



Noteworthy Practices Manual

For Local Agencies Implementing Federal-Aid
Highway Safety Improvement Program Projects



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16. Abstract This Noteworthy Practices Manual provides case studies highlighting solutions to some common barriers that deter local agency participation and implementation in Highway Safety Improvement Program (HSIP) projects. The Manual is divided into four sections that each represent a common barrier: Resources and Information, Training and Development, Technical Assistance, and Implementation. The Manual describes best practices for transportation safety practitioners in local government agencies to adopt—in cooperation with state and federal partners—to encourage participation in implementing HSIP projects.					
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TABLE OF CONTENTS

Introduction	ix
Section I: Resources and Information	
Case Study 1 – Strategic Highway Safety Plan Involvement	3
Case Study 2 – Crash Mapping Analysis Tool	7
Case Study 3 – HSIP Application Guidance Document	11
Case Study 4 – HSIP Application Preparation Assistance	15
Section II: Training and Development	
Case Study 5 – Safety Training for Local Agencies	19
Case Study 6 – Local HSIP Advisory Committee	23
Case Study 7 – Implementing New Technology	29
Case Study 8 – Local Agency Safety Program	31
Section III: Technical Assistance	
Case Study 9 – Support for Road Safety Assessments	37
Case Study 10 – Local Road Safety Plans	39
Section IV: Implementation	
Case Study 11 – Systemic Safety Evaluation	49
Case Study 12 – Environmental Documentation Assistance	53
Case Study 13 – Bundled Project Strategy	55
Case Study 14 – Local Safety Engineering Assistance Program	59
Case Study 15 – Dedicated HSIP Funding Support for Local System Safety Projects	63
Case Study 16 – Comprehensive Approach to Local Road Safety	67
Case Study 17 – New Data-driven Approach to Support Safety Countermeasures with Short Service Lives	71
Summary	75
References	79

Figures

Figure 2-1. Examples of the Crash Mapping Analysis Tool Filters	8
Figure 2-2. Stacking Function of the Crash Mapping Analysis Tool	9
Figure 2-3. Examples of the Crash Mapping Analysis Tool Reporting Capabilities.....	9
Figure 4-1. HSIP Project Form Example.....	16
Figure 5-1. FHWA Safety Analysis Process	20
Figure 6-1. Local/State Fatalities Trend Line	23
Figure 6-2. HSIP Funding for Local Road Safety in California	24
Figure 6-3. Injury Severity Quantified in California	25
Figure 6-4. Rural Highway Shoulder Paving in California	25
Figure 6-5. Downtown Paradise Road Configuration Change Before	26
Figure 6-6. Illustration of Multiple-threat Pedestrian Crash	26
Figure 6-7. Downtown Paradise Road Configuration Change After	26
Figure 8-1. Improved Overhead Signage in District 7: Before (top) and After	33
Figure 10-1. Minnesota County Roadway Systemic Safety Planning Process	40
Figure 10-2. Example of a Visual Trap – Minor Road Intersects Roadway on a Curve	40
Figure 10-3. Minnesota Fatality Trend Line	41
Figure 10-4. North Dakota Counties, Cities, Reservations, and National Parks.....	43
Figure 10-5. Systemic Safety Project Development Process Flow Chart.....	44
Figure 11-1. FHWA Systemic Safety Tool	50
Figure 14-1. Figure 14-1. NJTPA Local Safety and High Risk Rural Roads Program	59
Figure 14-2. Percentage of Projects Requesting Design Assistance by Fiscal Year (New Jersey)..	60
Figure 16-1. ODOT District and Central Offices.....	68

Tables

Table 10-1. Program Study Network Summary (Minnesota County Roadway System).....	40
Table 14-1. Annual Summary of Local Safety Engineering Assistance Program (New Jersey)	60
Table 15-1. MnDOT HSIP Funding for Local System Safety Projects 2011 to 2016	64
Table 15-2. NDDOT HSIP Funding for Local System Safety Projects 2017 to 2020.....	64

Appendixes

Appendix A – Members of the Technical Oversight Working Group	85
Appendix B – Sample HSIP Project Application Spreadsheet	87
Appendix C – California Local Highway Safety Improvement Program Advisory Charter.....	89
Appendix D – Environmental Documentation for Federal Projects with Minor Impacts.....	93
Appendix E – Sample Determination of No Effect.....	95
Appendix F – Memo and Joint Powers Agreement for the Administration of Federal HSIP Safety Grant.....	97



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INTRODUCTION

INTRODUCTION

The U.S. Federal Highway Administration (FHWA) has prioritized increasing the level of local agency participation in statewide safety planning efforts. The FHWA recommends local agencies take a comprehensive approach in addressing safety issues on local roadway systems and work toward achieving the long-term vision of zero traffic-related fatalities and serious injuries. Local government agencies own and operate approximately 76% of public roads (FHWA, 2015). With 38% of traffic fatalities occurring on local roads (NHTSA, 2015) states face challenges in achieving zero traffic-related fatalities and significantly reducing the number of serious injuries unless local roadway system safety is an integral part of their safety planning and investment initiatives.

A number of states have identified the value of partnering with local agencies to use their state's Highway Safety Improvement Program (HSIP) funding to support safety project development.

The FHWA, state Departments of Transportation (DOTs), and local agencies have discussed expanding roadway project development through the HSIP. Increased safety project development and HSIP support for investment in local roadway projects requires an understanding of the needs, resources, and staff capabilities of local agencies. Local agencies have fewer professional staff than state DOTs, limited budgets for project development, and a wide variety of responsibilities. The level of complexity and technical expertise necessary to acquire HSIP funding can present substantial barriers to local agency staff. Frequently, the additional effort required to implement local safety projects supported by HSIP funds results in many local agencies either declining funding or being unable to participate in the HSIP.

This Noteworthy Practices Manual identifies several common barriers faced by many local agencies in implementing HSIP projects. Best practices—identified through a series of interviews with state and local agency staff nationwide—are broken into four sections—Resources and Information, Training and Development, Technical Assistance, and Implementation.

Within the following four sections, 17 noteworthy practices are presented as case studies to illustrate how state and local agencies have overcome challenges in implementing local HSIP-funded projects. Agencies include metropolitan planning organizations (MPOs), local agencies, and state DOTs. State DOTs manage the HSIP; many have developed creative approaches to support local agency implementations.

Section 1. Resources and Information – Case studies describe common barriers faced by local agency staff during statewide planning activities (for example, few best practices resources, a lack of accessible/user-friendly data, and no prior experience in completing the application process). The case studies identify highway safety priorities, policies, and best practices for overcoming the barriers and engaging local agencies in statewide safety planning efforts.

Section 2. Training and Development – Case studies describe how the lack of training is a barrier to identifying and developing safety projects for HSIP funding. Without adequate training and staff development, safety practitioners cannot address safety challenges and integrate road safety (including crash analysis and development of traffic safety solutions) into their existing responsibilities. Even though a large percentage of fatalities occur on local roads, local agencies do not take full advantage of the resources available to counteract those fatalities. The case studies provide local agencies with training resources on how to perform data-driven evaluations of roadway systems and identify and prioritize locations for safety investment.

Section 3. Technical Assistance – Case studies describe how support for technical assistance allows local agencies to overcome such barriers as a lack of funding and a limited number of practitioners with institutional knowledge. The case studies identify staffing and financial resources available to local agencies.

Section 4. Implementation – Case studies describe how local agencies can implement safety strategies using time- and cost-saving efficiencies during the final phases of HSIP projects (contracting, permitting, and design). Barriers to implementation include limited resources for local agencies to comply with FHWA, varying level of expertise, and limited funding. The case studies describe how to overcome these barriers.

FHWA developed the *Noteworthy Practices Manual* for local agencies to use when developing and administering federally-funded HSIP projects. It shares best practices in implementing federally-funded safety projects and provides solutions for local agencies to implement—independently or cooperatively—with other agencies. By sharing the types of best practices described in this Manual, FHWA hopes local agencies and their DOT partners will be better prepared to face the challenges of implementing federally-funded HSIP projects.

A Technical Oversight Working Group (TOWG) provided guidance in developing the Manual. Representatives include city planning, county engineer, and state DOT offices, the National Association of County Engineers and National League of Cities, and a Native American Tribe. TOWG members are listed in Appendix A.

References:

1. U.S. Federal Highway Administration (FHWA). 2015. Highway Statistics 2014. *Public Road Length – 2014, Miles By Ownership*. <https://www.fhwa.dot.gov/policyinformation/statistics/2014/hm10.cfm>. Accessed November 20, 2017.
2. National Highway Traffic Safety Administration (NHTSA). 2015. *Fatality Analysis Reporting System (FARS) Encyclopedia*. <https://www-fars.nhtsa.dot.gov/Main/index.aspx>. Accessed November 20, 2017.



Source: FHWA

SECTION I:

Resources and Information

Table of Contents

- Case Study 1 – Strategic Highway Safety Plan Involvement..... 3
- Case Study 2 – Crash Mapping Analysis Tool 7
- Case Study 3 – HSIP Application Guidance Document 11
- Case Study 4 – HSIP Application Preparation Assistance 15

CASE STUDY I –

Strategic Highway Safety Plan Involvement

Problem

A local agency has not participated in statewide safety planning efforts. The agency would like to participate but is unsure how to begin.

Noteworthy Solution

A state DOT's collaboration with local agencies who have successfully implemented safety measures is critical to planning efforts. Frequently, local agencies are not sufficiently engaged during project identification and development to effectively implement the recommended measures. This case study shows how North Dakota DOT (NDDOT) and New Jersey DOT (NJDOT) are addressing this issue by including commitments in their Strategic Highway Safety Plan (SHSP) to:

- » Encourage local agencies to develop safety practices.
- » Increase the level of engagement of local agencies in statewide planning.
- » Increase available resources for safety on local roads.

The first step is to identify existing commitments related to local agency participation. These are often listed in the state's SHSP. When reviewing the SHSP, a few questions to ask are:

- » Does the state SHSP have data documenting the distribution of crashes across the state and local system?
- » Is there a discussion of how local road safety fits into the total statewide effort?
- » Is there a commitment to engage local agencies in statewide safety planning?

If this information is provided in the state SHSP, the local agency can contact the SHSP program coordinator to ask for information about how to participate in the safety planning process and develop safety practices. If not, the local agency can contact the state's SHSP program coordinator and advocate for local agency input to the next SHSP. An agency may offer to participate as either a member of an Advisory Committee and/or a representative of a statewide association of counties, cities, or metropolitan planning organizations (MPOs).

To increase the level of involvement, local agencies should collect updated data, participate in training and development, and request technical assistance and implementation support. A state DOT's commitment to increasing available resources for local road safety may include providing:

- » Funding to support implementation of projects along local road systems (including, but not limited to, HSIP funds).
- » Training and technical support for local agency staff.
- » Accountability and performance measures to ensure funding and projects are correctly allocated and managed.
- » Information about roadway safety issues to local practitioners.

The following examples show NDDOT's and NJDOT's commitment to local road safety.

NDDOT SHSP

As stated in the North Dakota SHSP, NDDOT successfully implemented and documented safety practices.

