

Safety Planning in the Capital Region

Introduction

The Capital District Transportation Committee (CDTC) is the designated Metropolitan Planning Organization (MPO) responsible for carrying out federal requirements for cooperative transportation planning and programming within Albany, Rensselaer, Saratoga, and Schenectady Counties in New York State. The Safe, Accountable, Flexible, Efficient, Transportation Equity Act, A Legacy for Users (SAFETEA-LU) was signed into law on August 10, 2005 and introduced a new safety planning factor for MPOs to incorporate into their planning and programming activities. The following describes this new planning factor, the various safety requirements under SAFETEA-LU and how CDTC approaches its incorporation into its transportation planning and programming efforts.

SAFETEA-LU Requirements

SAFETEA-LU mandates that additional attention be given to safety issues and establishes a new planning factor: ***Increase the safety of the transportation system for motorized and non-motorized users.*** The legislation includes a number of new programs and policies including financial support for improving the safety of the overall transportation system. The following summarizes the key provisions in the law for both CDTC as the MPO and for New York State which is required to prepare a great deal of material that the MPO plans and programs must be coordinated with.

MPO Requirements

The final rule on the Metropolitan Planning Process issued in February 2007 for SAFETEA-LU compliance notes several specific requirements with respect to transportation safety. First, “the metropolitan transportation planning process should be consistent with the Strategic Highway Safety Plan, as specified in 23 U.S.C. 148, and other transit safety and security planning and review processes, plans, and programs, as appropriate”. Second, “the metropolitan transportation plan should include a safety element that incorporates or summarizes the priorities, goals, countermeasures, or projects for the MPO contained in the Strategic Highway Safety Plan required under 23 U.S.C. 148.” And finally the MPOs will continue to develop strategies to incorporate safety into their transportation planning processes and Transportation Improvement Program development. Coordination of MPO plans and programs with those of the State is an essential component of SAFETEA-LU.

Traffic Safety Grant Programs

Many of the provisions of SAFETEA-LU for MPO planning and programming purposes are related to Title I of the legislation. However, Title II of the legislation, which specifically deals with Highway Safety Programs through the National Highway Traffic Safety Administration

(NHTSA), has a new program of significance to the MPOs. Section 408: State Traffic Safety Information System Improvements is a new incentive grant program which encourages States to “adopt and implement effective programs to improve the timeliness, accuracy, completeness, uniformity, integration, and accessibility of State data that is needed to identify priorities for national, state and local highway and traffic safety programs”. States meeting the requirements can receive grant money to implement improvements to their traffic data systems. The legislation has very specific requirements for both first time grant applicants and subsequent-year grant applicants including the establishment of a statewide traffic records coordinating committee and the creation of a statewide safety data and traffic records strategic plan. NHTSA monitors the progress of projects that the grant money is awarded to. Those projects are required to be included in the states’ Traffic Records Strategic Plan which is required under the law.

This grant program is critical to MPOs and other safety stakeholders as SAFETEA-LU puts great emphasis on a data driven safety process. Accurate, timely, complete, uniform, integrated and accessible data to all safety stakeholders allows for the effective use of all state, regional and local data in identifying problem areas and in developing countermeasures. Additional detail on this and all of NHTSA’s programs as part of SAFETEA-LU may be found on the NHTSA website at <http://www.nhtsa.dot.gov/>.

Roadways

SAFETEA-LU establishes the Highway Safety Improvement Program (HSIP) as a core program and dedicates funding to the states for innovative approaches to reduce fatalities and injuries on all public roads. The program requirements are flexible so that individual states can target their safety funds to their most critical safety needs. It is intended to be a strategic approach to improving highway safety that focuses on results. SAFETEA-LU outlines several new reporting requirements for the HSIP, all of which are to be data driven including the following:

- Develop and implement a Strategic Highway Safety Plan which establishes State goals, objectives and key emphasis areas for safety.
- Develop an annual Highway Safety Improvement Program report which describes the progress being made on implementing safety projects, the progress being made on reducing fatalities and injuries and assesses the effectiveness of safety projects.
- Develop an annual 5% Report which describes at least the top 5% of a state’s most hazardous locations.
- Develop an annual High Risk Rural Road report which identifies locations on roadways functionally classified as rural local, rural minor collector or rural major collector where the crash* rate exceeds the statewide average for that class of roadway or where the anticipated increase in traffic volumes will create a higher than expected crash rate for that roadway.
- Develop an annual Rail Highway Crossing Report which documents the effectiveness of the state highway rail grade crossing program.

** The term “crash” encompasses a wider range of potential causes for vehicular crashes than does the term “accident”. A majority of fatal crashes result from human error (intoxicated, speeding, distracted, or careless drivers) and, therefore, are not accidents. For the purposes of this report, the term crash is used except in cases where the term accident is used in the name of a program.*

Transit

SAFETEA-LU added language in several provisions regarding the safety of transit systems. Although many apply to passenger rail projects, the language reinforces the message that safety should be considered throughout the planning, programming and operation of transit systems. The Capital District Transportation Authority (CDTA), the regional transit agency for the Capital Region, completed a System Safety Program Plan in October 2006. The plan notes that all of CDTA's personnel are empowered with the responsibility of ensuring the safety of transit system customers, employees and property as well as the general public. It also outlines Goals and Policies for CDTA and its subsidiaries with respect to safety. CDTA establishes annual safety goals for the purpose of improving the safety of CDTA's employees and customers and information is circulated within CDTA regarding policies and programs that reduce crashes and incidents and help CDTA meet its safety goals. Education and training are essential elements of CDTA's safety program.

Bicycle and Pedestrian

A new safety program in SAFETEA-LU for bicyclists and pedestrians is the Safe Routes to School Program. This program is intended to encourage all children, regardless of physical ability, to walk and bicycle to school by making walking and bicycling safer and more appealing. Eligible activities include infrastructure related projects and non-infrastructure related projects such as public awareness campaigns, student education efforts and enforcement activities. This program has its own funding in the legislation and programming must be coordinated with the MPO Transportation Improvement Program.

Rail

SAFETEA-LU has a specific program targeting safety at rail-highway grade crossings, listed under the roadway section of this report. Most other safety programs of the rail industry are developed and maintained by the Federal Railroad Administration's Office of Safety. They publish a National Rail Safety Action Plan which was last updated in 2006 and addresses all aspects of rail safety ranging from the condition of the rails themselves to the types of freight being transported along the system.

