Saint Regis Mohawk Tribe
Tribal Road Safety Plan
2022

Contents

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Welcome Message

The Saint Regis Mohawk Tribe is committed to providing and maintaining a road system that is safe for all users. We recognize that while we continuously make efforts to invest in safety, we know we can do more. Over the last 5 years, there were over 800 crashes on our roadway network and those roads connecting to our Reservation, with 21 of those involving a fatal or serious injury. These lives lost or severely affected are members of our community and our neighbors.

In response, we have come together with a group of safety stakeholders and partners to proactively address the fatal and serious injury crashes occurring on our roadways. This Tribal Road Safety Plan (TRSP) provides strategies and actions which require us to work together with other agencies in our community to promote a safety culture and improve safety on our roadways.

In preparing this plan, stakeholders reviewed the crash data and determined we need to focus our efforts on reducing impaired driving, run-off-the-road crashes, and speeding. In addition, we also need to focus on promoting safe driving practices by both younger and older drivers and to reduce crashes involving pedestrians and those crashes at intersections. The above factors are crash characteristics that are overrepresented in our area. If we focus our efforts on these factors — we believe we will see changes elsewhere. These topics will serve as our Emphasis Areas.

We ask that you join us in implementing this plan. Our goal is to eliminate fatalities and serious injuries on our roadways and with your collaboration we believe we can achieve it, saving lives on our roads.

Executive Summary

The Saint Regis Mohawk Tribe is committed to improving transportation safety for all users and eliminating traffic fatalities and serious injuries on its roadway system. The lives lost or severely affected by these crashes are members and friends of the community. State Route 37 is a key artery that traverses the Saint Regis Mohawk Reservation and connects communities along the St. Lawrence River and the Canadian border. State Route 37 is also the location of many businesses and amenities that serve both residents and a larger regional area.

The development of this TRSP involved input from multi-discipline stakeholders representing engineering, enforcement, education, and emergency response (4E) and considers the unique and diverse issues specific to the Saint Regis Mohawk Tribe. It incorporates many of the principles and elements of the Safe System approach which aims to eliminate fatal and serious injuries for all road users and provides a data-driven framework to focus safety efforts and allocate resources for the Tribe. The TSRP aligns with the New York State Strategic Highway Safety Plan (SHSP) and includes strategies and action items across the 4Es that will lead to a reduction of traffic related fatalities and serious injuries on roads within and surrounding the Saint Regis Mohawk reservation when implemented collectively by the various stakeholders.

The intent of this plan is to:

- Achieve a significant reduction in traffic fatalities and serious injuries on Saint Regis Mohawk tribal roadways and other roads that connect to the Reservation.
- Complement the Tribe's efforts with the implementation of its master transportation plan.
- Leverage partnerships and resources to maximize implementation of this plan.
- Identify strategies and action items based on data analysis and crash trends.
- Prioritize needed roadway safety improvements.
- Increase awareness of road safety and risks through education and enforcement.
- Develop support for grant funding applications.

Guided by the TRSP vision and goal, seven emphasis areas with performance targets are identified in the TRSP based on input from crash data, stakeholder feedback from workshops, and public feedback. The Tribe selected strategies and action items for each emphasis area and identified a proactive approach for implementation.

The Tribe identified the following seven emphasis areas based on discussions and data analysis:

- Lane Departures.
- Speed.
- Older Road Users.
- Intersections.
- Pedestrians.
- Younger Drivers.
- Impaired Driving.

Aligning the TRSP with the New York State SHSP provides an opportunity for the Tribe's efforts to support the safety vision and goals for the State, contribute to the reduction of traffic related fatalities and serious injuries for the State and prioritize safety initiatives under the adopted State emphasis areas to

best align with available funding. Some example strategies from the TSRP emphasis areas include the following:

- Implement engineering countermeasures to reduce lane departure crashes.
- Improve data collection and analysis practices that relate to intersection safety.
- Enhance enforcement activity to address impaired driving.
- Implement educational efforts to address speed-related safety.

The Tribe will implement the strategies and actions presented in the TRSP Implementation Tables (Appendix A). Safety stakeholders will meet and communicate regularly to discuss the progress of implementation and the impact of the TRSP on fatalities and serious injuries. Stakeholders will evaluate each emphasis area individually and the Plan to determine if goals are being met. Like the New York State SHSP, a full update of the TRSP is anticipated to be completed every five years to account for strategies accomplished and an updated crash data review.

The vision, mission, and goal of the TRSP are as follows:

Vision: Eliminate fatalities and serious injuries on our roadways.

Mission: To provide a safe, efficient, and environmentally responsible transportation system that moves toward zero fatalities while preserving Akwesasne's sovereignty and indigenous identity.

Goal: Reduce fatalities and serious injuries by 50 percent by 2027.

Introduction and Purpose of a TRSP

The Saint Regis Mohawk Tribe (SRMT) is taking a proactive approach to address fatal and serious injury crashes on its roadways and has developed a TRSP to enhance road safety for its residents and visitors. A TRSP provides a framework for identifying, analyzing, and prioritizing roadway safety improvements on tribal roads. This framework includes a plan development process that tailors solutions to locally identified issues and needs. The TRSP process results in a prioritized list of strategies and actions that can be used to reduce fatalities and serious injuries on the tribal road network.

The intent of this plan is to:

- Achieve a significant reduction in traffic fatalities and serious injuries on Saint Regis Mohawk tribal roadways and other roads that connect to the Reservation.
- Complement the Tribe's efforts with the implementation of its master transportation plan.
- Leverage partnerships and resources to maximize implementation of this plan.
- Identify strategies and action items based on data analysis and crash trends.
- Prioritize needed roadway safety improvements.
- Increase awareness of road safety and risks through education and enforcement.
- Develop support for grant funding applications.

Safe System Approach

The Safe System approach (See figure 1) is a method for eliminating traffic fatalities and serious injuries for all roadway users. It is based on principles that the human body is vulnerable, humans make mistakes, and it is unacceptable that these mistakes result in death and injury. Furthermore, it is critical to design and operate the roadway system to keep impact energy on the human body at tolerable levels. Shared responsibility by all stakeholders is key, making it important that the stakeholders are collaborative and engaged partners when developing and implementing the TRSP.

Source: FHWA

Figure 1. Graphic. Safe System Approach (FHWA, n.d.).

The Safe System approach moves beyond reacting strictly based on crash history by proactively identifying risk factors associated with severe crash types and implementing safety countermeasures systemically based on those factors. This TSRP includes systemic implementation of strategies. All parts of the transportation system need to be strengthened to build in redundancy to accommodate any failures of the system. Examples of redundancy include installation of curve warning signs to alert motorists of conditions in which a slower speed is necessary combined with speed feedback signs and education and enforcement campaigns that help avoid behaviors that may result in crashes.

The Safe System approach considers the five elements of a safe transportation system: safe road users, safe vehicles, safe speeds, safe road, and post-crash care. These elements encompass the 4Es of safety and accommodate human error. Road users represent all modes of travel, and their capabilities may be influenced by factors such as age, level of impairment, and other behaviors. System owners and other stakeholders can use strategies such as signing, enforcement, and education campaigns to address these limitations and encourage change in behavior. Safe vehicles incorporate new technology and other features to prevent crashes from occurring, and if they do, reduce the severity of a crash. Safe speeds increase the likelihood of an individual surviving a crash. Appropriate speed limits and signing as well as speed feedback signs help reduce the speed of users. These can be reinforced with enforcement and education campaigns. Safe roads incorporate strategies during design, construction, maintenance, and operations to prevent crashes and manage impacts to keep kinetic energy at tolerable levels should a crash occur. Post-crash care is critical when a crash occurs, and a person is injured. This includes first responders' being able to quickly locate and respond to the crash and stabilize and transport the individual. Furthermore, this includes accurate and complete data collection and sharing of the data to facilitate improved decision-making and investments specific to safety.

Ultimately, the Safe System approach puts safety at the forefront and shifts how transportation investments are prioritized. The Saint Regis Mohawk Tribe and its stakeholders, through their combined their efforts and application of the Safe System approach during the development and implementation of this TSRP can have success in reducing traffic fatalities and serious injuries on its roadways.

TRSP Process

The development of the TRSP follows the Local Road Safety Plan (LRSP) Development Process encouraged by the Federal Highway Administration (FHWA). LRSPs are one of FHWA's Proven Safety Countermeasures and is the recommended development process used by several local, regional, and tribal communities across the United States. SRMT adopted this process in developing its TSRP. They took a six-step process to adhere to the LRSP process as shown in figure 2. The following sections describe each step, and more details can be found in later sections of the plan. This TSRP considers the unique needs and issues specific to the Tribe's roadway system and the users of these roadways and integrates the principles and elements of a Safe System approach where applicable. It builds upon past and ongoing safety activities such as sign upgrades, pavement resurfacing, intersection upgrades, and impaired driving and speed enforcement. These activities reflect the Safe System elements of Safe Roads, Safer Road Users, and Safe Speeds. The TRSP supports the New York State SHSP and the goals and strategies to eliminate traffic fatalities and serious injuries. Implementation is key and has been kept in the forefront during the TRSP development process.

Source: FHWA

Figure 2. Graphic. The LRSP development process (FHWA, 2018).

Establish Leadership: SRMT engaged safety stakeholders representing 4Es: engineering, enforcement, education, and emergency response to provide input into the development of the TSRP. These partnerships and collaborative efforts recognize a shared responsibility to eliminating fatal and serious injury crashes and provide the opportunity to share knowledge, leverage resources and maximize implementation of the TRSP. An initial kickoff meeting helped to identify additional stakeholders and sources of data.

Analyze Safety Data: SRMT used a data-driven process to identify the key factors that contribute to crashes and the locations of these incidents. Identifying these factors and locations helps to focus Tribal and State resources in those areas that require the most attention with the highest potential to reduce crashes. Data helped to drive discussion between stakeholders and inform the selection of strategies and actions for the TSRP. The analysis used the KABCO scale, where K = fatal crash; A = incapacitating injury; B = non-incapacitating injury; C = possible injury; and O = no injury. The analysis included fatal and serious injury (KA) and all fatal and injury crashes (KABC) for the five-year period from February 2016 to January 2021. Crash trees helped to identify factors such as road functional class, posted speeds, and road user type for systemic application of safety countermeasures. Crash maps identified corridors of interest and hot spots.

Determine Emphasis Areas: The data analysis helped to identify emphasis areas, or those areas of focus, where the Tribe and its partners can concentrate safety resources. The emphasis areas identified in the

TSRP also align with the critical emphasis areas found in the New York State SHSP, which includes roadway departure, impaired driving, intersections, young drivers, and older drivers.

Identify Strategies: Based on the selected emphasis areas, data analysis results, and local knowledge, the stakeholders discussed and identified various countermeasures for inclusion in the TRSP. The discussion included physical constraints of the roadways, the different types of road users, and past efforts. Many of these are identified in the New York State SHSP and are considered as effective countermeasures by FHWA and National Highway Transportation Safety Administration (NHTSA). They also align with elements of the Safe System approach such as Safe Roads, Safe Road Users, and Safe Speeds.

Prioritize and Incorporate Strategies: Each emphasis area in the TRSP includes a series of 4E strategies and action items incorporating identified countermeasures. The stakeholders considered the principles and elements of the Safe Systems approach and the method of implementation (e.g., proactive systemic approach) during this process. Each action item is listed in priority order and includes the associated Safe System approach element. Many of the action items include or build on current on-going activities such as systemwide signing, impaired driving and speed enforcement, and outreach/education campaigns. Each action item includes the lead agency and partners, method of application, priority locations and corridors to focus immediate implementation efforts, and potential funding sources. Each action item also includes an implementation time frame. Action items proposed and the method of implementation also consider Safe System approach principles and elements.

Evaluate and Update: System managers (planners, designers, builders, operators, and maintenance workers), law enforcement, post-crash personnel, system users and other stakeholders all have a shared responsibility to reduce traffic fatalities and serious injuries on the roadway system. With this in mind, implementation of strategies and action items identified in this TRSP by all stakeholders is key to achieving the goal set forth in this TRSP. The TRSP is a living document which should be evaluated and updated periodically. Tracking the allocation of resources, positive changes in user behavior, and the reduction in crashes as the various strategies and action items are implemented can be the mechanism with which the Tribe and its safety stakeholders evaluate the effectiveness of the TRSP implementation. This also will assist the Tribe and its partners to identify new action items or those that should be expanded, determine necessary resources for implementation, and pursue grant opportunities. Aligning the update of the TRSP with that of the Tribe's Transportation Master Plan provides an opportunity to integrate strategies and action items into projects, ultimately advancing implementation of the TRSP. The New York State Local Technical Assistance Program (LTAP) Center is a potential resource for assisting with the evaluation and update of the TRSP.

Saint Regis Mohawk Tribe TRSP Vision, Mission, and Goal

The TRSP Vision, Mission, and Goal statements reflect Safe System approach principles that death and serious injuries are unacceptable and a shared responsibility by all stakeholders is necessary. The Vision for the TSRP demonstrates the intent that all users of the Saint Regis Mohawk Tribe roadway system reach their destination safely. The Mission statement recognizes that a collaborative effort by all the safety partners is necessary to achieve the reductions in traffic related fatalities and serious injuries set forth by the Goal while also acknowledging the Tribe's sovereignty and identity. Strategies and action items identified in later sections of this TRSP reflect Safe System elements such as Safe Roads, Safe Road Users, and Safe Speeds and support achieving the Vision, Mission, and Goal statements.

Vision:
Eliminate fatalities and serious injuries on our roadways.

Mission:
To provide a safe, efficient, and environmentally responsible transportation system that moves toward zero fatalities while preserving Akwesasne's sovereignty and indigenous identity.

Goal:
Reduce fatalities and serious injuries by 50 percent by 2027.

Existing Efforts

As detailed in the recently completed Saint Regis Mohawk Tribe Long-Range Transportation Plan (LRTP), several proposed recommendations are relevant to the TRSP:

- SRMT recommends several policy and activity changes, including coordination of data with staff for better implementation of available information, integration of GIS data for identifying future safety concerns and project analysis, and data sharing between the SRMT Tribal Police and the SRMT Planning & Infrastructure Division.
- Short-Term (2021-2025) Recommendations include the development of a safety plan, conducting road safety audits, purchase, and training of crash data software, conducting sign and guardrail inventories, repaving, and overlaying of roads, and preventative maintenance.
- Mid-Term (2026-2030) Recommendations include a "road diet" on Route 37 with pedestrian and bicycle safety improvements and additional roadway lighting and intersection signalization.
- Long-Term (2031-2040) Recommendations include additional pedestrian facilities in the business district on Route 37 and continued preventative maintenance.

In addition, the LRTP specifically identified opportunities to address the mobility of pedestrians and bicyclists within the Reservation. SRMT recommends that sidewalks are required for all future roadway improvement projects unless the sidewalk introduces a safety concern. The implementation of clearly marked crosswalks and push buttons at heavily trafficked intersections is also a priority. The Route 37 corridor "road diet" is an opportunity to implement pedestrian infrastructure. Aside from this corridor, St. Regis Road, Raquette Point Road, and Route 37C are routes within the Reservation for consideration. The SRMT also wants to evaluate the need for sidewalk facilities along other routes including, but not limited to: Frogtown Road, Helena Road, McGee Road, Cook Road, Beaver Meadow Road, Jock Road, Roosevelt Town Road, and others deemed necessary by the Tribe. The Tribe also wants to expand greenways/walking trails in new development throughout the Akwesasne community to have continued improvement to pedestrian connectivity.

SRMT also identified opportunities to enhance bicycle infrastructure such as increasing the number of bike racks at area destinations, storefronts, restaurants, and Tribal buildings; creating signed bike routes to inform visitors of local routes that are conducive to cycling; preparing and publish a bike map to show area bicycle facilities and considering a Tribal resolution to require sidewalk and bicycle lanes for all future roadway projects. Longer-term recommendations include creating bike lanes or shared lanes with appropriate markings and signage on Route 37 and subsequently on the Margert Terrace Memorial Way, McGee Road, Helena Road, Frogtown Road, St. Regis Road, Raquette Point Road, and Route 95.

At the State level, aside from the previously mentioned SHSP, the New York State Department of Transportation (NYSDOT) develops an annual Highway Safety Improvement Program (HSIP) that outlines infrastructure-related projects funded by federal safety dollars. This TSRP can help identify potential projects that would be eligible for HSIP funds. Similarly, the New York Governor's Traffic Safety Committee (GTSC) develops an annual Highway Safety Plan (HSP) that outlines behavioral-related projects also funded by federal safety dollars from NHTSA. This TSRP also identifies projects that could be eligible for these behavioral safety grants.

At the federal level, the Tribal Transportation Program (TTP) jointly administered by FHWA and the Bureau of Indian Affairs (BIA) provides grants to fund transportation safety programs on tribal lands.

Outside of the SRMT Reservation, Franklin County has a Traffic Safety Board that meets monthly and the SRMT has a seat on the Board. The Board receives a grant from the GTSC to employ a traffic safety coordinator who works with local agencies to identify crash areas that helps to focus enforcement and educational efforts. The SRMT Tribal Police Department is an active member of the Board. Franklin County also administers New York State's Stop DWI program within its county borders and has worked with Saint Regis Mohawk Tribal agencies with promoting road safety awareness.

Stakeholder Input

The SRMT and its partners representing the 4E's participated in two virtual workshops and provided input into the development of the TRSP. This collaborative approach reflects the Safe System principle of "Responsibility is Shared" to eliminate fatal and serious injury crashes on roadways and collectively bring ideas, identify opportunities, and leverage resources to implement strategies and action items that make the roadway system safer and encourage safe behavior by all roadway users. These safety partners are a valuable resource as they bring expertise, familiarity and knowledge of the roadways and its users, past and ongoing roadway improvements, existing safety programs, and the challenges faced. The stakeholders recognize the benefits of expanding on current activities.

During the workshops SRMT and its partners provided the following key points:

- The SRMT Tribal Police has jurisdiction of the Hogansburg Triangle, the area immediately outside of the federally-defined boundary of the Reservation.
- There is a need to provide continuing education for engineers, enforcement, and planners on the most current practices to address diverse transportation safety needs.

Data Analysis

The study area includes three geographic regions, (1) within the Saint Regis Mohawk Reservation, (2) within the Hogansburg Triangle outside the Reservation, and (3) locations outside of these two areas but on the National Tribal Transportation Facility Inventory (NTTFI). The data analysis included crash data in the 5-year period between February 2016 and January 2021. During this period there were a total of 802 crashes, of which 172 involved an injury with 21 of those injuries involving a fatal or serious injury.

