

# Mid-Hudson Valley Transportation Management Area: Large Truck Crash Analysis

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## **Dutchess County Transportation Council (DCTC)**

85 Civic Center Plaza, Suite 107

Poughkeepsie, NY 12601

Phone: (845) 486-3600

Fax: (845) 486-3610

Email: [dctc@dutchessny.gov](mailto:dctc@dutchessny.gov)

[www.dutchessny.gov/dctc](http://www.dutchessny.gov/dctc)

## **Orange County Transportation Council (OCTC)**

124 Main Street

Goshen, NY 10924

Phone: (845) 615-3840

Fax: (845) 291-2533

Email: [octc@orangecountygov.com](mailto:octc@orangecountygov.com)

<https://www.orangecountygov.com/OCTC>

## **Ulster County Transportation Council (UCTC)**

244 Fair Street

PO Box 1800

Kingston, NY 12402

Phone: (845) 340-3340

Fax: (845) 340-3429

Email: [uctc@co.ulster.ny.us](mailto:uctc@co.ulster.ny.us)

<https://ulstercountyny.gov/transportation-council>

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# Mid-Hudson Valley Transportation Management Area: Large Truck Crash Analysis

## Background and Purpose

This report presents our analysis of large truck crashes within the Mid-Hudson Valley Transportation Management Area (TMA) region, encompassing Dutchess, Orange, and Ulster counties. It responds to a recommendation of our broader [Regional Freight Analysis](#), which assessed the function and structure of freight within our three counties, highlighting key issues and suggesting next steps. This safety analysis aims to help us understand broad patterns for large truck crashes and pinpoint areas with concentrations of severe crashes compared to similar facilities, enabling us to target future analysis and identify possible improvements.

This report includes a broad summary of large truck crash data in the TMA region and an accompanying analysis that highlights high-crash areas. The crash data was obtained from the New York State Department of Transportation (NYSDOT)'s Crash Location and Engineering Analysis Repository (CLEAR) and includes large truck crashes reported at the crash-level (one record per crash) for the most recent 5-year period available (January 1, 2018 through December 31, 2022).<sup>1</sup>

The findings of this report rely on data sources that may contain inaccuracies and should therefore be used for planning purposes only. The TMA and its member agencies shall not be held liable for any misinterpretation or misuse of the findings contained herein.

## Crash Data Summary

From 2018-2022, 7,444 large truck crashes were reported in the three-county study area, including 41 fatal crashes and 153 serious injury crashes. Table 1 shows the crashes by year and severity.

TABLE 1 Large Truck Crashes by Year and Severity

Case Year	Fatality (K)	Serious Injury (A)	Injury (B)	Possible Injury (C)	Property Damage Only (O)	Total
2018	6	25	38	186	1,378	1,633
2019	6	26	29	183	1,438	1,682
2020	10	27	26	100	1,096	1,259
2021	9	38	33	145	1,232	1,457
2022	10	37	110	72	1,184	1,413
<b>Total</b>	<b>41</b>	<b>153</b>	<b>236</b>	<b>686</b>	<b>6,328</b>	<b>7,444</b>

<sup>1</sup> Large truck crashes involve a vehicle with a registered weight greater than or equal to 10,000 lbs. and a truck/bus class type and vehicle body type that fall within the DMV's large truck classification types; see [TSSR Glossary](#).

Most large truck crashes from 2018-2022 resulted in property damage only (85 percent). This was followed by possible injury crashes (9 percent), injury crashes (3 percent), serious injury crashes (2 percent). The 41 fatal crashes represent 1 percent of large truck crashes. See Figure 1.

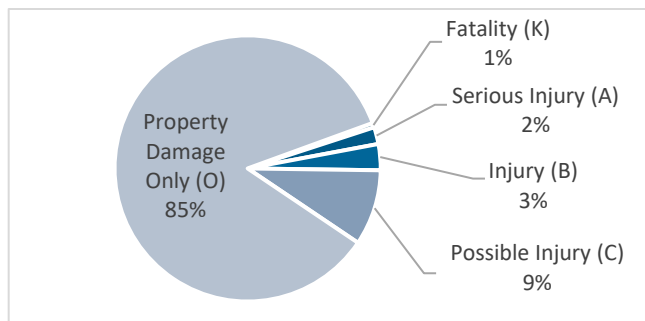


FIGURE 1 Large Truck Crashes by Severity

Looking at total large truck crashes by roadway functional class, 26 percent were on interstates, followed by 22 percent on local roads. Major and minor arterials and major collectors represented between 15 and 18 percent of crashes. Interstates have the highest rate of crashes per mile at 5.83, followed by major arterials with 3.75 crashes per mile. Table 2 shows crashes by functional class.

TABLE 2 Large Truck Crashes by Functional Class

Functional Class	Total Crashes	Total Miles	Percent of Total Crashes	Crashes per Mile
Interstates	1,962	337	26%	5.83
Major Arterial	1,374	367	18%	3.75
Minor Arterial	1,135	420	15%	2.70
Major Collector	1,145	901	15%	1.27
Minor Collector	133	443	2%	0.30
Local Road	1,636	5,133	22%	0.32
Unknown*	59	NA	1%	NA
<b>Total</b>	<b>7,444</b>	<b>7,600</b>	<b>100%</b>	<b>0.97</b>

\*A desktop review of these crashes showed coordinates located outside of the road system. Though reported in this crash summary, they were not included as part of the safety analysis.

We also looked at the severity of large truck crashes within each functional class. On local roads, 9 percent of these crashes result in a fatality or personal injury.<sup>2</sup> For all other functional classes, between 15-19 percent result in a fatality or personal injury. For fatal crashes only, major and minor arterials have the highest proportion at 0.7-0.8 percent, followed by interstates at 0.66 percent. See Figure 2 for fatal and personal injury crashes by functional class.

<sup>2</sup> "Personal Injury" includes serious injury (A), injury (B), and possible injury (C) crashes.

