

**Adler Consulting,**

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March 14, 2006

Mr. Ed Vergano, P.E.  
Director, Department of Technical Services  
Town of Cortlandt Town Hall  
1 Heady Street  
Cortlandt Manor, NY 10567

Re: Review of Montrose Station Road  
Town of Cortlandt, New York

Dear Mr. Vergano:

**Adler Consulting** has conducted an extensive evaluation of traffic conditions and potential traffic calming measures on Montrose Station Road from Washington Street to the Metro North Railroad, in the Town of Cortlandt, New York. Based on this study, we have identified specific measures which will address identified geometric or operational concerns and provide an overall safer environment on the roadway.

**A. PROJECT DESCRIPTION**

Montrose Station Road is a northeast/southwest roadway that, ostensibly, stretches from NY Route 9A to Washington Street. It continues to the northeast from Washington Street as an unpaved seasonal roadway to Maple Avenue. The portion of Montrose Station Road which is the subject of this study stretches from Washington Street to the Metro North Railroad line (see Figure 1), where it is a two-lane, paved roadway varying in width from 19 to 22 feet.

In evaluating traffic conditions on Montrose Station Road, members of the professional staff of **Adler Consulting** conducted an extensive field investigation during which the roadway alignment, grades, widths, sightlines, clearances, signage and general operating conditions were all inspected. In addition, an Automatic Traffic Recorder (ATR) was placed across the roadway approximately 200 feet northeast of Travis Lane in march of this year. Montrose Station Road is relatively



Project:

**Montrose Station Road**

Town of Cortlandt, NY

Title:

**Study Area**

Prepared By:

**Adler Consulting, White Plains, NY.**

Transportation Planning & Traffic Engineering, PLLC

**Figure 1**

straight, level and wide at this location, making it the location at which vehicles are believed to be traveling the fastest and at which it was the safest to install the ATR. The ATR recorded the volume and speed of traffic passing in either direction in 15-minute intervals.

Finally, all available individual accident reports were gleaned from the New York State Accident Records Bureau for Westchester, which is located at the State Police office in Millbrook NY. The accident rate in the study area was determined and compared to the statewide average for two-lane roadways to see if the subject section of Montrose Station Road has an accident rate that is statistically higher than average. In addition, each of the individual accident reports was reviewed for location, type of accident, accident severity, and contributory factors to determine whether there were specific locations, condition or features which were linked to the occurrence of accidents and, if so, appropriate corrective measures were identified.

#### B. EXISTING GEOMETRIC CONDITIONS

The American Association of State Highway and Transportation Officials' (AASHTO) *Policy on the Geometric Design of Highways and Streets* (the "AASHTO Policy") promotes the most widely accepted guidelines for the design of new roadways or where a major upgrade of older facilities is proposed for specific reasons. First published in the 1950's, the 2004 version of the document provides the most current recommended guidelines. The 2004 AASHTO Policy specifically states (on page xliii) that "the fact that new design values are presented herein does not imply that existing streets and highways are unsafe." Essentially, for restoration or rehabilitation projects, similar to the conditions under which this study is being conducted, the AASHTO Policy provides a benchmark against which a roadway's existing conditions can be compared. It is noted that many of the design criteria are based on wet-weather conditions as they account for wet-condition friction between the tires and the roadway surface.

The studied portion of Montrose Station Road is characterized by winding curves, moderate to steep grades, a narrow roadway width and limited sightlines. It is subject to the Town-wide general speed limit of 30 mph. Exhibit 3-1 of the AASHTO Policy indicates that 200 feet of sight distance is the minimum recommended value for a 30-mph roadway (this value is reduced to 155 feet for a 25-mph roadway). An inspection of the studied portion of the roadway revealed that this minimum sight distance recommendation is not provided at a number of locations due to both the vertical and horizontal alignment of the road as it

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negotiates the terrain. In many instances, the potential hazards associated with limited sight distances are reduced (except for the infrequent occurrence where a tree, rock or some other object should block the road) by the fact that there is adequate width for vehicles traveling in opposite direction to pass. However, in other instances, most notably at the intersection of Oak Road with Montrose Station Road, the limited sight-distance presents a daily hazard for vehicles exiting Oak Road, although appropriate signage is provided to warn road users of this condition, as discussed hereafter. It is also noted that only 180 feet of sight distance is provided on southbound Washington Street as it approaches its intersection with Montrose Station Road.

Measurements at various locations along the roadway revealed it to vary in width from 19 to 22 feet with virtually no shoulder provided. Exhibit 5-5 of the AASHTO Policy indicates that a 20-foot wide roadway is sufficient to accommodate up to 1,500 vehicles per day on a roadway designed for speeds below 45 mph, although it does recommend that a shoulder be provided. Thus, with an average daily traffic volume of approximately 1,500 (as discussed hereafter), most sections of the studied portion of Montrose Station Road nominally satisfy the roadway width requirement, although the provision of a shoulder would be desirable, where possible.

