UCTC
ULSTER COUNTY
TRANSPORTATION COUNCIL

Ulster County Road Safety Plan

Stakeholder Meeting #2

June 30th, 2021

Stakeholder Meeting Agenda

- Welcome and Introductions
- Project Goals and Background
  - Safety Planning Process
  - Desired Outcomes
  - Stakeholder Meeting Objectives
- Priority Location Analysis and Project Prioritization
  - Network Screening and Priority List Development
  - Stakeholder and TAC Feedback
  - Location Analysis and Recommendation Development Summary
- Ulster County Road Safety Plan
  - Plan Outline
  - Key Elements from Stakeholder Input
- Meeting Wrap Up
  - Future Actions
  - Next Steps

Project Goals and Background

Safety Planning Process

Desired Outcomes

Stakeholder Meeting Objectives

Plan Objectives

- Understand factors contributing to crashes throughout Ulster County
  - Behaviors, roadway characteristics, types, external factors
- Determine where on the system crashes are over-represented
- Identify and recommend effective solutions (policy, programmatic, project)
- Provide Board with specific suggestions to improve safety in the region
- Encourage implementation to make progress toward safety targets

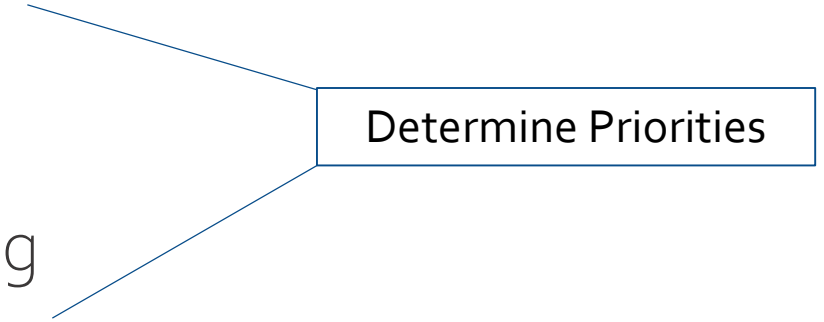
Regional Plan

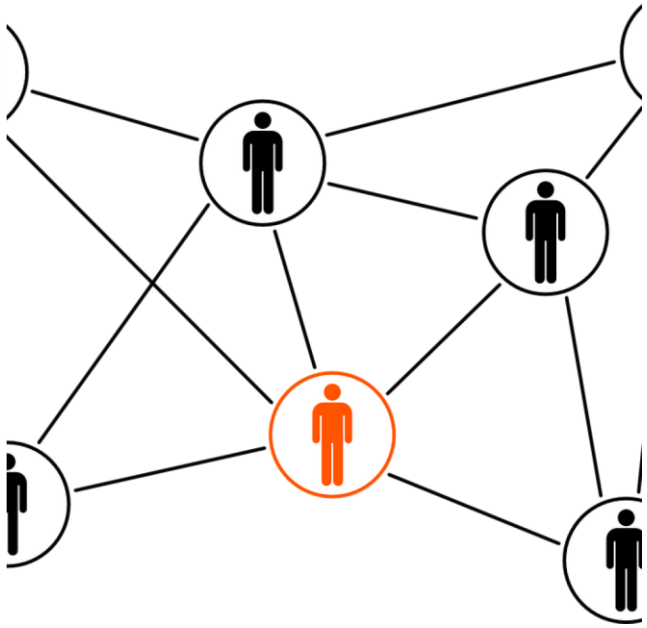
- Comprehensive
- System-wide
- Multidisciplinary
- Proactive
- Results

A regional safety plan provides a framework for organizing stakeholders to identify, analyze, and prioritize safety improvements on the regional transportation network

The Ulster Safety Plan

- Crash Trends (total, severe, rates)
- Over-represented crash types (rear end, head on)
- Over-represented contributing factors (intersections, pedestrians)
- Why and where are over-represented crashes occurring
  - Characteristics of crashes
  - Characteristics of roadway
- Solutions
  - Region-wide programs/policies
  - 10 locations - projects





Priority Location Analysis and Project Prioritization

Network Screening and Priority List Development

Stakeholder and TAC Feedback

Location Analysis and Recommendation Development Summary

Network Screening Methodology

- Crash Data from 2014-2018
- Intersection
  - 150-ft radius at each intersection
  - Ranking Criteria: Crash frequency per AADT and crash severity
  - Removed interstates and limited access roadways
- Segments
  - Sliding window technique for segments
  - 600-ft (0.11 miles) windows, sliding at 0.01-mile increments
  - 50-ft buffer on either side of segment
  - Ranking Criteria: Crash density per AADT and crash severity per mile

Network Screening Methodology

- Additional Data and Thresholds
  - Attributed Roadway Characteristics to Locations Using Network Files
  - Used Averages Per Functional Class to Fill in Missing Data Per Jurisdiction
  - Applied PIL And PII Thresholds For Crash Totals And Crash Rates
  - Consolidated Overlapping Segments
- Top-50 locations
  - Reviewed by Stakeholders and TAC
  - Completed Additional Site and Safety Data Inspection
  - Considered Ongoing or Recent Projects
  - Narrowed to Top-10

Top-5 Segments

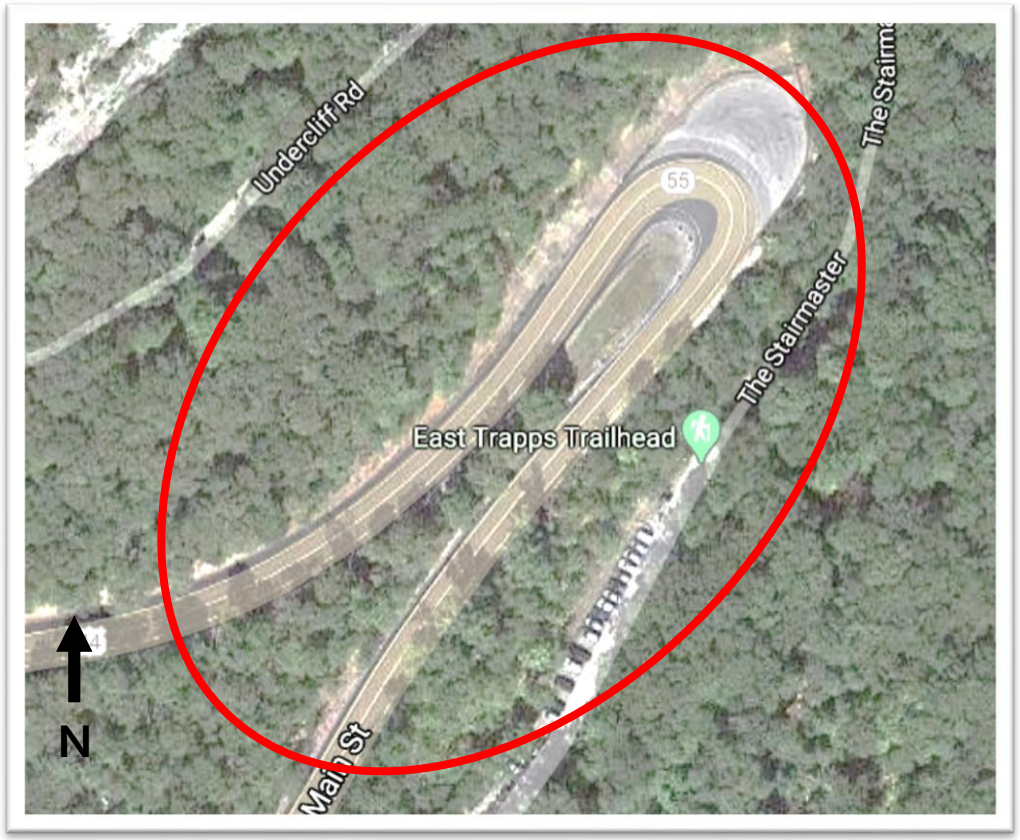
Recommendation Summary

Top 5 - Segments

Rank	Location Type	Route Name	AADT	Speed	Highest Crash Types (FSI)	Roadway Owner	Jurisdiction (Rural/ Urban)	Crash Info
1 and 2	Segment	Route 44	3,182	55	Fixed Object (Fixed Object)	NYSDOT	Gardiner (Rural)	23 Crashes 39% Inj; 3 SI
8 and 12	Segment	N Front St	6,584	30	Bicycle (Bicycle)	City	Kingston (Urban)	25 crashes 16% Inj; 1 SI
	Segment	N Front St	6,584	30	Overtaking (Fixed Object)	City	Kingston (Urban)	19 crashes 11% Inj; 1 SI
19	Segment	Route 28	5,858	55	Rear End (Head On)	NYSDOT	Olive (Rural)	13 Crashes 23% Inj; 1 SI
22	Segment	Morton	8,255	30	Right Angle (Pedestrian)	Town	Ulster (Urban)	18 Crashes 17% Inj; 2 SI
21	Segment	Mohonk	3,247	35	Rear End (None)	County	Marbletown (Rural)	12 crashes 17% Inj

