New Visions 2050 Regional Transportation Plan

Safety and Security White Paper

January 2020
Acknowledgements

CDTC would like to thank the members of the Regional Operations and Safety Advisory Committee for their time and contributions toward the development of the Safety and Security White Paper.

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All errors or omissions are the responsibility of the principal author, Sandy Misiewicz, AICP. Mapping was provided by Teresa LaSalle, Sandy Misiewicz and Carrie Ward of the CDTC staff. Development of the Safety and Security White Paper was funded in part through grant[s] from the Federal Highway Administration and the Federal Transit Administration, U.S. Department of Transportation. The views and opinions of the authors expressed herein do not necessarily state or reflect those of the U.S. Department of Transportation.

Protection of Data from Discovery Admission into Evidence

23 U.S.C. 148(h)(4) states “Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for any purpose relating to this section [HSIP], shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location identified or addressed in the reports, surveys, schedules, lists, or other data.”

23 U.S.C. 409 states “Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.”
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1. INTRODUCTION

The Capital District Transportation Committee (CDTC) is the Metropolitan Planning Organization for Albany, Rensselaer, Schenectady and Saratoga Counties (except for the Town of Moreau and the Village of South Glens Falls). One of CDTC’s primary responsibilities is to develop a Regional transportation plan (RTP) with a long term (20+ year) planning horizon, updated every five years. The RTP establishes Regional planning and investment principles, strategies and actions that lead to an integrated multi-modal transportation system facilitating the safe and efficient movement of people and goods. CDTC is currently updating its Regional transportation plan which will be known as New Visions 2050.

To support the development of New Visions 2050, CDTC assigned its Regional Operations and Safety Advisory Committee (ROSAC) with the task of updating the Safety and Security portion of the 2015 Operations and Safety White Paper. This work has led to the preparation of a new Safety and Security White Paper. The group met periodically throughout 2019 to review the status of the safety and security recommendations in the current plan, review what has changed in the Region since the previous plan was adopted and recommend strategies and actions to be considered for incorporation into the new plan. Federal Safety and Security related data, CDTC’s 2019 Local Road Safety Action Plan, the New York State Strategic Highway Safety Plan (2017), other State and Regional plans as well as Federal safety performance measures were all considered.

2. SAFETY PERFORMANCE MEASURES

Performance-based planning and programming uses data to inform decisions that can improve project and program delivery, inform investment decisions, better focus on Regional priorities and provide greater transparency and accountability. The Fixing America’s Surface Transportation Act (FAST Act) requires CDTC to integrate performance-based planning and programming into its decision-making processes and further requires safety performance measures and targets for public roads and transit safety. The following describes the performance measures and tracks the Region’s progress toward achieving New York State and CDTC targets.

New York State Roadway Safety Measures

The Federal Safety Performance Measure Final rule became effective on April 14, 2016 and outlines the specific requirements for a state to reduce serious injuries and fatalities on all public roads. There are five highway safety performance measures for which New York State is required to set statewide annual targets. The targets for these measures are reported by NYSDOT to the Federal Highway Administration (FHWA). The purpose of these measures and targets is to have consistent metrics in all states allowing for state to state data comparisons and progress tracking. The five safety performance measures are the 5-year rolling averages for:

1. Number of Fatalities
2. Rate of Fatalities (Fatalities per 100 Million Vehicle Miles Traveled)
3. Number of Serious Injuries
4. Rate of Serious Injuries (Serious Injuries per 100 Million Vehicle Miles Traveled)
5. Number of Non-motorized Fatalities and Non-motorized Serious Injuries

A 5-year rolling average is used to reduce the year to year variation in the number of fatalities and serious injuries being tracked. The targets for the number of fatalities, number of serious injuries and
rate of fatalities must be identical to those set annually by the Governor’s Traffic Safety Committee (GTSC). GTSC reports its targets to the National Highway Traffic Safety Administration (NHTSA). The data sources for the performance measures have been specified by FHWA and include the national Fatality Analysis Reporting System (FARS) for fatalities and state crash databases for serious injuries. For New York State, the serious injury crash data is provided by the Traffic Safety Statistical Repository (TSSR) maintained by the Institute for Traffic Safety Management and Research (ITSMR). The 2020 New York State safety targets are provided in Table 1.

Table 1: New York State 2020 Safety Performance Targets

<table>
<thead>
<tr>
<th>Performance Measures</th>
<th>% Reduction</th>
<th>2020 NYSDOT Target</th>
</tr>
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<tbody>
<tr>
<td>Number of Fatalities</td>
<td>- 4.0%</td>
<td>1,040.4</td>
</tr>
<tr>
<td>Rate of Fatalities (Fatalities per 100 Million VMT Traveled)</td>
<td>- 4.0%</td>
<td>0.826</td>
</tr>
<tr>
<td>Number of Serious Injuries</td>
<td>- 2.0%</td>
<td>11,017.0</td>
</tr>
<tr>
<td>Rate of Serious Injuries (Serious Injuries per 100 Million VMT)</td>
<td>- 2.0%</td>
<td>8.709</td>
</tr>
<tr>
<td>Number of Non-motorized Fatalities and Non-motorized Serious Injuries</td>
<td>- 4.0%</td>
<td>2,626.8</td>
</tr>
</tbody>
</table>

Source: NYSDOT. Note: Due to a lag in the availability of the most recent year of FARS and TSSR crash data, estimates are used for 2018 and 2019 crashes to set targets.

CDTC Safety Performance

Each year, CDTC agrees to support the proposed NYSDOT safety performance measure targets, agreeing to plan and program projects that contribute toward their achievement. To monitor the Region’s performance, CDTC reviews crash data and tracks progress for each measure. Given the relatively low number of crashes in the four-county Region when compared to the State (in 2018, nearly 62% of the entire State’s fatalities and personal injuries occurred in New York City and Long Island), the percent change in the 5-year rolling average of crash data is more relevant when tracking performance than annual numbers. The 5-year rolling average provides a better understanding of the overall data over time without eliminating years with significant increases or decreases. If a particularly high or low number of fatalities and/or serious injuries occur in one year, a return to a level consistent with the average in the previous year may occur. CDTC’s progress in meeting its safety targets is summarized in Table 2. Trend data through 2018 for each performance measure is provided in Figures 1 through 5, the most recent year for which official crash data is available.

Table 2: CDTC Area Safety Performance Summary

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Fatalities</td>
<td>- 5.0%</td>
<td>54</td>
<td>53</td>
<td>- 1.8%</td>
</tr>
<tr>
<td>Rate of Fatalities (Fatalities per 100 Million VMT)</td>
<td>- 3.0%</td>
<td>0.67</td>
<td>0.64</td>
<td>- 4.5%</td>
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<tr>
<td>Number of Serious Injuries</td>
<td>- 6.0%</td>
<td>614</td>
<td>655</td>
<td>6.7%</td>
</tr>
<tr>
<td>Rate of Serious Injuries (Serious Injuries per 100 Million VMT)</td>
<td>- 5.0%</td>
<td>7.6</td>
<td>7.9</td>
<td>3.8%</td>
</tr>
<tr>
<td>Number of Non-motorized Fatalities and Non-motorized Serious Injuries</td>
<td>- 1.0%</td>
<td>98</td>
<td>101</td>
<td>1.1%</td>
</tr>
</tbody>
</table>

*2018 fatality data is preliminary and subject to change. Sources: FARS, FARS Annual Report File (2018), TSSR and the Highway Performance Monitoring System (HPMS) for vehicle miles traveled data.
Figure 1: Number of Capital Region Fatalities

![Number of Capital Region Fatalities](image)

Sources: FARS, FARS Annual Report File. * 2018 FARS data is preliminary.

Figure 2: Rate of Capital Region Fatalities/100 Million Vehicle Miles Traveled

![Rate of Capital Region Fatalities/100 Million Vehicle Miles Traveled](image)

Figure 3: Number of Capital Region Serious Injuries

Data Source: ITSMR TSSR

Figure 4: Capital Region Rate of Serious Injuries/100 Million Vehicle Miles Traveled

Data Source: ITSMR TSSR, Highway Performance Monitoring System
Key findings for CDTC’s Regional safety performance data include:

1. The 5-year rolling average for number and rate of fatalities is trending downward.
2. The 5-year rolling average for number and rate of serious injuries is trending upward although the average for the rate in 2014-2018 declined slightly.
3. The 5-year rolling average for number of non-motorized fatalities and non-motorized serious injuries has trended upward.

In summary, while progress has been made to reduce fatalities, the Region only met one of the State’s five 2018 safety targets based on the available crash data. The State may have set ambitious targets in 2018 compared to those set in more recent years (2020 targets are lower than they were in 2018) but what should be of concern is the overall increase in serious injuries. While many factors contribute to these numbers and CDTC has limited direct influence on them, CDTC may need to offer agencies and communities more support through strategic safety programs to help reverse these trends.

Transit Safety Performance Measures

On July 19, 2019, the Federal Public Transportation Agency Safety Plan (PTASP) Final Rule became effective and will require the Capital District Transportation Authority (CDTA) to develop a Safety Plan with safety performance measures and targets. The rule applies to all operators of public transportation systems that are recipients and sub-recipients of Federal financial assistance under the Federal Transit Administration’s (FTA) Urbanized Area Formula Program (Section 5307). The FTA has deferred this requirement for transit operators that only receive funds through the Enhanced Mobility of Seniors and Individuals with Disabilities Formula Program (Section 5310) and the Rural Area Formula Program (Section 5311).
The PTASP and performance targets must be shared with CDTC by July 20, 2020 and must be referenced in CDTC’s Transportation Improvement Program and Regional transportation plan updated or amended after July 20, 2021. There are seven safety performance targets by mode described below and Table 3 provides baseline data currently available. Transit safety measures include:

1. Total number of reportable fatalities (confirmed within 30 days of the incident)
2. Fatality rate per total vehicle revenue miles (VRM) by mode
3. Total number of reportable injuries (defined as one or more persons needing immediate transport away from the scene for medical attention)
4. Injury rate per total VRM by mode
5. Total number of safety events (safety events include collisions, fires or any event that meets a reporting threshold other than immediate transport for medical attention for one person)
6. Safety event rate per total VRM by mode
7. System Reliability: Mean distance between major mechanical failures by mode

Table 3: Baseline Safety Performance Data (2018)

<table>
<thead>
<tr>
<th>Reporting Agency</th>
<th>Public Transit Mode (NTD)*</th>
<th>Service Type**</th>
<th>Fatalities and Fatalities/ VRM</th>
<th>Injuries</th>
<th>Injuries/ VRM</th>
<th>Events</th>
<th>Number of Mechanical Failures***</th>
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<tr>
<td>CDTA</td>
<td>Commuter Bus</td>
<td>Purchased Service</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>5</td>
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<td></td>
<td>Demand Response</td>
<td>Directly Operated</td>
<td>0</td>
<td>2</td>
<td>0.000002</td>
<td>2</td>
<td>67</td>
</tr>
<tr>
<td></td>
<td>Demand Response</td>
<td>Purchased Service</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Unknown</td>
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<tr>
<td></td>
<td>Demand Response</td>
<td>Purchased Service</td>
<td>0</td>
<td>3</td>
<td>0.000002</td>
<td>3</td>
<td>Unknown</td>
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<tr>
<td></td>
<td>Bus</td>
<td>Directly Operated</td>
<td>0</td>
<td>47</td>
<td>0.000006</td>
<td>41</td>
<td>1,668</td>
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<tr>
<td></td>
<td>Bus</td>
<td>Purchased Service</td>
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<td>0</td>
<td>Unknown</td>
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<tr>
<td></td>
<td>Bus Rapid Transit</td>
<td>Directly Operated</td>
<td>0</td>
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<td>Unknown</td>
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<tr>
<td></td>
<td>Vanpool</td>
<td>Directly Operated</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Unknown</td>
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<tr>
<td></td>
<td>Vanpool</td>
<td>Purchased Service</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>City of Mechanicville</td>
<td>Bus</td>
<td>Directly Operated</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>Unknown</td>
</tr>
</tbody>
</table>

* Commuter Bus – Coach style vehicles used on Northway Xpress; Demand Response – paratransit service (STAR vehicles), Microtransit and taxi service for medical trips
** Directly Operation – Service directly operated by CDTA; Purchased Service – CDTA contracted services.
*** Baseline reliability data not available. As a proxy, the number of mechanical failures by mode is reported.
Source: National Transit Database
3. PROGRESS ON NEW VISIONS 2040 RECOMMENDATIONS

New Visions 2040 identified eight recommendations related to improving the safety and security of the Region’s transportation system. CDTC’s Regional Operations and Safety Advisory Committee reviewed the status of these recommendations and documented the progress made on each over the last five years in Table 4.