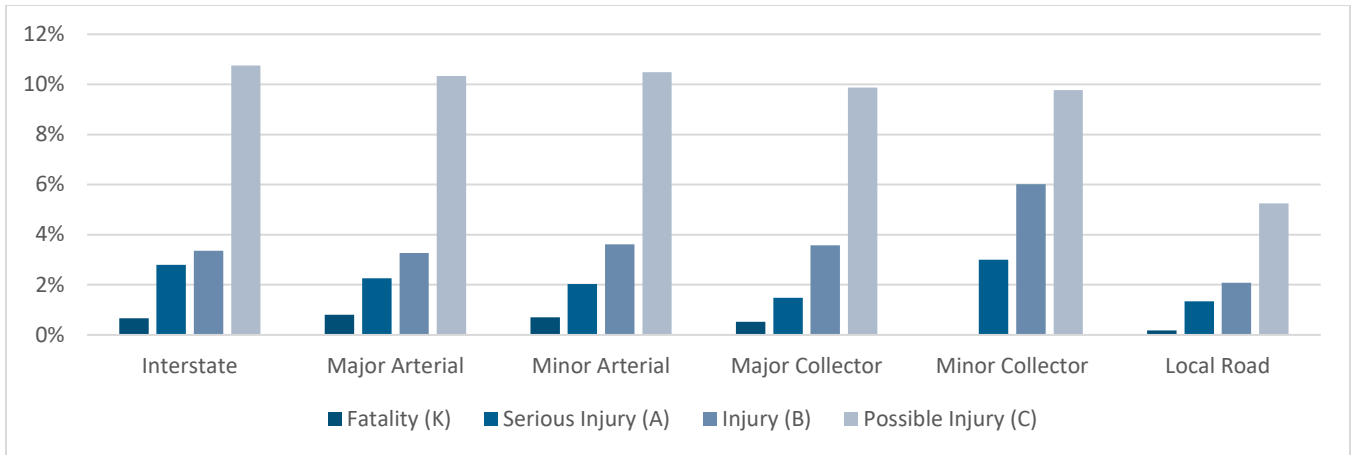


FIGURE 2 Large Truck Fatal and Personal Injury Crashes by Functional Class

We compared the crash statistics from our region to statewide numbers published by the Institute for Traffic Safety Management and Research (ITSMR) in its December 2023 fact sheet on large truck crashes.<sup>3</sup> ITSMR’s crash data includes all reportable crashes, regardless of whether the location information is available. The TMA crash data obtained from CLEAR only includes crashes with location information, so there may be nominal differences between the datasets.

Overall, trends in our region closely resemble those in New York State overall (see Figures 3 through 5). In the TMA region and New York State, we saw injury crashes dip in 2020 during the COVID pandemic but increase over the next two years. Fatal crashes have increased significantly compared to pre-2020. Across the state, 78 percent of large truck crashes occurred between 6:00am and 6:00pm, compared to 80 percent in our region. In both New York State and our region, 88 percent of large truck fatal and personal injury crashes occurred on a weekday.

<sup>3</sup> New York State Fact Sheet – Large Truck Crashes (2018-2022); <https://www.itsmr.org/research-and-data/commercial-vehicles-large-trucks/>

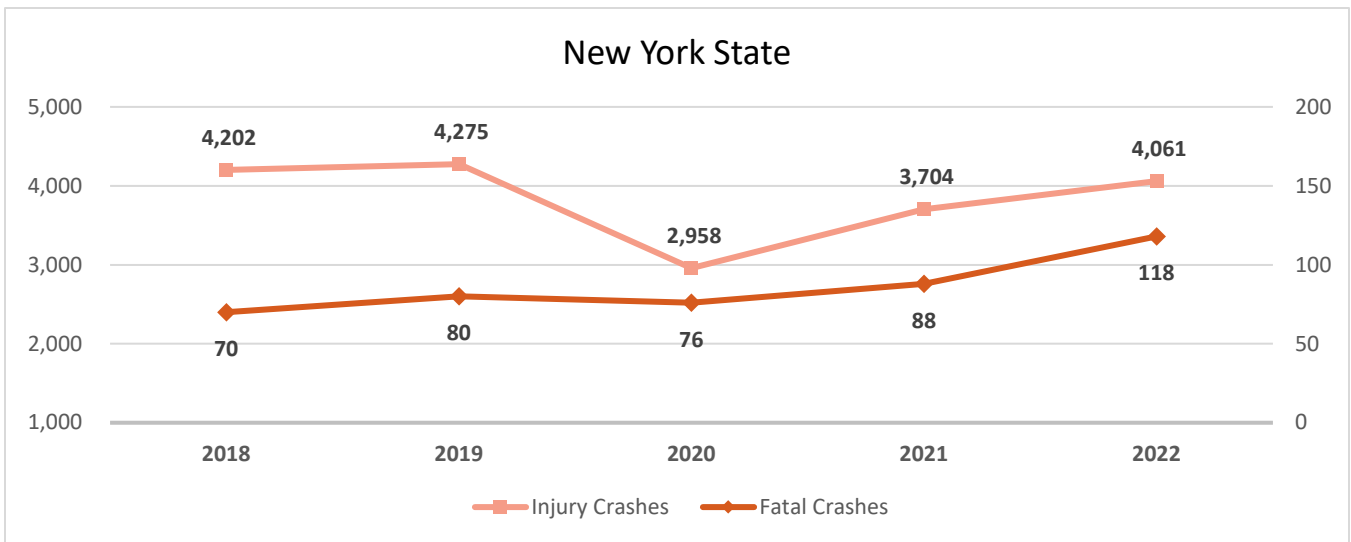
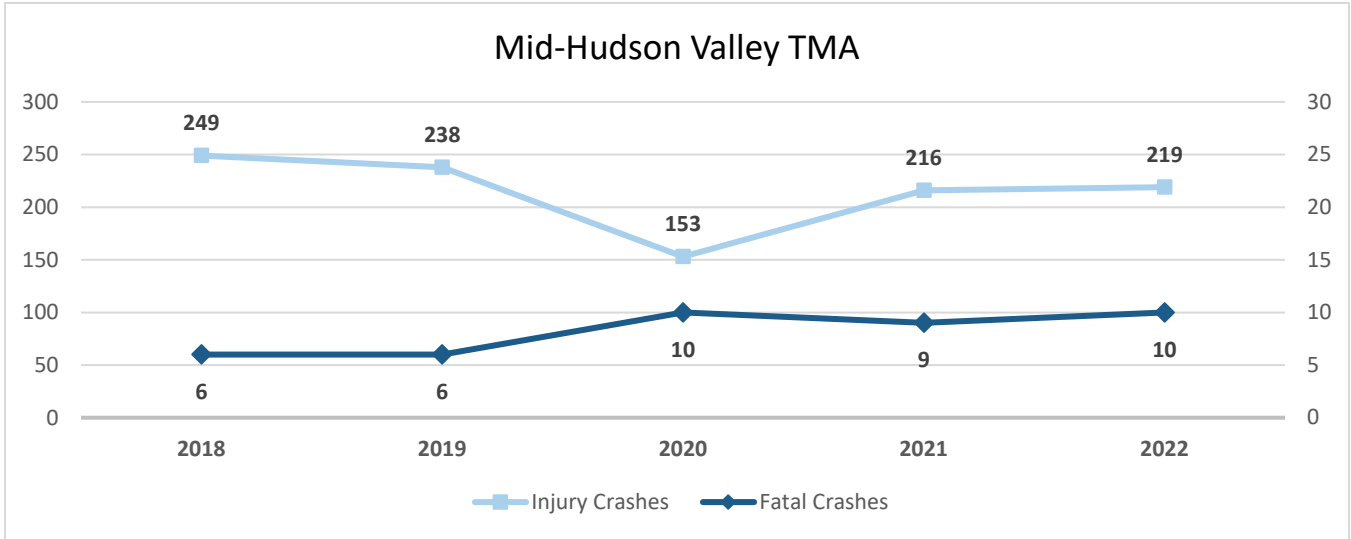


