



HAMLET OF RHINECLIFF

Town of Rhinebeck, New York

Traffic Study



July 11, 2007

Hamlet of Rhinecliff Traffic Study

A. INTRODUCTION

This report assesses the existing traffic safety conditions within the Hamlet of Rhinecliff, Dutchess County, New York. The discussion below assesses speed survey results and accident data analysis within and near the Hamlet.

Figure 1 shows an aerial with topography for the study area. Figure 2 shows the traffic study area. Rhinecliff Road/Charles Street/Kelley Street/Morton Road is the main roadway to access the Hamlet and travels through the center of the Hamlet in a north-south direction. Figure 3 shows the roadway jurisdiction for Rhinecliff Road/Charles Street/Kelley Street through the Hamlet. The Amtrak Rhinecliff railroad station is accessible directly off of Charles Street and its larger parking area is located off of the west end of Shatzell Avenue.

B. VOLUME & SPEED DATA ANALYSIS

Figure 4 shows the locations where volume and speed data were collected within the Hamlet.

Volume

The Average Daily Traffic (ADT) at Location #1 (conducted from May 12 to 18, 2007) is approximately 2,350 vehicles (approximately 1,175 in each direction).

The ADT at Location #2 (conducted from May 2 to 9, 2007) is approximately 1,900 vehicles (approximately 950 in each direction).

The ADT at Location #3 (conducted from May 2 to 9, 2007) is approximately 440 vehicles (approximately 220 in each direction).

Other roadways in the Hamlet (e.g., Orchard Drive) generally carry light volumes of 100 ADT or less.

Speed

The posted speed limits at Location #1 are 35 and 45 MPH in the southbound and northbound directions, respectively. The average speed is lower and the 85th percentile (85 percent of vehicles travel at that speed or less) speed is equal to the posted speed limit in the southbound direction. The average speed and 85th percentile speed are below the posted speed limit in the northbound direction. However, the highest recorded speeds at this location are approximately 50 and 60 MPH in the southbound and northbound directions, respectively.

The posted speed limits at Location #2 are 30 and 35 MPH in the southbound and northbound directions, respectively. The average and 85th percentile speeds in the southbound direction are higher compared to the posted speed limit for this direction. In the northbound direction the average and 85th percentile speeds are below the posted speed in this direction. However, the

highest recorded speeds at this location are approximately 50 and 55 MPH in the southbound and northbound directions, respectively.

The posted speed limits at Location #3 are 30 MPH in both directions. The average and 85th percentile speed in the southbound direction are higher compared to the posted speed limit. In the northbound direction the average speed is less and the 85th percentile speed is higher compared to the posted speed limit. The highest recorded speeds at this location are 60 to 55 MPH in the southbound and northbound directions, respectively.

The roadways in the Hamlet carry moderate (Rhinecliff Road/Charles Street/Kelly Street/Morton Road, ADT ranging from 203 to 1,172 depending on the location) to light (all other Hamlet roadways, ADT of generally less than 100 vehicles) volumes. Many of the roadways are narrow, there are sharp horizontal curves, vertical curves with limited sight distance and steep grades (see **Section F. Study Area Roadways**). Given the existing geometric and physical constraints of the roadway system, light to moderate traffic volumes that are currently being experienced are appropriate for the Hamlet.

The Hamlet is generally a very quiet residential area with bicyclists and pedestrians sharing the roadway with vehicular traffic. Therefore, isolated incidents of speeding (e.g., 50 to 60 MPH approximately 15 to 30 MPH over the posted speed limit) are very likely to be noticeable compared to other more populated areas.

The detailed volume and speed backup data collected in the field has been submitted to the Town Highway Superintendent's office. The backup speed data shows the speed in 15-minute increments for the entire day, a bar chart of the speeds for the entire time period data was collected, and a line diagram for the average, median, 67th percentile, and 85th percentile speeds for the entire time the data was collected.

C. ACCIDENT ANALYSIS

Figure 5 shows the most recent six years of traffic accident data for various locations in the study area compiled from the Dutchess County Traffic Safety Board records (compiled from Local, County, and State agencies, see the Appendix for detailed accident data records) for the period of January 1, 2000 through December 31, 2005. A review of these data shows that the intersections of Charles Street/Rhinecliff Road at Orchard Drive, Rhinecliff Road at Slate Dock Road, and Rhinecliff Road at Long Dock Road experienced the highest number of accidents (4) over the five-year time period examined. The highest number of annual accidents at any given location in the study area was 2 accidents. According to the data, there was one notable accident that occurred in the study area south of Shatzell Avenue between a bus and car on the sharp horizontal curve between James Street and Butler Street. This accident was a head-on collision between the bus and car that occurred during icy pavement conditions. A review of this data also shows that none of the traffic accidents in the study area resulted in fatalities.

The accident rate on Rhinecliff Road/Charles Street/Kelly Street/Morton Street is 1.58 accidents/million vehicle miles traveled. The statewide accident rate is 2.81 accidents/million vehicle miles traveled for a rural undivided 2 lane roadway. Therefore, the accident rate is lower than the state average.

