NYS Tug Hill Commission

MetroCount Traffic Counter

2023 Field Season

Data Summary

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

The NYS Tug Hill Commission began offering a MetroCount Traffic Counter system to municipalities in the Tug Hill region in 2023. The MetroCount system collects data on traffic patterns (vehicle speed, classification, direction, flow, spacing, etc.), and was typically installed for a period of one week during the 2023 field season. Commission staff met with municipal representatives, usually including staff from the highway or public works departments to confirm the location, duration, and purpose of the traffic study. Municipalities used the MetroCount for various reasons including obtaining flow data for minimum maintenance roads, flow data for roads that present traffic safety risks, grant writing purposes, speeding and safety concerns, obtaining the classification of vehicles using the roadways, and to gather traffic density data to plan paving/re-paving projects. The MetroCount was available from May 1, 2023 through October 31, 2023. The commission assisted nine municipalities in the region, with traffic data collection at 16 different locations as shown in **Figure 1.**

Site #	Location
1	T. of Lorraine, Lawrence Road (May 2 - May 9, 2023)
2	V. of Carthage, West St (June 6 - June 13, 2023)
3	V. Sylvan Beach, Vienna Road (June 22 - June 29, 2023)
4	V. Sylvan Beach, Main Street (June 30 - July 10, 2023)
5	T. of Annsville, Meadows Road (July 13 - July 20, 2023)
6	T. of Turin, Lee Trail (July 21 - July 27, 2023)
7	T. of Worth, Hayes Road #1 (August 2 - August 9, 2023)
8	V. of Deferiet, Riverside Drive (August 10 - August 17, 2023)
9	V. of Deferiet, Anderson Avenue (August 23 - August 30, 2023)
10	T. of Croghan, Swiss Road (September 12 - September 19, 2023)
11	T. of Worth, Hayes Road #2 (October 3 - October 10, 2023)
12	V. of West Carthage, Champion St West of Lathrop St (October 12 - October 13, 2023)
13	V. of West Carthage, Champion St East of Lathrop St (October 13 - October 16, 2023)
14	V. of West Carthage, Champion St East of Main St (October 16 - October 18, 2023)
15	V. of West Carthage, High St South of Stone St (October 18 - October 20, 2023)
16	V. of West Carthage, Franklin St South of Stone St (October 20 - October 23, 2023)

Figure 1: MetroCount Installation Locations
*The site number is used to identify collected data from the installation locations on the following graphs/charts.