Data from crashes located on the Reservation is available through the New York State Department of Motor Vehicles. These crashes are on both the State and Tribal roadway system. However, the Saint Regis Mohawk Tribal Police Department collects its own crash reports that may not be represented in New York State data. Data improvements are needed to provide higher quality data for identifying safety concerns. The Saint Regis Mohawk Tribe Transportation Program is working with Tribal Police to improve data quality and collection. To inform the development of the TRSP, the project team obtained geocoded crash data for roads located on the NTTFI within and outside the Saint Regis Mohawk Tribe Reservation from the New York State Department of Transportation (NYSDOT). This includes both State and Tribal roads.

The crash data analysis identified trends and proportions in the types of crashes and the conditions in which they occurred. The objective of this analysis was to examine the crash data with a view to identifying contributing factors, road safety priorities, and potential actions for the TRSP.

Tables 1 through 3 depict crash types as reported by NYSDOT for injury and non-injury crashes in the three identified geographic regions. Table 4 presents all the areas combined. Fixed object crashes were the most common injury crash type within the Reservation and on NTTFI roads outside the Reservation and Hogansburg Triangle. Within the Hogansburg Triangle, where most crashes occur on Route 37, the most common injury crash type is rear-ends, due to the signalized intersections of Route 37 at St. Regis Road and Route 37 at the Akwesasne Mohawk Casino Resort entrance/exit. For all areas combined, the most prevalent injury crash types were fixed object (29 percent of injury crashes) and rear ends (28 percent of injury crashes).

Table 1. Saint Regis Mohawk Tribe crash types within Saint Regis Reservation | 02/07/2016 to 01/28/2021.[1]

	Non-Injury Crashes (O)	Injury Crashes (KABC)	Percent of O Total (129)	Percent of KABC Total (48)
HEAD ON	1	1	0.8	2.1
LEFT TURN (AGAINST OTHER CAR)	2	1	1.6	2.1
LEFT TURN (WITH OTHER CAR)	2	0	1.6	0
NOT ENTERED	2	0	1.6	0
ANIMAL	26	1	20.2	2.1
FIXED OBJECT	25	21	19.4	43.8
PEDESTRIAN	0	0	0	0
BICYCLIST	0	0	0	0
OTHER MOTOR VEHICLE	13	1	10.1	2.1
OVERTAKING	4	0	3.1	0
REAR END	32	14	24.8	29.2
RIGHT ANGLE	4	5	3.1	10.4
RIGHT TURN (AGAINST OTHER CAR)	2	1	1.6	2.1
RIGHT TURN (WITH OTHER CAR)	1	1	0.8	2.1
SIDESWIPE	4	0	3.1	0
UNKNOWN	11	2	8.5	4.2
TOTAL	129	48	100	100

[1] In March 2021, NYSDOT shared crash data with the project team. The data were used to make this table.

Table 2. Saint Regis Mohawk Tribe crash types within Hogansburg Triangle | 02/07/2016 to 01/28/2021.[2]

	Non-Injury Crashes (O)	Injury Crashes (KABC)	Percent of O Total (55)	Percent of KABC Total (35)
HEAD ON	1	0	1.8	0
LEFT TURN (AGAINST OTHER CAR)	2	7	3.6	20
LEFT TURN (WITH OTHER CAR)	1	0	1.8	0
NOT ENTERED	0	0	0	0
ANIMAL	12	0	21.8	0
FIXED OBJECT	4	3	7.3	8.6
PEDESTRIAN	0	2	0	5.7
BICYCLIST	0	0	0	0
OTHER MOTOR VEHICLE	11	7	20	20
OVERTAKING	1	1	1.8	2.9
REAR END	13	12	23.6	34.3
RIGHT ANGLE	2	1	3.6	2.9
RIGHT TURN (AGAINST OTHER CAR)	3	0	5.5	0
RIGHT TURN (WITH OTHER CAR)	1	0	1.8	0
SIDESWIPE	0	1	0	2.9
UNKNOWN	4	1	7.3	2.9
TOTAL	55	35	100	100

[2] In March 2021, NYSDOT shared crash data with the project team. The data were used to make this table.

Table 3. Saint Regis Mohawk Tribe crash types outside the Reservation and Hogansburg Triangle | 02/07/2016 to 01/28/2021.[3]

	Non-Injury Crashes (O)	Injury Crashes (KABC)	Percent of O Total (446)	Percent of KABC Total (89)
HEAD ON	0	4	0	4.5
LEFT TURN (AGAINST OTHER CAR)	7	3	1.6	3.4
LEFT TURN (WITH OTHER CAR)	3	0	0.7	0
NOT ENTERED	0	0	0	0
ANIMAL	169	4	37.9	4.5
FIXED OBJECT	101	26	22.6	29.2
PEDESTRIAN	4	1	0.9	1.1
BICYCLIST	1	1	0.2	1.1
OTHER MOTOR VEHICLE	21	8	4.7	9
OVERTAKING	31	0	7	0
REAR END	58	22	13	24.7
RIGHT ANGLE	38	18	8.5	20.2
RIGHT TURN (AGAINST OTHER CAR)	2	0	0.4	0
RIGHT TURN (WITH OTHER CAR)	1	0	0.2	0
SIDESWIPE	6	1	1.3	1.1
UNKNOWN	4	1	0.9	1.1
TOTAL	446	89	100	100

[3] In March 2021, NYSDOT shared crash data with the project team. The data were used to make this table.

Table 4. Saint Regis Mohawk Tribe crash types for all crashes at all locations | 02/07/2016 to 01/28/2021.[4]

	Non-Injury Crashes (O)	Injury Crashes (KABC)	Percent of O Total (630)	Percent of KABC Total (172)
HEAD ON	2	5	0.3	2.9
LEFT TURN (AGAINST OTHER CAR)	11	11	1.7	6.4
LEFT TURN (WITH OTHER CAR)	6	0	1	0
NOT ENTERED	2	0	0.3	0
ANIMAL	207	5	32.9	2.9
FIXED OBJECT	130	50	20.6	29.1
PEDESTRIAN	4	3	0.6	1.7
BICYCLIST	1	1	0.2	0.6
OTHER MOTOR VEHICLE	45	16	7.1	9.3
OVERTAKING	36	1	5.7	0.6
REAR END	103	48	16.3	27.9
RIGHT ANGLE	44	24	7	14
RIGHT TURN (AGAINST OTHER CAR)	7	1	1.1	0.6
RIGHT TURN (WITH OTHER CAR)	3	1	0.5	0.6
SIDESWIPE	10	2	1.6	1.2
UNKNOWN	19	4	3	2.3
TOTAL	630	172	100	100

[4] In March 2021, NYSDOT shared crash data with the project team. The data were used to make this table.

Correlation with State Emphasis Areas and Overrepresentation Analysis

The correlation of the emphasis areas in the New York State SHSP and the Saint Regis Mohawk Tribe crash data helped to inform the discussion with Tribal stakeholders about whether to adopt some or all of the State emphasis areas in its safety plan.

Tables 5 through 8 shows the State's six emphasis areas of Road User Behavior, Intersections, Lane Departures, Vulnerable Users, Age-Related, and Speed-Related Crashes with constituent crash factors for Saint Regis Reservation (Table 5), Hogansburg Triangle (Table 6), and areas beyond the Reservation and the Hogansburg Triangle (Table 7). The crash data is split into these three geographic groups to account for areas that the Tribe has jurisdiction over (the Reservation), has expanded law enforcement authority (the Hogansburg Triangle), and has additional influence over (the NTTFI routes outside of rhe Reservation). For each crash factor, the columns of Table 5 show the proportion of fatal and serious injury (KA) crashes, injury (KABC) crashes, and all (KABCO) crashes that exhibit that crash factor. A crash factor that shows a higher percentage for the higher severities compared to all crashes is an indication that the factor is associated with more severe crashes on SRMT roads. These factors are shown as bolded percentages.

The far-right column shows comparative statistics that indicate the magnitude of fatalities, injuries, or crashes Statewide. These Statewide statistics are from annual reports published by NYSDOT and the Institute for Traffic Safety Management and Research (ITSMR) in Albany. The NYSDOT HSIP reports shows the percentage of KA persons by emphasis area covering the period 2014-2018 while the ITSMR annual data releases show other crash level statistics by severity and by emphasis area for the period of 2015-2019. These Statewide percentages are only used to compare the magnitude between the SRMT study area and the State.

Table 5 shows that several components of the six State emphasis areas make up a larger share of crashes with greater severity when compared to all crashes within the Reservation. These components are listed in bold, with alcohol-involved crashes, intersection crashes (and its subset of right-angle crashes), fixed objects within lane departures, motorcycle crashes, and unsafe speed crashes.

For some of the crash factors, the percentages on SRMT roadways are higher than on roadways Statewide and are therefore considered overrepresented. This includes:

- Alcohol involved crashes.
- Intersection crashes.
- Fixed object lane departure crashes.
- Motorcycle-Involved crashes.
- Young Driver-Involved crashes.
- Older Driver-Involved crashes.

Table 5. Overrepresentation analysis on crashes in Saint Regis Reservation | 02/07/2016 to 01/28/2021.[5]

Emphasis Area / Crash Attribute	Percent of KA Crashes (5)	Percent of KABC Crashes (48)	Percent of KABCO Crashes (177)	*State Comparison* [a]
Road User Behavior Emphasis Area				
Alcohol-Involved Crashes	**60%**	**19%**	9%	*~28% K Persons*
Drug-Involved Crashes	0%	0%	1%	*~26% K Crashes*
Unbelted Vehicle Occupants	n/a	n/a	n/a	
Intersection-Related Crashes				
All Intersection Crashes	**60%**	33%	38%	*~50% KA Persons*
Right-Angle Crashes	**20%**	**8%**	3%	*n/a*
Left-Turn Crashes	0%	**2%**	1%	*n/a*
Lane Departures				
Fixed Objects	**40%**	**44%**	26%	*~24% KA Persons*
Head-On	**20%**	**2%**	1%	
Vulnerable User Crashes				
Motorcycle-Involved Crashes	**20%**	**2%**	1%	*~10% KA Persons*
Pedestrian-Involved Crash	0%	0%	0%	*~17% KA Persons*
Bicycle-Involved Crash	0%	0%	0%	*~5% KA Persons*
Age-Related Crashes				
Young Driver Involved (Age 16-20)	0%	15%	15%	*~12% KABC Crashes*
Older Driver Involved (Age 65+)	**20%**	**15%**	12%	*~9% K Persons*
Speed-Related Crashes				
Unsafe Speed	**20%**	**13%**	6%	*~27% K Crashes*

[5] In March 2021, NYSDOT shared crash data with the project team. The project team received other comparison data from ITSMR in 2021. The project team used both of the data sets to make this table.

Table 6 shows that the Hogansburg Triangle has three emphasis areas that has some element that exceeds or is in proximity to the State percentage:

- Alcohol involved crashes.
- Intersection crashes.
- Fixed object lane departure crashes.

It should be noted that the sample size of just the Hogansburg Triangle crashes is small (with only 35 injury crashes and 90 overall crashes), so it is difficult to glean insight from just this data set. Intersection crashes and speed-related crashes are more represented in injury crashes than in total crashes. For example, 38 percent of the total crashes are intersection-related while 50 percent of the injury crashes are intersection-related.

Table 6. Overrepresentation analysis on crashes in Hogansburg Triangle | 02/07/2016 to 01/28/2021.[6]

Emphasis Area / Crash Attribute	Percent of KA Crashes (2)	Percent of KABC Crashes (35)	Percent of KABCO Crashes (90)	*State Comparison* [a]
Road User Behavior Emphasis Area				
Alcohol-Involved Crashes	**50%**	**9%**	7%	*~28% K Persons*
Drug-Involved Crashes	0%	0%	0%	*~26% K Crashes*
Unbelted Vehicle Occupants	n/a	n/a	n/a	
Intersection-Related Crashes				
All Intersection Crashes	**50%**	**45%**	38%	*~50% KA Persons*
Right-Angle Crashes	0%	0%	1%	*n/a*
Left-Turn Crashes	0%	**6%**	4%	*n/a*
Lane Departures				
Fixed Objects	**50%**	**9%**	8%	*~24% KA Persons*
Head-On	0%	0%	1%	
Vulnerable User Crashes				
Motorcycle-Involved Crashes	0%	**9%**	3%	*~10% KA Persons*
Pedestrian-Involved Crash	0%	**3%**	1%	*~17% KA Persons*
Bicycle-Involved Crash	0%	0%	0%	*~5% KA Persons*
Age-Related Crashes				
Young Driver Involved (Age 16-20)	0%	11%	16%	*~12% KABC Crashes*
Older Driver Involved (Age 65+)	0%	**26%**	26%	*~9% K Persons*
Speed-Related Crashes				
Unsafe Speed	**20%**	**9%**	3%	*~27% K Crashes*

[6] In March 2021, NYSDOT shared crash data with the project team. The project team received other comparison data from ITSMR in 2021. The project team used both of the data sets to make this table.

Table 7 shows that on NTTFI roads outside the Reservation and the Hogansburg Triangle there are three emphasis areas that exceeded or were in proximity to the State percentage:

- Fixed object lane departure crashes.
- Young Driver-Involved crashes.
- Older Driver-Involved crashes.
- Unsafe speed-related crashes.

Fixed object lane departure, older driver, and unsafe speed crashes are more represented in injury crashes than in total crashes. For example, 29 percent of the total crashes are intersection-related while 43 percent of the injury crashes are intersection-related.

Table 7. Overrepresentation analysis on crashes outside Reservation and Hogansburg Triangle | 02/07/2016 to 01/28/2021.[7]

Emphasis Area / Crash Attribute	Percent of KA Crashes (14)	Percent of KABC Crashes (89)	Percent of KABCO Crashes (535)	*State Comparison* [a]
Road User Behavior Emphasis Area				
Alcohol-Involved Crashes	0%	**3%**	2%	*~28% K Persons*
Drug-Involved Crashes	0%	**1%**	0.4%	*~26% K Crashes*
Unbelted Vehicle Occupants	n/a	n/a	n/a	
Intersection-Related Crashes				
All Intersection Crashes	**43%**	**43%**	29%	*~50% KA Persons*
Right-Angle Crashes	7%	**17%**	7%	*n/a*
Left-Turn Crashes	**7%**	**3%**	2%	*n/a*
Lane Departures				
Fixed Objects	**43%**	**28%**	22%	*~24% KA Persons*
Head-On	**7%**	**5%**	1%	
Vulnerable User Crashes				
Motorcycle-Involved Crashes	0%	**5%**	1%	*~10% KA Persons*
Pedestrian-Involved Crash	**7%**	**1%**	1%	*~17% KA Persons*
Bicycle-Involved Crash	0%	**1%**	0.4%	*~5% KA Persons*
Age-Related Crashes				
Young Driver Involved (Age 16-20)	**14%**	**15%**	12%	*~12% KABC Crashes*
Older Driver Involved (Age 65+)	**43%**	**29%**	2%	*~9% K Persons*
Speed-Related Crashes				
Unsafe Speed	**43%**	**19%**	14%	*~27% K Crashes*

[7] In March 2021, NYSDOT shared crash data with the project team. The project team received other comparison data from ITSMR in 2021. The project team used both of the data sets to make this table.

Table 8 shows the combined percentages for the three geographic areas shown in Tables 5-7 combined. For some of the crash factors, the percentages on SRMT roadways are higher than on roadways Statewide and are therefore considered overrepresented. This includes:

- Fixed object lane departure crashes.
- Young Driver-Involved crashes.
- Older Driver-Involved crashes.
- Unsafe speed-related crashes.

Although intersection crashes do not exceed the State average, they do make up a large share of crashes in the study area as a whole and present an opportunity for SRMT to address through this safety plan. Similarly, although alcohol-involved crashes do not exceed the State average for the full study area, as Table 5 shows, such crashes make up almost 20 percent of KABC crashes within the reservation. Pedestrian crashes are not above the State average in any of these areas; however, providing safe pedestrian accommodations is important, and aligns with the SRMT Long-Range Transportation Plan. Therefore, pedestrians are included as an emphasis area in the TRSP.

Table 8. Overrepresentation analysis on crashes for all areas | 02/07/2016 to 01/28/2021.[8]

Emphasis Area / Crash Attribute	Percent of KA Crashes (21)	Percent of KABC Crashes (172)	Percent of KABCO Crashes (802)	*State Comparison* [a]
Road User Behavior Emphasis Area				
Alcohol-Involved Crashes	**19%**	**9%**	4%	*~28% K Persons*
Drug-Involved Crashes	0%	**1%**	0.4%	*~26% K Crashes*
Unbelted Vehicle Occupants	n/a	n/a	n/a	
Intersection-Related Crashes				
All Intersection Crashes	**48%**	**38%**	32%	*~50% KA Persons*
Right-Angle Crashes	**10%**	**11%**	5%	*n/a*
Left-Turn Crashes	**5%**	**4%**	2%	*n/a*
Lane Departures				
Fixed Objects	**43%**	**29%**	21%	*~24% KA Persons*
Head-On	**10%**	**3%**	1%	
Vulnerable User Crashes				
Motorcycle-Involved Crashes	**5%**	**5%**	1%	*~10% KA Persons*
Pedestrian-Involved Crash	**5%**	**1%**	1%	*~17% KA Persons*
Bicycle-Involved Crash	0%	**1%**	0.2%	*~5% KA Persons*
Age-Related Crashes				
Young Driver Involved (Age 16-20)	10%	**14%**	13%	*~12% KABC Crashes*
Older Driver Involved (Age 65+)	**33%**	**24%**	20%	*~9% K Persons*
Speed-Related Crashes				
Unsafe Speed	**33%**	**15%**	11%	*~27% K Crashes*

[8] In March 2021, NYSDOT shared crash data with the project team. The project team received other comparison data from ITSMR in 2021. The project team used both of the data sets to make this table.

Systemic Analysis

Crashes tend to be random in nature and traditional site-specific (hot spot) analysis aims to review existing crash data to determine areas of spot improvements through the identification of individual locations with large numbers of crashes (crash density). A systemic analysis using a crash tree does not replace traditional site-specific analysis; however, this complementary technique provides a comprehensive and proactive approach to safety. The system-based approach reviews existing crash data and evaluates the entire system by identifying associated risk factors to determine their corresponding focus crashes and facility types. After screening the network, the application of low-cost proven countermeasures to identified locations and segments can take place.

For the SRMT TSRP, the crash trees (included in Appendix B) based on the TRSP emphasis areas looked at all crashes (KABCO) regardless of injury severity to have enough crashes for the analyses. These trees are not exhaustive and are designed to inform discussion of crash patterns and can help to identify future analyses to support the efforts of the SRMT stakeholders. This section contains some highlights from the crash tree analysis.

