

Minnesota Annual Highway Safety Improvement Program Report For State Fiscal Year 2010

INTRODUCTION

In accordance with the requirements of Section 1401 of the *Safe, Accountable, Flexible, Efficient Transportation Equity Act: A legacy for users Act (SAFETEA-LU)* – which created the Highway Safety Improvement Program (HSIP) as a “core funding” program administered by the Federal Highway Administration (FHWA) – The Office of Traffic, Safety and Technology is submitting an annual report assessing the effectiveness of projects funded under HSIP.

The report is divided into four separate sections as requested by the FHWA. The first section will discuss program structure. The second section will discuss progress in implementing HSIP projects. The third section will provide a detailed analysis of safety project effectiveness and the fourth section will discuss the implementation and plans for the High Risk Rural Roads Program (HRRRP). The appendix details our interpretation of the top 5% hazardous locations.

The reporting period is State Fiscal Year 2010 (July 1, 2009 to June 30, 2010). Crash statistics provided are for calendar year 2009.

A. Program Structure

i. Program Administration

Until SAFETEA-LU, federal safety funds were made available through the Hazard Elimination Safety Program (HES). Funds were identified through local Area Transportation Partnerships (ATP); projects were identified, programmed and constructed. Mn/DOT’s Office of Capital Programs and Performance Measures (CPPM) oversaw the use of all federal funds and balanced the amounts funded in each category to ensure compliance with all federal requirements. In Minnesota, the majority of federal safety projects have been funded using HES criteria through fiscal year 2008.

TABLE 1 – HES/HSIP Funding (Source: CPPM/PPMS)

STATE FISCAL YEAR	HSIP FUNDS	OTHER FEDERAL FUNDS	STATE FUNDS	TOTAL
2005	\$ 19,319,688.67	\$ 1,482,467.47	\$ 9,299,346.13	\$ 30,101,502.27
2006	\$ 10,042,854.24	\$ 25,918,168.68	\$ 22,733,752.04	\$ 58,694,774.96
2007	\$ 13,965,363.79	\$ 31,713,375.68	\$ 27,415,270.33	\$ 73,094,009.80
2008	\$ 14,984,467.00	\$ 26,397,553.40	\$ 15,183,045.65	\$ 56,565,066.05
2009	\$ 25,136,070.00	\$ 6,563,990.00	\$ 8,570,265.21	\$ 40,270,325.21
2010	\$ 26,940,334.00	\$ 7,823,704.00	\$ 1,857,317.00	\$ 36,621,355.00
2011	\$ 17,254,248.00	\$ 1,074,902.00	\$ 675,571.00	\$ 19,004,721.00

Table 1 summarizes the funding utilized for HSIP projects by fiscal year. HSIP funding represents only one source of dollars used for safety projects. Additional funding sources are outlined in Part B. The “HSIP Funds” column is the total amount of HSIP funds on projects let in a fiscal year. The “Other Federal Funds” column is the total amount of non-HSIP federal funds used on projects that also use HSIP funds. The “State Funds” column is the total amount of state funds on projects that use HSIP funds.

Historically, Minnesota’s project selection for safety projects was a decentralized process. Each district selected projects for their Area Transportation Improvement Program. The selected projects were predominately reactive, spot treatments that were part of larger projects.

During fiscal year 2008, project selection became centralized. The allocation of HSIP funds is based on the distribution of fatal and A-injury crashes. Within each district, funds are split again based on the fraction of fatal and A-injury crashes that occur on the state system versus the local system. The resulting “HSIP Goals” and local/state split of this fund are shown in Table 2.

TABLE 2 – Safety Fund Goals

Fatal + Serious Injury Crashes (2004-2006)						HSIP and HRRR Distribution			
ATP	TH	TH Percent of ATP Total	Local	Local Percent of ATP Total	Total Number of F+ A injury	% F + A Injury Crashes by ATP (2004-2006)	HSIP/HRRR set aside per ATP (\$M)	State HSIP set aside (\$M)	Local HSIP set aside (\$M)
1	89	50.57%	87	49.43%	176	7.96%	1.55	0.79	0.77
2	36	41.38%	51	58.62%	87	3.94%	0.77	0.32	0.45
3	127	37.46%	212	62.54%	339	15.34%	2.99	1.12	1.87
4	55	44.72%	68	55.28%	123	5.57%	1.09	0.49	0.60
6	106	39.55%	162	60.45%	268	12.13%	2.36	0.94	1.43
7	50	37.88%	82	62.12%	132	5.97%	1.16	0.44	0.72
8	50	39.37%	77	60.63%	127	5.75%	1.12	0.44	0.68
Metro	266	27.77%	692	72.23%	958	43.35%	8.45	2.35	6.11
TOTAL	779	35.25%	1431	64.75%	2,210	100.00%	19.50	6.87	12.63

*2004-2006 Crash Data

Three separate programs were developed for the selection of the following:

- Greater Minnesota Districts state projects
- Greater Minnesota local projects
- Metro District state and local projects

All of these programs use the same methodology for selecting projects.

Out of the new program for Greater Minnesota state and local projects, the need for a prioritized list of low-cost systematic projects was identified. Minnesota utilized funds from the Central Safety fund to provide all 87 counties and 8 Mn/DOT districts with their own mini-SHSP or County Road Safety Plan.

Individual SHSP’s

Minnesota has invested \$3.8 million over 3 years to provide each of its 87 counties and 8 districts with a prioritized list of low-cost, systematic projects.