The following is a summary of data collected at the above locations, with a focus on vehicle count data, vehicle speed data, and vehicle classification. The data is followed by a discussion of different uses where the information can be used to implement traffic safety measures/countermeasures.
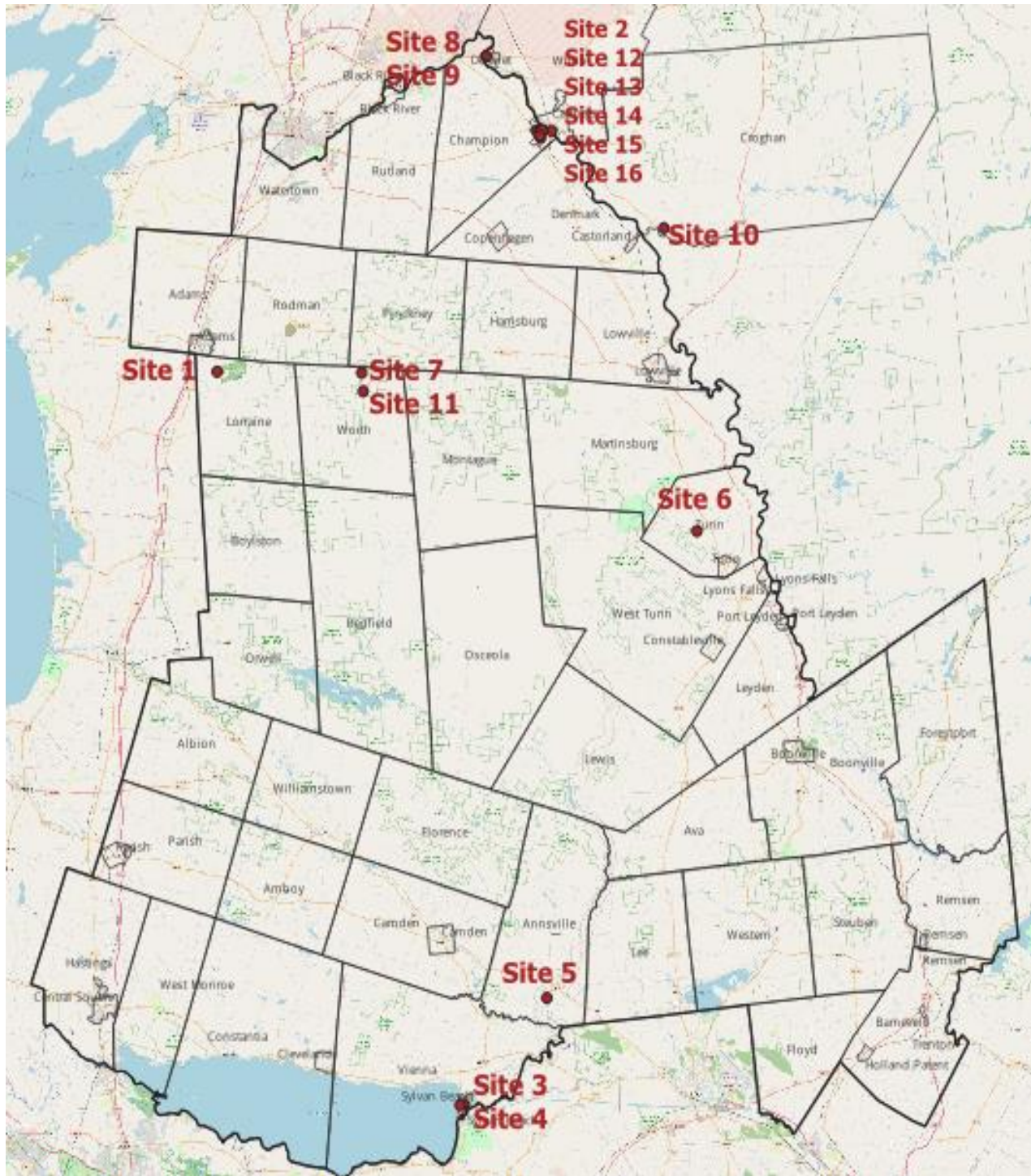
2. MAP OF INSTALLED LOCATIONS

Figure 1: Map of Installed Locations

3. VEHICLE COUNT DATA

Vehicle count data focuses on the number of vehicles that pass through a specific location, and the rate of vehicle passage at the MetroCount locations. **Figure 2** shows the average vehicle count during weekdays, and **Figure 3** shows the average vehicle count during the weekends at all sample locations over a 24hr period.
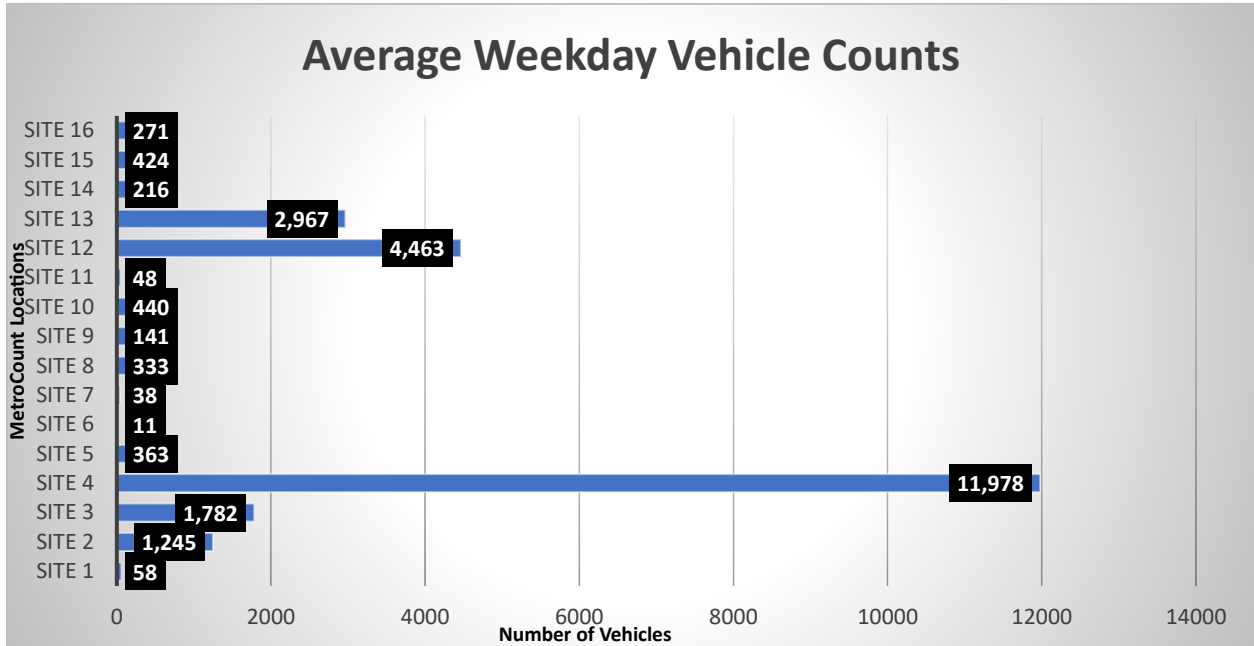
Average Weekday Vehicle Counts