Lane Departure Crashes

The crash tree for this crash type indicates that just under a quarter of crashes in the Reservation and the Hogansburg Triangle involve lane departure. Most of these crashes are on major collector and rural major arterials in dry conditions, however, a notable number of crashes occurred in snow and ice conditions. The shoulder widths on major collector roads are narrow, this means that there are opportunities to address lane departure such as applying treatments to roads with shoulder widths of 2 feet or less to improve driver recovery after running off the road, or even installing barrier to prevent vehicles from running off the road. Additional analyses indicate that major collector roads have the highest proportion of lane departure crashes outside of the Reservation and Triangle with many crashes occurring in snow and ice conditions.

Intersection Crashes

Of the 101 crashes at intersections within the Reservation and Hogansburg Triangle, approximately 30 percent are located at traffic signals and appear to mainly involve rear-end crashes. This indicates there may be a need for countermeasures to improve visibility or warning of signals and to promote safer road user behavior. Outside of the Reservation and Hogansburg Triangle, there were 156 intersection crashes. This represents 29 percent of all crashes within that area, and of these crashes, just under a third are located at traffic signals and are primarily rear end crashes.

Impaired Driving Crashes

Within the Reservation and Hogansburg Triangle, the 21-29 age group has the highest share of impaired driving crashes (all severities) at 36 percent, followed by the 40-49 age group at 23 percent. Approximately one third of these impaired driving crashes occur between 11:00 p.m. and 5:00 a.m. Most impaired driving crashes occur on rural minor arterials.

Age-Related Crashes

For all severities, young driver (ages 16-20) and older driver (age 65 or older) each represent 12 percent of crashes within the Reservation and Hogansburg Triangle. Notably, no older driver crashes take place

between 11:00 p.m. and 5:00 a.m., whereas 12 percent of young driver KABCO crashes occur during that period. Most crashes for both age groups occur on rural minor arterials. Outside of the Reservation and Hogansburg Triangle, half of older driver crashes occur between 11:00 a.m. and 5:00 p.m. while only one-quarter of young driver crashes occur in the same period. Based on crashes with available speed data, 15 percent of young driver-involved crashes involve speed, compared to 7 percent of crashes involving older drivers.

Speed-Related Crashes

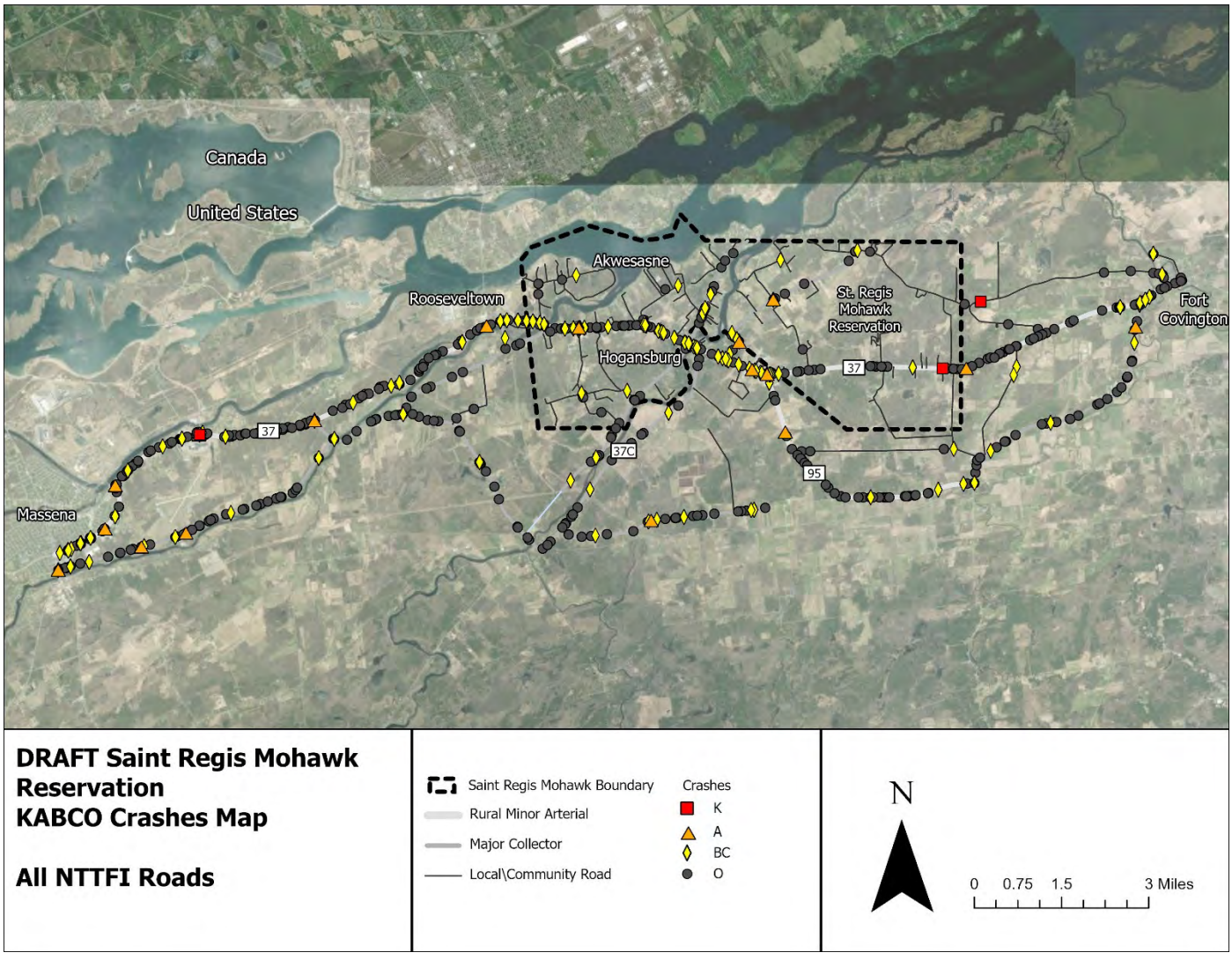
Only 5 percent of crashes (all severities) within the Reservation and Hogansburg Triangle were reported as having involved speed, although this is likely underreported.

Pedestrian Crashes

With only 5 crashes (all severities) involving pedestrians, there is an insufficient number of data points to conduct a crash tree analysis for pedestrian crashes.

Crash Maps

While the crash tree analysis above helps to identify key combinations of factors that contribute to predominant crash types and is especially helpful to address locations where crashes have not yet occurred, it is still useful to review maps to identify key corridors with a noted crash history. Figure 3 shows crashes on the NTTFI. Most crashes are located on State Route 37, the primary corridor that traverses the Reservation.

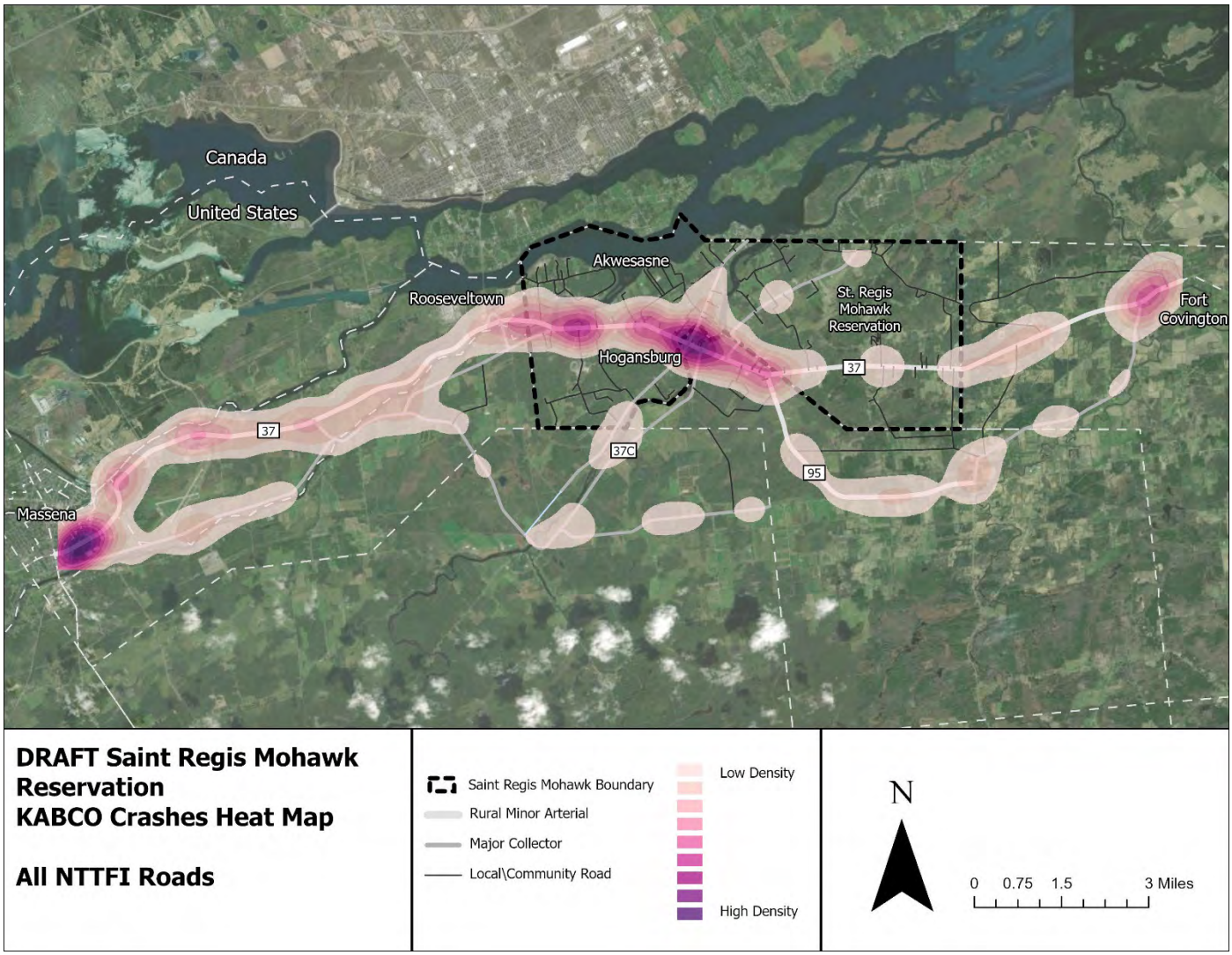


Source: FHWA

Figure 3. Graphic. Crashes on NTTFI, 2/7/2016 to 1/28/2021. [9]

[9] In March 2021, NYSDOT shared crash data with the project team. The data were used to make this map.

Figure 4 shows the clustering of the crashes shown in Figure 3. This figure shows the clustering of crashes is concentrated on Route 37 through the Reservation and the Hogansburg Triangle where the main services and amenities of the SRMT are located. These services and amenities center around the intersection of Route 37 and St. Regis Road, with retail, community, and governmental services nearby. Within the Hogansburg Triangle is the access point to the Casino and a major gas station. There is also some clustering of crashes on Route 37 in the vicinity of Massena and Fort Covington.

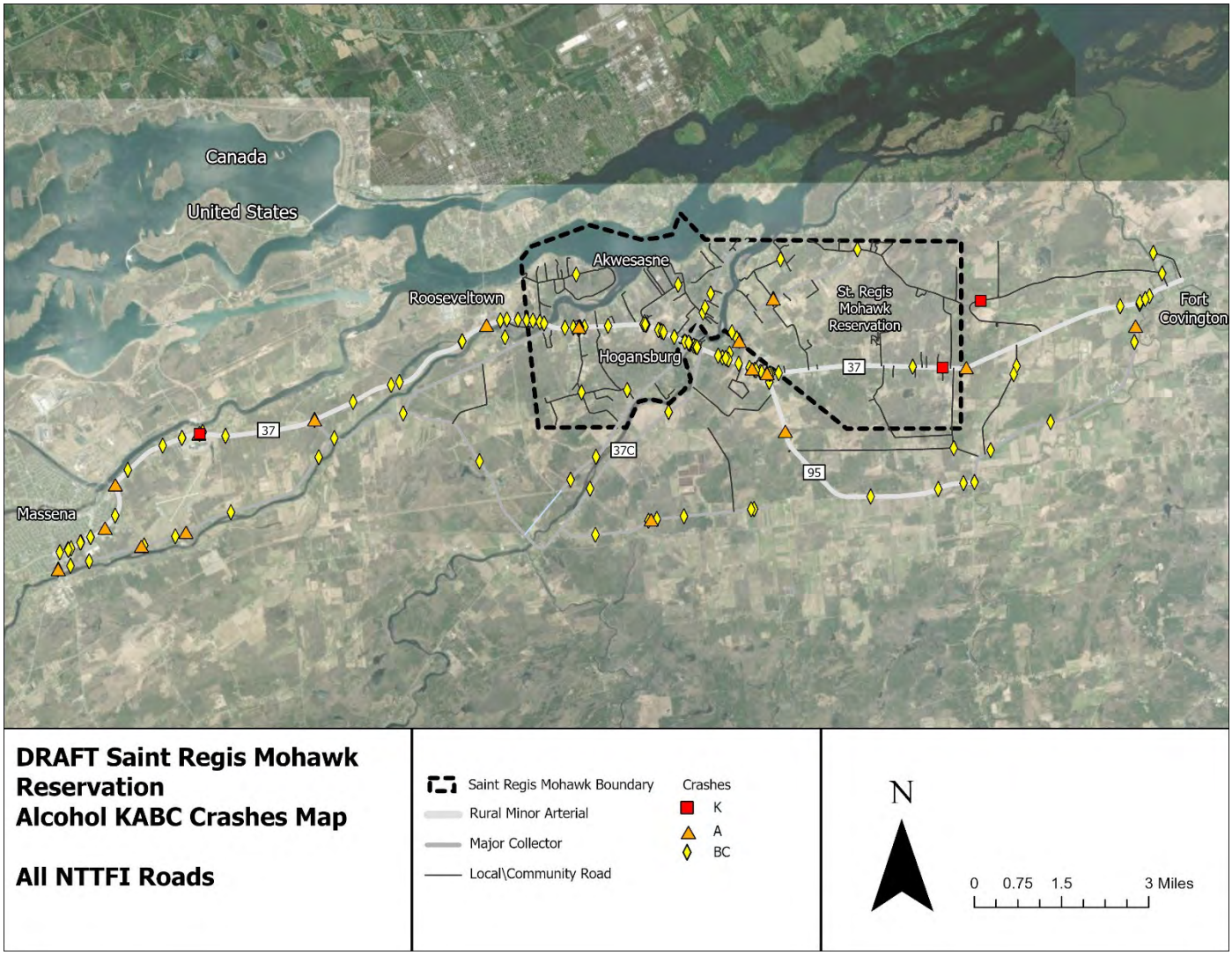


Source: FHWA

Figure 4. Graphic. Clustering of crashes on NTTFI, 2/7/2016 to 1/28/2021.[10]

[10] In March 2021, NYSDOT shared crash data with the project team. The data were used to make this map.

Figure 5 shows only fatal and injury crashes on NTTFI roads. Most of these injury crashes are clustered in the Reservation and the Triangle, where the main services and amenities of the community are located.

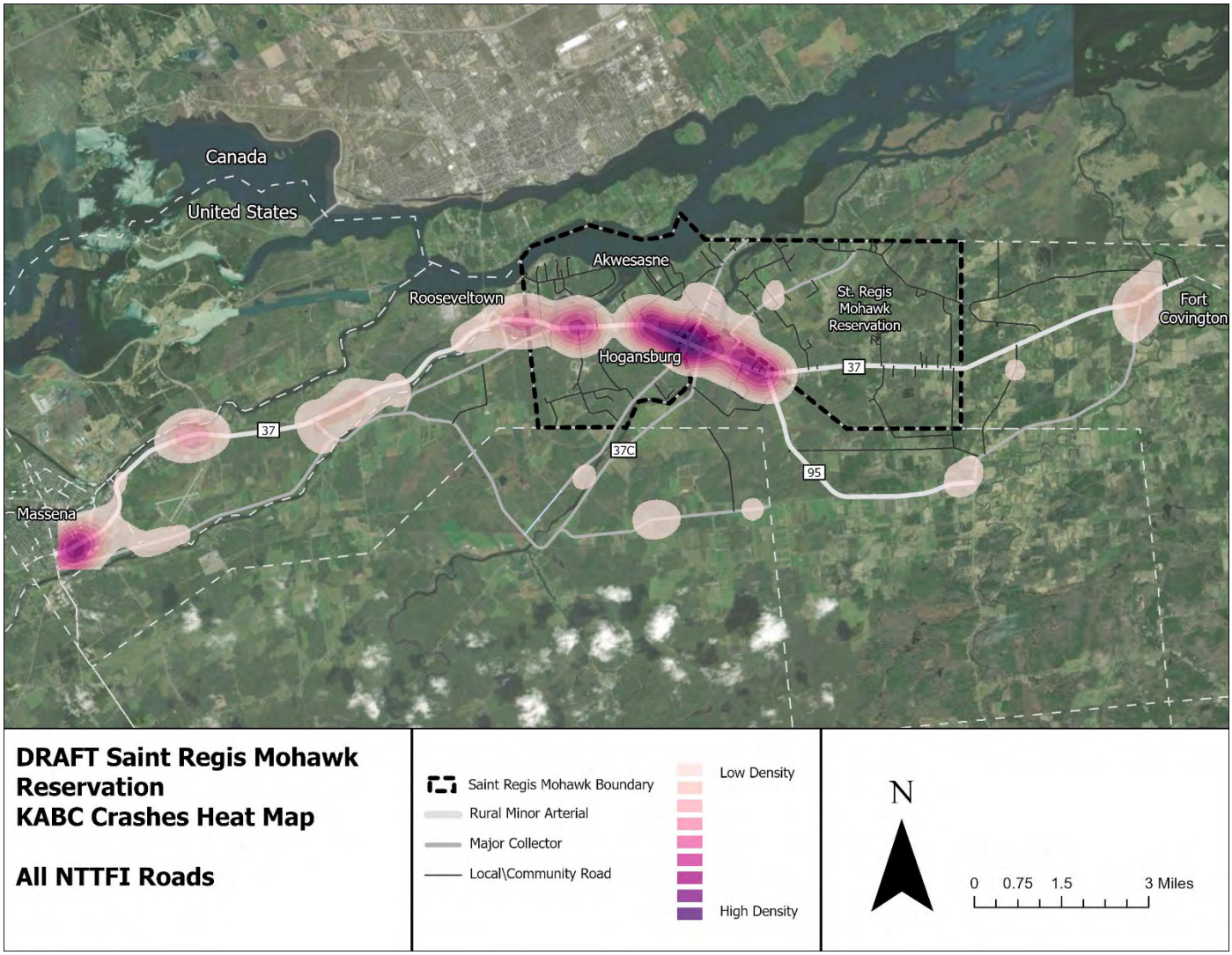


Source: FHWA

Figure 5. Graphic. Injury crash nap on NTTFI, 2/7/2016 to 1/28/2021.[11]

[11] In March 2021, NYSDOT shared crash data with the project team. The data were used to make this map.