Sea/Air

Although not specifically required in SAFETEA-LU as a safety provision, safety programs of sea and air travel are important to the safety of the overall transportation system. The movement of freight in and out of these facilities is a key aspect of their connection to highway and rail safety. The Port of Albany is the region's major seaport and the US Department of Transportation's Maritime Administration provides guidance on regulating the safety of US ports. The Albany Port District Commission operates the Port of Albany (Albany/Rensselaer) and has a number of safety responsibilities ranging from the safety of the ships themselves to the safety of the general public with respect to diseases from food or other products to the safety of the general public from hazardous materials. The Port District Commission works hard to ensure the safety of its facilities.

The Federal Aviation Administration (FAA) governs the safety of our nation's airlines and airports and provides guidance on a range of safety issues such as the safety records of aircraft, wildlife-aircraft strike data, and runway protection zone guidelines. FAA publishes an Administrator's Fact Book roughly three times a year that contains a number of statistics with respect to aviation safety. The Albany Airport Authority operates the Albany International Airport, the region's largest passenger airport, and has taken a pro-active approach to meeting FAA's guidelines, particularly with respect to the runway protection zone. The Airport has an excellent safety record and constantly strives to maintain that record by investing in its facilities for the safety of the traveling public.

New York State's Approach to Implementing SAFETEA-LU

New York State has been making steady progress on all of SAFETEA-LU's safety requirements since the law was enacted. The Main Office of the New York State Department of Transportation (NYSDOT) along with New York State's Governor's Traffic Safety Committee (GTSC) and the Institute for Transportation Safety, Management and Research (ITSMR) have led the state's compliance activities. GTSC is charged with managing the state's highway safety program and ITSMR is a non-profit organization affiliated with the University at Albany that facilitates the state's performance based highway safety planning process. More so than ever before, these three organizations have reached out to a wide variety of safety stakeholders at the federal, state, regional and local levels in a wide variety of disciplines following a safety conscious planning process that is comprehensive, system-wide, multi-modal and considers all aspects of transportation safety (engineering, education, enforcement and emergency services). The following summarizes the approach New York State is taking on implementing SAFETEA-LU's safety requirements.

Statewide Transportation Master Plan

In 2006, New York State adopted a statewide transportation master plan known as *Strategies for a New Age: New York State's Transportation Master Plan for 2030*. The plan outlines a long term, inter-modal vision for the future of the state's transportation system that is centered on five key emphasis areas known as priority results areas. One of these priority results areas is transportation safety. The goal statement articulated in the plan for safety is "to prevent transportation system related fatalities and injuries through cost effective management of risks". The plan outlines a number of strategies to help meet this goal in the 30 year timeframe of the plan. These strategies include:

- 1) Influencing driver behavior, which accounts for a significant portion of the traffic related fatalities and injuries in New York State through:
 - strengthening enforcement and safety awareness campaigns
 - enforcing the safety of public transportation, school and private carrier vehicles
 - improving driver performance on the road system through training opportunities and through implementation of a graduated licensing system for young drivers
- 2) Improving the safety of the state's transportation systems customers by making system safety related improvements such as:

- incorporating safety treatments as part of all highway designs such as signing, delineation, guiderail, drainage and roadside obstacle protection or removal
- promoting and incorporating traffic calming elements in projects where applicable
- sidewalks, pedestrians crossings, and wider shoulders will be integrated into the designs of many highway projects.
- further developing and deploying Intelligent Transportation Systems (ITS) technology (including compatibility with in-vehicle safety systems)
- increased use of shoulder rumble strips to reduce run-off-road crashes

New York State's Transportation Master Plan's approach to safety recognizes the need to be comprehensive and that complementary strategies must be employed to make progress on the most critical safety problems in the state. Although the traditional approach of identifying and addressing high crash locations will be maintained, the plan recognizes that progress must be made on driver behavior and therefore the need for aggressive education and enforcement efforts has been identified.

Strategic Highway Safety Plan (SHSP)

As of this writing, New York State's Draft *Strategic Highway Safety Plan* was available for public review. This plan, which is a data driven plan, identifies the following goals for New York State:

- **Reduce motor vehicle fatalities from 1,410 in 2005 to 1,285 in 2011**
- **Reduce the Fatal Crash Rate/100 Million VMT from 1.00 in 2004 to .90 in 2011**

As described in the Draft SHSP, the purpose of the plan is to "promote best practices and strategies that, if implemented, could have a substantial impact on reducing fatal and injury crashes". The plan notes that creating enhanced data analysis tools is vital to maintaining and improving the safety of the transportation system and that strengthened partnerships with Metropolitan Planning Organizations, authorities and local transportation agencies are vital in making overall progress on the states safety goals. After an extensive analysis of the state's various traffic records systems, the following seven emphasis areas for the SHSP were identified:

- **Driver Behavior (impaired driving, speeding and other aggressive behaviors and occupant protection)**
- **Pedestrians**
- **Large Trucks**
- **Motorcycles**
- **Highways**
- **Emergency Medical Services**
- **Traffic Safety Information Services**

New York State will need to make progress on these seven areas first in order for the state to reach the plan's safety goals. The plan offers some background information on each emphasis area as well as some data to support the need for improvement in these areas. The plan also articulates a wide variety of strategies to improving safety in these emphasis areas and also provides a number of performance measures for each strategy in order for the state to measure the effectiveness of a given strategy in improving safety. The plan finally offers an implementation strategy that notes that the principles and criteria used in developing the State Transportation Improvement Program (TIP) and the MPO TIP's must reflect the state's safety priorities as well as be consistent with the goals of the Statewide Transportation Master Plan and the MPO Long Range Transportation Plans. This plan was developed in collaboration with a wide variety of safety stakeholders including the MPOs.

Comprehensive Highway Safety Plan

Complementing the New York State *Strategic Highway Safety Plan* is a 2005 plan called the New York State *Comprehensive Highway Safety Plan (CHSP)*. This plan was developed and coordinated through the Governor's Traffic Safety Committee (GTSC) and articulates the many strategies and programs New York State has in place to reduce crashes and their severity. It is in effect a laundry list of many of the available countermeasures for the state to use in improving safety. The plan is built around the American Association of State Highway Transportation Officials' (AASHTO) 22 Strategic Emphasis Areas which can be summarized in the following six categories: drivers, special users, vehicles, highways, emergency medical services and information management.