"The statewide Highway Safety Improvement Program will include all roads by increasing the level of engagement of local highway agencies in the HSIP. The specific steps that NDDOT will take to increase the level of participation by local agencies includes the following:

- » *Prepare safety plans for local systems around the state.*
- » *Dedicate significantly more HSIP funds to improvements on local systems where the majority of fatal and injury crashes occur.*
- » *Investigate and identify future data needs to support on-going participation by local agencies in the HSIP (for example, traffic volumes, traffic-control device inventories, video logs, etc.).*
- » *Identify and then remove the barriers for local participation in the statewide HSIP, such as the current practice of deducting any HSIP award from the current formula driven distribution of federal aid.*
- » *Identify needs and then provide safety training to local agency staff" (NDDOT, 2013).*

NDDOT provided technical assistance and funding to prepare safety plans for 53 counties and 12 cities in the state of North Dakota. In Fiscal Year 2017, the state allocated approximately 35% of its HSIP funding to support safety project implementation on local roads. In previous years, the allocation was only 2%.

NJDOT SHSP

NJDOT has increased available resources by committing funding and training/technical support to local agencies. The SHSP states, "(NJDOT)...supports safety on local systems through the dedication of HSIP funds and by providing technical assistance" (NJDOT, 2015).

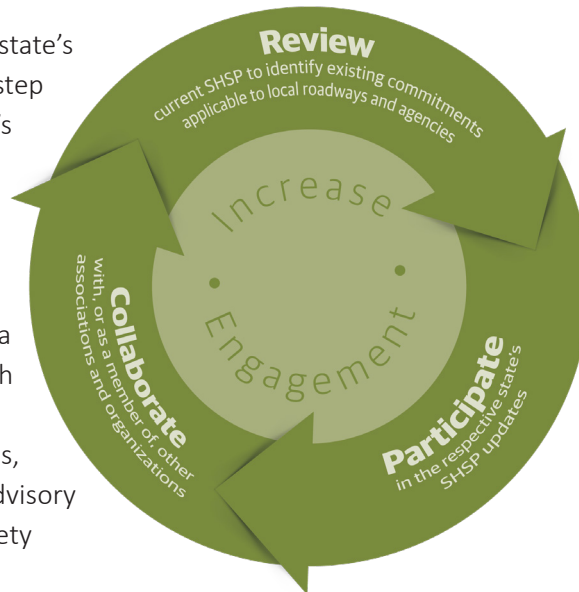
NJDOT has also incorporated a system for accountability and performance measures to ensure projects are correctly approved and managed. For example, local safety projects must be approved by a Technical Review Committee, made up of representatives from MPOs and staff from NJDOT's Local Aid, Environmental Services, and Safety Programs. The U.S. Federal Highway Administration (FHWA) also sits on the Committee as a non-voting member. Once the project is approved, NJDOT holds recurring meetings to track the project's progress and outcome.

NJDOT has provided training on using the Highway Safety Manual and preparing contract documents. Between 2013 and 2014 NJDOT funding for local roads increased from less than \$4 million (2013) annually to an average of \$25 million (based on a comparison of 2013, 2014, 2015, and 2016 HSIP reports [FHWA, 2013; 2014; 2015; 2016]).

Local Agency Action Items

NDDOT and NJDOT have successfully increased local agency participation in safety planning through close collaboration and engagement. To become engaged, a local agency could:

- » **Review** the current SHSP to identify existing commitments applicable to local roadways and agencies.
- » **Participate** in the respective state's SHSP update process. A first step could be to contact the state's SHSP coordinator to request more information and discuss opportunities for participation.
- » **Collaborate** with or become a member of organizations such as NACE, the MPO, state and county engineer organizations, professional societies, and Advisory Committees to champion safety planning efforts.



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References

1. U.S. Federal Highway Administration (FHWA). 2013. *New Jersey Highway Safety Improvement Program 2013 Annual Report*. <https://safety.fhwa.dot.gov/hsip/reports/pdf/2013/nj.pdf>. Accessed November 6, 2018.
2. U.S. Federal Highway Administration (FHWA). 2014. *New Jersey Highway Safety Improvement Program 2014 Annual Report*. <https://safety.fhwa.dot.gov/hsip/reports/pdf/2014/nj.pdf>. Accessed November 6, 2018.
3. U.S. Federal Highway Administration (FHWA). 2015. *New Jersey Highway Safety Improvement Program 2015 Annual Report*. <https://safety.fhwa.dot.gov/hsip/reports/pdf/2015/nj.pdf>. Accessed November 6, 2018.
4. U.S. Federal Highway Administration (FHWA). 2016. *New Jersey Highway Safety Improvement Program 2016 Annual Report*. <https://safety.fhwa.dot.gov/hsip/reports/pdf/2016/nj.pdf>. Accessed November 6, 2018.
5. New Jersey Department of Transportation (NJDOT). 2015. *New Jersey Strategic Highway Safety Plan*. <http://www.state.nj.us/transportation/about/safety/pdf/2015strategichighwaysafetyplan.pdf>. Accessed July 27, 2017.
6. North Dakota Department of Transportation (NDDOT). 2013. *North Dakota's Strategic Highway Safety Plan*. September.

CASE STUDY 2 – Crash Mapping Analysis Tool

Problem

A lack of accessible/user-friendly data prevents local agencies from participating in statewide safety planning efforts.

Noteworthy Solution

Minnesota Department of Transportation (MnDOT) developed the Minnesota Crash Mapping Analysis Tool (MnCMAT) to increase the accessibility and user-friendly features of its crash data. MnDOT's Division of State Aid for Local Transportation partnered with the Minnesota Local Road Research Board and the Minnesota County Engineers Association to develop the analysis tool. MnCMAT is a web-based application that provides 10 years of crash data for public roads in Minnesota. Individual crashes are spatially located along public roadways and up to 67 pieces of information are provided for each crash.

MnDOT's original computer-based crash record system was used for more than 40 years and used reference points to locate features along a linear element. In addition to providing a location for each crash in the state, more than 15 data elements were documented from the investigating officers' crash reports, including:

- » Highway system (state, county, city, and township).
- » Route.
- » Reference point.
- » Date, day, and time.
- » Severity.
- » Crash causation.
- » Weather.
- » Road characteristics.
- » Driver conditions.

The data output was provided to local agencies in response to requests for crash data. However, few local agencies used the data regularly because the output was not considered user friendly.

The concept of a crash mapping analysis tool was first developed in the 1990s by the Iowa DOT and Iowa State University's Center for Transportation Research and Education. Following a demonstration of the desktop-based mapping tool at a county engineer's peer exchange in 2006, MnDOT (with funding support from county engineers) and the Local Road Research Board modified the mapping tool to a web-based application meeting the crash data needs of Minnesota.

MnCMAT is currently used by Minnesota's city and county engineers, law enforcement, and other traffic safety experts to conduct analyses across state and local roadways. Users have access to crash data in multiple formats in addition to macroscopic (large scale coverage plus trends and statistics) and microscopic (small scale coverage showing crash details) analyses.

Key features include:

- » Filters that allow analysts to select specific crash data elements—such as severity, type, roadway condition, driver conditions, and contributing factors (Figure 2-1).
- » A multi-dimensional stacking function that shows locations with multiple crashes and uses colors to differentiate crashes by level of severity (Figure 2-2).
- » Visual analysis tools including (Figure 2-3):
 - Charts.
 - Maps.
 - Reports.
 - Data files.

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Local Agency Action Items

MnDOT has successfully developed a web-based system that improves crash data accessibility and analysis capabilities. To expedite the development of similar platforms, a local agency could:

- » **Check** with state DOT and university research centers about the availability of similar tools.
- » **Identify** data needs (agencies need support with data retrieval, management, or analysis) to understand what is essential for using web-based crash data.
- » **Partner** with other local agencies and collectively request that the state DOT create web-based systems to access and analyze crash data.