Rank ID: #1 and #2
Location: US-44 (Main Street)

This 0.22-mile segment is a hairpin curve along a state-maintained rural principal arterial, located in rural Gardiner, surrounded by recreational area. This location is a combination of the first and second ranked segment locations from the network screening process based on crash rates and severity. Stakeholders and members of the TAC ranked these locations “high” priorities. The treatments recommended are a combination of feedback and benefit-cost comparison using the expected crash rate..



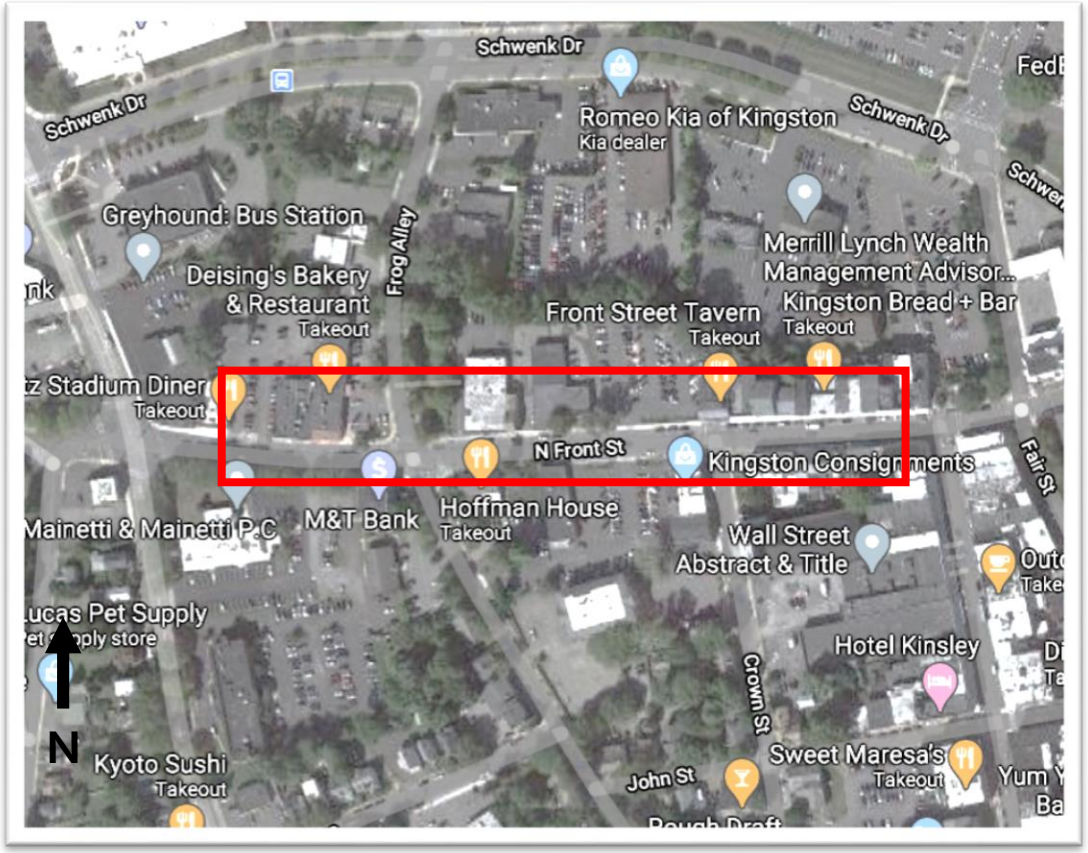
AADT	Speed	Highest Crash Types (FSI)	Roadway Owner	Jurisdiction (Rural/ Urban)	Crash Info
3,182	55	Fixed Object (Fixed Object)	NYSDOT	Gardiner (Rural)	23 Crashes 39% Inj; 3 SI

Crash Type by Injury Severity	Fatalities	Serious Injuries	Total Crashes
FIXED OBJECT	0	3	21
LEFT TURN	0	0	1
SIDESWIPE	0	0	1

	Treatment	Cost	CMF (Crash Modification Factor)	B/C	Notes
✓	Edge line Rumble	$1,320	0.83	681.8	Highlighted by Stakeholders
	High Friction Surface Treatment	$50,000	0.76	25.4	35% crashes occurred on wet/snow/ice road conditions
✓	Chevron Signs	$1,000	0.75 (nighttime)	878.1	
✓	Safety Edge	$500	0.89 (FSI)	1064.2	Proven Countermeasure

Rank ID: #8 and #12
Location: Front Street

This 0.22-mile segment is an city-maintained urban arterial located in downtown Kingston. This location is a combination of the eighth and twelfth ranked segment locations from the network screening process based on crash rates and severity. Members of the TAC ranked these locations “high” priorities. The treatments recommended are a combination of feedback received on similar locations with non-motorist and urban considerations, as well as benefit-cost comparison using the expected crash rate.



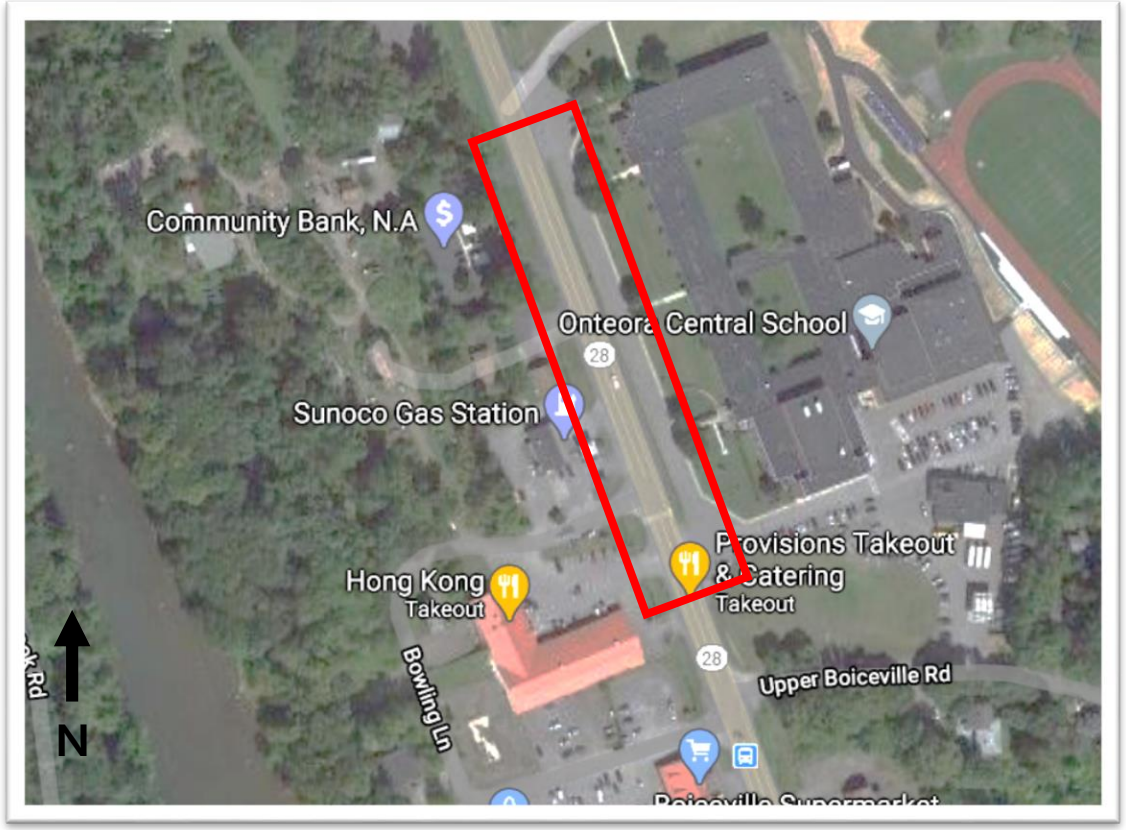
AADT	Speed	Highest Crash Types (FSI)	Roadway Owner	Jurisdiction (Rural/ Urban)	Crash Info
6,584	30	Right Angle (Bicycle)	City	Kingston (Urban)	44 Crashes 13% Inj; 2 SI