There are a wide variety of programs and design techniques discussed in the CHSP including the NYSDOT STAR (Short Term Accident Reduction) Program which identifies and implements low cost safety improvements at intersections, the Safety Appurtenance Program (SAFETAP) which incorporates roadside safety issues into NYSDOT's preventive maintenance program, the Skid Accident Reduction Program (SKARP) which identifies and treats sections of pavement that experience high numbers of wet road crashes, innovative design treatments such as rumble strips, roundabouts, and pedestrian countdown timers, the existence of a wide variety of education and enforcement campaigns, and the use of context sensitive design and traffic calming techniques in the NYSDOT design process. This plan was developed in collaboration with a wide variety of safety stakeholders including the MPOs.

Highway Safety Improvement Program (HSIP) Report

NYSDOT completed its first HSIP report under SAFETEA-LU in 2006. Although this report focuses on the state highway system, the report acknowledges the need to address safety on all public roads and notes that future versions of the report will reflect that focus. NYSDOT's HSIP consists of the following four elements:

- 1) The identification of high-crash sites;
- 2) An engineering study of those sites and the development of cost-effective solutions;
- 3) The implementation of those solutions; and
- 4) The evaluation of the implemented solutions.

The Highway Safety Investigation (HSI) Program is a key element of the HSIP. Under the HSI Program, NYSDOT proactively identifies and treats high-crash locations, called Priority Investigation Locations (PILs), with proven engineering safety countermeasures. PIL locations comprise approximately five percent of the state highway system mileage, but account for one-third of all crashes occurring on those roadways. These programs effectively target NYSDOT's resources to the areas with the highest payoff in terms of optimizing the maximum number of crashes reduced at the lowest possible cost. The HSI Program produces cost-effective solutions to identified crash problems. These solutions range from simple non-capital work, such as traffic control and/or maintenance improvements, to capital safety projects and/or safety enhancements to other capital projects. The typical safety capital project undertaken by NYSDOT yields an average 35 percent reduction in total crashes. Statewide, approximately 70 percent of the recommendations from HSI studies are for lower-cost traffic control and/or maintenance improvements, while the remaining 30 percent are for safety capital improvements.

5% Report

New York State produced its first 5% Report in 2006 which is now available to the public through the Federal Highway Administration per SAFETEA-LU's requirements (the full report can be found at <http://safety.fhwa.dot.gov/fivepercent/06ny.htm>). The report documents the top High Accident Locations (HAL) in each NYSDOT Region on the state highway system based on the most recently available data, which in this case is for 2002. In addition to listing these top high crash locations, the report documents potential remedies to the safety problems being experienced as well as an estimate of the improvement cost. Many of the locations identified by NYSDOT in the CDTC region already had some kind of improvement project planned or constructed at the time of the report's production and for the remaining locations the state is monitoring the safety situation. See **Appendix A** for a complete list of the locations included in the 2006 *5% Report* for the Capital Region.

An important thing to note about this report is that NYSDOT acknowledges there are almost 114,000 miles of roadway in the state and that only 16,000 miles are under the state's jurisdiction, leaving other potential high crash locations out of this report due to a lack of crash and traffic volume data to calculate crash rates. To address this issue, the state included a section in the report that describes a schedule for upgrading crash data systems in the state to ensure that all public roads are considered in such analysis in the future. The primary methods to update these systems include:

- Implementation of a new electronic crash and ticketing system for use by police agencies at both the state and local levels known as TraCS (Traffic and Criminal Software). This effort is being led by the New York State Police.
- The development of a new crash data system known as ALIS (Accident Location Information System) which will enable the Department of Motor Vehicles (DMV) to provide GIS-based coding of all crashes in New York State regardless of their location on the street system. Current plans have the initial roll-out of this system scheduled for May 2007.

- NYSDOT is re-vamping the database element of SIMS (their Safety Information Management System) to perform safety problem identification and countermeasure analysis to be known as the Post Implementation Evaluation System (PIES). This data program should be available in 2008.

High Risk Rural Road Program (HRRRP)

In 2006, NYSDOT identified locations known as PILs (Priority Investigation Locations) per the requirements of SAFETEA-LU for the HRRRP for the first time statewide. This effort was not without its challenges. The Department does not have statewide volume data for the local road system making it difficult to calculate crash rates uniformly throughout the state. Ultimately, NYSDOT would like to create a GIS database for each county for highways designated as rural major and minor collectors, and rural local roads. In the meantime, a list of sites with the most frequent number of fatal and injury crashes (both intersection and mainline locations) was developed. NYSDOT provided each MPO a list of the locations within their jurisdictions for use in prioritizing projects and programming funds. To calculate the locations, NYSDOT used data available in SIMS (Safety Information Management System) from 1/01/03 to 12/31/05 for the rural major collectors, rural minor collectors and rural local roads which then were ranked by the level of severity of the crashes. Five locations were identified in the CDTC region, all of which are found in Saratoga County (see **Appendix B** for a list of these locations).

According to policy established by the NYSDOT main office, the HRRRP funds will be allocated to the NYSDOT Regions for programming as they deem appropriate. However, if the location is in an MPO region, the funds must go through the TIP and STIP programming process. The locations are to be handled in the same way that any PIL location is handled in the region in that the regions will examine the list of HRRRP locations, see if any match the Department's standard PIL list and see if there are any locations where low cost safety improvements could be implemented.

Traffic Records Improvements

A common theme to all of these reports is the need for current traffic safety records systems in New York State. New York State, per SAFETEA-LU requirements, has established an on-going, multi-disciplinary, statewide Traffic Records Coordinating Council. This group meets on a bi-annual basis and was essential in developing the *Traffic Safety Information Systems Strategic Plan: 2006-2009* along with the Governors' Traffic Safety Committee and the Institute for Transportation Safety, Management and Research. The purpose of this plan is to catalog the various traffic safety records systems in New York, to identify needed improvements and to develop a multi-year strategic plan to implement those improvements. Improvements to the traffic records systems were prioritized so that the limited resources could go to the traffic records projects with the greatest needs.