Figure 6 shows the clustering of injury crashes using GIS, with clusters appearing on Route 37 within the Reservation and the Triangle.



Source: FHWA

Figure 6. Graphic. Clustering of injury crashes on NTTFI, 2/7/2016 to 1/28/2021.[12]

Overlaying maps of known updated crash corridors with additional information such as geometric characteristics overrepresented in crashes and combining both hot spot and systemic analysis will identify corridors with the greatest potential for safety improvement.

[12] In March 2021, NYSDOT shared crash data with the project team. The data were used to make this map.

Emphasis Areas

The results of the data analysis informed the selection of Emphasis Areas for the TRSP. An Emphasis Area is an area of focus for this plan and is based on the fatal and serious injury statistics, with the notion that these areas represent the greatest opportunity for successfully reducing the number of fatal and serious-injury crashes. The TRSP also considers the Critical Emphasis Areas in the New York State SHSP as it is important to note that transportation safety projects for the Saint Regis Mohawk Tribe that address State Emphasis Areas also qualify for HSIP funding.

The Emphasis Areas chosen for the TRSP include:

- **Lane Departures**
- **Speed**
- **Older Road Users**
- **Intersections**
- **Pedestrians**
- **Younger Drivers**
- **Impaired Driving**

Subsequent sections of this Plan outline the strategies and actions included for each of the Emphasis Areas. These strategies and actions are recognized effective countermeasures as well as ongoing programs administered by the Tribe and/or State. Implementation of countermeasures involving traffic control devices (pavement markings, roadway signs and traffic signals) should adhere to the standards provided in the Manual on Uniform Traffic Control Devices for Streets and Highways (MUTCD) (FHWA, 2012). The FHWA Proven Safety Countermeasures website documents effective infrastructure-related countermeasures (FHWA, 2022b). The Crash Modification Factor (CMF) Clearinghouse also provides a rating (CMF) for the expected reduction in crashes after a specific countermeasure is implemented (FHWA, 2022a). The NHTSA Countermeasures That Work (2021) publication contains star ratings for behavior (education and enforcement) related countermeasures that have the most evidence of effectiveness as well as those that are used most regularly by State Highway Safety Offices. When possible, each strategy is provided a CMF or a star rating from one of these two sources.

What is a crash modification factor (CMF)?

A CMF is an estimate of the change in crashes expected after implementation of a countermeasure. For example, an intersection is experiencing 100 angle crashes and 500 rear-end crashes per year. If you apply a countermeasure that has a CMF of 0.80 for angle crashes, then you can expect 80 angle crashes per year following the implementation of the countermeasure (100 x 0.80 = 80). If the same countermeasure also has a CMF of 1.10 for rear-end crashes, you will also expect 550 rear-end crashes per year following implementation (500 x 1.10 = 550).

(FHWA, 2022a)

Behavior Countermeasure Star Ratings

★★★★ or ★★★★★ Effective

★★★ Promising, and Likely to Be Effective

☆☆ Effectiveness Still Undetermined

☆ Limited or No High-Quality Evaluation Evidence

(NHTSA, 2021)

Emphasis Area #1: Lane Departures

Over 40 percent of injury crashes on the Reservation and surrounding area involve lane departure, making this the most prominent crash factor. As described earlier, most crashes are on major collector and rural major arterials. Shoulder widths on major collector roads are narrow. According to the crash maps, the western portion of Route 37 within the Reservation has a higher frequency of crashes, while outside the Reservation, Raquette River Road has a notable number of crashes.

Emphasis Area Objective: *Significantly Reduce Lane Departure Crashes*

Emphasis Area Success Metric: *Reduce the number of lane departure related crashes by 50 by 2027.*

Strategy 1.1: Implement engineering countermeasures to reduce lane departure crashes.

Action	Description	CMF	Safe System Element
1.1.1	Install centerline, shoulder, or edge line rumble strips.	0.56-0.87	Safe Roads
1.1.2	Widen and/or pave shoulders to provide drivers with a recovery area, (utilize Safety Edge℠), widen corners.	0.89	Safe Roads
1.1.3	Install Safety Edge℠ when resurfacing roadways.	0.88	Safe Roads
1.1.4	Pre-treat road surface and improve road clearance during snow events.	N/A	Safe Roads
1.1.5	Install or widen retroreflective pavement markings on center lines and edge lines.	0.78	Safe Roads
1.1.6	Provide enhanced curve delineation, such as chevrons and pavement markings in accordance with MUTCD criteria.	0.76-0.84	Safe Roads
1.1.7	Use High Friction Surface Treatment (HFST) to increase traction through sharp curves.	0.76	Safe Roads
1.1.8	Improve lighting along roadways.	0.80	Safe Roads

Strategy 1.2: Implement educational efforts to address lane departure safety.

Action	Description	Star Rating	Safe System Element
1.2.1	Develop educational material involving driving responsibly during winter weather on website/PSAs.	★★★	Safe Users
1.2.2	Conduct driver education classes for the area.	★★★	Safe Users
1.2.3	Use traffic simulator at education events.	★★★	Safe Users
1.2.4	Connect local efforts with Statewide Roadway Departure Plan initiatives.	N/A	Safe Roads
1.2.5	Pursue safety grants from the General Highway Safety Grant Program for Local, State, and Not-for-profit Agencies (known as HS).	N/A	Safe Roads
1.2.6	Conduct training on lane departure crash engineering mitigation approaches.	★★★	Safe Roads

Strategy 1.3: Enhance enforcement activity to address lane departure safety.

Action	Description	Star Rating	Safe System Element
1.3.1	Continue impaired driving enforcement	★★★★★	Safe Users
1.3.2	Continue enforcement of excessive driving speed with an emphasis on winter weather driving.	Inconclusive	Safe Users

Strategy 1.4: Improve data collection and analysis practices that relate to lane departure safety.

Action	Description	CMF	Safe System Element
1.4.1	Train staff and others on data collection and analysis techniques to improve the quality of information available to explain the reasons for and results of crashes.	N/A	Safe Roads
1.4.2	Continue to share data with safety partners to inform knowledge of prevailing issues, including UTVs/ATVs.	N/A	Safe Roads
1.4.3	Perform roadway safety audits on priority corridors to further identify those roadway features and user behaviors that contribute to severe crashes and select the appropriate countermeasures.	0.40-0.90	Safe Roads

Emphasis Area #2: Speed

Speed-related crashes are mainly on rural minor arterials within the Reservation and the Triangle; however, the speed-related crashes are on major collectors while outside of these areas. The crashes are also distributed throughout the day. Route 37 and Raquette River Road are two corridors where these crashes occur. Improved data collection and analysis procedures pertaining to speed by tribal road safety partners will help to bring a better understanding of the magnitude of speeding on SRMT roads.

Emphasis Area Objective: *Reduce speed-related crashes.*

Emphasis Area Success Metric: *Reduce the number of speed-related crashes by 50 by 2027.*

Strategy 2.1: Implement engineering countermeasures to reduce speeding and speed-related crashes.

Action	Description	Star Rating/CMF	Safe System Element
2.1.1	Set appropriate speed limits based on the use of appropriate engineering practices.	★★★★★	Safe Roads, Safe Speeds
2.1.2	Expand the use of advisory speed signs to advise motorists where traveling at the posted speed is ill-advised.	0.87	Safe Roads, Safe Speeds
2.1.3	Introduce variable speed limits for high temporal speeding events.	0.92	Safe Roads, Safe Speeds
2.1.4	Increase the use of Radar Speed Feedback Signs to notify drivers of their speeds.	0.95	Safe Roads, Safe Speeds
2.1.5	Reduce lane widths through re-striping to encourage slower speeds.	Varies	Safe Roads, Safe Speeds
2.1.6	Install transverse rumble strips to encourage lower speeds.	0.75	Safe Roads, Safe Speeds

Strategy 2.2: Implement educational efforts to address speed-related safety.

Action	Description	Star Rating	Safe System Element
2.2.1	Effective, high-visibility communications and outreach campaigns that support speed and aggressive driving enforcement and education programs.[13]	★★★	Safe Users
2.2.2	Engage Law Enforcement Liaison in coordinating Tribal safety initiatives that address speeding.	N/A	Safe Users, Safe Speeds

[13] Example speed campaign by NHTSA: https://icsw.nhtsa.gov/newtsm/tk-speeding/

Strategy 2.3: Enhance enforcement activity to address speed-related safety.

Action	Description	Star Rating	Safe System Element
2.3.1	Enforce locations with a history of speed-related crashes. Integrated enforcement where impaired driving is integrated into other enforcement efforts such as speed and seat belt use. The enforcement activities should be publicized extensively to be effective in deterring impaired driving, speeding, and other traffic offenses. This sends a message to the public and to law enforcement officers that traffic safety is not a single-issue activity.	★★★	Safe Users, Safe Speeds
2.3.2	Define enforcement actions that are fair, consistent, and in the interest of preventing crashes.	N/A	Safe Users, Safe Speeds
2.3.3	Use Radar Speed Feedback Signs to notify drivers of reduced speed limits.	0.95	Safe Users, Safe Speeds

Strategy 2.4: Improve data collection and analysis practices that relate to speed-related safety.

Action	Description	Star Rating	Safe System Element
2.4.1	Keep records of location of all speeding related tickets and crashes to find speeding corridors.	N/A	Safe Speeds
2.4.2	Compile data related to driver speed from Watchguard system[14] used by Tribal Police.	N/A	Safe Speeds

[14] Watchguard System: https://www.motorolasolutions.com/en_us/video-security-access-control/in-car-video-systems/4re-in-car-video-system.html

Emphasis Area #3: Older Road Users

Like other emphasis areas, most older road user crashes are on rural major arterials. Older drivers are involved in daytime crashes. Route 37 is the predominant location of these crashes. Older drivers could potentially benefit from re-training programs and local transit services that provide alternate means to access destinations within SRMT lands. The SRMT Adult Protective Program and Akwesasne TV can help to spread outreach to elders.

Emphasis Area Objective: *Reduce older road user crashes.*

Emphasis Area Success Metric: *Reduce the number of older user crashes by 50 percent by 2027.*

Strategy 3.1: Implement engineering countermeasures to reduce older road user crashes.

Action	Description	CMF	Safe System Element
3.1.1	Implement countermeasures from the FHWA Older Driver Highway Design Manual: Increase size and letter height of roadway signs, width of striping, and use retro-reflective signal back-plates; improved signage and acuity, clarity; senior center signage; advance signage[15].	0.90	Safe Roads, Safe Users
3.1.3	Train staff on the use of the Older Driver Highway Design Manual reference.	N/A	Safe Roads

Strategy 3.2: Implement educational efforts to address older road user safety.

Action	Description	Star Rating	Safe System Element
3.2.1	Implement the CarFit program and specialized training from GTSC to promote continued safe driving and mobility among older drivers by focusing attention on safety, comfort, and fit.[16]	N/A	Safe Users
3.2.2	Encourage older drivers to re-evaluate their driving skills to identify areas for improvement.	N/A	Safe Users
3.2.3	Create a license renewal policy and a referral system to identify older drivers who should not be driving.	N/A	Safe Users
3.2.4	Conduct AARP Smart Driver program to help drivers over 55 refresh their driving skills.[17]	N/A	Safe Users
3.2.5	Conduct Coffee with Cops campaign to build relationships between road users and law enforcement[18]	N/A	Safe Users

[15] FHWA Desk Reference to the Handbook for Designing Roadways for the Aging Population: https://safety.fhwa.dot.gov/older_users/fhwasa15088/
[16] https://www.car-fit.org/
[17] https://www.aarp.org/auto/driver-safety/locations.html
[18] https://coffeewithacop.com/about/

Emphasis Area #4: Intersections

Intersection crashes make up a large share of crashes within the study area. Within the Reservation, these crashes are mainly on the western segment of Route 37. The Hogansburg Triangle has almost all crashes on Route 37. Outside of these two areas, intersection crashes cluster in the vicinity of Massena. Based on the crash tree analysis, there may be a need for countermeasures to improve traffic signal visibility and/or signal ahead warning and promote safer road user behavior. During the Stakeholder meeting, it was noted that roundabouts should be considered as options to manage speeds and increase safety.

Emphasis Area Objective: *Reduce intersection crashes.*

Emphasis Area Success Metric: *Reduce the number of intersection crashes by 50 percent by 2027.*

Strategy 4.1: Implement engineering countermeasures to reduce intersection crashes.

Action	Description	CMF	Safe System Element
4.1.1	Reduce left-turn conflicts by reconfiguring intersections with roundabouts, restricted crossing U-turns (RCUT), or median U-turns (MUT).[19]	0.18-0.78	Safe Roads
4.1.2	Improve intersection signage and lighting to improve intersection visibility.	0.90	Safe Roads, Safe Users
4.1.3	Add left-turn, right-turn, or center turn lanes.	0.52-0.86	Safe Roads
4.1.4	Convert intersections at town and Reservation gateways to roundabouts to slow speeds.	0.18-0.22	Safe Roads, Safe Speeds,
4.1.5	Separate left turn lanes and protected left turn signal phases.	0.58	Safe Roads
4.1.6	Use Radar Speed Feedback Signs to reduce driver speeds through intersections on high-speed roadways.	0.95	Safe Roads, Safe Speeds
4.1.7	Implement systemic application of multiple low-cost countermeasures at stop-controlled intersections.[20]	0.90	Safe Roads, Safe Users
4.1.8	Install transverse rumble strips in advance of intersections.	0.79	Safe Roads, Safe Speeds

Strategy 4.2: Implement educational efforts to address intersection safety.

Action	Description	Star Rating	Safe System Element
4.2.1	Provide safe driving tips/videos on tribal and State websites.	★★★	Safe Users
4.2.2	Conduct training with road designers and planners on best practices to address intersection safety.	N/A	Safe Users

[19] https://safety.fhwa.dot.gov/provencountermeasures/reduced_left.cfm
[20] https://safety.fhwa.dot.gov/provencountermeasures/syst_stop_control.cfm

Strategy 4.3: Enhance enforcement activity to address intersection safety.

Action	Description	Star Rating	Safe System Element
4.3.1	Conduct highly publicized and visible enforcement of priority intersections.	Inconclusive	Safe Users, Safe Speeds
4.3.2	Consider installation of automated safety cameras to address red-light running crashes.	★★★★★	Safe Users, Safe Speeds

Strategy 4.4: Improve data collection and analysis practices that relate to intersection safety.

Action	Description	CMF	Safe System Element
4.4.1	Perform roadway safety audits on priority intersections or corridors to further identify those roadway features and user behaviors that contribute to severe crashes and select the appropriate countermeasures.	0.40-0.90	Safe Roads
4.4.2	Develop a process to inventory intersection data including traffic volumes, roadway attributes, and traffic asset data for use in traffic safety evaluations.	N/A	Safe Roads

Emphasis Area #5: Pedestrians

While the data provided shows pedestrian crashes as a small percentage of crashes in the study area, SRMT is committed to providing safe passage for pedestrians throughout the Reservation, particularly around the main activity centers on Route 37. The following strategies can help to make navigation for pedestrians more hospitable and safer.

Emphasis Area Objective: *Reduce pedestrian crashes.*

Emphasis Area Success Metric: *Reduce the number of pedestrian-related crashes by 50 percent by 2027.*

Strategy 5.1: Implement engineering countermeasures to reduce pedestrian crashes.

Action	Description	CMF	Safe System Element
5.1.1	Prioritize pedestrian crossing improvement and installation projects.	N/A	Safe Roads
5.1.2	Improve signs, signals, and pavement markings at pedestrian crossing locations.	0.60	Safe Roads, Safe Speeds, Safe Users
5.1.3	Improve road geometry (narrow lanes, reduce curb radii, provide refuge islands) to improve pedestrian safety.	0.44	Safe Roads
5.1.4	Implement sidewalk, trails, and lighting infrastructure improvements.	0.11-0.35	Safe Roads
5.1.5	Install pedestrian hybrid beacons.	0.45-0.71	Safe Roads, Safe Users

Strategy 5.2: Implement educational efforts to address pedestrian safety.

Action	Description	Star Rating	Safe System Element
5.2.1	Develop consistent pedestrian safety outreach materials such as print materials and messaging for social and other media types as well as schools.	★★★	Safe Users

Strategy 5.3: Improve data collection and analysis practices that relate to pedestrian safety.

Action	Description	CMF	Safe System Element
5.3.1	Perform roadway safety audits on priority corridors to further identify those roadway features and user behaviors that contribute to severe crashes and select the appropriate countermeasures.	0.40-0.90	Safe Roads
5.3.2	Develop a process to inventory pedestrian data including traffic volumes, roadway attributes, and traffic asset data for use in traffic safety evaluations.	N/A	Safe Roads

Emphasis Area #6: Younger Drivers

Most crashes involving younger drivers are on rural major arterials. Younger drivers are involved in crashes during evening hours. Strategies that help address young drivers may include improved education and training for young and/or novice drivers as well as enforcement to curtail dangerous driving behaviors.

Emphasis Area Objective: *Reduce young driver-involved crashes.*

Emphasis Area Success Metric: *Reduce the number of young driver crashes by 50 percent by 2027.*

Strategy 6.1: Implement engineering countermeasures to reduce crashes involving young drivers.

Action	Description	Star Rating	Safe System Element
6.1.1	Improve lighting and visibility of signage.	0.90	Safe Roads
6.1.2	Upgrade appropriate existing signs and pavement markings (e.g., retroreflective signs, reflective strips on signposts, add flashing lights to existing signs).	Varies	Safe Roads

Strategy 6.2: Implement educational efforts to address younger road user safety.

Action	Description	Star Rating	Safe System Element
6.2.1	Implement awareness campaign to promote safe driving habits by young drivers, including staying alert, using a seat belt, driving at appropriate speeds, not driving distracted.	★★★	Safe Users

Strategy 6.3: Enhance enforcement activity to address younger road user safety.

Action	Description	Star Rating	Safe System Element
6.3.1	Increase enforcement of driving laws.	★★★	Safe Users
6.3.2	Enforce graduated licensing laws.	★★★	Safe Users

Strategy 6.4: Improve data collection and analysis practices that relate to younger road user safety.