Crash Type by Injury Severity	Fatalities	Serious Injuries	Total Crashes
OTHER	0	1	2
COLLISION WITH BICYCLIST	0	1	2
RIGHT ANGLE	0	0	9
REAR END	0	0	8
OVERTAKING	0	0	8
FIXED OBJECT	0	0	5

Treatment	Cost	CMF (Crash Modification Factor)	B/C	Notes
Traffic Calming (Speed Humps)	$1,000	0.60	861.4	Other items to match the feel of east end
Buffered Bike Lanes	$10,000	0.40 (bike crashes)	149.2	State bike route within segment
Access Management	$10,000	0.93	376.8	High driveway density (consolidate)

Rank ID: #19
Location: Route 28

This 0.11-mile segment is located on a state-maintained rural principal arterial in Boiceville adjacent to several schools and businesses. This location ranked nineteenth among segment locations from the network screening process based on crash rates and severity. Members of the TAC ranked this location as a “high” priority. The treatments recommended are a combination of feedback received on similar locations with high volume driveways and higher speeds, as well as benefit-cost comparison using the expected crash rate.



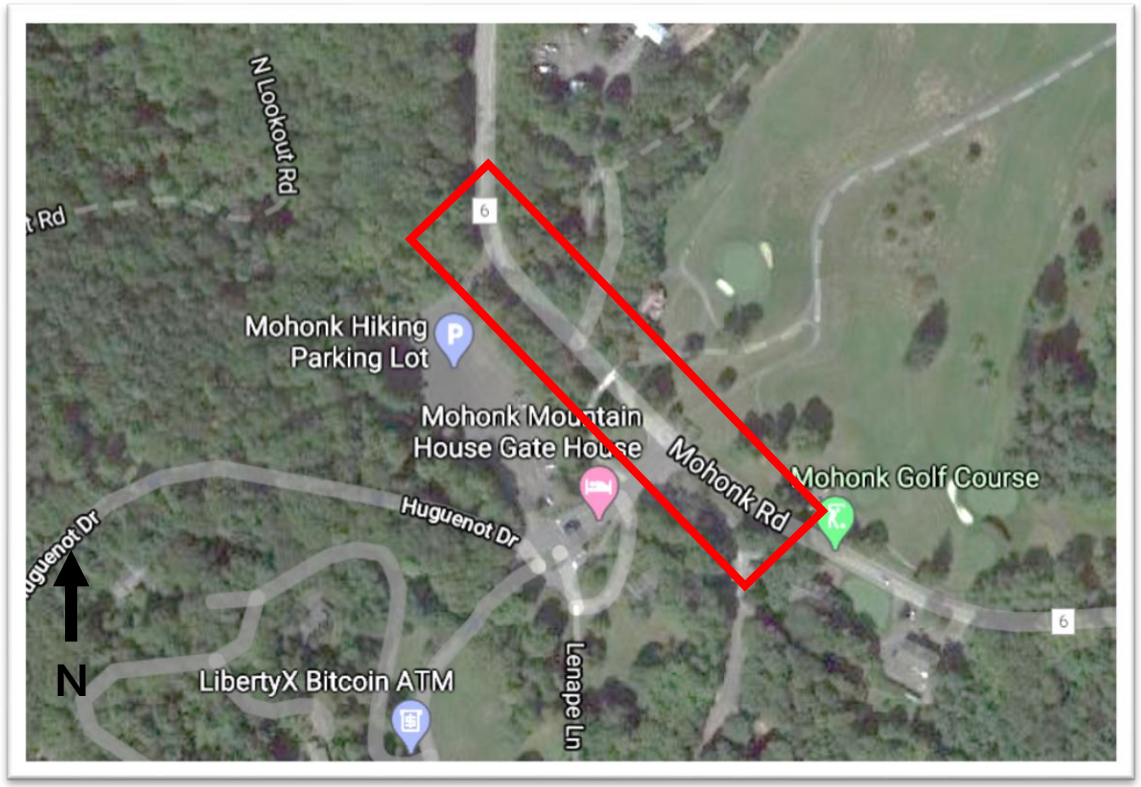
AADT	Speed	Highest Crash Types (FSI)	Roadway Owner	Jurisdiction (Rural/ Urban)	Crash Info
5,858	45	Rear End (Head On)	NYSDOT	Olive (Rural)	13 Crashes 23% Inj; 1 SI

Crash Type by Injury Severity	Fatalities	Serious Injuries	Total Crashes
HEAD ON	0	1	1
REAR END	0	0	6
LEFT TURN	0	0	2
FIXED OBJECT	0	0	1
COLLISION WITH PEDESTRIAN	0	0	1

Treatment	Cost	CMF (Crash Modification Factor)	B/C	Notes
Sidewalk	$10,000	0.45 (pedestrian)	5.8	Sidewalk project added to the TIP with construction anticipated in 2023
Access Management	$10,000	0.93	9.2	Crashes at driveways
TWLTL	$200,000	0.92	0.5	Crashes at driveways
Centerline Rumble	$2,000	0.66	223.0	Potential for additional head on crashes

Rank ID: #21
Location: Mohonk Rd

This 0.11-mile segment is located on a county-maintained rural minor collector west of New Paltz. The segment spans the entrance to the Mohonk Mountain House, including a pedestrian crossing, a narrow tunnel (struck multiple times) under a golf cart path bridge, and hidden driveways and parking lots. Members of the TAC ranked this location as a “high” priority. The treatments recommended are a combination of feedback received on similar locations with right-of-way constraints and sight distance concerns, as well as- benefit-cost comparison using the expected crash rate.



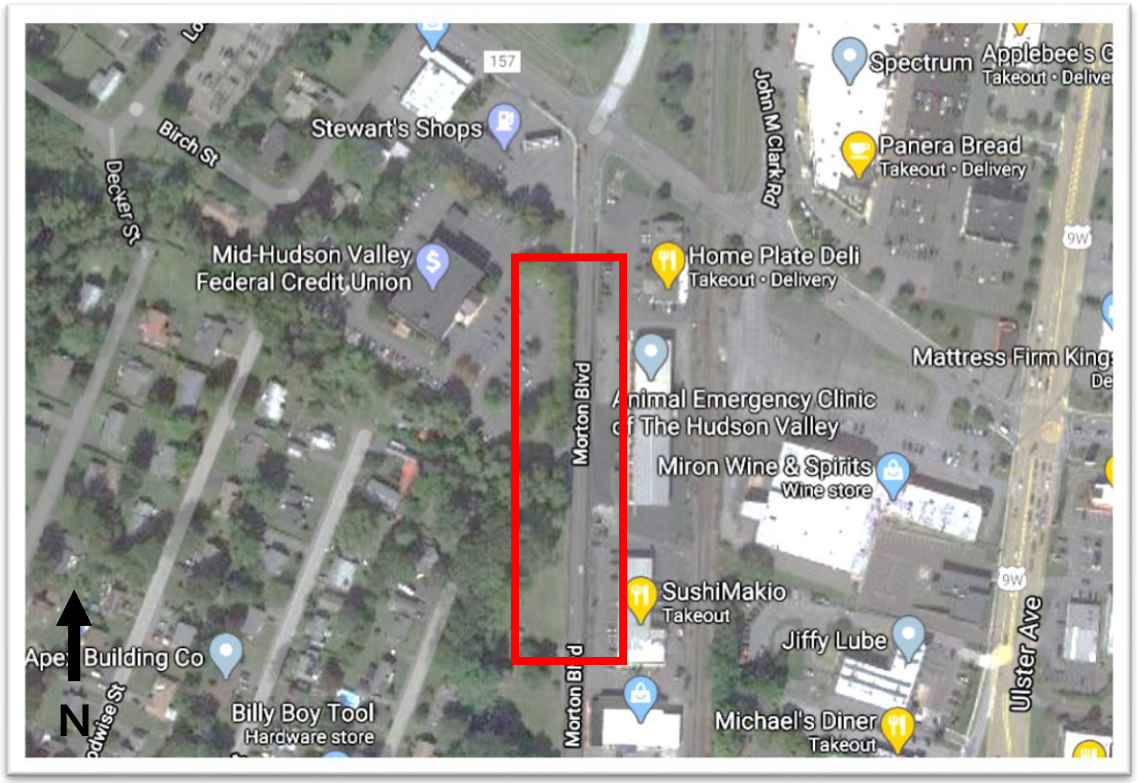
AADT	Speed	Highest Crash Types (FSI)	Roadway Owner	Jurisdiction (Rural/ Urban)	Crash Info
3,247	35	Rear End (None)	County	New Paltz (Rural)	12 crashes 17% Inj