FIGURE 3 Large Truck Fatal and Personal Injury Crashes

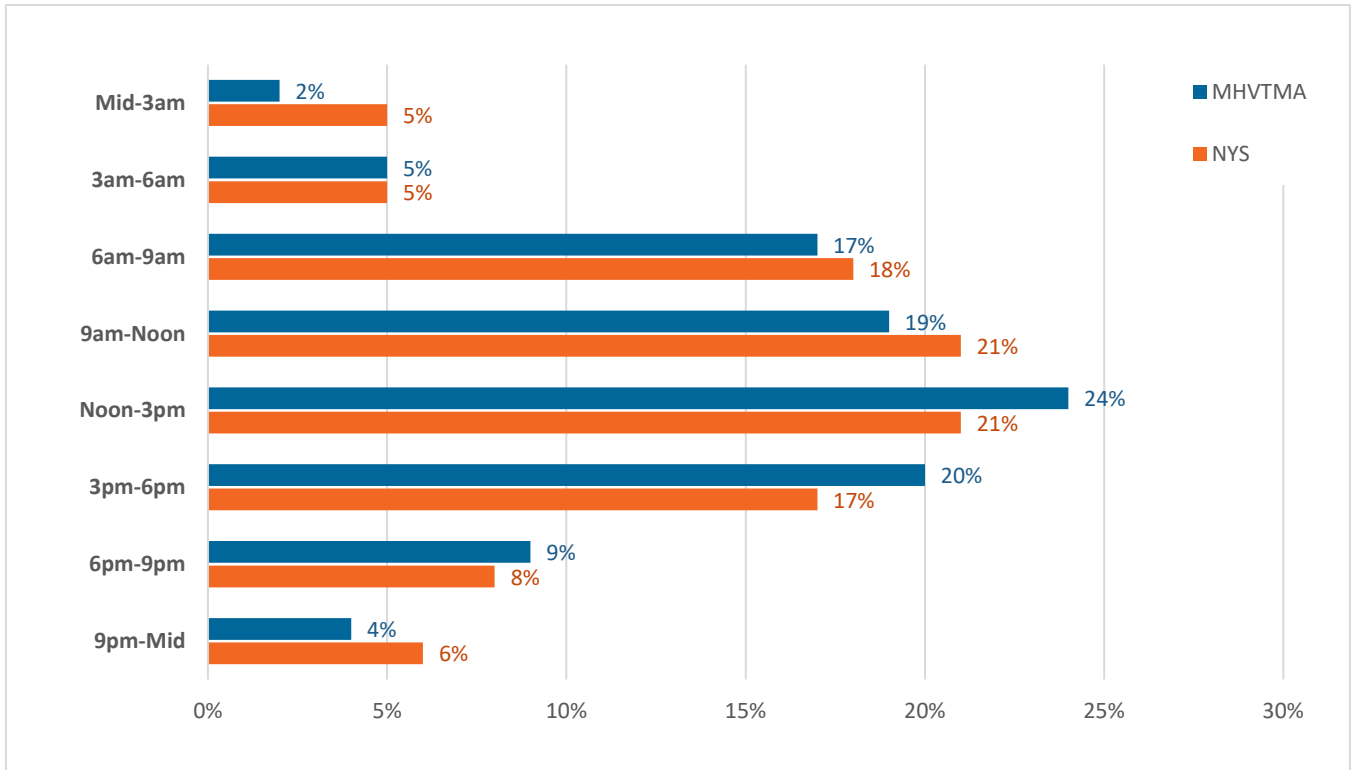


FIGURE 4 Large Truck Fatal & Personal Injury Crashes by Time of Day

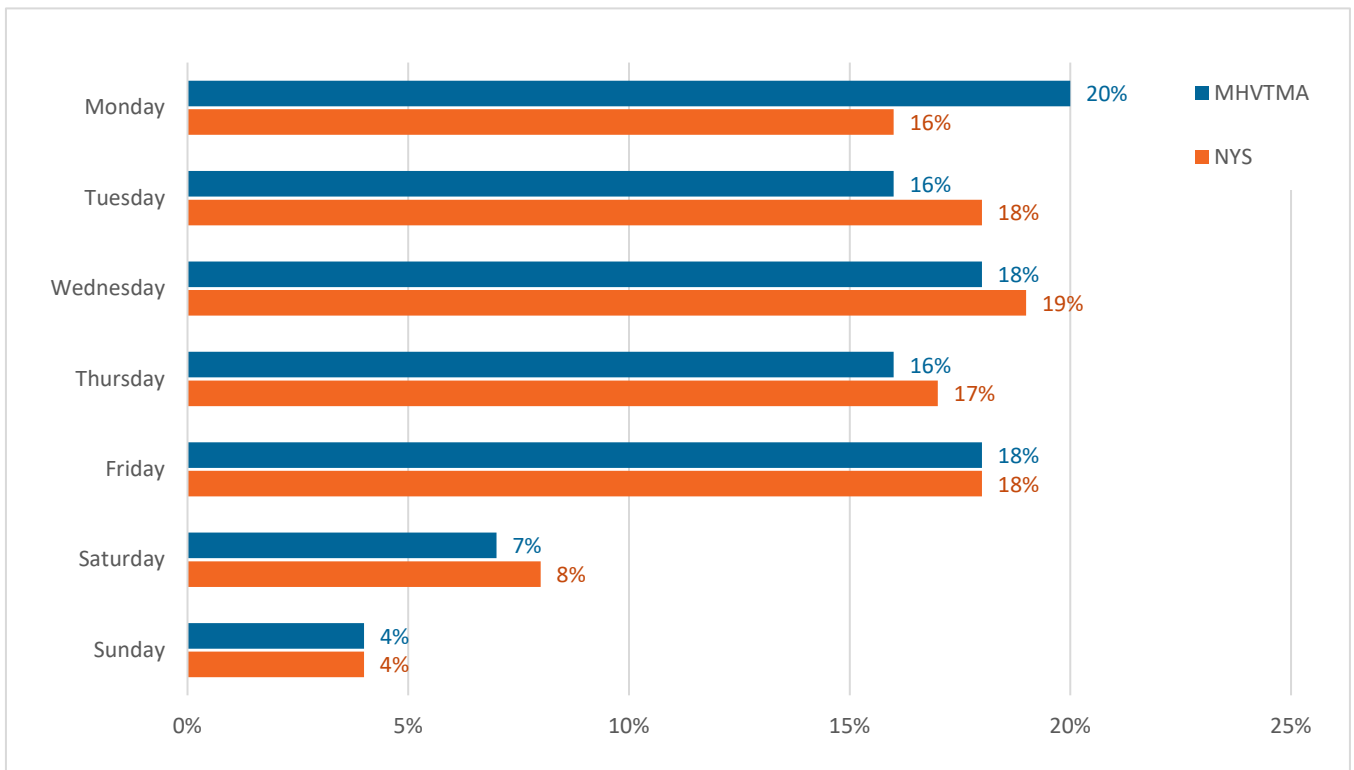


FIGURE 5 Large Truck Fatal & Personal Injury Crashes by Day of Week



## Safety Analysis

### Method

We used the Safer Streets Priority Finder (SSPF), a free and open-source modeling tool, to conduct the safety analysis.<sup>4</sup> The tool relies on user inputs of the study area, road network, functional class, and crash data to determine corridors with disproportionate shares of fatal and serious injury crashes. Although typically used to analyze pedestrian and bicycle crashes, the tool also allows for the analysis of “other” crash types. For our purposes, we used the “other” crash type to analyze large truck crashes. See the Appendix for documentation of sources.