Table 4: Progress on New Visions 2040 Recommendations

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Description</th>
<th>Progress</th>
</tr>
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<tbody>
<tr>
<td>Safety Performance Measures and Targets Development</td>
<td>The Safety Performance Measure Final rule became effective on April 14, 2016 identifying five performance measures. New York set its first targets in 2017 which CDTC supported that same year. Targets are updated and adopted annually.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Develop a Regional Safety Action Plan</td>
<td>New York has an active safety program for State owned roads with robust data analysis and network screening. Local roads lack Regional scale tools for crash data analysis and network screening. The Regional safety action plan became a Local Road Safety Action Plan to address this gap. The Plan was completed in 2019.</td>
<td>Complete</td>
</tr>
<tr>
<td>Establish a Community Safety Evaluation Program</td>
<td>Limited CDTC resources resulted in this initiative being put on hold. The Local Road Safety Action Plan highlighted the need for such a program in the future.</td>
<td>On hold</td>
</tr>
<tr>
<td>Develop Safety Education Programs</td>
<td>Capital Coexist, CDTC’s bicycle safety program, expanded to include education on pedestrian safety. Safety programs further expanded with the establishment of CDTC’s Traffic Safety Ambassador Program.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Foster communication and provide a forum for security</td>
<td>CDTC coordinated with Local Emergency Planning Committees at the County level to provide travel modeling services, primarily simulation of traffic patterns resulting from emergency road or bridge closures.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Continue funding the Regional Transportation Management Center (TMC) and Highway Emergency Local Patrol (HELP)</td>
<td>CDTC has provided funding to support the Region’s TMC and HELP trucks and will continue to do so. CDTC has also supported Intelligent Transportation System projects.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Technical Support and Information Dissemination</td>
<td>CDTC used its travel demand model to develop evacuation scenarios.</td>
<td>Ongoing</td>
</tr>
<tr>
<td>Vulnerability Planning</td>
<td>While the State has a vulnerability assessment of their transportation system, the local system does not yet have the same kind of assessment.</td>
<td>Partially complete</td>
</tr>
</tbody>
</table>

4. SAFETY PLANNING

Safety is CDTC’s highest priority and is integrated into every decision that CDTC makes. It is a major component of the capital project evaluation process, it is reviewed in CDTC funded Regional, corridor and community-based plans, and it is considered in CDTC’s transportation programs. Transportation related fatalities and injuries are a major public health issue with significant societal impacts including lost productivity, lost quality of life, high medical costs, legal and court costs, emergency service costs (EMS), insurance administration costs, congestion costs, property damage, and workplace losses. Reducing the risk of serious crashes is a major goal of CDTC.
The FAST Act (2015) retained safety as a planning factor for Metropolitan Planning Organization’s like CDTC to address in Regional planning. The FAST Act also continued the Highway Safety Improvement Program (HSIP) as a core Federal-aid program through FHWA. The HSIP consists of three main components, the Strategic Highway Safety Plan, the State’s HSIP (the State’s highway safety improvement projects) and the Railway-Highway Crossing Program. The following summarizes CDTC’s approach and involvement in Regional safety planning.

Existing Safety and Security Principle

New Visions 2040 set forth an integrated approach to reduce risk and enable safe access for all users of the transportation system. The safety principle included security and states:

_We can significantly save lives and reduce injuries when we decrease traffic accidents and better respond to traffic emergencies._ CDTC and its members need to improve the safety of the Regional transportation system by creating a travel environment that is consistent with the community context and reduces risk. Safety considerations will be integrated into all investment decisions. Roundabouts and road diets will be considered in proposed highway and intersection projects to address safety concerns as well as low cost safety improvements. Examination of security issues and incorporation of security actions using computer modeling and scenario planning will be considered in transportation planning and investment decisions.

Historically, CDTC’s safety program sought to examine crash data, identify high crash locations, identify roadway characteristics that are common to locations with a crash history, identify potential mitigation measures and solutions, and identify sources of funding to make improvements. These efforts were challenged by limited crash and roadway data and limited analysis tools to undertake a Regional scale assessment of all public roads.

CDTC expanded its safety planning program in 2014 as new data became available and new programs were established by New York State. These new resources, particularly the Accident Location Information System (ALIS), allowed CDTC to better document the Region’s safety problems through increased access to timely crash data. Data driven programs established as a result of improved data analysis support the implementation of engineering, education and enforcement related safety strategies. Engineering measures impact the design of safe transportation facilities, education measures increase awareness of safe travel behaviors and enforcement penalizes unsafe travel behaviors. After reviewing the existing safety and security principle, the Regional Operations and Safety Advisory Committee recommends that it be split in two and updated to reflect changes in safety planning since New Visions was adopted in 2015.

Safety Plans

Several New York State agencies and CDTC have completed safety plans since 2015. Each plan is generally developed using the steps identified in Figure 6 and may either be broad in nature by examining a range of crash problems or they may have a specific focus such as on pedestrian safety. CDTC staff has been directly involved in the development of most of the safety plans prepared by NYSDOT and has coordinated with NYSDOT and safety stakeholders on Regional safety plans. These plans guide CDTC’s safety planning and programming activities. The major State and Regional transportation safety plans are discussed in this section.
Strategic Highway Safety Plan (SHSP)

The New York State SHSP was developed in 2017 by NYSDOT in collaboration with various State, Regional and local safety stakeholders. The SHSP is a data driven, five-year plan with the goal to reduce fatalities and serious injuries on all public roads. The SHSP used crash data to identify six emphasis areas targeting specific crash types contributing to higher numbers of fatalities and serious injuries in New York State. The six emphasis areas are Intersections, Lane Departure, Vulnerable Users (bicyclists, pedestrians, motorcyclists, and work zone workers/travelers), Age-related (younger and older drivers), Road User Behavior (impaired driving, occupant protection, distracted and drowsy driving) and Speed. The Plan also emphasizes emergency response, data and automated/connected vehicles as cross cutting issues that affect all crash types.

Strategies and actions to reduce fatalities and serious injuries are identified for each emphasis area and are summarized in Table 5. The SHSP is also developed cooperatively with the New York State Highway Safety Strategic Plan and has consistent safety goals, objectives and performance targets for fatalities, fatality rate and serious injuries (see page 15). CDTC will support the implementation of the SHSP in its New Visions 2050 Regional transportation plan and has developed planning and programming activities that are consistent with the SHSP.
Table 5: New York State Strategic Highway Safety Plan (2017) Emphasis Areas and Strategies

<table>
<thead>
<tr>
<th>Intersection</th>
<th>Lane Departure</th>
<th>Vulnerable Users</th>
<th>Age Related</th>
<th>Road User Behavior</th>
<th>Speed Related</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Develop an Intersection Safety Action Plan.</td>
<td>• Complete a Lane Departure Action Plan.</td>
<td>• Continue to implement infrastructure projects to enhance vulnerable user safety.</td>
<td>• Implement engineering designs to accommodate users of all ages.</td>
<td>• Implement engineering improvements to mitigate high-risk driver behavior.</td>
<td>• Implement infrastructure projects to decrease the number and severity of crashes due to speeding.</td>
</tr>
<tr>
<td>• Develop a systemic intersection safety improvement program.</td>
<td>• Implement a program of systemic safety improvements that decrease the number and severity of lane departure crashes.</td>
<td>• Enhance data processes to easily obtain current vulnerable user data.</td>
<td>• Develop safe-driving education initiatives for at-risk age groups.</td>
<td>• Conduct educational and outreach efforts to build awareness of safe driving habits.</td>
<td>• Continue educational programs related to safe speeds and promote culture change.</td>
</tr>
<tr>
<td>• Implement safety improvements at intersections based on crash experience.</td>
<td>• Implement safety countermeasures at locations based on lane departure crash experience.</td>
<td>• Support policy initiatives to increase vulnerable user safety.</td>
<td>• Improve enforcement efforts to address age-appropriate driving issues.</td>
<td>• Conduct coordinated targeted enforcement efforts.</td>
<td>• Work with judiciary to address speeding issues.</td>
</tr>
<tr>
<td>• Support policy initiatives that improve intersection safety.</td>
<td>• Develop education and training materials related to lane departure crashes.</td>
<td>• Continue educational programs related to vulnerable user safety.</td>
<td>• Enforce safe travel speeds.</td>
<td>• Support the use of technology (e.g., intelligent transportation systems [ITS], connected vehicles) and Traffic Incident Management (TIM).</td>
<td>• Enforce safe travel speeds.</td>
</tr>
<tr>
<td>• Support the use of technology (e.g., intelligent transportation systems [ITS], connected vehicles) and Traffic Incident Management (TIM).</td>
<td>• Improve or eliminate highway-railroad grade crossings.</td>
<td>• Enforce traffic laws that reduce lane departure crashes.</td>
<td>• Support policy initiatives that improve intersection safety.</td>
<td>• Improve or eliminate highway-railroad grade crossings.</td>
<td>• Support policy initiatives that improve intersection safety.</td>
</tr>
<tr>
<td>• Improve or eliminate highway-railroad grade crossings.</td>
<td>• Develop education and training materials.</td>
<td>• Improve enforcement of traffic laws at intersections.</td>
<td>• Improve or eliminate highway-railroad grade crossings.</td>
<td>• Improve enforcement of traffic laws at intersections.</td>
<td>• Improve or eliminate highway-railroad grade crossings.</td>
</tr>
</tbody>
</table>

Source: NYSDOT

Highway Safety Strategic Plan (2019)

The Highway Safety Strategic Plan (HSSP) is developed annually by the New York State Governor’s Traffic Safety Committee (GTSC) and is required under the FAST Act. The Plan guides GTSC’s administration of Federal highway safety grant funding awarded by NHTSA to New York and is distributed to law enforcement agencies and non-profits through a competitive process. A data driven
approach is used to identify safety problems in the HSSP and to set highway safety program priorities. The Federal Fiscal Year 2019 priorities are listed in Figure 7. The Plan’s goals are to prevent motor vehicle crashes, save lives, and reduce the severity of injuries suffered in crashes. The HSSP and the SHSP are required to be developed cooperatively and have consistent safety goals, objectives and performance targets for fatalities, fatality rate and serious injuries.

Figure 7: New York State Highway Safety Strategic Plan (2019) Program Areas

<table>
<thead>
<tr>
<th>Program Areas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Impaired Driving</td>
</tr>
<tr>
<td>Police Traffic Services</td>
</tr>
<tr>
<td>Motorcycle Safety</td>
</tr>
<tr>
<td>Non-Motorized (Pedestrians)</td>
</tr>
<tr>
<td>Non-Motorized (Bicyclists)</td>
</tr>
<tr>
<td>Occupant Protection</td>
</tr>
<tr>
<td>Traffic Records</td>
</tr>
<tr>
<td>Community Traffic Safety Programs</td>
</tr>
</tbody>
</table>

Source: Governor’s Traffic Safety Committee


New York State completed a Pedestrian Safety Action Plan in 2016, developed collaboratively between NYSDOT, the New York State Department of Health and the Governor’s Traffic Safety Committee with support from the State’s MPOs and other safety stakeholders. As a focus state for pedestrian safety, based on a high number of pedestrian fatalities, the Action plan used crash data to identify engineering, education and enforcement strategies and projects that could be implemented to improve pedestrian safety on all public roads. The specific objectives of the Plan include:

- Identify risk factors present for pedestrians on State and locally owned roads.
- Identify counties and municipalities, as well as specific locations and corridors where there is a potential to reduce pedestrian crashes.
- Identify a toolbox of countermeasures.
- Identify appropriate performance metrics in order to monitor progress, evaluate effectiveness and adjust approaches accordingly.

Among the identified engineering strategies, the State proposed to launch a Systemic Safety Program to proactively address widespread pedestrian safety issues by implementing low cost countermeasures throughout the roadway network. Locations would be identified based on having high risk roadway features correlated with pedestrian crashes rather than crash frequency. Applying the systemic approach could help address crash types that have not been identified through the State’s network screening process.

To implement the Plan, the State reserved a portion of HSIP funds over a five-year period, supported by a combination of additional Federal, State and local funding sources. The data analysis found that 50% of all pedestrian crashes outside of New York City occur in 20 communities in New York State, two of which are in the Capital Region (the Cities of Albany and Schenectady). The most common crash types related to pedestrian safety identified in the Plan are signalized intersections and uncontrolled, often mid-block, locations. The report is available on the New York State pedestrian safety webpage at https://www.ny.gov/sites/ny.gov/files/atoms/files/pedestriansafetyactionplan.pdf.
Local Road Safety Action Plan (2019)

Local Road Safety Plans are an FHWA recognized proven safety countermeasure. Because over 40% of the Region’s most serious crashes occur off the State highway system, CDTC provided resources to develop a Local Road Safety Action Plan for the Region. The crash data for local roads, defined as those owned and maintained by a county, city, town and village, had not been analyzed at a Regional scale previously due to the lack of data to undertake network screening. This plan attempts to bridge that gap by evaluating fatal and serious injury crash data to better understand the types and characteristics of local road crashes. The data analysis revealed that there were 1,810 fatal or serious injury local road crashes of which 375 (approximately 20%) occurred in rural areas.