Action	Description	Star Rating	Safe System Element
6.4.1	Evaluate age-related crashes to determine contributing factors in crashes involving young drivers.	N/A	Safe Users

Emphasis Area #7: Impaired Driving

The analysis period showed there were 22 recorded alcohol-related crashes within the Reservation and the Hogansburg Triangle. There were nine alcohol-related crashes outside of this area. Looking by roadway classification, the largest number of crashes are located on rural minor arterials. In addition, drivers aged 21-29 make up the largest group of drivers involved in these crashes. The six-hour period with the largest number of impaired driving crashes occurs during the overnight hours between 11:00 p.m. and 5:00 a.m. These observations help to inform behavioral strategies such as impaired driving enforcement as well as road safety awareness campaigns. During the stakeholder meeting, it was noted that there is an increasing need to address drug-related crashes.

Emphasis Area Objective: *Reduce impaired driving crashes.*

Emphasis Area Success Metric: *Reduce the number of impaired driving crashes by 50 percent by 2027.*

Strategy 7.1: Implement educational efforts to address impaired driving.

Action	Description	Star Rating	Safe System Element
7.1.1	Effective, high-visibility communication and outreach campaigns supporting enforcement efforts.	★★★	Safe Users
7.1.2	Conduct Advanced Roadside Impaired Driving Enforcement (ARIDE) training to train law enforcement officers to observe, identify, and articulate the signs of impairment.[21]	N/A	Safe Users
7.1.3	Consult with Drug Recognition Experts on best practices to address impaired driving.	N/A	Safe Users
7.1.4	Conduct STOP DWI Program to coordinate tribal efforts that address impaired driving.[22]	★★★	Safe Users

Strategy 7.2: Enhance enforcement activity to address impaired driving.

Action	Description	Star Rating	Safe System Element
7.2.1	Conduct publicized sobriety checkpoints.	★★★★★	Safe Users, Safe Roads
7.2.2	Conduct high visibility saturation patrols.	★★★★	Safe Users, Safe Roads
7.2.3	Use Preliminary Breath Test Devices (PBT).	★★★★★	Safe Users, Safe Roads
7.2.4	Engage Law Enforcement Liaison in coordinating enforcement activities and initiatives that address driving while under the influence of drugs and alcohol.		Safe Users, Safe Roads

[21] https://trafficsafety.ny.gov/efforts-reduce-impaired-driving
[22] https://stopdwi.org/about

Strategy 7.3: Improve data collection and analysis practices that relate to impaired driving.

Action	Description	Star Rating	Safe System Element
7.3.1	Perform roadway safety audits on priority corridors to further identify roadway features as well as drinking establishment locations that combined with impaired driving that contribute to severe crashes and select the appropriate countermeasures.	N/A	Safe Users
7.3.2	Conduct additional data analyses to determine types of drugs and impairment involved in crashes.	N/A	Safe Users

Priority Project Sites

The data analysis resulted in several priority corridors in the reservation listed below that may benefit from safety investment. While countermeasures for these sites identified below are focused on infrastructure improvements, behavioral strategies such as those for education and enforcement should work in tandem and be applied across the reservation.

Within the Reservation

Most crashes are concentrated on

- Route 37, which is the main east-west thoroughfare.
- There is also a smaller number of lane departure crashes on Saint Regis Road in the northern reaches of the Reservation.
- Route 37 has a significant number of driveways and access points, particularly in the western half of the reservation.
- Older driver crashes for this TSRP are mainly located within the reservation on Route 37; therefore, there needs to be a focus on addressing their concerns through a combination of engineering and education initiatives.
- Impaired driving is also notable on Route 37 within this area.

Hogansburg Triangle

- Route 37 between the intersections of St. Regis Road and Route 95 is the focus location for safety investment.
- The St. Regis Road intersection, which is in Hogansburg, is the key junction connecting the northern parts of the reservation with Route 37 and is also located close to the primary school.
- Eastward from this intersection is the Casino which is a major traffic generator for the area.
- Intersection, impaired driving, and older driver crashes are notable on Route 37.

Outside the Reservation

- Route 37 remains the key focal point for where New York State and Franklin and St. Lawrence Counties can invest safety funds to provide safe connections between the Reservation and Massena and Fort Covington.
- Speed-related and lane departure crashes are notable on Raquette River Road, while intersection crashes are notable on Route 37 in the vicinity of Massena.
- Any projects on St. Lawrence and Franklin County-owned roads will require the approval of the legislators in the respective counties.

Implementation, Funding, and Evaluation

Implementation of the TRSP by the various stakeholders is crucial to achieve reductions in the number of fatal and serious injury crashes occurring on roadways in and around SRMT lands. Appendix A is a series of tables for each emphasis area that outline how strategies and actions will be implemented. The tables include agency leads, priority locations, potential funding sources, and timeframe for implementation. Each of these strategies and action items support implementation of the Safe System approach. The SRMT and its partners can use this information to apply for funding and develop projects. It is the combined efforts of the stakeholders that maximizes the leveraging of available funding and resources to advance implementation of the TRSP.

Funding Sources

A key benefit of the TRSP is its alignment with the New York State SHSP. The SHSP prioritizes its funding based on its Emphasis Areas, and the alignment of the TRSP strategies and actions with the State enhances the TRSP's eligibility for Federal safety funds. Federal funding from FHWA's HSIP and BIA's TTP to support highway infrastructure projects is predicated on this linkage to emphasis areas; therefore, the Tribe's alignment with the State's safety efforts is critical. Accessing these Federal funds helps to supplement local funding for projects stemming from this TSRP.

The Bipartisan Infrastructure Law (BIL) establishes the new Safe Streets and Roads for All (SS4A) discretionary program that will provide $5-6 billion in grants over the next 5 years.[23] Funding supports regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries.

In addition, federal behavioral safety grant funding from NHTSA and managed in New York by the Governor's Traffic Safety Committee (GTSC) is available on an annual basis. The Tribe's General Fund is considered a funding source for road safety projects identified in this TSRP and will be considered in the selection of road projects. The Tribe will also seek opportunities to implement safety projects in conjunction with routine road maintenance projects.

Bringing the LRTP and State SHSP into alignment with the TSRP has the potential to reduce administrative burden, encourages the use of consistent data and analysis methods, and allocates resources to identified locations and programs ultimately to produce safety improvements for the greatest road safety needs for the community.

Evaluation

The TRSP is a living document and the SRMT and its partners should review and update it every three to five years to evaluate the success of implementation of the strategies and action items. The update will identify other locations through the updated data analysis that needs to be addressed to improve safety. The SRMT Planning and Infrastructure Division will be the primary agency responsible for updating the TRSP with support from its partners. Tribal safety partners will meet and communicate regularly to evaluate the progress of implementation and the impact of the TRSP on fatalities and serious injuries. They will evaluate each emphasis area individually and the Plan to determine if goals are being met.

Evaluation will be in the form of process and outcomes. Process evaluation involves reviewing each numbered action under the strategies in the TSRP and determining if progress has been made.

[23] https://www.transportation.gov/SS4A

Outcome evaluation looks at the impact of activities. For some projects, such as site-specific ones, it is relatively straightforward to determine safety impact based on pre-construction and post-construction crash statistics. For other projects, it may be a combination of several activities that lead to a change in crash frequency. For example, a change in the frequency of impaired driving crashes may be a result of a combination of educational and enforcement initiatives. Therefore, because of the interrelationship between different safety activities by the SRMT and its partners, it is ideal to evaluate outcomes at the emphasis area level. The TRSP can use fatalities and injuries as the metric for annual progress in each of the emphasis areas. Evaluations should consider more than just crash frequency, if possible. Changes in traffic volumes, crash severity, and characteristics of crashes also provide meaningful insight into the effect of safety countermeasures. The Highway Safety Manual (HSM) is a useful resource that provides further information on different performance measures and evaluation methods.[24]

The Tribe recognizes that some strategies may take several years to fully implement. Additionally, it may take several years to realize the benefit of the strategies through a reduction of fatal and serious injury crashes. The sites and corridors for the Plan are based on crash data analysis as well as additional systemic analyses conducted by New York State DOT and the Tribe. As such, the quality and availability of this data to determine the impact of safety investments will play an important role in helping to update the plan and its priorities. The New York State LTAP is an excellent resource to assist with the evaluation and update of the TRSP.

[24] http://www.highwaysafetymanual.org/Pages/default.aspx

Appendix A

Emphasis Area 1 – *Lane Departures*

Emphasis Area Objective: Significantly Reduce Lane Departure Crashes

Emphasis Area Success Metric: *Reduce the number of lane departure related crashes by 50 by 2027.*

Strategy 1.1: Implement engineering countermeasures to reduce lane departure crashes.

Number	Action	Proposed Lead Agency (*and partners*)	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
1.1.1	Install centerline, shoulder, or edge line rumble strips.	Tribe, NYSDOT	Miles of rumble strip constructed	Major collectors and rural minor arterials	Route 37, Raquette River Road	Tribe, NYSDOT, BIA, FHWA	Start within two years
1.1.2	Widen and/or pave shoulders to provide drivers with a recovery area.	Tribe, NYSDOT	Miles of shoulder added	Major collectors and rural minor arterials	Route 37 at intersections with Frogtown, McGee. Route 37 segment from Route 95 to Raquette Point Rd	Tribe, NYSDOT, BIA, FHWA	Start within two years
1.1.3	Install Safety Edge℠ when resurfacing roadways.	Tribe, NYSDOT	Miles of Safety Edge℠ added	Major collectors and rural minor arterials	Route 37, Raquette River Road	Tribe, NYSDOT, BIA, FHWA	Start within five years
1.1.4	Pre-treat road surface and improve road clearance during snow events.	Tribe	Locations treated	Major collectors and rural minor arterials	Route 37, Raquette River Road	NYSDOT	Ongoing

1.1.5	Install or widen retroreflective pavement markings on center lines and edge lines.	Tribe, NYSDOT	Miles of roadway treated	Major collectors and rural minor arterials	Route 37, Raquette River Road	Tribe, NYSDOT, BIA, FHWA	Complete within five years, with routine maintenance
1.1.6	Provide enhanced curve delineation, such as chevrons and pavement markings in accordance with MUTCD criteria.	Tribe, NYSDOT	Locations treated	Curves on Major collectors and rural minor arterials	Route 37, Raquette River Road	Tribe, NYSDOT, BIA, FHWA	Start within two years
1.1.7	Use High Friction Surface Treatment (HFST) to increase traction through sharp curves prioritizing according to crash rate.	Tribe, NYSDOT	Locations treated	Major collectors and rural minor arterials	Route 37, Raquette River Road	Tribe, NYSDOT, BIA, FHWA	Start within two years
1.1.8	Improve lighting along roadways	Tribe, NYSDOT	Locations treated	Major collectors and rural minor arterials	Route 37	Tribe, NYSDOT, BIA, FHWA	Start within two years

Strategy 1.2: Implement educational efforts to address lane departure safety.

Number	**Action**	**Proposed Lead Agency (*and partners)***	**Activity Performance Metric**	**Application**	**Priority Location(s)**	**Potential Funding Source(s)**	**Implementation Time Frame**
1.2.1	Education involving driving responsibly during winter weather on website/PSAs.	Tribe, GTSC	Number of clicks	Tribal area	N/A	GTSC; NYSDOT	Launch within two years
1.2.2	Driver education classes for the area.	Tribe, GTSC	Number of classes	Tribal area	N/A	GTSC	Launch within two years
1.2.3	Use traffic simulator at education events.	Tribal police; Traffic Safety Board	Number of events	Tribal area	At SRMT schools	GTSC	Ongoing
1.2.4	Connect local efforts with Statewide Roadway Departure Plan initiatives	Tribe	Connect with State plan	N/A	N/A	NYSDOT; GTSC	Immediately

1.2.5	Pursue safety grants from the General Highway Safety Grant Program for Local, State, and Not-for-profit Agencies (known as HS).	Tribe	Number of grants	N/A	N/A	GTSC	Ongoing
1.2.6	Conduct training on lane departure crash engineering mitigation approaches.	LTAP/TTAP	Number of trainings	N/A	N/A		Start within two years

Strategy 1.3: Enhance enforcement activity to address lane departure safety.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
1.3.1	Continue impaired driving enforcement.	Tribal Police	Hours logged	Tribal area	Casino and racetrack areas	GTSC, BIA	Ongoing
1.3.2	Continue enforcement of excessive driving speed with an emphasis on winter weather driving.	Tribal Police	Hours logged	Tribal area	Casino and racetrack areas	GTSC, BIA	Ongoing

Strategy 1.4: Improve data collection and analysis practices that relate to lane departure safety.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
1.4.1	Train staff and others on data collection and analysis techniques to improve the quality of information available to explain the reasons for and results of crashes	Tribal Police; Tribal planning; LTAP	Percentage of accurate records	N/A	N/A	GTSC, BIA	Within five years

1.4.2	Continue to share data with safety partners to inform knowledge of prevailing issues, including UTVs/ATVs.	Tribal Police; Tribal planning	Percentage of records shared	N/A	N/A	GTSC, BIA	Ongoing
1.4.3	Perform roadway safety audits on priority corridors to further identify those roadway features and user behaviors that contribute to severe crashes and select the appropriate countermeasures.	Tribe, Tribal Police, LTAP	Locations analyzed	All roads	Route 37, Raquette River Road	GTSC, BIA, FHWA, NYSDOT, SRMT	Immediately

Emphasis Area 2 – *Speed*

Emphasis Area Objective: *Reduce speed-related crashes.*

Emphasis Area Success Metric: *Reduce the number of speed-related crashes by 50 by 2027.*

Strategy 2.1: Implement engineering countermeasures to reduce speeding and speed-related crashes.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
2.1.1	Set appropriate speed limits based on the use of appropriate engineering practices.	Tribe, NYSDOT	Number of roads	Major collectors and rural minor arterials	Route 37	Tribe, NYSDOT, BIA, FHWA, SRMT	Within two years
2.1.2	Expand the use of advisory speed signs to advise motorists where traveling at the posted speed is ill-advised.	Tribe, NYSDOT	Number of locations	Major collectors and rural minor arterials	Route 37	Tribe, NYSDOT, BIA, FHWA	Within two years

2.1.3	Introduce variable speed limits for high temporal speeding events.	Tribe, NYSDOT	Number of sites	During morning and evening commutes on major collectors and rural minor arterials	Route 37	Tribe, NYSDOT, BIA, FHWA, SRMT	Within two years
2.1.4	Increase the use of Radar Speed Feedback Signs to notify drivers of their speeds.	Tribe, NYSDOT	Number of sites	Major collectors and rural minor arterials	Route 37	Tribe, NYSDOT, BIA, FHWA, SRMT	Within two years
2.1.5	Reduce lane widths through re-striping to encourage slower speeds.	Tribe, NYSDOT	Number of sites	Major collectors and rural minor arterials	Route 37	Tribe, NYSDOT, BIA, FHWA, SRMT	Within two years
2.1.6	Install transverse rumble strips to encourage lower speeds.	Tribe, NYSDOT	Number of sites	All roads	Route 37	Tribe, NYSDOT, BIA, FHWA	Within two years

Strategy 2.2: Implement educational efforts to address speed-related safety.

Number	**Action**	**Proposed Lead Agency (*and partners)***	**Activity Performance Metric**	**Application**	**Priority Location(s)**	**Potential Funding Source(s)**	**Implementation Time Frame**
2.2.1	Effective, high-visibility communications and outreach campaigns that support speed and aggressive driving enforcement programs.	Tribe, GTSC	Number of distributions	All areas	N/A	GTSC, BIA	Launch within five years
2.2.2	Engage Law Enforcement Liaison in coordinating initiatives that address speeding.	Tribe, GTSC; State Police Liaison; multi-jurisdiction effort	Number of hours	Tribal area	N/A	GTSC, BIA	Launch within five years

Strategy 2.3: Enhance enforcement activity to address speed-related safety.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
2.3.1	Enforce locations with a history of speed-related crashes. Integrated enforcement where Impaired driving is integrated into other enforcement efforts such as speed and seat belt use. The enforcement activities should be publicized extensively to be effective in deterring impaired driving, speeding, and other traffic offenses. This sends a message to the public and to law enforcement officers that traffic safety is not a single-issue activity.	Tribal Police	Number of hours	Tribal area	Route 37	GTSC, BIA	Launch within five years
2.3.2	Define enforcement actions that are fair, consistent, and in the interest of preventing crashes.	Tribal Police	Conducted or not	All areas	N/A	SRMT Police Department	Within five years
2.3.3	Use Radar Speed Feedback Signs to notify drivers of reduced speed limits.	Tribal Police	Conducted or not	All areas	Route 37	NYSDOT	Within two years

Strategy 2.4: Improve data collection and analysis practices that relate to speed-related safety.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
2.4.1	Keep records of location of all speeding related tickets and crashes to find speeding corridors.	Tribal Police	Conducted or not	Tribal area	N/A		Within five years
2.4.2	Compile data related to driver speed from Watchguard system used by Tribal Police.	Tribal Police	Conducted or not	Tribal area	N/A		Within five years

Emphasis Area 3 – *Older Road Users*

Emphasis Area Objective: *Reduce older road user crashes.*

Emphasis Area Success Metric: *Reduce the number of older user crashes by 50 percent by 2027.*

Strategy 3.1: Implement engineering countermeasures to reduce older road user crashes.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
3.1.1	Implement countermeasures from the FHWA Older Driver Highway Design Manual: Increase size and letter height of roadway signs, width of striping, and use retro-reflective signal back-plates; improved signage and acuity, clarity; senior center signage; advance signage.	Tribe, NYSDOT	Number of installation sites	All areas	Between track and casino and in town; Near the shopping centers in Massena; senior center	NYSDOT, BIA, FHWA, SRMT	Within two years

3.1.2	Train staff on the use of the Older Driver Highway Design Manual reference.	Tribe, LTAP	Number of participants	N/A	N/A	NYSDOT, SRMT, FHWA	Within five years

Strategy 3.2: Implement educational efforts to address older road user safety.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
3.2.1	Implement the CarFit program and specialized training from GTSC to promote continued safe driving and mobility among older drivers by focusing attention on safety, comfort, and fit.	GTSC, Tribe, Office for the Aging, Adult Protective Program	Number of participants	Tribal area	N/A	GTSC	Ongoing
3.2.2	Encourage older drivers to re-evaluate their driving skills to identify areas for improvement.	GTSC, Tribe, Office for the Aging, Adult Protective Program	Number of participants	Tribal area	N/A	GTSC	Within five years
3.2.3	Create a license renewal policy and a referral system to identify older drivers who should not be driving.	GTSC, Tribe, Office for the Aging	Number of participants	Tribal area	N/A	GTSC	Within five years
3.2.4	Conduct AARP Smart Driver program to help drivers over 55 refresh their driving skills.	GTSC, Tribe, Office for the Aging	Number of participants	Tribal area	N/A	GTSC	Within five years
3.2.5	Conduct Coffee with Cops campaign to build relationships between road users and law enforcement.	Tribal police community service officer; Office for the Aging	Bi-annual meeting	Tribal area	N/A	GTSC	Ongoing

Emphasis Area 4 – Intersections

Emphasis Area Objective: *Reduce intersection crashes.*

Emphasis Area Success Metric: *Reduce the number of intersection crashes by 50 percent by 2027.*

Strategy 4.1: Implement engineering countermeasures to reduce intersection crashes.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
4.1.1	Reduce left-turn conflicts by reconfiguring intersections with roundabouts, restricted crossing U-turns (RCUT), or median U-turns (MUT).	Tribe; NYSDOT	Number of sites	All areas	Route 37 in Reservation and near Massena	FHWA, NYSDOT, BIA, SRMT	Within five years
4.1.2	Improve intersection signage and lighting to improve intersection visibility.	Tribe; NYSDOT	Number of sites	All areas	Route 37 in Reservation and near Massena	FHWA, NYSDOT, BIA, SRMT	Within five years
4.1.3	Add left-turn, right-turn, or center turn lanes.	Tribe; NYSDOT	Number of sites	All areas	Route 37 in Reservation and near Massena	FHWA, NYSDOT, BIA, SRMT	Within five years
4.1.4	Convert intersections at town and Reservation gateways to roundabouts to slow speeds.	Tribe; NYSDOT	Number of sites	Tribal area	Near Hogansburg Triangle and 37 running through town; Cook Rd and Route 37	FHWA, NYSDOT, BIA, SRMT	Within five years

4.1.5	Separate left turn lanes and protected left turn signal phases.	Tribe, NYSDOT	Number of sites	All areas	Frogtown Road, and other intersections along Route 37.	FHWA, NYSDOT, BIA	Within five years
4.1.6	Use Radar Speed Feedback Signs to reduce driver speeds through intersections on high-speed roadways.	Tribe; NYSDOT	Number of sites	All areas	Route 37	FHWA, NYSDOT, BIA, SRMT	Within five years
4.1.7	Implement systemic application of multiple low-cost countermeasures at stop-controlled intersections.[25]	Tribe; NYSDOT	Number of sites	All areas	Route 37 in Reservation and Hogansburg Triangle	FHWA, NYSDOT, BIA	Within five years
4.1.8	Install transverse rumble strips in advance of intersections.	Tribe	Number of sites	All areas	Route 37 in Reservation and Hogansburg Triangle	FHWA, NYSDOT, BIA, SRMT	Within five years

Strategy 4.2: Implement educational efforts to address intersection safety.