Each traffic record system was evaluated using six key performance measures. Per SAFETEA-LU, they are the timeliness, accuracy, completeness, consistency, accessibility and integration of the data. As a result of this plan, federal funding was received by New York State to implement some of the recommended improvement projects including improvements to the Accident

Information System which is the primary crash database in New York State and the Coding of Non-Reportable Property Damage Crashes which is a project within NYSDOT to eliminate the large backlog of unprocessed non-reportable crashes. The data will be made available through NYSDOT's SIMS. These safety data related projects, among many others, represent the initial phase of a multi-year update effort.

Traffic Volume Data

SAFETEA-LU has raised awareness to the safety problems on all public roads and for NYSDOT and other state agencies this has meant that they must pay greater attention to safety issues off the state system. However, as noted elsewhere in this report the data on the off state system is lacking, particularly the traffic volume data needed to calculate crash rates. NYSDOT is undertaking an internal project to evaluate the traffic volume data needs on the off-state system statewide to develop average crash rates for local roadways using the same process that is used for state owned facilities. As a first step, NYSDOT is determining what it would take to get a statistically valid traffic count sample size. This is an on-going effort.

Public Transportation Safety Board

NYSDOT created the Public Transportation Safety Board (PTSB) and gave it the authority to oversee the safety of the state's public transportation systems (both rail and bus) that receive state transit operating assistance. CDTA, which receives operating assistance from the state, must submit to the state notice of all fatal crashes, any crash with five or more injuries and any crash involving mechanical failure of the vehicle. The PTSB investigates and analyzes serious bus crashes and makes recommendations to reduce the possibility that a similar crash will occur. The PTSB also provides transit agencies guidelines with respect to preparing their System Safety Program plan which, as described earlier, has been prepared and adopted by CDTA. The guidelines for the plan are based on the size of the fleet. NYSDOT also has the Passenger Carrier Safety Bureau which is committed to ensuring the safety of the state's school bus fleet and other passenger buses. Operators are required to notify NYSDOT regarding a crash under certain conditions.

Rail Safety Bureau

NYSDOT's Rail Safety Bureau has as its mission to reduce the number, rate and severity of rail crashes in New York for both passenger and freight rail systems. There are three subsections of this Bureau including the Rail Safety Inspection Section, the Public Transportation Safety Board, and the Grade Crossing Safety and Regulation Section which has the specific mission to reduce crashes involving vehicles and pedestrians at highway grade crossings. The Grade Crossing Section administers the federal highway grade crossing elimination program for New York and identifies the state's priorities regarding grade crossings which are to:

- Address crossings that warrant interconnection with highway traffic signals
- Improve pedestrian crossing safety
- Mitigate deficient crossings
- Update existing active warning devices/signals at grade crossings

- Update passive public crossings
- Close/eliminate crossings

The state primarily focuses its efforts on the installation of warning devices at grade crossings including new gates, new warning signs and pavement markings, improved active warning systems, interconnection with adjacent traffic signals and a variety of other site improvements.

Truck and Motor Carrier Bureau

For trucks and motor vehicles, NYSDOT has the Motor Carrier Compliance Bureau which is charged with the task of administering the statewide Motor Carrier Safety Assistance Program (MCSAP). The primary goal of this program, which is federally funded, is to reduce the number and severity of crashes and hazardous material crashes involving commercial motor vehicles. The Bureau employs a number of field inspection techniques to achieve this goal including roadside truck and bus inspections, hazardous material carrier reviews, compliance reviews and other educational programs.

CDTC's Safety Planning

Since SAFETEA-LU became law, CDTC and the New York State Metropolitan Planning Organizations (MPOs) have been actively involved in the development of the various safety plans required by the legislation. The collaboration with our New York State safety partners is expected to continue as many SAFETEA-LU reports require updates and need to be evaluated to demonstrate the state's progress on meeting the identified safety goals. CDTC will continue to integrate the state's safety priorities, particularly the emphasis areas in the draft Strategic Highway Safety Plan, into its own planning and programming activities but intends to take these efforts a step further. The following highlights CDTC's current efforts regarding safety, CDTC's safety planning philosophy and a description of a new planning principle to be incorporated into the long range plan.

CDTC Safety Planning Philosophy and Planning Principle

The work completed by the state provides an excellent starting point for MPOs to develop their own safety policies and provides guidance on the range of issues to be considered in the MPO planning and programming processes. Since SAFETEA-LU requires that these state safety plans and programs be data driven, they have largely focused on traditional aspects of transportation safety such as the identification of high crash locations and the development of countermeasures. The state plans have also acknowledged the significant role that driver behavior plays in crashes, particularly the most severe crashes. However, CDTC believes that full consideration of safety must reach beyond reducing fatalities and serious injuries and should include the connection between land use and transportation.

The role of land use in transportation safety is an important one as the quality of our built environment impacts the overall quality of life in our communities and in our region. Lessons have been learned from the sins of the past. Construction of high speed surface arterials through urban environments (think NY 787: Cohoes Arterial) have led to poor pedestrian and bicycle

environments and disconnected communities. The lack of land use access controls on arterial roadways in suburban commercial districts as well as their higher speed, auto-oriented design (think Central Avenue) have also led to poor pedestrian and bicycling environments and have contributed to large numbers of crashes including pedestrian fatalities. Examples of what communities do not want for their local transportation systems are easily recognizable in the region and are often identified by name.

There is a growing body of research at the national level that indicates that smart growth policies can result in safer transportation systems through appropriate, or context sensitive, designs and slower speeds. CDTC's adopted principles state that the region can't build its way out of congestion and has a strong policy on capacity related projects. CDTC also supports as a core performance measure the availability of travel options in the Capital Region, options that typically only become viable with a more compact, mixed use form of land development. Built environments that are designed to encourage more walking and biking, and therefore transit use, slow motor vehicle speeds and increase the perception of safety to the public. The reduction in motor vehicle speed also reduces the likelihood of serious injuries or fatalities in crashes, particularly those of bicyclists and pedestrians and other vulnerable roadway users.