Crash Type by Injury Severity	Fatalities	Serious Injuries	Total Crashes
REAR END	0	0	5
FIXED OBJECT	0	0	4
SIDESWIPE	0	0	1
OVERTAKING	0	0	1
OTHER	0	0	1

Treatment	Cost	CMF (Crash Modification Factor)	B/C	Notes
Advanced Warning Signage	$1,000	0.84	143.6	Bridge tunnel has minimal reflective warnings
Transverse Rumble Strips	$5,000	0.75	44.9	Prior to bridge and curve
Speed Advisory Sign	$1,000	0.87 (Injury)	106.6	No downhill speed advisory sign
Left Turn Lane	$100,000	0.73	2.4	At entrance of Mohonk Mountain House

Rank ID: #22
Location: Morton Blvd

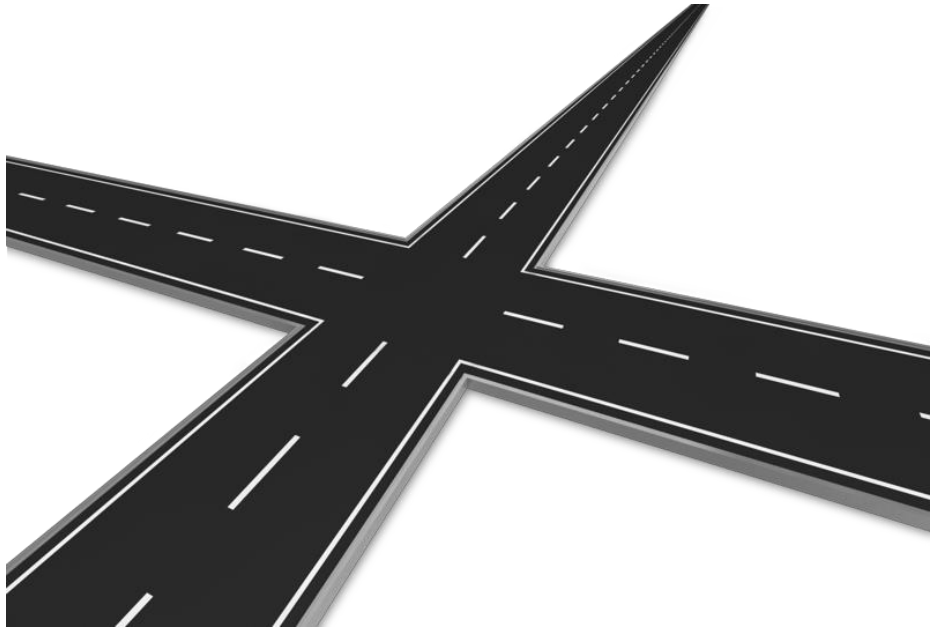
This 0.11-mile segment is located on a town-maintained urban major collector in Kingston. The segment spans the entrance of multiple businesses and driveways. Members of the TAC ranked this location as a “high” priority. The treatments recommended are a combination of feedback received on similar locations with high traffic volume and large open driveway, as well as benefit-cost comparison using the expected crash rate.



AADT	Speed	Highest Crash Types (FSI)	Roadway Owner	Jurisdiction (Rural/ Urban)	Crash Info
8,255	30	Right Angle (Pedestrian)	Town	Kingston (Urban)	18 Crashes 17% Inj; 2 SI

Crash Type by Injury Severity	Fatalities	Serious Injuries	Total Crashes
HEAD ON	0	1	1
COLLISION WITH PEDESTRIAN	0	1	1
RIGHT ANGLE	0	0	7
LEFT TURN	0	0	5
REAR END	0	0	2

Treatment	Cost	CMF (Crash Modification Factor)	B/C	Notes
Restriping	$500	0.78	795.7	Transition to two lanes NB
Access Management	$10,000	0.93	12.7	Narrow driveway entrances
Transverse Rumble Strips	$5,000	0.75	90.4	Wide, open lanes lead to higher than posted speeds



Top-5 Intersections

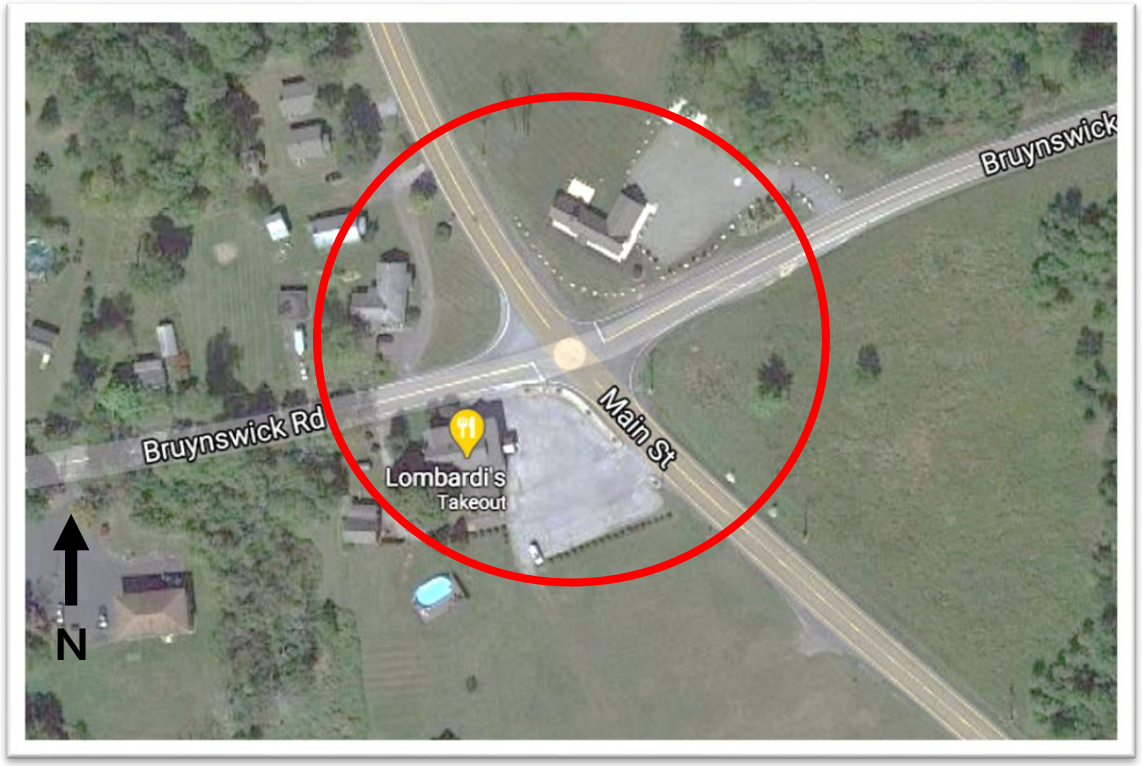
Recommendation Summary

Top 5 - Intersections

Rank	Location Type	Route Name	Int. Route	AADT	Speed (Max)	Highest Crash Types (FSI)	Roadway Owner	Jurisdiction (Rural/ Urban)	Crash Info
1	Int.	Route 44	Route 7	2,342	55	Right Angle (Right Angle)	NYSDOT & County	Gardiner (Rural)	25 crashes 52% Inj; 3 FSI
10	Int.	Lucas Turnpike	Cottekill Rd	3,624	35	Right Angle (Right Angle)	County & County	Rosendale (Rural)	18 crashes 39% Inj; 1 FSI
41	Int.	Route 44	State HWY 208	6,958	55	Rear End (Left Turn)	NYSDOT	Gardiner (Rural)	27 crashes 26% Inj; 1 SI
53	Int.	Route 208	Wallkill Ave	8,574	35	Rear End (Head On)	NYSDOT & County	Wallkill (Urban)	27 crashes 26% Inj; 1 SI
18	Int.	County Route 7	Ulsterville	2,104	35	Right Angle (None)	County & Town	Shawangunk (Rural)	17 Crashes 47% Inj