A major finding of the Plan is that the Region’s local road crash emphasis areas are the same six as those identified in the New York State SHSP. A summary of the local road crash data by county and emphasis area is shown in Table 6. The percentages represent the portion of the total crashes by emphasis area occurring within each County. The data revealed that crash emphasis areas vary between the four counties indicating the need for tailored strategies by both local governments and CDTC. As with the statewide plans, engineering, education and enforcement strategies were identified for each emphasis area that could be implemented by local governments, CDTC and other safety partners. Figure 8 summarizes the recommendations and the complete Local Road Safety Action Plan is available at https://www.cdtcmpo.org/images/safety/Final_Report_October_2019_web.

Table 6: Local Road Fatal and Serious Injury Crashes by County and Emphasis Area

<table>
<thead>
<tr>
<th>Emphasis Area</th>
<th>Albany</th>
<th>Rensselaer</th>
<th>Saratoga</th>
<th>Schenectady</th>
<th>Total Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intersections</td>
<td>294</td>
<td>157</td>
<td>168</td>
<td>199</td>
<td>818</td>
</tr>
<tr>
<td>Road User Behavior</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Impaired</td>
<td>83</td>
<td>43</td>
<td>80</td>
<td>39</td>
<td>245</td>
</tr>
<tr>
<td>Distracted</td>
<td>119</td>
<td>32</td>
<td>73</td>
<td>95</td>
<td>319</td>
</tr>
<tr>
<td>Drowsy</td>
<td>12</td>
<td>3</td>
<td>16</td>
<td>9</td>
<td>40</td>
</tr>
<tr>
<td>Aggressive</td>
<td>63</td>
<td>45</td>
<td>56</td>
<td>24</td>
<td>186</td>
</tr>
<tr>
<td>Total</td>
<td>277</td>
<td>123</td>
<td>225</td>
<td>167</td>
<td></td>
</tr>
<tr>
<td>Age Related</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20 and Younger</td>
<td>82</td>
<td>69</td>
<td>80</td>
<td>36</td>
<td>267</td>
</tr>
<tr>
<td>65 and Older</td>
<td>75</td>
<td>33</td>
<td>102</td>
<td>58</td>
<td>268</td>
</tr>
<tr>
<td>Total</td>
<td>157</td>
<td>102</td>
<td>182</td>
<td>94</td>
<td></td>
</tr>
<tr>
<td>Vulnerable Users</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pedestrian</td>
<td>123</td>
<td>38</td>
<td>32</td>
<td>73</td>
<td>269</td>
</tr>
<tr>
<td>Bicyclist</td>
<td>39</td>
<td>17</td>
<td>22</td>
<td>25</td>
<td>103</td>
</tr>
<tr>
<td>Motorcyclist</td>
<td>83</td>
<td>46</td>
<td>89</td>
<td>40</td>
<td>258</td>
</tr>
<tr>
<td>Total</td>
<td>245</td>
<td>101</td>
<td>143</td>
<td>138</td>
<td></td>
</tr>
<tr>
<td>Lane Departure</td>
<td>156</td>
<td>111</td>
<td>254</td>
<td>79</td>
<td>600</td>
</tr>
<tr>
<td>Speed</td>
<td>99</td>
<td>73</td>
<td>134</td>
<td>56</td>
<td>362</td>
</tr>
</tbody>
</table>

Avg. = Average; Note: some crashes are included in more than one Emphasis Area. Source: NYSDOT ALIS

Because locations with a high frequency of serious crashes are limited on local roads, the Plan calls for system level strategies that are more likely to be effective in improving safety. However, many local governments lack staff, technical expertise and financial resources to develop robust proactive safety programs without the support of CDTC, NYSDOT and others. CDTC will explore methods to assist local governments with data analysis and project development to access HSIP funds for programs and projects that relate to the Local Road Safety Action Plan.
System Safety Program Plan (CDTA)

CDTA’s Safety Plan was developed and enacted in January 2018. The Plan includes a policy statement committing CDTA to provide “safe and reliable transportation to the general public at a reasonable cost”. The policy covers training and safe working conditions for maintenance staff, defensive driving and customer relations training for drivers and a commitment for all employees to comply with the provisions of CDTA’s accident prevention program. In 2020, CDTA will be required by FTA to develop and provide to CDTC a Public Transportation Agency Safety Plan, transit safety performance measures and targets.
Regional Safety Planning

The primary goal of the NYSDOT and CDTC safety planning programs is to reduce crashes, especially fatal and serious injury crashes, on all public roads. A challenge CDTC has attempted to overcome is the difference between how State owned and maintained roads are monitored for safety versus locally owned and maintained roads. The following describes the safety planning approach being utilized for State and local roadway systems at the Regional level.

NYSDOT Safety Program

NYSDOT’s Core Safety Program includes a combination of proactive and reactive initiatives that rely on data and field reviews to develop cost effective safety treatments for implementation. Figure 9 illustrates the core safety program elements. When a proposed project is large enough, CDTC partners with NYSDOT to ensure HSIP funds are allocated to those projects that address the largest Regional safety issues in the most cost-effective way.

NYSDOT’s HSIP relies on a safety investigation procedure summarized in Figure 10 to identify and correct hazardous locations on State owned roadways. This traditional process of network screening for hot spots identifies lists of High Accident Locations which are further categorized into Priority Investigation Locations (PILs). A location is identified as a PIL if it exceeds NYSDOT defined thresholds for crash frequency and if the crash rate is statistically significant. PIL lists are calculated annually and NYSDOT targets conducting a Highway Safety Investigation on up to 20% of the identified PILs each year. Other information that may lead to a NYSDOT safety investigation includes citizen complaints, observations from law enforcement or NYSDOT staff, and safety investigations as part of larger capital projects.
Figure 10: NYSDOT Highway Safety Improvement Program Procedure


Safety investigations can lead to the identification of solutions which may include engineering, education and enforcement strategies. Engineering solutions may range from low cost maintenance activities to higher cost capital projects. A benefit/cost analysis is used to further evaluate proposed engineering solutions. Many low-cost solutions can be implemented through route maintenance activities while larger capital projects enter the project development pipeline for potential consideration for HSIP funding. Once a project is implemented, NYSDOT evaluates the outcomes through its Post Implementation Evaluation System (PIES).

The NYSDOT Safety Program requires detailed crash and roadway data, traffic volume data and dedicated staff to undertake the investigations and conduct post project implementation reviews. The data and resources available to NYSDOT, which are even limited within the Department, generally do not exist for owners of local roadways making it difficult if not impossible to undertake Regional network screening for safety on all public roads. CDTC has sought to fill this gap by building its safety planning capacity and making resources available to local governments for data analysis.

Other aspects of NYSDOT’s Safety Program include its Safety Appurtenance Program (SAFETAP), Skid Accident Reduction Program (SKARP), and the development and support of crash and roadway data systems to support safety planning and project development. The SAFETAP program proactively integrates safety into maintenance paving projects by implementing simple, low cost treatments such as pavement markings and signs. The SKARP program addresses safety at locations with a history of wet road crashes through the review of Wet Road PILs, testing the friction of the roadway surface and treating those with low friction through resurfacing or microsurfacing. Crash and Roadway data systems are maintained by the NYSDOT Safety Program Management and Coordination Bureau.

The Accident Location Information System (ALIS) is the primary crash data system supporting NYSDOT and CDTC crash data analysis. ALIS allows for spatial analysis of crash data on all public roads, incorporating location coding of the NYS Department of Motor Vehicle crash reports. Approved users such as CDTC and local governments can access ALIS crash data through a web application. NYSDOT also has two internal systems including the Safety Information Management System (SIMS) for State road network screening and the Post Implementation Evaluation System (PIES) for the evaluation of project outcomes and the development of crash reduction factors.
CDTC Safety Planning Program

Complementing NYSDOT’s Safety Program is CDTC’s Safety Planning Program. The FAST Act authorized the use of Highway Safety Improvement Program (HSIP) funds on all public roads. This is important to the Region as it gives local governments access to safety funding that typically could only be spent on roadways eligible for Federal aid, which tend to be higher volume roads owned by the State. Expanding HSIP eligibility to include all public roads is supported by CDTC as 43% of all fatal and serious injury crashes occur on local roads versus 52% on State roads (excluding the NYS Thruway) as shown in Figure 11. CDTC confirmed in the development of the Local Road Safety Action Plan that local road crashes are generally not investigated in a systematic manner and local procedures vary widely by municipality.

Figure 11: 2011-2018 Fatal and Serious Injury Crashes by Road System

The largest challenge to local road network screening is the overall lack of data. Data gaps include limited traffic volume and roadway characteristic data, the lack of a local road linear referencing system to assign crash locations to, the lack of a local road classification system to categorize similar roadways together for comparison purposes, inconsistent crash data and the lack of statewide average local road crash rates to determine whether a location should be considered a high accident location. These complications were noted in the Local Road Safety Action Plan and by New York State in its Strategic Highway Safety Plan which identified 14 strategies intended to improve the data safety funding relies so heavily on. A few of the statewide data improvement strategies most relevant to CDTC and local road owners include:

- Integrate the NYSDOT Roadway Information System (RIS) with the Safety Information Management System (SIMS) and ALIS to provide the ability to analyze the local highway system using the similar methods currently used on the State system.
- Create a statewide intersection inventory to help build stronger relationships between crash data and roadway data.
- Improve the integration of NYSDOT data including safety related maintenance work, capital project data, and asset and inventory data.

Despite these challenges, CDTC has built a safety program that continues to mature. On the data analysis side, CDTC staff has assisted communities with the review of their local road crash data through the Local Road Safety Action Plan and has safety programs available to local government members for all users of the transportation system. In addition, with limited staff and data resources
available to execute the traditional approach of identifying high accident locations, CDTC has increasingly supported the systemic approach to improving transportation system safety.

**CDTC Safety Resources**

**Capital Coexist**

Capital Coexist was launched in 2010 and is CDTC’s safety education and awareness program, geared toward pedestrians, bicyclists, and motorists safely coexisting when using the Region’s roadways. The webpage for the program (www.cdtcmpo.org/capitalcoexist) has safety tips for transportation system users and information about current projects, events, and educational materials. Through Capital Coexist, CDTC supports May bike month, hosts Bicycle & Pedestrian Education webinars and provides funding for local education programs and projects through the Traffic Safety Ambassador mini-grant program launched in 2016.

The Traffic Safety Ambassador Program funds projects that: 1) improve bicycle and pedestrian safety by reducing the number of vehicle crashes involving bicyclists and pedestrians, and 2) increase the number of bicycle and pedestrian trips (especially commuting trips) in the Capital Region. Any local government agency, certified first responder, 501(c)3 non-profit corporation, and private for-profit organization within the CDTC-area is eligible to apply. CDTC solicits for projects annually and has developed a toolkit of resources including a guidebook outlining eligible project types.

**Complete Streets**

CDTC’s Complete Streets program is supported by a Complete Streets Advisory Committee and is detailed in the Complete Streets White Paper. CDTC’s approach has been to encourage local governments to adopt Complete Street policies to design and operate local roads for all users of all ages and abilities. A properly designed “Complete Street” improves safety, encourages walking and biking, slows traffic, improves air quality, promotes local business, and encourages social interaction. The Educational & Technical Workshop Series was developed in 2018 to assist local governments with overcoming challenges to developing and implementing Complete Streets policies. The workshops are free and highly interactive, with the goal of building local capacity and strengthening relationships between transportation practitioners, local government departments, and the broader community. Learn more about the workshops on CDTC’s Complete Streets workshop series webpage: https://www.cdtcmpo.org/page/207-complete-streets-educational-technical-workshop-series.

**Linkage Planning Program**

The Community and Transportation Linkage Planning Program (the Linkage Program) was launched in 2000 and as of April 2019 has funded a total of 89 collaborative, jointly-funded planning studies working with 40 unique sponsors representing urban, suburban and rural municipalities, counties, not-for-profits and other public entities. Roughly $6.5 million in Federal, State and local funds have been committed to date and the program remains very popular for local government corridor studies, subarea studies, bicycle and pedestrian plans and numerous other initiatives that integrate land use and transportation. Transportation safety is a major consideration in these planning studies and safety is often identified as a top concern from community members. Learn more by visiting the Linkage Program webpage at https://www.cdtcmpo.org/what-we-do/linkage.
Technical Assistance

CDTC’s Community Planning Technical Assistance Program was launched in 2018 as a joint program with the Capital District Regional Planning Commission (CDRPC) to provide staff assistance to local governments for small scale community planning initiatives that resonate with the principles of New Visions 2040. Among the eligible initiatives are data collection, analysis and mapping, comprehensive/neighborhood planning, community design assessments and general community planning activities. Small scale crash data reviews, road safety assessments and other safety evaluations are also eligible. CDTC and CDRPC select projects through an annual solicitation. Visit CDTC’s Technical Assistance program webpage to learn more: www.cdtcmpo.org/techassist.