SITE 16: 271
SITE 15: 424
SITE 14: 216
SITE 13: 2,967
SITE 12: 4,463
SITE 11: 48
SITE 10: 440
SITE 9: 141
SITE 8: 333
SITE 7: 38
SITE 6: 11
SITE 5: 363
SITE 4: 11,978
SITE 3: 1,782
SITE 2: 1,245
SITE 1: 58

Number of Vehicles
MetroCount Locations

Figure 2: Average weekday vehicle counts over the period of data collection for each site

Average Weekend Vehicle Counts

SITE 16: 280
SITE 15: 0
SITE 14: 0
SITE 13: 3,120
SITE 12: 0
SITE 11: 74
SITE 10: 381
SITE 9: 104
SITE 8: 314
SITE 7: 34
SITE 6: 18
SITE 5: 394
SITE 4: 10,921
SITE 3: 2,069
SITE 2: 879
SITE 1: 81

Number of Vehicles
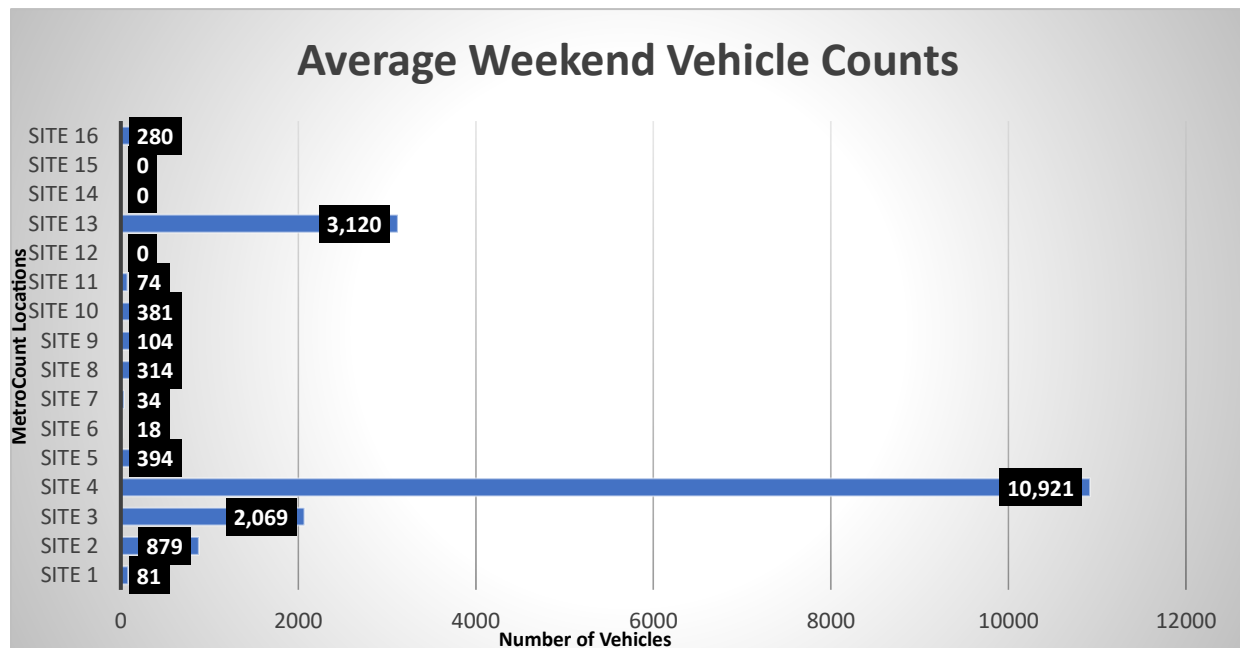*MetroCount Locations*

Figure 3: Average weekend vehicle counts over the period of data collection for each site
Some site locations did not have data collected over a weekend and are represented by a 0.