Although NYSDOT mentions context sensitive design, access management, traffic calming, the design of bicycle and pedestrian facilities and many others in their toolbox of highway design, NYSDOT has focused more resources on traditional countermeasures such as rumble strips, clear zones, and wide shoulders, to name a few. This philosophy has been emulated by those at the local level as well, particularly those with scarce resources to devote to safety. CDTC believes there should be better integration of transportation planning and community design in the Capital Region. The concept of "Complete Streets" -- a design philosophy that is inclusive of all modes -- is one that reflects CDTC's adopted principles, whether referred to by that name or by another. "Complete streets", as defined by the National Complete Streets Coalition (www.completestreets.org), are "designed and operated to enable safe access for all users. Pedestrians, bicyclists, motorists and bus riders of all ages and abilities are able to safely move along and across a complete street".

There is growing evidence that the regional population wants to walk and bike more and have safe places to do it. From the many recommendations in CDTC's 39 completed Linkage studies (another 16 are in progress or will be getting underway shortly) to regional trail initiatives and local sidewalk programs, there is growing support for more walkable communities.

In addition, there are a significant number of zero car households in the Capital Region. According to 2000 U.S. Census data, 11.32% of Capital Region households do not have a car. Although the concentration of households without cars is higher in urban areas, particularly the cities, there are carless households in suburban and rural areas as well. In fact, 5% of Saratoga County's households, the regions' most suburban/rural county do not have access to a car. This issue is increasingly critical as the regional population ages.

Today, there are many regional roadways that lack sidewalks, have limited or no space for bicycles and have unsafe pedestrian crossings and as a result, do not support the regional transit system as the street environment is not built for people. Integrating a "Complete Streets"

strategy in the long range plan coupled with CDTC's support for more mixed use, compact living environments (in other words, smart growth) will help to improve the safety of the overall transportation system.

This discussion has led CDTC to develop a new planning principle for its long range plan that is consistent with the goals, objectives and strategies in the New York State Strategic Highway Safety Plan. The proposed safety principle is to:

Improve the safety of the regional transportation system by creating a traveling environment that is consistent with the community context and provides a reasonable range of tolerance for all users of the system.

This principle reflects the more integrated approach CDTC envisions for its safety planning activities. It not only supports the continued use of traditional safety countermeasures on high speed facilities (clear zones, rumble strips, etc.), where appropriate, but also leaves room for the integration of the "Complete Streets" concept and innovative design techniques including the use of roundabouts, the use of "visual friction" or visual cues drivers get from the road environment to slow down, access management techniques, etc. as well as the education and enforcement efforts of a wide variety of local safety professionals who have a real impact on driver behavior. It also integrates the community context in the design process as appropriate designs can help encourage responsible driving behavior. Designing for a reasonable range of tolerance allows the transportation system to be forgiving such that when a crash does occur, lives are not threatened. This concept will help to reduce the level of risk for the region's most vulnerable users of the transportation system, particularly bicyclists, pedestrians, children and the elderly.

Safety Strategies and Actions

CDTC has been actively engaged in safety planning and programming since its inception. Under recent progressive federal transportation legislation, including SAFETEA-LU, the safety of the transportation system was elevated in its level of importance in state and MPO planning and programming processes. In 2005, CDTC became actively engaged in the newly formed New York State Metropolitan Planning Organizations' Safety Working Group (SWG). The safety working group is co-chaired by a staff member of the CDTC and represents the SWG on a number of statewide safety planning efforts including the Traffic Records Coordinating Committee, the Strategic Highway Safety Plan working group and the Accident Location Information System (ALIS) development team. The SWG has also submitted a statewide planning and research grant application for a uniform safety audit process to be developed for use by the MPOs in their project programming activities. The involvement of CDTC staff in these efforts has given CDTC and all of New York State's MPOs an opportunity to be active participants in New York State's safety activities.

Representing the MPOs through the SWG on statewide safety issues is just one aspect of CDTC's safety activities. The following briefly describes safety strategies incorporated into CDTC's plan.

Core Performance Measurement. *New Visions 2025*, CDTC’s current long range transportation plan, includes safety as one of its goals. As stated in the plan, the goal for safety is to reduce the per capita cost of crashes. This goal is articulated as a core system performance measure and is measured in terms of what the estimated costs to society are of transportation crashes. This performance measure will be refined in the coming months, but has long served CDTC by directing attention to safety aspects of all planning, programming and project development decisions.

Transportation Improvement Program (TIP) safety consideration. Under CDTC’s integrated process, available funding is directed to categories of projects (from the 17 budget elements in the New Visions plan) as necessary to achieve a balanced program of projects. This has led in the past decade to unprecedented investment in pedestrian and bicycle accommodations, technology and traffic management services, infrastructure upgrades, transit investment and urban reconstructions – all with safety components. Further, CDTC’s procedures require that transportation projects competing for federal transportation funds all must be evaluated for their safety benefits. Safety benefits are measured in the dollar value of the projected reduction in crashes each year. The annual crash costs and crash reduction factors are provided by NYSDOT and are applied to each project based on the identified set of improvements in order to calculate safety benefits. The safety benefit is used in the benefit/cost ratio which is used to prioritize proposed projects as the final step in the project evaluation process.

As a result, there are substantial resources dedicated to safety or safety related regional projects in the Draft 2007-2012 TIP. **During the 2007-12 TIP Update, CDTC members reaffirmed their significant commitment to safety by reinvesting in all existing regional set-asides, while establishing two new safety-specific programs: a regional set-aside for intersections, queue jumpers and roundabouts; and a set-aside for safety actions on non-state roads.** The primary safety programs on the TIP are listed below, along with the 2005-12 (seven-year) funding commitment.

RG23: Traffic Signal Set-Aside	\$ 3.066 M
RG28: Intelligent Transportation System Set-Aside	5.780 M
RG37: Highway Emergency Local Patrol (HELP) Program	3.850 M
RG37A: Traffic Management Center (TMC)	20.500 M
RG40: Grade Crossing Safety Improvements Set-Aside	3.250 M
RG41: SPOT Improvements for Bicycle and Ped Access Set-Aside	0.500 M
RG104: Intersections, Queue Jumpers and Roundabouts Set-Aside	5.000 M
RG105: Safety Set-Aside for Non-State Roads	7.520 M

These selected projects total nearly \$50,000,000. In addition, previous SPOT Improvement Program commitments have been made to 37 additional bike and pedestrian access projects. Along with these projects, there are hundreds of specific highway and transit projects listed in the draft TIP which incorporate safety improvements as part of the project scope. CDTC will continue to work NYSDOT, local governments and other safety stakeholders to ensure safety is appropriately addressed in the TIP.