An inspection of various locations along the roadway revealed that, in some locations, where the road skirts a rock outcrop, the face of the rock-cut is within three (3) feet of the edge of the road, while to the southwest of Oak Road, some of the utility poles are set back as little as six (6) inches from the edge of the road and there is an open storm-drain within one (1) foot of the road. Because these obstructions represent a hazard to motorists should they drift off the edge of the road, vehicle operators have a tendency to compensate by driving more in the middle of the road (i.e., at or across the double yellow line), which presents its own hazards, should a vehicle be encountered traveling in the opposite direction. While the AASHTO Policy suggests that clearances of as little as 18 inches are tolerable in urban conditions (page 319), it recommends a minimum clear zone of at least seven (7) feet for non-urban conditions (page 387). Based on a review of the AASHTO data, it is concluded that for the subject roadway, it would be desirable to have no objects closer than 18 inches from the edge of the road at grade level (i.e., open swales or curbs) and five (5) feet from the edge of the road at a height of two feet above grade (rock outcrops and utility poles).

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A review of topographic data provided by the Town of Cortlandt reveals a maximum grade in the study area of approximately 15 percent (250 feet southwest of Oak Road). Exhibit 5-4 of the AASHTO Policy indicates that the maximum recommended grade of 14 percent for a 30-mph roadway and 15 percent for a 25-mph roadway. This would suggest that a 25-mph speed limit posting on the roadway would be consistent with current design practices.

A review of planimetric data provided by the Town of Cortlandt reveals a minimum radius of 160 feet on the sweeping curve approximately 500 feet southwest of Washington Street and of 175 feet by Oak Road. Exhibit 3-16 of the AASHTO Policy indicates that the minimum recommended radius for a 30-mph street without superelevation is 300 feet, while for a 25-mph roadway it is 181 feet. This would also suggest that a 25-mph speed limit posting on the roadway would be consistent with current design practices.

### C. EXISTING OPERATING CONDITIONS

A review of the ATR data indicated a daily, two-way, weekday traffic volume of 1,505 vehicles, with a peak-hour volume of 152 vehicles from 7:00 to 8:00 a.m. (the p.m. peak-hour volume, which occurred from 2:30 to 3:00 a.m. was 143 vehicles). The estimated average daily traffic volume is 1,400 vehicles, accounting for weekend traffic. The average speed of vehicles on Montrose Station Road just northeast of Travis Lane was 36 mph and the 85<sup>th</sup> percentile speed (the speed below which 85 percent of motorists were observed to drive, also known as the operating speed) was 42 mph. There was little significant difference in speed between northeastbound and southwestbound traffic. The results of the ATR surveys are attached.

Clearly, the current operating speed of Montrose Station Road in the vicinity of Travis Lane is substantially above the permitted speed limit. However, this approximately 700-foot long section of Montrose Station Road is, in combination, straighter, wider and more level than any other portion of the roadway in the study area. In addition, Montrose Station Road is a relatively short, low volume roadway that does not provide access to major traffic generators and, as such, is probably seldom traveled by motorists who are unfamiliar with the roadway. These factors would suggest that most users of Montrose Station Road have foreknowledge of the roadway geometrics ahead, which may result in somewhat lower operating speeds at other locations in the Study area.

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#### D. EXISTING SIGNAGE

An inventory of existing signage in the study area is provided in Figure 2. As can be seen from the Figure, traveling from Washington Street, there is a warning sign, advising motorists to reduce speed to 25 miles-per-hour, followed by a curve-right sign with a "slow" panel before the first major curve in the road to the right. Subsequently, there is another 25-mph sign, followed by two chevrons and then a serpentine-road sign with a 25-mph panel, warning of the next set of reverse curves. The next set of signs, consisting of a double-offset-intersections sign with a blank panel, followed by two chevrons, then a "ROAD NARROWS" sign with a "HIDDEN DRIVEWAY" sign and a final subsequent chevron, advise of conditions in the vicinity of Oak Road.

Traveling in the reverse direction, a serpentine-road sign with a "HIDDEN DRIVEWAY" sign and a 25-mph panel, followed by a curve left sign with two chevron panels are posted for northeastbound traffic approaching Oak Road. Further along, by Travis Lane, are a pair of 25-mph signs and then a serpentine-road sign with a 25-mph panel before a series of curves near the northeast end of the road. Finally, approaching Washington Street there is a "YIELD AHEAD" sign followed by a "KEEP RIGHT" sign.

A review of the existing signing found that the current signage was appropriately placed but that supplemental signage, either in the form of additional signs or signs that are more attention-grabbing would be beneficial. In particular, there are presently no regulatory speed signs posted on the road, only warning signs, while the intersection of Oak Road with Montrose Station Road has very limited sight distances to the southwest and is a relatively busy location. Finally, it would be useful to advise motorists that the serpentine-road condition extends for the length of the roadway and is not confined to one or two locations.