D. BICYCLE CONDITIONS

Rhinecliff Road/Charles Street/Kelley Street/Morton Road is part of the Dutchess County Bike/Hike Tour Trail System. The Rhinebeck/Red Hook Tour guides bicyclists through Rhinecliff along Rhinecliff Road/Charles Street/Kelley Street/Morton Road (see Figure 3). Based on discussions with residents of the Hamlet, bicyclists use Kelly Street despite the fact that the bike/hike trail diverts to Grinnell Street at that point. Currently, exclusive facilities designated for bicycles (e.g., bicycle only lanes) do not exist in the Hamlet.

E. SIGN INVENTORY

Figure 6 shows the existing signs with the Hamlet.

F. STUDY AREA ROADWAYS

Figure 7 shows the roadway widths and traffic volumes on some of the study area streets within the Hamlet. As discussed above, many of these streets are narrow, have steep grades and carry fairly low volumes. Given the narrow streets and the close proximity of the homes to the roadway, speeding (even isolated instances) and minor increases in volume are noticeable and concerning to area residents.

Previous studies performed by Chazen Engineering & Land Surveyors Co, PC and the Rhinecliff Safe Traffic Committee identified sight distance deficiencies at many of the cross streets along Rhinecliff Road/Charles Street/Kelly Street/Morton Road as well as pedestrian and speeding safety issues at the sharp horizontal curve located on Kelly Street between James Street and Butler Street. At this location there are warning 20 MPH signs posted. Based on stationary speed observations conducted at this location, speeds of approximately 25 to 34 MPH (fast for this roadway condition) were recorded.

G. EXISTING DEFICIENCIES AND POTENTIAL SAFETY ISSUES

The following is a list of existing deficiencies and potential safety issues:

- Sharp and potentially dangerous horizontal curve located on Kelly Street where a bad accident occurred in 2005 between a bus and car. Speeding approximately 5 to 14 MPH above the warning 20 MPH signs posted at this location.
- Instances of speeding were recorded at the three locations shown on Figure 4. Speeds of approximately 15 to 30 MPH above the posted speed limits were recorded. Speeding generally occurred in the morning hours (6AM to 8AM) and late evening time periods (10 PM to 12 AM). The numbers of drivers exceeding the posted speed limit ranged between 1 and 10 percent depending on the location.
- Bicyclists that do not use the designated bike/hike trail on Grinnell Street between Butler Street and Shatzell Avenue.
- Poorly marked streets – faded or absent pavement markings on Hamlet Streets.
- No significant announcement signage upon entering the Hamlet.

H. CONCLUSION AND RECOMMENDATIONS

Based on the information gathered for this study and from previous studies Rhinecliff Road/Charles Street/Kelly Street/Morton Road would benefit from the implementation of several traffic safety improvement measures. The measures outlined on Figure 8 (this is one possible improvement scenario that could be implemented to improve safety and maintain quality of life in Rhinecliff) are recommendations and it is not necessarily suggested that all measures be implemented. Rather Town officials, the Rhinecliff Traffic Committee, and Police officials decide which measures they think are the most effective and feasible for implementation. Once the committee decides on the measures to be implemented more detailed costs for installation can be determined based on consultation with the vendors of these products.

Speed Limit

- Reduce southbound Rhinecliff Road speed limit from 45 to 35 MPH, just south of Slate Dock Road. A copy the Dutchess County Form TE-9A, which is used to request a speed limit change, as well as a copy of section 1622 of the NYS Vehicle & Traffic Law, which details how speed limits are established are included in the Appendix of this report.
- Reduce southbound Rhinecliff Road speed limit from 35 to 30 MPH, just north of Orchard Drive.
- Reduce southbound and northbound Charles Street speed limits from 30 to 25 MPH near Hutton Street.
- Reduce northbound Morton Road speed limit from 30 to 25 MPH, just south of Howland Avenue.

Signage/Landscaped Splitter Islands

- Illuminated Hamlet signage could be installed at the north and south ends of the Hamlet with signage stating “Reduce Speed Pedestrians Ahead – Children at Play” or landscaped splitter islands could be installed at these locations to separate the northbound and southbound traffic streams.

Enforcement

- Portable speed trailers (see Figure 9) that display drivers real-time speeds compared to the speed limit could be utilized. These trailers are most effective when they flash SLOW DOWN or flash a bright white light that mimics a speed camera or a blue and red light that mimics a police car when the driver is going too fast.
- Employ traditional enforcement techniques (increased police presence and aggressive ticketing).

Pavement Markings

- Road edge pavement markings and reflector delineation along the centerline could be installed. This will highlight the lane width (seemingly reducing it) and may provide for a reduction in speed.