Community and Transportation Linkage Planning Program. This is CDTC's unparalleled local planning assistance program which links land use and transportation planning. Depending on the study context, safety is incorporated into the planning process either through a comprehensive review of safety data in a corridor or study area or through planning for smart growth and mixed use, compact development patterns which encourage a more sustainable transportation system and offers system users safe options for their travel, particularly bicycling and walking. Linkage studies are not traditional corridor studies. They are intended to be progressive conceptual strategic planning efforts that relate the land use and transportation system design concepts to the context or future vision of the community. Since 2000, CDTC has advanced 55 Linkage studies with total investment exceeding \$3,000,000, reflecting the incorporation of "integrated planning" as a budget element of the New Visions plan. CDTC has led work on integrated, safety-conscious regional/local planning in 30 municipalities in these few years. The Linkage program remains a key strategy of New Visions.

Implementers' Training in Integrating Transportation and Community Planning and Design. CDTC chaired a steering committee and contracted with consultants representing the New York State Metropolitan Planning Organizations' on a shared cost initiative to articulate the concept of integrated design and catalog exemplary projects that followed this approach in their planning and development processes. This effort demonstrated that transportation and community facilities which are properly designed and integrated can have substantial public safety benefits. On the development side, locating stores, offices, and housing in walkable neighborhoods was found to enhance overall community safety. On the transportation side, reduced street widths and traffic calming measures were found to slow automobile traffic in neighborhoods to safer levels for bicyclists and pedestrians, especially for children and the elderly. Training of transportation and land use officials will follow in the coming months and years.

Establish a Safety Working Group. CDTC will establish a safety working group which will serve as the regional forum on transportation safety issues. This group, which will include representatives from state and local governments as well as enforcement, education and emergency service stakeholders, will be charged with the task of further articulating CDTC's safety planning program including:

1. Develop an appropriate performance measure for the long range plan.
2. Develop a new or refined process to evaluate candidate transportation improvement program projects for their safety benefits, including safety set-aside projects.
3. Work with NYSDOT Region 1 and the Adirondack-Glens Falls MPO on developing a process to program High Risk Rural Road funds when they are available.
4. Develop a catalog of innovative safety treatments using cutting edge resources to help guide local communities on the options available to them. This may include traditional countermeasures (signs, rumble strips, guiderails, etc.) as well as innovative techniques such as complete streets, roundabouts, traffic calming, access management, walking and bicycling facilities, etc. which all seek to reduce fatalities and injuries on all public roads in the Capital Region. Facility function and the community context will also be considered in the articulation of appropriate countermeasures.

5. Evaluate CDTC's role in education and enforcement activities and if/how resources can be allocated to pursue those activities. Issues related to driver behavior will be a key component of the evaluation.
6. Work with emergency service providers on how best to incorporate their issues and concerns into the transportation planning process.

Development of a Formal Safety Management System. CDTC has had the development of a safety management system on its work program for some time. For this exercise, CDTC has relied on the NYSDOT Safety Information Management System (SIMS) crash data which includes non-reportable crashes and the county safety summaries prepared by ITSMR for the Governors' Traffic Safety Committee. This project has been challenging over the years due to issues related to data access, the timeliness and quality of the data, and the availability of data on the local road system but is on-going. Improvements planned by the state for safety data in 2007 through the implementation of the Accident Location Information System (ALIS) should enhance CDTC's access to safety data. In addition, NYSDOT and the Department of Motor Vehicles have been improving the timeliness of the data and reportable crashes are now available in their entirety through the end of 2006. The central elements to the Safety Management System are:

- 1) Collect, analyze and share available regional safety data with regional safety partners. CDTC plans to create a regional safety profile to help establish problem areas including locations experiencing a high number of crashes, particularly a high number of severe crashes, as well as to document trends related to driver behavior. This will help CDTC and the regions' safety stakeholders focus their safety planning resources on key issues. Particular focus will be given to the local road system. The safety needs of specific groups such as pedestrians and bicyclists, the elderly and disabled, motorcyclists and large trucks, including the other emphasis areas identified in the New York State Strategic Highway Safety Plan will be evaluated. In addition, the relationship between land use and transportation will be evaluated through safety data in before and after analysis of regional transportation projects. The data will feed into the work of the safety working group and will be used in both planning and programming activities. To jump start the process, data obtained from the Governor's Traffic Safety Committee was used to assemble a brief regional safety profile to help better understand the regional priorities for safety. See **Appendix C** for a summary of some of that data.
- 2) Pilot Safety Projects. Since early 2006, CDTC has been working with Rensselaer County on a pilot safety data project. The purpose of the project is to review all available safety data files related to the county and create a detailed crash profile on all public roads. The timeliness and quality of the data on the local road system, particularly with respect to geographic coding, has been problematic. The only way to currently get the geographic location of a local road crash is to obtain the crash report, and even that geographic description can be somewhat vague. This lack of geographic coding, which should be resolved once NYSDOT implements its ALIS project, limits the level of analysis one can undertake on the

local road system, particularly in identifying problematic locations and countermeasures. CDTC will continue to work on this pilot effort to develop a manageable safety data analysis process for the other three counties in the region.

- 3) Use of Regional Geographic Information System (GIS). CDTC's GIS contains crash data for both the state and local road systems from roughly 1996 through 2001. This data set is currently being updated to reflect all available safety data from 2002 to 2006. This data was extracted from the NYSDOT SIMS and is used for many of CDTC's data analysis and mapping activities.

Emphasis on Arterial Management. The Traffic/Land Use Conflict Index, which measures the degree to which the close proximity of numerous driveways for commercial or residential land uses increase the number of conflicts on the adjacent roadway, is an important measure relative to safety. The more conflict points there are on a roadway for drivers, the more likely an incident will occur. CDTC uses this index in its planning activities, particularly those that relate to access management.

Operations/Intelligent Transportation Systems (ITS). ITS deployment in the Capital Region has been supported by CDTC as a way to improve traveler information, particularly with respect to incidents on the Interstate system and to improve the time it takes for emergency personnel to reach and clear a crash scene, thereby improving the overall operation of the highway system. A recently formed operations committee will be looking at issues such as incident management and how the Capital Region can better manage its higher end facilities when an incident occurs. In addition, the investigation of innovative technologies such as red light running cameras are a key aspect of ITS for the future in the Capital Region.

