yes	Yes	Yes
Cap	925	896	810
Service Time	1.893	2.029	2.444
HCM Lane V/C Ratio	0.022	0.169	0.037
HCM Control Delay	7	7.8	7.6
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.6	0.1

RIDGE ROAD/FUHRMANN BLVD
BACKGROUND 2039
AM

Intersection	
Intersection Delay, s/veh	7.9
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⬌			⬌						⬌	
Traffic Vol, veh/h	1	11	10	95	44	31	0	0	0	28	5	1
Future Vol, veh/h	1	11	10	95	44	31	0	0	0	28	5	1
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	12	11	103	48	34	0	0	0	30	5	1
Number of Lanes	0	1	0	0	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	7	8.1	7.7
HCM LOS	A	A	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	5%	56%	82%
Vol Thru, %	50%	26%	15%
Vol Right, %	45%	18%	3%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	22	170	34
LT Vol	1	95	28
Through Vol	11	44	5
RT Vol	10	31	1
Lane Flow Rate	24	185	37
Geometry Grp	1	1	1
Degree of Util (X)	0.026	0.206	0.046
Departure Headway (Hd)	3.874	4.019	4.441
Convergence, Y/N	Yes	Yes	Yes
Cap	915	892	795
Service Time	1.936	2.049	2.531
HCM Lane V/C Ratio	0.026	0.207	0.047
HCM Control Delay	7	8.1	7.7
HCM Lane LOS	A	A	A
HCM 95th-tile Q	0.1	0.8	0.1

RIDGE ROAD/FUHRMANN BLVD
COMBINED 2039
AM

Intersection	
Intersection Delay, s/veh	10.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⬌			⬌						⬌	
Traffic Vol, veh/h	1	22	62	95	311	31	0	0	0	28	5	1
Future Vol, veh/h	1	22	62	95	311	31	0	0	0	28	5	1
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	1	24	67	103	338	34	0	0	0	30	5	1
Number of Lanes	0	1	0	0	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	7.5	11.8	8.6
HCM LOS	A	B	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	1%	22%	82%
Vol Thru, %	26%	71%	15%
Vol Right, %	73%	7%	3%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	85	437	34
LT Vol	1	95	28
Through Vol	22	311	5
RT Vol	62	31	1
Lane Flow Rate	92	475	37
Geometry Grp	1	1	1
Degree of Util (X)	0.104	0.537	0.054
Departure Headway (Hd)	4.058	4.069	5.292
Convergence, Y/N	Yes	Yes	Yes
Cap	888	879	680
Service Time	2.062	2.13	3.297
HCM Lane V/C Ratio	0.104	0.54	0.054
HCM Control Delay	7.5	11.8	8.6
HCM Lane LOS	A	B	A
HCM 95th-tile Q	0.3	3.3	0.2

RIDGE ROAD/SB NY RTE 5 RAMP
EXISTING 2019
AM

Intersection	
Int Delay, s/veh	3.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↱	
Traffic Vol, veh/h	0	33	126	0	64	14
Future Vol, veh/h	0	33	126	0	64	14
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	87	2	2	2	2
Mvmt Flow	0	36	137	0	70	15

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	155	69
Stage 1	-	-	-	-	137	-
Stage 2	-	-	-	-	18	-
Critical Hdwy	-	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	0	-	-	0	821	980
Stage 1	0	-	-	0	875	-
Stage 2	0	-	-	0	1002	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	821	980
Mov Cap-2 Maneuver	-	-	-	-	821	-
Stage 1	-	-	-	-	875	-
Stage 2	-	-	-	-	1002	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	9.7
HCM LOS			A

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	846
HCM Lane V/C Ratio	-	-	0.1
HCM Control Delay (s)	-	-	9.7
HCM Lane LOS	-	-	A
HCM 95th %tile Q(veh)	-	-	0.3

RIDGE ROAD/SB NY RTE 5 RAMP
BACKGROUND 2039
AM

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		Y	
Traffic Vol, veh/h	0	40	154	0	78	17
Future Vol, veh/h	0	40	154	0	78	17
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	87	2	2	2	2
Mvmt Flow	0	43	167	0	85	18

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	189	84
Stage 1	-	-	-	-	167	-
Stage 2	-	-	-	-	22	-
Critical Hdwy	-	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	0	-	-	0	782	958
Stage 1	0	-	-	0	845	-
Stage 2	0	-	-	0	998	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	782	958
Mov Cap-2 Maneuver	-	-	-	-	782	-
Stage 1	-	-	-	-	845	-
Stage 2	-	-	-	-	998	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	10.1
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	809
HCM Lane V/C Ratio	-	-	0.128
HCM Control Delay (s)	-	-	10.1
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.4

RIDGE ROAD/SB NY RTE 5 RAMP
COMBINED 2039
AM

Intersection	
Int Delay, s/veh	3

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↱	
Traffic Vol, veh/h	0	51	380	0	78	58
Future Vol, veh/h	0	51	380	0	78	58
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	87	2	2	2	2
Mvmt Flow	0	55	413	0	85	63

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	441	207
Stage 1	-	-	-	-	413	-
Stage 2	-	-	-	-	28	-
Critical Hdwy	-	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	0	-	-	0	545	799
Stage 1	0	-	-	0	636	-
Stage 2	0	-	-	0	991	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	545	799
Mov Cap-2 Maneuver	-	-	-	-	545	-
Stage 1	-	-	-	-	636	-
Stage 2	-	-	-	-	991	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	12.5
HCM LOS			B

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	630
HCM Lane V/C Ratio	-	-	0.235
HCM Control Delay (s)	-	-	12.5
HCM Lane LOS	-	-	B
HCM 95th %tile Q(veh)	-	-	0.9

DONA STREET/NY RTE 5
EXISTING 2019
PM

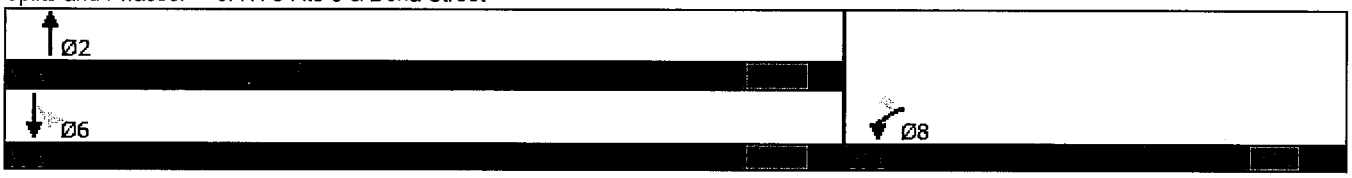
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	116	9	877	37	13	2625
Future Volume (vph)	116	9	877	37	13	2625
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.994			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5002	0	1517	3195
Flt Permitted	0.950				0.297	
Satd. Flow (perm)	1612	1455	5002	0	474	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		9	12			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		464			480
Travel Time (s)	13.0		7.9			8.2
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	117	9	886	37	13	2652
Shared Lane Traffic (%)						
Lane Group Flow (vph)	117	9	923	0	13	2652
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	30.0	30.0	50.0		50.0	50.0
Total Split (%)	37.5%	37.5%	62.5%		62.5%	62.5%
Maximum Green (s)	24.0	24.0	44.0		44.0	44.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	10.5	10.5	53.7		53.7	53.7
Actuated g/C Ratio	0.15	0.15	0.74		0.74	0.74
v/c Ratio	0.50	0.04	0.25		0.04	1.12
Control Delay	35.3	14.1	4.4		5.0	75.3
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	35.3	14.1	4.4		5.0	75.3
LOS	D	B	A		A	E
Approach Delay	33.8		4.4			75.0
Approach LOS	C		A			E

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 72.2
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.12
Intersection Signal Delay: 56.0 Intersection LOS: E
Intersection Capacity Utilization 89.0% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 5: NYS Rte 5 & Dona Street



DONA STREET/NY RTE 5
BACKGROUND 2039
PM

Lanes, Volumes, Timings
5: NYS Rte 5 & Dona Street

05/29/2019

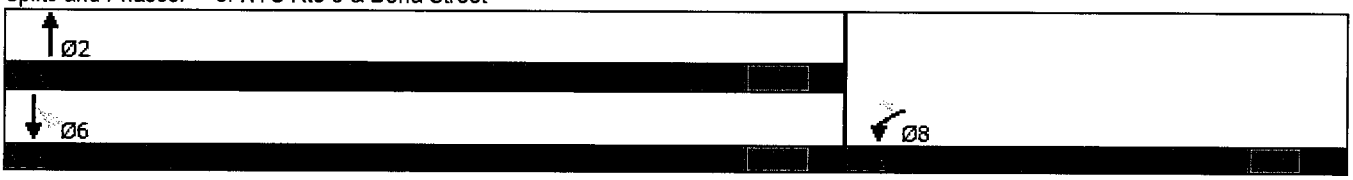
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	116	9	1070	37	13	3203
Future Volume (vph)	116	9	1070	37	13	3203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.995			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5008	0	1517	3195
Flt Permitted	0.950				0.242	
Satd. Flow (perm)	1612	1455	5008	0	386	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		9	10			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		464			480
Travel Time (s)	13.0		7.9			8.2
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	117	9	1081	37	13	3235
Shared Lane Traffic (%)						
Lane Group Flow (vph)	117	9	1118	0	13	3235
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	30.0	30.0	50.0		50.0	50.0
Total Split (%)	37.5%	37.5%	62.5%		62.5%	62.5%
Maximum Green (s)	24.0	24.0	44.0		44.0	44.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	10.5	10.5	53.7		53.7	53.7
Actuated g/C Ratio	0.15	0.15	0.74		0.74	0.74
v/c Ratio	0.50	0.04	0.30		0.05	1.36
Control Delay	35.3	14.1	4.6		5.2	183.1
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	35.3	14.1	4.6		5.2	183.1
LOS	D	B	A		A	F
Approach Delay	33.8		4.6			182.4
Approach LOS	C		A			F