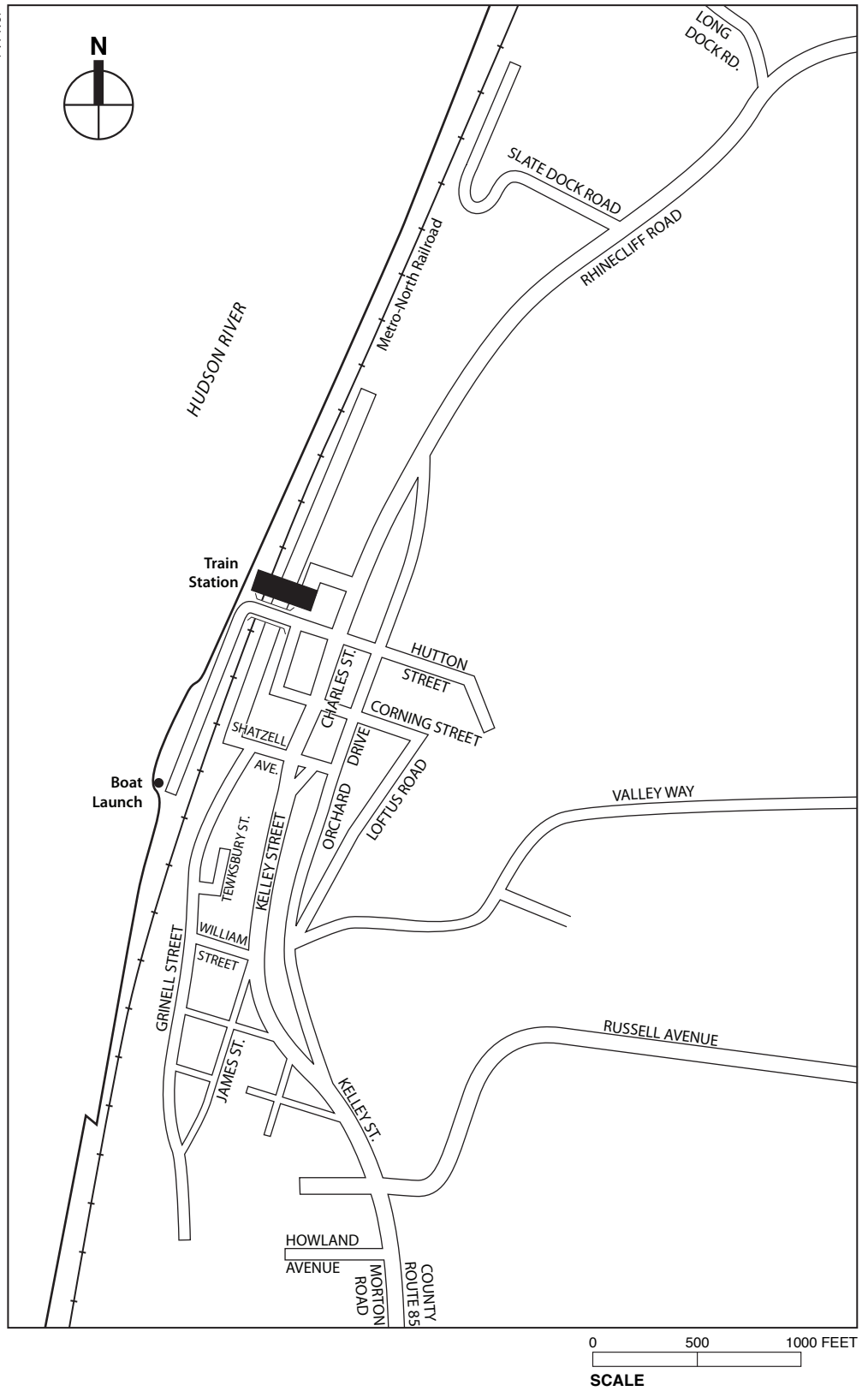
Speed Hump

- The installation of low profile speed humps to reduce speed and control traffic flow at the sharp horizontal curve on Kelley Street (see Figure 10).

It is recommended that once the improvement measures are implemented that a post-implementation study be conducted to determine the effectiveness of the measures.



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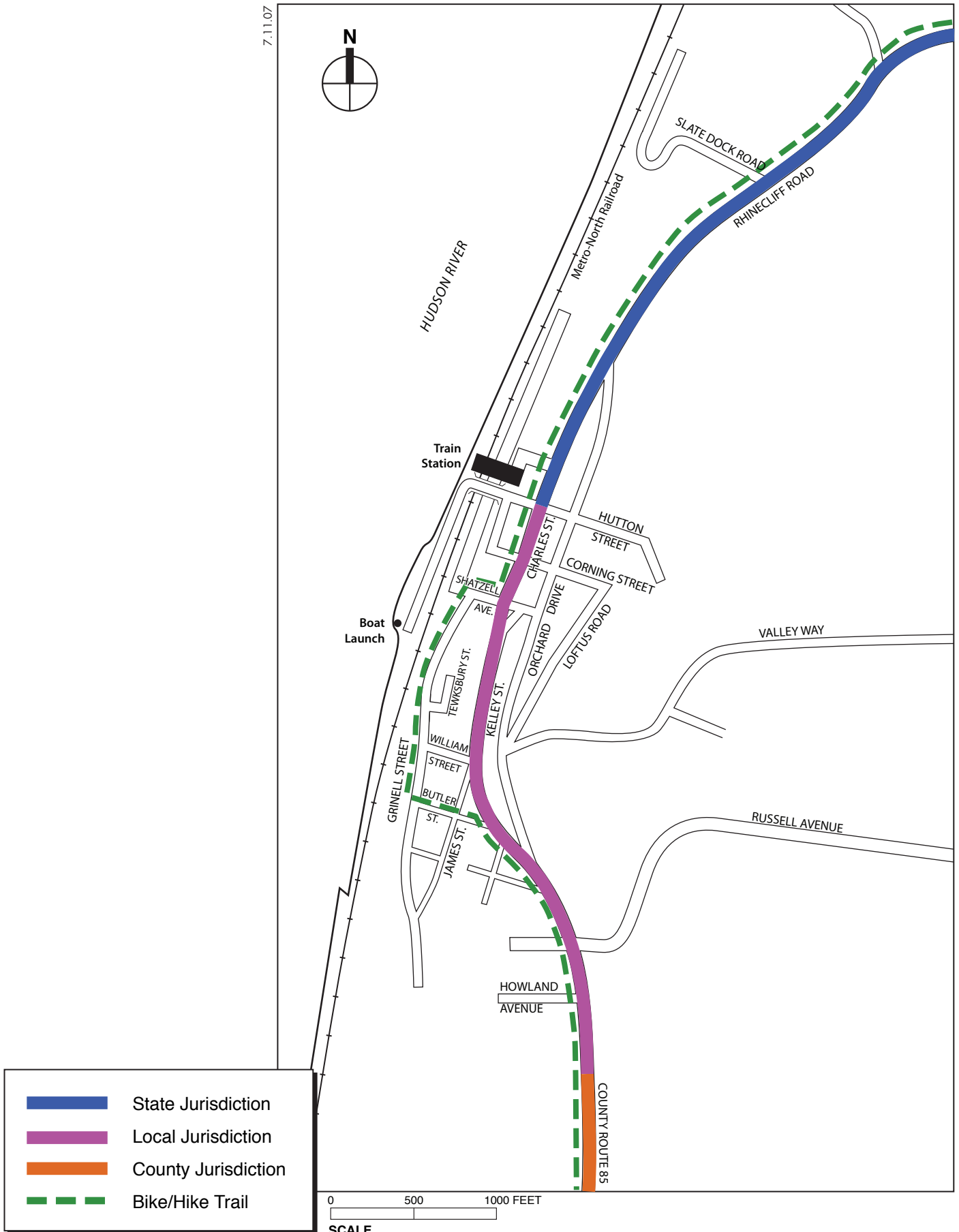