Rank ID: #1
Location: Rout 44/Route 7 Intersection

This intersection is located in rural Gardiner at the junction of a rural major collector and a rural minor collector. The intersection is stop controlled for the minor road only. This location is the top-ranked intersection from the network screening process based on crash rates and severity. Stakeholders and members of the TAC ranked this location as a "high" priority. The treatments recommended are a combination of feedback and benefit-cost comparison using the expected crash rate.



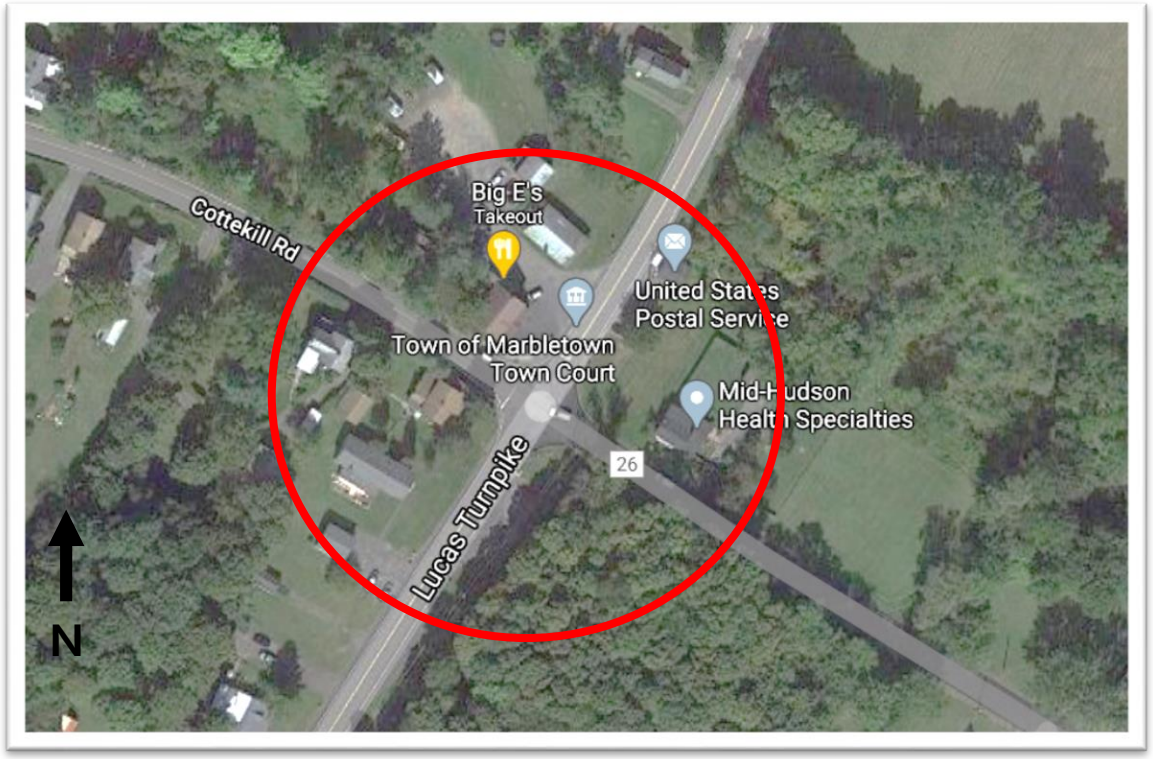
AADT	Speed	Highest Crash Types (FSI)	Roadway Owner	Jurisdiction (Rural/ Urban)	Crash Info
2,342	55	Right Angle (Right Angle)	NYSDOT & County	Gardiner (Rural)	25 crashes 52% Inj; 3 FSI

Crash Type by Injury Severity	Fatalities	Serious Injuries	Total Crashes
RIGHT ANGLE	1	2	20
MOTORCYCLE	0	0	1
REAR END	0	0	1
FIXED OBJECT	0	0	1
COLLISION WITH DEER	0	0	2

Treatment	Cost	CMF (Crash Modification Factor)	B/C	Notes
Install Traffic Signal	$500,000	0.56	3.2	Remove gap judgment
Roundabout	$1,500,000	0.18 (FSI)	1.9	Remove severe conflict points
LED-Enhanced Stop Signs	$15,000	0.87	31.1	
Intersection Conflict Warning Signs	$100,000	0.70	10.8	Assist with any sight distance limitations and slow US-44

Rank ID: #10
Location: Lucas Turnpike/Cottekill Road Intersection

This intersection is located in rural Rosendale at the junction of a rural major collector and a rural minor collector. The intersection is stop controlled for all approaches. Members of the TAC ranked this location as a “high” priority. The treatments recommended are a combination of feedback received at similar locations and benefit-cost comparison using the expected crash rate.



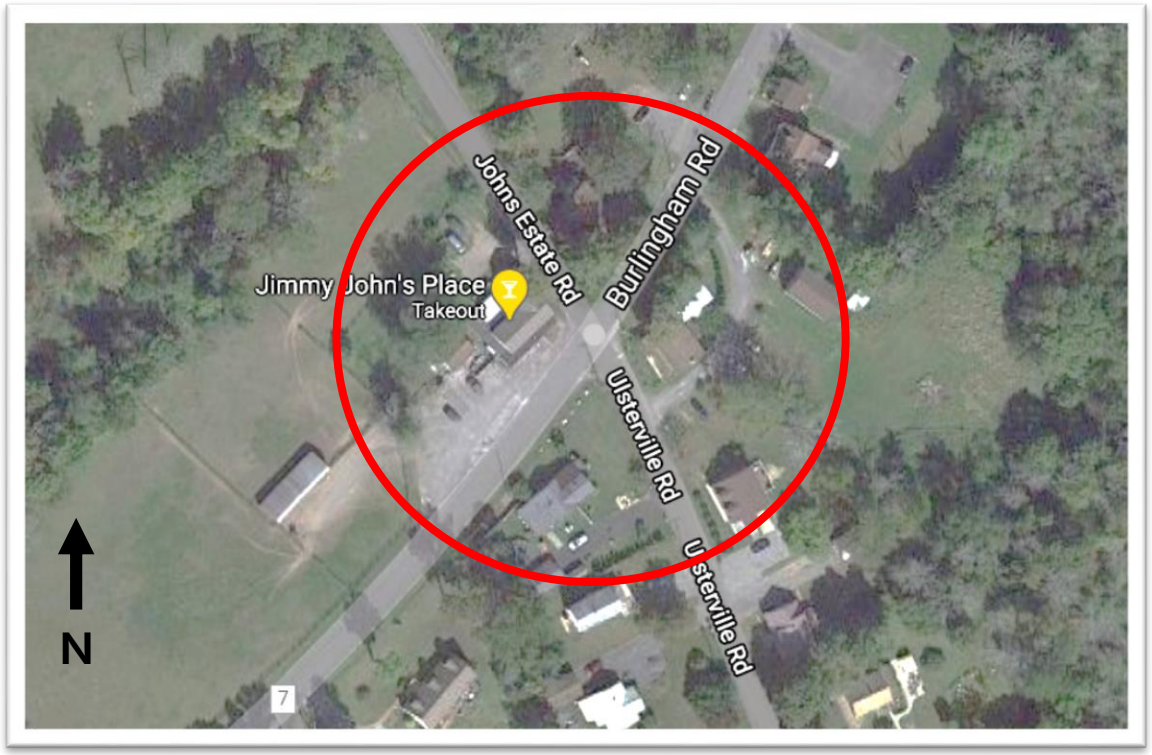
AADT	Speed	Highest Crash Types (FSI)	Roadway Owner	Jurisdiction (Rural/ Urban)	Crash Info
3,624	35	Right Angle (Right Angle)	County & County	Rosendale (Rural)	18 crashes 39% Inj; 1 FSI