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 72.2
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.36
Intersection Signal Delay: 134.0 Intersection LOS: F
Intersection Capacity Utilization 105.0% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 5: NYS Rte 5 & Dona Street



DONA STREET/NY RTE 5
BACKGROUND 2039 (TIMINGS)
PM

Lanes, Volumes, Timings
5: NYS Rte 5 & Dona Street

05/29/2019

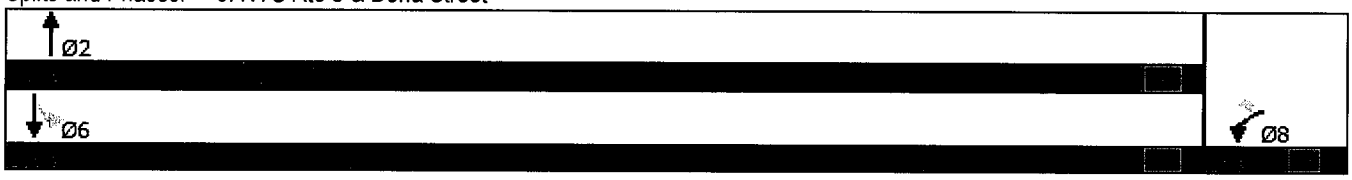
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	116	9	1070	37	13	3203
Future Volume (vph)	116	9	1070	37	13	3203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.995			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5008	0	1517	3195
Flt Permitted	0.950				0.243	
Satd. Flow (perm)	1612	1455	5008	0	388	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		9	18			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		464			480
Travel Time (s)	13.0		7.9			8.2
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	117	9	1081	37	13	3235
Shared Lane Traffic (%)						
Lane Group Flow (vph)	117	9	1118	0	13	3235
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	14.0	14.0	116.0		116.0	116.0
Total Split (%)	10.8%	10.8%	89.2%		89.2%	89.2%
Maximum Green (s)	8.0	8.0	110.0		110.0	110.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	8.0	8.0	110.0		110.0	110.0
Actuated g/C Ratio	0.06	0.06	0.85		0.85	0.85
v/c Ratio	1.18	0.09	0.26		0.04	1.20
Control Delay	198.6	30.9	2.1		1.9	107.7
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	198.6	30.9	2.1		1.9	107.7
LOS	F	C	A		A	F
Approach Delay	186.6		2.1			107.2
Approach LOS	F		A			F

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Natural Cycle: 130
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.20
Intersection Signal Delay: 83.3 Intersection LOS: F
Intersection Capacity Utilization 105.0% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 5: NYS Rte 5 & Dona Street



DONA STREET/NY RTE 5
BACKGROUND 2039 (ADD LANE)
PM

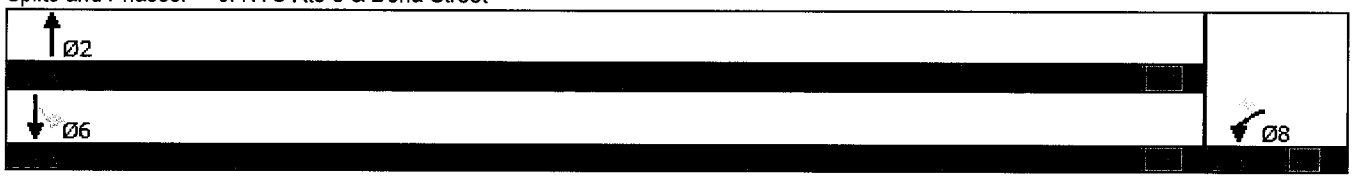
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	116	9	1070	37	13	3203
Future Volume (vph)	116	9	1070	37	13	3203
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.91
Frt		0.850	0.995			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5008	0	1517	4590
Flt Permitted	0.950				0.243	
Satd. Flow (perm)	1612	1455	5008	0	388	4590
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		9	18			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		464			480
Travel Time (s)	13.0		7.9			8.2
Peak Hour Factor	0.99	0.99	0.99	0.99	0.99	0.99
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	117	9	1081	37	13	3235
Shared Lane Traffic (%)						
Lane Group Flow (vph)	117	9	1118	0	13	3235
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	14.0	14.0	116.0		116.0	116.0
Total Split (%)	10.8%	10.8%	89.2%		89.2%	89.2%
Maximum Green (s)	8.0	8.0	110.0		110.0	110.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	8.0	8.0	108.7		108.7	108.7
Actuated g/C Ratio	0.06	0.06	0.84		0.84	0.84
v/c Ratio	1.17	0.09	0.26		0.04	0.83
Control Delay	194.3	30.8	2.1		1.9	7.8
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	194.3	30.8	2.1		1.9	7.8
LOS	F	C	A		A	A
Approach Delay	182.6		2.1			7.8
Approach LOS	F		A			A

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 128.7
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.17
Intersection Signal Delay: 11.3 Intersection LOS: B
Intersection Capacity Utilization 78.3% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 5: NYS Rte 5 & Dona Street



DONA STREET/NY RTE 5
COMBINED 2039
PM

Lanes, Volumes, Timings
5: NYS Rte 5 & Dona Street

05/29/2019

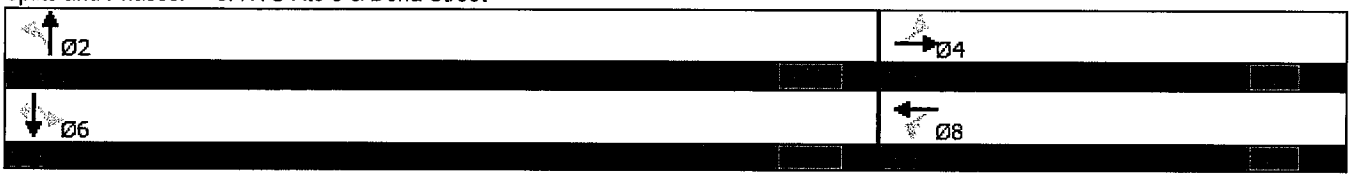
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	4	159	116	1	9	42	1224	37	13	3203	16
Future Volume (vph)	58	4	159	116	1	9	42	1224	37	13	3203	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.853			0.862			0.996				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1589	0	1612	1486	0	1770	5013	0	1517	3195	1583
Flt Permitted	0.750			0.623			0.083			0.135		
Satd. Flow (perm)	1397	1589	0	1057	1486	0	155	5013	0	216	3195	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					11			9				41
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		415			572			464			480	
Travel Time (s)		9.4			13.0			7.9			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	63	4	173	155	1	11	46	1493	44	17	3768	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	177	0	155	12	0	46	1537	0	17	3768	17
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		1.5	1.5		1.5	1.5		5.0	5.0	5.0
Minimum Split (s)	24.0	24.0		7.5	7.5		20.0	20.0		20.0	20.0	20.0
Total Split (s)	28.0	28.0		28.0	28.0		52.0	52.0		52.0	52.0	52.0
Total Split (%)	35.0%	35.0%		35.0%	35.0%		65.0%	65.0%		65.0%	65.0%	65.0%
Maximum Green (s)	22.0	22.0		22.0	22.0		46.0	46.0		46.0	46.0	46.0
Yellow Time (s)	3.2	3.2		3.2	3.2		3.9	3.9		3.9	3.9	3.9
All-Red Time (s)	2.8	2.8		2.8	2.8		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
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)	15.5	15.5		15.5	15.5		48.0	48.0		48.0	48.0	48.0
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.64	0.64		0.64	0.64	0.64
v/c Ratio	0.22	0.54		0.72	0.04		0.47	0.48		0.12	1.86	0.02
Control Delay	25.3	32.5		45.9	12.7		30.3	8.5		9.9	405.5	0.8
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	25.3	32.5		45.9	12.7		30.3	8.5		9.9	405.5	0.8
LOS	C	C		D	B		C	A		A	F	A
Approach Delay		30.6			43.5			9.1			401.9	
Approach LOS		C			D			A			F	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 75.5
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.86
Intersection Signal Delay: 268.9 Intersection LOS: F
Intersection Capacity Utilization 120.0% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 5: NYS Rte 5 & Dona Street