#### E. EXISTING ACCIDENT HISTORY

Individual accident reports dating from March 1, 2003 to October 31, 2005 were obtained from the New York State Police. This was the extent of the available individual accident reports for the section of roadway under study. A review of this data indicated that there were eight (8) accidents in the 32 months for which data was available. With an average weekday traffic volume of 1,505 vehicles and accounting for slightly lower volumes on Saturdays and Sundays, it is calculated that the average accident rate on the 0.75 mile section of Montrose Station Road in the study area was 7.9 accidents per million-vehicle-miles.



According to the New York State Department of Transportation's Accident Records Book, the average accident rates on two-lane highways for the corresponding period was 3.66 accidents per million-vehicle-miles. Further, for a specific roadway's accident history to be statistically sufficient to warrant the attention of the NYSDOT, the observed accident rate would need to exceed 7.5 accidents per million-vehicle-miles traveled (the Critical Accident Rate). As can be seen, since the observed accident rate of 7.8 accidents per million-vehicle-miles is greater than the Critical Accident Rate, it can be concluded, with a 95 percent degree of certainty, that the subject section of roadway has an accident history that is greater than the average for similar two-lane roadways statewide.

A review of the individual accident reports is presented in Figure 3. As can be seen from the Figure, all of the accidents occurred at or near curved sections of the roadway, although no more than three occurred at any one location. Two of the accidents involved an intoxicated operator and one involved an animal action. All three of these accidents resulted in injuries. While it is difficult to specifically address the underlying cause of such accidents, the probability of the occurrence or the severity of such accidents would be reduced if the prevailing vehicles' speeds on Montrose Station Road could be reduced. Of the remaining five accidents, two occurred on a snowy or icy pavement, while one, which involved speeding, occurred on a wet pavement.

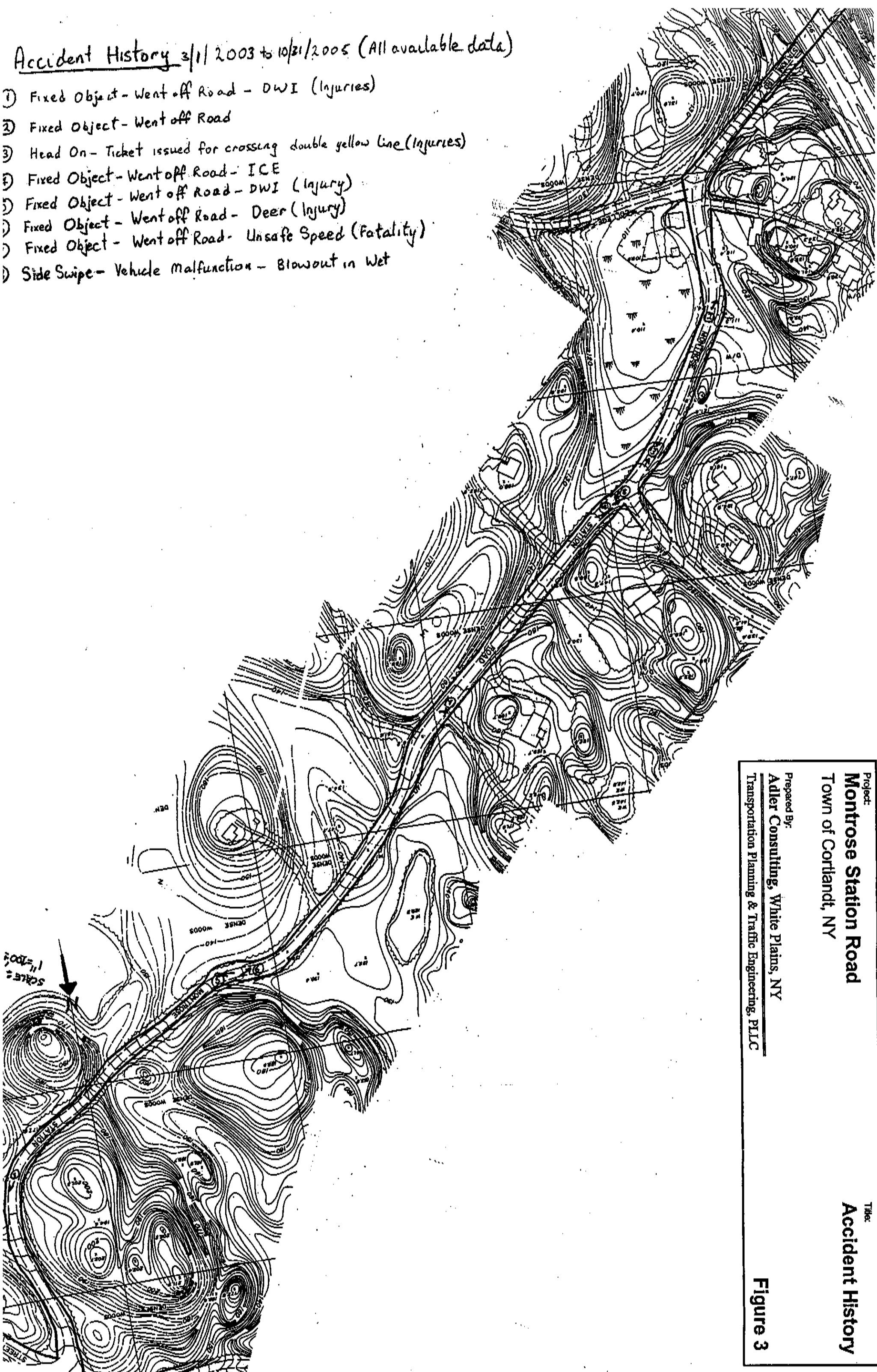
One of the accidents (accident No. SPPA96000137) resulted in a fatality. This accident, which involved a single vehicle traveling in a southwesterly direction, occurred on a dry pavement in daylight hours at a combination of curves. This was the only accident in the study period reported at this location. A warning sign with a 25mph advisory panel is posted approximately 350 feet in advance of the curves, which, based on Table 230-1 of New York Codes Rules and Regulations Title 17B, Part 230.2, is an appropriate distance to advise motorists traveling between 40 and 40 mph.