Figure 2-1. Examples of the Crash Mapping Analysis Tool Filters

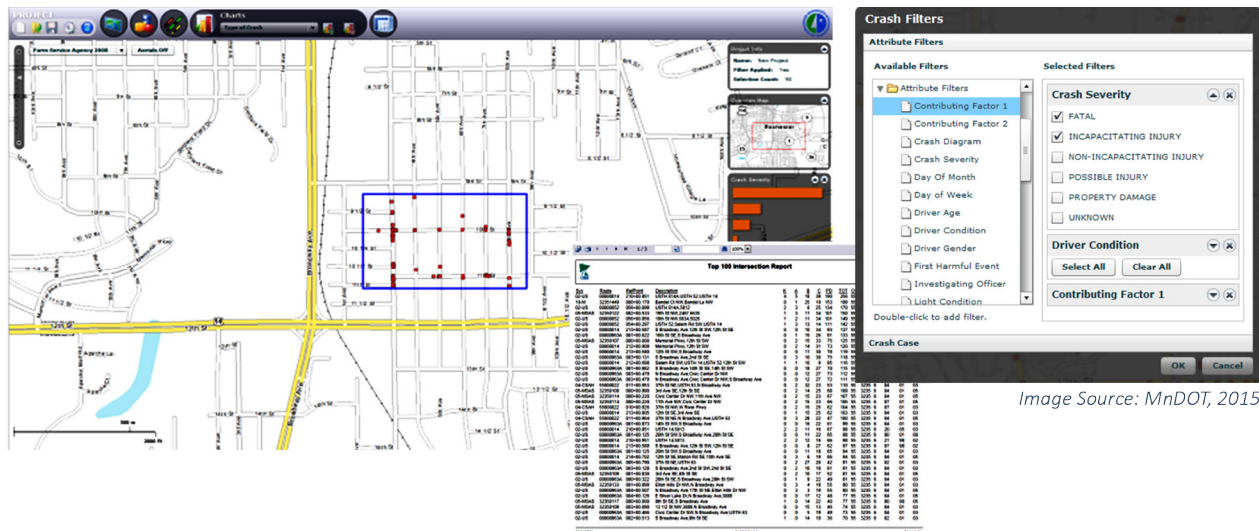


Image Source: MnDOT, 2015

Figure 2-2. Stacking Function of the Crash Mapping Analysis Tool

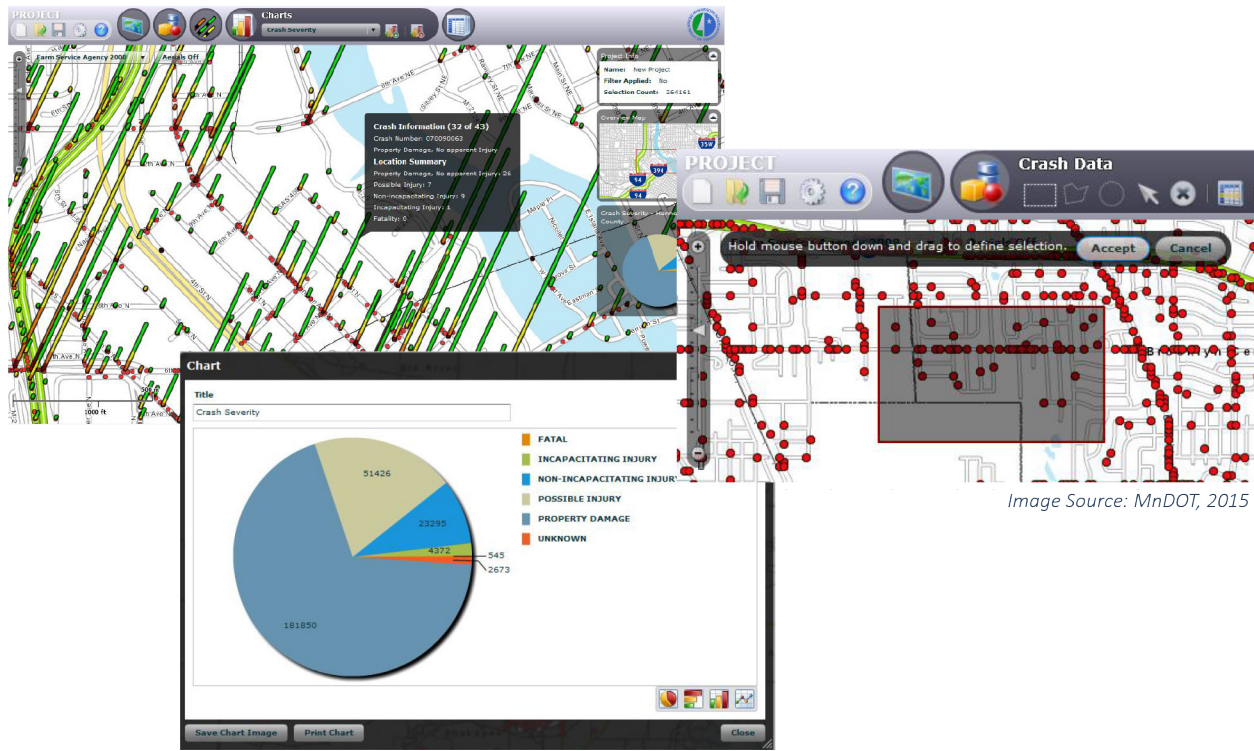


Image Source: MnDOT, 2015

Figure 2-3. Examples of the Crash Mapping Analysis Tool Reporting Capabilities

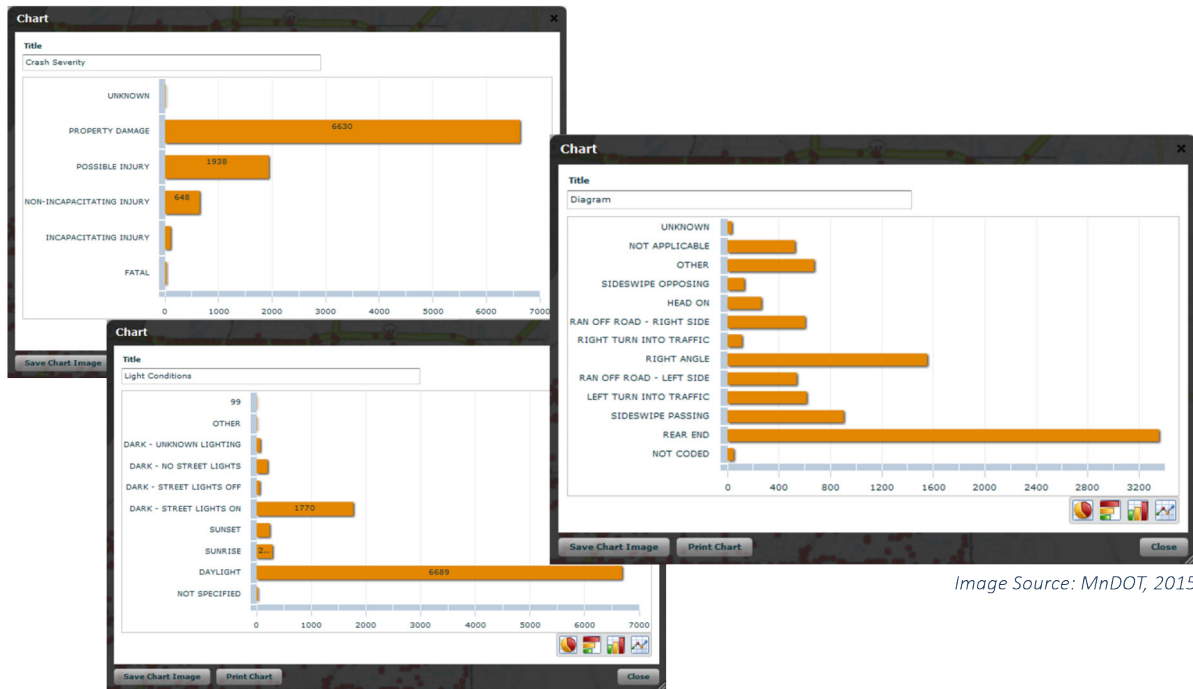


Image Source: MnDOT, 2015

References

1. Iowa Department of Transportation (Iowa DOT). *Crash Mapping Analysis Tool*. <https://iowadot.gov/crashanalysis/cmatmain.aspx>. Accessed April 2015.
2. Minnesota Department of Transportation (MnDOT). 2015. *Minnesota Crash Mapping Analysis Tool*. <http://www.dot.state.mn.us/stateaid/crashmapping.html>. Accessed April 2015.

CASE STUDY 3 –

HSIP Application Guidance Document

Problem

The Highway Safety Improvement Program (HSIP) funding application process is a barrier for local agency staff due to the information required, a lack of prior experience with the process, limited resources, and competition for limited funds.

Noteworthy Solution

A funding process that considers the constrained resources of local public agencies and simplifies the funding applications is critical to enabling local agencies access to HSIP funds. One solution is to provide guidance to local agencies to help them successfully complete the application. The New Hampshire Department of Transportation's (NHDOT) *HSIP Manual and Guidance* (2013) document is a good example of this approach.

The purpose of the Manual is, *“to provide documentation and guidance to NHDOT staff and other safety stakeholders involved with implementing the HSIP in New Hampshire.”* The Manual was developed by an HSIP Committee directed by NHDOT staff and includes representatives from NHDOT, U.S. Federal Highway Administration (FHWA), local state agencies, metropolitan planning organizations (MPOs), and regional development commissions.

The *HSIP Manual and Guidance* document includes an overview of key principles of New Hampshire's HSIP, including (NHDOT, 2013):

- » The HSIP funding process directs resources to projects that are most likely to achieve results (crash reductions).
- » The HSIP is data driven and directs safety funds to the most effective treatments at the locations with the greatest needs.
- » Funding decisions are based on prioritization and identify projects with the greatest return.
- » Safety funding is provided to projects that address Critical Emphasis Areas (CEAs) identified in New Hampshire's Strategic Highway Safety Plan (SHSP) (NHDOT, 2012). For example, crashes involving animals is an eligible CEA activity in MAP-21, but not in New Hampshire's current SHSP. As a result, HSIP funds would not be allocated for that purpose.
- » HSIP funds are reserved for standalone projects targeting specific, high-priority safety needs whereas other federal funds are eligible to support and leverage the program for routine safety features and design elements. For example, providing safety features—such as guard rails, paved shoulders, and auxiliary turning lanes—that are generally included as part of a larger federal-aid project should be included in funding for the larger project, not HSIP.

The Manual also describes NHDOT's three-step HSIP selection process (NHDOT, 2013).

1. Eligibility

- » Targets CEAs identified in the SHSP.
- » Specifies a need for data-driven solutions with benefit/cost ratios greater than 1.
- » Identifies candidate locations through network screening for high crash (fatal and serious injury crashes) or high risk (systemic assessment) and presents the results of road safety audits.

2. Prioritization

- » Results of an incremental Benefit/Cost Analysis consider:
 - Value of expected safety benefits.
 - Countermeasure effectiveness.
 - Construction.
 - Maintenance costs and service life.

3. Optimization

- » Optimizes available funding to implement the most effective projects.
- » Allows program managers to adjust a prioritized list of projects based on project risk, completion date, and level of reduction for serious crashes.

NHDOT considers projects that are quick, low-cost, have minimal environmental and right-of-way impacts, and are expected to make significant improvements in safety to be the most effective. Even though systemic and non-infrastructure projects may not have all the data required, the HSIP Committee uses best judgment in fairly and equally evaluating them alongside projects with the necessary data. To help with this evaluation, the Manual includes the one-page Application Spreadsheet (Appendix B) that local agencies can use to provide the required information, including:

- » Requesting agency and contact.
- » Site description.
- » Crash data.
- » Traffic data.
- » Improvement description.
- » Economic evaluation (cost/benefit ratio, net benefits, and estimated annual fatal and severe injury crash reduction).

In addition, the NHDOT created a Highway Safety Improvement webpage (<https://www.nh.gov/dot/org/projectdevelopment/highwaydesign/hwysafetyimprovements>). Local communities and local agency staff can use this site to obtain additional information and guidance on the HSIP process

in New Hampshire (request forms, links to FHWA requirements, and the HSIP Manual).

Results

The availability of the HSIP Manual has increased the local agency level of engagement in New Hampshire’s statewide safety planning. Currently, 10% of HSIP projects are implemented on the local system.

Local Agency Action Items

NHDOT has successfully resolved the funding application process barrier. To streamline its HSIP application process, a local agency could:

- » **Identify** state DOT resources through the HSIP application process. Agencies can coordinate with the state’s HSIP manager to identify available resources.
- » **Collaborate** with or become a member of such organizations as DOT, FHWA, local agencies around the state, MPOs, state and county engineer associations, advisory committees, and regional development commissions to share resources and best practices.

References

1. New Hampshire Department of Transportation (NHDOT). 2012. *Strategic Highway Safety Plan*. https://www.nh.gov/dot/projects/documents/2012_2016_strategic_highway_safety_plan_single_pages_suitable_for_printing.pdf. Accessed November 30, 2018.
2. New Hampshire Department of Transportation (NHDOT). 2013. *Highway Safety Improvement Program Manual and Guidance*. https://www.nh.gov/dot/org/projectdevelopment/highwaydesign/hwysafetyimprovements/documents/hsip_nhguidance_122013.pdf. Accessed November 30, 2018.
3. New Hampshire Department of Transportation (NHDOT). 2017. Highway Safety Improvement webpage. <https://www.nh.gov/dot/org/projectdevelopment/highwaydesign/hwysafetyimprovements>. Accessed August 17, 2017.

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CASE STUDY 4 –

HSIP Application Preparation Assistance

Problem

Local agencies implement few Highway Safety Improvement Program (HSIP)-funded safety projects because project funding applications are seen as too complex and difficult.

Noteworthy Solution

To increase local participation in the HSIP process, the Minnesota and North Dakota DOTs developed Local Road Safety Plans (LRSPs) for each of the state counties (Refer to Case Study 10 for detailed information). To expedite project development, they provided local agencies with the HSIP project forms and required data for projects identified in the two state safety plans (approximately 14,000 specific actions at individual locations in Minnesota [Leuer, 2016, pers. comm.] and 3,000 actions in North Dakota [Kuntz, 2016, pers. comm.]). The project forms included the required information to describe the safety program for the funding application (Figure 4-1):

- » Name of the submitting agency.
- » Project description.
- » Location information.
- » Overview of crash data.
- » Risk factors.
- » List of safety strategies considered.
- » Selected strategy and estimated implementation cost.

Local agency staff and DOT HSIP manager feedback on this successful program indicated:

- » The application process is simple and encourages local agency participation.
- » State DOT effort is reduced because returned applications are more consistent and complete.

Local participation in the North Dakota HSIPs increased after agencies received additional assistance (Kuntz, 2016, pers. comm.). In Minnesota 85% of the counties have secured HSIP funding for at least one project directly through the assisted applications (Leuer, 2016, pers. comm.).

Local Agency Action Items

Minnesota and North Dakota DOTs have successfully provided local agencies with HSIP project forms and relevant data. Local agencies facing complex HSIP funding applications could:

- » **Contact** the state DOT to identify available HSIP application resources.
- » **Collaborate** with other local agencies to standardize and streamline application instructions.
- » **Identify** opportunities to modify application requirements.