ROSAC

The Regional Operations and Safety Advisory Committee (ROSAC) is the primary forum to discuss Regional safety planning, safety programs and safety projects at CDTC. ROSAC members include staff from State and Regional agencies including NYSDOT, the New York State Police, counties, cities, towns and villages and other safety stakeholders. The group meets regularly and served as the technical advisory committee in the development of CDTC’s Local Road Safety Action Plan. CDTC has several other advisory committees in which safety is a major topic including the Bicycle and Pedestrian Advisory Committee and the Complete Streets Advisory Committee. White papers in development by these and other advisory committees are expected to contribute to the transportation safety conversation.

NYSAMPO Safety Working Group

The NYSAMPO established a Safety Working Group (SWG) in 2005 to increase safety planning coordination, collaboration and cooperation in New York State. SWG has developed many safety resources including Safety Assessment Guidelines which outline a process, similar to the FHWA Road Safety Audits, to improve safety on transportation facilities. Safety Assessments tailor the Road Safety Audit process to the local context in New York State.

SWG also developed educational fact sheets to provide information to local governments and other safety partners on topics including: Statewide Safety Plans, Bicycle and Pedestrian Laws, Designing Intersections to Accommodate All Users, Timing Traffic Signals to Accommodate Pedestrians, Complete Streets, and Complete Streets 2.0. The fact sheets provide information on best practices and resources and are available on the NYSAMPO Safety Working Group webpage at https://www.nysmpos.org/post/fact-sheets.

In 2018, SWG partnered with FHWA and NYSDOT to bring a Local Road Safety Peer Exchange to New York State. The peer exchange brought together practitioners from various State agencies to learn about the status of the Highway Safety Improvement Program (HSIP) and local safety planning in New York and local road safety best practices in Michigan and New Jersey. The event concluded with breakout discussions to identify gaps, challenges and opportunities to advance local road safety efforts in New York. Some of the suggested actions include updating New York’s HSIP process, encouraging enforcement training,
building partnerships with local governments, providing more funding to local governments for data driven safety projects and programs and developing local road safety plans.

Additional Safety Programs and Resources

There are numerous safety programs and resources in New York State. The following section identifies key partners and resources CDTC utilizes in delivering its safety planning program.

Governor’s Traffic Safety Committee (GTSC)

GTSC is the designated New York State Highway Safety Office, an interagency committee tasked with managing the State’s Highway Safety Program. GTSC implements Federal grant programs to address behavioral safety issues and develops the Highway Safety Strategic Plan. GTSC staff handles the administration of Federal grant programs and implements and coordinates safety initiatives that are critical to New York State. These programs include but are not limited to STOP-DWI, occupant restraint, pedestrian and wheel sport safety, all areas of safe driver behavior, police traffic enforcement and traffic records management. GTSC has led the implementation of law enforcement recommendations identified in the State’s Pedestrian Safety Action Plan.

New York State Department of Health (DOH)

The NYSDOH website states that “Motor vehicle traffic injuries are a major public health problem. They are the leading cause of injury related death, second leading cause of injury related hospitalizations, and third leading cause for injury related emergency department visits in New York State. On average, three New Yorkers die every day due to a traffic-related crash.” The NYSDOH is addressing this problem in cooperation with NYSDOT and the GTSC by providing educational materials for all roadway users and coordinating education efforts associated with the SHSP. Complete streets and the safety of pedestrians and bicyclists have been major program focal points and the NYSDOH has led the development and implementation of the pedestrian safety awareness campaign See! Be Seen! identified in the Pedestrian Safety Action Plan.

FHWA Proven Safety Countermeasures

FHWA promotes certain infrastructure-oriented safety treatments and strategies, chosen based on proven effectiveness and benefits, to encourage widespread implementation by State, and local transportation agencies to reduce serious injuries and fatalities. This list of 20 Proven Safety Countermeasures includes treatments and strategies that have successfully addressed roadway departure, intersection, and pedestrian and bicycle crashes. Fact sheets for each of the 20 countermeasures are included on the FHWA Proven Safety Countermeasures website https://safety.fhwa.dot.gov/provencountermeasures/. The 20 Countermeasures are:

1. Roadside Design Improvement at Curves
2. Reduced Left-Turn Conflict Intersections
3. Systemic Application of Multiple Low Cost Countermeasures at Stop-Controlled Intersections
4. Leading Pedestrian Interval
5. Local Road Safety Plan
6. USLIMITS2 (a free, web-based tool designed to assist with assessing and establishing speed limits for specific segments of roadway)
7. Enhanced Delineation and Friction for Horizontal Curves
8. Longitudinal Rumble Strips and Stripes on Two-Lane Roads
9. Median Barrier
10. Safety EdgeSM (eliminates the vertical drop-off at the pavement edge)
11. Traffic Signal Backplates with Retroreflective Borders
12. Corridor Access Management
13. Dedicated Left- and Right-Turn Lanes at Intersections
14. Roundabouts
15. Yellow Change Intervals (appropriately timed yellow phase at signalized intersections)
16. Medians and Pedestrian Crossing Islands in Urban and Suburban Areas
17. Pedestrian Hybrid Beacon
18. Road Diet
19. Walkways
20. Road Safety Audit

Cornell Local Roads Program

The Cornell Local Roads Program is the designated Local Technical Assistance Program (LTAP) Center for New York State. It provides training, technical assistance, and information to municipal officials and employees responsible for the maintenance, construction, and management of local highways and bridges. Local road safety is a major emphasis area of their work.

https://www.clrp.cornell.edu/

5. SECURITY PLANNING

Since the events of September 11, 2001, the role of MPOs in security planning has been expanding. The FAST Act has security as part of one of the planning factors for CDTC to address in Regional planning. New York State, CDTC and CDTC’s member agencies have undertaken several initiatives since New Visions 2040 was adopted to support security planning. Transportation system security is important to CDTC as the Region has essential infrastructure and facilities to be protected and the traveling public should feel safe and secure when using the transportation system. This Safety and Security White Paper will create a new security principle, will catalog recent security plans and will document other state, Regional and local initiatives that have contributed to the security of the Region’s transportation system. Additional security related concepts and recommendations are identified in CDTC’s Environment and Technology White Paper.

New York State Comprehensive Emergency Management Plan (CEMP)

The CEMP is developed and maintained by the NYS Office of Emergency Management and agencies that comprise the NYS Disaster Preparedness Commission (DPC). The CEMP identifies State policies, authority and organizational structure to be implemented in response to an emergency. It is comprised of the State Hazard Mitigation Pan, the Response and Short-Term Recovery Plan and the Long-Term Recovery Plan. In 2019, New York adopted a new Federal Emergency Management Agency approved State Hazard Mitigation Plan which identifies risks and vulnerabilities as well as mitigation strategies.

Specific to transportation emergencies, Emergency Support Function #1 documents the framework under which NYSDOT coordinates the response to disasters, events and emergencies that exceed the capacity of local governments. Common emergencies include extreme flooding, significant snow, ice or wind events, and landslides while more uncommon emergencies include total infrastructure...
failure and acts of terrorism. At the planning level, the NYSDOT Division of Policy and Planning develops resiliency strategies for climate change and extreme weather including a flood vulnerability assessment of State owned and maintained roads and bridges. NYSDOT encourages MPOs like CDTC to support similar assessments for local transportation infrastructure. Planning information related to the CEMP and other emergency planning resources are available on the State’s Homeland Security and Emergency Services webpage http://www.dhses.ny.gov/planning/.

Energy Security

CDTC hosted a Resiliency workshop in November 2018 that focused on the National Association of State Energy Official’s (NASEO) Initiative for Resiliency in Energy through Vehicles (iREV). iREV brings together a unique cross-section of practitioners in emergency management, energy assurance, homeland security, and transportation to support the incorporation of alternative fuel vehicles in emergency response and preparedness operations. iREV’s resources and technical assistance aid emergency management entities in examining the potential costs, benefits, and interdependencies associated with diversifying their fleets, reducing dependence on petroleum, and investing in electric, natural gas, propane, and biodiesel vehicles and infrastructure in support of energy security.

The iREV tracking tool combines data from the Alternative Fuels Data Center (AFDC), on-the-ground fleet and infrastructure information relayed through Clean Cities Coalitions, which CDTC coordinates for the Capital Region, and disaster readiness tools being used at the national level to support critical infrastructure and homeland security. The tool helps emergency planning entities understand the various alternative fuel vehicles and infrastructure assets and options at their disposal, and optimize their planning and investment based on their specific fuel supply, geography, and risk profile. The workshop held by CDTC reviewed the iREV tool, offered information to emergency management agencies on integrating the iREV resources into their emergency management plans and encouraged them to request a login for the iREV tool.

County Security Related Plans

Each of the four counties within CDTC’s planning area has an emergency management plan. The Plans are routinely updated, focus on different types of emergencies, and define county procedures to respond to these emergencies. They are developed through a team of local government officials, the New York State Emergency Management Office staff and emergency services providers. County Plans include the Albany County Comprehensive Emergency Management Plan (2015), the Schenectady County Hazard Mitigation Plan (2016), the Draft Rensselaer County Hazard Mitigation Plan (draft as of October 2019), the Saratoga County Comprehensive Emergency Management Plan and the Saratoga County Hazard Mitigation Plan (2019). CDTC has made its resources available to the entities for more detailed transportation system analysis and modeling if necessary.

Local Emergency Planning Committees

CDTC established working relationships with county level Local Emergency Planning Committees to offer traffic simulation of Regional travel patterns in the event of major transportation system emergencies. CDTC’s STEP Model provides traffic simulation data that can be used to review various scenarios to establish procedures and processes should major events occur. This information is helpful for evacuation route planning during terrorist attacks and detours as a result of road or bridge closures from catastrophic flooding, major traffic incidents, power outages, etc.
**StormReady Communities**

Albany, Saratoga and Schenectady counties as well as the Town of Bethlehem and the City of Cohoes have been designated as StormReady Communities. StormReady is an official program of the National Weather Service which allows communities to apply for the designation if they meet the following criteria:

- Establish a 24-hour warning point and emergency operations center
- Have more than one way to receive severe weather warnings and forecasts and to alert the public
- Create a system that monitors weather conditions locally
- Promote the importance of public readiness through community seminars
- Develop a formal hazardous weather plan, which includes training severe weather spotters and holding emergency exercises.

**6. Regional Crash History and Trends**

CDTC reviewed the Region’s crash data to identify trends and common factors in crashes. Data analysis is the backbone of performance-based planning and programming. This review confirmed the Region’s safety priorities as intersection, road user behavior, age (younger and older drivers), vulnerable user (pedestrians, bicyclists and motorcyclists), lane departure and speed related crashes. These emphasis areas will be considered in the data reviewed in this white paper and in future CDTC data analyses and planning for safety.

Data sources include the Institute for Traffic Safety Management and Research’s (ITSMR) Traffic Safety Statistical Repository (TSSR), the New York State Department of Transportation’s (NYSDOT) Accident Location Information System (ALIS) and the National Highway Traffic Safety Administration’s (NHTSA) Fatality Analysis and Reporting System (FARS). This chapter presents a brief summary of Regional crash data, highlighting key facts and crash types that may be overrepresented in the data. More comprehensive reviews of crash data are available in the NYSDOT Strategic Highway Safety Plan, the NYS Pedestrian Safety Action Plan, CDTC’s Local Road Safety Action Plan and other safety plans discussed in Chapter 4.

**Fatal and personal injury crashes have declined but flattened out.**

CDTC’s Region has seen the total number of crashes, defined as all police reported fatal, personal injury and property damage crashes, vary over time. Between 2015 and 2017, fatal and personal injury crashes increased while in 2018 these types of crashes have declined as shown in Figure 12. While the data shows a large increase in total crashes in 2018, that data is skewed by a change in the electronic crash report form used by law enforcement, resulting in a significant increase in the number of property damage crashes being reported. The additional crash records could provide planners and engineers with more information on the number of crashes occurring, their locations and potential causes. Looking only at the most serious injury and fatal crashes, serious injury crashes increased between 2014 and 2017 until 2018 when they declined as shown in Figure 13.

**Fatalities can happen anywhere.**

Figure 14 shows the geographic distribution of fatal crashes in the Region. Although some high-volume traffic corridors can be identified on the map, fatalities tend to be random in nature and can happen anywhere at any time.
Figure 12: Regional Crash Data by Year

Data Source: ITSMR TSSR.
*Recent changes to the Police Crash Report form regarding reporting property damage crashes significantly increased property damage crashes in 2018, compared to previous years.
**Total crashes are police reported fatal, personal injury and property damage crashes.

