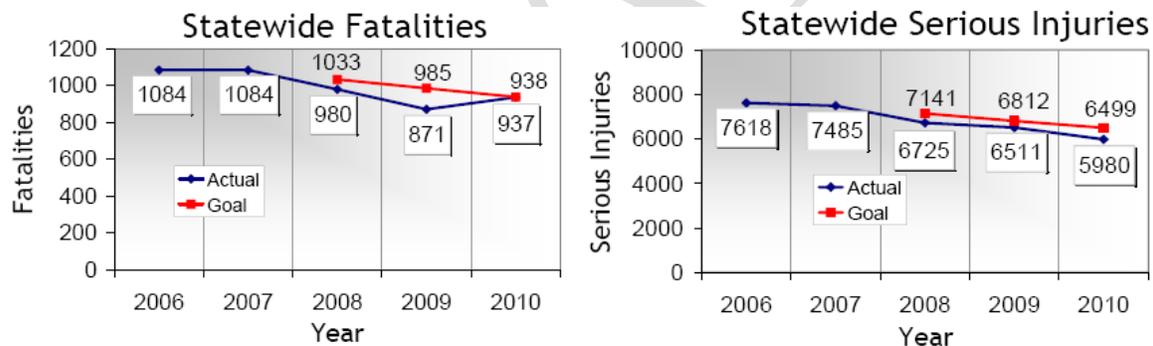


Highway Safety

The safety of Michigan’s existing transportation system remains as one of the Michigan Department of Transportation’s (MDOT) highest priorities. Since the July 28, 2006 publication of the [Highway Safety Technical Report](#), the implementation of safety-related efforts has been in alignment with the [State of Michigan Strategic Highway Safety Plan \(SHSP\)](#).

Simply put, the vision of SHSP is that “All roadway users arrive safely at their destinations.” The most recent version of the SHSP, published in 2008, includes both updated goals and a conversion of those goals from a rate (less than one fatality/100 million vehicle miles travelled) to a more meaningful goal of an incremental reduction of the frequency of fatalities and serious injuries. The revised goals address both fatalities and serious injuries. The previous SHSP addressed only fatalities. The 2008 SHSP goals are to reduce traffic fatalities and serious injuries from 1,084 and 7,485 in 2007 to 850 and 5,900 in 2012. According to the most recently published data, Michigan is on track to meet those goals. Progress toward the SHSP goals of reducing statewide fatalities and serious injuries can be found in MDOT’s [Transportation System Condition Report](#). A detailed breakdown of crashes is available in the [Michigan Traffic Crash Facts](#).

Figure 1



Source: MDOT’s Transportation Systems Condition Report.
http://www.michigan.gov/mdot/0,4616,7-151-58877_60168-220589--,00.html

In addition to changing the focus of the safety goals, the most recent SHSP also made a change to the emphasis areas, with Emergency Medical Services replacing Work Zone Safety as an emphasis area in response to latest crash data

As indicated above, MDOT uses the goals of SHSP to develop its safety efforts. To meet these safety goals, the strategy of MDOT’s Safety Program is to select cost-effective safety improvements to address state trunkline locations with correctable fatality and serious injury crashes. Priority is given to those locations, within each MDOT region, with SHSP focus area improvements that have the potential to deliver the highest benefits at the lowest cost to address a correctable crash pattern. Proposed improvements that do

not meet this criterion, or do not address the severe injury crash pattern are not considered. MDOT's progress of addressing fatalities and serious injuries on the state trunkline, and the average cost savings (cost-benefit) from safety improvements are located in MDOT's [Transportation System Condition Report](#) and [MDOT's Scorecard](#).

MDOT's Comprehensive Safety Improvement Program continues to seek innovative solutions to address safety. To ensure equality in the identification of safety projects throughout the state, the program is part of the department's annual Five-Year Call for Projects. Safety funds are allocated based on the exposure factors of vehicle miles traveled and total lane miles in relation to the percentage of fatalities and serious injuries experienced during the latest three years of crash data on the state trunkline in each region. Beyond the identification of proposed safety projects, each region has the opportunity to allocate up to 10 percent of their funding target for additional low cost safety improvements. The focus is on system-wide safety improvements done by state or county work forces, or through the letting process. A cost-benefit justification is not required for preapproved system-wide safety fixes that have already proven their benefits.