Crash Type by Injury Severity	Fatalities	Serious Injuries	Total Crashes
RIGHT ANGLE	1	0	11
REAR END	0	0	2
RIGHT TURN	0	0	2
SIDESWIPE	0	0	1
FIXED OBJECT	0	0	1

Treatment	Cost	CMF (Crash Modification Factor)	B/C	Notes
LED-Enhanced Stop Signs	$15,000	0.87	35.1	
Roundabout	$1,500,000	0.18 (FSI)	2.1	
Improve Lighting	$10,000	0.88	46.3	Fatality occurred in dark conditions
Stop Ahead Pavement Marking	$10,000	0.34	267.7	Sign and/or pavement markings

Rank ID: #18
Location: CR 7/Ulsterville Road Intersection

This intersection is located in rural Shawangunk at the junction of a rural minor collector and rural local road. The intersection is stop controlled for the minor route approaches. Members of the TAC ranked this location as a “high” priority. The treatments recommended are a combination of feedback received at similar locations and benefit-cost comparison using the expected crash rate.



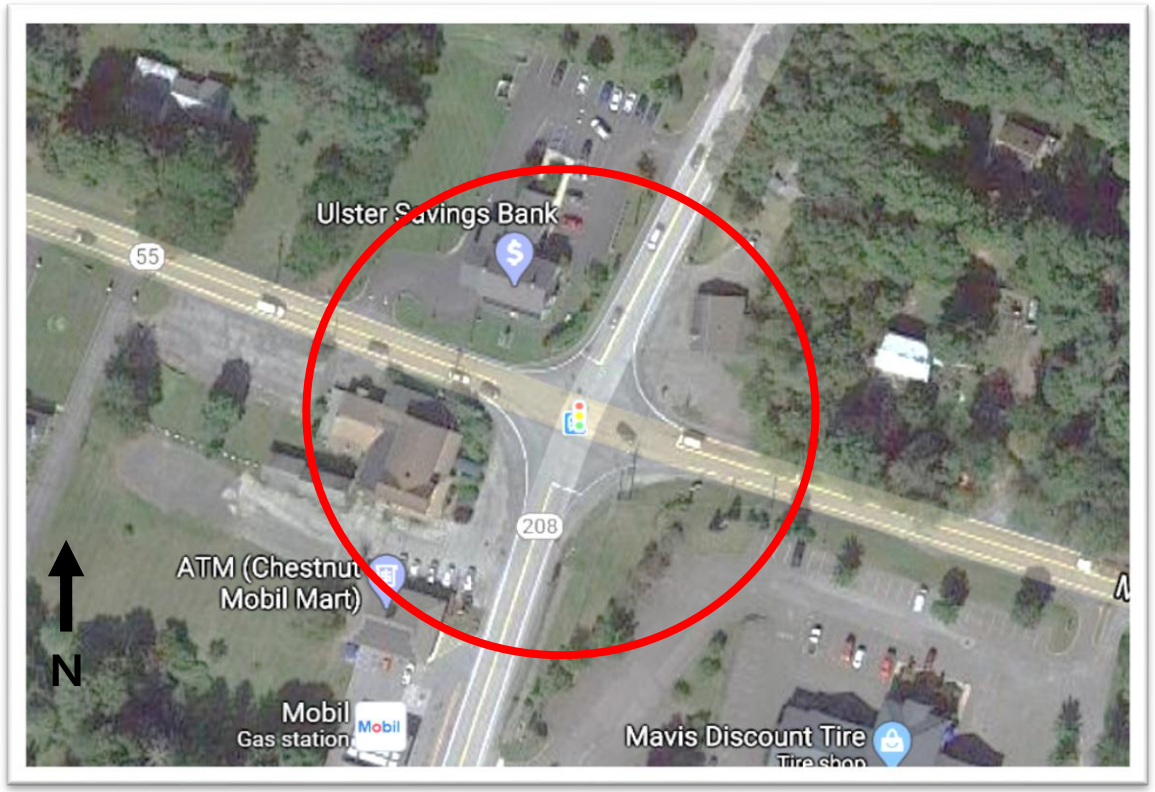
AADT	Speed	Highest Crash Types (FSI)	Roadway Owner	Jurisdiction (Rural/ Urban)	Crash Info
2,104	35	Right Angle (None)	County & Town	Shawangunk (Rural)	17 Crashes 47% Inj

Crash Type by Injury Severity	Fatalities	Serious Injuries	Total Crashes
RIGHT ANGLE	0	0	11
LEFT TURN	0	0	3
HEAD ON	0	0	2
SIDESWIPE	0	0	1

Treatment	Cost	CMF (Crash Modification Factor)	B/C	Notes
Install Traffic Signal	$500,000	0.56	1.6	
Roundabout	$1,500,000	0.18 (FSI)	0.9	Remove severe conflict points
LED-Enhanced Stop Signs	$15,000	0.87	15.3	
Intersection Conflict Warning Signs	$100,000	0.70	5.3	Assist with any sight distance limitations and slow CR-7

Rank ID: #41
Location: Route 44/Route 208 Intersection

This intersection is located in rural Gardiner at the junction of a rural minor arterial and rural major collector. The intersection is signalized and has no turn lanes. Stakeholders and members of the TAC ranked this location as a “high” priority. The treatments recommended are a combination of feedback received at similar locations and benefit-cost comparison using the expected crash rate.



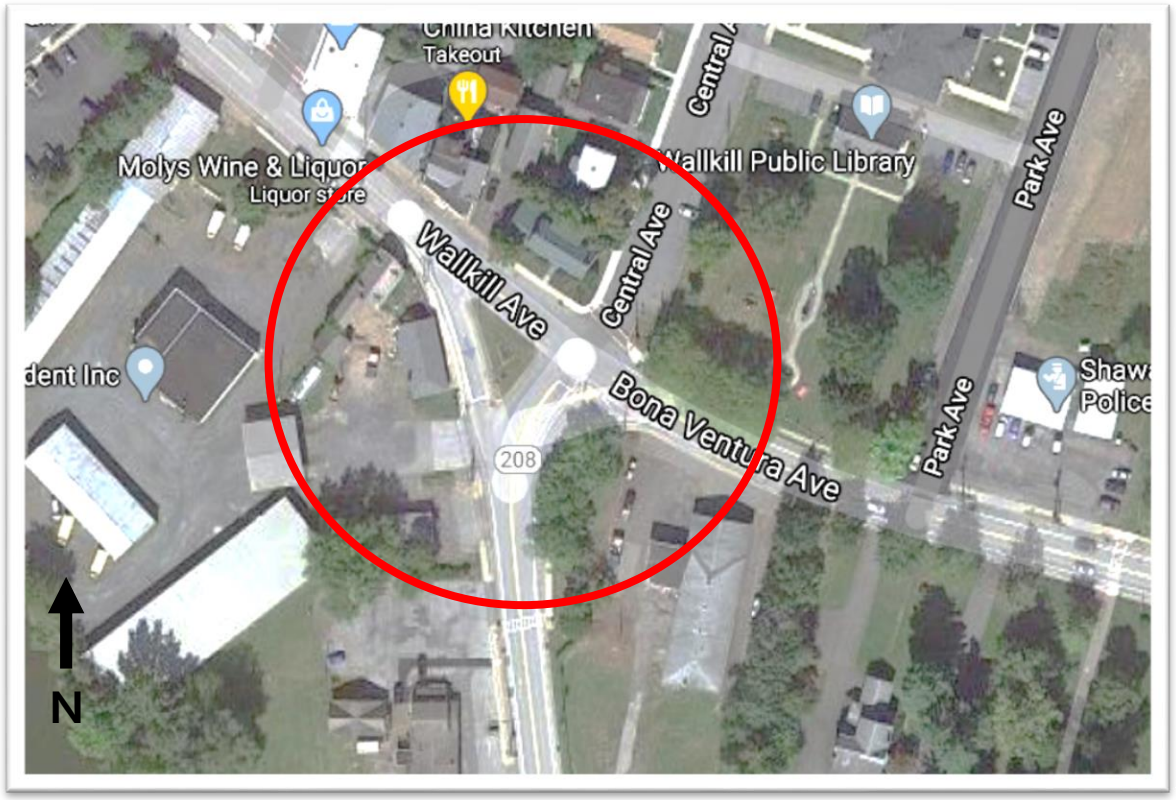
AADT	Speed	Highest Crash Types (FSI)	Roadway Owner	Jurisdiction (Rural/ Urban)	Crash Info
6,958	55	Rear End (Left Turn)	NYSDOT	Gardiner (Rural)	27 crashes 26% Inj; 1 SI