Data from these road safety plans is leading us to a higher percentage of systematic projects. Reactive or black-spot improvements are also being recommended where they are supported by the data.

ii. Program Methodology

Proactive projects are evaluated using the following criteria:

- Crash history – 10 years of fatal and serious injury crashes
- Ability to meet the intent of the SHSP
- Cost effectiveness
- Inclusion on the Top 5% list
- Inclusion on the HRRRP list*
- ADT

* Local projects only. Minnesota has chosen not to fund State projects with HRRRP dollars and therefore does not use this criteria for funding State projects.

Reactive projects are evaluated using the following criteria:

- Ability to meeting the intent of the SHSP
- Benefit cost ratio – using a 3 year crash history of all crashes

B. Progress in Implementing the HSIP Projects

PROJECT SELECTION PROCESS

The process for selecting HES/HSIP projects prior to FY 2008 was managed by Area Transportation Partnerships (ATP). ATP's incorporate all jurisdictions and the distribution of funds was coordinated through Mn/DOT's districts and the regional planning authority. The process varied for each ATP. Larger ATPs conducted separate solicitations for safety projects, which often included local participation, while other ATPs selected safety projects through other internal processes. The Office of Capital Programs and Performance Measures managed these funds from a statewide perspective to insure compliance with federal requirements.

The primary criterion for evaluating and selecting federal safety projects was the determination of an adequate benefit/cost ratio for the proposed project. If the project's B/C ratio was over 1.0, the project was considered eligible. A project whose B/C ratio was significantly higher than other competing projects was usually given priority for funding.

In 2006, OTST provided the ATPs with guidance on how projects should be programmed for fiscal years 2007 and 2008 to update Minnesota's program for SAFETEA-LU. This required a shifting of funding for some projects as well as the development of new projects in a very short time frame.

During fiscal year 2008, the project selection process became centralized. Projects were solicited and funded for FY 2009 and beyond.

A new approach was taken. Minnesota made a commitment in its SHSP to shift to a more systematic, low-cost, proactive approach to project selection. Local projects would now be selected in a separate process from the State projects.

Greater Minnesota State Projects

For FY 2009/2010 and beyond, OTST has implemented a new process of how the districts select HSIP projects. The following process was used to program HSIP projects for FY 2009 and beyond

- Office of Capital Programs & Performance Measures continues to distribute federal funds based on the target formula to each ATP. Each ATP's share of the overall federal dollars continues to remain unchanged.
- Each ATP will set aside its HSIP/HRRR target "off the top" of their federal funds based on the fatal and "A" injury crash distribution for 2004-2006. Table 2 shows this distribution.
- Each District selects their State HSIP projects based on HSIP implementation criteria and submits these projects to OTST for approval in the STIP.
- The Statewide 20-year Highway Investment Plan 2009 – 2028 establishes the goal that each district should spend at least three times the District's Highway Safety Improvement Program Goal by additional stand-alone projects or by incorporating safety enhancements into pavement preservation projects.

Since 2007, Minnesota has funded safety projects on local and state roads to implement over:

- 6,714 miles of 6" wide edgelines
- 80 miles of edgeline rumble strips
- 594 miles of edgeline rumble stripEs
- 236 rural intersections with street lighting
- 1,347 curves with chevron signing

94% low-cost systematic

Between 2009 and 2012, 94% of the projects programmed in the Greater Minnesota local project solicitation are low-cost and systematic.

Greater Minnesota Local Projects

In Greater Minnesota, there was no process for local agencies (Counties and Cities) to apply for HSIP funds prior to 2006. Input from the local agencies led Mn/DOT to develop the Combined Solicitation. This solicitation was used to distribute over \$14M over two years of local projects for three programs: HSIP, HRRRP, and the Central Safety Fund. OTST, with representatives from FHWA and State-Aid prioritizes the local HSIP/HRRR projects for each ATP. Districts were given the opportunity to comment on the prioritization of projects.

Only stand alone safety projects are considered for these programs. The 2007 Minnesota Strategic Highway Safety Plan (SHSP) is the main guidance for project selection and evaluation. The goal for this solicitation is that a minimum of 70% of projects selected be proactive. That goal has been met and exceeded. Proactive projects make up 94% of all the projects awarded for Greater Minnesota local agencies from 2009 to 2012.

Additionally, Minnesota is funding a County Safety Plan (mini-SHSP) for each of its 87 counties and 8 districts. When completed, these plans will provide each county and district with a prioritized list of low-cost, systematic projects.

Metro District State and Local Projects

Because the Metro District currently has an in-place competitive process for the selection of HSIP projects that includes the locals, their solicitation is separate from Greater Minnesota. The Metro District counties were included in a separate solicitation to distribute \$1 million in Safety funds for low-cost systematic projects to be built in 2009 and 2010. During SFY 2010, the Metro District modified their solicitation process to include low-cost, systematic projects. Two low-cost, systematic projects, totaling \$724,000 were identified for the 2013/2014 HSIP program.

TABLE 4 - Programmed Funds

HSIP Project Funding		
Reporting Period: 07/01/2009-6/30/2010		
Funding Category	Programmed*	Obligated
HSIP (Section 148)	\$26,196,484	\$17,404,765
Hazard Elimination (Section 152)		
Optional Safety		
Penalty Transfer (154 and 164)	\$3,632,295	\$3,632,295
Safety Belt Performance Grants (Section 406)	\$7,862,529	\$6,986,987
Incentive Grants (i.e. Sections 157, 163)		
Other Federal-Aid funds (i.e. STP, ARRA)	\$ 2,502,441	\$ 1,816,554
State and Local Funds	\$ 1,814,381	\$ 352,944

* Programmed funds refer to those funds that have been programmed in the Statewide Transportation Improvement Program (STIP) and can be expended on highway safety improvement projects.