It is noted that none of the accidents involved vehicles turning into or out of driveways or streets, which would indicate that, although there are sight distance limitations at certain of these intersections, these limitations do not appear to have resulted in a significant safety hazard at these locations. Furthermore, six of the eight accidents involved single vehicles, suggesting that the narrowness of the roadway had only a limited impact on the accident frequency (one of the two multi-vehicle accidents occurred during a snowstorm when the responding officer recorded that the "vehicles front left tire went flat causing the driver of the car to lose control").



# Accident History 3/1/2003 to 10/31/2005 (All available data)

- 1) Fixed Object - Went off Road - DWI (Injuries)
- 2) Fixed Object - Went off Road
- 3) Head On - Ticket issued for crossing double yellow line (Injuries)
- 4) Fixed Object - Went off Road - ICE
- 5) Fixed Object - Went off Road - DWI (Injury)
- 6) Fixed Object - Went off Road - Deer (Injury)
- 7) Fixed Object - Went off Road - Unsafe Speed (Fatality)
- 8) Side Swipe - Vehicle Malfunction - Blowout in Wet



Project: <b>Montrose Station Road</b> Town of Cortlandt, NY	Title: <b>Accident History</b>
Prepared By: <b>Adler Consulting, White Plains, NY</b>	
Transportation Planning & Traffic Engineering, PLLC	
	<b>Figure 3</b>

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#### F. RECOMMENDATIONS

A review of the speed-survey data and the accident-report descriptions indicates that motorists are driving significantly faster than the applicable speed limit, which, in turn, is greater than the tolerances of certain portions of the road, particularly during inclement weather. Based on an inspection of the roadway and a thorough consideration of the findings presented heretofore, it is concluded that the most effective way to improve safety in the study area is to lower the operating speed of the roadway closer to a value that would bring the roadway's geometrics in line with currently promulgated design criteria.

**It is, therefore, recommended that, upon acceptance of this report, the Town prepare a one-page information bulletin summarizing its conclusions regarding speed and safety on Montrose Station Road (namely: a. That the roadway has an accident frequency that is considerably greater than the statewide average; b. That most motorists who use the roadway are frequent travelers of it; c. That speed has played a contributory role in a number of the accidents; d. That the average speed on the roadway is in excess of 35 miles per hour; and d. That the roadway geometry, especially during inclement weather, is only suitable for travel at 25 mph in many locations). The bulletin should also advise the public of the Town's intention to have enforcement stepped up on the roadway. The Town could then identify a suitable way of distributing the information bulletin to motorists who use the road so that, armed with this knowledge, they will hopefully modify their driving habits appropriately.**

**It is further recommended that, after the acceptance of this report by the Town and following a public Education program similar to that described above, the Town submit this report to the police agencies who are involved in speed enforcement on the road and request that additional enforcement be provided. Montrose Station Road users, having been forewarned, should have no grounds to complain if they are subsequently cited for a speeding violation.**

**It is further recommended that the Town increase its deployment of the Town's "Smart Machines" on a periodic basis at suitable locations on the roadway.**

**It is further recommended that the Town consider installing real-time speed signs, which indicate the speed at which motorists are traveling as the legally permissible speed limit. Given the abundance of signage in the vicinity of the curves on the roadway, it is suggested that if such signs are to be installed, they be placed just**

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northeast of Travis Lane, with one sign provided per direction. Alternatively, since the roadway has exhibited both a statistically-proven elevated accident history and a speeding problem (where the operating speed of the roadway is considerably more than ten miles per hour greater than the suitable operating speed - in this instance 25 mph), the town may wish to consider other traffic calming measures, such as grooving the pavement, at this location to deter speeding.