DONA STREET/NY RTE 5
COMBINED 2039 (TIMINGS)
PM

Lanes, Volumes, Timings
5: NYS Rte 5 & Dona Street

05/29/2019

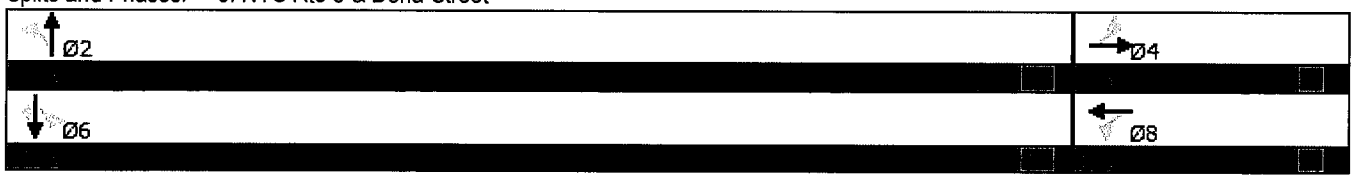
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	4	159	116	1	9	42	1224	37	13	3203	16
Future Volume (vph)	58	4	159	116	1	9	42	1224	37	13	3203	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	1.00
Frt		0.853			0.862			0.996				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1589	0	1612	1486	0	1770	5013	0	1517	3195	1583
Flt Permitted	0.750			0.448			0.035			0.141		
Satd. Flow (perm)	1397	1589	0	760	1486	0	65	5013	0	225	3195	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			11			8				22
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		415			572			464			480	
Travel Time (s)		9.4			13.0			7.9			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	63	4	173	155	1	11	46	1493	44	17	3768	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	177	0	155	12	0	46	1537	0	17	3768	17
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		1.5	1.5		1.5	1.5		5.0	5.0	5.0
Minimum Split (s)	24.0	24.0		7.5	7.5		20.0	20.0		20.0	20.0	20.0
Total Split (s)	31.0	31.0		31.0	31.0		119.0	119.0		119.0	119.0	119.0
Total Split (%)	20.7%	20.7%		20.7%	20.7%		79.3%	79.3%		79.3%	79.3%	79.3%
Maximum Green (s)	25.0	25.0		25.0	25.0		113.0	113.0		113.0	113.0	113.0
Yellow Time (s)	3.2	3.2		3.2	3.2		3.9	3.9		3.9	3.9	3.9
All-Red Time (s)	2.8	2.8		2.8	2.8		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
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)	25.0	25.0		25.0	25.0		113.0	113.0		113.0	113.0	113.0
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.75	0.75		0.75	0.75	0.75
v/c Ratio	0.27	0.67		1.23	0.05		0.96	0.41		0.10	1.57	0.01
Control Delay	58.2	71.7		204.5	25.9		144.2	6.9		6.5	278.2	1.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	58.2	71.7		204.5	25.9		144.2	6.9		6.5	278.2	1.3
LOS	E	E		F	C		F	A		A	F	A
Approach Delay		68.1			191.7			10.9			275.7	
Approach LOS		E			F			B			F	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.57
Intersection Signal Delay: 192.3 Intersection LOS: F
Intersection Capacity Utilization 120.0% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 5: NYS Rte 5 & Dona Street



DONA STREET/NY RTE 5
COMBINED 2039 (ADD LANE)
PM

Lanes, Volumes, Timings
5: NYS Rte 5 & Dona Street

05/29/2019

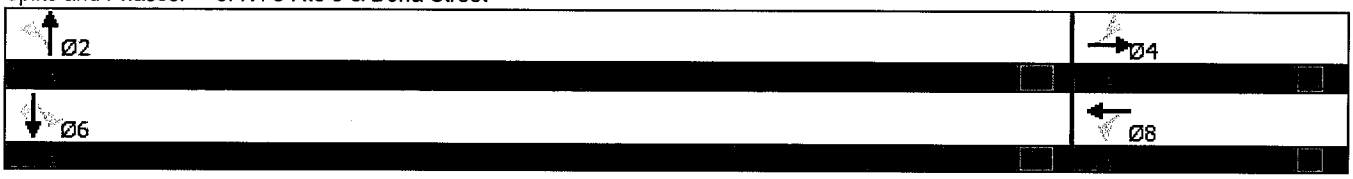
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	58	4	159	116	1	9	42	1224	37	13	3203	16
Future Volume (vph)	58	4	159	116	1	9	42	1224	37	13	3203	16
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	1.00
Frt		0.853			0.862			0.996				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1589	0	1612	1486	0	1770	5013	0	1517	4590	1583
Flt Permitted	0.750			0.448			0.035			0.141		
Satd. Flow (perm)	1397	1589	0	760	1486	0	65	5013	0	225	4590	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			11			8				22
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		415			572			464			480	
Travel Time (s)		9.4			13.0			7.9			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	63	4	173	155	1	11	46	1493	44	17	3768	17
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	177	0	155	12	0	46	1537	0	17	3768	17
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		6
Detector Phase	4	4		8	8		2	2		6	6	6
Switch Phase												
Minimum Initial (s)	5.0	5.0		1.5	1.5		1.5	1.5		5.0	5.0	5.0
Minimum Split (s)	24.0	24.0		7.5	7.5		20.0	20.0		20.0	20.0	20.0
Total Split (s)	31.0	31.0		31.0	31.0		119.0	119.0		119.0	119.0	119.0
Total Split (%)	20.7%	20.7%		20.7%	20.7%		79.3%	79.3%		79.3%	79.3%	79.3%
Maximum Green (s)	25.0	25.0		25.0	25.0		113.0	113.0		113.0	113.0	113.0
Yellow Time (s)	3.2	3.2		3.2	3.2		3.9	3.9		3.9	3.9	3.9
All-Red Time (s)	2.8	2.8		2.8	2.8		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
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Min	Min		Min	Min	Min
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	7.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	0
Act Effct Green (s)	25.0	25.0		25.0	25.0		113.0	113.0		113.0	113.0	113.0
Actuated g/C Ratio	0.17	0.17		0.17	0.17		0.75	0.75		0.75	0.75	0.75
v/c Ratio	0.27	0.67		1.23	0.05		0.96	0.41		0.10	1.09	0.01
Control Delay	58.2	71.7		204.5	25.9		144.2	6.9		6.5	66.1	1.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	58.2	71.7		204.5	25.9		144.2	6.9		6.5	66.1	1.3
LOS	E	E		F	C		F	A		A	E	A
Approach Delay		68.1			191.7			10.9			65.5	
Approach LOS		E			F			B			E	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Natural Cycle: 140
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.23
Intersection Signal Delay: 54.3 Intersection LOS: D
Intersection Capacity Utilization 93.4% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 5: NYS Rte 5 & Dona Street



RIDGE ROAD/NY RTE 5 RAMPS
EXISTING 2019
PM

Intersection	
Int Delay, s/veh	1.8

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	19	529	0	0	163	114	6	2	124	0	0	0
Future Vol, veh/h	19	529	0	0	163	114	6	2	124	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	21	575	0	0	177	124	7	2	135	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	301	0	-	-	-	0	706	918	288
Stage 1	-	-	-	-	-	-	617	617	-
Stage 2	-	-	-	-	-	-	89	301	-
Critical Hdwy	4.14	-	-	-	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.22	-	-	-	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	1257	-	0	0	-	-	370	270	709
Stage 1	-	-	0	0	-	-	501	479	-
Stage 2	-	-	0	0	-	-	924	664	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1257	-	-	-	-	-	361	0	709
Mov Cap-2 Maneuver	-	-	-	-	-	-	361	0	-
Stage 1	-	-	-	-	-	-	488	0	-
Stage 2	-	-	-	-	-	-	924	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.4	0	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	361	709	1257	-	-	-
HCM Lane V/C Ratio	0.024	0.19	0.016	-	-	-
HCM Control Delay (s)	15.2	11.3	7.9	0.1	-	-
HCM Lane LOS	C	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	0.7	0.1	-	-	-

RIDGE ROAD/NY RTE 5 RAMPS
BACKGROUND 2039
PM

Intersection	
Int Delay, s/veh	2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	23	645	0	0	199	139	7	2	151	0	0	0
Future Vol, veh/h	23	645	0	0	199	139	7	2	151	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	25	701	0	0	216	151	8	2	164	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	367	0	-	-	-	0	859	1118	351
Stage 1	-	-	-	-	-	-	751	751	-
Stage 2	-	-	-	-	-	-	108	367	-
Critical Hdwy	4.14	-	-	-	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.22	-	-	-	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	1188	-	0	0	-	-	296	206	645
Stage 1	-	-	0	0	-	-	427	416	-
Stage 2	-	-	0	0	-	-	904	621	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1188	-	-	-	-	-	286	0	645
Mov Cap-2 Maneuver	-	-	-	-	-	-	286	0	-
Stage 1	-	-	-	-	-	-	412	0	-
Stage 2	-	-	-	-	-	-	904	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.4	0	12.8
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	286	645	1188	-	-	-
HCM Lane V/C Ratio	0.034	0.254	0.021	-	-	-
HCM Control Delay (s)	18	12.5	8.1	0.1	-	-
HCM Lane LOS	C	B	A	A	-	-
HCM 95th %tile Q(veh)	0.1	1	0.1	-	-	-

RIDGE ROAD/NY RTE 5 RAMPS
COMBINED 2039
PM

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	43	698	0	0	202	139	62	2	151	0	0	0
Future Vol, veh/h	43	698	0	0	202	139	62	2	151	0	0	0
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	-	-	-	-	-	-	0	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	16965	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	92	92	92	92	92	92	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	47	759	0	0	220	151	67	2	164	0	0	0

Major/Minor	Major1			Major2			Minor1		
Conflicting Flow All	371	0	-	-	-	0	963	1224	380
Stage 1	-	-	-	-	-	-	853	853	-
Stage 2	-	-	-	-	-	-	110	371	-
Critical Hdwy	4.14	-	-	-	-	-	6.84	6.54	6.94
Critical Hdwy Stg 1	-	-	-	-	-	-	5.84	5.54	-
Critical Hdwy Stg 2	-	-	-	-	-	-	5.84	5.54	-
Follow-up Hdwy	2.22	-	-	-	-	-	3.52	4.02	3.32
Pot Cap-1 Maneuver	1184	-	0	0	-	-	253	178	618
Stage 1	-	-	0	0	-	-	378	374	-
Stage 2	-	-	0	0	-	-	902	618	-
Platoon blocked, %		-			-	-			
Mov Cap-1 Maneuver	1184	-	-	-	-	-	236	0	618
Mov Cap-2 Maneuver	-	-	-	-	-	-	236	0	-
Stage 1	-	-	-	-	-	-	352	0	-
Stage 2	-	-	-	-	-	-	902	0	-

Approach	EB	WB	NB
HCM Control Delay, s	0.8	0	16.9
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBL	EBT	WBT	WBR
Capacity (veh/h)	236	618	1184	-	-	-
HCM Lane V/C Ratio	0.295	0.266	0.039	-	-	-
HCM Control Delay (s)	26.5	12.9	8.2	0.3	-	-
HCM Lane LOS	D	B	A	A	-	-
HCM 95th %tile Q(veh)	1.2	1.1	0.1	-	-	-