Number	**Action**	**Proposed Lead Agency (*and partners)***	**Activity Performance Metric**	**Application**	**Priority Location(s)**	**Potential Funding Source(s)**	**Implementation Time Frame**
4.2.1	Safe driving tips/videos on tribal and State websites.	Tribe, GTSC	Number of clicks	All areas	N/A	GTSC, BIA	Within two years
4.2.2	Conduct training with road designers and planners on best practices to address intersection safety.	LTAP	Number of trainings	N/A	N/A		Within two years

[25] https://safety.fhwa.dot.gov/provencountermeasures/syst_stop_control.cfm

Strategy 4.3: Enhance enforcement activity to address intersection safety.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
4.3.1	Conduct highly publicized and visible enforcement of priority intersections.	Tribal Police	Number of hours	All areas	N/A	GTSC, BIA, SRMT	Launch within five years
4.3.2	Consider installation of automated safety cameras to address red-light running crashes.	Tribal Police	Number of locations	Tribal area	Route 37	GTSC, BIA, SRMT	Launch within five years

Strategy 4.4: Improve data collection and analysis practices that relate to intersection safety.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
4.4.1	Perform roadway safety audits on priority intersections or corridors to further identify those roadway features and user behaviors that contribute to severe crashes and select the appropriate countermeasures.	Tribe, Tribal Police, NYSDOT	Locations analyzed	All areas	Route 37	GTSC, BIA, FHWA, NYSDOT, SRMT	Immediately
4.4.2	Develop a process to inventory intersection data including traffic volumes, roadway attributes, and traffic asset data for use in traffic safety evaluations.	Tribe, Tribal Police	Locations analyzed	N/A	N/A	GTSC, BIA, FHWA, NYSDOT, SRMT	Immediately

Emphasis Area 5 – Pedestrians

Emphasis Area Objective: *Reduce pedestrian crashes.*

Emphasis Area Success Metric: *Reduce the number of pedestrian-related crashes by 50 percent by 2027.*

Strategy 5.1: Implement engineering countermeasures to reduce pedestrian crashes.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
5.1.1	Prioritize pedestrian crossing improvement and installation projects.	Tribe, NYSDOT	Number of crossings	Locations with high pedestrian volumes	Route 37 Business Area	NYSDOT, BIA, FHWA	Within five years
5.1.2	Improve signs, signals, and pavement markings at pedestrian crossing locations.	Tribe, NYSDOT	Number of crossings	Pedestrian crossings	Route 37 Business Area	NYSDOT, BIA, FHWA	Within five years
5.1.3	Improve road geometry (narrow lanes, reduce curb radii, provide refuge islands) to improve pedestrian safety.	Tribe, NYSDOT	Number of improvements implemented	All areas	Route 37 Business Area	NYSDOT, BIA, FHWA	Within five years
5.1.4	Implement sidewalk, trails, and lighting infrastructure improvements.	Tribe, NYSDOT	Number of improvements implemented	All areas	Route 37 Business Area	NYSDOT, BIA, FHWA	Within five years
5.1.5	Install pedestrian hybrid beacons.	Tribe, NYSDOT	Number of improvements implemented	Tribal area	Route 37 Business Area	NYSDOT, BIA, FHWA	Within five years

Strategy 5.2: Implement educational efforts to address pedestrian safety.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
5.2.1	Develop consistent pedestrian safety outreach materials such as print materials and messaging for social and other media types as well as schools.	Tribe, community service officer; GTSC;	Number of campaigns	All areas	N/A	GTSC, BIA, SRMT	Within two years

Strategy 5.3: Improve data collection and analysis practices that relate to pedestrian safety.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
5.3.1	Perform roadway safety audits on priority corridors to further identify those roadway features and user behaviors that contribute to severe crashes and select the appropriate countermeasures.	Tribe, Tribal Police, NYSDOT, LTAP	Locations analyzed	All areas	Route 37	GTSC, BIA, FHWA, NYSDOT, SRMT	Immediately
5.3.2	Develop a process to inventory pedestrian data including traffic volumes, roadway attributes, and traffic asset data for use in traffic safety evaluations.	Tribe, Tribal Police		N/A	N/A	GTSC, BIA, FHWA, NYSDOT	Immediately

Emphasis Area 6 – Younger Drivers

Emphasis Area Objective: *Reduce young driver-involved crashes.*

Emphasis Area Success Metric: *Reduce the number of young driver crashes by 50 percent by 2027.*

Strategy 6.1: Implement engineering countermeasures to reduce crashes involving young drivers.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
6.1.1	Improve lighting and visibility of signage.	Tribe, NYSDOT	Number of locations	Within the tribal area	Route 37 business area	NYSDOT, BIA, FHWA	Within two years
6.1.2	Upgrade appropriate existing signs and pavement markings (e.g., retroreflective signs, reflective strips on signposts, add flashing lights to existing signs).	Tribe, NYSDOT	Number of locations	All areas	Route 37	NYSDOT, BIA, FHWA	Within

Strategy 6.2: Implement educational efforts to address younger road user safety.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
6.2.1	Implement awareness campaign to promote safe driving habits by young drivers, including staying alert, using a seat belt, driving at appropriate speeds, not driving distracted.	GTSC, Tribe, Schools	Number of clicks	All areas	N/A	GTSC	Ongoing

Strategy 6.3: Enhance enforcement activity to address younger road user safety.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
6.3.1	Increase enforcement of driving laws.	GTSC, Tribe	Number of hours	Tribal area	N/A	GTSC, BIA	Within five years
6.3.2	Enforce graduated licensing laws.	GTSC, Tribe	Number of hours	Tribal area	N/A	GTSC, BIA	Within five years

Strategy 6.4: Improve data collection and analysis practices that relate to younger road user safety.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
6.4.1	Evaluate age-related crashes to determine contributing factors in crashes involving young drivers.	GTSC, Tribe	Conducted or not	All areas	N/A	GTSC, BIA, NYSDOT	Within five years

Emphasis Area 7 – Impaired (alcohol and drugged) Driving

Emphasis Area Objective: *Reduce impaired driving crashes.*

Emphasis Area Success Metric: *Reduce the number of impaired driving crashes by 50 percent by 2027.*

Strategy 7.1: Implement educational efforts to address impaired driving.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
7.1.1	Effective, high-visibility communication and outreach campaigns supporting enforcement efforts.	Tribe, GTSC	Number of campaigns and clicks	Tribal area	Route 37	GTSC, BIA	Within two years
7.1.2	Conduct Advanced Roadside Impaired Driving Enforcement (ARIDE) training to train law enforcement officers to observe, identify, and articulate the signs of impairment.	Tribal Police	Number of officers trained	Tribal area	N/A	GTSC	Ongoing
7.1.3	Consult with Drug Recognition Experts on best practices to address impaired driving.	Tribal Police	Number of engagements	Tribal area	N/A	GTSC	Ongoing
7.1.4	Conduct STOP DWI Program to coordinate local efforts that address impaired driving.	Tribal Police	Number of engagements	Tribal area	N/A	GTSC	Ongoing

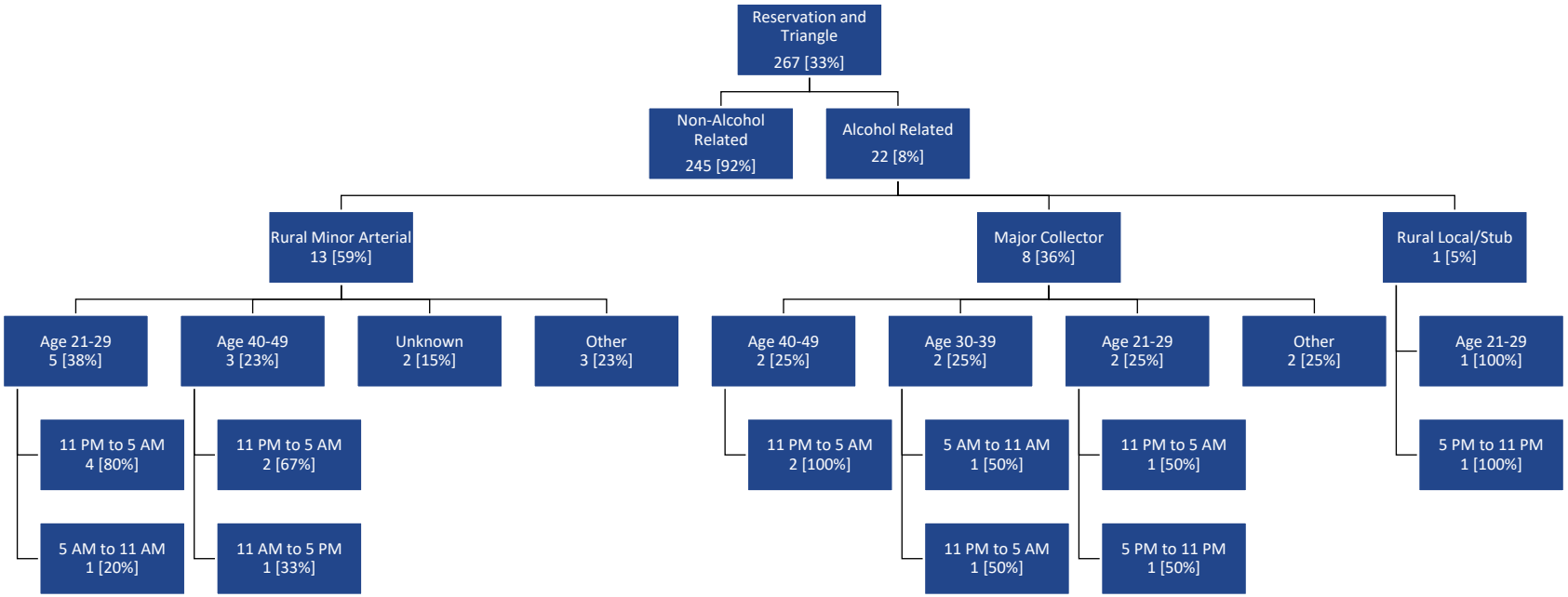
Strategy 7.2: Enhance enforcement activity to address impaired driving.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
7.2.1	Conduct Publicized sobriety checkpoints.	Tribal Police	Number of hours	Tribal area	N/A	GTSC, BIA	Launch within five years
7.2.2	Conduct High visibility saturation patrols.	Tribal Police	Number of hours	Tribal area	N/A	GTSC, BIA	Launch within five years
7.2.3	Use Preliminary Breath Test Devices (PBT).	Tribal Police	Number of hours	Tribal area	N/A	GTSC, BIA	Launch within five years
7.2.4	Engage Law Enforcement Liaison in coordinating enforcement activities and initiatives that address driving while under the influence of drugs and alcohol.	Tribal Police	Number of hours	Tribal area	N/A	GTSC, BIA	Launch within five years

Strategy 7.3: Improve data collection and analysis practices that relate to impaired driving.

Number	Action	Proposed Lead Agency (*and partners)*	Activity Performance Metric	Application	Priority Location(s)	Potential Funding Source(s)	Implementation Time Frame
7.3.1	Perform roadway safety audits on priority corridors to further identify roadway features as well as drinking establishment locations that combined with impaired driving that contribute to severe crashes and select the appropriate countermeasures.	Tribal Planning, Tribal Police	Perform audits	All areas	N/A	GTSC, BIA, NYSDOT	Immediately
7.3.2	Conduct additional data analyses to determine types of drugs and impairment involved in crashes.	Tribal Planning, Tribal Police	Conduct data analysis	All areas	N/A	GTSC, BIA	Immediately

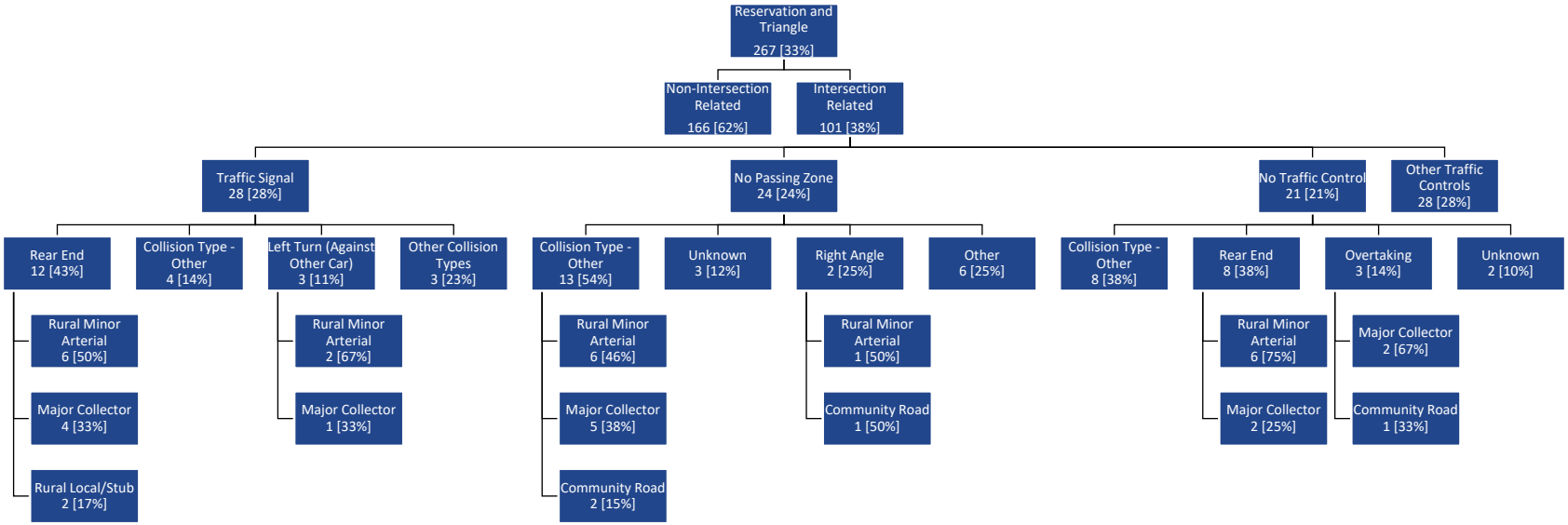
Appendix B



Source: FHWA

Figure 7. Graphic. Impaired driving crash tree (crashes within Reservation and Hogansburg Triangle, all severities).[26]

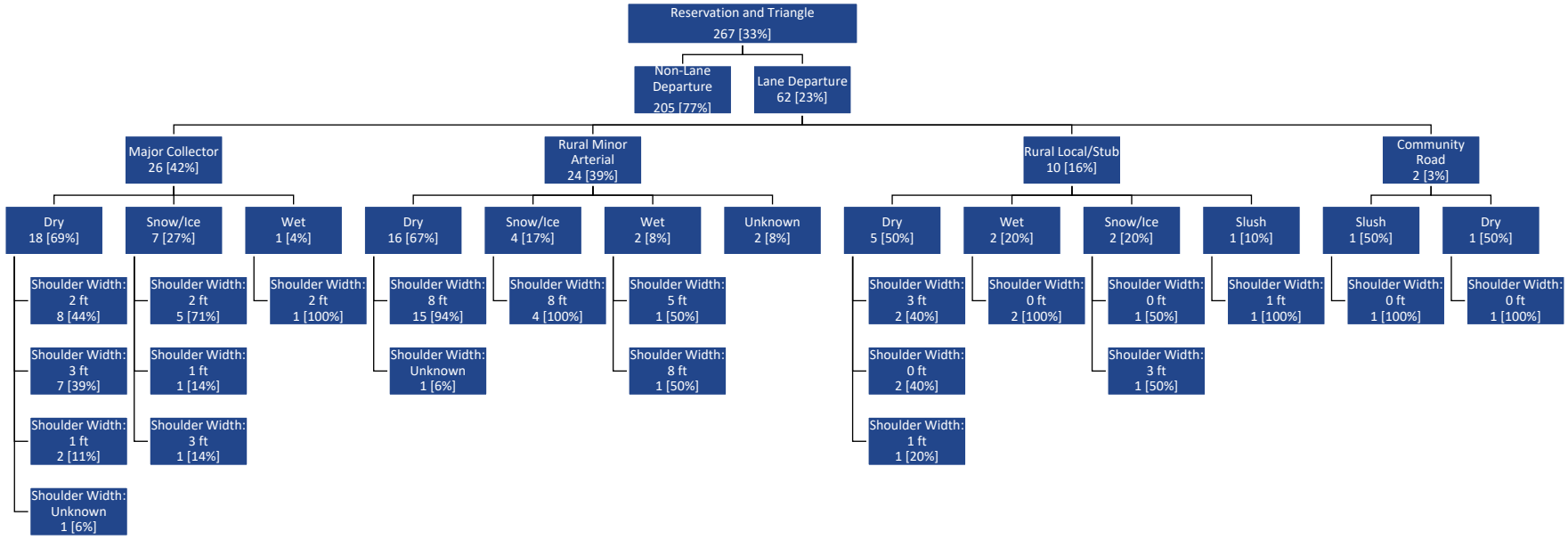
[26] In March 2021, NYSDOT shared crash data with the project team. The data were used to make this crash tree.