* Programmed and obligated funds included an additional 7% for (E&C) engineering and contingencies.

To quantify safety projects that utilized funding other than HSIP in Table 4, the STIP was scanned for projects that fit the same criteria used to select projects for the HSIP solicitation process. Projects that appeared to satisfy the criteria were tallied and included in the above table.

Table 5 is a list of projects utilizing federal safety funding (HSIP) for fiscal years 2010. This list was compiled using information from the State Transportation Improvement Program (Office of Capital Programs and Performance Measures).

As of June 30, 2010, 63.9% of apportioned HSIP funds have been obligated. At the beginning of SAFETEA-LU, Minnesota was still programming safety projects according to the old HES levels. Those levels have been adjusted since the inception of SAFETEA-LU and have been brought up to match the HSIP goals shown in Table 2.

Minnesota's current process does not have contingencies in place for when a project comes in under budget or falls through. Additionally, the federal process does not allow the scope of a project to be expanded or changed in the event of a bid coming in under budget. Some projects were not built for a variety of reasons. Time constraints did not allow for new projects to be developed.

Minnesota is discussing alternatives to bring up on the percentage of apportioned funds to obligated funds. Those include: developing projects to keep "on the shelf" to replace or supplement any shortfalls, over program so that if a project falls through there are already projects to replace it or to do a special solicitation with funds that were earlier transferred from HSIP to other programs.

TABLE 5 – HES/HSIP Utilization, FY2010

Source: Office of Capital Programs and Performance Measures July 2010

<http://www.dot.state.mn.us/planning/program/pdf/MISC213%20version%202.pdf>

Project						Relationship to the SHSP	
Project Number	Description	Improvement Category	Output (locations or miles)	Programmed Cost	Obligated Cost	Emphasis Area	Strategy
88-070-13	Six inch wide epoxy edgelines and four inch epoxy centerlines (ATP wide)	11	594	\$ 759,370		CEA 4	C.5
8821-176	Construct 8 turn lanes on TH 61 between Duluth and Two Harbors	1	8	\$ 450,000	\$ 633,625	CEA 2	C.8
8801-SHS-10	District 1 - Districtwide lane departure & lighting	3		\$ 71,694		CEA 4	C.5
8822-85	Install rural intersection lighting at 10 locations	1	10	\$ 99,000	\$ 121,117	CEA 2	C.8
11-070-02	Cass County - Enhance pavement markings	11	69	\$ 250,000	\$ 250,000	CEA 4	C.5
48-070-04	Mille Lacs County - Enhance pavement markings	11	256	\$ 170,550	\$ 128,153	CEA 4	C.5
71-070-05	Sherburne County - Install edge line striping	11	412	\$ 226,800	\$ 186,832	CEA 4	C.5
71-070-06	Construct right turn lane & bypass lane at Sherburne County CSAH 11/CSAH 30 intersection	3	1	\$ 34,200	\$ 34,200	CEA 4	C.5
80-070-01	Wadena County - Enhance pavement markings	11	216	\$ 94,100	\$ 94,100	CEA 4	C.5
86-070-02	Wright County - Install vehicle detection advance warning systems at 4 intersections	13	4	\$ 129,600		CEA 2	C.8
86-070-03	Wright County - Install intersection lighting (7 intersections)	1	7	\$ 175,500	\$ 94,500	CEA 2	C.8
88-070-17	Crow Wing/Morrison Counties - Enhance pavement markings	11	1091	\$ 657,000	\$ 540,232	CEA 4	C.5
88-070-18	Isanti/Kanabec Counties - Install edge striping	11	577	\$ 283,500	\$ 270,473	CEA 4	C.5
0504-17	Install edgeline rumble stripes from Foley to Ogilvie on TH 23	3	36.3	\$ 121,949	\$ 110,313	CEA 4	C.5
7380-225	Install cable median barrier & regrade median inslopes Sauk Centre to Albany on I-94	17	17.3	\$ 998,050	\$ 1,784,273	CEA 4	C.5
8824-76	District 4 - Districtwide intersection lighting	1	3	\$ 40,500	\$ 37,103	CEA 2	C.8
8824-77	District 4 - Districtwide rumble striping	3	146	\$ 457,200	\$ 304,682	CEA 4	C.5
55-070-09	Olmsted County - Edgeline rumble strips	3	70	\$ 152,325		CEA 4	C.5
55-070-10	Olmsted County - Enhanced signs and markings (25 intersections)	11	25	\$ 115,830		CEA 4	C.5
55-070-11	Olmsted County - Red light running confirmation lights (24 intersections)	1	24	\$ 83,700		CEA 2	C.8
55-070-12	Olmsted County - Enhanced curve delineation (22 curves)	11	22	\$ 19,800		CEA 4	C.5
66-070-02	Rice County - Enhanced pavement markings	11	96	\$ 100,000	\$ 70,593	CEA 4	C.5
66-070-03	Rice County - Roadside hazard reduction program	10	22	\$ 100,000	\$ 154,847	CEA 4	C.9
66-070-04	Rice County - Enhanced intersection signing (500 intersections)	11	500	\$ 35,000	\$ 46,773	CEA 2	C.8
88-070-08	East side of District 6 - Edgeline rumble stripes, with 6 inch wide edgelines	3	119	\$ 750,000		CEA 4	C.5
8826-40	Accelerations lanes, lengthen turn lanes & median/access modifications on TH 52 in Goodhue & Olmsted Counties	1	63.4	\$ 990,000	\$ 374,733	CEA 2	C.8
8826-61	District 6 & Metro - Districtwide curve signing, chevrons & advance curve signs on 50 curves	11	50	\$ 45,000	\$ 48,150	CEA 4	C.5
8826-63S	District 6 - Districtwide intersection lighting (8 intersections)	1	8	\$ 60,000	\$ 64,200	CEA 2	C.8
8806-SHL-10	Local ATP 6 Setaside			\$ 159,849		CEA 4	C.5
72-070-04	Sibley County - CSAH 11/TH 5 in Green Isle intersection improvement	1	1	\$ 250,000		CEA 2	C.8
72-070-05	Sibley County - CSAH 12/TH 5 in Arlington intersection improvement	1	1	\$ 150,000		CEA 2	C.8
83-070-03	Watonwan County - CSAH 3 Pave shoulders & edgeline rumble stripes	3	1.5	\$ 225,000	\$ 286,718	CEA 4	C.5
5205-32	TH 22 & TH 111 - Pave shoulders & add rumble stripes	3	10.9	\$ 430,700	\$ 499,304	CEA 4	C.5
88-070-11	ATP wide - Install chevrons, 6" wide latex or 4" wide epoxy	11	633	\$ 652,773	\$ 652,773	CEA 4	C.5
88-070-19	Chippewa/Lac qui Parle Counties - Install can delineators on all rural county road intersections (575 intersections)	11	575	\$ 25,875	\$ 25,875	CEA 2	C.8
3419-08	TH 294/Business TH 71 - Intersection revision	1	1	\$ 111,815		CEA 2	C.8
8828-102	District 8 - Intersection Lighting	1	8	\$ 234,000	\$ 201,534	CEA 2	C.8
8828-103	Install rumble stripes - both sides	3	16	\$ 91,710	\$ 42,901	CEA 4	C.5