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SECTION II:

Training and Development

Table of Contents

Case Study 5 – Safety Training for Local Agencies.....	19
Case Study 6 – Local HSIP Advisory Committee	23
Case Study 7 – Implementing New Technology	29
Case Study 8 – Local Agency Safety Program	31

CASE STUDY 5 –

Safety Training for Local Agencies

Problem

Local agencies find it difficult to identify and develop safety projects for Highway Safety Improvement Program (HSIP) funding since very few of their staff are trained in safety analysis.

Noteworthy Solution

State and federal entities acknowledge that some local agencies have limited staff and their responsibilities cover a broad range of work that often monopolizes their time. They frequently are unable to take the necessary training to understand or apply traffic safety methods. In response, agencies have developed tools to help guide local practitioners through the HSIP safety analysis process. Federal and state agencies have developed the following resources to provide local agencies with safety analysis training and tools:

1. U.S. Federal Highway Administration (FHWA) *Improving Safety on Rural Local and Tribal Roads – Safety Toolkit* (2014a).
2. Minnesota Department of Transportation (MnDOT) *Traffic Safety Fundamentals Handbook* (2015).
3. North Jersey Transportation Planning Authority (NJTPA) training course using the *New Jersey Highway Safety Improvement Program (HSIP) Manual* (2016).

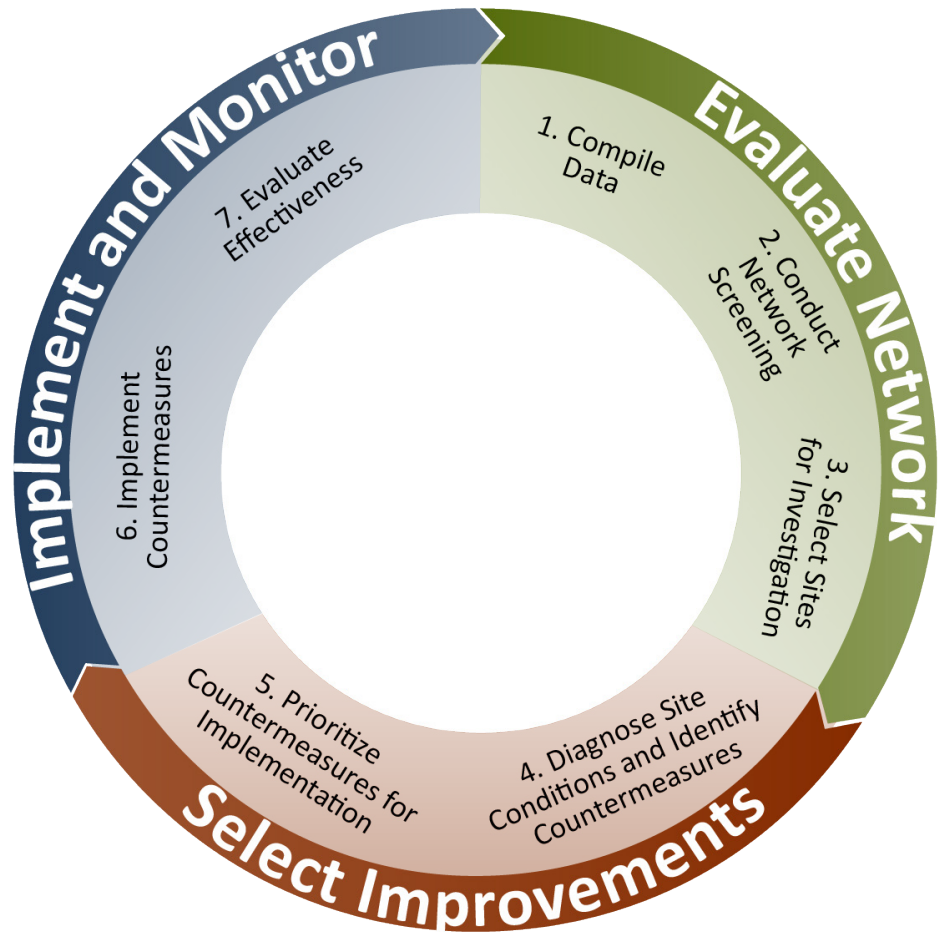
Improving Safety on Rural Local and Tribal Roads – Safety Toolkit

The *Improving Safety on Rural Local and Tribal Roads – Safety Toolkit* (FHWA, 2014a) helps rural, local, and tribal roadway safety practitioners address safety challenges and integrate road safety into their existing responsibilities.

The Toolkit provides a seven-step process to complete traffic safety analyses, identify safety issues, identify countermeasures to address the issues, and develop an implementation process. Each step contains a set of tools, examples, and links to appropriate resources to meet the needs of safety practitioners (Figure 5-1):

1. Compile data.
2. Conduct network screening.
3. Select sites for investigation.
4. Diagnose site conditions and identify countermeasures.
5. Prioritize countermeasures for implementation.
6. Implement countermeasures.
7. Evaluate effectiveness of implemented countermeasures.

Figure 5-1. FHWA Safety Analysis Process



The Safety Toolkit, in addition to other FHWA training, tools, guidance, and countermeasures for local practitioners, is online at: <https://safety.fhwa.dot.gov/> (FHWA, 2017).

Traffic Safety Fundamentals Handbook

The *Traffic Safety Fundamentals Handbook* (MnDOT, 2015) focuses on providing the information most often requested by local agencies. MnDOT published the original version in 2001, with updates in 2008 and 2015.

More than 3,500 copies have been distributed through MnDOT's outreach to government agencies and the private sector. In addition, the Handbook is used as a resource in undergraduate and graduate traffic engineering classes at the University of Minnesota and is available to professionals in other states online at: <https://www.dot.state.mn.us/trafficeng/publ/fundamentals/2015-mndot-safety-handbook-reduced.pdf>.

The Handbook is organized into three sections:

- » Crash Characteristics – National and state crash summaries, including basic characteristics as a function of roadway classification, intersection control, roadway design, and access density.
- » Safety Improvement Process – Site analysis at high-crash locations and systemic assessments.
- » Traffic Safety Tool Box – Identification of new tools (HSM and Crash Modification Factor Clearinghouse [FHWA, 2014b]) and a safety strategies update, with an emphasis on effectiveness (crash reduction).

Agency staff refer to this Handbook for guidance on safety context, analysis, comparisons, and countermeasures.

HSIP Training

The New Jersey DOT (NJDOT) requires HSIP applications to be based on the state’s HSIP Manual (NJTPA, 2016). To help local agencies comply with this requirement, the NJTPA sponsored four, free 2-day workshops on Highway Safety Manual (HSM) analytical techniques, key assumptions, and benefit/cost ratio computations. FHWA’s Resource Center, FHWA’s New Jersey Division Office, NJDOT’s Bureau of Transportation Data and Safety, and NJTPA provided the instructors. The target audience included metropolitan planning organizations and local agency engineers. The workshop included 1-hour time slots for local agencies considering submitting a project for HSIP funding to present details about their projects. Instructors provided feedback to local agency engineers about HSM assumptions and the suggested approach for analytical techniques.

To date, almost two-thirds of NJTPA’s 15 sub-regions have participated and applications for 26 safety projects have been adopted by the NJTPA Board of Trustees for funding through the Local Safety Program (NJTPA, 2016).

Local Agency Action Items

These three noteworthy resources provide local agencies with safety analysis training and tools. To ensure staff receive this training, local agencies could:

- » **Identify** document and training resources through the state DOT or other agencies.
- » **Collaborate** with local agencies to develop applicable materials or training.
- » **Request** information and training assistance from the state DOT, when needed.
- » **Incorporate** the recommendations found in the guidance documents into the local agencies’ internal processes.

Relevant Contacts

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References

1. U.S. Federal Highway Administration (FHWA). 2014a. *Improving Safety on Rural Local and Tribal Roads – Safety Toolkit*. https://safety.fhwa.dot.gov/local_rural/training/fhwas14072/islrtrst.pdf. Accessed September 18, 2017.
2. U.S. Federal Highway Administration (FHWA). 2014b. *Crash Modification Factor (CMF) Clearinghouse*. <http://safety.fhwa.dot.gov/tools/crf/resources/>. Modified October 2014.
3. U.S. Federal Highway Administration (FHWA). 2017. Federal Highway Administration (FHWA) Website. <https://safety.fhwa.dot.gov/>. Accessed September 18, 2017.
4. Minnesota Department of Transportation (MnDOT). 2015. *Traffic Safety Fundamentals Handbook*. <http://www.dot.state.mn.us/stateaid/trafficsafety/reference/2015-mndot-safety-handbook-large.pdf>. Accessed September 18 2017.
5. North Jersey Transportation Planning Authority (NJTPA). 2016. *New Jersey Highway Safety Improvement Program Manual*. <http://www.state.nj.us/transportation/about/safety/pdf/2016hsipmanual.pdf>. Accessed November 30, 2018.

CASE STUDY 6 –

Local HSIP Advisory Committee

Problem

Despite a notable percentage of fatalities occurring on local roads, there is low county, city, and local agency participation in the Highway Safety Improvement Program (HSIP).

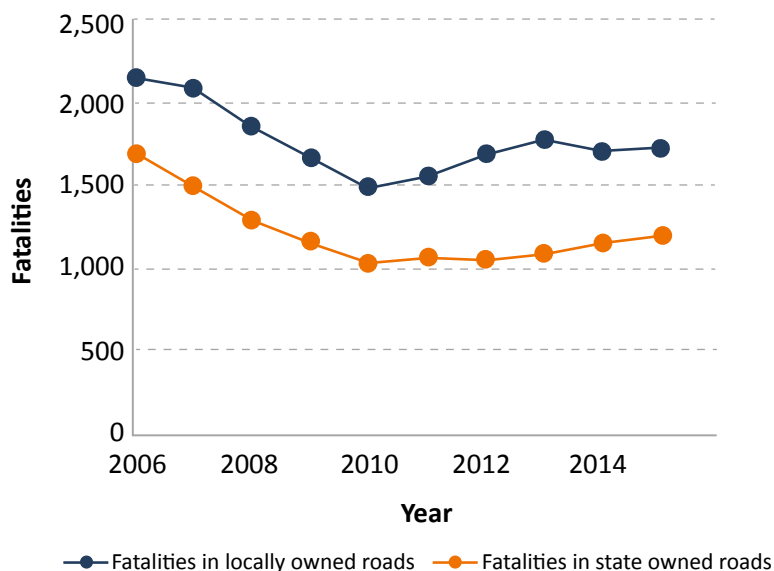
Noteworthy Solution

In 2014, California formed a local HSIP Advisory Committee to increase local agency participation in California’s HSIP and to support the state’s goal to reduce traffic fatalities (Figure 6-1) and serious injuries on California public roads. The Advisory Committee provides California’s local HSIP and other safety programs with safety guidance on California’s local roadways. Committee members include the California Department of Transportation (Caltrans) – Division of Local Assistance; U.S. Federal Highway Administration (FHWA), the Local Technical Assistance Program, and local agencies throughout California.

The Advisory Committee’s Charter (Appendix C, Desired Goals, Advisory Committee Charter, 2017) identifies six goals:

1. Ensure that California’s Local HSIP and other safety programs and efforts are consistent with California’s Strategic Highway Safety Plan (SHSP).
2. Provide vision and strategic priorities for improving local safety programs and processes.
3. Provide recommendations on California Local HSIP and processes.
4. Provide recommendations to streamline decision-making, review, and project delivery on safety projects.
5. Identify funding opportunities to meet local roadway safety needs.
6. Encourage, improve, and support traffic safety efforts at local agencies.