Source: FHWA

Figure 8. Graphic. Intersection crash tree (crashes within Reservation and Hogansburg Triangle, all severities).[27]

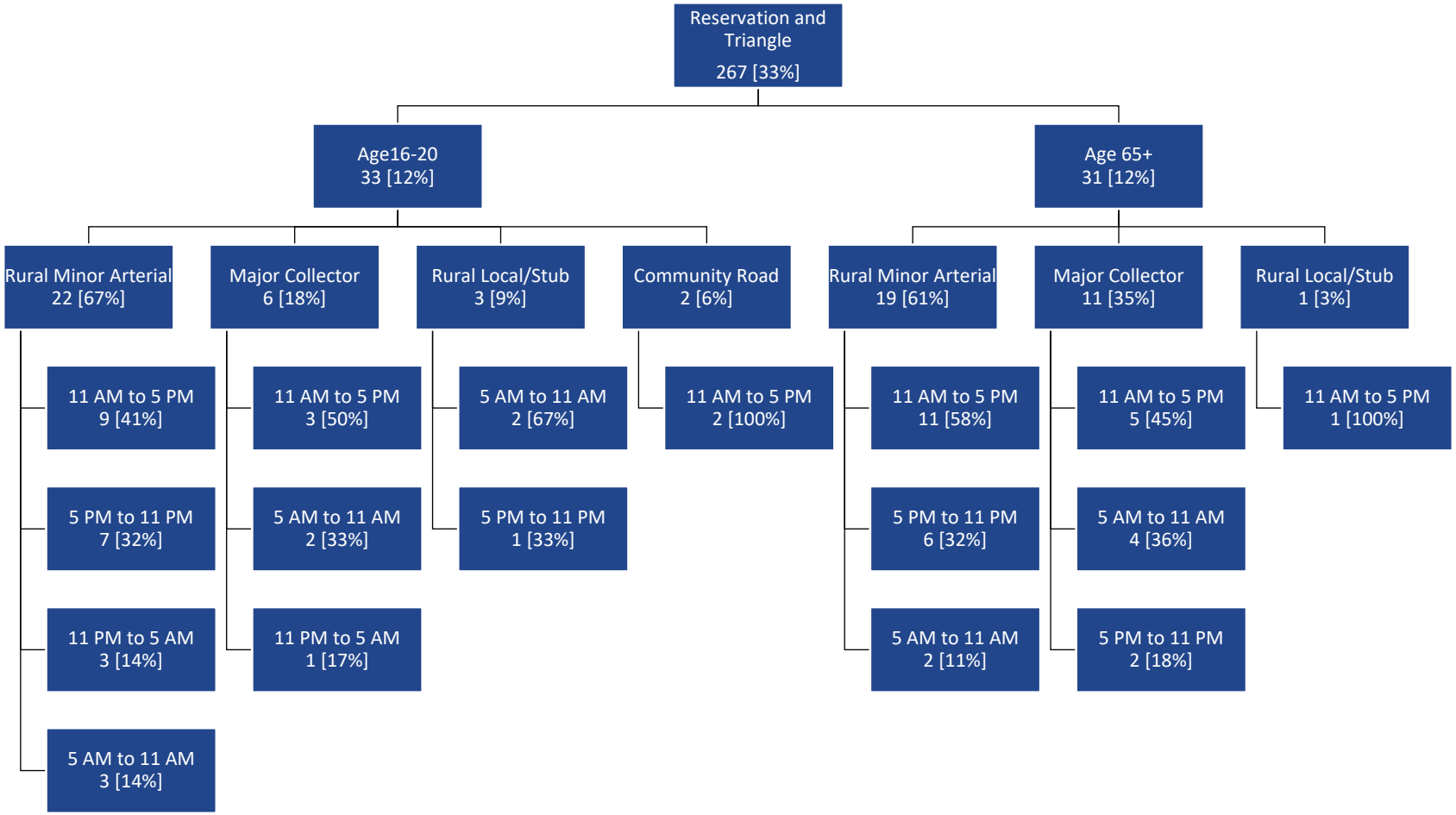
[27] In March 2021, NYSDOT shared crash data with the project team. The data were used to make this crash tree.



Source: FHWA

Figure 9. Graphic. Lane departure crash tree (crashes within Reservation and Hogansburg Triangle, all severities).[28]

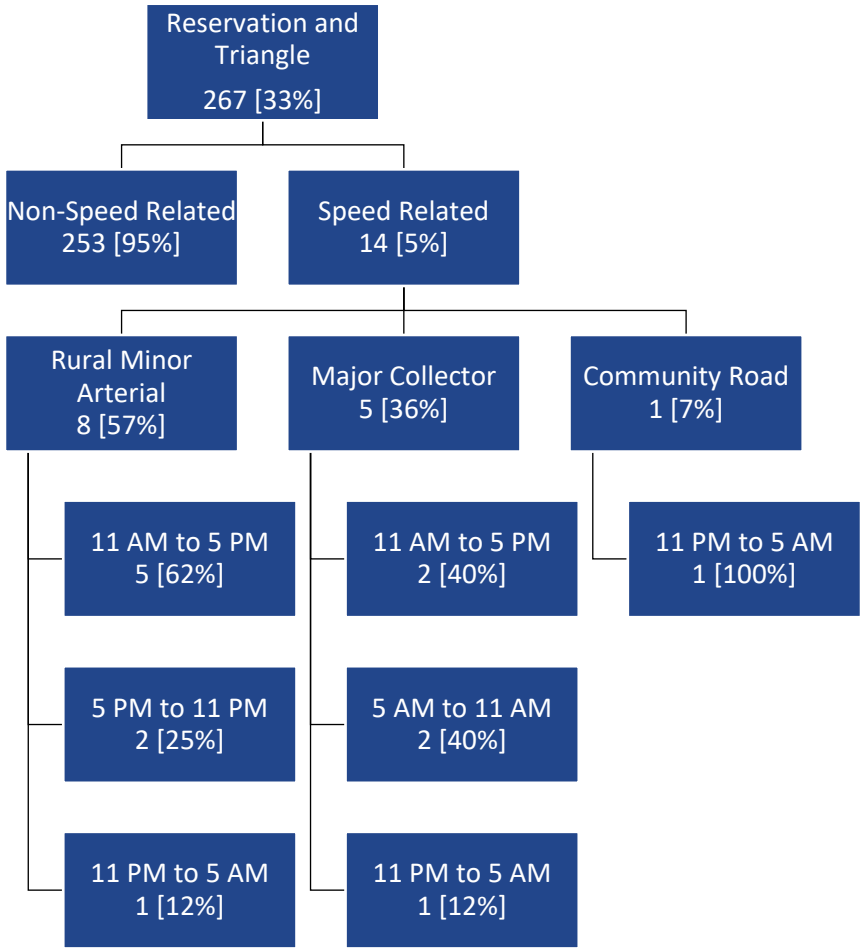
[28] In March 2021, NYSDOT shared crash data with the project team. The data were used to make this crash tree.



Source: FHWA

Figure 10. Graphic. Age-related crashes (crashes within Reservation and Hogansburg Triangle, all severities).[29]

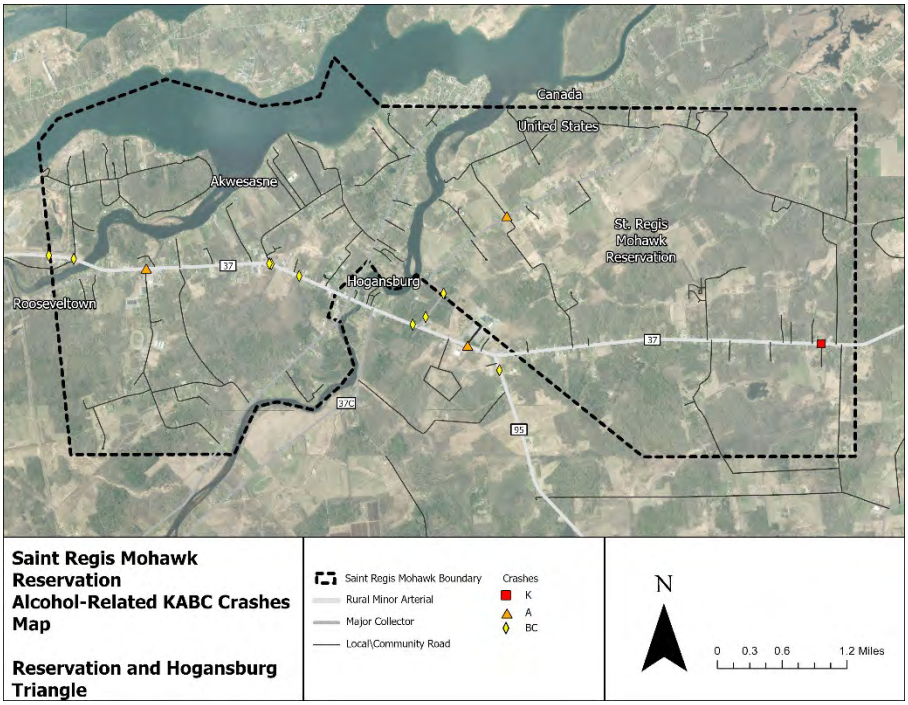
[29] In March 2021, NYSDOT shared crash data with the project team. The data were used to make this crash tree.



Source: FHWA

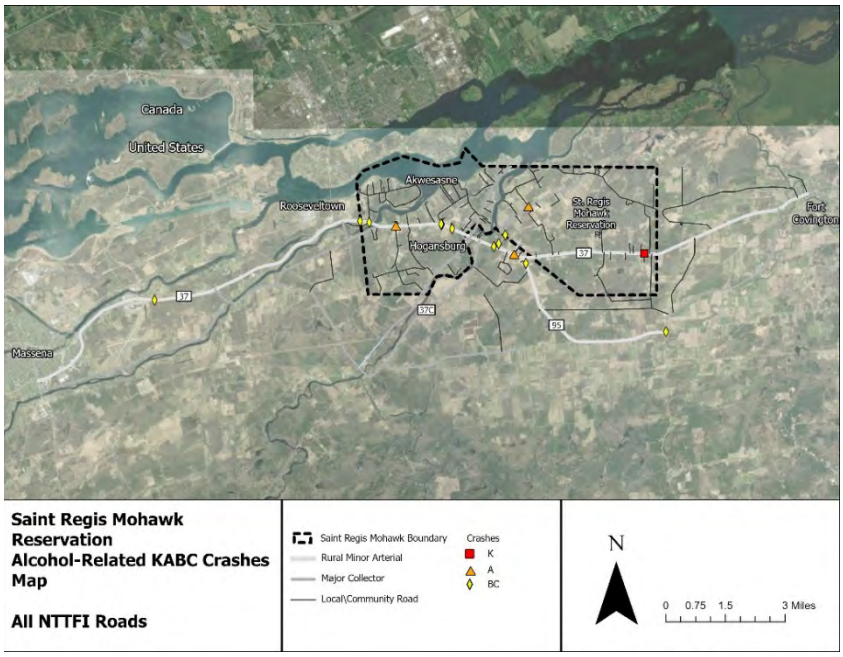
Figure 11. Graphic. Speed-related crashes (crashes within Reservation and Hogansburg Triangle, all severities.[30]

[30] In March 2021, NYSDOT shared crash data with the project team. The data were used to make this crash tree.



Source: FHWA

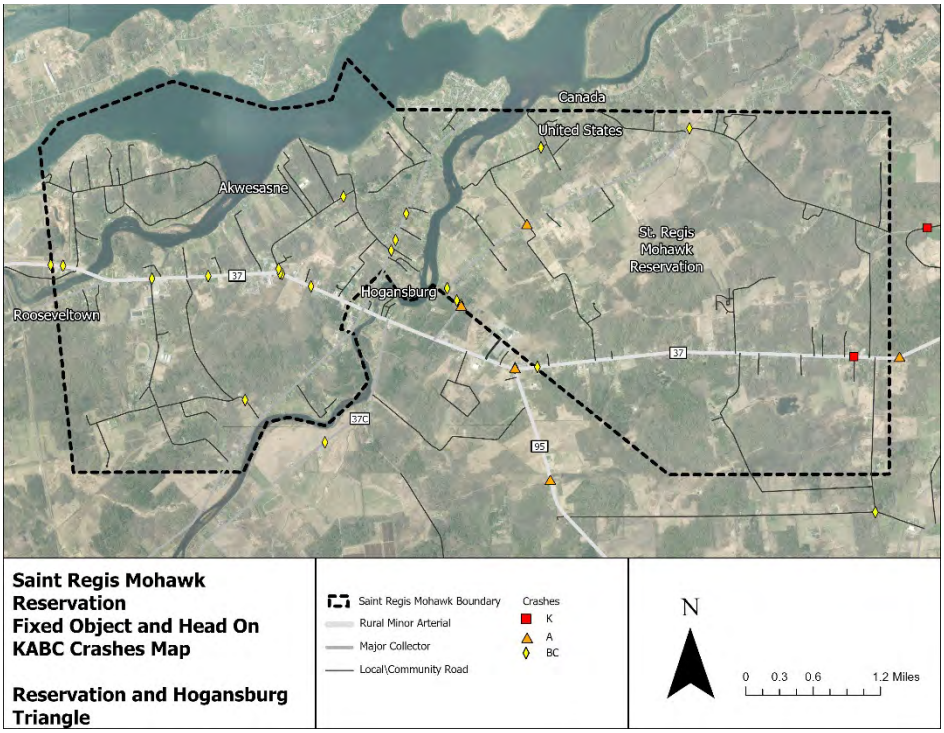
Figure 12. Graphic. Impaired driving KABC crash map – Reservation and Hogansburg Triangle.[31]



Source: FHWA

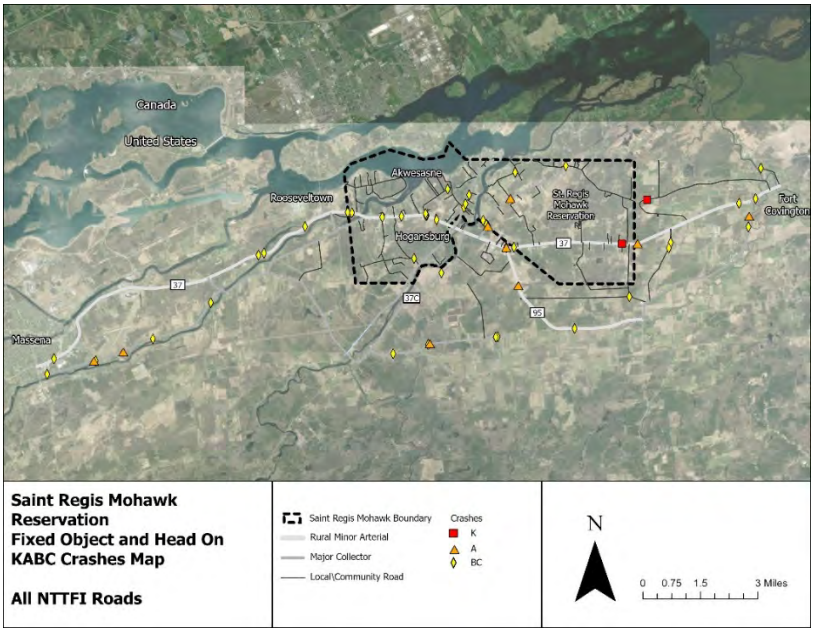
Figure 13. Graphic. Impaired driving KABC crash map – all NTTFI roads.[31]

[31] In March 2021, NYSDOT shared crash data with the project team. The data were used to make these maps.



Source: FHWA

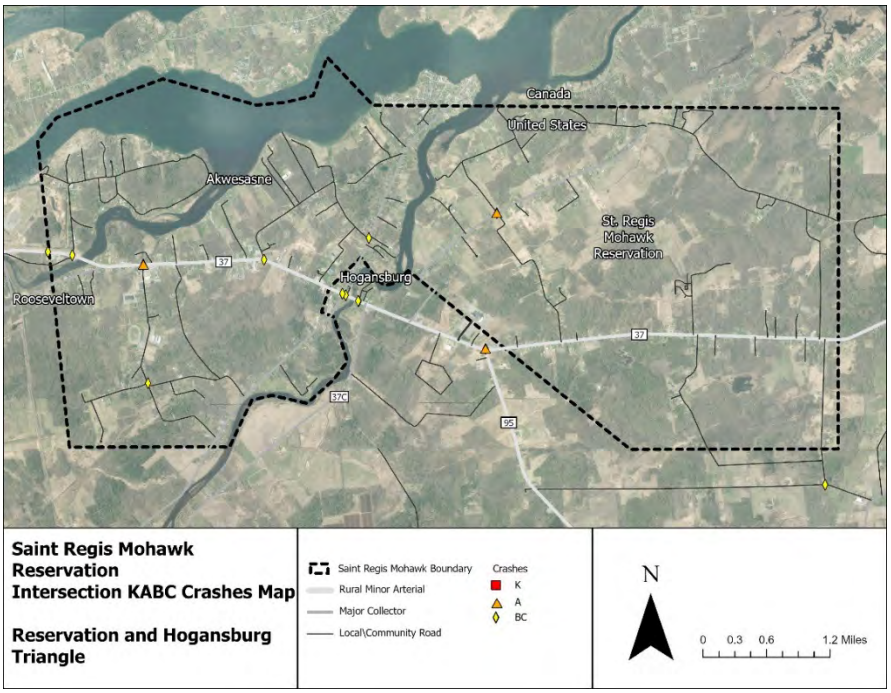
Figure 14. Graphic. Lane departure KABC crash maps – Reservation and Hogansburg Triangle.[32]



Source: FHWA

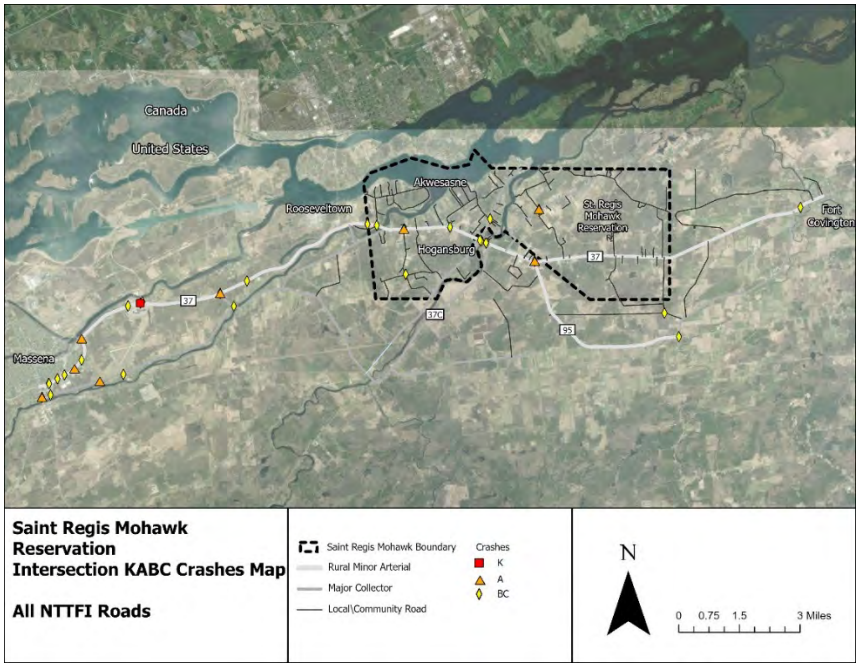
Figure 15. Graphic. Lane departure KABC crash maps – all NTTFI roads.[32]

[32] In March 2021, NYSDOT shared crash data with the project team. The data were used to make these maps.