RIDGE ROAD/SB NY RTE 5 RAMP
EXISTING 2019
PM

Intersection	
Int Delay, s/veh	38.4

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↱	
Traffic Vol, veh/h	0	31	178	0	504	222
Future Vol, veh/h	0	31	178	0	504	222
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	87	2	2	2	2
Mvmt Flow	0	34	193	0	548	241

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	210	97
Stage 1	-	-	-	-	193	-
Stage 2	-	-	-	-	17	-
Critical Hdwy	-	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	0	-	-	0	759	940
Stage 1	0	-	-	0	821	-
Stage 2	0	-	-	0	1003	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	759	940
Mov Cap-2 Maneuver	-	-	-	-	759	-
Stage 1	-	-	-	-	821	-
Stage 2	-	-	-	-	1003	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	49.4
HCM LOS			E

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	806
HCM Lane V/C Ratio	-	-	0.979
HCM Control Delay (s)	-	-	49.4
HCM Lane LOS	-	-	E
HCM 95th %tile Q(veh)	-	-	16.2

RIDGE ROAD/SB NY RTE 5 RAMP
BACKGROUND 2039
PM

Intersection	
Int Delay, s/veh	114.8

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↱	
Traffic Vol, veh/h	0	38	217	0	615	271
Future Vol, veh/h	0	38	217	0	615	271
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	87	2	2	2	2
Mvmt Flow	0	41	236	0	668	295

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	257	118
Stage 1	-	-	-	-	236	-
Stage 2	-	-	-	-	21	-
Critical Hdwy	-	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	0	-	-	0	710	912
Stage 1	0	-	-	0	781	-
Stage 2	0	-	-	0	999	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	710	912
Mov Cap-2 Maneuver	-	-	-	-	710	-
Stage 1	-	-	-	-	781	-
Stage 2	-	-	-	-	999	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	147.9
HCM LOS			F

Minor Lane/Major Mvmt	EBT	WBT	SBLn1
Capacity (veh/h)	-	-	762
HCM Lane V/C Ratio	-	-	1.264
HCM Control Delay (s)	-	-	147.9
HCM Lane LOS	-	-	F
HCM 95th %tile Q(veh)	-	-	35.3

RIDGE ROAD/SB NY RTE 5 RAMP
COMBINED 2039
PM

Intersection	
Int Delay, s/veh	36.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↖	↗
Traffic Vol, veh/h	0	111	236	0	615	282
Future Vol, veh/h	0	111	236	0	615	282
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	87	2	2	2	2
Mvmt Flow	0	121	257	0	668	307

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	-	0	-	0	318	129
Stage 1	-	-	-	-	257	-
Stage 2	-	-	-	-	61	-
Critical Hdwy	-	-	-	-	6.84	6.94
Critical Hdwy Stg 1	-	-	-	-	5.84	-
Critical Hdwy Stg 2	-	-	-	-	5.84	-
Follow-up Hdwy	-	-	-	-	3.52	3.32
Pot Cap-1 Maneuver	0	-	-	0	~ 650	897
Stage 1	0	-	-	0	762	-
Stage 2	0	-	-	0	954	-
Platoon blocked, %		-	-			
Mov Cap-1 Maneuver	-	-	-	-	~ 650	897
Mov Cap-2 Maneuver	-	-	-	-	~ 650	-
Stage 1	-	-	-	-	762	-
Stage 2	-	-	-	-	954	-

Approach	EB	WB	SB
HCM Control Delay, s	0	0	50.1
HCM LOS			F

Minor Lane/Major Mvmt	EBT	WBT	SBLn1	SBLn2
Capacity (veh/h)	-	-	650	897
HCM Lane V/C Ratio	-	-	1.028	0.342
HCM Control Delay (s)	-	-	68	11.1
HCM Lane LOS	-	-	F	B
HCM 95th %tile Q(veh)	-	-	17	1.5

Notes

~: Volume exceeds capacity $: Delay exceeds 300s +: Computation Not Defined *: All major volume in platoon

RIDGE ROAD/FUHRMANN BLVD
EXISTING 2019
PM

Intersection	
Intersection Delay, s/veh	11.1
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⬌			⬌						⬌	
Traffic Vol, veh/h	0	11	7	388	1	10	0	0	0	19	23	0
Future Vol, veh/h	0	11	7	388	1	10	0	0	0	19	23	0
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	12	8	422	1	11	0	0	0	21	25	0
Number of Lanes	0	1	0	0	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	7.4	11.6	8.4
HCM LOS	A	B	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	97%	45%
Vol Thru, %	61%	0%	55%
Vol Right, %	39%	3%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	18	399	42
LT Vol	0	388	19
Through Vol	11	1	23
RT Vol	7	10	0
Lane Flow Rate	20	434	46
Geometry Grp	1	1	1
Degree of Util (X)	0.023	0.507	0.064
Departure Headway (Hd)	4.255	4.209	5.051
Convergence, Y/N	Yes	Yes	Yes
Cap	845	850	713
Service Time	2.262	2.26	3.053
HCM Lane V/C Ratio	0.024	0.511	0.065
HCM Control Delay	7.4	11.6	8.4
HCM Lane LOS	A	B	A
HCM 95th-tile Q	0.1	2.9	0.2

RIDGE ROAD/FUHRMANN BLVD
BACKGROUND 2039
PM

Intersection	
Intersection Delay, s/veh	13.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⬌			⬌						⬌	
Traffic Vol, veh/h	0	13	9	473	1	12	0	0	0	23	28	0
Future Vol, veh/h	0	13	9	473	1	12	0	0	0	23	28	0
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	14	10	514	1	13	0	0	0	25	30	0
Number of Lanes	0	1	0	0	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	7.5	14.1	8.7
HCM LOS	A	B	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	97%	45%
Vol Thru, %	59%	0%	55%
Vol Right, %	41%	2%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	22	486	51
LT Vol	0	473	23
Through Vol	13	1	28
RT Vol	9	12	0
Lane Flow Rate	24	528	55
Geometry Grp	1	1	1
Degree of Util (X)	0.029	0.621	0.081
Departure Headway (Hd)	4.376	4.229	5.281
Convergence, Y/N	Yes	Yes	Yes
Cap	821	845	682
Service Time	2.385	2.299	3.283
HCM Lane V/C Ratio	0.029	0.625	0.081
HCM Control Delay	7.5	14.1	8.7
HCM Lane LOS	A	B	A
HCM 95th-tile Q	0.1	4.4	0.3

RIDGE ROAD/FUHRMANN BLVD
COMBINED 2039
PM

Intersection	
Intersection Delay, s/veh	16.7
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		⬌			⬌						⬌	
Traffic Vol, veh/h	0	86	197	473	70	12	0	0	0	23	28	0
Future Vol, veh/h	0	86	197	473	70	12	0	0	0	23	28	0
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
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	0	93	214	514	76	13	0	0	0	25	30	0
Number of Lanes	0	1	0	0	1	0	0	0	0	0	1	0

Approach	EB	WB	SB
Opposing Approach	WB	EB	
Opposing Lanes	1	1	0
Conflicting Approach Left	SB		WB
Conflicting Lanes Left	1	0	1
Conflicting Approach Right		SB	EB
Conflicting Lanes Right	0	1	1
HCM Control Delay	9.9	20.8	9.7
HCM LOS	A	C	A

Lane	EBLn1	WBLn1	SBLn1
Vol Left, %	0%	85%	45%
Vol Thru, %	30%	13%	55%
Vol Right, %	70%	2%	0%
Sign Control	Stop	Stop	Stop
Traffic Vol by Lane	283	555	51
LT Vol	0	473	23
Through Vol	86	70	28
RT Vol	197	12	0
Lane Flow Rate	308	603	55
Geometry Grp	1	1	1
Degree of Util (X)	0.369	0.764	0.092
Departure Headway (Hd)	4.324	4.562	5.977
Convergence, Y/N	Yes	Yes	Yes
Cap	831	790	596
Service Time	2.36	2.596	4.047
HCM Lane V/C Ratio	0.371	0.763	0.092
HCM Control Delay	9.9	20.8	9.7
HCM Lane LOS	A	C	A
HCM 95th-tile Q	1.7	7.4	0.3

ODELL STREET/NY RTE 5
EXISTING 2019
PM

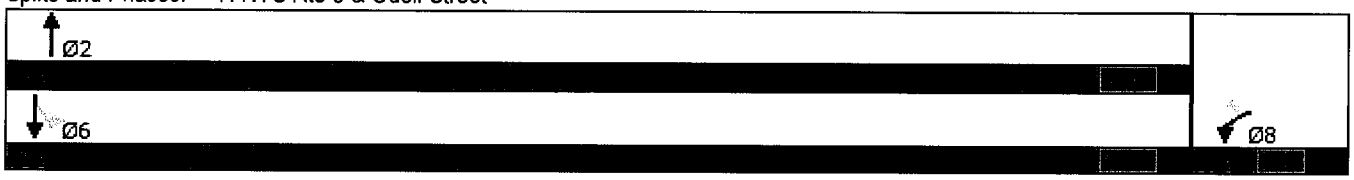
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	27	886	14	12	2628
Future Volume (vph)	10	27	886	14	12	2628
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5024	0	1517	3195
Flt Permitted	0.950				0.248	
Satd. Flow (perm)	1612	1455	5024	0	396	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		32	10			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		645			480
Travel Time (s)	13.0		11.0			8.2
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	13	32	1080	17	16	3092
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	32	1097	0	16	3092
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	10.0	10.0	75.0		75.0	75.0
Total Split (%)	11.8%	11.8%	88.2%		88.2%	88.2%
Maximum Green (s)	4.0	4.0	69.0		69.0	69.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	4.0	4.0	85.5		85.5	85.5
Actuated g/C Ratio	0.04	0.04	0.90		0.90	0.90
v/c Ratio	0.19	0.35	0.24		0.04	1.07
Control Delay	51.5	26.7	1.3		1.7	51.1
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	51.5	26.7	1.3		1.7	51.1
LOS	D	C	A		A	D
Approach Delay	33.9		1.3			50.8
Approach LOS	C		A			D