Based on a review of the roadway's geometric characteristics, including grade, sight distance and radii, it is concluded that a maximum legal speed limit of 25 mph on Montrose Station Road would be most appropriate. **It is, therefore, recommended that the Town petition the State Department of Transportation for permission to reduce the speed limit on this roadway. Upon said approval, it is proposed that all stand-alone 25-mph warning signs be replaced with 25-mph regulatory signs (black on white signs), that any necessary modification be made to the real-time speed signs and that all supplementary 25-mph warning signs be replaced with 20-mph supplementary warning signs.**



Apart from the hazards associated with the noted elevated operating speed, the road is also unforgiving at certain locations if motorists let their attention to the task of driving slip. To address this condition, it is recommended that the Town consider installing the following specific measures, which are shown graphically on Figure 4.

1. Cut back the rock face on the right side of Washington Street, as you approach Montrose Station Road from Peekskill, to provide at least 200 feet of sight distance for vehicles exiting Montrose Station Road onto Washington Street.
2. Reconfigure the intersection of Washington Street with Montrose Station Road by painting the double yellow line on Montrose Station Road to keep traffic exiting Montrose Station Road as far to the right (southeast) as is reasonably practical and by channelizing the southbound right-turn movement from Washington Street onto Montrose Station Road with a mountable-curbed island and a yield sign.
3. Remove loose rock and a single large tree from within five feet of the edge of the roadway on the southeast side of Montrose Station Road approximately 100 feet southwest of Washington Street.
4. Replace the existing curve-right warning sign and supplementary "SLOW" panel with a serpentine-road warning sign and a "LIMITED SIGHT DISTANCE" sign with

a supplementary "NEXT 1 MILE" panel on the northwest side of Montrose Station Road approximately 300 feet southwest of Washington Street.


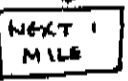
5. Remove the end of the loose rock wall within five feet of the roadway on the northwest side of Montrose Station Road approximately 400 feet southwest of Washington Street.
6. Install yellow reflectors at 20-foot intervals along the centerline of Montrose station Road and white reflectors along the edgelines of Montrose Station Road at 20-foot intervals along the curved sections of roadway indicated on Figure 4.
7. Remove rock outcrop within five feet of the roadway on the northwest side of Montrose Station Road approximately 900 feet southwest of Washington Street.
8. Install an intersection-ahead warning sign and a "SCHOOL BUS STOP" warning sign with a "DRIVEWAY" supplementary panel on the northwest side of Montrose Station Road on the curve to the northeast of the driveway to Number 93.
9. Install an intersection-ahead warning sign with a "DRIVEWAY" supplementary panel on the southeast side of Montrose Station Road on the curve to the southwest of the driveway to Number 93.
10. Install a guide rail on the northwest side of Montrose Station Road as necessary, approximately 200 feet to the southwest of the driveway to Number 93.
11. Remove the tree and loose stone wall within five feet of the roadway on the southeast side of Montrose Station Road approximately 250 feet southwest of Number 93.
12. Install an intersection-ahead warning sign with a "DRIVEWAY" supplementary panel on the northwest side of Montrose Station Road on the curve to the northeast of the driveway to Number 77/81.
13. Remove loose rock and prune shrubs back within seven feet of the roadway for a distance of 15 feet on either side of the driveway to Number 100.
14. Widen Montrose Station Road on its southeast side at Travis Lane to provide a two-foot shoulder on the southeast side of the road and relocate the existing utility pole at that location so that it is at least three feet off the shoulder.

- ① Remove rocks to provide at least 200' of sight distance.
- ② Stripe roadway, put in mountable island with an "YIELD" sign.
- ③ Remove loose rocks and one tree within 5' of roadway.
- ④ Replace existing sign with 
- ⑤ Remove end of loose rock within 5' of roadway.
- ⑥ Install reflectors in pavement along centerline and edgelines at 20' centres.
- ⑦ Remove rock outcrop within 5' of roadway.
- ⑧ Install  and  signs.
- ⑨ Install  sign.
- ⑩ Install guide rail
- ⑪ Remove tree and loose stone wall within 5' of road.
- ⑫ Install  sign.
- ⑬ Remove rocks and prune shrubs within 7' of roadway.
- ⑭ Provide 2' shoulder at Travis Lane and relocate utility pole back by 3'
- ⑮ Relocate signs onto flashing beacon.
- ⑯ Prune vegetation within 7' of roadway
- ⑰ Cut rock face back to provide 145' of sight distance.