4. VEHICLE SPEEDS

Vehicle speed is collected by the MetroCount as each vehicle passes over the road tubes spaced at 3' 3.4" apart. **Figures 4, 5, and 6** show the fastest, slowest, and averages speeds captured by the traffic counter at each location. All collected data is based on the entire duration that the MetroCount was installed at each location.
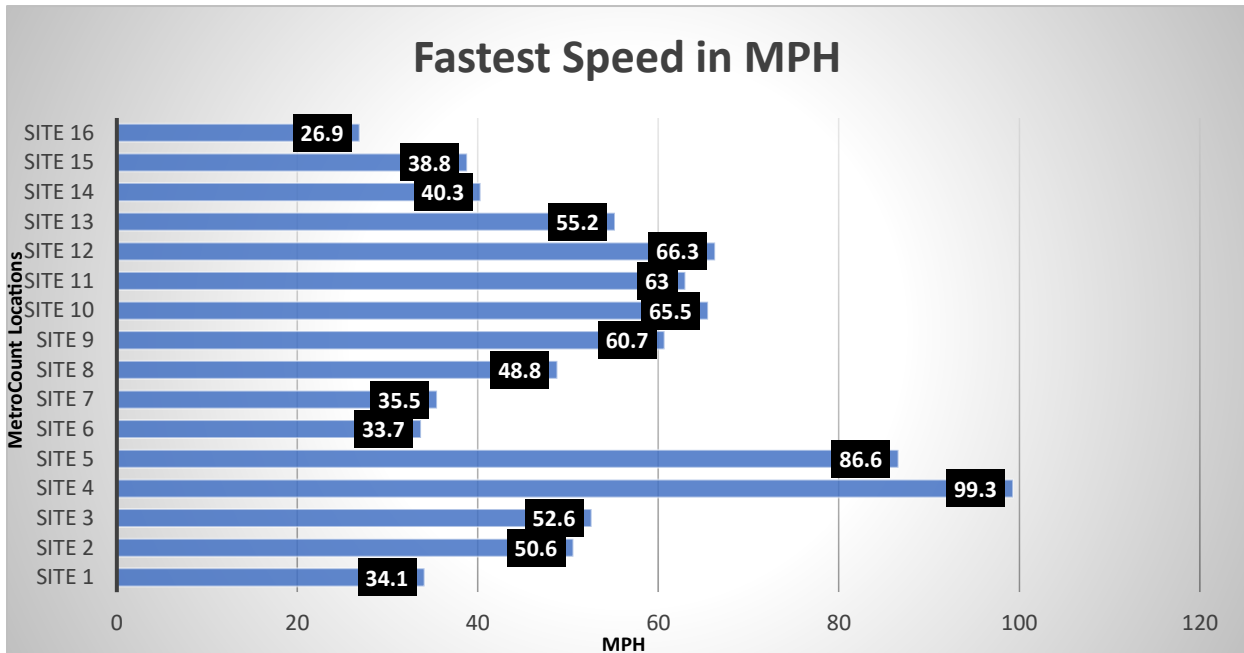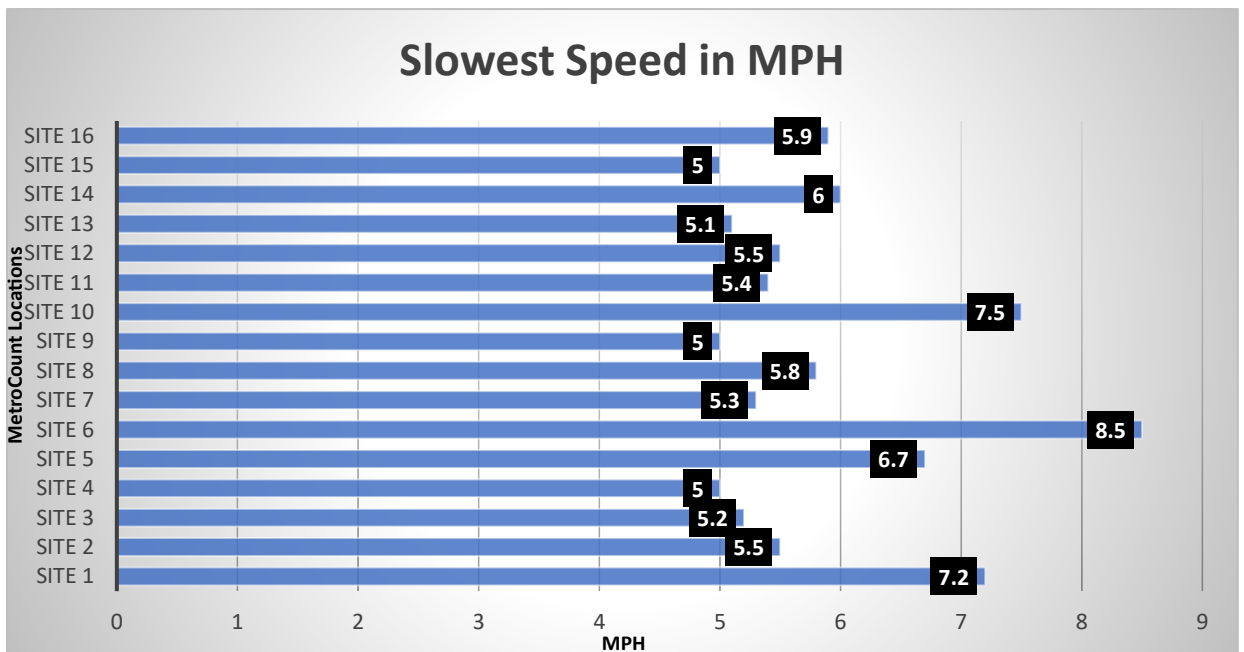