In the selection of safety projects to meet SHSP goals, MDOT ensures each project, addresses one or more of the focus areas identified in the SHSP. While not limited, the Safety Program predominately addresses the Intersection Safety, Pedestrian and Bicycle Safety, Lane Departure, Driver Behavior and Awareness SHSP focus areas. Although not directly impacted by the Safety Program, several of the remaining focus areas do receive an indirect benefit.

To ensure the appropriate safety fixes are incorporated into the overall design of a safety project, each MDOT region conducts a [Road Safety Audit \(RSA\)](#) for new proposals exceeding \$750,000 in estimated construction costs. A road safety audit is a formal safety performance examination of an existing or future road, or intersection by an independent audit team. For selected safety projects, the RSA is conducted prior to 30 percent completion of the plans. The introduction to this proactive approach to improve transportation safety has encouraged MDOT to expand the use of RSAs on preservation type projects.

Figure 2

Since the July 28, 2006 [Highway Safety Technical Report](#), the department has undertaken two system-wide initiatives: the installation of non-freeway rumble strips and the installation of cable median barriers. Both initiatives address crashes associated with lane departure, which is one of the 12 focus areas in the SHSP. Lane departure-related crashes accounted for at least 436 fatalities statewide in 2010



(47 percent of all fatalities). The primary objective for this focus area is to identify cost effective strategies that help reduce unintentional lane departures, as well as alert the driver should a lane departure occur. The secondary objective is to assist the driver in returning to the travel lane safely and minimize departure consequences by creating roadside clear zones.

Rumble strips are a proven and cost-effective countermeasure to lane departure crashes brought on by driver drowsiness, distraction, and/or inattention. We can project from national crash reduction studies that implementation of this initiative in Michigan will result in an annual reduction of 337 crashes, saving 16 lives, and 62 serious injuries each year. To date, 5,700 miles of centerline and 1,700 miles of shoulder rumble strips have been placed.

The second statewide initiative, cable median barrier, addresses both primary and secondary objectives of the lane departure focus area. Cross-median crashes are three

Figure 3



times more deadly than other freeway crashes. Cable guardrail is expected to reduce cross-median crashes by an estimated 90 percent, and is a very cost-effective safety measure when compared to other barriers. In 2007, MDOT evaluated the state trunkline system to project how many lives might be saved in Michigan, and at what cost, by installing cable median barriers on divided roadways where median barriers do not currently exist. The result was the identification of 340 miles of roadway

that would benefit from this improvement. Construction of this statewide initiative began in 2008. To date, 280 miles of cable has been installed with another 70 miles planned. MDOT expects the cable barriers to save 13 lives and prevent 51 serious injuries a year.

The latest information on non-freeway rumble strips, cable median barriers and other current MDOT safety programs may be found in MDOT's [Safety Goals and Plans](#) and the department's [Driven By Excellence: A Report on MDOT Accomplishments](#).

A new initiative in MDOT's effort to address serious crashes is low cost countermeasures to deter wrong-way movements onto freeways. An MDOT study of crash data revealed that 32 percent of freeway wrong-way movement crashes resulted in a fatality or serious injury. Most of these serious crashes occurred on the freeway mainline after the driver was able to maneuver down the ramp going the wrong way. To address this behavior, MDOT is implementing a package of low cost safety improvements over the next five years at interchange types where this behavior is more frequently observed. These



improvements include lowering the height of Do Not Enter/Wrong Way signs, placement of a reflective strip on the sign posts of these signs, wrong way pavement marking arrows, left turn pavement marking turning guides, and increased two-sided delineation along the exit ramp. This effort supports the department's efforts to reduce crashes identified in the Intersection Safety, Lane Departure and Driver Behavior and Awareness SHSP focus areas.

Through its [Local Safety Initiative](#) (LSI), MDOT continues to help local agencies identify safety issues and improve the safety of local roads. MDOT's involvement begins with a complete crash analysis of the selected local road system. Based on the analysis, a list of select intersections and roadway segments is compiled for department staff to investigate in the field with a local agency representative. An engineering study or other types of analysis, as needed, are conducted to determine potential improvements. Many of these will be low cost fixes. Projects identified may be eligible for federal funding. The LSI also assists local agencies to generate potential [High Risk Rural Road Program](#) (HRRRP) locations for funding through MDOT's [Local Agency Programs](#). The HRRRP is a federal-aid program, which supports road safety program efforts through the implementation of construction and operational improvements on high risk rural roads. In Michigan, all allocated HRRRP federal funds are directed to the local road system. These approaches are part of MDOT's effort to address the 60 percent of fatalities and serious injuries that occur annually on that roadway system.