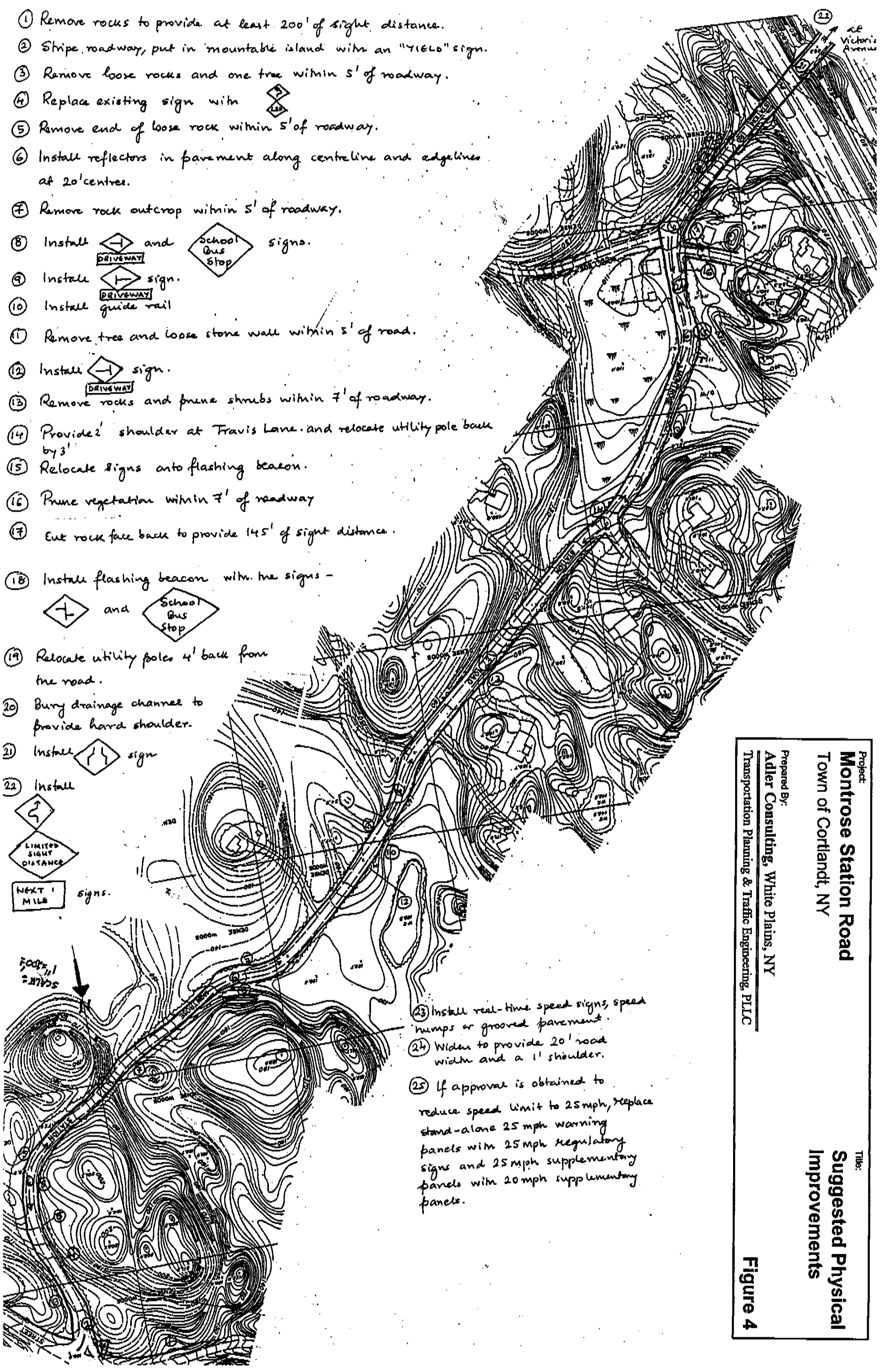
- ⑱ Install flashing beacon with the signs -  and 

- ⑲ Relocate utility poles 4' back from the road.
- ⑳ Bury drainage channel to provide hard shoulder.

- ㉑ Install  sign

- ㉒ Install   signs.

- ㉓ Install real-time speed signs, speed humps or grooved pavement.
- ㉔ Widen to provide 20' road width and a 1' shoulder.
- ㉕ If approval is obtained to reduce speed limit to 25mph, replace stand-alone 25mph warning panels with 25mph regulatory signs and 25mph supplementary panels with 20mph supplementary panels.



Project: <b>Montrose Station Road</b> Town of Cortlandt, NY	Title: <b>Suggested Physical Improvements</b>
Prepared By: <b>Adler Consulting, White Plains, NY</b> Transportation Planning & Traffic Engineering, PLLC	<b>Figure 4</b>

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15. Install a flashing beacon, relocate the existing double-intersections sign onto the beacon and add a 20-mph supplementary panel on the northwest side of Montrose Station Road, approximately 250 feet northeast of Oak Road.

16. Prune back vegetation within seven feet of the roadway for a distance of 15 feet on the northwest side of Montrose Station Road on the northeast side of Oak Road.

17. In combination with the recommendation to reduce the speed limit of the road to 25 mph, cut back the rock face on the northwest side of Montrose Station Road, immediately to the southwest Oak Road to increase sight distance to the right to 145 feet.

18. Install a double-intersection warning sign with a "SCHOOL BUS STOP" sign on a flashing beacon on the southeast side of Montrose Station Road approximately 200 feet southwest of Oak Road.