Project						Relationship to the SHSP	
Project Number	Description	Improvement Category	Output (locations or miles)	Programmed Cost	Obligated Cost	Emphasis Area	Strategy
02-596-07	Anoka County - Co Rd 132/Springbrooke Drive - channelization & traffic signal upgrade		1	\$ 963,000	\$ 963,000	CEA 2	C.8
62-631-05	Ramsey County - Maryland Ave(CSAH31)/Rice St - Intersection reconstruction		1	\$ 708,750		CEA 2	C.8
62-631-06	Ramsey County - Maryland Ave(CSAH31)/Prosperity Ave- Intersection reconstruction		1	\$ 722,250		CEA 2	C.8
70-616-24	Scott County - CSAH 16/Glendale Rd - Construct multi-lane roundabout		1	\$ 770,400	\$ 770,400	CEA 2	C.8
82-602-14	Washington County - CSAH 2/12 St - Median installation & traffic signal phasing		1	\$ 963,000		CEA 2	C.8
141-366-15	Minneapolis - 31st St - Overhead signal indications at 9 locations		1	\$ 425,250	\$ 157,580	CEA 2	C.8
1002-80	TH 5 - Add northbound to eastbound acceleration lane at CSAH 17		2	\$ 216,000	\$ 328,517	CEA 2	C.8
8214-145	TH 5 - Jamaca Ave/Stillwater Blvd - Construct roundabout		1	\$ 900,000	\$ 990,000	CEA 2	C.8
0215-70	TH 10 - Cable median barrier		17	\$ 152,489		CEA 4	C.5
1982-149	I-35E - Cable median barrier		17	\$ 1,249,920		CEA 4	C.5
6284-140	I-35W - Co Rd C to I-694 - Continuous lighting			\$ 587,430	\$ 633,231	CEA 4	C.5
6222-161S	TH 61 - Median closures, turn lane modifications, new turn lanes		1	\$ 477,000	\$ 880,797	CEA 2	C.8
2780-78/2780-80	I-94 - SB TH 101 to WB I-94 - Construct acceleration lane and Construct EB Co Rd for SB TH 101 traffic		2	\$ 2,493,000	\$ 2,031,346	CEA 2	C.8
8282-103	I-94 - Traffic signal installations & TH 95 - Signal installation & approach lanes		13	\$ 1,980,000	\$ 750,896	CEA 2	C.8
2772-81	TH 169 - Medicine Lake Rd - Reconstruct ramp, extend decel lane		2	\$ 643,105		CEA 2	C.8
6286-53	I-694 - Install cable median barrier		17	\$ 900,000		CEA 4	C.5
8286-64S	I-694 - Install cable median barrier		17	\$ 742,500	\$ 518,287	CEA 4	C.5
880C-CB-10	District C - Cable median barrier		17	\$ 1,500,000		CEA 4	C.5
1980-78/1929-43	I-35: Install .5 mi of cable median barrier & TH 77: Install .3 mi of cable median barrier		17		\$ 821,493	CEA 4	C.5
117-118-01/5304-33	At TH 59 & Ryan's Rd: in Worthington, frontage rd alignment & signal		1		\$ 277,700	CEA 2	C.8
69-070-05	D-1 St Louis Co: Install rumble strips		3	81	\$ 223,996	CEA 4	C.5
7106-76	TH 169 : From 197th Ave to Co Rd 74: Install Cable Median barrier		17	3.5	\$ 183,933	CEA 4	C.5
7380-231	TH 94: Fuller Lake Rest Area Building & Site preservation				\$ 192,208		
8816-1325	Statewide: Safe intersections, design, install, operate & evaluate intersection conflict warning system (ICW)		1		\$ 623,377	CEA 2	C.8
				\$ 26,196,484	\$ 17,404,765		