The tool uses these inputs to evaluate crash density along corridors in the study area, using crash severity to pinpoint high-risk segments. It uses a sliding window analysis, which aggregates crash data within half-mile segments along a corridor, with virtual windows moved along the corridor in 1/10-mile increments (see Figure 6).

The Sliding Window score emphasizes severe crashes by multiplying Fatal and Serious Injury crashes by 3 and Injury Crashes by 1. It excludes Possible Injury and Property Damage Only crashes. Segments with high scores form the basis of a typical High Injury Network.

For future analyses, we hope to utilize the network screening tool in NYSDOT’s CLEAR system. At the time of this report, CLEAR’s network screening tool cannot be used to analyze truck crashes. This functionality is anticipated to be available in future updates and we hope to compare it to the results of the SSPF analysis.

### Results

Scores on the 7,600 road miles analyzed ranged from 0 to 9, with more than 96 percent of the road network scoring 0 (see map on following page). Fourteen segments scored between 6 and 9; these are summarized in Table 3.

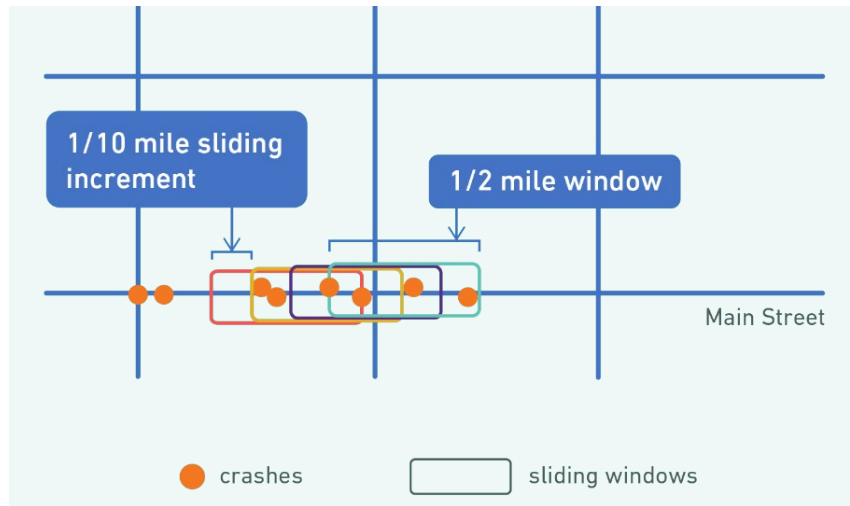
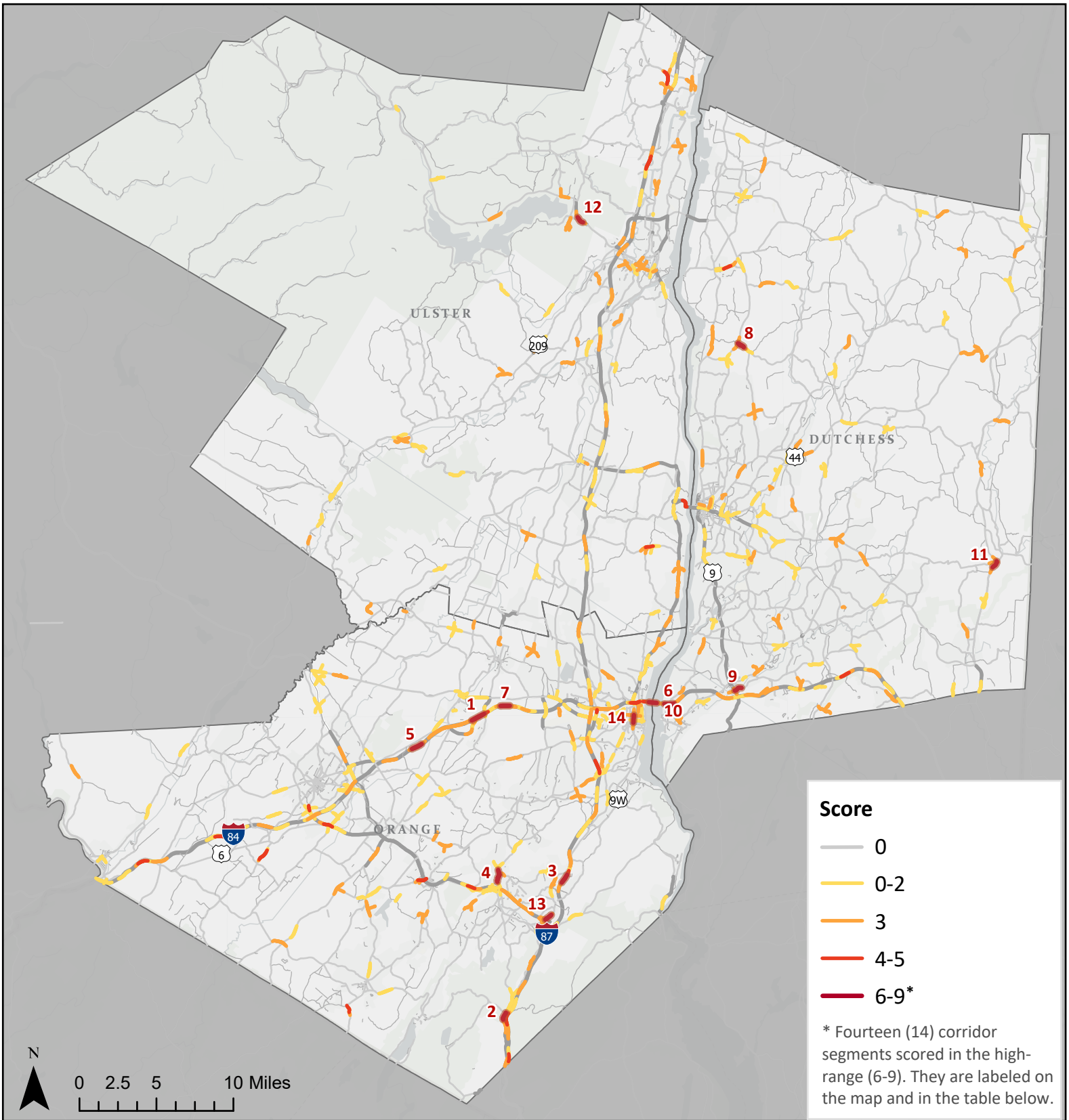


FIGURE 6 Sliding Window Visualization (source: SSPF)

<sup>4</sup> Safer Streets Priority Finder (SSPF) Tool: <https://www.saferstreetspriorityfinder.com/tool/>

# Mid Hudson Valley Transportation Management Area (TMA): Large Truck Crash Analysis



**Score**

- 0
- 0-2
- 3
- 4-5
- 6-9\*

\* Fourteen (14) corridor segments scored in the high-range (6-9). They are labeled on the map and in the table below.