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 94.8
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 37.8 Intersection LOS: D
Intersection Capacity Utilization 86.0% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 7: NYS Rte 5 & Odell Street



ODELL STREET/NY RTE 5
BACKGROUND 2039
PM

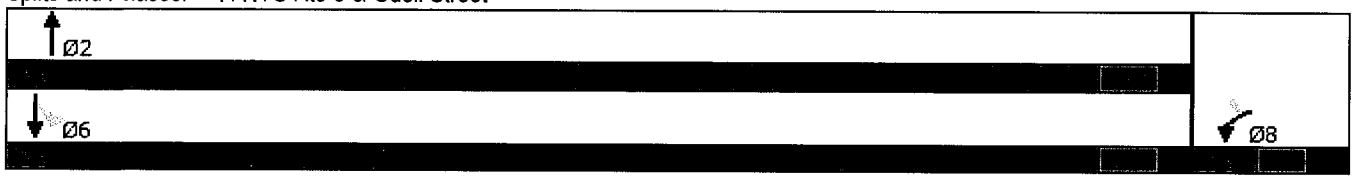
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	27	1081	14	12	3207
Future Volume (vph)	10	27	1081	14	12	3207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5025	0	1517	3195
Flt Permitted	0.950				0.193	
Satd. Flow (perm)	1612	1455	5025	0	308	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		32	8			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		645			480
Travel Time (s)	13.0		11.0			8.2
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	13	32	1318	17	16	3773
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	32	1335	0	16	3773
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	10.0	10.0	75.0		75.0	75.0
Total Split (%)	11.8%	11.8%	88.2%		88.2%	88.2%
Maximum Green (s)	4.0	4.0	69.0		69.0	69.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	4.0	4.0	85.5		85.5	85.5
Actuated g/C Ratio	0.04	0.04	0.90		0.90	0.90
v/c Ratio	0.19	0.35	0.29		0.06	1.31
Control Delay	51.5	26.7	1.4		1.8	155.3
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	51.5	26.7	1.4		1.8	155.3
LOS	D	C	A		A	F
Approach Delay	33.9		1.4			154.6
Approach LOS	C		A			F

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 94.8
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.31
Intersection Signal Delay: 114.0 Intersection LOS: F
Intersection Capacity Utilization 102.0% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 7: NYS Rte 5 & Odell Street



ODELL STREET/NY RTE 5
BACKGROUND 2039 (TIMINGS)
PM

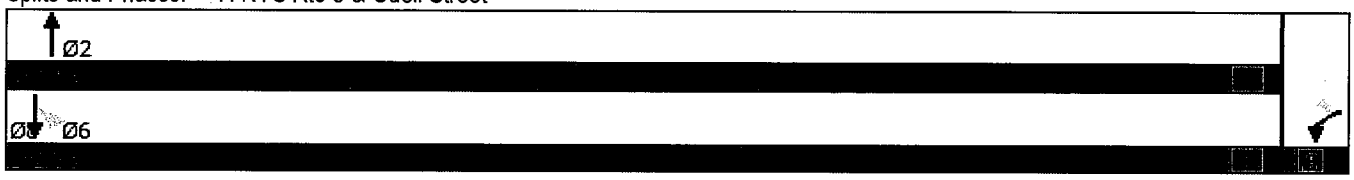
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	27	1081	14	12	3207
Future Volume (vph)	10	27	1081	14	12	3207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5025	0	1517	3195
Flt Permitted	0.950				0.193	
Satd. Flow (perm)	1612	1455	5025	0	308	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		32	10			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		645			480
Travel Time (s)	13.0		11.0			8.2
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	13	32	1318	17	16	3773
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	32	1335	0	16	3773
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	7.5	7.5	142.5		142.5	142.5
Total Split (%)	5.0%	5.0%	95.0%		95.0%	95.0%
Maximum Green (s)	1.5	1.5	136.5		136.5	136.5
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	1.5	1.5	136.5		136.5	136.5
Actuated g/C Ratio	0.01	0.01	0.91		0.91	0.91
v/c Ratio	0.81	0.70	0.29		0.06	1.30
Control Delay	234.2	82.7	1.0		1.1	151.3
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	234.2	82.7	1.0		1.1	151.3
LOS	F	F	A		A	F
Approach Delay	126.5		1.0			150.7
Approach LOS	F		A			F

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.30
Intersection Signal Delay: 111.8 Intersection LOS: F
Intersection Capacity Utilization 102.0% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 7: NYS Rte 5 & Odell Street



ODELL STREET/NY RTE 5
BACKGROUND 2039 (ADD LANE)
PM

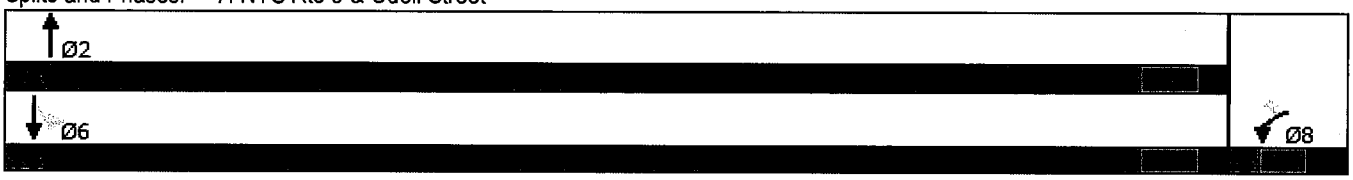
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	10	27	1081	14	12	3207
Future Volume (vph)	10	27	1081	14	12	3207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.91
Frt		0.850	0.998			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5025	0	1517	4590
Flt Permitted	0.950				0.193	
Satd. Flow (perm)	1612	1455	5025	0	308	4590
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		32	9			
Link Speed (mph)	30		40			40
Link Distance (ft)	572		645			480
Travel Time (s)	13.0		11.0			8.2
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	13	32	1318	17	16	3773
Shared Lane Traffic (%)						
Lane Group Flow (vph)	13	32	1335	0	16	3773
Turn Type	Prot	Perm	NA		Perm	NA
Protected Phases	8		2			6
Permitted Phases		8			6	
Detector Phase	8	8	2		6	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		20.0	20.0
Total Split (s)	8.0	8.0	82.0		82.0	82.0
Total Split (%)	8.9%	8.9%	91.1%		91.1%	91.1%
Maximum Green (s)	2.0	2.0	76.0		76.0	76.0
Yellow Time (s)	3.2	3.2	3.9		3.9	3.9
All-Red Time (s)	2.8	2.8	2.1		2.1	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		Min	Min
Walk Time (s)	7.0	7.0	7.0		7.0	7.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0
Act Effct Green (s)	2.0	2.0	92.4		92.4	92.4
Actuated g/C Ratio	0.02	0.02	0.92		0.92	0.92
v/c Ratio	0.41	0.53	0.29		0.06	0.89
Control Delay	86.2	48.6	1.0		1.4	8.3
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	86.2	48.6	1.0		1.4	8.3
LOS	F	D	A		A	A
Approach Delay	59.5		1.0			8.3
Approach LOS	E		A			A

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 100.6
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 6.9 Intersection LOS: A
Intersection Capacity Utilization 75.3% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 7: NYS Rte 5 & Odell Street



ODELL STREET/NY RTE 5
COMBINED 2039
PM

Lanes, Volumes, Timings
7: NYS Rte 5 & Site Driveway/Odell Street

05/29/2019

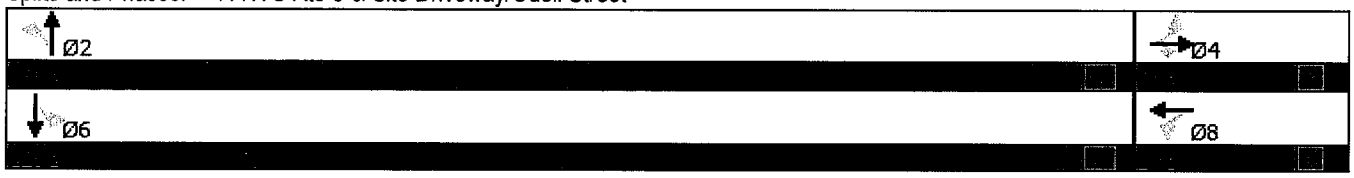
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	5	186	10	1	17	50	1243	14	12	3207	18
Future Volume (vph)	68	5	186	10	1	17	50	1243	14	12	3207	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	0.95
Frt			0.850		0.921			0.998			0.999	
Flt Protected		0.955			0.981		0.950			0.950		
Satd. Flow (prot)	0	1779	1583	0	1545	0	1770	5025	0	1517	3193	0
Flt Permitted		0.715			0.876		0.033			0.147		
Satd. Flow (perm)	0	1332	1583	0	1380	0	61	5025	0	235	3193	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			22		20			4			1	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		452			572			645			480	
Travel Time (s)		10.3			13.0			11.0			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	74	5	202	13	1	20	54	1516	17	16	3773	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	79	202	0	34	0	54	1533	0	16	3793	0
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	1.5	1.5		1.5	1.5		5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0	7.5	7.5		20.0	20.0		20.0	20.0	
Total Split (s)	24.0	24.0	24.0	24.0	24.0		126.0	126.0		126.0	126.0	
Total Split (%)	16.0%	16.0%	16.0%	16.0%	16.0%		84.0%	84.0%		84.0%	84.0%	
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0		120.0	120.0		120.0	120.0	
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2		3.9	3.9		3.9	3.9	
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8		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	
Total Lost Time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		Min	Min		Min	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0		0	0	
Act Effct Green (s)		18.0	18.0		18.0		120.0	120.0		120.0	120.0	
Actuated g/C Ratio		0.12	0.12		0.12		0.80	0.80		0.80	0.80	
v/c Ratio		0.50	0.97		0.19		1.12	0.38		0.09	1.49	
Control Delay		73.4	111.5		34.7		192.7	4.6		4.3	240.4	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		73.4	111.5		34.7		192.7	4.6		4.3	240.4	
LOS		E	F		C		F	A		A	F	
Approach Delay		100.8			34.7			11.0			239.4	
Approach LOS		F			C			B			F	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.49
Intersection Signal Delay: 167.9 Intersection LOS: F
Intersection Capacity Utilization 119.1% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 7: NYS Rte 5 & Site Driveway/Odell Street