Figure 6-1. Local/State Fatalities Trend Line
Road Fatalities in California



Source: Fatality Analysis Reporting System (FARS), 2017; Adapted by FHWA

The Advisory Committee is co-chaired by Caltrans and a representative from a local agency, and includes 11 members representing cities, counties, and regional/metropolitan planning agencies. The goal is for committee members to represent urban and rural areas distributed geographically across the state.

The Advisory Committee (Appendix C) adopted four key initiatives:

1. Address systemic risks on local roads with low-cost safety countermeasures, including programs focused on roadway departure and high-friction surface treatments.
2. Identify funding strategies that reflect unique local needs, including webinars focused on preparing applications for safety funding.
3. Target high-risk jurisdictions for funding, training, and technical assistance. Recognize that some local systems with the highest number of fatalities and serious injuries are smaller jurisdictions without the capacity or technical ability to address safety concerns.
4. Implement an effective, consistent, and coordinated traffic incident management program at the state and local level to reduce the duration and impacts to traffic incidents and improve safety for motorists, crash victims, and emergency responders.

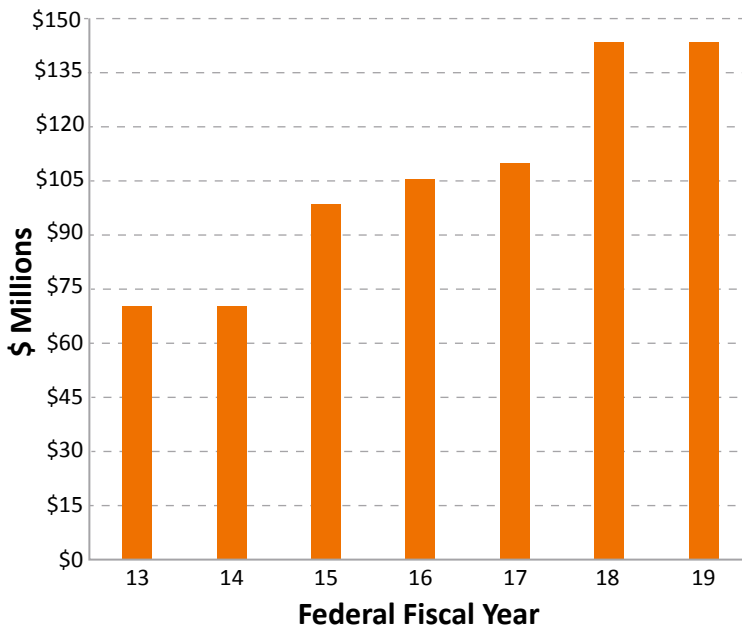
Since 2014, the outreach, training, and technical assistance provided by the Advisory Committee increased local agency participation by almost 40%. This

translates to a 70% increase in the level of safety funds dedicated to local system projects (from about \$65 million programmed for Fiscal Years 2012 and 2013 to \$100 million in 2015 and \$140 million in 2019) (Kochevar, 2017, pers. comm) (Figure 6-2).

The types of projects selected for funding as a result of the Advisory Committee initiatives are listed below and illustrated in Figures 6-3 and 6-4:

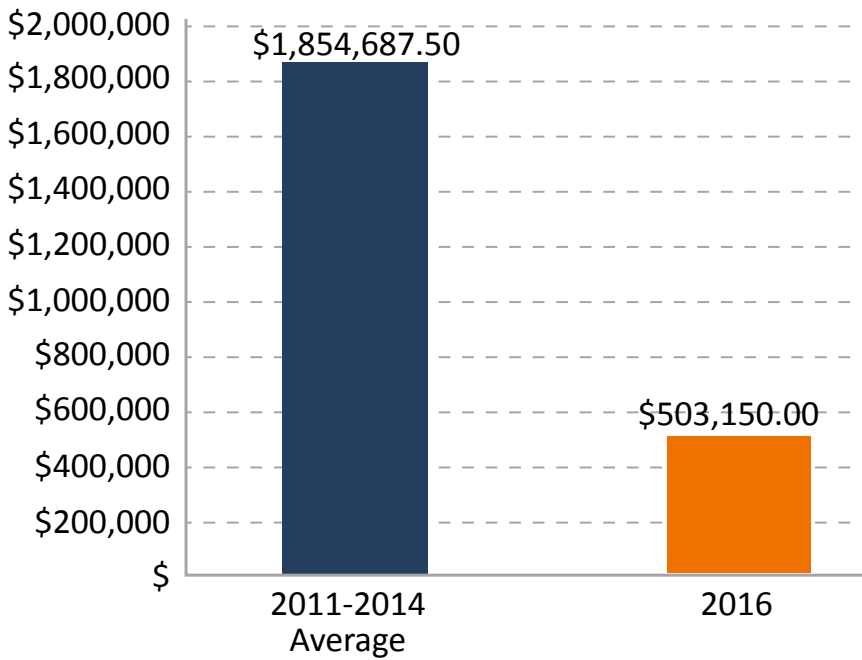
- » Pedestrian/bicycle improvements – Countdown timers, curb ramps, refuge islands, curb extensions, rapid flash beacons and signals, sidewalks, and bike lanes.
- » Access management – Raised medians and road diets.
- » Intersection improvements – Signal modifications and left-turn lanes, roundabouts, and street lights.
- » Segment improvements – Shoulder paving, pavement markings, clear zone maintenance, and guardrail upgrades.

Figure 6-2. HSIP Funding for Local Road Safety in California



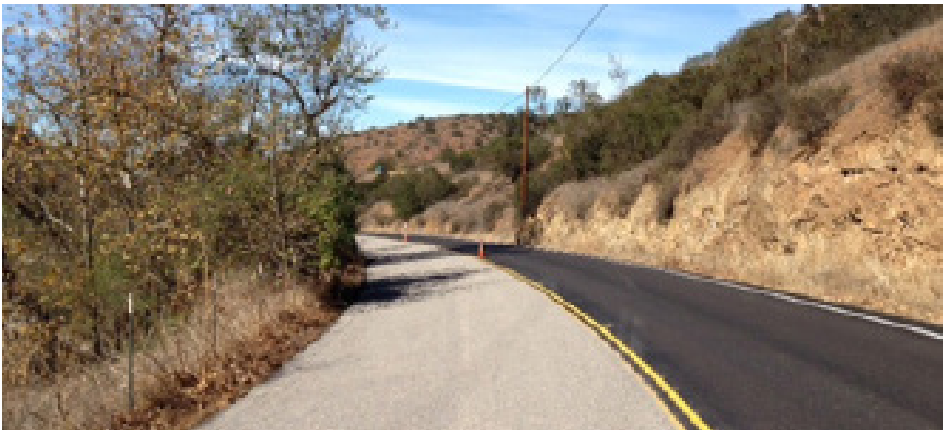
Source: Kochevar, 2017, pers. comm.; Adapted by FHWA

Figure 6-3. Injury Severity Quantified in California



Source: Mattox, 2016, pers. comm..

Figure 6-4. Rural Highway Shoulder Paving in California



Source: Kochevar, 2017, pers. comm.

Local Agency Highlights

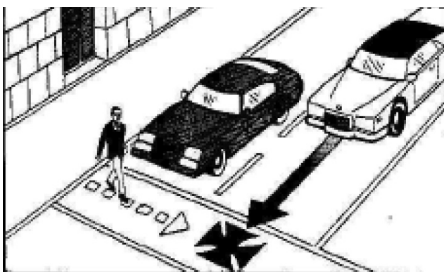
The Town of Paradise has benefited from state efforts to increase the number of cities and counties participating in the HSIP. Prior to securing HSIP funds, Paradise’s \$1 million annual capital budget focused on expanding the roadway system to accommodate growth and managing 100 miles of roads. In the past 3 years, Paradise has supplemented its capital budget with \$8 million in HSIP funds, which has supported adding a shoulder paving/bike lane project, adding a two-way left-turn lane to Clark Road, upgrading the town’s signal system by adding pedestrian countdown timers and emergency vehicle pre-emption, and implementing a road diet along Skyway Road (Mattox, 2016, pers. comm). A project along Skyway Road (Figure 6-5 and Figure 6-7) converted the four-lane undivided cross-section to a three-lane cross-section

Figure 6-5. Downtown Paradise Road Configuration Change Before



Source: Mattox, 2016, pers. comm.

Figure 6-6. Illustration of Multiple-threat Pedestrian Crash



Source: FHWA, 2005

and improved signal coordination. It also added pedestrian enhancements, including crosswalks, curb extensions, refuge islands, and activated flashing beacons. Prior to these enhancements the crash rate on Skyway Road was more than twice the statewide average for similar facilities. Pedestrian crashes were the key component, especially multi-vehicle threat crashes common to four-lane roads (Figure 6-6).

According to U.S. Federal Highway Administration (FHWA), “A multiple-threat crash involves a driver stopping in one lane of a multilane road to permit pedestrians to cross, and an oncoming vehicle (in the same direction) strikes the pedestrian who is crossing in front of the stopped vehicle. This crash type involves both the pedestrian and driver failing to see each other in time to avoid the collision” (FHWA, 2005). After completing the HSIP-funded safety improvements project, the Town of Paradise reported the following successes (Mattox, 2016, pers. comm):

Figure 6-7. Downtown Paradise Road Configuration Change After



Source: Mattox, 2016, pers. comm.

Safety and Other Outcomes

- » A 15% reduction in total collisions.
- » A 27% decrease in injury collisions.
- » A 73% decrease in injury severity.
- » Zero pedestrian-involved collisions in 2016.
- » Reduced travel time during off-peak and peak hours.
- » Drastically improved yield rates at pedestrian crossings.

Local Agency Action Items

The California Advisory Committee has successfully increased local participation in California's HSIP by developing a local HSIP Advisory Committee. To develop a similar committee, a local agency could:

- » **Communicate** with the state HSIP coordinator to obtain information on opportunities for local agency HSIP participation.
- » **Collaborate** with the state DOT to provide input on where HSIP funding is allocated.
- » **Partner** with state DOT, FHWA, Local and Tribal Technical Assistance Programs, and other local agencies to charter a similar group to encourage and increase participation in the HSIP.

References

1. California Department of Transportation (Caltrans). 2015. *California Strategic Highway Safety Plan 2015-2019*. http://www.dot.ca.gov/trafficops/shsp/docs/SHSP15_Update.pdf. Accessed September 18, 2017.
2. Fatality Analysis Reporting System (FARS). 2017. Database. <https://www.nhtsa.gov/research-data/fatality-analysis-reporting-system-fars>. Accessed September 25, 2017.
3. Kochevar, Ken, Caltrans. 2017. Personal communication with Howard Preston/CH2M HILL.
4. Mattox, Mark, Town of Paradise. 2016. Personal communication with Howard Preston/CH2M HILL.
5. U.S. Federal Highway Administration (FHWA). 2005. *Federal Highway Administration Research and Technology Coordinating, Developing, and Delivering Highway Transportation Innovations*. Chapter 3. Publication Number: FHWA-HRT-04-100. September.

Relevant Contacts

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CASE STUDY 7 –

Implementing New Technology

Problem

Local agencies may have limited expertise with new/innovative safety countermeasures. This limits the agency's ability to address key crash factors.

Noteworthy Solution

In 2012, Thurston County in Washington State conducted a data-driven safety analysis to identify and prioritize potential safety projects that would be eligible for Highway Safety Improvement Program (HSIP) funds.