ID	Road Name	Score	ID	Road Name	Score
1	Interstate 84 EB	9	8	Hollow Rd/CR 14	6
2	NY 17	9	9	Merritt Blvd	6
3	NYS Thruway/Interstate 87 NB	7	10	Newburgh-Beacon Bridge/I-84 EB	6
4	NY 208	6	11	NY 22	6
5	Interstate 84 WB	6	12	NY 28	6
6	Interstate 84 EB	6	13	NY 32	6
7	Interstate 84 WB	6	14	Robinson Ave/NY 9W	6

This map was produced using the Safer Streets Priority Finder Tool and large truck crashes from 2018-2022 obtained from New York State Department of Transportation (NYSDOT) Crash Location and Engineering Analysis Repository (CLEAR). April 2024

TABLE 3 Top Scoring Crash Segments for Large Trucks

Label	Road Name	Crash Score	County	Municipality	Functional Class	Road Owner
<b>1</b>	<b>Interstate 84 EB</b> West of NY 208, near Neelytown Rd	9	Orange	Montgomery	Interstate	NYS
<b>2</b>	<b>NY 17</b> Near Tuxedo Park and Ride	9	Orange	Tuxedo	Minor Arterial	NYS
<b>3</b>	<b>NYS Thruway/Interstate 87 NB</b> North of Pine Hill Rd, Highland Mills, south of NY 32	7	Orange	Woodbury	Interstate	NYS
<b>4</b>	<b>NY 208</b> Near Mountain Rd, north of Route 6	6	Orange	Blooming Grove	Minor Arterial	NYS
<b>5</b>	<b>Interstate 84 WB</b> Near Walkkill Rest Area	6	Orange	Walkill	Interstate	NYS
<b>6</b>	<b>Interstate 84 EB</b> Near toll plaza and Beacon exit	6	Dutchess	Beacon/ Fishkill	Interstate	NYS
<b>7</b>	<b>Interstate 84 WB</b> East of NY 208, near Barron Rd	6	Orange	Montgomery	Interstate	NYS
<b>8</b>	<b>Hollow Rd/CR 14</b> East of NY 9G to W Cookingham Dr	6	Dutchess	Clinton	Major Collector	County
<b>9</b>	<b>Merritt Blvd</b> East of US 9	6	Dutchess	Fishkill	Major Collector	Local
<b>10</b>	<b>Newburgh-Beacon Bridge/Interstate 84 EB</b> Near the Orange/Dutchess line	6	Orange/ Dutchess	Newburgh/ Fishkill	Interstate	NYSBA
<b>11</b>	<b>NY 22</b> Near NY 55 in Wingdale	6	Dutchess	Dover	Major Arterial	NYS
<b>12</b>	<b>NY 28</b> Near Waughkonk Rd and NY 28A, Stony Hollow	6	Ulster	Kingston	Major Arterial	NYS
<b>13</b>	<b>NY 32</b> Near NY 17 interchange by Central Valley Elementary	6	Orange	Woodbury	Minor Arterial	NYS
<b>14</b>	<b>Robinson Ave/NY 9W</b> Between Broadway and South St	6	Orange	Newburgh	Major Arterial	Local

## Discussion of Results

All traffic data was obtained from [www.dot.ny.gov/tdv](http://www.dot.ny.gov/tdv) or [gis.dutchessny.gov/traffic-data/](http://gis.dutchessny.gov/traffic-data/). Segment labels are indicated in parentheses.

### Interstate 84 through Montgomery/Maybrook (the “Neelytown Road Area”) (1, 7)

- Interstate 84 EB - West of NY 208, near Neelytown Rd (1)
- Interstate 84 WB - East of NY 208, near Barron Rd (7)



Interstate 84 runs across the northern third of Orange County from Port Jervis in the west to Newburgh in the east where it intersects with I-87 (the NYS Thruway) and then crosses the Hudson River via the Newburgh-Beacon Bridge into Dutchess County. The high crash segments identified in this analysis are in the Town of Montgomery near Neelytown Rd. The 2021 annual average daily traffic (AADT) on I-84 through this area was about 48,000 and 21% heavy vehicles. Speed data was not available. For the eastbound segment (#1), over the five years analyzed, there was 1 fatal crash, 2 serious injury crashes, and 3 crashes that resulted in property damage only. For the westbound segment (#7), there was 1 fatal crash, 1 serious injury crash, and 3 crashes that resulted in property damage only.

There are various truck-related land uses in this area. North of I-84, off NY 208, there is a major Staples Distribution Center and some smaller warehousing and packaging facilities. South of I-84, the Neelytown Rd area is heavily developed with warehousing and distribution including a FedEx Freight and Ground facilities, an iron works, waste and recycling facilities, a NYSDOT yard, and a TA Travel Center with one of the few truck washes in the County. OCTC’s current Unified Planning Work Program (UPWP) includes a Truck Bypass Study for the Town and Village of Montgomery, and this area will be included in the bypass study as well as in OCTC’s future Roadway Safety Plan.



## Intersection of NY 17, Kanawauke Rd/CR 106, and NY 17A (2)



This high crash segment is on State Route 17 (which runs roughly parallel to I-87 in southern Orange County) near Kanawauke Rd in the Town of Tuxedo. The 2022 annual average daily traffic (AADT) a half-mile north of the intersection was about 13,000 with slightly more traffic in the northbound direction, 9% heavy vehicles, and an 85<sup>th</sup> percentile speed of 66 mph. Over the five years analyzed, there were 3 serious injury crashes and 3 crashes that resulted in property damage only. Signalized exit and entrance ramps for Route 17 are located north and south of the Tuxedo Park and Ride (on the west side of 17), and provide access to State Route 17A and County Route 106/Kanawauke Rd. On the southern end of the high crash segment, Warwick Brook Road provides access to a garden center and the Tuxedo Park Sewer Plant.