Figure 13: Fatal and Serious Injury Crashes by Year

Data Source: ITSMR TSSR
Figure 14: Fatality Related Crashes
Per capita and per licensed driver death and injury rates have declined. The Regional death and injury rate by 100,000 in population (Figure 15) and by 100,000 licensed drivers (Figure 16) was compared to the State rates from 2011 to 2018. In both cases, the Regional rates showed a downward trend and were lower overall than the State rates. The gap between the State and Regional rates was larger per licensed driver than the per capita rate which showed the Region closely mirroring the State, with the gap between the State and Region increasing in 2018.

Figure 15: Death and Injury Rate/100,000 Population

![Figure 15: Death and Injury Rate/100,000 Population]

Source: ITSMR TSSR

Figure 16: Death and Injury Rate/100,000 Licensed Drivers

![Figure 16: Death and Injury Rate/100,000 Licensed Drivers]

Source: ITSMR TSSR
**Fixed object (lane departure) is the most common fatal and serious injury crash type.**

Fixed object crashes are the result of one vehicle striking a fixed or other object on or off the roadway and account for 28% of fatal and serious injury crashes in the Region (Figure 17). Fixed object crashes include a wide range of lane departure crashes with the three most common being collisions with trees, earth elements/rock cuts/ditches and guiderail.

Figure 17: Fatal and Serious Injury Crash Types (2011-2018)

![Pie chart showing crash types]

Source: NYSDOT ALIS

**The most common fatal crash types are pedestrian and fixed object (lane departure).**

Pedestrian and fixed object crashes account for approximately 57% of the Region’s fatal crashes (Figure 18). A pedestrian crash results when the first harmful event is any impact between a motor vehicle in traffic and a pedestrian. It does not include crashes where a pedestrian is injured after the initial vehicle impact. Pedestrian crashes are more likely to be fatal as they are the most vulnerable roadway user.

Figure 18: Fatal Crash Types (2011-2018)

![Pie chart showing crash types]

Source: NYSDOT ALIS
Unsafe speed is the most cited factor in fatal crash police reports. Crash reports in New York allow for up to two contributing factors to be noted for each “vehicle” involved in a crash. The vehicle can be the motor vehicle itself, the pedestrian, the bicyclist, etc. Contributing factor data was reviewed for fatal crashes between 2011 and 2018 as shown in Figure 19. While the available data only included police reported contributing factors, the factor cited most often was unsafe speed.

Figure 19: Police Reported Contributing Factors to Fatal Crashes (2011-2018)

Data Source: ITSMR TSSR

Speeding tickets are common. Ticket data was reviewed to highlight the most common types of tickets issued to motorists in the Region. The data reflects tickets issued to motorists for violations of the State’s Vehicle & Traffic Law. In 2018, over 170,000 tickets were issued to motorists in the Region with speeding representing 28.6% or nearly 50,000 of those tickets. While only 2018 data is provided in Figure 20, the top 10 violations have remained the same over the last five years.

Figure 20: Top 10 Tickets Issued in 2018

Data Source: ITSMR TSSR
Vulnerable users are at greater risk.
A review of who is being killed in motor vehicle crashes reveals that 22% of fatalities are pedestrians, 21% are motorcycle drivers and 3% are bicyclists, representing 46% of all fatalities between 2014 and 2018 (Figure 21). Vulnerable roadway users are at greatest risk of being killed on the roadway particularly where motor vehicle speeds are higher. Occupants of passenger cars and light trucks represent 50% of all fatalities in the Region.

Figure 21: Fatalities by Person/Crash Type (2014-2018)

Pedestrian and bicycle crashes are far more common in urban areas, especially cities.
The geographic distribution of pedestrian related crashes is shown in Figure 22, indicating that the Cities of Albany, Rensselaer and Troy have higher concentrations of pedestrian crashes. Areas outside of those cities with more concentrated development patterns or land uses that generate pedestrian activity are also experiencing pedestrian crashes. The concentration of crashes involving bicycles is also higher in the three largest cities as shown in Figure 23. These maps offer insight into where some of the Region’s most vulnerable road user crashes are occurring and highlight the need for prioritize pedestrian and bicycle safety in the Region’s cities.

Pedestrian crashes and sidewalks may be loosely correlated on local, low volume roads.
Most pedestrian crashes are located on major roadways with higher traffic volumes and a higher number of overall crashes. Many higher volume roadways also have sidewalks. However, on local low volume roads without sidewalks, pedestrian crashes are occurring regardless of urban, suburban and rural character (Figure 24). Far more analysis will need to be undertaken on this relationship but on streets with no or partial sidewalks, 60% of pedestrian crash reports indicated the pedestrian was walking along the highway against traffic. This percentage was closer to 80% if the pedestrian was walking along the highway with traffic. Additional data related to the presence of crosswalks would need to be collected to analyze the relationship of pedestrians crossing at intersections or at a midblock location.
Figure 22: Geographic Distribution of Pedestrian Related Crashes (2011-2018)
Figure 23: Geographic Distribution of Bicycle RelatedCrashes (2011-2018)
Figure 24: Pedestrian Related Crashes (2011-2018) Relative to Sidewalk Presence
Younger pedestrians and young male bicyclists are at greater risk. A review of pedestrian and bicyclist age indicates that younger age ranges are at higher risk of a fatal or personal injury crash (See Table 7). Pedestrians and bicyclists in age ranges 10-19 and 20-29 represented 39.5% of the pedestrian fatal or personal injury crashes and 55.4% of the bicycle fatal or personal injury crashes. This risk is significantly higher for male bicyclists as 85% of the bicyclists involved in these crashes were identified as male (Table 8). National research has found women’s rates of bicycle use to be less than men’s as women feel less comfortable cycling in mixed traffic environments where there is greater risk. Small vehicles such as scooters, etc. are also generally used more frequently by young men than women.

Table 7: Pedestrian and Bicyclist Age in Fatal and Personal Injury Crashes

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Number of Pedestrians</th>
<th>% of Total</th>
<th>Number of Bicyclists</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-9</td>
<td>199</td>
<td>6.6%</td>
<td>53</td>
<td>4.2%</td>
</tr>
<tr>
<td>10-19</td>
<td>509</td>
<td>16.9%</td>
<td>444</td>
<td>35.4%</td>
</tr>
<tr>
<td>20-29</td>
<td>682</td>
<td>22.6%</td>
<td>251</td>
<td>20.0%</td>
</tr>
<tr>
<td>30-39</td>
<td>400</td>
<td>13.3%</td>
<td>115</td>
<td>9.2%</td>
</tr>
<tr>
<td>40-49</td>
<td>366</td>
<td>12.1%</td>
<td>134</td>
<td>10.7%</td>
</tr>
<tr>
<td>50-59</td>
<td>408</td>
<td>13.5%</td>
<td>153</td>
<td>12.2%</td>
</tr>
<tr>
<td>60-69</td>
<td>266</td>
<td>8.8%</td>
<td>84</td>
<td>6.7%</td>
</tr>
<tr>
<td>70-79</td>
<td>127</td>
<td>4.2%</td>
<td>22</td>
<td>1.8%</td>
</tr>
<tr>
<td>80+</td>
<td>60</td>
<td>2.0%</td>
<td>0</td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Source: ITSMR TSSR

Table 8: Sex of Pedestrians and Bicyclists in Fatal and Personal Injury Crashes

<table>
<thead>
<tr>
<th>Sex</th>
<th>Number of Pedestrians</th>
<th>% of Total</th>
<th>Number of Bicyclists</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>1,466</td>
<td>47.7%</td>
<td>190</td>
<td>14.9%</td>
</tr>
<tr>
<td>Male</td>
<td>1,596</td>
<td>51.9%</td>
<td>1,085</td>
<td>85.0%</td>
</tr>
<tr>
<td>Unknown</td>
<td>13</td>
<td>0.4%</td>
<td>1</td>
<td>0.1%</td>
</tr>
</tbody>
</table>

Source: ITSMR TSSR

White, Non-Hispanic individuals are more likely to be killed as a pedestrian or bicyclist. The available fatality data between 2013 and 2017 was reviewed for race/hispanic origin. While 14% of fatalities were of unknown race and unknown hispanic origin, 9% of all fatalities involved someone who was non-white, non-hispanic and the overwhelming majority of fatalities (77%) were white, non-hispanic (Figure 25). When the data was further reviewed based on vehicle occupants versus non-occupants (bicyclists and pedestrians), 15% of all fatalities involved someone who was non-white, non-hispanic while 67% were white, non-hispanic (Figure 26). Crash data for personal injury crashes by race/hispanic origin is not available.

Pedestrian and bicycle crashes occur in areas with higher densities of minorities and low income people. Figure 27 illustrates the geographic relationship between pedestrian crash locations and census tracts with a higher density of minorities. While not mapped, the same geographic relationship exists with bicycle crashes. There is a higher density of minorities in the Region’s three largest cities which correlates with the concentration of bicycle and pedestrian crashes in cities.

highest densities of low income persons are also concentrated in the three cities where the larger numbers of pedestrian and bicycle crashes occur. For those with limited english proficiency, the higher density populations are more prevalent in suburban locations where there are less pedestrian and bicycle crashes.

Figure 25: All Fatalities by Race/Hispanic Origin (2013-2017)

![Figure 25: All Fatalities by Race/Hispanic Origin (2013-2017)](image)

Source: NHTSA FARS

Figure 26: Pedestrian and Bicyclist Fatalities by Race/Hispanic Origin (2013-2017)

![Figure 26: Pedestrian and Bicyclist Fatalities by Race/Hispanic Origin (2013-2017)](image)

Source: NHTSA FARS
Figure 27: Concentration of Pedestrian Crashes and Minority Population

Legend
% Minority
- 21.6 - 38.0
- 38.1 - 58.0
- 58.1 - 93.0

Pedestrian Crashes
Roads
Municipal Boundary

Data Sources: U.S. Census Bureau
2013-2017 ACS, NYSDOT,
NYS GIS Program Office

Disclaimer: Crash Data provided by the
New York State Department of Transportation's
Accident Location Information System

CDTC
December 2019
7. CAPITAL PROJECT FUNDING

The FAST Act requires CDTC to link its investment of Federal transportation funds to projects and programs that support the achievement of safety performance targets. CDTC’s Transportation Improvement Program identifies Federally funded transportation projects, all of which have considered safety in their development. For some projects, addressing a high crash location is the primary purpose while others may be proactively implementing low cost safety countermeasures to reduce crash risk. This section primarily focuses on Federal funding available through the Highway Safety Improvement Program however there are many other resources being poured into not only engineering strategies at all levels of government but also into education and enforcement initiatives that work together to keep the transportation system safe and secure.

Highway Safety Improvement Program (HSIP)

The HSIP is a core Federal-aid program with the purpose of achieving a significant reduction in fatalities and serious injuries on all public roads. HSIP funds are dedicated to safety projects with a small set-aside reserved for the State’s Railway-Highway Crossings Program. NYSDOT generally allocates HSIP funds to projects based on the SHSP emphasis areas. The NYSDOT Main Office administers 50% of the funding for statewide safety programs while the remaining 50% is provided to NYSDOT’s Regions through a formula based on crashes, miles of roadway and population. CDTC works with NYSDOT, CDTC’s other member agencies and the Region’s communities to evaluate and program HSIP projects on the Transportation Improvement Program (TIP).

The FAST Act specifies that projects funded through the HSIP be data driven, be consistent with the State SHSP and correct or improve a hazardous road location or address a highway problem (i.e. driver behavior). For its part, NYSDOT undertakes a data driven network screening process to identify sections of the State Highway System where the roadway displays unusual crash experience or exhibits risk factors for specific crash types. Each year the NYSDOT Regions perform highway safety investigations and recommend safety improvements on State roadway sections that are investigated through an Annual Regional Work Program. NYSDOT’s HSIP program guidance prioritizes the use of HSIP funds on the following categories of projects:

- New York State identified high crash locations on State owned roads.
- Systemic treatments focused on pedestrian improvements at uncontrolled crosswalks or signalized intersections.
- Systemic treatments to reduce lane departure crashes through centerline and shoulder rumble strips (any roadway).
- New York State identified special high crash locations such as wet road or other overrepresented crash types.
- Other Regionally identified safety need locations including those off the State highway system.

States are required to report annually on the progress being made to implement the HSIP. The HSIP report summarizes State progress in implementing HSIP projects, progress in achieving safety outcomes and performance targets and the effectiveness of the improvements.

The NYSDOT Main Office allocation of HSIP funds is primarily used to support local road safety projects and the development Action Plans to support implementation of the SHSP such as the Pedestrian Safety Action Plan. In the last five years, NYSDOT has issued two statewide calls for local safety projects. In 2015, NYSDOT issued a Statewide Safety Project solicitation for all public roads (both State and local projects), reserving approximately $90-$100 million in HSIP funds for projects. Five projects in CDTC’s Region were funded through this solicitation: NYSDOT CARDS (centerline
audible roadway delineators a/k/a rumble strips), Lark/Washington Safety Improvements (CDTA sponsored) and Madison Avenue Road Diet in the City of Albany, Brandywine Avenue Safety Improvements in the City of Schenectady and Safety Widening on Carman Road in the Town of Guilderland.