Bicycle and Pedestrian Planning. CDTC's Bicycle and Pedestrian Task Force meets monthly and has participated in a number of safety related activities such as the development of bicycle/pedestrian crash maps and data analysis, the development of the bicycle and pedestrian priority network, the development of CDTC's SPOT Improvement program for bicycles and pedestrians, participation in safety education and enforcement campaigns, participation in walkable communities workshops, research on right turn on red safety problems and data collection for the pedestrian infrastructure index, the sidewalk inventory and bicycle level of service. This group will also be essential in the forthcoming planning work for the Safe Routes to School program once NYSDOT develops guidance on the program.

Continue to participate with the NYS MPOs Safety Working Group. CDTC, who has been an active participant on the New York State MPOs Safety Working Group (SWG), will continue to devote staff effort to this important task. The SWG has been an effective mechanism to communicate and coordinate the safety activities of New York State with the MPOs and other units of local government. CDTC will represent the SWG on statewide safety committees as needed including our continued involvement in the update of the state's Traffic Records Strategic Plan, the Strategic Highway Safety Plan and continued involvement in the development of the Accident Location Information System (ALIS). CDTC will also be involved in the initiative to develop statewide crash rates for non-state owned local roads as well as in the NYS MPOs planned state planning and research program project on road safety audits.

Conclusion

SAFETEA-LU's new safety planning factor has forced New York State and CDTC to re-evaluate their safety programs and make improvements. Much has been accomplished since the legislation became law and much work still needs to be done. However, CDTC's integrated approach to safety in its planning and programming activities should help the state in its quest to reduce motor vehicle related fatalities and injuries on all public roads. Engineering is just one aspect of this integrated approach and education and enforcement efforts must be a part of our planning and public outreach efforts. In addition, CDTC believes advancements in motor vehicle technology will also go a long way to saving lives. CDTC plans to make great strides in its safety planning and programming activities in the years to come.

Appendix A: Five Percent Report Highway Segments/Intersections Exhibiting the Most Severe Safety Needs Year 2006

Location (Reference Markers)	Potential Remedies	Estimated Cost	Impediments to Implementation	Comments
I787 SB to I90 WB Ramp (90I11013014 to 90I11013016)	Build additional lane for weave (rear end crashes at yield)	\$2.0M	None.	HSI #1-1-0346 completed 1/8/01. Project completed 2004.
Hoosick St (7 14091004 to 7 14091005)	Signal coordination project - new controllers, new detectors, signals rebuilt	\$350,000	None.	HSI #1-4-0277 completed 8/21/97. Project completed 2002.
SB Northway off ramp to Crossgates Mall (910F11011003 to 910F11011007)	This location is the subject of an on-going safety evaluation by Crossgates, Town of Guilderland Police, NYSDSP, and NYSDOT. Safety measures implemented to date include installation of the three color signal at the top of the SB exit ramp, a "force-off" loop and detector installed on the exit ramp, another detector with VMS board to warn motorists that traffic is backed up on the ramp, VMS boards on I87 and I90, prohibition of left turns on the perimeter road into the lower JC Penny's driveway, handouts at the Thruway tollbooths indicating alternate routes to the mall, reduction in the speed limit, aggressive driving enforcement by the State Police, and extensive media coverage during seasonal shopping periods.	\$0	None.	HSI #1-1-0399 completed 12/16/03. Resurfaced in 2002. On-going safety evaluation corridor.

Appendix A: Five Percent Report Highway Segments/Intersections Exhibiting the Most Severe Safety Needs Year 2006

Location (Reference Markers)	Potential Remedies	Estimated Cost	Impediments to Implementation	Comments
Washington Ave Ext. at Fuller Rd. (910D11011027 to 910D11011029)	Reduce speed limit, signs, flashing beacons coordinated with rebuilt signals	\$30,000	None.	HSI #1-1-0398 completed 10/4/00. Project completed 2005.
Vandenberg Ave at CR 65 Bloomingrove Rd and Williams Rd. (HVCC) (4 14011067 to 4 14011067)	Reconstruction	\$4.377M	None.	Crash history study completed 8/3/98. Project completed 2004.
US 9 at Sweet Rd.	Reconstruct and realign intersection with 3 color traffic control signal	\$350,000	None.	HSI #1-7-0099 completed 11/7/95, crash history update 10/3/97. Project completed 2000.
Central Ave at Colonie Plaza/CR 153 New Karner/Vly/Old Karner (5 11141028 to 5 11141032)	Signs and pedestrian accommodations, aggressive driving corridor (starting May 2006)	\$4,000	None.	HSI #1-1-0413 completed 4/1/03. Signage competed 2003. On-going safety evaluation corridor.

Appendix A: Five Percent Report Highway Segments/Intersections Exhibiting the Most Severe Safety Needs Year 2006

Location (Reference Markers)	Potential Remedies	Estimated Cost	Impediments to Implementation	Comments
Western Ave. (US 20) at Crossgates/Church/ Northway (20 11201105 to 20 11201109)	Installed signs, focus of coordinated " Aggressive Driving Corridor " 2001 and 2003.	\$0	None.	HSI #1-1-0363 completed 10/7/04. Resurfaced 2002 with pavement marking changes, signal improvements and pedestrian accommodations. On-going safety evaluation corridor.
CR 20 Pashley Rd. (50 16011050 to 50 16011050)	Field Investigation and crash report analysis revealed crashes miscoded to this location, and that crashes are occurring along a longer segment of mixed residential and commercial development rather than solely at this location. A SB protected left turn phase was installed further south several years ago.	\$0	None	HSI #1-6-0006 completed 11/15/04. We are monitoring this location as we receive more current crash data.
Western Ave. (US 20) at Schoolhouse Rd/ Stuyvesant Plaza/ Fuller Rd (20 11201110 to 20 11201114)	Signal rebuilt with West Bound left turn arrow, installed signs, "Aggressive Driving Corridor" 2001 and 2003	\$75,000	None	HSI #1-1-0446 completed 4/10/03. Project completed June 2005. On-going safety evaluation corridor.
NY 2 - Latham Circle (7 11081034 to 7 11081040)	STAR project. Signs, striping, resurfacing, minor geometric improvements to improve movement of traffic in circle. Improvements create movements more in alignment with characteristics of a Roundabout.	\$475,000	None	HSI #1-1-0452 completed 2/15/02. Project completed October 2002.