In late 2013, Thurston County determined that wet/icy pavement contributed to 47% of crashes and identified high friction surface treatment (HFST)—a new and innovative technology proven effective at reducing crashes, particularly on wet pavements—as a solution. However, Thurston County had no prior experience with HFST and neither the Washington State Local Technical Assistance Program (LTAP) nor the U.S. Federal Highway Administration (FHWA) could answer Thurston County's questions about local implementation (installation costs, materials, and ongoing maintenance issues). To resolve the unanswered HFST inquiries, Thurston County worked with LTAP and FHWA to coordinate a peer exchange and pilot project.

Using information received from other agencies with experience in implementing HFST Thurston County partnered with Washington State LTAP and FHWA to secure funding to cover materials and installation at two demonstration sites, selected to compare different installation methods. To share the lessons learned on HFST, the partnering agencies hosted a peer exchange, featuring an installation demonstration, and attended by 37 representatives of various local agencies, the Washington State DOT (WSDOT), FHWA, and the Western Federal Lands Division. The demonstration included an application of HFST applied by Thurston County traffic and road maintenance crews and was followed by a detailed overview of HFST by national experts.

Since the peer exchange and pilot projects, there have been at least 36 planned or installed HFST sites in the State of Washington (state and local roads). In addition, eight counties, including Thurston County, submitted HSIP funding applications to WSDOT for HFST sites in the summer of 2016. In December 2016, WSDOT awarded Thurston County more than \$2 million for HFST at 29 locations.

Local Agency Action Items

Thurston County has successfully partnered with Washington State LTAP and FHWA to implement a new and innovative, proven safety technology on local roads. To begin using a new technology on local roads, an agency could:

- » **Gauge** existing resources and interest in new technologies.
- » **Participate** in a strategic partnership or peer exchange with other agencies to share information and promote implementation of new technologies.
- » **Pilot** technologies and share information on implementation and effectiveness with a local audience.

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CASE STUDY 8 –

Local Agency Safety Program

Problem

Local agencies often do not have the resources/expertise to conduct in-depth crash analyses and/or identify traffic safety solutions.

Noteworthy Solutions

The Florida Department of Transportation (FDOT) District 7 (Tampa Bay region) has developed the Local Agency Safety Program to assist local agencies without the resources to identify, develop, and implement safety improvements on local roadways as part of their Highway Safety Improvement Program (HSIP) process.

The Local Agency Safety Program includes:

- » A yearly traffic safety summit.
- » Access to Safety Ambassadors.
- » A Local Agency Traffic Safety Academy (LATSA).
- » Project delivery assistance.

The Local Agency Safety Program provides resources to local agencies that result in improved understanding of traffic safety, project development, and the application process for project funding. In fact, *“As a result of the improved level of understanding regarding the application process, the number of project submissions made by local agencies increased from averaging 3 applications each year to 50+ applications”* (U.S. Federal Highway Administration (FHWA), 2013).

Yearly Traffic Safety Summit

FDOT District 7 hosts an annual seminar called the Local Agency Traffic Safety Summit. This seminar is geared toward local agency staff, elected officials, and independent industry consultants. The purpose of the seminar is to (FHWA, 2013):

- » Emphasize the need to improve roadway safety by drawing on case studies and local examples.
- » Describe the process to apply for HSIP funding.
- » Review the Local Agency Traffic Safety Program’s success rates.
- » Explain how FDOT District 7 can help local agencies improve safety on local roads.

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Access to Safety Ambassadors

Local agencies have access to Safety Ambassadors who have been designated by District 7 to provide guidance on navigating the HSIP funding process by linking local agencies to industry contacts, consultants, and district staff. The Ambassadors:

- » Are available year round.
- » Provide process guidance.
- » Provide access to FDOT crash maps and analyses.
- » Perform project reviews.
- » Guide local agency staff in successful project completion.

Local Agency Traffic Safety Academy

The LATSA is a webinar-based program that trains participants in best practices for successful implementation of safety projects. LATSA focuses on topics relevant to local agencies in District 7 including:

- » Securing funding for HSIP and other local safety projects/programs.
- » Local best practices on related topics including data analyses, modern infrastructure countermeasures, and project implementation.
- » New safety treatments and technologies.
- » Project delivery processes.

The webinars are free and presenters are experts in a variety of fields including consulting, government, and education and research.

LATSA began in 2013 and is online at (FDOT 2017a):

<http://www.tampabaytrafficsafety.com/LATSA/SitePages/Home.aspx>.

Project Delivery Assistance

Project Development

FDOT District 7 supports local agencies during project development by providing access to crash data and analysis, identifying high-crash locations and locations with specific crash patterns, and helping local agencies with project identification and design when resources are limited.

Project Review

FDOT District 7 provides guidance for local agencies submitting project funding requests. Since submitted projects are closely reviewed by FDOT, this guidance prompts local agencies to consider what FDOT will be looking for during its review. For instance:

- » Is the project in a high-crash location?
- » Have potential countermeasure efforts been exhausted?
- » Are cost estimates and constructability reviews complete and accurate?

Project Implementation

FDOT District 7 supports local agencies during project implementation through:

- » Material Provisions – FDOT may provide requested materials (signage, markings, and signal heads) to local agencies who are then responsible for installation and maintenance.
- » Design-Build/Push-Button (DBPB) Contracts – DBPB contracts streamline the delivery of projects considered low to medium complexity, such as:
 - Crosswalks.
 - Overhead signage (Figure 8-1).
 - Bicycle lanes.
 - Pavement markings.

DBPB projects are expedited and do not require the standard FDOT review. In fact, each task is completed in less than 1 year. According to FDOT, *“The push button framework allowed the District to reduce the time it takes to deliver simple or low-cost safety improvement from 3-5 years to 3-9 months (FDOT, 2017b).”*

According to FDOT, the DBPB has accomplished the following:

- *“Reduced the time it takes to implement a safety improvement; at the same time, reduced the potential for fatalities and serious injuries during the shortened implementation period.”*
- *Reduced overall costs of the project application process.*
- *Ensured compliance with Federal guidelines on all submitted project proposals.*
- *Promoted use of these low-cost safety improvements.”*
- » Local Agency Program support – This Program is used for more complex projects that are considered significant based on design and construction (e.g., intersection reconstruction). It permits funding of projects managed and administered by the local agency during the design and construction phases. FDOT District 7 uses a Local Agency Program expert to assist local agencies in requesting HSIP funds through the local agency safety program.

Figure 8-1. Improved Overhead Signage in District 7: Before (top) and After



Source: Florida Department of Transportation Improved overhead signage in District 7: before (top) and after.

Local Agency Action Items

Through its Local Agency Safety Program FDOT District 7 has successfully provided resources to help local agencies identify and develop traffic safety solutions as part of the HSIP process. To develop a similar program, an agency could:

- » **Identify** and **participate** in available programs offered by the state DOT or other agencies.
- » **Collaborate** with other local agencies to collectively identify and develop solutions to common needs (e.g., programs, resources, training, and funding sources).
- » **Communicate** ideas to the state DOT that improve the consistency and manageability of HSIP applications.

References

1. Florida Department of Transportation (FDOT). 2017a. Local Agency Traffic Safety Academy. <http://www.tampabaytrafficsafety.com/LATSA/SitePages/Home.aspx>. Accessed October 9, 2017.
2. Florida Department of Transportation (FDOT). 2017b. *Florida Department of Transportation's District Seven Design-Build Pushbutton Contract*. <http://www.tampabaytrafficsafety.com/DBPB>. Accessed October 23, 2017.
3. U.S. Federal Highway Administration (FHWA). 2013. *Safety Summit Yields Tenfold Increase in Number of Safety Applications Submitted by Local Agencies – Florida*. https://rspcb.safety.fhwa.dot.gov/noteworthy/html/localrural_fl1.aspx?id=96. Accessed October 9, 2017.



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SECTION III:

Technical Assistance

Table of Contents

Case Study 9 – Support for Road Safety Assessments	37
Case Study 10 – Local Road Safety Plans	39

CASE STUDY 9 –

Support for Road Safety Assessments

Problem

There is a limited number of safety professionals within local agencies to analyze and address complex road safety issues.

Noteworthy Solution

Local road authorities submitted requests to Illinois DOT (IDOT) for assistance in evaluating road safety issues. IDOT's Bureau of Safety Programs and Engineering (BSPE) provided funding and technical assistance from in-house safety specialists to conduct a large number of Road Safety Assessments (RSAs) along local road systems. The final product was a prioritized list of key findings and recommendations.

Location Prioritization and Selection

BSPE prioritized requests based on three factors (Sheehan, 2017, pers. comm):

- » Number and severity of crashes.
- » Support of local law enforcement.
- » Level of public interest and visibility of the safety issue.

Selected sites to be evaluated through an RSA focused on identifying the locations with the potential for the largest impact on the most critical fatal and severe injury crashes. Once locations were selected, the RSAs were conducted following U.S. Federal Highway Administration's (FHWA) guidelines (<https://safety.fhwa.dot.gov/rsa/>). At selected RSA sites, the BSPE assembled an independent and multidisciplinary team including IDOT, FHWA, and the Illinois State Police (ISP), led by a Safety Specialist familiar with conducting RSAs.

Local public agencies participated in the RSA kick-off meetings to provide the RSA team with relevant information about the selected site. Local agencies also participated in a close-out meeting.

The RSA team answered critical questions about the selected locations, diagnosed safety issues, and identified opportunities to eliminate or mitigate the local agency's safety concerns. The team also presented project recommendations for locations that the local agency would otherwise not have been able to address.

Relevant Contact

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Examples of requests for RSA assistance approved by the BSPE included:

- » **A rural county skewed intersection in Iroquois County with a history of run-off-the-road nighttime crashes.** Low-cost short-term safety recommendations included treatments to improve the visibility through a skewed intersection between two curvilinear roadways.
- » **The business extension of Interstate 55 in Bloomington.** Recommendations included improving the visibility of traffic signals and minimizing or eliminating the visual clutter that exists throughout the complex visual environment along the corridor.
- » **The Illinois Medical District in Chicago.** A combination of limited pedestrian features, overhead signal indicators, and turn lanes were contributing to an over representation of pedestrian, angle, and turning crashes. Recommended improvements included adding signal hardware with timing upgrades and adding left-turn lanes to provide more protection for pedestrians and improved intersection operation.

For all RSAs, BSPE's technical expertise has resulted in project recommendations for key locations.

Local Agency Action Items

Safety specialists have successfully conducted RSAs along local Illinois road systems. To obtain safety specialist support, an agency could:

- » **Request** the state DOT or FHWA to provide additional funding, staff, and resources to conduct an RSA or similar safety analyses.
- » **Use** safety specialists from another agency or a consultant to address complex safety issues.
- » **Leverage** the experiences of safety specialists to identify best practices and ideas for different safety strategies that have proven successful.

References

1. U.S. Federal Highway Administration (FHWA). 2014. Road Safety Audits (RSA). <https://safety.fhwa.dot.gov/rsa/>. Accessed February 11, 2018.
2. Sheehan, Timothy, Safety Design Unit Chief Bureau of Safety Programs and Engineering for Illinois Department of Transportation. 2017. Personal communication with Howard Preston/CH2M HILL.

CASE STUDY 10 –

Local Road Safety Plans

Problem

While local agencies support safety initiatives, they have limited experience and few resources for conducting system-wide, data-driven crash analysis.