Emphasis Areas and Strategies refer to the Minnesota Strategic Highway Safety Plan Update

<http://www.dot.state.mn.us/trafficeng/safety/shsp/index.html>

CEA 2: Critical Emphasis Area 2 – Improving the Design and Operation of Highway Intersections

CEA 4: Critical Emphasis Area 4 – Reducing Head-on and Across-Median Crashes, Keeping Vehicles on the Roadway & Minimizing the Consequences of Leaving the Road

C.5: Cost effective lane departure improvements

C.8: Cost effective intersection improvements

C.9: Roadway Maintenance

C. Assessment of Program Effectiveness – General Safety Trends 2009 Data

There were 421 deaths on Minnesota roads in 2009. This is the lowest annual death count since 1944 and is an 8 percent decrease from the 455 deaths in 2008. Minnesota has seen a downward trend in fatalities since 2003.

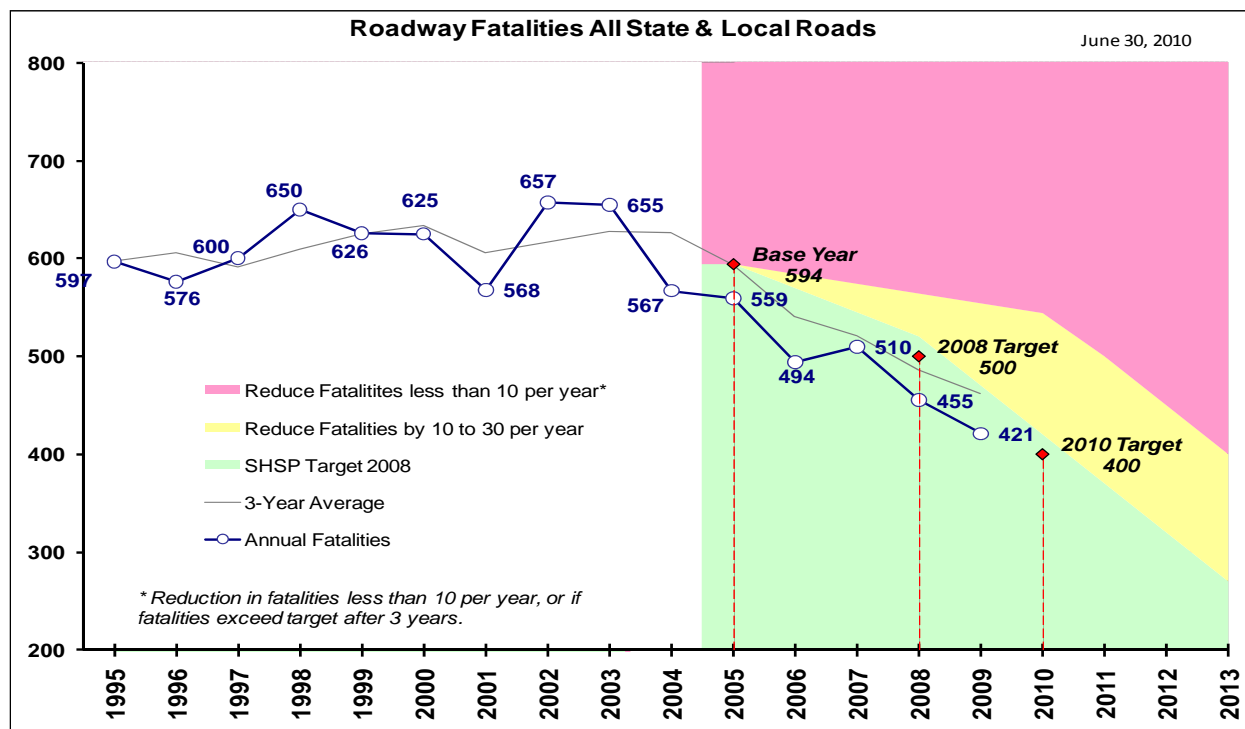
The following facts help to give an overall picture of 2009 traffic crashes. In addition to the 421 in 2009 that were killed:

- 180,849 people were involved
- 31,074 were injured
- 1,271 of these were severe injuries
- 7,714 of these were moderate injuries
- 22,089 of these were minor injuries
- 132,276 motor vehicles were involved
- 957 crashes that involved at least one bicyclist
- 883 crashes that involved at least one pedestrian
- 1 out of every 4 fatalities was less than 25 years of age
- 2 of 3 fatalities occurred in rural areas (<5,000 pop.)

Source: *Minnesota Motor Vehicle Crash Facts for 2009* published by the Minnesota Department of Public Safety. http://www.dps.state.mn.us/OTS/crashdata/crash_facts.asp

Overall Effectiveness of HSIP

Generally, the past HSIP program has been very effective in reducing overall crashes and providing a benefit greater than the cost of the projects. Figure 1 illustrates Minnesota's ability to meet the target set for reducing fatalities. Minnesota's fatal crash rate for 2009 was 0.74 fatalities per 100 million vehicle miles traveled. This rate has remained under 1.0 since 2005.