Figure 3

Roadway Jurisdictions and Dutchess County Bike/Hike Tour Trail System

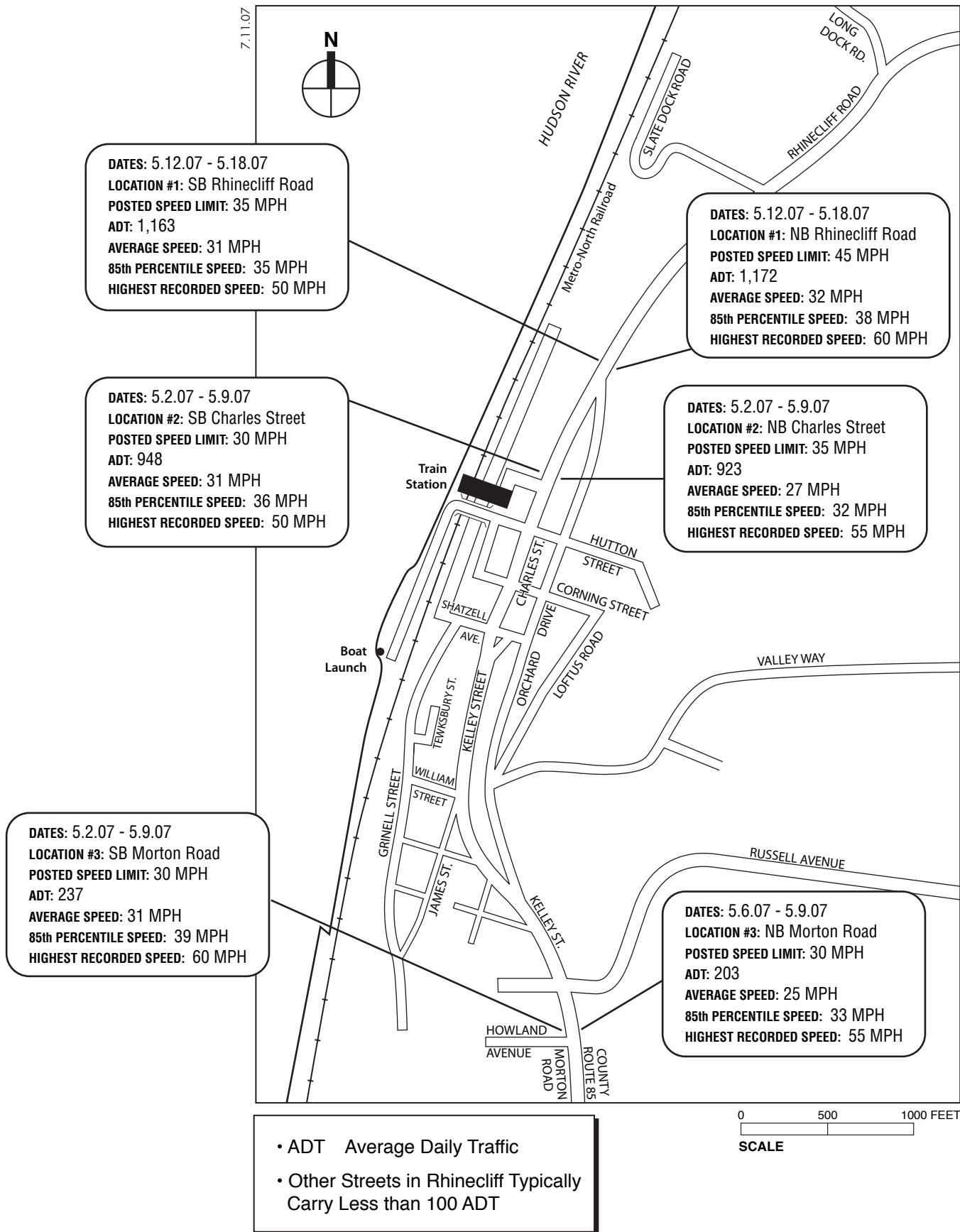


Figure 4