Noteworthy Solution

The Minnesota Department of Transportation (MnDOT) pioneered new methodologies to supplement their traditional hot-spot/high-crash location analysis based on crash frequency using a systemic analysis based on crash potential. These methodologies were first described in MnDOT's 2008 *Strategic Highway Safety Plan* (SHSP). North Dakota DOT (NDDOT) adapted the Minnesota process to fit North Dakota's needs and developed a Local Road Safety Program (2013-2015). The system-wide crash analysis processes can be applied to other local agencies if their crash analysis experience and resources are limited.

Minnesota Department of Transportation

The SHSP (MnDOT, 2008) presented four findings from the system-wide crash analysis, illustrating the importance of incorporating local road systems into broader safety planning efforts:

1. Approximately 50% of severe crashes (involving a fatality or an incapacitating injury) occurred on local roads.
2. Local agencies were responsible for more than 90% of Minnesota's 140,000 miles of roads.
3. Even though MnDOT's HSIP funds were open to public roads projects, most HSIP funds were invested in the state system.
4. Minnesota's long-term vision of zero traffic deaths would be difficult to achieve if there was no investment in safety on local roads where one-half of fatal crashes occurred.

MnDOT, assisted by Minnesota's county engineers and the U.S. Federal Highway Administration (FHWA), developed a plan to integrate local systems into its statewide safety program. MnDOT dedicated HSIP funding to exclusively support local road improvements and provided each county with technical assistance to conduct a data-driven systemic assessment and prepare a County Road Safety Plan. MnDOT's seven-step systemic process (Figure 10-1) evaluated each county's roadway system, based on attributes common to locations with crash histories and responses to the following three questions.

- » What were the priority crash types?
- » What were the priority safety strategies?
- » What were the priority locations that were candidates for safety investment?

MnDOT applied the systemic safety planning process to each of Minnesota's 87 counties. Table 10-1 summarizes the program study network for the county road system.

Figure 10-1. Minnesota County Roadway Systemic Safety Planning Process



Table 10-1. Program Study Network Summary (Minnesota County Roadway System)

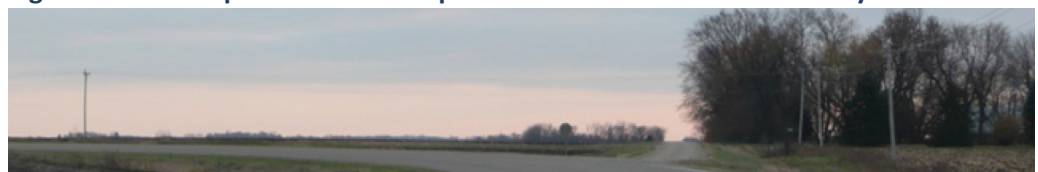
	Rural	Urban
Roadway Miles	27,000	1,600
Horizontal Curves	19,000	N/A
Intersections	13,000	2,900

Source: MnDOT, 2014

Key findings from the analysis include:

- » Priority crash types on rural roads were lane departure crashes (more than 50% occurred in horizontal curves and accounted for less than 5% of the system by mileage) and right-angle crashes at intersections.
- » Priority crash types on urban roads were head-on/rear-end/sideswipe and right-angle and vehicle-pedestrian at intersections.
- » Density of the priority crash types was very low:
 - 0.01 severe road departure crashes per mile per year.
 - 0.005 severe crashes per curve per year.
 - 0.01 severe crashes per rural intersection per year.
 - 0.02 severe right-angle crashes per urban intersection per year.
 - 0.01 severe vehicle-pedestrian crashes per urban intersection per year.
- » While no identified locations met the adopted state thresholds for a high-crash location, the results supported the decision to use the systemic approach to identify candidate locations with high potential for crash reduction for HSIP investments.
- » High-potential locations had identified systemic crash potential factors for each rural and urban facility type. Locations with systemic crash potential factors had higher crash densities than comparable locations without systemic crash potential factors. Also, the greater the number of factors present, the higher the density of crashes. For example:
 - In rural horizontal curves, the presence of an intersection in the curve and a visual trap (where the road curves but visual cues lead the driver to think the road continues straight) were identified as systemic factors (Figure 10-2). The data showed that curves with these factors had crash densities more than twice that of curves without.
 - At rural intersections, the systemic factors identified included: geometry, traffic volume, commercial development, proximity to a rail grade crossing, and the distance to the previous STOP sign. Data showed that the crash density at intersections with these features was higher than at intersections without these features.

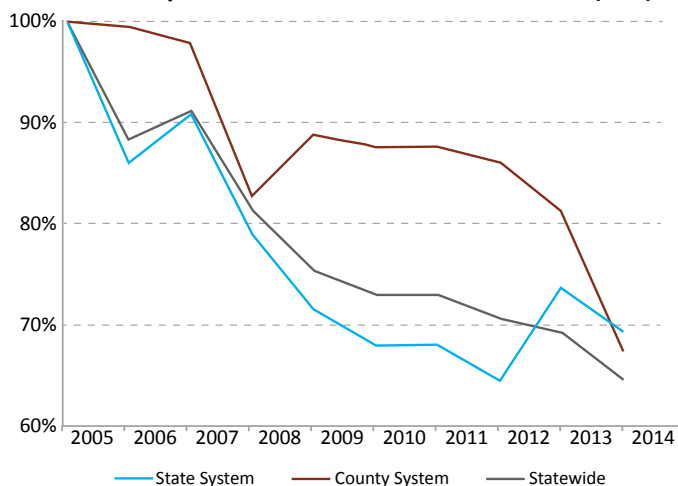
Figure 10-2. Example of a Visual Trap – Minor Road Intersects Roadway on a Curve



- » The large size of the county road system combined with the low density of the priority crash types supported the development of safety projects using low-cost measures. This would allow a public agency to use its limited budget to deploy safety countermeasures at as many locations as possible. Strategies identified for Minnesota County roads include:
 - Enhanced edge lines (\$2,000 per mile).
 - Upgraded traffic signs and markings and the installation of street lights at rural intersections (between \$3,000 and \$6,000 per intersection).
 - Enhanced warning signs/chevrons along rural curves (\$4,000 per curve).
 - Edge rumbles along rural segments (\$6,000 per mile).
 - Red-signal enforcement lights, pedestrian countdown timers, and leading pedestrian intervals (between \$1,000 and \$12,000 per intersection) at urban signalized intersections.
 - Road diets along urban segments (\$50,000 per mile).
- » More than 17,000 individual safety projects were identified with an estimated implementation cost of approximately \$246 million –averaging \$14,000 per project.
- » To further encourage counties to submit projects for HSIP funding, a submittal form for each identified project was included in each county’s Road Safety Plan. When a county engineer requested funding for a project listed in the county’s Road Safety Plan, a copy of the submittal form was included with the local HSIP solicitation application submission.

MnDOT has implemented a successful system-wide safety analysis. Since completing the County Road Safety Plan project in 2012 (MnDOT, 2018), MnDOT has met its goal of appropriating approximately \$15 million per year in HSIP funds for the deployment of safety improvements throughout the county system (approximately \$75 million to date). Almost 85% of Minnesota’s counties have had at least 1 safety project funded (1 county has already implemented safety projects worth more than \$7 million (Vizecky, 2017, pers. comm). A recent evaluation of statewide fatalities found a 25% reduction throughout the county system since 2011 (Vizecky, 2017, pers. comm) when MnDOT first set aside HSIP funding for local system safety improvements (Figure 10-3).

Figure 10-3. Minnesota Fatality Trend Line
Crashes per Year as Percent of 2005 Crashes (MN)



Source: Minnesota Roadway & Crash Data Facts 2005-2014; Adapted by FHWA

North Dakota Department of Transportation

North Dakota's SHSP (NDDOT, 2013) highlighted the following safety facts:

- » Based on crash records from 2007 to 2011, 56% of severe crashes in North Dakota (those involving a fatality or serious injury) occurred on roads operated by local agencies. Crash data between 2009 and 2013 indicated that severe crashes occurring on local roads declined to 44% (NDDOT, 2013).
- » NDDOT historically used HSIP funds to support projects on the interstate, U.S. highways, and state highway systems, even though on average only slightly more than half the severe crashes occurred on these roads. Before implementing the Local Road Safety Program, less than 5% of HSIP funding was used to improve the local system—with most of this work funding the upgrade of local road approaches to intersections with state or U.S. highways (NDDOT, 2013).

In view of these findings, NDDOT committed to support goals to increase local agency participation in the statewide safety planning process and dedicated HSIP funds to improvements on local roads (NDDOT, 2013).

However, NDDOT recognized that majority of local agencies had insufficient staffing and limited experience conducting the kind of data-driven analysis required to develop HSIP-eligible safety projects.

Local Road Safety Program

To address these concerns NDDOT initiated a Local Road Safety Program in which NDDOT partnered with local agencies to conduct a system-wide safety analysis and prepare safety plans for 53 counties, 12 major cities, 4 sovereign reservations, and 1 national park (Figure 10-4). North Dakota's local road system encompasses more than 79,000 miles of the state's approximately 107,000 miles. Historically, about 50% of severe crashes have occurred on local roads, but the density of these crashes was very low (0.002 severe crashes per mile per year). Prior efforts (studies, investigations, and projects) failed to identify high-crash locations along local roads based on traditional analysis methods that relied heavily on crash density. This has meant local agencies have been unable to identify HSIP-eligible safety projects.

To find out more about the high percentage of severe crashes occurring on NDDOT's local roads, NDDOT implemented an alternative systemic assessment using road and traffic characteristics to identify, evaluate, and prioritize at-risk locations to consider for safety investment. Because this type of systemic assessment was in line with FHWA guidance, NDDOT expanded the scope of its HSIP policy—which previously only included projects

Figure 10-4. North Dakota Counties, Cities, Reservations, and National Parks



Source: NDDOT, 2015

identified through traditional site analysis—to include projects identified through the systemic analysis of local roads. NDDOT also determined that neither DOT staff nor local agencies had experience applying the systemic approach to safety and allocated \$1.5 million to fund the systemic assessment of the local system and preparation of 70 safety plans.

The systemic risk assessment addressed both rural and urban local roads and focused on two types of key roadway facility types: rural paved (county, tribal, and national park) and urban arterials/collectors in North Dakota’s larger cities (i.e., 5,000 population). Rural paved roads were selected for analysis based on statewide crash data that showed even though rural paved roads accounted for less than 10% of the local roads, they accounted for approximately half of all severe crashes on local roads. Further analysis indicated that on these rural roads, the most at-risk elements in severe crashes were:

- » Road segments – 75% of severe crashes.
- » Horizontal curves – 32% of severe crashes.
- » Intersections – 20% of severe crashes.

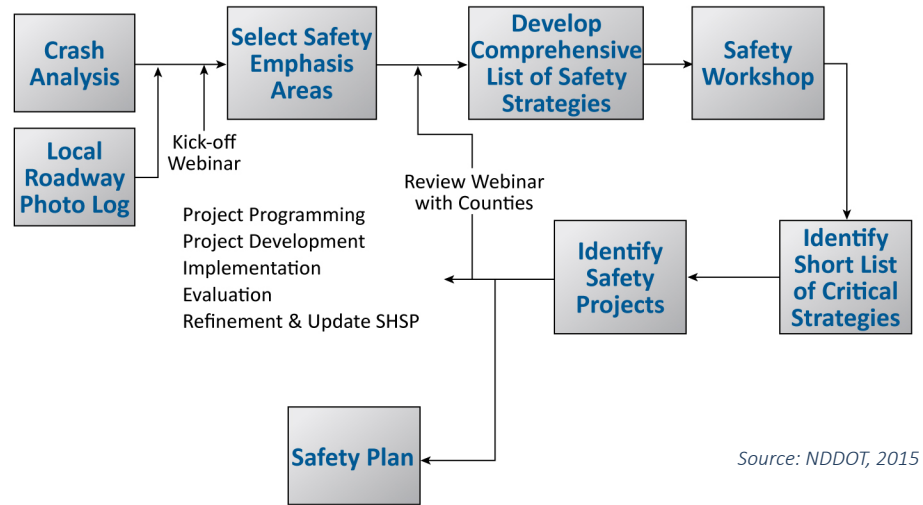
Major cities in North Dakota (considered cities with a population of 5,000) were selected for systemic risk assessment because approximately 90% of severe crashes on local roads in urban areas occurred within the 12 cities with populations exceeding 5,000.