Pedestrian Safety Action Plan (PSAP) Implementation

To implement the New York State PSAP, NYSDOT set-aside approximately $110 million in statewide HSIP funds for pedestrian safety engineering projects. The Pedestrian safety program was larger than just the engineering portion as funds were set aside through other sources to finance programs through the Governor’s Traffic Safety Committee (enforcement) and the New York State Department of Health (education). The engineering projects funded through this program were designed to increase conspicuity of crossings and encourage drivers to yield.

NYSDOT committed to the investigation and treatment of high crash locations for pedestrians as well as low cost systemic improvements at roughly 2,400 signalized intersections and roughly 1,350 uncontrolled/midblock crosswalks on the State system in urban areas outside of New York City. Approximately $40 million was also targeted to local government PSAP projects since only 24% of the pedestrian crashes occur on New York State owned roads. State roads comprise 14% of the public road mileage in New York. Within NYSDOT Region 1 as of September 2019, 130 uncontrolled and 489 signalized locations have been treated with low cost pedestrian safety countermeasures, most of which have been implemented in CDTC’s four county Region. The local project solicitation funded the projects listed in Table 9 along with the 2019-2024 TIP set-aside for the NYSDOT PSAP projects.

Table 9: Pedestrian Safety Action Plan HSIP Projects in 2019-2024 TIP

<table>
<thead>
<tr>
<th>TIP ID #</th>
<th>Project Name</th>
<th>Description</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>RG140</td>
<td>New York State Pedestrian Safety Action Plan, State Roads, Phase 2</td>
<td>Improvements can include high visibility crosswalk markings, enhancing signals with extended crossing times, countdown timers, leading pedestrian intervals, pavement markings, signs, pedestrian refuge islands and light beacons.</td>
<td>$2.889 M in HSIP</td>
</tr>
<tr>
<td>A590</td>
<td>City of Albany PSAP</td>
<td>Pedestrian safety improvements at 20 uncontrolled crosswalks &amp; 12 signalized intersections</td>
<td>$1.486 M in HSIP</td>
</tr>
<tr>
<td>R327</td>
<td>City of Rensselaer PSAP</td>
<td>Pedestrian safety improvements at 6 signalized intersections</td>
<td>$0.500 M in HSIP</td>
</tr>
<tr>
<td>SA312</td>
<td>Clifton Park PSAP</td>
<td>Pedestrian safety improvements at three uncontrolled crosswalks &amp; five signalized intersections</td>
<td>$0.405 M in HSIP (total cost is $0.467 M)</td>
</tr>
<tr>
<td>S257</td>
<td>City of Schenectady PSAP</td>
<td>Pedestrian safety improvements at: 10 signalized intersections</td>
<td>$1.055 M in HSIP</td>
</tr>
</tbody>
</table>

Total HSIP: $6.335 M

CDTC Transportation Improvement Program (TIP)

To implement the New Visions 2040 plan, CDTC worked with its Regional partners to fund several safety and security specific capital projects in the 2016-2021 TIP. Some of these projects were funded through the HSIP and completed in the last three years. They are listed in Table 10. To evaluate these projects, CDTC adopted a new scoring system that more strongly considers the non-quantifiable benefits of proposed transportation projects, including safety. The new evaluation process consists of a benefit/cost ratio calculation (a quantitative score with a maximum of 50) and a merit
evaluation score (a qualitative score with maximum of 50) for a total maximum score of 100 for each project. The higher the total candidate project score, the higher the probability that the project will be awarded TIP funding.

Safety is a primary consideration in the selection of TIP projects at CDTC. The quantitative score (benefit/cost ratio) includes safety measured as a dollar value of the projected reduction in crashes per year with the project. The methodology for this calculation is consistent with NYSDOT’s HSIP Procedures and Techniques and relies on existing crash data and proposed countermeasures to calculate the safety benefit.

For the merit score, “Safety & Security” is a category worth 5 points and includes two components: an “Additional Safety Benefit Beyond Crash History” (3 points) and “Security and Resiliency to Natural Hazards and Human Caused Events” (2 points). Safety points are earned if a project pro-actively incorporates proven safety countermeasures that are known to reduce the risk of a fatal or serious injury crash. Security points are earned if a project implements an initiative identified in a county, state, or other hazard/security/emergency plan (i.e. improving a vulnerable evacuation route, enhancing access to hospitals, etc.) or if it makes a facility identified in a vulnerability assessment more resilient.

Table 10: 2016-2021 Transportation Improvement Program HSIP Projects Completed

<table>
<thead>
<tr>
<th>TIP ID #</th>
<th>Project Name</th>
<th>Description</th>
<th>Total Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>RG139</td>
<td>New York State Pedestrian Safety Action Plan, State Roads, Phase 1</td>
<td>Improvements included high visibility crosswalk markings, enhanced signals with extended crossing times, countdown timers, leading pedestrian intervals, pavement markings, signs, pedestrian refuge islands and light beacons.</td>
<td>$2.979 M in HSIP</td>
</tr>
<tr>
<td>A549</td>
<td>Madison Avenue Road Diet: North Allen Street to Partridge Street</td>
<td>Signal upgrades &amp; coordination, roadway configuration and bicycle/pedestrian improvements for a road diet.</td>
<td>$0.206 M in HSIP (total cost is $0.476 M)</td>
</tr>
<tr>
<td>A564</td>
<td>Madison Avenue: Partridge St. to Lake Ave./Delaware Ave.</td>
<td>Road diet, traffic signals and pedestrian improvements from Partridge St. to Lake Ave., mill &amp; fill, sidewalk replacement and curb replacement and/or resetting from Lark St. to Lake Ave., ADA ramps and high visibility crosswalks from Lark St. to Lake Ave.</td>
<td>$2.726 M in HSIP (total cost is $3.961 M)</td>
</tr>
<tr>
<td>S223</td>
<td>Schenectady City Pavement Preservation</td>
<td>Guilderland Avenue from Broadway to Schenectady City Line and Broadway from State Street to Millard Street: mill &amp; fill, crosswalks, ADA ramps &amp; pedestrian signals.</td>
<td>$0.914 M in HSIP (total cost is $1.700 M)</td>
</tr>
<tr>
<td>S229</td>
<td>Hamburg Street (NY 146): roundabout to the City Line</td>
<td>Install a median turning lane and sidewalks and intersection improvements.</td>
<td>$5.000 M in HSIP (total cost is $14.771 M)</td>
</tr>
<tr>
<td>T109</td>
<td>Washington/Western BRT Phase 1: Dove Street to Lexington Avenue</td>
<td>Bus stop work, enhanced lighting, raised medians, turn lanes, on-street parking, signalized mid-block pedestrian crossings, curb extensions and bump outs.</td>
<td>$0.770 M in HSIP (total cost is $2.120 M)</td>
</tr>
</tbody>
</table>

Total HSIP: $12.595 M

CDTC adopted a 2019-2024 TIP in June 2019 that includes funding for targeted HSIP projects as well as funding for projects that have a proactive impact on safety. The projects were selected based on the same evaluation criteria used in the 2016-2021 TIP. The HSIP projects in the 2019-2024 TIP are listed in Table 11.
Table 11: HSIP Projects on the 2019-2024 Transportation Improvement Program (non-rail)

<table>
<thead>
<tr>
<th>TIP ID #</th>
<th>Project Name</th>
<th>Description</th>
<th>Cost</th>
<th>Project Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>RG15</td>
<td>Durable Pavement Markings Set-Aside</td>
<td>Set-aside to support NYSDOT's pavement marking program. Numerous locations are treated as needed.</td>
<td>$1.400 M in HSIP (total project cost is $10.500 M)</td>
<td>State Set-aside</td>
</tr>
<tr>
<td>RG136</td>
<td>State Miscellaneous Pavement Maintenance Set-Aside</td>
<td>Includes but is not limited to crack sealing, single course overlays, mill &amp; fill, and limited related work for bundled work on several roads.</td>
<td>$2.000 M in HSIP (total project cost is $30.050 M)</td>
<td>State Set-aside</td>
</tr>
<tr>
<td>RG140</td>
<td>New York State Pedestrian Safety Action Plan, State Roads, Phase 2</td>
<td>Improvements can include high visibility crosswalk markings, enhancing signals with extended crossing times, countdown timers, leading pedestrian intervals, pavement markings, signs, pedestrian refuge islands and light beacons.</td>
<td>$2.889 M in HSIP</td>
<td>State Set-aside</td>
</tr>
<tr>
<td>A583</td>
<td>Carman Road Safety Improvements: Jessamine Lane to Old Carman Road</td>
<td>Two-way turn lane, new sidewalks &amp; pedestrian accommodations.</td>
<td>$1.206 M in HSIP</td>
<td>State Solicitation</td>
</tr>
<tr>
<td>A590</td>
<td>City of Albany PSAP</td>
<td>Pedestrian safety improvements at 20 uncontrolled crosswalks &amp; 12 signalized intersections.</td>
<td>$1.486 M in HSIP</td>
<td>State PSAP Solicitation</td>
</tr>
<tr>
<td>A602</td>
<td>I-87 Exit 6 Interchange Safety Improvements</td>
<td>Add a merge lane on both on-Ramps to I-87 from NY 7.</td>
<td>$1.998 M in HSIP</td>
<td>CDTC Solicitation</td>
</tr>
<tr>
<td>A603</td>
<td>Albany Shaker Road (CR 151), Wolf Road to Everett Road: Safety Improvements</td>
<td>Speed limit reduction, additional pedestrian improvements at select intersections &amp; a new traffic signal at Shaker Elementary.</td>
<td>$0.575 M in HSIP (total project cost is $0.860 M)</td>
<td>CDTC Solicitation</td>
</tr>
<tr>
<td>R327</td>
<td>City of Rensselaer PSAP</td>
<td>Pedestrian safety improvements at 6 signalized intersections.</td>
<td>$0.500 M in HSIP</td>
<td>State PSAP Solicitation</td>
</tr>
<tr>
<td>R340</td>
<td>Intersection of US Route 4 and I-90</td>
<td>Intersection safety improvements, roundabout anticipated.</td>
<td>$4.434 M in HSIP</td>
<td>CDTC Solicitation</td>
</tr>
<tr>
<td>SA304</td>
<td>NY 146/NY 146A Intersection</td>
<td>Safety improvements at the intersection, possible roundabout.</td>
<td>$4.356 M in HSIP (total project cost is $4.391 M)</td>
<td>CDTC Solicitation</td>
</tr>
<tr>
<td>SA312</td>
<td>Clifton Park PSAP</td>
<td>Pedestrian safety improvements at three uncontrolled crosswalks &amp; five signalized intersections.</td>
<td>$0.405 M in HSIP (total project cost is $0.467 M)</td>
<td>State PSAP Solicitation</td>
</tr>
<tr>
<td>SA319</td>
<td>Intersection of NY 146 and Clifton Country Road</td>
<td>Intersection reconstruction, signal rebuild, improved pedestrian accommodations, resurface and restripe from Tallow Wood to Plank Road.</td>
<td>$4.849 M in HSIP</td>
<td>CDTC Solicitation</td>
</tr>
<tr>
<td>S247</td>
<td>Brandywine Avenue, I-890 to State Street: Safety Improvements</td>
<td>Signal upgrades, pedestrian improvements, &amp; lane reconfiguration (modification to striping).</td>
<td>$1.134 M in HSIP</td>
<td>State Solicitation</td>
</tr>
<tr>
<td>S249</td>
<td>Nott Street/Balltown Road Intersection: Safety Improvements</td>
<td>Redesign intersection with new turn lane. Includes mill and fill of Nott Street: Balltown Road to Clifton Park Road.</td>
<td>$1.103 M in HSIP (total project cost is $1.353 M)</td>
<td>CDTC Solicitation</td>
</tr>
<tr>
<td>S257</td>
<td>City of Schenectady PSAP</td>
<td>Pedestrian safety improvements at 10 signalized intersections.</td>
<td>$1.055 M in HSIP</td>
<td>State PSAP Solicitation</td>
</tr>
</tbody>
</table>

Total HSIP: $29.390 M
Railway-Highway Crossing Program

The Highway-Rail Grade Crossing Safety Program, as it is referred to in New York State, is administered by NYSDOT and aims to reduce the frequency and severity of crashes involving vehicles and pedestrians at grade crossings. The Federal government has dedicated HSIP funding to States to improve safety and eliminate the hazards of highway-railroad grade crossings. New York’s program primarily focuses on the installation of warning devices such as signs, pavement markings, crossing gates, flashers, pedestrian crossing safety and interconnecting crossings with highway traffic signals. CDTC’s 2019-2024 TIP includes 10 railway-highway grade crossing projects for construction summarized in Table 12.