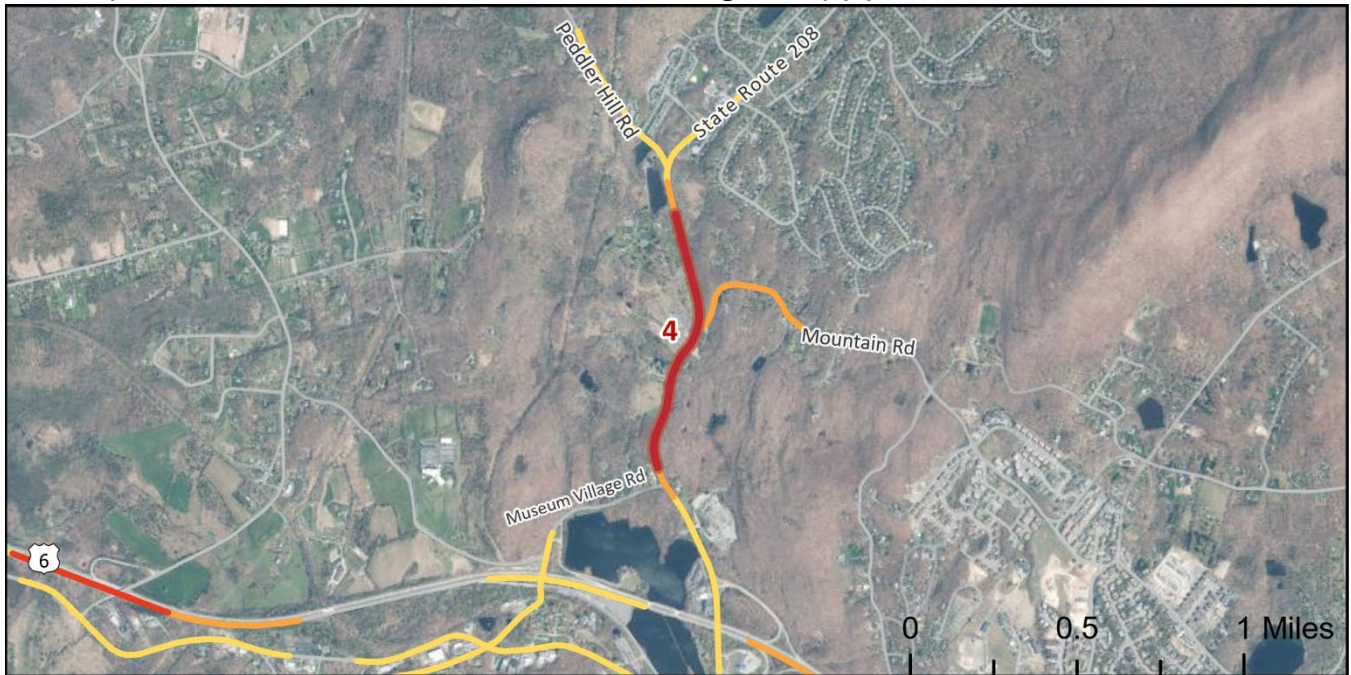
**NYS Thruway/Interstate 87 Northbound (North of Pine Hill Rd, Highland Mills, south of NY 32, Woodbury) (3)**



This portion of the NYS Thruway (I-87) runs through Woodbury and has no nearby exits. It is characterized by forested areas, residential development to the east, and the Metropolitan Transit Authority's Port Jervis rail line and Woodbury Creek to the west. The 2022 annual average daily traffic (AADT) a mile north was about 48,000 with slightly more traffic in the northbound direction and 20% heavy vehicles (speed data was not available). Over the five years analyzed, there were 2 serious injury crashes, 1 injury crash, and 3 crashes that resulted in property damage only.



#### NY 208 (Near Mountain Rd, north of Route 6, Blooming Grove) (4)



This winding stretch of NY 208 connects South Blooming Grove to Monroe. The 2022 annual average daily traffic (AADT) at the NY 208 overpass (about a half-mile south) was about 18,500, with 4.7% heavy vehicles and an 85<sup>th</sup> percentile speed of 44 mph. Traffic data shows notable truck movements between NY 208 and US 6. While speed data are not available for the high crash segment itself, anecdotal evidence suggests that drivers often exceed the posted speed limit of 45 mph. The area includes multiple commercial and residential access points and a signalized intersection at Mountain Rd. Over the five years analyzed, there were 2 serious injury crashes, 1 possible injury crash, and 5 crashes that resulted in property damage only.

### Interstate 84 WB - Near Wall Kill Rest Area (5)



This portion of I-84 is approximately 2.5 miles west of the Neelytown Road area discussed above. The 2021 annual average daily traffic (AADT) 1.5 miles west of this location was about 43,500 with 18% heavy vehicles. No speed data was available. The Wall Kill rest area is accessible from I-84 westbound and sees heavy truck activity. Over the five years analyzed, there were 2 fatal crashes and 2 crashes that resulted in property damage only. This is an area that will be called out for emphasis in OCTC's future Roadway Safety Plan.