Crash Type by Injury Severity	Fatalities	Serious Injuries	Total Crashes
LEFT TURN	0	1	2
REAR END	0	0	18
RIGHT ANGLE	0	0	3
SIDESWIPE	0	0	1
OVERTAKING	0	0	1

Treatment	Cost	CMF (Crash Modification Factor)	B/C	Notes
Install Mast Arms	$500,000	0.85	2.1	
Roundabout	$1,500,000	0.22 (FSI)	3.3	
Backplates	$10,000	0.85	103.1	May need mast arms
Protected Left	$10,000	0.84 (left turn)	102.1	Seven percent of crashes were left turns

Rank ID: #53
Location: Route 208/Wallkill Ave Intersection

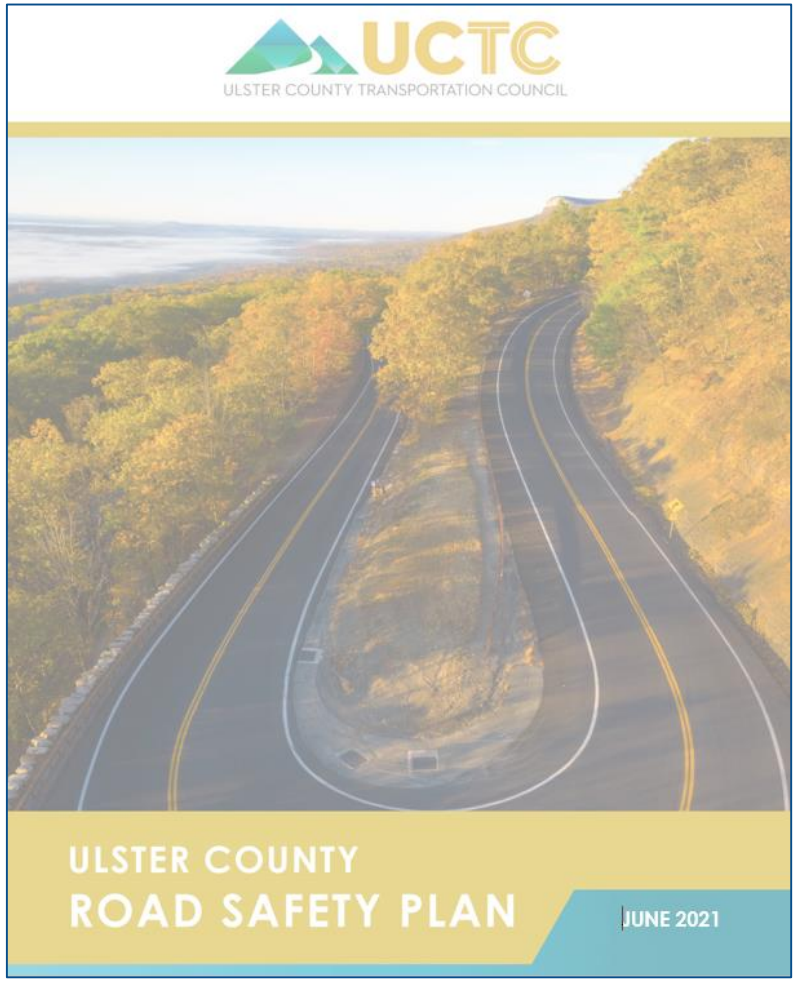
This intersection is located in urban Wallkill at the junction of a urban minor arterial and urban major collector. The intersection is stop controlled including channelized right turns to and from the south leg. Members of the TAC ranked this location as a "high" priority. The treatments recommended are a combination of feedback received at similar locations and benefit-cost comparison using the expected crash rate.



AADT	Speed	Highest Crash Types (FSI)	Roadway Owner	Jurisdiction (Rural/ Urban)	Crash Info
8,574	35	Rear End (Head On)	NYSDOT & County	Wallkill (Urban)	27 crashes 26% Inj; 1 SI

Crash Type by Injury Severity	Fatalities	Serious Injuries	Total Crashes
HEAD ON	0	1	1
REAR END	0	0	9
LEFT TURN	0	0	6
RIGHT ANGLE	0	0	3
FIXED OBJECT	0	0	3

Treatment	Cost	CMF (Crash Modification Factor)	B/C	Notes
Install Traffic Signal	$500,000	0.56	6.0	
Roundabout	$1,500,000	0.18 (FSI)	3.5	
LED-Enhanced Stop Signs	$15,000	0.87	59.5	
Intersection Conflict Warning Signs	$100,000	0.70	20.6	Assist with any sight distance limitations and slow SR-208