ODELL STREET/NY RTE 5
COMBINED 2039 (TIMINGS)
PM

Lanes, Volumes, Timings
7: NYS Rte 5 & Site Driveway/Odell Street

05/29/2019

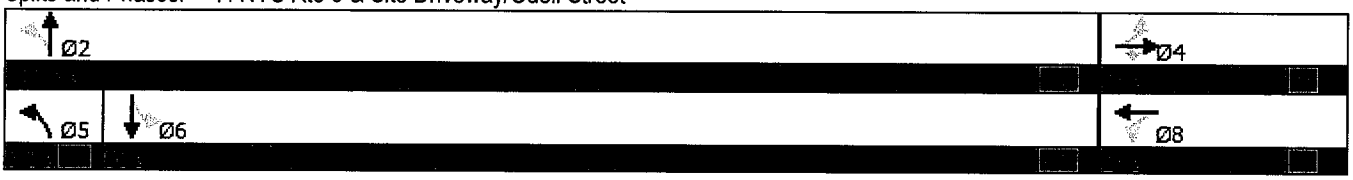
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	5	186	10	1	17	50	1243	14	12	3207	18
Future Volume (vph)	68	5	186	10	1	17	50	1243	14	12	3207	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	0.95
Frt			0.850		0.921			0.998			0.999	
Flt Protected		0.955			0.981		0.950			0.950		
Satd. Flow (prot)	0	1779	1583	0	1545	0	1770	5025	0	1517	3193	0
Flt Permitted		0.715			0.872		0.042			0.157		
Satd. Flow (perm)	0	1332	1583	0	1373	0	78	5025	0	251	3193	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			63		20			4			1	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		452			572			645			480	
Travel Time (s)		10.3			13.0			11.0			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	74	5	202	13	1	20	54	1516	17	16	3773	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	79	202	0	34	0	54	1533	0	16	3793	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	1.5	1.5		5.0	1.5		5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0	7.5	7.5		9.5	20.0		20.0	20.0	
Total Split (s)	24.0	24.0	24.0	24.0	24.0		9.5	105.5		96.0	96.0	
Total Split (%)	18.5%	18.5%	18.5%	18.5%	18.5%		7.3%	81.5%		74.1%	74.1%	
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0		5.0	99.5		90.0	90.0	
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2		3.5	3.9		3.9	3.9	
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8		1.0	2.1		2.1	2.1	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0		4.5	6.0		6.0	6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		Min	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0		0	0	
Act Effct Green (s)		15.2	15.2		15.2		100.7	99.2		91.7	91.7	
Actuated g/C Ratio		0.12	0.12		0.12		0.80	0.78		0.72	0.72	
v/c Ratio		0.49	0.82		0.19		0.42	0.39		0.09	1.64	
Control Delay		62.8	62.9		29.7		18.6	4.7		7.8	309.8	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		62.8	62.9		29.7		18.6	4.7		7.8	309.8	
LOS		E	E		C		B	A		A	F	
Approach Delay		62.9			29.7			5.2			308.5	
Approach LOS		E			C			A			F	

Intersection Summary

Area Type: Other
Cycle Length: 129.5
Actuated Cycle Length: 126.5
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.64
Intersection Signal Delay: 210.5 Intersection LOS: F
Intersection Capacity Utilization 119.1% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 7: NYS Rte 5 & Site Driveway/Odell Street



ODELL STREET/NY RTE 5
COMBINED 2039 (ADD LANE)
PM

Lanes, Volumes, Timings
7: NYS Rte 5 & Site Driveway/Odell Street

05/29/2019

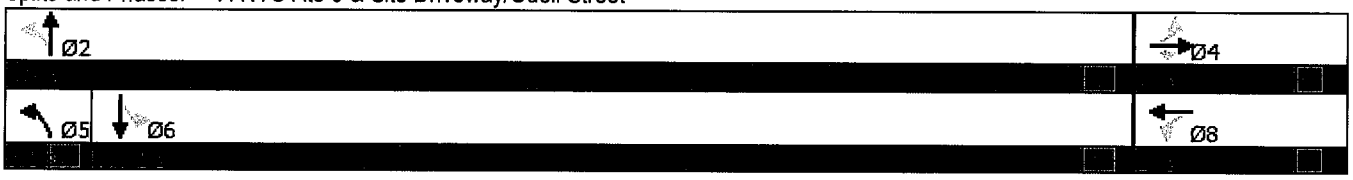
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	68	5	186	10	1	17	50	1243	14	12	3207	18
Future Volume (vph)	68	5	186	10	1	17	50	1243	14	12	3207	18
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt			0.850		0.921			0.998			0.999	
Flt Protected		0.955			0.981		0.950			0.950		
Satd. Flow (prot)	0	1779	1583	0	1545	0	1770	5025	0	1517	4588	0
Flt Permitted		0.715			0.873		0.035			0.157		
Satd. Flow (perm)	0	1332	1583	0	1375	0	65	5025	0	251	4588	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			55		20			4			1	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		452			572			645			480	
Travel Time (s)		10.3			13.0			11.0			8.2	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	74	5	202	13	1	20	54	1516	17	16	3773	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	79	202	0	34	0	54	1533	0	16	3793	0
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		Perm	NA	
Protected Phases		4			8		5	2			6	
Permitted Phases	4		4	8			2			6		
Detector Phase	4	4	4	8	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	5.0	1.5	1.5		5.0	1.5		5.0	5.0	
Minimum Split (s)	24.0	24.0	24.0	7.5	7.5		9.5	20.0		20.0	20.0	
Total Split (s)	24.0	24.0	24.0	24.0	24.0		9.5	126.0		116.5	116.5	
Total Split (%)	16.0%	16.0%	16.0%	16.0%	16.0%		6.3%	84.0%		77.7%	77.7%	
Maximum Green (s)	18.0	18.0	18.0	18.0	18.0		5.0	120.0		110.5	110.5	
Yellow Time (s)	3.2	3.2	3.2	3.2	3.2		3.5	3.9		3.9	3.9	
All-Red Time (s)	2.8	2.8	2.8	2.8	2.8		1.0	2.1		2.1	2.1	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0		4.5	6.0		6.0	6.0	
Lead/Lag							Lead			Lag	Lag	
Lead-Lag Optimize?							Yes			Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	None	None	None		None	Min		Min	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0			0		0	0	
Act Effct Green (s)		16.7	16.7		16.7		119.7	118.1		110.7	110.7	
Actuated g/C Ratio		0.11	0.11		0.11		0.81	0.80		0.75	0.75	
v/c Ratio		0.52	0.88		0.20		0.49	0.38		0.09	1.10	
Control Delay		75.0	82.1		35.0		28.6	4.4		6.8	69.0	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		75.0	82.1		35.0		28.6	4.4		6.8	69.0	
LOS		E	F		C		C	A		A	E	
Approach Delay		80.1			35.0			5.2			68.7	
Approach LOS		F			C			A			E	

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 146.9
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.10
Intersection Signal Delay: 51.4 Intersection LOS: D
Intersection Capacity Utilization 92.2% ICU Level of Service F
Analysis Period (min) 15

Splits and Phases: 7: NYS Rte 5 & Site Driveway/Odell Street



MADISON AVENUE/NY RTE 5
EXISTING 2019
PM

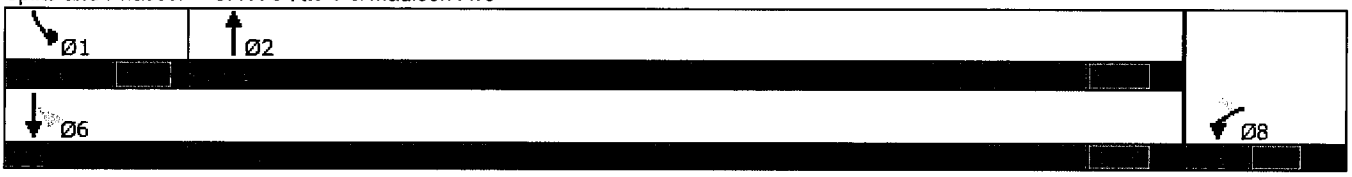
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	32	901	40	74	2613
Future Volume (vph)	32	32	901	40	74	2613
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.994			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5002	0	1517	3195
Flt Permitted	0.950				0.214	
Satd. Flow (perm)	1612	1455	5002	0	342	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		38	17			
Link Speed (mph)	30		40			40
Link Distance (ft)	493		659			438
Travel Time (s)	11.2		11.2			7.5
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	43	38	1099	48	99	3074
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	38	1147	0	99	3074
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		9.5	20.0
Total Split (s)	10.0	10.0	60.8		11.2	72.0
Total Split (%)	12.2%	12.2%	74.1%		13.7%	87.8%
Maximum Green (s)	4.0	4.0	54.8		6.7	66.0
Yellow Time (s)	3.2	3.2	3.9		3.5	3.9
All-Red Time (s)	2.8	2.8	2.1		1.0	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.5	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		None	Min
Walk Time (s)	7.0	7.0	7.0			7.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	4.0	4.0	64.3		73.5	73.2
Actuated g/C Ratio	0.05	0.05	0.75		0.85	0.85
v/c Ratio	0.57	0.37	0.31		0.26	1.13
Control Delay	69.7	23.3	5.0		3.0	77.5
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	69.7	23.3	5.0		3.0	77.5
LOS	E	C	A		A	E
Approach Delay	47.9		5.0			75.2
Approach LOS	D		A			E