Source: FHWA

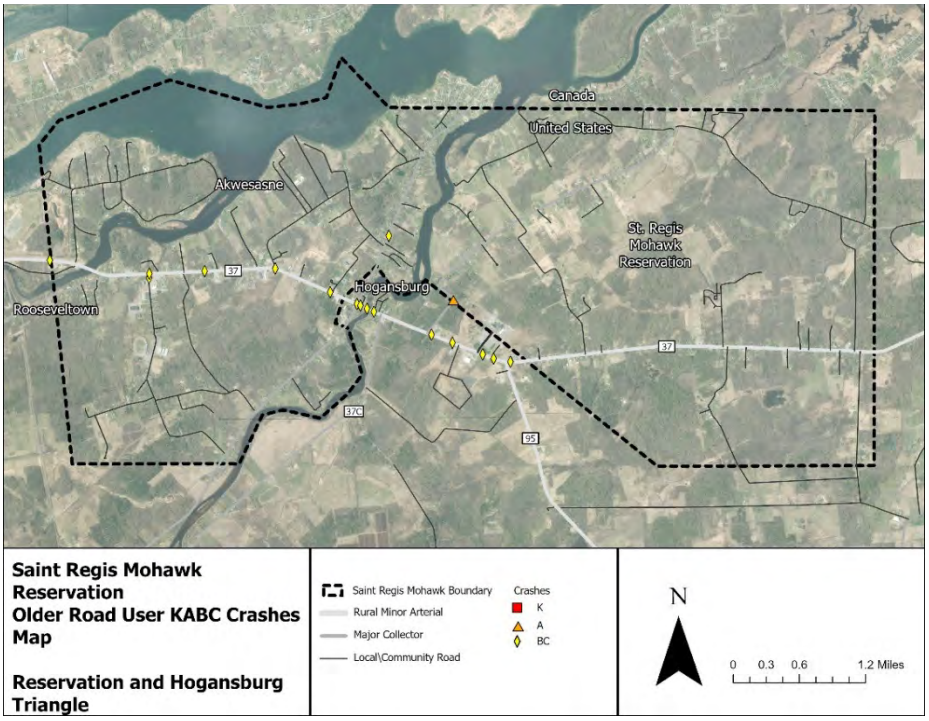
Figure 16. Graphic. Intersection KABC crash maps – Reservation and Hogansburg.[33]



Source: FHWA

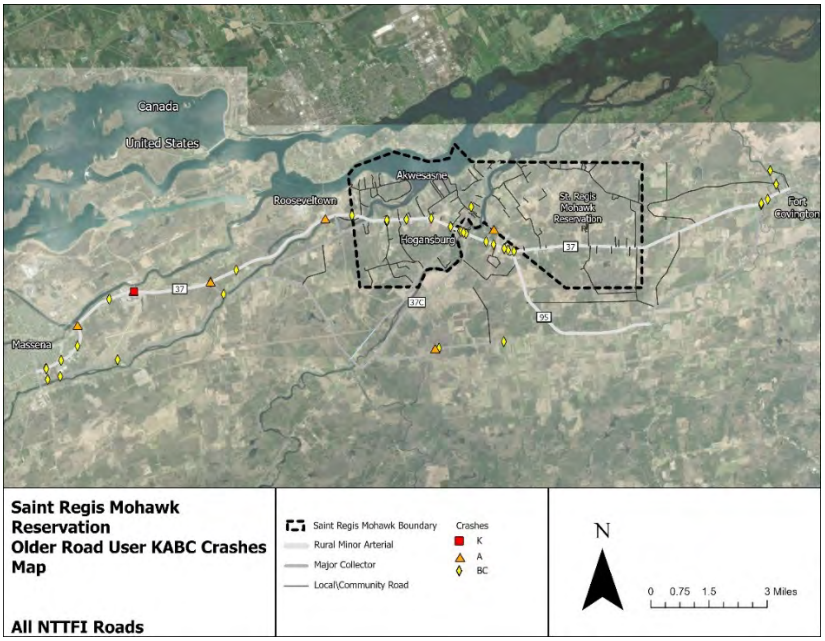
Figure 17. Graphic. Intersection KABC crash maps – all NTTFI roads.[33]

[33] In March 2021, NYSDOT shared crash data with the project team. The data were used to make these maps.



Source: FHWA

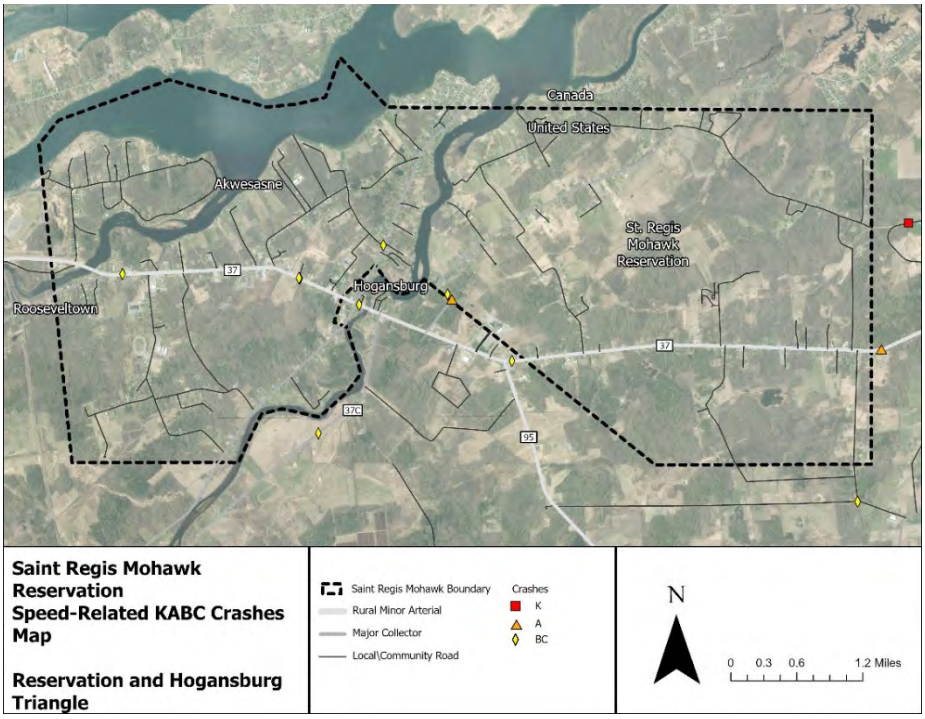
Figure 18. Graphic. Older driver KABC crash maps – Reservation and Hogansburg Triangle.[34]



Source: FHWA

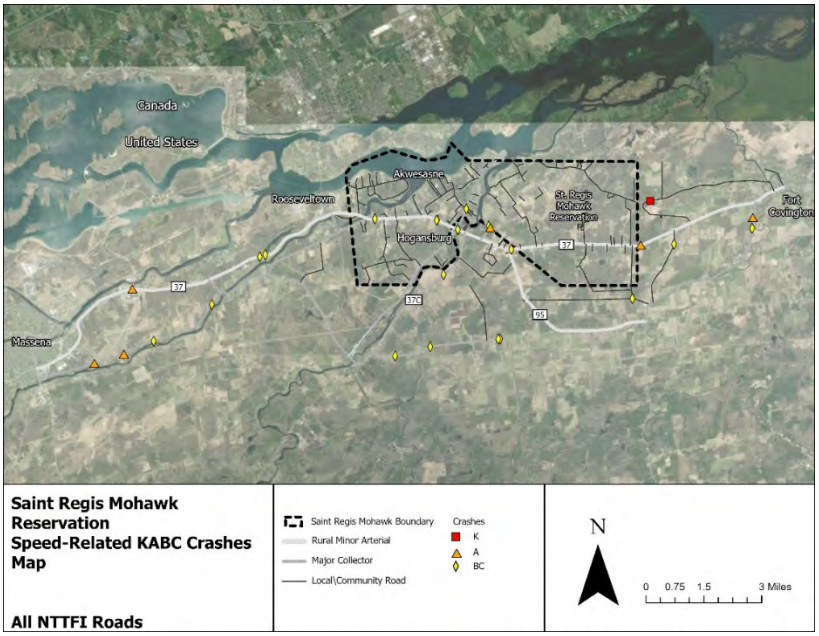
Figure 19. Graphic. Older driver KABC crash maps – all NTFFI roads.[34]

[34] In March 2021, NYSDOT shared crash data with the project team. The data were used to make these maps.



Source: FHWA

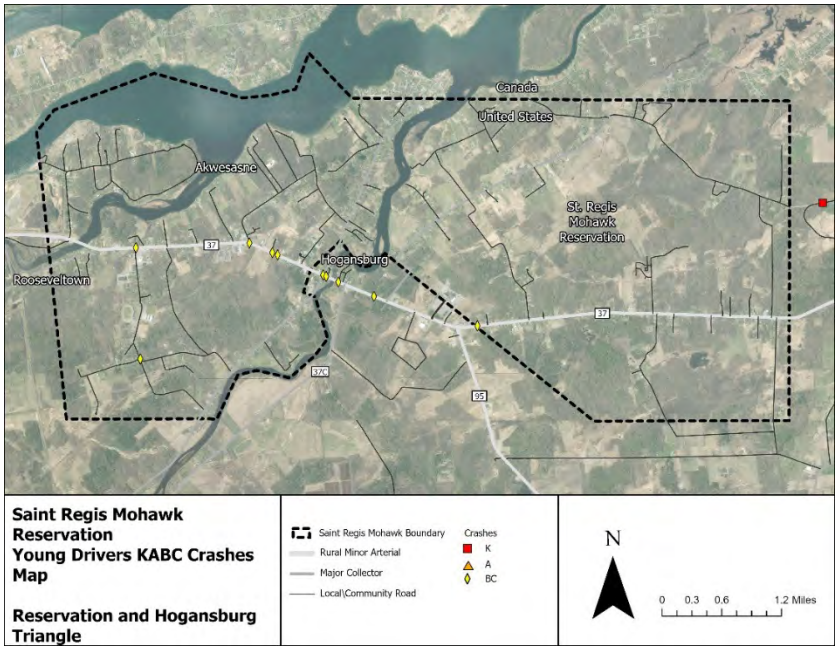
Figure 20. Graphic. Speed-related KABC crash maps – Reservation and Hogansburg Triangle.[35]



Source: FHWA

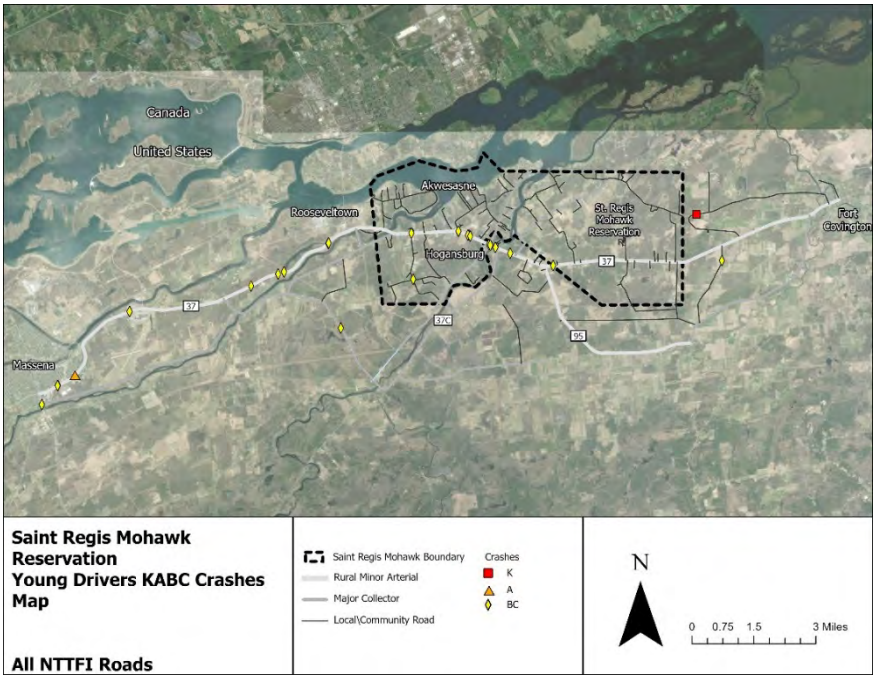
Figure 21. Graphic. Speed-related KABC crash maps – all NTFFI roads.[35]

[35] In March 2021, NYSDOT shared crash data with the project team. The data were used to make these maps.



Source: FHWA

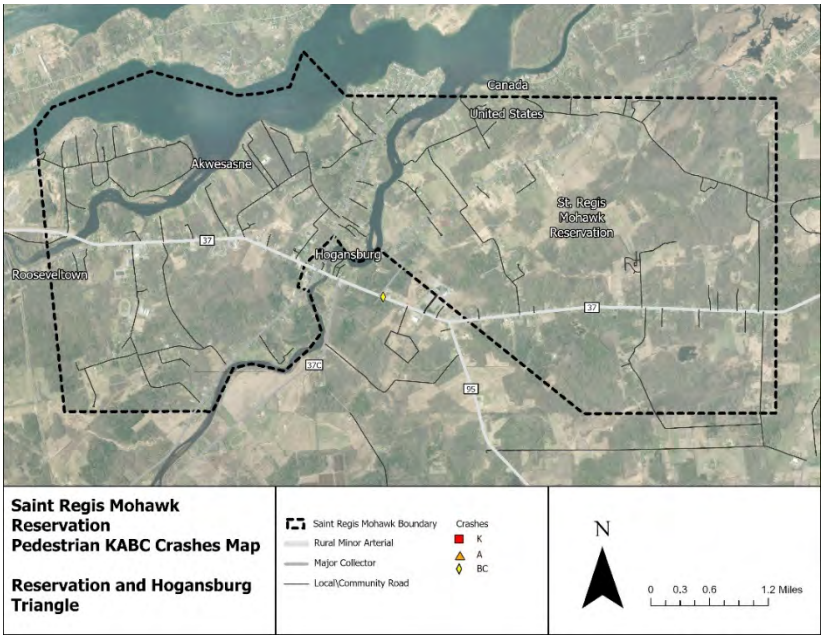
Figure 22. Graphic. Young driver KABC crash maps – Reservation and Hogansburg Triangle.[36]



Source: FHWA

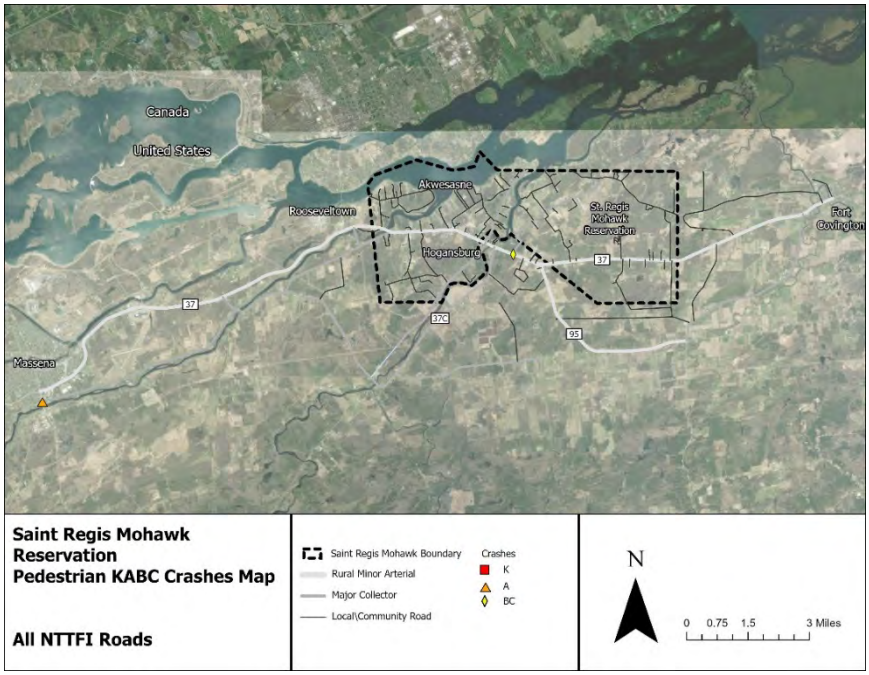
Figure 23. Young driver KABC crash maps – all NTTFI roads.

[36] In March 2021, NYSDOT shared crash data with the project team. The data were used to make these maps.



Source: FHWA

Figure 24. Graphic. Pedestrian KABC Crash Maps – Reservation and Hogansburg Triangle.[37]



Source: FHWA

Figure 25. Graphic. Pedestrian KABC Crash Maps – all NTTFI roads.[37]

[37] In March 2021, NYSDOT shared crash data with the project team. The data were used to make these maps.

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