Figure 4: Fastest recorded speed in MPH

Figure 5: Slowest recorded speed in MPH

Average Speed in MPH

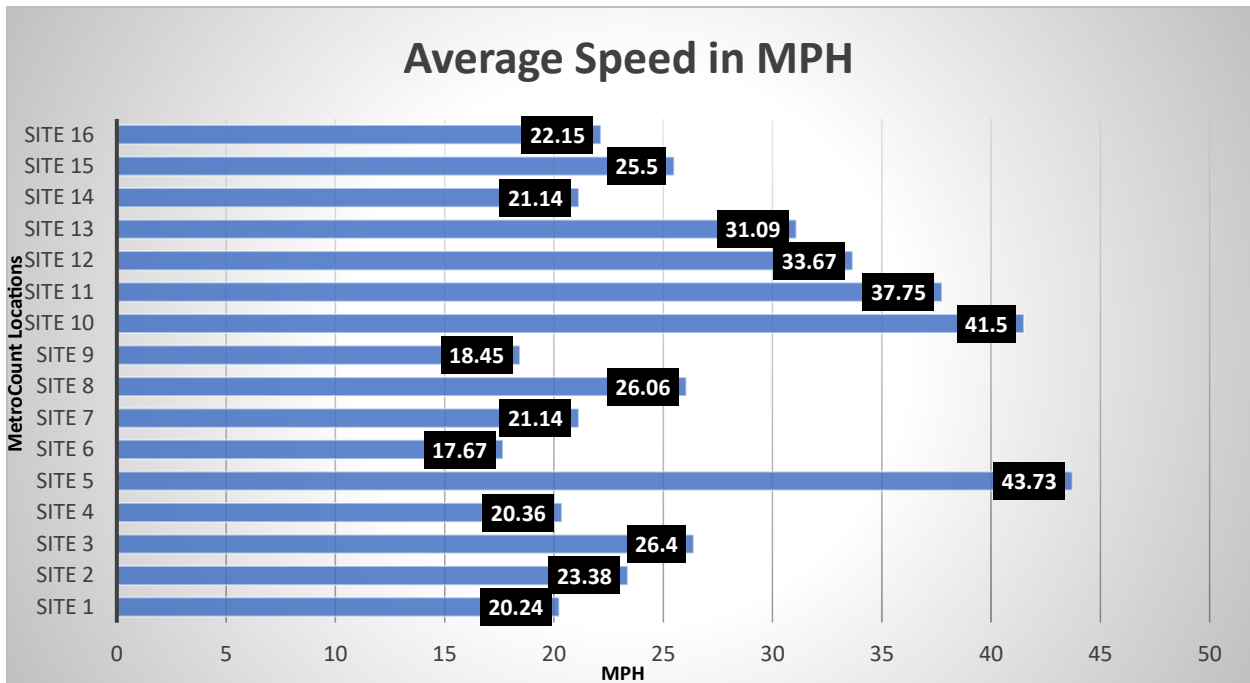| MetroCount Locations	MPH
SITE 16	22.15
SITE 15	25.5
SITE 14	21.14
SITE 13	31.09
SITE 12	33.67
SITE 11	37.75
SITE 10	41.5
SITE 9	18.45
SITE 8	26.06
SITE 7	21.14
SITE 6	17.67
SITE 5	43.73
SITE 4	20.36
SITE 3	26.4
SITE 2	23.38
SITE 1	20.24