19. Relocate utility poles four feet back from the southeast edge of Montrose Station Road for a distance of approximately 350 feet southwest from Oak Road.

20. Bury the existing drainage channel along the southeast edge of Montrose Station Road and provide a hard shoulder for a distance of approximately 350 feet southwest from Oak Road.

21. Install a road-narrows warning sign on the southeast side of Montrose Station Road immediate to the southwest of the Route 9 overpass.

22. Install a serpentine-road warning sign and a "LIMITED SIGHT DISTANCE" warning sign with a "NEXT 1 MILE" supplementary panel on utility pole No. 40 located on the southeast side of Montrose Station Road just to the northeast of Victoria Avenue.

23. As previously discussed, install real-time speed signs, speed humps or grooved pavement on Montrose Station Road approximately 300 feet northeast of Travis Lane.

24. Widen Montrose Station Road in the vicinity of Oak Road to provide a roadway width of 20 feet with a one-foot shoulder.

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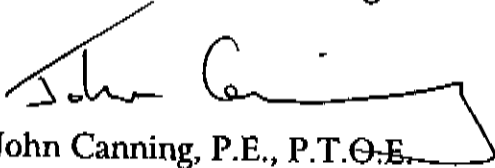
25. As previously discussed, if approval is obtained to post a 25-mph speed limit on Montrose Station Road, revise the existing signage accordingly, replacing stand-alone 25-mph warning panels with 25-mph regulatory panels and supplementary 25-mph warning panels with 20-mph supplementary panels.

I trust that this information will assist you in your review of this issue.

Sincerely,

**Adler Consulting**

**Transportation Planning & Traffic Engineering, PLLC**

A handwritten signature in black ink, appearing to read "John Canning", written over a horizontal line.

John Canning, P.E., P.T.O.E.

Sr. Associate.

Weather :  
 Counted by :  
 Board # :  
 Other :

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03:00	134	0	0	1	7	38	42	36	9	1	0	0	0	0	0	0	0	0	1
04:00	121	1	0	2	5	23	58	25	5	1	0	0	0	0	0	0	0	0	0
05:00	125	1	1	1	6	29	41	32	10	3	0	0	0	0	0	0	0	0	1
06:00	89	0	0	0	7	36	28	9	7	1	0	0	0	0	0	0	0	0	1
07:00	71	0	3	6	12	21	19	6	3	0	1	0	0	0	0	0	0	0	1
08:00	52	0	0	0	4	18	19	6	4	1	0	0	0	0	0	0	0	0	0
09:00	47	0	6	6	16	9	2	3	0	0	0	0	0	0	0	0	0	0	0
10:00	14	0	0	6	5	2	0	1	0	0	0	0	0	0	0	0	0	0	0
11:00	12	2	1	2	1	4	0	1	0	0	0	0	0	0	0	0	0	0	0
Day Totals	980	9	14	28	88	254	320	183	65	12	2	1	0	0	0	0	0	0	0
12:00 03/09	7	0	0	1	0	3	1	2	0	0	0	0	0	0	0	0	0	0	4
01:00	8	6	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
02:00	8	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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07:00	152	2	0	3	16	34	54	32	5	1	0	0	0	0	0	0	0	0	0
08:00	131	4	4	9	12	32	47	17	6	0	0	0	0	0	0	0	0	0	1
09:00	46	7	0	14	9	9	5	2	0	0	0	0	0	0	0	0	0	0	0
10:00	71	10	13	18	19	7	3	1	0	0	0	0	0	0	0	0	0	0	0
11:00	63	1	0	1	7	18	26	5	5	0	0	0	0	0	0	0	0	0	0
12:00 pm	67	0	0	0	5	11	30	10	11	0	0	0	0	0	0	0	0	0	0
Grand Total	1586	46	33	76	162	381	506	262	94	18	2	1	0	0	0	0	0	0	5

Speed Statistics  
 15th Percentile Speed : 27 MPH  
 Median Speed (50th percentile): 36 MPH  
 Average Speed - All Vehicles : 36 MPH  
 85th Percentile Speed : 42 MPH  
 95th Percentile Speed : 47 MPH  
 10 MPH Pace Speed : 31-40 MPH  
 Number of Vehicles in Pace : 887  
 Percent of Vehicles in Pace : 56.01%  
 Number of Vehicles > 30 MPH : 1269  
 Percent of Vehicles > 30 MPH: 80.13%