RHINEBECK Hamlet of Rhinecliff **Volume and Speed Data**

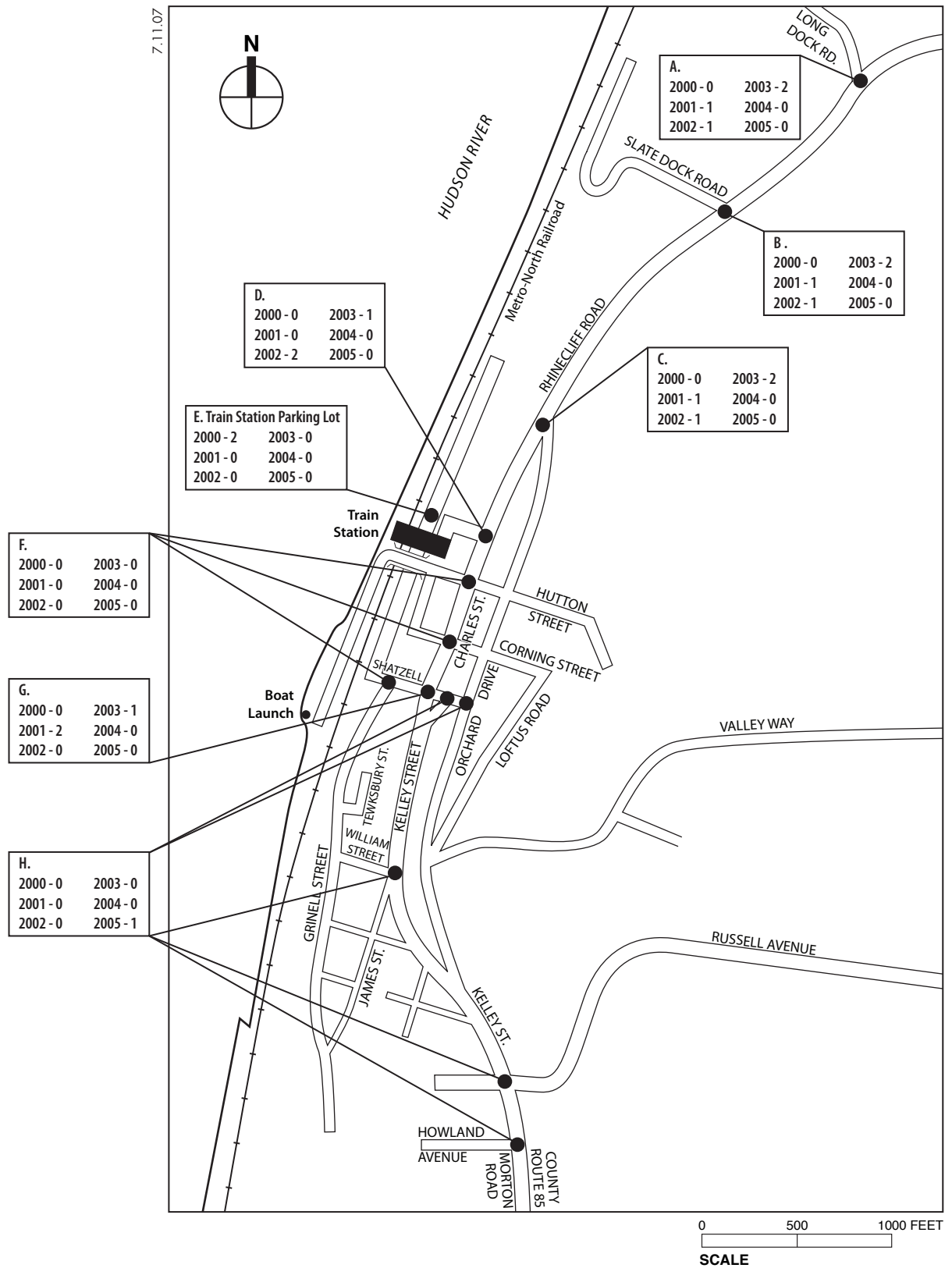
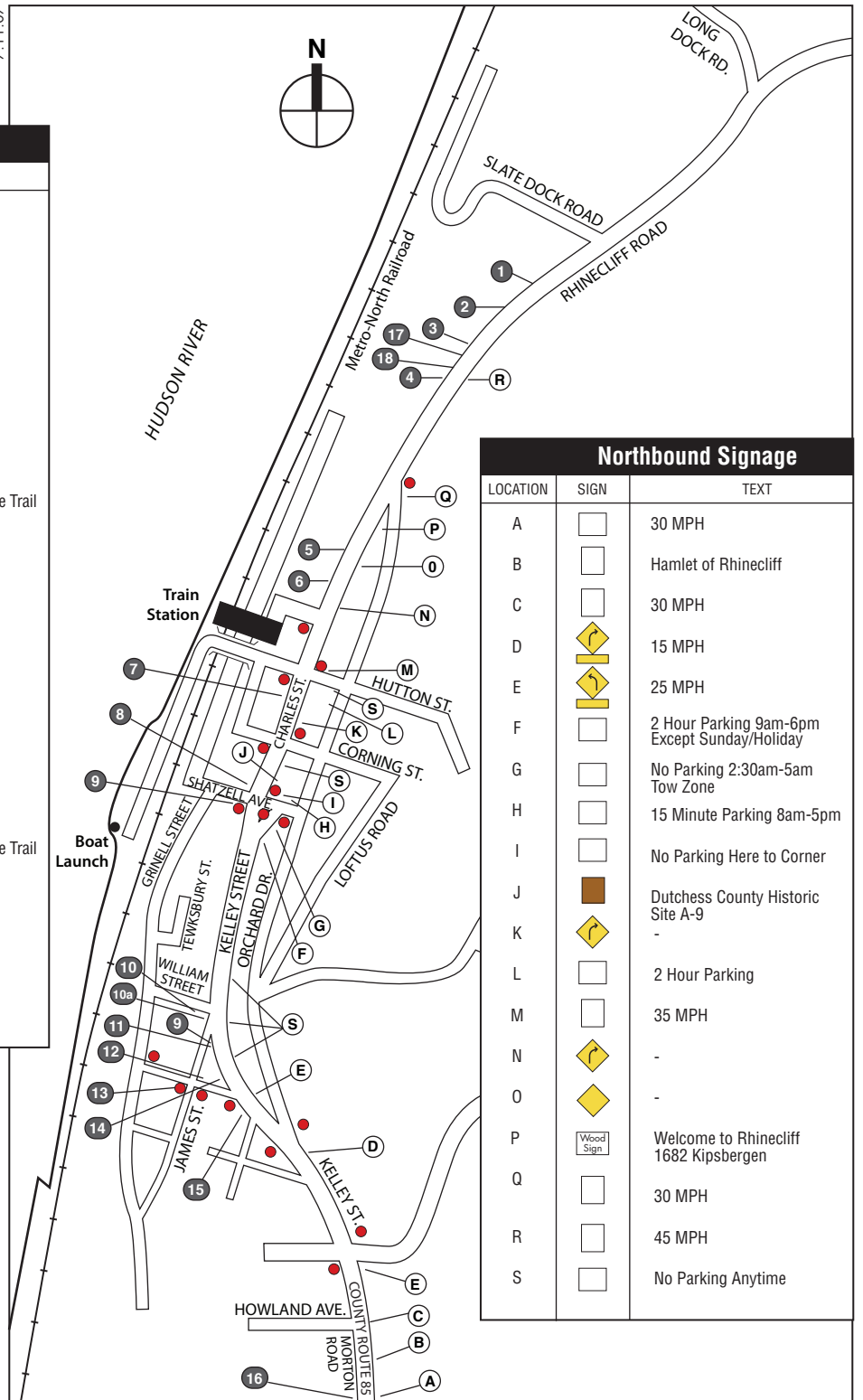