Figure 6: Average recorded speed in MPH

Figures 7 and 8 take a closer look at speed data collected in two different designated speed zones. Figure 7 displays speed data collected in a 25 mph designated zone within the village of West Carthage, while figure 7 shows data collected in a 45 mph designated zone in the Town of Annsville.
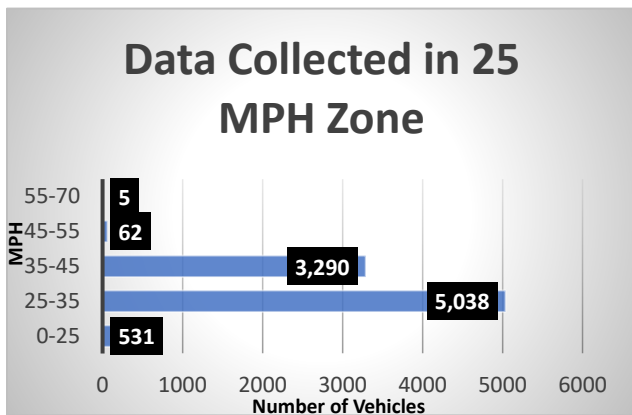
Data Collected in 25 MPH Zone

MPH	Number of Vehicles
55-70	5
45-55	62
35-45	3,290
25-35	5,038
0-25	531

Figure 7: Site 12

Data Collected in 45 MPH Zone

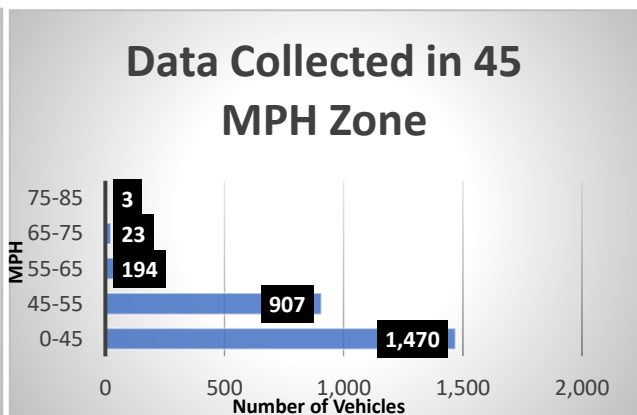| MPH	Number of Vehicles
75-85	3
65-75	23
55-65	194
45-55	907
0-45	1,470

Figure 8: Site 5

5. VEHICLE CLASSIFICATION

Vehicle classifications are recorded by the MetroCount based on when the tubes are struck by the tires of a vehicle, the time between when the front tires and subsequent tires impact the tubes (axle spacing), and the weight/pressure of the vehicle applied to the tubes. The placement of the tubes remains at 3' 3.4". **Figure 9** displays the total number of vehicles, by classification, that were recorded by the MetroCount system at each location during the collection period. Two types of vehicle classification systems were used. The first type was the Federal Highway Administration (FHWA) classification system, and the second type was the AustRoads94 (ARX) classification system. The descriptions of each type of vehicle class, and classification scheme, can be found in the appendix.