Intersection Summary

Area Type: Other
Cycle Length: 82
Actuated Cycle Length: 86.1
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.13
Intersection Signal Delay: 56.4 Intersection LOS: E
Intersection Capacity Utilization 85.6% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 3: NYS Rte 5 & Madison Ave



MADISON AVENUE/NY RTE 5
BACKGROUND 2039
PM

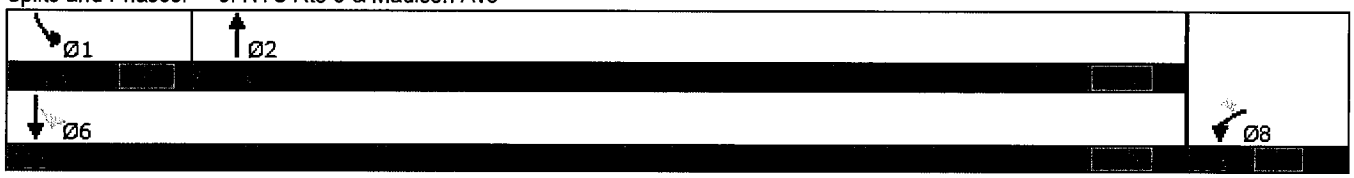
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	32	1099	40	74	3188
Future Volume (vph)	32	32	1099	40	74	3188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.95
Frt		0.850	0.995			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5007	0	1517	3195
Flt Permitted	0.950				0.160	
Satd. Flow (perm)	1612	1455	5007	0	255	3195
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		38	14			
Link Speed (mph)	30		40			40
Link Distance (ft)	493		659			438
Travel Time (s)	11.2		11.2			7.5
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	43	38	1340	48	99	3751
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	38	1388	0	99	3751
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		9.5	20.0
Total Split (s)	10.0	10.0	60.8		11.2	72.0
Total Split (%)	12.2%	12.2%	74.1%		13.7%	87.8%
Maximum Green (s)	4.0	4.0	54.8		6.7	66.0
Yellow Time (s)	3.2	3.2	3.9		3.5	3.9
All-Red Time (s)	2.8	2.8	2.1		1.0	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.5	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		None	Min
Walk Time (s)	7.0	7.0	7.0			7.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	4.0	4.0	64.3		73.5	73.2
Actuated g/C Ratio	0.05	0.05	0.75		0.85	0.85
v/c Ratio	0.57	0.37	0.37		0.32	1.38
Control Delay	69.7	23.3	5.4		4.0	189.0
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	69.7	23.3	5.4		4.0	189.0
LOS	E	C	A		A	F
Approach Delay	47.9	.	5.4			184.3
Approach LOS	D		A			F

Intersection Summary

Area Type: Other
Cycle Length: 82
Actuated Cycle Length: 86.1
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.38
Intersection Signal Delay: 135.5 Intersection LOS: F
Intersection Capacity Utilization 101.5% ICU Level of Service G
Analysis Period (min) 15

Splits and Phases: 3: NYS Rte 5 & Madison Ave



MADISON AVENUE/NY RTE 5
BACKGROUND 2039 (ADD LANE)
PM

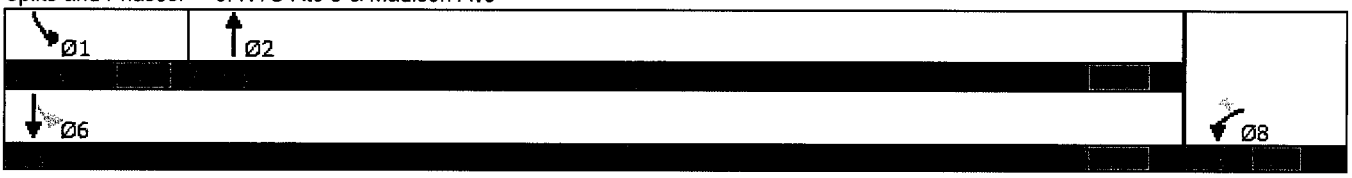
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	32	32	1099	40	74	3188
Future Volume (vph)	32	32	1099	40	74	3188
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0		0	100	
Storage Lanes	1	1		0	1	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	0.91	0.91	1.00	0.91
Frt		0.850	0.995			
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1612	1455	5007	0	1517	4590
Flt Permitted	0.950				0.160	
Satd. Flow (perm)	1612	1455	5007	0	255	4590
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)		38	14			
Link Speed (mph)	30		40			40
Link Distance (ft)	493		659			438
Travel Time (s)	11.2		11.2			7.5
Peak Hour Factor	0.75	0.84	0.82	0.84	0.75	0.85
Heavy Vehicles (%)	12%	11%	3%	5%	19%	13%
Adj. Flow (vph)	43	38	1340	48	99	3751
Shared Lane Traffic (%)						
Lane Group Flow (vph)	43	38	1388	0	99	3751
Turn Type	Prot	Perm	NA		pm+pt	NA
Protected Phases	8		2		1	6
Permitted Phases		8			6	
Detector Phase	8	8	2		1	6
Switch Phase						
Minimum Initial (s)	1.5	1.5	1.5		5.0	5.0
Minimum Split (s)	7.5	7.5	20.0		9.5	20.0
Total Split (s)	10.0	10.0	60.8		11.2	72.0
Total Split (%)	12.2%	12.2%	74.1%		13.7%	87.8%
Maximum Green (s)	4.0	4.0	54.8		6.7	66.0
Yellow Time (s)	3.2	3.2	3.9		3.5	3.9
All-Red Time (s)	2.8	2.8	2.1		1.0	2.1
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0		4.5	6.0
Lead/Lag			Lag		Lead	
Lead-Lag Optimize?			Yes		Yes	
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Recall Mode	None	None	Min		None	Min
Walk Time (s)	7.0	7.0	7.0			7.0
Flash Dont Walk (s)	11.0	11.0	11.0			11.0
Pedestrian Calls (#/hr)	0	0	0			0
Act Effct Green (s)	4.0	4.0	64.3		73.5	73.2
Actuated g/C Ratio	0.05	0.05	0.75		0.85	0.85
v/c Ratio	0.57	0.37	0.37		0.32	0.96
Control Delay	69.7	23.3	5.4		4.0	16.5
Queue Delay	0.0	0.0	0.0		0.0	0.0

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Total Delay	69.7	23.3	5.4		4.0	16.5
LOS	E	C	A		A	B
Approach Delay	47.9		5.4			16.2
Approach LOS	D		A			B

Intersection Summary

Area Type: Other
Cycle Length: 82
Actuated Cycle Length: 86.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.96
Intersection Signal Delay: 13.9 Intersection LOS: B
Intersection Capacity Utilization 74.9% ICU Level of Service D
Analysis Period (min) 15

Splits and Phases: 3: NYS Rte 5 & Madison Ave



MADISON AVENUE/NY RTE 5
COMBINED 2039
PM

Lanes, Volumes, Timings
3: NYS Rte 5 & Madison Ave

05/29/2019

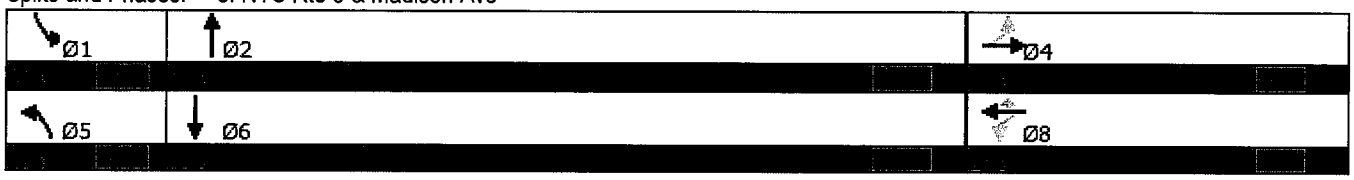
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	4	134	32	1	32	36	1246	40	74	3188	13
Future Volume (vph)	49	4	134	32	1	32	36	1246	40	74	3188	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.903				0.850		0.995			0.999	
Flt Protected		0.987			0.953		0.950			0.950		
Satd. Flow (prot)	0	1660	0	0	1620	1455	1770	5008	0	1517	3193	0
Flt Permitted		0.897			0.470		0.950			0.950		
Satd. Flow (perm)	0	1509	0	0	799	1455	1770	5008	0	1517	3193	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		121				97		8			1	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		255			493			659			438	
Travel Time (s)		5.8			11.2			11.2			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	53	4	146	43	1	38	39	1520	48	99	3751	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	203	0	0	44	38	39	1568	0	99	3765	0
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8						
Detector Phase	4	4		8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		1.5	1.5	1.5	5.0	1.5		5.0	5.0	
Minimum Split (s)	24.3	24.3		7.5	7.5	7.5	9.5	20.0		9.5	20.0	
Total Split (s)	24.0	24.0		24.0	24.0	24.0	10.0	50.0		10.0	50.0	
Total Split (%)	28.6%	28.6%		28.6%	28.6%	28.6%	11.9%	59.5%		11.9%	59.5%	
Maximum Green (s)	18.0	18.0		18.0	18.0	18.0	5.5	44.0		5.5	44.0	
Yellow Time (s)	3.2	3.2		3.2	3.2	3.2	3.5	3.9		3.5	3.9	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.8	1.0	2.1		1.0	2.1	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0	6.0	4.5	6.0		4.5	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
Act Effct Green (s)		10.1			10.1	10.1	5.6	41.5		5.6	46.0	
Actuated g/C Ratio		0.14			0.14	0.14	0.08	0.56		0.08	0.62	
v/c Ratio		0.65			0.41	0.13	0.29	0.56		0.87	1.89	
Control Delay		23.8			40.7	1.0	41.1	11.6		95.8	421.5	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		23.8			40.7	1.0	41.1	11.6		95.8	421.5	
LOS		C			D	A	D	B		F	F	
Approach Delay		23.8			22.3			12.3			413.1	
Approach LOS		C			C			B			F	