Figure 5

Traffic Accident Locations: 2000 - 2005
Rhinecliff Road/Charles Street/Kelley Street/Morton Road

Southbound Signage		
LOCATION	SIGN	TEXT
1		-
2		45 MPH
3		-
4		35 MPH
5		30 MPH
6		Rail Station
7		No Parking Anytime
8		1 Rhinebeck Historic Distric Bike/Hike Trail 2 Heritage Greenway Trail
9		DC 85
10		20 MPH
10a		Yield
11		Chevron Sign
12		Chevron Sign
13		Chevron Sign
14		Chevron Sign
15		1 Rhinebeck Historic Distric Bike/Hike Trail 2 Heritage Greenway Trail
16		45 MPH
17		-
18		-

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● Stop Sign

0 500 1000 FEET
SCALE

Northbound Signage		
LOCATION	SIGN	TEXT
A		30 MPH
B		Hamlet of Rhinecliff
C		30 MPH
D		15 MPH
E		25 MPH
F		2 Hour Parking 9am-6pm Except Sunday/Holiday
G		No Parking 2:30am-5am Tow Zone
H		15 Minute Parking 8am-5pm
I		No Parking Here to Corner
J		Dutchess County Historic Site A-9
K		-
L		2 Hour Parking
M		35 MPH
N		-
O		-
P		Welcome to Rhinecliff 1682 Kipsbergen
Q		30 MPH
R		45 MPH
S		No Parking Anytime