Location	Class 1	Class 2	Class 3	Class 4	Class 5	Class 6	Class 7	Class 8	Class 9	Class 10	Class 11	Class 12	Class 13	Type of Classification
Site 1	25	265	3	213	4	1	1	1	0	0	0	0	0	ARX
Site 2	49	6,745	4	2,327	16	1	24	59	1	0	0	0	0	ARX
Site 3	240	9,394	26	3,198	16	6	58	105	4	1	2	0	0	ARX
Site 4	1,923	88,138	394	22,956	325	251	351	806	262	318	20	22	0	ARX
Site 5	100	1,569	7	865	24	5	9	23	1	0	0	0	0	ARX
Site 6	5	51	2	22	0	0	0	1	0	0	0	0	0	ARX
Site 7	20	119	0	103	10	0	2	2	0	0	0	0	0	ARX
Site 8	52	1,850	2	451	5	0	12	5	0	0	0	0	0	ARX
Site 9	22	752	0	128	6	0	2	1	0	0	0	0	0	ARX
Site 10	22	1,717	7	1,063	61	1	23	53	11	3	1	0	0	ARX
Site 11	13	204	140	18	23	6	0	0	0	0	0	0	0	FHWA
Site 12	53	4,473	2,642	105	1,265	86	6	2	22	1	0	0	1	FHWA
Site 13	20	8,571	3,049	54	455	15	5	2	2	1	0	0	0	FHWA
Site 14	5	486	111	8	8	10	19	0	0	0	0	0	1	FHWA
Site 15	14	912	319	6	16	4	1	0	0	0	0	0	0	FHWA
Site 16	12	848	227	5	9	1	0	0	0	0	0	0	0	FHWA

Figure 9: Number of Vehicles by Classification

6. USES FOR DATA

Data collected by the MetroCount can assist municipalities with planning for various projects and addressing traffic safety. For example, data related to vehicle speed in residential areas can help determine which types of safety measures or countermeasures could be used to counter speeding issues. Countermeasures may include reducing the posted speed limit, increasing signage, using digital radar signs for driver feedback, designing islands or narrow corridors to reduce vehicle speeds, implementing or increasing marked pedestrian crosswalks, or increasing enforcement.

Collected data can also be used for planning paving/re-paving projects. Vehicle flow, vehicle density, and vehicle classification data can be beneficial in determining how traffic will be affected during paving, which roads to address first, and which type of asphalt mixtures to use. Vehicle classification data can provide beneficial information such as the number of vehicles that use the road and the estimated weight of the vehicle by classification. Information can also be used to help create annual road maintenance plans.

Finally, the data can assist municipalities pursue grant funding for Complete Streets programs, road network/infrastructure improvements, and sidewalk infrastructure improvements, to enable safe access for all people who use them while addressing and including traffic safety measures. Grant examples include the Highway Safety (HS-1) Grant, Safe Streets for All (SS4A) Grant, and Transportation Alternatives Program (TAP), Congestion Mitigation and Air Quality Improvement (CMAQ) Program, and Carbon Reduction Program (CRP) funding.

In closing, the MetroCount Traffic Counting System can provide beneficial data to municipalities to assist with making decisions to address traffic safety concerns, improve network infrastructure, plan projects, and pursue funding opportunities. The NYS Tug Hill Commission extends this service to all towns and villages in the Tug Hill Region, and those outside the region that belong to one of our five councils of governments (Cooperative Tug Hill Council, North Shore Council of Governments, Northern Oneida County Council of Governments, River Area Council of Governments, and the Salmon Rivers Council of Governments). To request this service please fill out the sign-up form here or email chris@tughill.org. The service is provided to municipalities on a first come, first served basis. The sign-up form includes a full list of the data and reports available to municipalities. Once data is collected, it is downloaded from the MetroCount device, generated into reports, and sent to the municipal representative who requested the service.

7. APPENDIX

Figure A-1: ARX Classification Scheme

Axles	Groups	Description	Class		Parameters	Dominant Vehicle	Aggregate
2	1 or 2	Very Short - Bicycle or Motorcycle	MC	1	$d(1)<1.7m$ & axles=2		
2	1 or 2	Short - Sedan, Wagon, 4WD, Utility, Light Van	SV	2	$d(1)>=1.7m$, $d(1)<=3.2m$ & axles=2		1 (Light)
3, 4 or 5	3	Short Towing - Trailer, Caravan, Boat, etc.	SVT	3	groups=3, $d(1)>=2.1m$, $d(1)<=3.2m$, $d(2)>=2.1m$ & axles=3,4,5		
2	2	Two axle truck or Bus	TB2	4	$d(1)>3.2m$ & axles=2		
3	2	Three axle truck or Bus	TB3	5	axles=3 & groups=2		2 (Medium)
>3	2	Four axle truck	T4	6	axles>3 & groups=2		
3	3	Three axle articulated vehicle or Rigid vehicle and trailer	ART3	7	$d(1)>3.2m$, axles=3 & groups=3		
4	>2	Four axle articulated vehicle or Rigid vehicle and trailer	ART4	8	$d(2)<2.1m$ or $d(1)<2.1m$ or $d(1)>3.2m$ axles = 4 & groups>2		
5	>2	Five axle articulated vehicle or Rigid vehicle and trailer	ART5	9	$d(2)<2.1m$ or $d(1)<2.1m$ or $d(1)>3.2m$ axles=5 & groups>2		3 (Heavy)
>=6	>2	Six (or more) axle articulated vehicle or Rigid vehicle and trailer	ART6	10	axles=6 & groups>2 or axles>6 & groups=3		
>6	4	B-Double or Heavy truck and trailer	BD	11	groups=4 & axles>6		
>6	>=5	Double or triple road train or Heavy truck and two (or more) trailers	DRT	12	groups>=5 & axles>6		