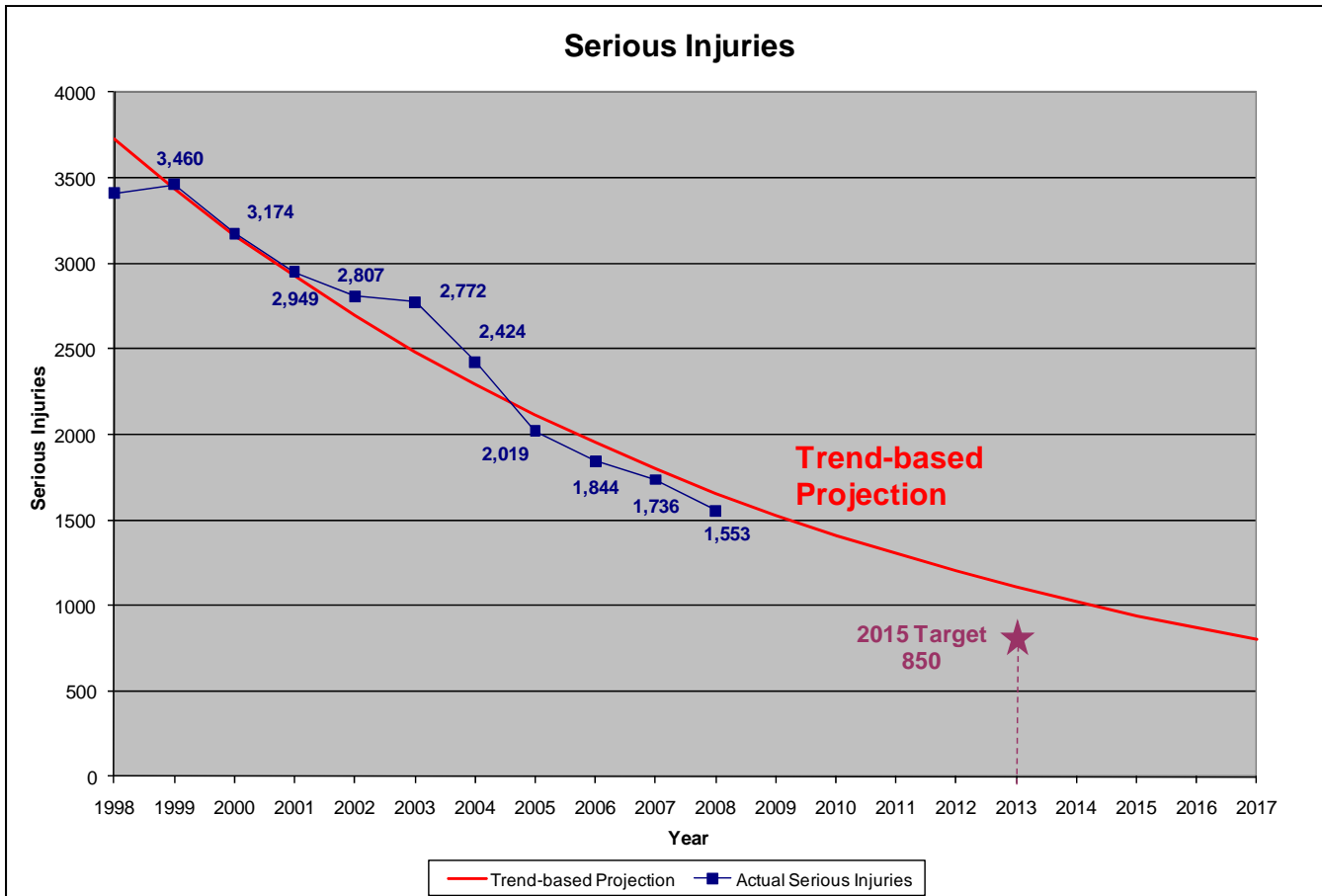


Minnesota’s safety program focuses on fatal and life-changing crashes. These crashes have steadily decreased since 2004. Mn/DOT, in partnership with the Department of Public Safety and the Department of Health, has set an ambitious goal of zero deaths on our highway systems. “Toward Zero Deaths” (TZD) is our joint vision. To that end, through partnerships with engineering agencies, enforcement agencies, emergency responders and educators we hope to achieve our ambitious goal. HSIP is one mechanism to provide funding to maximize the abilities of the 4 E’s to improve safety on all Minnesota roadways. Minnesota also utilizes Central Safety Funds (Section 164) and Seatbelt Performance Grants (Section 406) to develop programs such as the HEAT (High Enforcement of Aggressive Traffic), the County Road Safety Plans and a cable median barrier solicitation, in support of the TZD goals.

HEAT – High Enforcement of Aggressive Traffic

The HEAT program utilizes \$5,000,000 in funding to provide multi-media public education campaigns and increased traffic patrol.

The SHSP targets fatal and serious injury crashes. Through Minnesota’s TZD effort a goal was set of less than 400 fatalities by 2010. Serious injuries were tracked but no goal existed. During 2010, OTST has set a goal of less than 850 serious injuries by 2015. The current trend predicts 1400 serious injuries in 2010.



Relationship of Projects to the Strategic Highway Safety Plan (SHSP)

The SHSP was updated in September 2007. All of the safety projects funded during this reporting period have a direct relationship with the engineering strategies. The project listings on the previous pages have a column that lists the Critical Emphasis Area and the Safety Strategy to which each programmed project is linked.