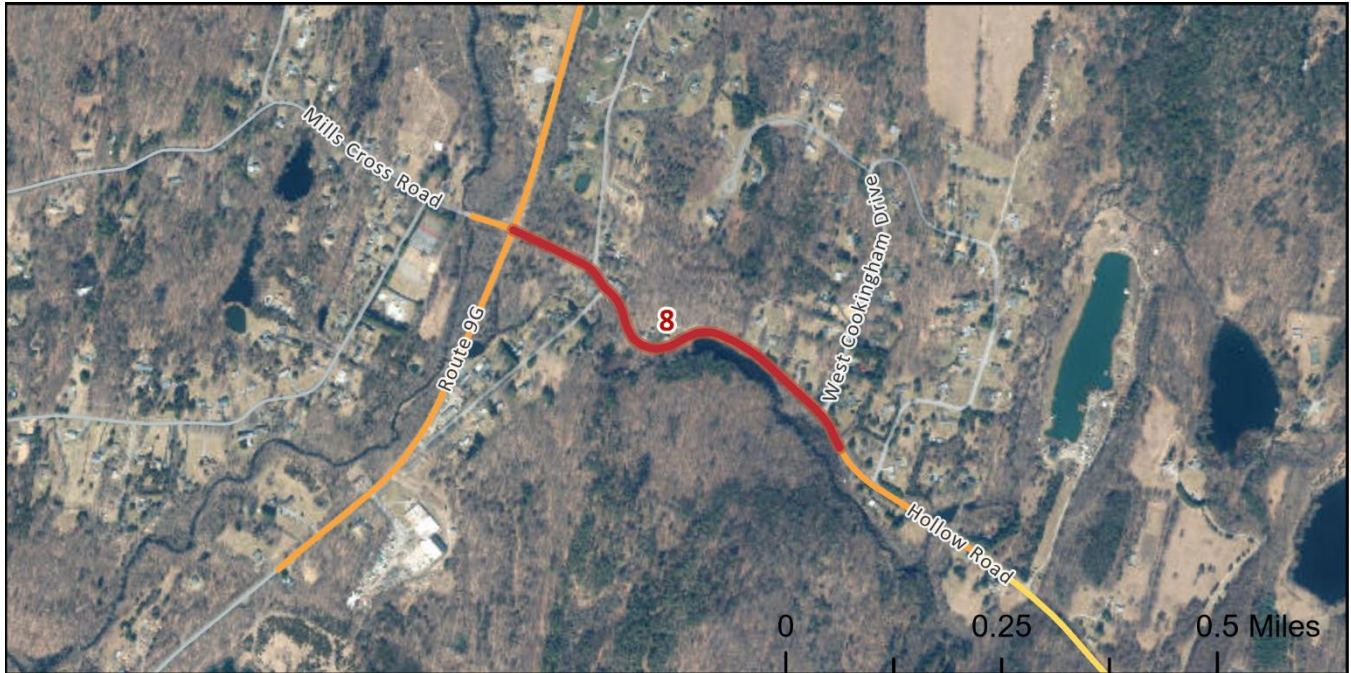


## Newburgh-Beacon Bridge/Interstate 84 Eastbound (6, 10)



The Newburgh-Beacon Bridge carries Interstate 84 across the Hudson River between Newburgh in Orange County and the Town of Fishkill in Dutchess County. The New York State Bridge Authority owns and maintains the bridge. The 2019 annual average daily traffic (AADT) for the eastbound span was about 26,000, with 18% heavy vehicles (speed data was not available). This area was identified as the tenth highest-crash State road segment in DCTC’s long-range plan, [Moving Dutchess Forward](#). Over the five years analyzed, segment #10 (in the middle of the bridge) had 1 fatal crash, 1 serious injury crash, 2 possible injury crashes, and 9 crashes that resulted in property damage only. Segment #6 had 2 serious injury crashes, 6 possible injury crashes, and 72 crashes that resulted in property damage only.

**Hollow Rd/CR 14 (East of NY 9G from NY 9G to W Cookingham Dr, Clinton) (8)**



Hollow Rd is a County road in the Town of Clinton, Dutchess County. The 2023 annual average daily traffic (AADT) was about 4,000, with 8.5% heavy vehicles and 85<sup>th</sup> percentile speeds of 35 mph. This area was identified as the highest-crash County road segment in DCTC’s long-range plan, [Moving Dutchess Forward](#). In 2021, DCTC conducted a safety assessment to evaluate safety issues in the area and offer possible solutions.<sup>5</sup> The assessment found that the road serves as a major east-west truck route for transportation of rock materials from local quarries, and identified the major horizontal curves, lack of shoulders, and limited sight distance as key issues. Over the five years analyzed, there was 1 fatal crash, 1 serious injury crash, 1 possible injury crash, and 4 crashes that resulted in property damage only.

<sup>5</sup> <https://www.dutchessny.gov/Departments/Transportation-Council/Publications.htm>



### Merritt Blvd (East of US 9, Fishkill) (9)



Merritt Blvd is a locally owned divided roadway in the Town of Fishkill, Dutchess County. The 2022 annual average daily traffic (AADT) was about 10,000, with 3.5% heavy vehicles and 85th percentile speeds of 43 mph. The road provides access to big box retailers and warehouses, including a GAP distribution center, and is within a half-mile of a major highway interchange, Route 9 and Interstate 84. The intersection of Merritt Blvd and Route 9 was identified as the 5<sup>th</sup> highest-crash State Road intersection in Dutchess County in DCTC’s long-range plan, Moving Dutchess Forward (2021).

Over the five years analyzed, there were 2 serious injury crashes, 2 possible injury crashes, and 9 crashes that resulted in property damage only. Although the crashes were attributed to the highlighted segment of Merritt Boulevard, desktop analysis shows that the 2 serious injury crashes occurred at the signalized intersection.

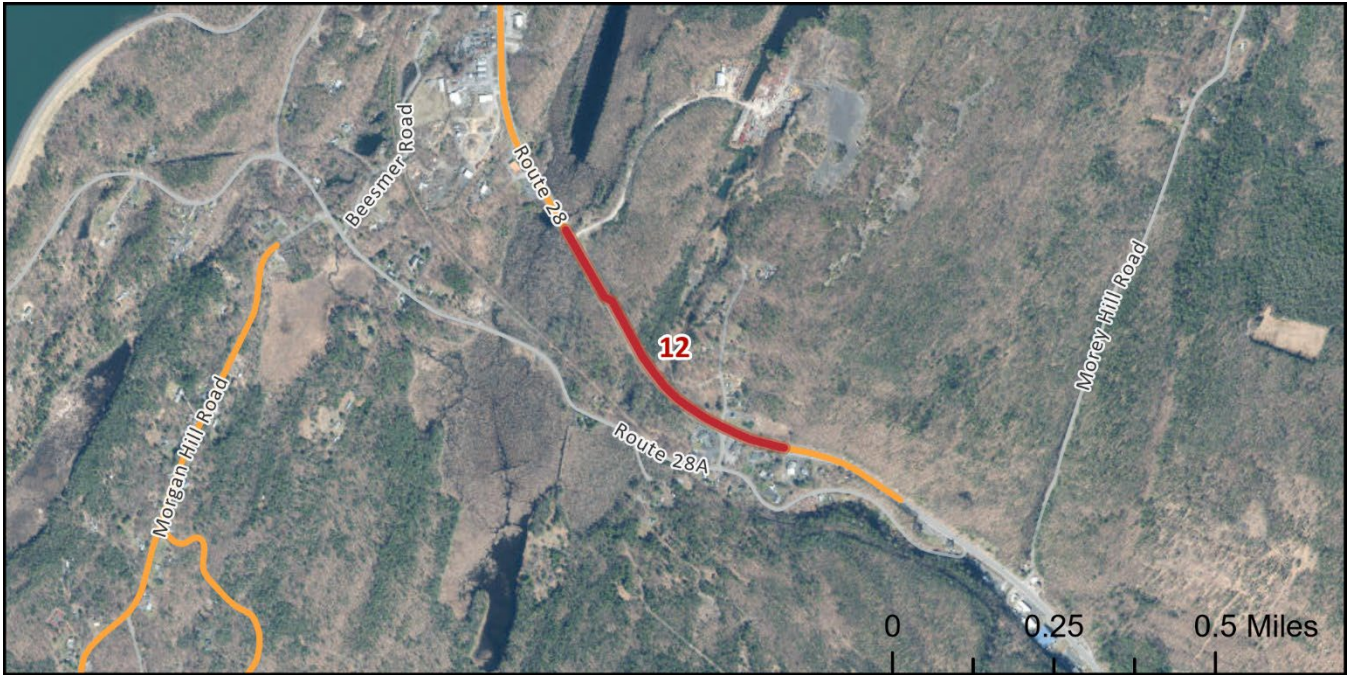
**NY 22 (Near NY 55 in Wingdale, Dover) (11)**



NY 22 is a State-owned route that serves as a major north-south connection on the eastern side of Dutchess County. The nearest traffic count was collected about 4 miles north of this section in 2021, with an AADT of about 3,200, 10% heavy vehicles, and 85<sup>th</sup> percentile speeds of 57 mph. This area of NY 22 crosses through the small hamlet of Wingdale, intersecting with Pleasant Ridge Rd, a county-owned facility, and NY 55, another State road. Over the five years analyzed, there were 2 serious injury crashes and 6 crashes that resulted in property damage only.



**NY 28 (Near Waughkonk Rd and NY 28A, Stony Hollow, Kingston) (12)**



NY 28 is a State-owned principal arterial that serves as one of the primary east-west connections through Ulster County. Based on a 2022 traffic count, this segment has an AADT of about 15,400, with 6% heavy vehicles and 85<sup>th</sup> percentile speeds of 55.5 mph. This segment connects the City of Kingston and Interstate 87 to the Catskill Park and points west. Along this segment of NY 28 there is access to an industrial site involving heavy equipment transport, several other properties, and NY 28A via Waughkonk Rd. Over the five years analyzed, there was 1 fatal crash and 1 serious injury crash.