Appendix B
High Risk Rural Roads – Crash Summary for CDTC

Fatal, Injury & Property Damage Crashes -- Functional Class 07, 08, 09* -- Crash Data 1/01/03 - 12/31/05
(Note: All locations are found in Saratoga County)

Location Name	Fatal Crash	Injury Crash	Property Crash	Total Crashes	Severity : Average Weight	On_PIL**
CO1 Stony Creek Rd North of Hadley Hill Rd	0	5	3	8	2.25	0
NY 147/CO45 Ballston Rd	0	6	4	10	2.20	0
NY 50/Edee Rd	0	5	7	12	1.83	1
CO59 Middleline Rd North of Mann Rd	0	4	7	11	1.73	0
CO1345 Pruyn Hill Rd East of Johnson Road	0	3	6	9	1.67	0
Totals	0	23	27	50	1.94	0

* 07 = rural local, 08 = rural minor collector and 09 = rural major collector

** On PIL (Priority Investigation Location) : All Crash PIL, 2005

Appendix C Capital Region Safety Profile

Introduction

As a starting point in CDTC's safety planning activities, CDTC staff has begun developing a regional profile of safety issues as indicated by available safety data. Currently, CDTC relies on the safety data provided by the Governor's Traffic Safety Committee (GTSC) via the Institute for Traffic Safety, Management and Research (ITSMR) and the New York State Department of Transportation. The most recent set of State and County summary reports were published by GTSC in February 2007 and summarize the best available traffic safety data for 2005. These reports contain both crash and ticket data summaries and provide county wide data for use in CDTC's regional planning activities. A very brief summary of that data is provided below.

Fatality Data

The number of persons killed in fatal Capital Region crashes is roughly 4% of the total statewide. Since the year 2002, fatalities have declined in the region but the trend is not linear, indicating that only minor progress is being made in reducing fatalities. Statewide between 2002 and 2005, the number of fatalities declined by nearly seven percent. For the Capital Region as shown in Table 1, the greatest number of fatalities are occurring in Saratoga County which is the regions' second most populous county and has the most roadway miles.

**Table 1
2005 Fatalities in New York State and Capital Region Crashes**

Category Totals	All NYS Crashes	Capital Region	Albany County	Rensselaer County	Saratoga County	Schenectady County
<i>Persons Killed (1)</i>	1410	57	13	15	21	8
Drivers Killed	770	35	9	9	14	3
Passengers Killed	264	14	2	5	3	4
Pedestrians Killed	328	7	2	1	4	0
Bicyclists Killed	47	1	0	0	0	1
Other	1	0	0	0	0	0
(1) Includes pedestrians, bicyclists and all other non-vehicle involved persons as well as vehicle occupants regardless of seating position.						

Crashes by Jurisdiction

The number of crashes occurring on public roads by jurisdiction in New York is important as it offers some indication as to where crashes are occurring. Although it varies by County, state routes are the major location for Capital Region crashes. In Albany and Rensselaer Counties, state routes are followed by municipal streets and town routes while in Saratoga County, state routes are followed by Town routes and then municipal streets. In Schenectady County, being a much more urban county than the others, crashes on municipal streets come first, then crashes on state routes followed by crashes on town routes. This chart, however, gives no indication of where the most severe crashes are occurring on the road systems in each county.

Table 2
2005 Crashes by Jurisdiction

Category Totals	Albany County		Rensselaer County		Saratoga County		Schenectady County	
	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total	Number	Percent of Total
Total	4,926	100.0	1,774	100.0	2,404	100.0	1,928	100.0
State Routes	1,663	33.8	744	41.9	951	39.6	532	27.6
County Routes	208	4.2	141	7.9	303	12.6	126	6.5
Town Routes	622	12.6	224	12.6	521	21.7	244	12.7
Municipal Streets	1,546	31.4	536	30.2	323	13.4	821	42.6
Parkways	3	0.1	0	0.0	0	0.0	1	0.1
Thruway	188	3.8	23	1.3	0	0.0	42	2.2
Other Interstates	620	12.6	70	3.9	257	10.7	113	5.9
Unknown	76	1.5	36	2.0	49	2.0	49	2.5

Alcohol Related Crashes

Alcohol is a significant factor in crashes throughout New York State. In 2005, alcohol was cited as a factor in 27.1% of all crashes involving a fatality and in 26.8% of all fatal Crashes. In the Capital Region, alcohol was cited as a factor in 29.8% of all fatalities and in 30.2% of all fatal Crashes. Clearly, alcohol is still a significant problem with fatal crashes in New York State and in the region with Rensselaer County seeing a higher number of fatalities and fatal crashes than the other three counties.

Table 3
2005 Alcohol Related Crashes

	Fatalities (Persons Killed [1])	Fatal Crashes	Injury Crashes	Reportable Property Damage Crashes
NYS	382	350	5270	156
Capital Region	17	16	339	19
Albany County	4	4	123	8
Rensselaer County	10	9	65	0
Saratoga County	3	3	98	10
Schenectady County	0	0	53	1

(1) Includes pedestrians, bicyclists and all other non-vehicle involved persons as well as vehicle occupants regardless of seating position.

Top Contributing Factors

The top contributing factors in Capital Region crashes generally mirror those in the rest of the state. With respect to human factors, distracted driving, failure to yield the right-of-way, following too closely and unsafe speed were the primary human factors noted in all crashes. Statewide, traffic control disregard was the fifth most common contributing factor and alcohol was the sixth in all crashes. Slippery pavement was also noted as the most common environmental contributing factor. Clearly, driver behavior plays a significant role in crashes in New York State and the region.

**Table 4
2005 Top Contributing Human Factors**

	New York State	Capital Region	Albany County	Rensselaer County	Saratoga County	Schenectady County
Total Human Factors Reported (1)	101,734	5,927	2,596	916	1,425	990
Driver Inattention/ Distraction	24,293	1,394	667	177	254	296
Failure to Yield ROW	21,767	1,303	531	188	342	242
Following Too Closely	19,617	1,213	563	161	328	161
Unsafe Speed	15,973	1,003	397	174	301	131
(1) Multiple factors may have been reported for a single crash.						