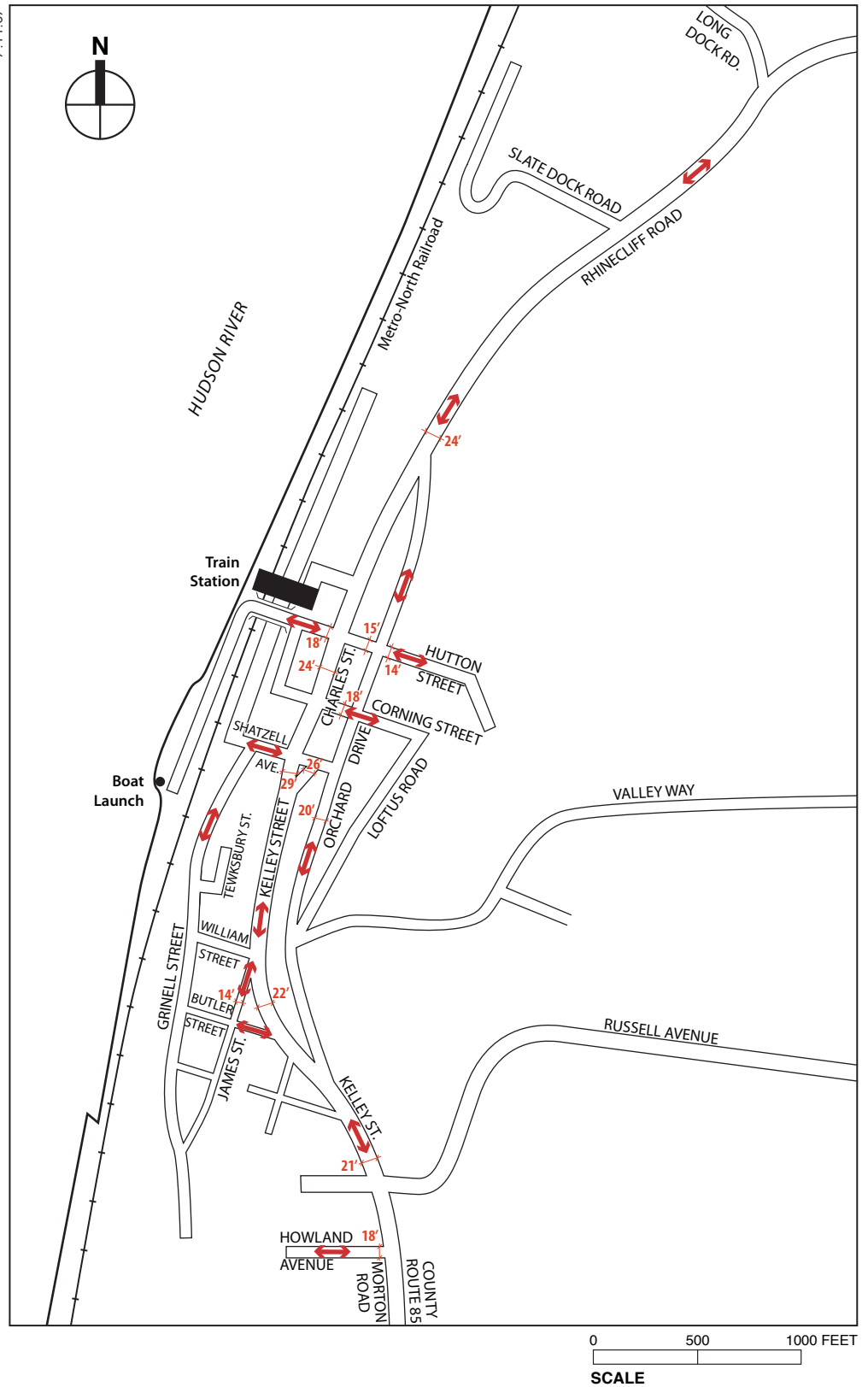
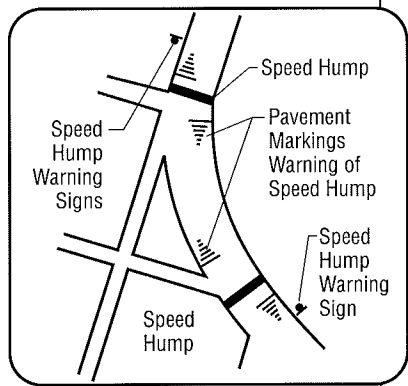