The three critical strategies are listed below:

- SHSP Safety Strategy C.5 – Cost Effective Lane Departure Improvements
 - Construct median barriers for narrow-width medians on multilane roads
 - Utilize centerline rumble strips on undivided, two-way roads
 - Utilize shoulder or mid-lane rumble strips
 - Enhance delineation of sharp curves and unexpected changes in horizontal alignment
 - Enhance pavement markings
 - Eliminate shoulder drop-offs
 - Delineate roadside objects

- SHSP Safety Strategy C.8 – Cost Effective Intersection Improvements
 - Add offset and/or longer turn lanes
 - Add acceleration lanes
 - Utilize indirect left-turn treatments
 - Clear sight triangles
 - Eliminate parking near intersections
 - Provide pavement markings with supplementary messages, such as STOP AHEAD
 - Add double yellow centerline at intersections and at median openings
 - Provide lighting to increase intersection visibility

- SHSP Safety Strategy C.9 – Roadway Maintenance*
 - Improving roadside hardware
 - Removing and relocating objects in hazardous locations

* This strategy contains more countermeasures; however, these two are the only ones Minnesota has funded with HSIP.

Subprograms

Central Safety Fund

The Central Safety Fund was established by the Minnesota Department of Transportation, Office of Traffic, Safety and Technology and the Minnesota Department of Public Safety (DPS), Office of Traffic Safety in 2005 to provide funding for safety projects that focus on County and District-wide deployment of low cost, systematic improvements at the state, county, and local level. The Central Safety Fund is administered by OTST in close coordination with the Department of Public Safety and the Office of State Aid. The sources of this funding are Federal Sec 164 sanction funding, Title 23 .08 alcohol incentive and Mn/DOT District C (determined by Mn/DOT's Office of Capital Programs and Performance Measures). This program was established in recognition that historically over 70% of fatal crashes occur on rural roads and approximately 50% of fatal crashes occur on local (county, township, and city) roadways.

In 2008, the solicitation for this fund was combined with a new solicitation for local HSIP funds. Historically, HSIP projects were programmed by their respective district with a low percentage of this money going towards local projects.

The Central Safety Fund was distributed in the following manner:

2007

- \$3.4 million to Minnesota counties
- \$3.3 million for cable median barrier

2008

- \$2.6 million to Minnesota counties
- \$3.3 million for cable median barrier
- \$3 million for a Statewide pavement marking study

2009 and beyond

- \$400,000 for Road Safety plans for each of the 8 Mn/DOT districts
- \$3.4M for Road Safety plans for each of the 87 Minnesota counties
- \$1 million for cable median barrier

Subprograms – High Enforcement of Aggressive Traffic (HEAT)

The High Enforcement of Aggressive Traffic (HEAT) Program aims to reduce traffic fatalities through a cultural shift toward compliance with traffic safety laws. In 2009, the Minnesota Department of Transportation (Mn/DOT) Office of Traffic Safety and Technology (OTST), Department of Public Safety (DPS) Offices of Traffic Safety (OTS) along with the Minnesota State Highway Patrol (MSP) partnered to develop an aggressive driving education and heightened enforcement campaign.

Mn/DOT OTST conducted a preliminary analysis of Minnesota's roadway system in order to identify corridors where aggressive driving related crashes are most prevalent. In collaboration with MSP, local enforcement agencies, and District Engineers, these data were used to develop a list of corridors where heightened traffic patrols will occur. In response to the distribution of traffic fatalities, corridors on both local and state roadways are eligible for heightened traffic patrol through the HEAT Program.

MSP and local enforcement agencies will provide officers for HEAT traffic patrols in the selected corridors. Each enforcement agency providing HEAT patrols will also collect detail rich data, which will afford a robust analysis of types of violations, age and sex of violators, and effect of officer/s' presence on travel speeds and traffic safety.

Objectives of the HEAT Program

- Effect MN highways' travel speeds so they are closer to the posted speed limit.
- Heighten driver awareness of aggressive traffic related safety issues through multi-media education campaign.
- Improve efficiency and effectiveness of aggressive traffic enforcement efforts to positively affect traffic speeds and aggressive traffic related crashes.