Table 12: 2019-2024 TIP Highway-Rail Grade Crossing Safety Projects

<table>
<thead>
<tr>
<th>TIP Number</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>R324</td>
<td>Howland Avenue (formerly Depot Hill Road): Grade Crossing Signal Upgrade</td>
<td>$0.305 M</td>
</tr>
<tr>
<td>R325</td>
<td>Old Schaghticoke Road: Grade Crossing Signal Upgrade</td>
<td>$0.625 M</td>
</tr>
<tr>
<td>SA308</td>
<td>Ashdown Road Grade Crossing Signal Upgrade</td>
<td>$0.290 M</td>
</tr>
<tr>
<td>SA309</td>
<td>Blue Barns Road (CR 110) Pan AM Railways Grade Crossing Signal Upgrade</td>
<td>$0.365 M</td>
</tr>
<tr>
<td>SA311</td>
<td>NY 9N Grade Crossing Signal Upgrade</td>
<td>$0.450 M</td>
</tr>
<tr>
<td>S251</td>
<td>Air National Guard Road: Grade Crossing Signal Upgrade</td>
<td>$0.295 M</td>
</tr>
<tr>
<td>S252</td>
<td>Van Buren Lane: Grade Crossing Signal Upgrade</td>
<td>$0.285 M</td>
</tr>
<tr>
<td>S253</td>
<td>Sacandaga Road (NY 147) Grade Crossing Signal Upgrade</td>
<td>$0.360 M</td>
</tr>
<tr>
<td>S254</td>
<td>Vley Road Grade Crossing Signal Upgrade</td>
<td>$0.360 M</td>
</tr>
<tr>
<td>S255</td>
<td>Freeman’s Bridge Road (NY 911F) Grade Crossing Signal Upgrade</td>
<td>$0.295 M</td>
</tr>
<tr>
<td></td>
<td>HSIP Rail Total:</td>
<td>$3.630 M</td>
</tr>
</tbody>
</table>

Security Projects

Although capital funding for projects with a primary purpose of security are limited in the 2019-2024 TIP, one project funded by CDTA does directly address security. TIP Project #T72: CDTA Safety and Security assigns $200,000 in FTA facilities funds annually to CDTA to incorporate FTA’s top 20 Security Program Action Items for Transit Agencies and recommendations from CDTA’s Facilities Study. Examples of security program actions include written security and emergency management plans that reflect antiterrorist measures and current threats, establishment and use of a threat and vulnerability resolution process, employee background checks, ongoing safety, security and emergency procedures training.

Non-HSIP Safety Projects

CDTC has made safety its top priority and all projects funded in CDTC’s TIP improve safety in some manner. Examples include bicycle and pedestrian projects, pavement projects, bridge projects and many others that are funded with resources other than HSIP funds. Table 13 provides a list of projects that received high safety benefit scores when evaluated and reflect the range of projects that are likely to improve the safety and security of the transportation system.
Table 13: 2019-2024 TIP Projects with Significant Safety Benefits

<table>
<thead>
<tr>
<th>TIP ID #</th>
<th>Project Name</th>
<th>Description</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>A295</td>
<td>NY 155/CR 157 New Karner Road Corridor Rehabilitation</td>
<td>Corridor improvements including safety and complete streets improvements from US 20 to Watervliet Shaker Road.</td>
<td>$5.521 M</td>
</tr>
<tr>
<td>A593</td>
<td>Henry Johnson Boulevard, Sheridan Avenue to Livingston Avenue</td>
<td>Mill &amp; fill, ADA-compliant pedestrian amenities for all sidewalks and crosswalks. Replace 1,000 square feet of sidewalk.</td>
<td>$0.965 M</td>
</tr>
<tr>
<td>A594</td>
<td>Lark Street Rehabilitation</td>
<td>Mill &amp; fill with ADA-compliant pedestrian amenities for all sidewalks and crosswalks. Replace 1,200 square feet of sidewalk.</td>
<td>$0.743 M</td>
</tr>
<tr>
<td>A596</td>
<td>Everett Road Bridge over I-90</td>
<td>Element specific repairs including widening shoulders and adding sidewalks.</td>
<td>$10.654 M</td>
</tr>
<tr>
<td>A597</td>
<td>I-787 Exit 3B to Exit 7 (NY 378) Pavement corrective maintenance</td>
<td></td>
<td>$4.677 M</td>
</tr>
<tr>
<td>A601</td>
<td>Delaware Avenue, Elsmere Avenue to Normans Kill Bridge</td>
<td>Complete Streets &amp; Road Diet</td>
<td>$3.640 M</td>
</tr>
<tr>
<td>R339</td>
<td>NY 2 (Congress and Ferry Streets) from 11th Street to the Congress Street Bridge Ramps</td>
<td>Corridor improvements including mill &amp; fill, restriping to one driving lane each, repair 50% of sidewalks, add curb extensions and bike lanes</td>
<td>$4.035 M</td>
</tr>
<tr>
<td>SA321</td>
<td>I-87 Exits 11-13 Resurfacing</td>
<td></td>
<td>$4.370 M</td>
</tr>
<tr>
<td>SA322</td>
<td>Saratoga Springs Sidewalk Missing Links Program</td>
<td>Add concrete sidewalk, ADA crosswalks, amenities and some curbing and drainage in several locations.</td>
<td>$1.900 M</td>
</tr>
</tbody>
</table>

8. Future Considerations

There are many proven engineering, education and enforcement countermeasures that improve safety for road users. However, as safety issues change and new issues emerge, there is a need to adapt existing countermeasures and develop new approaches to address safety problems. The following policies, programs and technologies should be monitored as to their potential impact on fatal and serious injury crashes.

Safe Systems

As illustrated in Figure 28, safe systems assume that no death is acceptable, humans are prone to injury and all parts of the transportation "system" (road design, vehicle technology, occupant protection, etc.) must work together to create a culture of safety. It recognizes that humans will make mistakes and the transportation system should be designed to reduce the risk of death or injury when a mistake is made. The responsibility for developing and implementing safe systems is shared and is not the sole responsibility of traffic engineers to make roads safer or vehicle designers to install more technology to keep drivers safe. Transportation system users are equally responsible and demonstrate that by making good decisions. Education and enforcement are necessary to reinforce good behaviors and eliminate poor behaviors.

The safe system approach doesn't replace traditional approaches to identifying safety problems but complements them by viewing the transportation system more holistically. The safe system approach is being employed by NYSDOT through its Pedestrian Safety Action Plan and NYSDOT intends to expand that approach to other major crash types including roadway departures and intersections. By consistently using safe system designs at all levels of government in all project types, the safety of the
Regional transportation system will improve over time. CDTC should continue to monitor safe systems approaches for their effectiveness and could consider developing more programs that address safety at a system level. For additional information on safe systems from the Institute of Transportation Engineers (ITE), visit the ITE webpage at https://www.ite.org/technical-resources/topics/safe-systems/

Figure 28: ITE Safe Systems Principles

Vision Zero

Vision Zero is defined as a strategy to eliminate all traffic fatalities and serious injuries while increasing safe, healthy, equitable mobility for all. More than 30 cities in the United States have committed to Vision Zero, including New York City and Ithaca. Safe Systems is closely tied to Vision Zero since one of the 9 components of a strong commitment to Vision Zero is prioritizing a systems-based approach. The systems-based approach focuses on the built environment and policies that influence the built environment and behavior. Vision Zero promotes safe streets, safe speeds, safe vehicles and safe people. As a safety framework, adopting Vision Zero principles, or those of similar programs such as Toward Zero Deaths or the Road to Zero, can commit the Region to thinking about safety more holistically and embracing both new and old approaches to reduce fatalities and serious injuries. Monitoring what works will be key as Vision Zero programs expand across the country.

Crash Data

Currently, NYSDOT is working on a project to update its crash data and analysis system by the end of 2020. The new system will be referred to as the Crash Location and Engineering Analysis Repository (CLEAR) system and will replace the current system known as ALIS (the Accident Location Information System). The CLEAR system will consist of a series of spatially enabled web applications with mapping and geospatial functionality. One of those applications will be known as CLEAR Safety and will support the planning, implementation, and evaluation of safety projects on both the State and local roadway systems consistently which is not possible today in ALIS.

Ultimately, CLEAR Safety will only be useful to local road owners if the data needed to undertake detailed crash analysis is present including detailed roadway characteristics, traffic volumes, crash reports and accurate location coding. With complete input data, CLEAR Safety will be a critical tool in network screening for location specific or system level crash problems and the identification of countermeasures that could reduce crashes on all public roads.
Vehicle Technology

Vehicle technology has been one of the most significant contributors to reducing the severity of crashes. Occupant protection systems (i.e. seat belts, child safety seats and air bags, etc.), driver assist systems (i.e. automatic braking, lane departure warning, blind spot monitoring, etc.) and vehicle design that improves crashworthiness (i.e. laminated windshields, crumple zones, padding, etc.) work together to significantly reduce the chance of a collision and improve the survivability of a crash. If these systems were in every vehicle on the road today and were turned on while the vehicle was in operation, significant safety benefits would be seen. Unfortunately, it will take many years for the vehicle fleet to turn over, to get currently optional safety features mandated and to control the cost of new vehicles with state-of-the-art safety systems so they are accessible to all.

A long-term technology that could significantly improve safety is fully automated vehicles. Automated vehicles are discussed in detail in the Environment and Technology White Paper but have a primary benefit of near zero crash related fatalities and injuries by removing the influence of human error (i.e. distracted, impaired and other poor driving behaviors) on crashes. Driver assist technologies (i.e. adaptive cruise control) available today are considered automation Level 1. There are a few Level 3 vehicles available which have automated driving systems performing all aspects of the driving task but with a human driver to take over when needed. There are no Level 4 or 5 fully automated vehicles on the road today. While they are being tested, they have yet to prove that they can detect vulnerable users such as pedestrians and bicyclists, can operate in all climates and can operate in complex driving environments like New York City.

Connectivity is an important input to realizing the full benefits and broad implementation of automated vehicles. Connected vehicles are a primary focus for the U.S. Department of Transportation’s Intelligent Transportation Systems Joint Program Office. Connected vehicle safety applications enable drivers to have 360-degree awareness of hazards and situations they cannot see. Through in-car warnings, drivers will be alerted to imminent crash situations, such as merging trucks, cars in the driver’s blind side, or when a vehicle ahead brakes suddenly.

The likelihood of automated and connected vehicles to reach their full potential is dependent on the airwave bandwidth capacity, allowing vehicles to communicate information to each other or to other infrastructure without interference. The Federal government had been reserving the 5.9 GHz band for transportation communications deemed critical for public safety. In 2019, the Federal Communications Commission changed its policy, allowing private companies to potentially gain access to the 5.9 GHz band which could reduce its capacity for automated and connected vehicle communications. This concern, along with concerns over cybersecurity, the protection of personal data, hackers and terrorism are creating new problems for researchers to resolve before these vehicles become widely available to the public.

E-Scooters and E-Bikes

New York State is evaluating the legalization of e-bikes and e-scooters. Small vehicles are most common in large urban areas for trips too far to walk but too short to justify the use of a personal car, ride hailing service, or transit. CDPHP Cycle!, the Region’s bike share program, is currently the only small vehicle transportation option available legally, primarily limited to the largest four cities. Research on small vehicle use indicates that they are most often used for social and recreation purposes. For e-scooters and e-bikes to be effective modes of transportation, they need infrastructure to operate safely. CDTC should monitor the safety impacts of e-bikes and e-scooters around the country to learn what is working and what is not. Adding small vehicles to the transportation system could increase the number of vulnerable users and the potential for crashes.
Emergency rooms in communities with e-scooters have reported an increase in scooter related injuries. Safety concerns have been acknowledged to be a major barrier to mass adoption and has led to debates over the need to regulate helmet use, the top speed of scooters and design changes including lowering the center of gravity to make scooters more stable. As riders can drop them anywhere after they complete their trip, scooters create tripping hazards, especially for those with disabilities. Geofenced drop-off areas near known user destinations, sited by using scooter GPS data, can make pedestrians safer. Riding on sidewalks is illegal in most U.S. cities, but scooter collisions do occur with pedestrians on sidewalks.

Automated Enforcement

Automated enforcement has the potential to support a safe transportation system. New York currently allows limited use of these technologies, but red light and speed camera systems have shown that they can be a deterrent to poor driving behaviors. The City of Albany is the only community in the Region authorized by the State in the Capital Region to use automated enforcement in the form of red light cameras. In addition, the FAST Act explicitly prohibits Federal HSIP funding from being used on automated enforcement technologies.