Figure A-2: Scheme F Classification System (FHWA)

Axles	Class	Description	SP1	SP2	SP3	SP4	SP5	Aggregate
2	F1	motorcycle	< 6.0					1 (Light)
	F2	passenger car or light pickup	6.0 - 10.0					1
	F3	heavy pickup	10.0 - 15.0					1
	F5	two-axle truck	15.0 - 20.0					2 (Medium)
	F4	bus	> 20.0					2
3	F2	car with trailer	< 10.0	10.0 - 18.0				1
	F3	pickup with trailer	10.0 - 15.0	10.0 - 18.0				1
	F4	bus	> 19.0					2
	F8	2S1		> 18.0				3 (Heavy)
	F6	three-axle truck						2
4	F2	car with trailer	< 10.0		< 3.5			1
	F3	pickup with trailer	10.0 - 15.0		< 3.5			1
	F8	2S2		> 5.0	> 3.5			3
	F8	3S1		< 5.0	> 10.0			3
	F7	four-axle truck						2
5	F11	2S1-2		> 6.0				3
	F9	3S2		< 6.1		3.5 - 8.0		3
	F3	pickup with trailer	9.9 - 15.0			< 3.5		1
	F5	two-axle truck with trailer	14.9 - 20.0			< 3.5		2
	F9	five-axle combination						3
6	F10	six-axle combination			3.5 - 5.0			3
	F12	3S1-2					> 10.0	3
	F10	3S3						3
>=7	F13	seven (or more) axle combination						3

Figure A-3: Scheme F3 Classification System (FHWA Continued)

Class	Type	Axles	SP1	SP2	SP3	SP4	SP5	SP6	Aggregate
1	F1	2	1.0 - 6.0						
2	F2	2	6.0 - 10.2						1 (Light)
		3	6.0 - 10.2	6.0 - 18.0					
		4	6.0 - 10.2	6.0 - 18.0	0.0 - 6.0				
3	F3	2	10.2 - 13.0						
		3	10.2 - 13.0	6.0 - 18.0					
		4	10.2 - 13.0	6.0 - 18.0	0.0 - 6.0				
4	F4	2	20.0 - 40.0						2 (Medium)
		3	20.0 - 40.0	0.0 - 6.0					
5	F5	2	13.0 - 20.0						
6	F6	3	6.0 - 23.0	0.0 - 6.0					
7	F7	4	6.0 - 23.0	0.0 - 9.0	0.0 - 9.0				
		5	6.0 - 17.0	0.0 - 6.0	0.0 - 6.0	0.0 - 6.0			
		6	6.0 - 17.0	0.0 - 6.0	0.0 - 6.0	0.0 - 6.0	0.0 - 6.0		
8	F8	3	6.0 - 17.0	14.0 - 40.0					3 (Heavy)
		4	6.0 - 20.0	0.0 - 6.0	6.0 - 40.0				
		4	6.0 - 20.0	14.0 - 42.0	0.0 - 6.1				
9	F9	5	6.0 - 22.0	0.0 - 6.0	6.0 - 40.0	0.0 - 12.5			
		5	6.0 - 22.0	0.0 - 6.0	6.0 - 23.0	1.1 - 23.0			
10	F10	6	6.0 - 22.0	0.0 - 6.0	0.0 - 40.0	0.0 - 11.0	0.0 - 11.0		
		7	6.0 - 22.0	0.0 - 6.0	0.0 - 40.0	0.0 - 13.0	0.0 - 13.0	0.0 - 13.0	
11	F11	5	6.0 - 22.0	11.0 - 25.0	6.0 - 18.0	11.0 - 25.0			
12	F12	6	6.0 - 22.0	0.0 - 6.0	1.0 - 25.0	6.0 - 18.0	11.0 - 25.0		
13	F13	7 - 9							