Figure 7
Street Widths and Direction

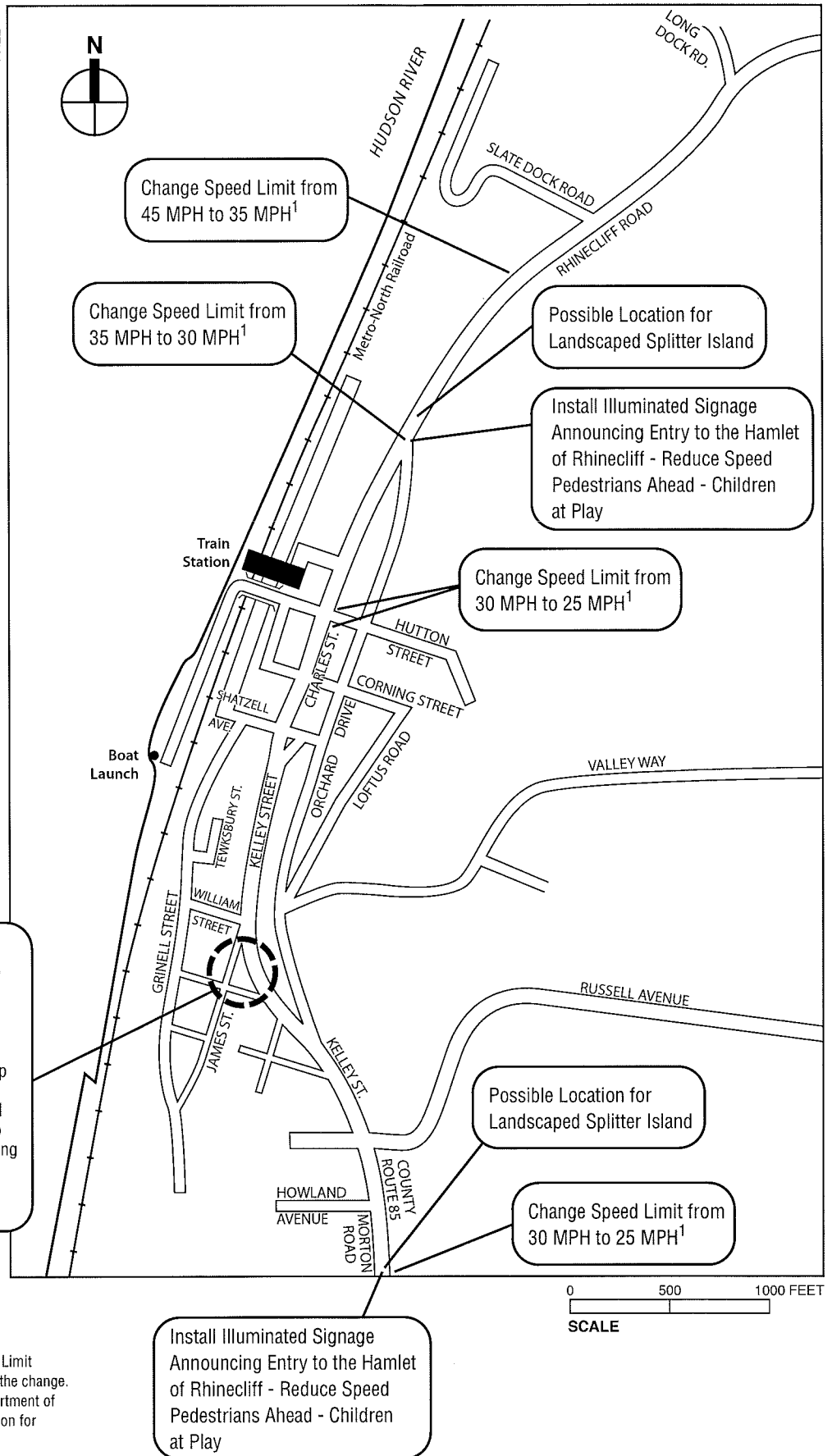
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- ENFORCEMENT:**
- Speed Trailer (See Fig. 9)
 - Increase Police Presence and Aggressive Ticketing

- PAVEMENT MARKINGS:**
- Reflector Delineation Along Double Yellow Line
 - Add Edge of Road Pavement Markings to Rhinecliff Road - Charles Street - Kelly Street - Morton Road

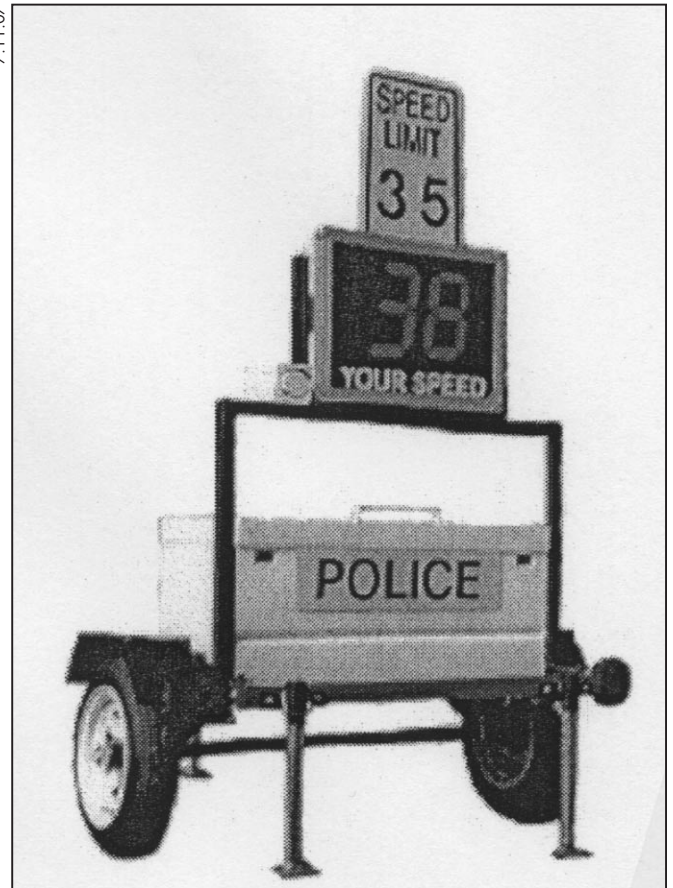


(See Figure 10 for Photographs)



1: In order for the Town to change (lower) the Speed Limit the Town Board must pass a resolution requesting the change. The request must be submitted to the County Department of Public Works and NYSDOT Traffic and Safety Division for review and approval.

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Speed Hump Warning Sign 1



Speed Hump and Speed Hump Pavement Markings 2

Figure 10

Photographs

(For Illustrative Purposes - Photographs Taken at a Sharp Horizontal Curve in the Village of Tuckahoe)