Marijuana Legalization

New York State is evaluating the legalization of recreational marijuana. CDTC is monitoring this legislation as it relates to safety and impaired driving. According to a 2019 study in Colorado by the Rocky Mountain High Intensity Drug Trafficking Area, since recreational marijuana was legalized in 2013, traffic deaths involving drivers who tested positive for marijuana more than doubled from 55 in 2013 to 115 people killed in 2018. In addition, the Governor’s Traffic Safety Committee (GTSC) has indicated the need for educational campaigns about the dangers of driving, walking and riding a bicycle or motorcycle while impaired on marijuana. GTSC is also supporting law enforcement with training on crash reporting and researching the availability of an effective roadside test.

Cybersecurity

Concern over cybersecurity has increased for transportation planners and system operators due to the increased use of digitally connected and automated systems, electronic payment systems and mobile devices. Hacking is always a risk and everything from traffic signals with Bluetooth devices to transportation data in the cloud can be vulnerable. Increasing cybersecurity awareness to those purchasing transportation system hardware and protecting data is important and will remain important for the foreseeable future. Passenger and customer privacy must be protected by safeguarding sensitive data.

Flooding

The Region has experienced increased frequency and duration of heavy rain events, flooding local roadways. This change in weather is expected to continue which is likely to increase flooding events in the future. Extreme events like Hurricane Sandy, Lee and Irene have increased in the last 20 years and have awakened the Region to an increased flooding vulnerability that may require additional attention in the years to come.

9. PRINCIPLES, STRATEGIES AND ACTIONS

Principles

The safety and security of the Region’s transportation system will remain CDTC’s top priority. It is possible that technology in 2050 will greatly contribute toward reducing if not nearly eliminating fatalities and injuries. However, the Region should not wait for these technologies to become widely available. Instead, the Region should support changes in the safety culture to design safe streets, encourage safe transportation system user behavior and to improve the security of the transportation system for all. Therefore, CDTC’s Regional Safety and Operations Advisory Committee is recommending the following new principles, strategies and actions for safety and security.

Safety Principle

Our Region will move toward eliminating transportation related deaths and serious injuries by 2050.

A “move to zero” will require creating a travel environment for all users that reduces risk and considers the context of communities. Through continued encouragement of best safety practices, evaluation of current data and monitoring of the effectiveness of implemented countermeasures, CDTC’s safety program will support the reduction of fatal and serious injury crashes. This will require a long-term commitment at all levels of government to shift policy and transportation infrastructure design to support a cultural change in how our transportation system is used and operated.

Security Principle

Protection of critical transportation infrastructure from natural disasters, acts of terrorism and cyberattack is of increasing concern. Scenario planning and computer modeling will support Regional security planning efforts.

CDTC will support Regional security planning efforts through modeling transportation system related scenarios, encouraging resiliency planning and providing technical support to all levels of government as they develop security plans. Through these efforts, CDTC will be available to assist with the reduction of threats to the Regional transportation system, transportation facilities, and transportation system users.

Strategies and Actions

Planning

1) Plan and implement complete streets. Designing safe, efficient, and multimodal street networks allows the Region’s transportation system users to have more transportation options and select non-auto modes for their trip. The context of streets is an important design consideration as the needs for users of major arterials in rural areas are different than community main streets. All modes and users of the transportation system should be considered in all contexts, providing safe access to transportation for all. Additional consideration will need to be given to children, seniors and people with disabilities. Increasing the range of safe transportation options may also increase the number of affordable options.
2) **Further develop the Regional crash profile.** CDTC should continue to review the Region’s crash data to look for common themes and risk factors in developing the Regional crash profile. This data should be used to strategically allocate resources to address the identified safety problems. Integrating non-traditional data into the profile from sources such as the NYS Department of Health will broaden the exploration of crash causes and risk factors and will allow equitable analysis of data across communities. Maintenance of the Regional crash profile will allow CDTC to track progress on the Region’s safety performance.

3) **Encourage adoption of Safe Systems and Vision Zero policies.** A key finding of CDTC’s Local Road Safety Action Plan is that a systems approach to safety works best at the local level. CDTC should encourage local governments, as an implementation action of that plan, to adopt Vision Zero policies. The policies can be tailored to the community context and crash patterns while also supporting implementation of safe systems planning. As a starting point, communities should consider establishing an interdisciplinary task force to discuss engineering, enforcement, and policy changes with guidance provided by CDTC.

4) **Encourage land use planning that supports safety and security.** CDTC should continue to encourage planning for new development and redevelopment that considers safety and security measures at the time a project is being reviewed, proactively impacting community safety. Mixed land use zoning can reduce vehicle trips and increase the viability of transit and non-auto transportation modes. More compact development can also influence vehicle speeds and the number and severity of crashes. Site design should consider driveway placement, access control, sidewalk infrastructure (along the streets and to/from the building), bicycle parking and access, transit stations and even the placement of a building on a site. This can lead to a safer and more secure transportation system, which, in turn, encourages more people to walk, ride bicycles, and use transit.

5) **Collaborate with safety and security partners.** CDTC should continue to collaborate with the Metropolitan Planning Organizations throughout the State and the nation on safety and security best practices. CDTC staff involvement on various State and local working groups and associations should also be continued including the NYS Association of Traffic Safety Boards, the Traffic Records Coordinating Council, Local Emergency Planning Committees, the NYSDOT Pedestrian Safety Action Plan Implementation Team and the Roadway Departure Action Plan development team. CDTC’s involvement with these initiatives ensures that local government concerns about the safety and security of the Regional transportation system are represented. In addition, CDTC should monitor the implementation and effectiveness of Local Road Safety Plans and collaborate with local government sponsors on best practices.

6) **Support goals in the NYS Strategic Highway Safety Plan and NYS safety action plans.** CDTC will support the implementation of the Strategic Highway Safety Plan by integrating its recommendations into New Visions 2050 and developing consistent planning and programming initiatives. NYSDOT will be developing State action plans for lane departure and intersection crashes over the next few years, complementing the Pedestrian Safety Action Plan. CDTC should coordinate with NYSDOT to assist local governments with the implementation of those plans.

7) **Create a Local Safety Project Development Program.** CDTC should explore the establishment of a Local Safety Project Development Program. Either through consultant or CDTC staff technical assistance, this program would allow CDTC to partner with a local government to undertake crash data analysis, road safety assessments, intersection analysis and before and after studies of capital projects. Projects would likely be identified through a competitive solicitation.

8) **Create an Incident Management Committee.** A Traffic Incident Management Committee should be formed that will meet regularly and assess management of recent incidents and plan for upcoming
events. Emergency service providers, State Police, NYSDOT staff and others should be included. The goal is to improve communication and coordination between operating agencies in the Region, improve incident detection, particularly at intersections, and improve traffic incident response and clearance practices. Improving work zone safety practices will also be considered.

9) **Support the creation of a more secure transportation system.** CDTC should continue to support the Local Emergency Planning Committees and other emergency management coalitions with data and resources to enhance the security of the Regional transportation system. CDTC should facilitate a Regional discussion around transportation cyber security to identify transportation system risks and vulnerabilities. CDTC should also compile data on transportation system vulnerabilities and undertake emergency/hazardous route planning or other transportation scenario planning for emergency management entities. Flooding and low-rise water crossings are of increasing concern.

10) **Develop a Climate Resiliency Plan & Vulnerability Assessment Tool.** Cross referenced in the Environment and Technology White Paper, CDTC should develop a Climate Resiliency Plan & Vulnerability Assessment tool for local governments. While there are Federal and State level resiliency tools and guidance, local assessments of vulnerable transportation infrastructure and the impact of potential hazards and climate stressors (urban flooding, changes in freeze/thaw, etc.) is needed. Additionally, guidance on maintenance and construction of infrastructure is needed to reduce vulnerabilities and make the Region more resilient. This initiative could include strategies for integrating green infrastructure into Federal aid state and local transportation projects and/or innovative construction techniques and materials.

**Funding**

1) **Encourage safety in all transportation projects.** Recipients of Federal, State and local transportation funding should continue making safety a priority in all maintenance, repaving, rehabilitation, reconstruction and construction projects for all transportation modes. The State should continue and enhance its safety practices by adding new information from current initiatives such as the State Strategic Highway Safety Plan and the emphasis area safety action plans (i.e. Pedestrian Safety Action Plan). Local road owners should consider the low-cost safety treatments identified in CDTC’s Local Road Safety Action Plan to pro-actively address safety and support State safety plans. Particular attention should be given to the six emphasis areas for the Region: intersections, road user behavior, lane departures, age-related crashes, vulnerable users and speed.

2) **Prioritize safety in all funding decisions.** CDTC should support the State and local governments with prioritizing safety in the Transportation Improvement Program decision making process. The State may be updating its Highway Safety Improvement Program procedures in the next few years and CDTC should consider how those changes might impact the Transportation Improvement Program project evaluation process for both the calculation of safety benefits and in the identification of pro-active safety treatments that reduce the risk of a crash.

3) **Continue funding for the Transportation Management Center and ITS technologies.** CDTC should continue to support funding for the Transportation Management Center, the Highway Emergency Local Patrol (HELP trucks) and new strategies, technologies or projects that can help reduce the impact of transportation related incidents and events.

**Engineering**

1) **Design streets for safety over speed.** Support local and State speed management efforts by designing streets for safety over speed. This work includes considering lane reductions, traffic calming
measures, bicycle and pedestrian infrastructure, roundabouts and other initiatives as appropriate to the roadway context. Community roadway design policy away should move away from the 85th percentile speed, which emphasizes the car over pedestrians, bicyclists and transit riders, toward target speeds. While high speeds make sense on interstates and other limited access roadways, speed should not be the top consideration for other roadway types. Safety should be the primary consideration. Designing local streets for safety over speed will improve the survivability of a crash.

2) Encourage Regional implementation of State and Regional Systemic Countermeasures. Coordinate with local governments to ensure information on State approved countermeasures is readily available so that they can be routinely integrated into local practices. Currently, systemic countermeasures are limited to centerline and shoulder rumble strips, pedestrian safety action plan treatments and pedestrian countdown timers. CDTC should work with the State to identify new pre-approved systemic countermeasures based on the Local Road Safety Action Plan emphasis areas.

3) Support State efforts to improve crash data systems. NYSDOT is updating its existing crash data analysis systems, a project expected to be completed in late 2020. The new system will include a custom suite of applications called the Crash Location and Engineering Analysis Repository (CLEAR) system. The CLEAR system will consist of a series of spatially enabled web applications with mapping and geospatial functionality to review and analyze crash and roadway data. CLEAR Safety will be the cornerstone of the application, supporting the planning, implementation, and evaluation of safety projects on the State and local system. The analysis that can be undertaken in CLEAR will only be as good as the data contained within the system including roadway characteristics, detailed crash reports and accurate location coding which will require multiple partners to build over time.

4) Continue to identify and address high risk locations and corridors. Through data analysis, CDTC should continue to work with the State and local partners to identify locations and corridors experiencing a high number of serious crashes. This reactive approach will support reducing crashes at locations with a crash history. The risk factors contributing to serious crashes at these locations and in these corridors should also be evaluated to determine if certain characteristics can be mitigated. Proactive implementation of low cost safety countermeasures can address safety and security concerns before they become problems.

5) Begin to plan for fully Connected/Automated Vehicles (CAVs). Identification of needed transportation infrastructure that will support full CAV will be of increased interest in the next five to ten years. These changes may be more important to transit and freight vehicles as CAV is likely to be deployed in those vehicles more quickly than for passenger vehicles. CDTC should monitor equity issues surrounding CAV deployment if the personal vehicle ownership model remains as it is today.

Education and Enforcement

1) Develop Capital Coexist into CDTC’s comprehensive safety education and awareness program. Capital Coexist began as a safety education program for motorists and bicyclists and expanded to include pedestrians. Given the need for similar programs for other crash types, CDTC should expand Capital Coexist to include initiatives that focus on all six emphasis areas and include a training program on safety data, tools and resources. The more information CDTC can provide to local governments through Capital Coexist, the more they can integrate that information into operations and maintenance practices, capital project development and into law enforcement awareness campaigns.

2) Provide law enforcement with data, educational tools and training to impact road user behavior. Use the data in the Local Road Safety Action Plan to inform law enforcement of the types of crashes occurring in the Region and to encourage them to apply for safety grants through the Governor’s Traffic Safety Committee. Provide tools and training for law enforcement when needed.
3) **Expand CDTC’s collaborations with advocacy groups, schools and other transportation safety stakeholders.** Collaborations with advocacy groups, schools, and other stakeholders to educate the public about traffic safety are essential. Transportation advocacy groups are easily the most effective safety stakeholders because they can lobby public officials on projects and deploy volunteers to survey residents at their homes or at transit stations. Public school systems which transport thousands of kids twice a day on local roads are also a potential safety stakeholder as well as entities representing healthy and safe communities. CDTC’s mini-grant program should be expanded, as resources allow, to support transportation safety initiatives for these groups.