Intersection Summary

Area Type: Other
Cycle Length: 84
Actuated Cycle Length: 73.8
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.89
Intersection Signal Delay: 281.9 Intersection LOS: F
Intersection Capacity Utilization 116.4% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 3: NYS Rte 5 & Madison Ave



MADISON AVENUE/NY RTE 5
COMBINED 2039 (TIMINGS)
PM

Lanes, Volumes, Timings
3: NYS Rte 5 & Madison Ave

05/29/2019

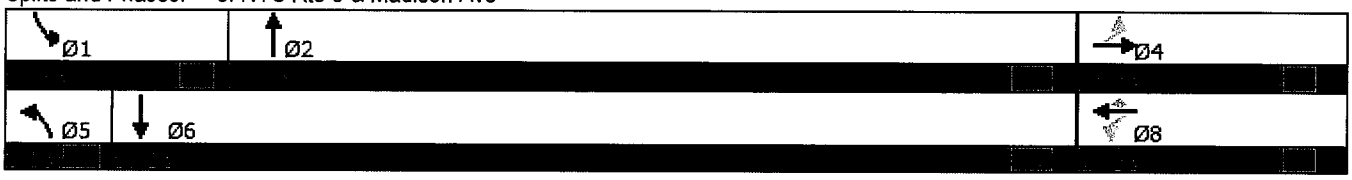
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	4	134	32	1	32	36	1246	40	74	3188	13
Future Volume (vph)	49	4	134	32	1	32	36	1246	40	74	3188	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.95	0.95
Frt		0.903				0.850		0.995			0.999	
Flt Protected		0.987			0.953		0.950			0.950		
Satd. Flow (prot)	0	1660	0	0	1620	1455	1770	5008	0	1517	3193	0
Flt Permitted		0.897			0.371		0.950			0.950		
Satd. Flow (perm)	0	1509	0	0	631	1455	1770	5008	0	1517	3193	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		68				109		7			1	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		255			493			659			438	
Travel Time (s)		5.8			11.2			11.2			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	53	4	146	43	1	38	39	1520	48	99	3751	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	203	0	0	44	38	39	1568	0	99	3765	0
Turn Type	Perm	NA		Perm	NA	Perm	Prot	NA		Prot	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8						
Detector Phase	4	4		8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		1.5	1.5	1.5	5.0	1.5		5.0	5.0	
Minimum Split (s)	24.3	24.3		7.5	7.5	7.5	9.5	20.0		9.5	20.0	
Total Split (s)	24.3	24.3		24.3	24.3	24.3	9.5	75.9		19.8	86.2	
Total Split (%)	20.3%	20.3%		20.3%	20.3%	20.3%	7.9%	63.3%		16.5%	71.8%	
Maximum Green (s)	18.3	18.3		18.3	18.3	18.3	5.0	69.9		15.3	80.2	
Yellow Time (s)	3.2	3.2		3.2	3.2	3.2	3.5	3.9		3.5	3.9	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.8	1.0	2.1		1.0	2.1	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0	6.0	4.5	6.0		4.5	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
Act Effct Green (s)		14.7			14.7	14.7	5.0	71.4		12.2	80.7	
Actuated g/C Ratio		0.13			0.13	0.13	0.04	0.62		0.11	0.70	
v/c Ratio		0.81			0.54	0.14	0.51	0.50		0.62	1.68	
Control Delay		56.0			72.6	1.0	78.6	13.4		66.7	327.8	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		56.0			72.6	1.0	78.6	13.4		66.7	327.8	
LOS		E			E	A	E	B		E	F	
Approach Delay		56.0			39.4			15.0			321.1	
Approach LOS		E			D			B			F	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 114.8
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.68
Intersection Signal Delay: 222.2 Intersection LOS: F
Intersection Capacity Utilization 116.4% ICU Level of Service H
Analysis Period (min) 15

Splits and Phases: 3: NYS Rte 5 & Madison Ave



MADISON AVENUE/NY RTE 5
COMBINED 2039 (ADD LANE)
PM

Lanes, Volumes, Timings
3: NYS Rte 5 & Madison Ave

05/29/2019

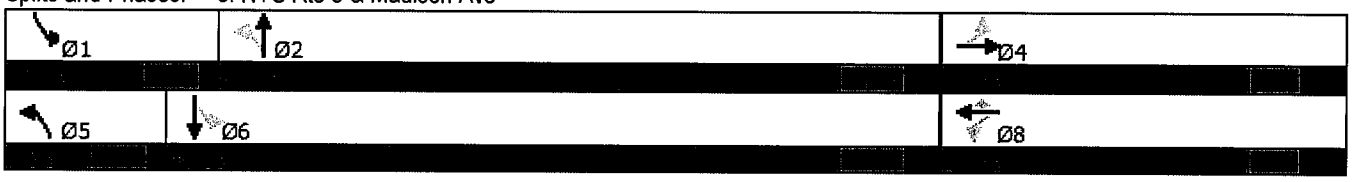
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	49	4	134	32	1	32	36	1246	40	74	3188	13
Future Volume (vph)	49	4	134	32	1	32	36	1246	40	74	3188	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	0		0	100		0
Storage Lanes	0		0	0		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	0.91	1.00	0.91	0.91
Frt		0.903				0.850		0.995			0.999	
Flt Protected		0.987			0.953		0.950			0.950		
Satd. Flow (prot)	0	1660	0	0	1620	1455	1770	5008	0	1517	4587	0
Flt Permitted		0.897			0.481		0.099			0.110		
Satd. Flow (perm)	0	1509	0	0	818	1455	184	5008	0	176	4587	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		130				102		8			1	
Link Speed (mph)		30			30			40			40	
Link Distance (ft)		255			493			659			438	
Travel Time (s)		5.8			11.2			11.2			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.75	0.92	0.84	0.92	0.82	0.84	0.75	0.85	0.92
Heavy Vehicles (%)	2%	2%	2%	12%	2%	11%	2%	3%	5%	19%	13%	2%
Adj. Flow (vph)	53	4	146	43	1	38	39	1520	48	99	3751	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	203	0	0	44	38	39	1568	0	99	3765	0
Turn Type	Perm	NA		Perm	NA	Perm	pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		1.5	1.5	1.5	5.0	1.5		5.0	5.0	
Minimum Split (s)	24.3	24.3		7.5	7.5	7.5	9.5	20.0		9.5	20.0	
Total Split (s)	24.3	24.3		24.3	24.3	24.3	9.5	43.1		12.6	46.2	
Total Split (%)	30.4%	30.4%		30.4%	30.4%	30.4%	11.9%	53.9%		15.8%	57.8%	
Maximum Green (s)	18.3	18.3		18.3	18.3	18.3	5.0	37.1		8.1	40.2	
Yellow Time (s)	3.2	3.2		3.2	3.2	3.2	3.5	3.9		3.5	3.9	
All-Red Time (s)	2.8	2.8		2.8	2.8	2.8	1.0	2.1		1.0	2.1	
Lost Time Adjust (s)		0.0			0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0	6.0	4.5	6.0		4.5	6.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?							Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Min		None	Min	
Walk Time (s)	7.0	7.0		7.0	7.0	7.0		7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0	11.0		11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0	0		0			0	
Act Effct Green (s)		9.6			9.6	9.6	45.0	39.4		49.2	43.4	
Actuated g/C Ratio		0.14			0.14	0.14	0.64	0.56		0.70	0.61	
v/c Ratio		0.64			0.40	0.13	0.17	0.56		0.39	1.33	
Control Delay		21.1			38.1	1.0	6.0	12.3		9.5	172.0	
Queue Delay		0.0			0.0	0.0	0.0	0.0		0.0	0.0	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay		21.1			38.1	1.0	6.0	12.3		9.5	172.0	
LOS		C			D	A	A	B		A	F	
Approach Delay		21.1			20.9			12.1			167.9	
Approach LOS		C			C			B			F	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 70.6
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.33
Intersection Signal Delay: 117.1 Intersection LOS: F
Intersection Capacity Utilization 89.7% ICU Level of Service E
Analysis Period (min) 15

Splits and Phases: 3: NYS Rte 5 & Madison Ave



APPENDIX F
Assumptions

Bethlehem Steel
Redevelopment Area

Traffic Study

Engineering Assumptions

1. Traffic conditions and patterns on the traffic count days (Wednesday, May 24, 2017 and Tuesday, August 7, 2018) are typical for weekday volumes.
2. The proposed development areas and lot sizes were developed by AECOM and based on information provided by the Erie County Industrial Land Development Corporation.
3. Type of developments are assumed and based on the City of Lackawanna zoning code, specifically sections dedicated to the Bethlehem Redevelopment Area.
4. Assumed development for the Bethlehem Steel Redevelopment Area is “Industrial Park - 130”. (“Industrial Park” returned the most conservative values.)
5. Newly developed trips are distributed based on existing traffic volume percentages in the northbound and southbound directions.
    a. 83% of AM traffic arrives from the south
    b. 72% of PM traffic arrives from the north
6. For the Bethlehem Steel Redevelopment Area, four entrances (Madison Avenue, Dona Street, Odell Street and Ridge Road) are evaluated with ten surrounding parcels being developed.
7. An assumed Growth Rate for future traffic estimates on NY Route 5 was determined to be 1%.
8. Future use and configuration of NY Route 5 north of the project area (Skyway) has not been considered.