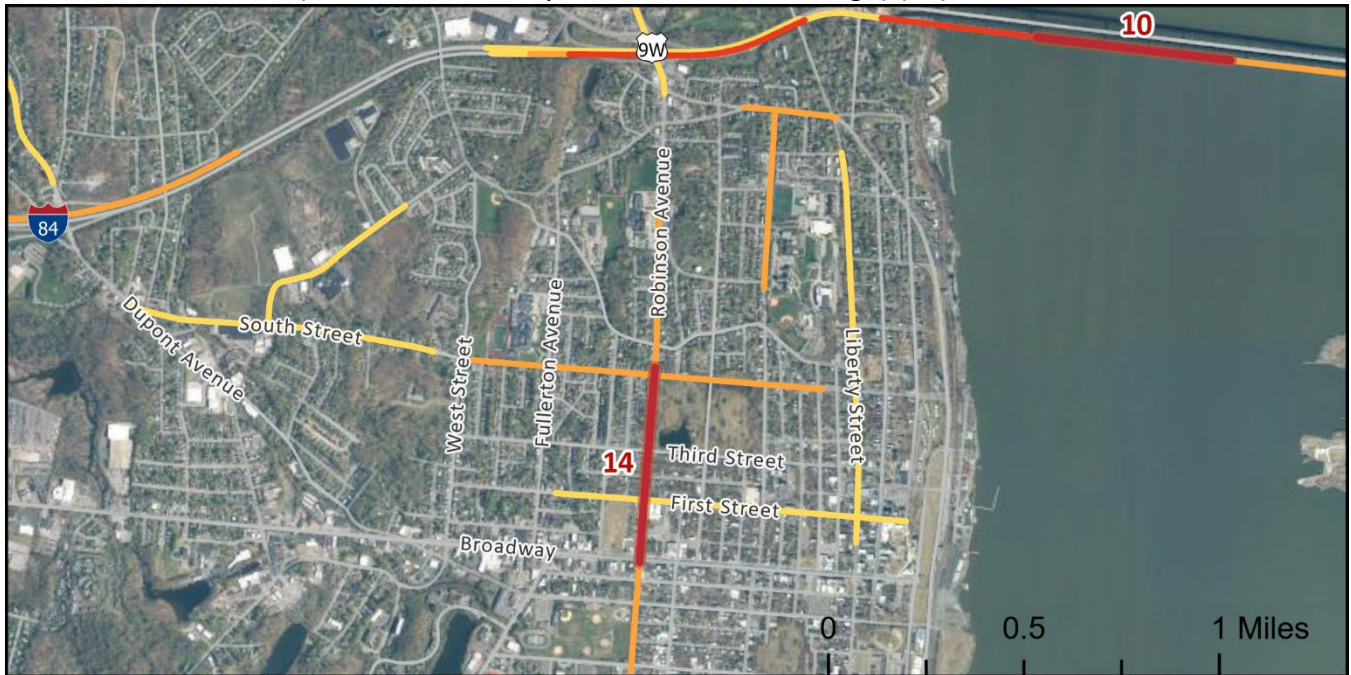
**NY 32 (Near NY 17 interchange by Central Valley Elementary, Woodbury) (13)**



This segment of NY 32 includes a diverging diamond overpass at NY 17, which opened in late 2019, with substantial completion by June of that year. This includes a half-clover on the northern side of NY 17, traffic circles and lane changes. Central Valley Elementary School, Monroe Woodbury High School, Monroe Woodbury Middle School, and Woodbury Common Premium Outlets are all located in this area. The 2022 estimated AADT about 1,000 feet north of the high crash segment was about 18,300 with 4% heavy vehicles and an 85<sup>th</sup> percentile speed of 44.3 mph. Over the five years analyzed (2018-2022), there were 2 serious injury crashes, 2 possible injury crashes, and 21 crashes that resulted in property damage only. Of those crashes, 21 occurred in 2018 or 2019. Only four crashes occurred from 2020-2022 (after the intersection redesign) and all were property damage only, indicating that the intersection project may have improved safety. However, the project was under construction from early 2018 through May of 2020 and the COVID lockdown occurred in 2020, which could have affected the crash data for the area. Therefore, more analysis is needed to confirm the safety impacts of the redesign.



**Robinson Ave/NY 9W (Between Broadway and South St, Newburgh) (14)**



Robinson Avenue/NY 9W runs through the City of Newburgh’s downtown several blocks west of the waterfront. The identified high crash segment stretches between South Street and Broadway. The 2023 AADT, collected a block north of South St, was about 11,500 with 7% heavy vehicles and an 85<sup>th</sup> percentile speed of 34.7 mph. Over the five years analyzed, there was 1 fatal crash, 1 serious injury crash, 2 possible injury crashes, and 11 crashes that resulted in property damage only. This area also merits further attention in OCTC’s future Roadway Safety Plan.

## Conclusion and Next Steps

Future updates of this macro-level analysis should use the NYSDOT CLEAR system's network screening tool when available for truck-specific analyses. Next steps could include micro-level analyses of the identified priority areas, including a detailed look at truck crashes and identification of potential improvement strategies. Detailed crash diagrams and analyses could also be pursued as standalone items or in conjunction with a road safety assessment or other broad safety planning (like through SS4A). Other potential supplementary data sources include truck stop and trips data available through [GeoTab's Altitude platform](#) or the [American Transportation Research Institute](#).

Based on the results of site-specific investigations, this information should be used to inform MPO safety plans and long-range transportation plans. General strategies and best practices for improving freight safety should also be investigated.



## Appendix

The following inputs were used to run the Safer Streets Priority Finder tool:

- Study Area
  - TMA region – single polygon including Dutchess, Orange, and Ulster counties; merged census county boundaries.
- Road Network and Functional Class:
  - 2020 Roadway Inventory System (RIS); ramps excluded
    - Obtained from NYSDOT Highway Data Services Bureau
- Crashes:
  - 2018-2022 data (Jan 1 – Dec 31, truck crashes only) accessed via New York State’s CLEAR Crash Data Viewer
    - The Safer Streets Priority Finder tool requires an input of at least one pedestrian or bicycle crash to run the sliding window analysis. A “dummy” point was entered to meet this requirement and later removed.
    - The tool requires specific severity categorizations. Crash data severity was translated as follows:

NYSDOT CLEAR	SSPF
K - FATAL	Fatality (K)
A - SERIOUS INJURY	Incapacitating Injury (A)
B - INJURY	Non-Incapacitating Injury (B)
C - POSSIBLE INJURY	Possible Injury (C)
PROPERTY DAMAGE	Property Damage Only (O)
U - UNKNOWN	Property Damage Only (O)*
NA	Property Damage Only (O)*

\*SSPF recommended categorization for U and NA crashes