Begin Time	Total	0 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50	51 - 55	56 - 60	61 - 65	66 - 70	71 - 75	76 - 999
12:00 03/08		*	*	*	*	*	*	*	*	*	*	*	*	*	*
01:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*
02:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*
03:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*
04:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*
05:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*
06:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*
07:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*
08:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*
09:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*
10:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*
11:00		*	*	*	*	*	*	*	*	*	*	*	*	*	*
12:00 pm	41	0	1	3	4	9	14	6	4	0	0	0	0	0	0
01:00	39	0	0	0	4	9	7	8	1	0	0	0	0	0	0
02:00	61	1	0	1	6	15	14	6	4	1	0	0	0	0	0
03:00	73	0	0	0	4	10	7	8	1	0	0	0	0	0	0
04:00	57	0	0	1	7	18	22	13	8	2	0	0	0	0	0
05:00	59	1	0	1	3	12	26	19	5	1	0	0	0	0	0
06:00	36	0	0	1	3	19	26	12	3	2	0	0	0	0	1
07:00	40	0	0	0	3	10	20	9	3	0	0	0	0	0	0
08:00	32	0	2	5	9	17	17	2	2	0	0	0	0	0	0
09:00	30	2	0	0	3	9	10	2	3	1	0	0	0	0	0
10:00	8	0	2	5	12	4	9	4	1	0	0	0	0	0	0
11:00	4	0	0	3	4	0	2	3	0	0	0	0	0	0	0
Day Totals	480	5	1	2	0	0	0	1	0	0	0	0	0	0	0
12:00 03/09	3	0	0	22	56	118	149	82	31	7	0	0	0	0	0
01:00	3	0	0	1	0	1	1	0	0	0	0	0	0	0	0
02:00	6	2	0	0	0	1	1	0	0	0	0	0	0	0	2
03:00	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
04:00	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0
05:00	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0
06:00	13	0	0	1	0	0	1	0	0	0	0	0	0	0	0
07:00	65	0	0	0	4	3	0	1	0	0	0	0	0	0	0
08:00	48	1	1	2	10	16	5	1	0	0	0	0	0	0	0
09:00	28	2	1	3	5	16	26	4	0	0	0	0	0	0	0
10:00	33	2	4	11	8	12	19	5	4	3	0	0	0	0	0
11:00	27	1	0	12	8	4	2	2	0	0	0	0	0	0	0
12:00 pm	32	0	0	1	2	1	1	1	0	0	0	0	0	0	0
Grand Total	742	18	11	54	103	171	230	101	42	10	0	0	0	0	2

Eastbound

Speed Statistics  
 15th Percentile Speed : 26 MPH  
 Median Speed (50th percentile) : 35 MPH  
 Average Speed - All Vehicles : 35 MPH  
 85th Percentile Speed : 42 MPH  
 95th Percentile Speed : 47 MPH  
 10 MPH Pace Speed : 31-40 MPH  
 Number of Vehicles in Pace : 401  
 Percent of Vehicles in Pace : 54.06%  
 Number of Vehicles > 30 MPH : 556  
 Percent of Vehicles > 30 MPH : 74.96%

**B to A Westbound**

Bin	Total	0 - 15	16 - 20	21 - 25	26 - 30	31 - 35	36 - 40	41 - 45	46 - 50	51 - 55	56 - 60	61 - 65	66 - 70	71 - 75	76 - 999
55	0	1	0	5	17	19	9	4	0	0	0	0	0	0	0
45	0	0	0	1	9	19	12	3	1	0	0	0	0	0	0
74	0	1	0	0	14	30	17	7	1	0	0	0	0	0	0
61	0	0	0	0	20	20	16	4	0	0	0	0	0	0	0
64	1	0	0	0	11	20	17	4	0	0	0	0	0	0	0
66	0	0	1	1	3	10	32	21	1	0	0	0	0	0	0
53	0	0	0	0	4	25	11	23	7	1	0	0	0	0	0
31	0	0	0	0	3	10	21	7	4	0	0	0	0	0	0
20	0	1	0	0	4	12	9	2	1	0	0	0	0	0	0
17	2	0	0	1	3	6	10	2	1	0	0	0	0	0	0
6	0	4	1	1	4	5	0	1	1	0	0	0	0	0	0
8	1	0	0	0	1	2	0	0	0	0	0	0	0	0	0
500	4	8	6	30	136	171	101	34	5	2	1	0	0	0	0
4	0	0	0	0	2	0	2	0	0	0	0	0	0	0	0
5	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0
2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0
87	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
83	0	0	0	1	7	11	7	0	0	0	0	0	0	0	0
18	3	3	6	7	18	28	2	1	1	0	0	0	0	0	0
38	5	0	3	7	20	28	1	2	0	0	0	0	0	0	0
36	8	9	6	7	5	3	12	4	0	0	0	0	0	0	0
35	0	0	0	5	9	2	0	0	0	0	0	0	0	0	0
844	28	22	22	59	210	276	161	52	8	2	1	0	0	0	0

25 Hours  
 15th Percentile Speed : 29 MPH  
 Median Speed (50th percentile) : 36 MPH  
 Average Speed - All Vehicles : 36 MPH  
 85th Percentile Speed : 42 MPH  
 95th Percentile Speed : 47 MPH  
 10 MPH Pace Speed : 31-40 MPH  
 Number of Vehicles in Pace : 486  
 Percent of Vehicles in Pace : 57.65%  
 Number of Vehicles > 30 MPH : 713  
 Percent of Vehicles > 30 MPH : 84.58%