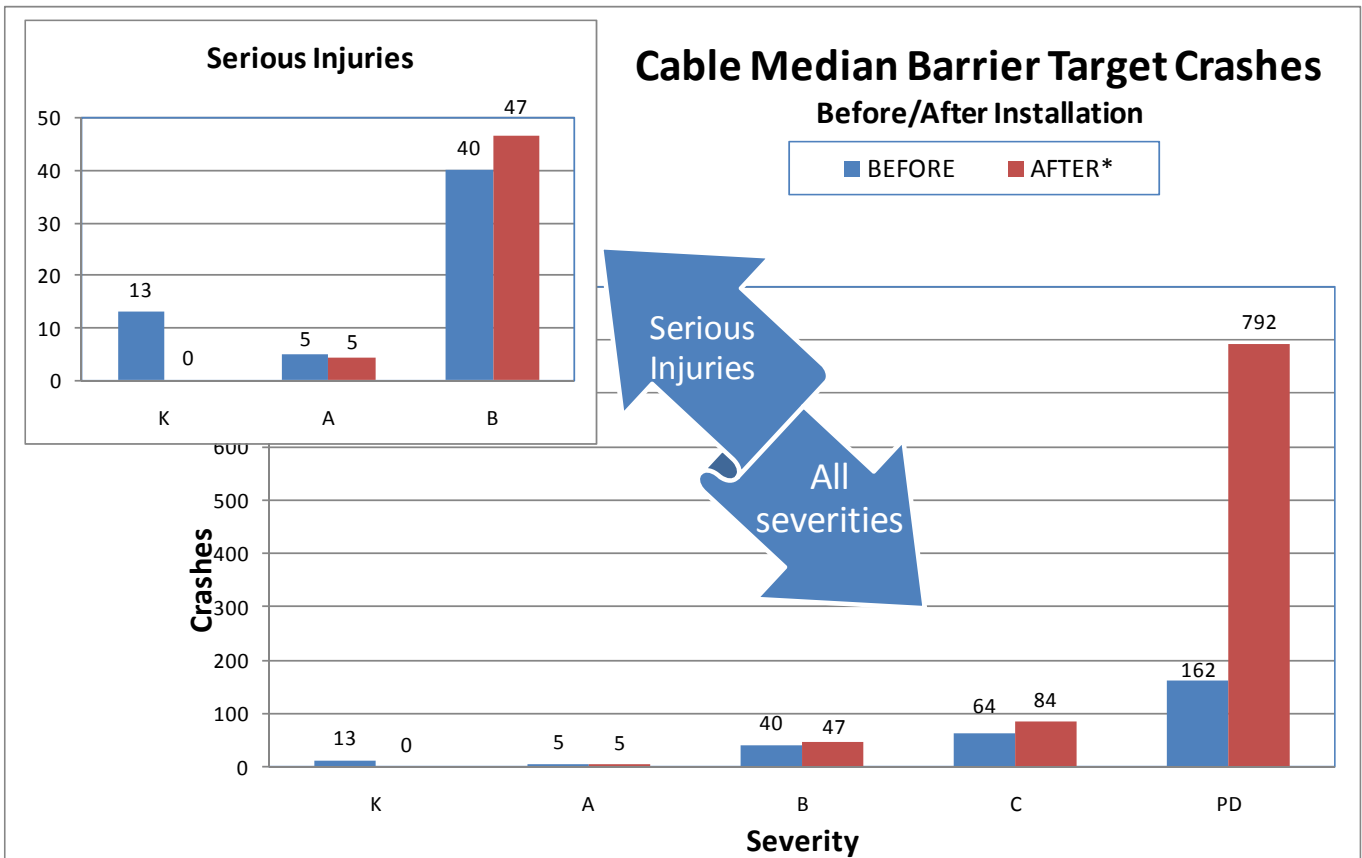
Cable Median Barrier Effectiveness

The first segment of cable median barrier was installed on I-94 in 2004. A cross median crash study has been conducted on approximately 75 miles of cable median barrier that was installed between 2004 and 2007. Segments were evaluated for the three years prior to installation and the three years following the installation.

On the segments studied, there were thirteen fatal target (run off the road left, head-on and sideswipe opposing) crashes prior to installation. In the three years following installation, there was not a fatal cross median target crash on the study segments.

Cable median barrier stops many vehicles that may have run off the road and recover before reaching the opposing lanes of traffic, as well as those vehicles that do enter into the opposing lanes. While this causes an increase in property damage crashes, the more dramatic result is the effect on fatal cross median crashes. To date, there has not been a fatal cross-median crash after the installation of cable median barrier. Approximately, eighty-five percent of the property damage only cable hits pay restitution to the State for damage repairs to the cable system.

There are currently 126 miles of cable median installed in the Metro area and 133 miles in Greater Minnesota. An additional 79 miles are planned statewide in 2011 and beyond.



* For 2007 installations, only 2 years of after data is available. These values were multiplied by 1.5 to account for that year of data.

D. HIGH RISK RURAL ROADS PROGRAM (HRRRP)

High-risk rural roads are roadways functionally classified as rural major or minor collectors or rural local roads with a fatal and incapacitating injury crash rate above the statewide average for those functional classes of roadways; or likely to experience an increase in traffic volume that leads to a crash rate in excess of the average statewide rate. The HRRRP set-aside will total approximately \$1.5 million/year for Minnesota and be applied proportionally to the State's HSIP apportionments.

Mn/DOT's Office of Traffic, Safety and Technology (OTST) has developed a listing of eligible county rural major and minor collectors and rural local roads statewide based on crash data. There are approximately 108,000 miles of roadway within this eligible road classification. If there is a normal distribution of crashes, about half of these roads will be above the average crash rate and eligible for this program funding. Table 2 (page 3) shows the distribution of Fatal and A injury crashes on the HRRR eligible roads and the associated programming goals for each ATP, using \$1.5 million as the estimated funds available.

The local HSIP solicitation includes a category for High Risk Rural Roads. Projects receive extra consideration if they are on an eligible segment of roadway. Twenty-four such projects were identified and selected for funding for a total of \$4.8 million to be built between 2008 and 2010.

TABLE 5 – High Risk Rural Roads

HRRRP Project Funding		
Reporting Period: 07/01/2009-6/30/2010		
Funding Category	Programmed*	Obligated
HRRRP	\$ 743,850	\$ 666,449
Other Federal-Aid funds (i.e. STP, ARRA, Rural Safety Innovation Program)		
State and Local Funds		
Total	\$ 743,850	\$ 666,449

A complete list of eligible segments can be found at the following link:

http://www.dot.state.mn.us/stateaid/sa_traffic_safety.html

TABLE 6 – Projects selected for funding through High Risk Rural Roads

Project Number	Description	Improvement Category	Output (miles or locations)	Programmed Cost	Obligated Cost	Emphasis	Strategy
24-070-05	HRRR - Freeborn County - Enhanced pavement markings on CSAH 46 & CSAH 22	11	8	\$ 45,000		CEA 4	C.5
88-070-03	Multi-county 6" wide epoxy edge stripes	11	594.3	\$ 666,450	\$ 666,449	CEA 4	C.5
55-070-03	HRRR - Olmsted County - Install approach guardrail at 2 bridges	17	2	\$ 32,400		CEA 4	C.5
Total				\$ 743,850	\$ 666,449		

5 PERCENT REPORT