Ulster County Road Safety Plan

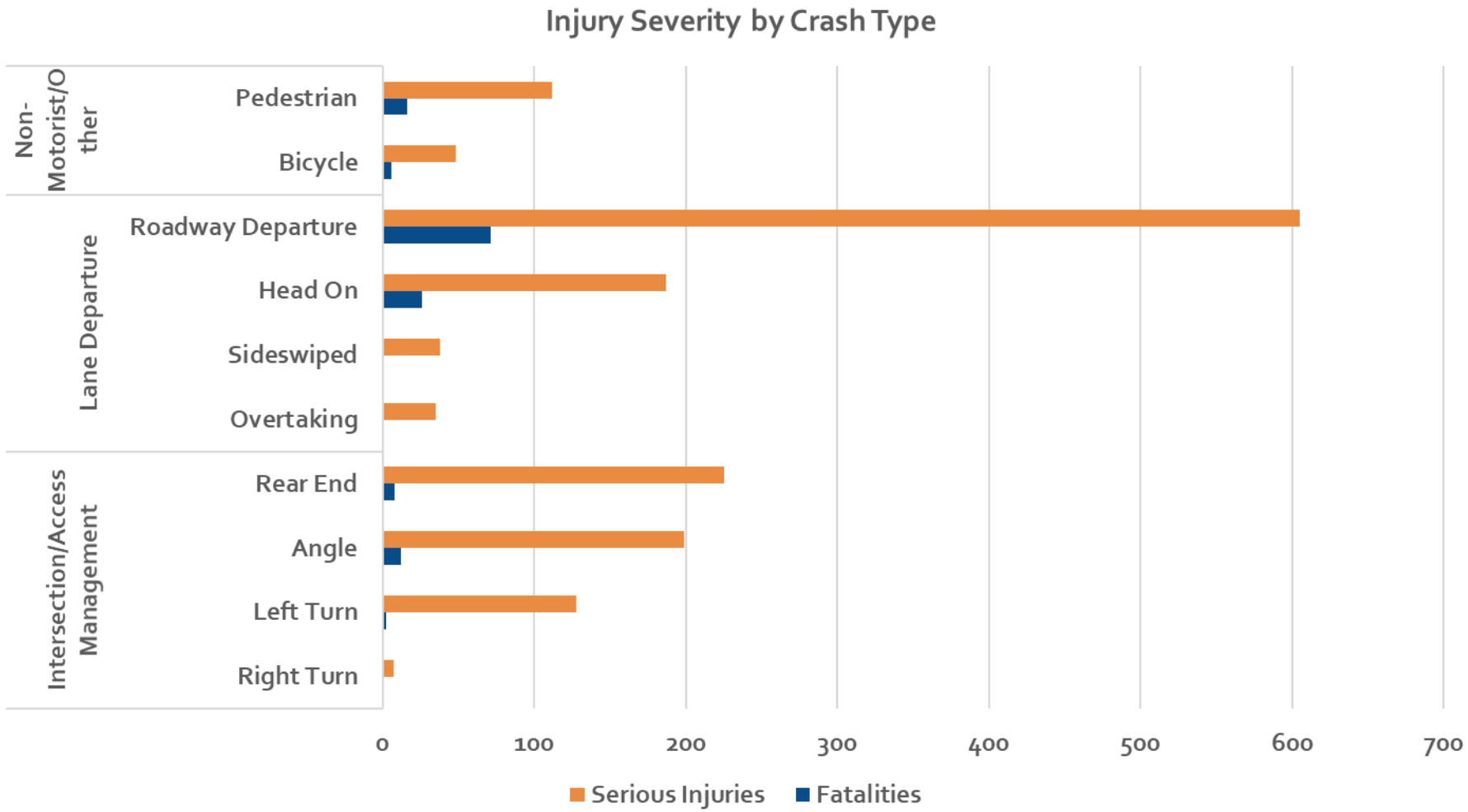
Plan Outline

Key Elements from Stakeholder Input

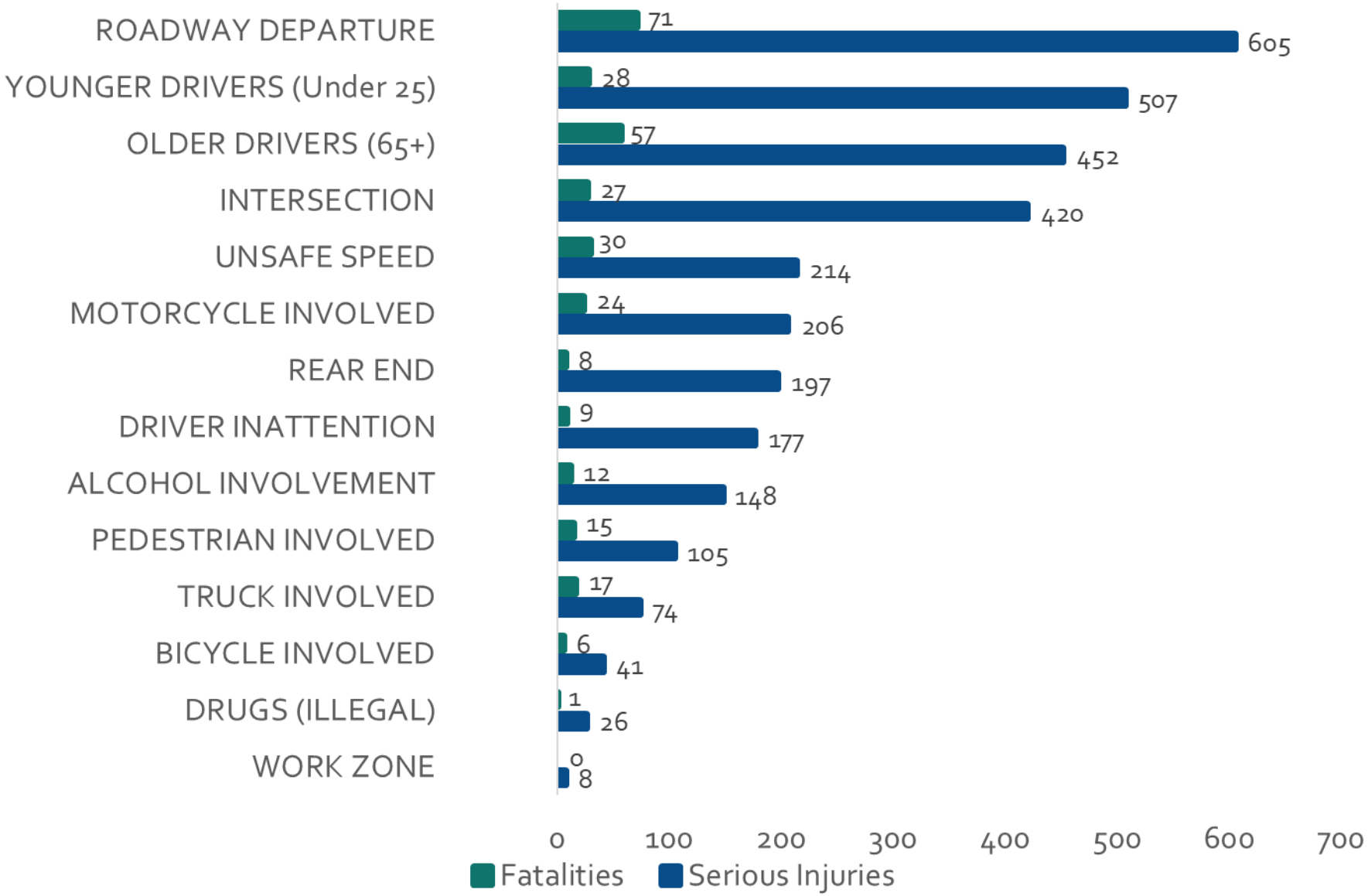
Plan Outline

- Executive Summary
- Introduction
  - Overview and Purpose
  - Process to develop plan
- Crash analysis
  - Trend Analysis and Network Screening (some of which might be in appendix)
- TAC and Stakeholder engagement
- Priority safety issues and locations
  - Emphasis Areas
  - Priority Lists – also reference appendix
- Recommendations and Implementation priorities
  - Strategies
    - Action Steps
- Appendix
  - Analysis Process and Results

Fatalities and Serious Injuries by Crash Type, 2010-2018



Roadway Crash Emphasis Areas, 2010-2018

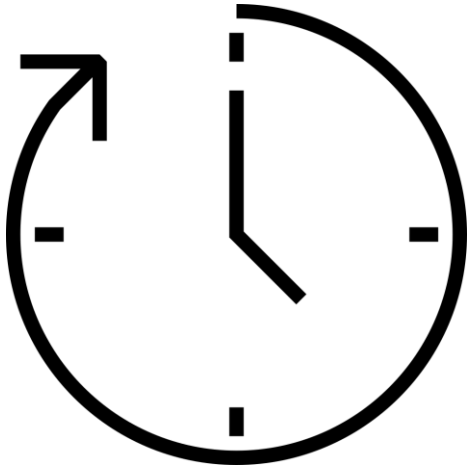


Roadway Departure Takeaways

- Roadway Departure emerges as a key emphasis area in Ulster County, accounting for almost 50% of fatalities where a crash type could be identified
- Roadway Departure crashes resulting in fatalities or serious injuries are most common on local and collector roadways
- Trees, utilities, and guide rails are the most frequent objects collided with
- Weather and roadway condition seem to play only a minor role in roadway departure crashes—58% of RWD crashes took place during clear weather conditions vs. 66% for other crash types
- 73% of RWD crashes took place on dry roadways compared to 82% of all other crashes

Bike/Ped Takeaways

- Fatalities and serious injuries among people walking and biking are heavily concentrated in the county's most populated jurisdictions
- While overall numbers of fatalities and serious injuries to people walking and biking remain low, the last two years of available data show an increase
- Collectors and Arterials are the predominant functional classes for pedestrian and bicyclist fatalities and serious injuries
- Only 2 pedestrian serious injuries and 1 fatality overlapped with roadway departure crashes between 2010 and 2018 (collisions with guide rail and utility pole), and no roadway departure crashes involved bicyclists
- Bike/ped serious injuries and fatalities are more likely to occur during clear conditions (69% of crashes) than vehicle occupant injuries or fatalities (63%), which is likely due to increased bike/ped volumes in clear conditions



Meeting Wrap Up

Future Actions

Next Steps

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