NDDOT used a data-driven systemic safety analysis approach to prepare the safety plans for the local agencies by identifying priority crash types and effective, low-cost safety strategies and prioritizing locations along the local road system. NDDOT prepared individual safety plans documenting the strategies that could be deployed at specific locations for each of the

counties, cities, tribes, and national parks. Each plan addressed the typical barriers local agencies face when implementing HSIP projects, including:

- » Linking crashes to emphasis areas.
- » Conducting systemic risk analysis and prioritization of locations for implementing safety strategies.
- » Identifying priority countermeasures.
- » Completing HSIP project application forms.

Figure 10-5. Systemic Safety Project Development Process Flow Chart



Safety projects generated from the Local Road Safety Program (Figure 10-5) were consistent with the priorities in North Dakota’s SHSP and eligible for HSIP funding.

NDDOT considers participation in the HSIP voluntary. If local agencies choose to participate, they must:

- » Submit HSIP applications.
- » Agree to contribute the local share of the construction cost.
- » Manage the project’s design and construction as part of their capital improvement program.

One goal for NDDOT was to identify low-cost projects that deployed safety strategies across the highest number of at-risk locations throughout North Dakota’s local road system. The local safety plans identified approximately 3,000 individual projects with a total estimated implementation cost approaching \$55 million. The average project cost was around \$18,000. NDDOT also looked into increasing the level of local agency engagement in the statewide safety planning process and into funding more local agency projects. The first HSIP developed after completing the Local Road Safety Program contained 15 projects submitted by local agencies (they were identified as part of the Program) valued at almost \$5 million, representing approximately 35% of the Safety Program budget.

To assist local agencies when applying for funding, the safety plans included a project sheet for each project. These sheets accomplished two key objectives:

1. Describe each project: the suggested strategy, the specific location where the strategy was to be implemented, the risk factors at each site, and the estimated cost of the project.
2. Create an easy-to-use format for local agencies to respond to NDDOT's annual solicitation for HSIP funding. The project sheets included information required by NDDOT staff to evaluate candidate projects for the state's HSIP.

Feedback on the local and state levels is very positive. For local agency staff the project sheets have simplified the HSIP process. For NDDOT staff submissions using the project sheets are complete, accurate, and require no additional effort to make corrections or search for missing information.

Local Agency Action Items

MnDOT and NDDOT successfully developed safety plans using processes that can be applied by other state DOTs with less experienced staff or unused resources. Both agencies modified their SHSP process so that systemic analysis of the local roadway system could be used as a baseline for HSIP funding requests. Each agency has also prepared local road safety plans to help local agencies navigate the HSIP process and apply for local system project funding. To develop a safety plan, a local agency could:

- » **Collaborate** with other local agencies in the region to engage the state, district, or MPO in developing a cooperative effort to conduct a systemic safety analysis.
- » **Request** funding from state, MPO, or other sources to develop a LRSP.
- » **Encourage** the state DOT to include a local system component and commitments in the next SHSP update.

References

1. Minnesota Department of Transportation (MnDOT). 2008. *Strategic Highway Safety Plan*.
2. Minnesota Department of Transportation (MnDOT). 2014. *Final Report for the Minnesota County Roadway Safety Plans*. January.
3. Minnesota Department of Transportation (MnDOT). *Facts about Crashes, Budget, Fatality Rates*. Database. <http://www.dot.state.mn.us/trafficeng/publ/triviocard/>. Accessed February 11, 2018.
4. North Dakota Department of Transportation (NDDOT). 2013. *North Dakota Strategic Highway Safety Plan*. September.
5. North Dakota Department of Transportation (NDDOT). 2015. *North Dakota Local Road Safety Program*. June.
6. Vizecky, Mark, Minnesota Department of Transportation (MnDOT). 2017. Personal communication with Howard Preston/CH2M HILL.
7. Minnesota Department of Transportation (MnDOT). 2018. Safety Plan Handout. <http://www.dot.state.mn.us/stateaid/trafficsafety/county/tzd-handout-final.pdf>. Access October 15, 2018.

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SECTION IV:

Implementation

Table of Contents

Case Study 11 – Systemic Safety Evaluation.....	49
Case Study 12 – Environmental Documentation Assistance...	53
Case Study 13 – Bundled Project Strategy	55
Case Study 14 – Local Safety Engineering Assistance Program.....	59
Case Study 15 – Dedicated HSIP Funding Support for Local System Safety Projects	63
Case Study 16 – Comprehensive Approach to Local Road Safety.....	67
Case Study 17 – New Data-driven Approach to Support Safety Countermeasures with Short Service Lives.....	71

CASE STUDY II –

Systemic Safety Evaluation

Problem

Highway Safety Improvement Program (HSIP) funding is usually allocated to projects meeting an established definition of high-crash location. Local systems tend to experience low-crash density, which can be a challenge in qualifying for HSIP funding.

Noteworthy Solution

Thurston County in Washington State has developed a systemic safety analysis approach that can be used by locations with low-crash density and provide Thurston County with a proactive, data-driven, and defensible method of identifying projects eligible for WSDOT HSIP funding.

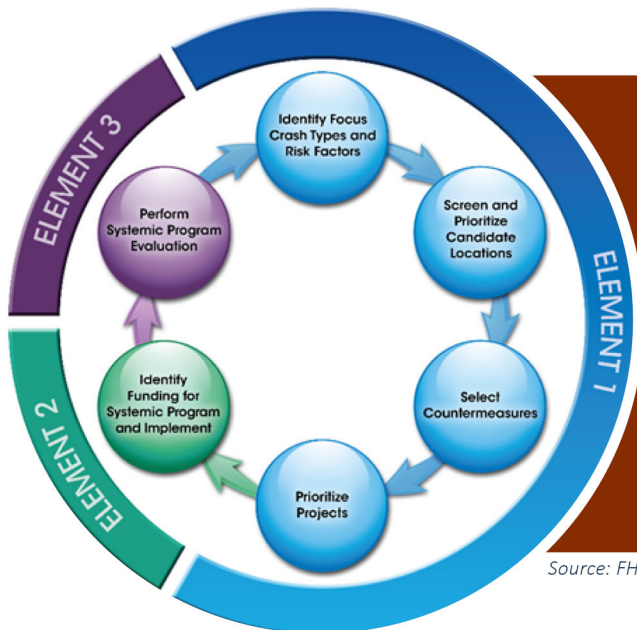
Thurston County, Washington

Washington State has adopted the Target Zero program—with the goal to reduce traffic fatalities and serious injuries on Washington’s roadways to zero by the year 2030 (Washington Traffic Safety Commission [WTSC], 2016). As part of this initiative WSDOT dedicates approximately 70% of HSIP funding to local safety projects. Since 2010, WSDOT has awarded more than \$170 million in HSIP funding to local agencies. However, to qualify for funding, agencies must show that the candidate projects were identified through a data-driven process (WTSC, 2016).

Thurston County decided to proactively reduce the number of annual, severe crashes on Thurston County’s 1,000-mile system (an average of 35 crashes per year based on 2006 to 2010 data [Davis, 2016, pers. comm.]). Thurston County’s primary challenge was identifying an analytical process that identified the low density of severe crashes typical of rural, local systems (0.035 severe crashes per mile per year [Davis, 2016, pers. comm.]).

Thurston County’s initial analysis found no severe crashes at locations meeting WSDOT’s high-crash definition and concluded that the traditional site analysis approach could not identify candidate projects for safety funding or support the safety project development process. To address issues associated with reporting low density of severe crashes, Thurston County followed the systemic safety analysis approach, described in the U.S. Federal Highway Administration (FHWA)’s Systemic Safety Project Selection Tool (FHWA, 2013). This approach provided the County with a proactive, data-driven, and defensible method of identifying projects eligible for WSDOT HSIP funds (Figure 11-1).

Figure 11-1. FHWA Systemic Safety Tool



Source: FHWA, 2013

The FHWA Systemic Safety Project Selection Tool expands a transportation agency’s analytical techniques and models to a systemic safety analysis approach. This helps an agency perform a system-wide evaluation for roadway attributes that are common to locations with a crash history. The process outlined in this tool can be used to plan, implement, and evaluate systemic safety programs and projects that meet an agency’s capabilities and needs.

Using the systemic approach, Thurston County analyzed 5 years of crash data and found that 58% of severe crashes in the County were classified as road departure—compared to an average of 38% for the state system (Davis, 2016, pers. comm.). The results of the systemic analysis identified locations with the greatest potential for crash reduction and also identified two key characteristics of severe road departure crashes (Davis, 2016, pers. comm.):

- » 45% of collisions occurred on horizontal curves on the county system versus 26% for the comparable state system.
- » More than 80% of the collisions on horizontal curves occurred on the arterial/collector roadways.

This analysis also identified a group of roadway and traffic characteristics over-represented at crash locations, including:

- » Functional classification.
- » Edge clearance.
- » Shoulder type.
- » Advance warning, speed differential, and geometric features (intersections, vertical curves, and visual traps).
- » Traffic volume.

These characteristics—common at locations with a crash history—were used as systemic factors to conduct the assessment of the 337-mile arterial/collector system and to identify candidate locations for improvements with similar characteristics from more than 270 signed horizontal curves (Davis, 2016, pers. comm.). In addition, the characteristics determined the prioritization and selection of low-cost countermeasures—including enhanced

edge delineation, new/upgraded warning signs, shoulder and center rumble strips, and new/upgraded guardrails

Thurston County used the analysis findings to identify and prioritize the following safety projects (Davis, 2016, pers. comm.):

- » 50 miles of shoulder and center rumble strips.
- » 8 miles of wide edge lines.
- » More than 1,700 new/upgraded warning signs.
- » Almost 7,000 feet of new/upgraded guardrails.
- » More than 26,000 raised reflective pavement markers.
- » More than 75,000 lineal feet of guardrail delineation.
- » Dotted Edge Line Extensions at 85 curves with intersections.

Using skills acquired during training to become a best practices manager in highway safety, Thurston County's engineer Scott Davis identified and prioritized a list of safety projects totaling more than \$4 million. The County received HSIP funding from WSDOT for all submitted safety projects. Thurston County has implemented these projects and is conducting a follow-up evaluation to determine the level of crash reduction resulting from the risk-based, proactive deployment of low-cost countermeasures.

The County has since used the systemic safety process to identify three potential high friction surface treatment project locations and address speeding-related concerns by identifying candidate corridors for speed feedback sign deployment.

These efforts are a model for Washington State where 31 of its 39 counties have developed data-driven county road safety plans to obtain HSIP funding. In 2014, WSDOT awarded Thurston County HSIP funding to update the systemic study and create a countywide traffic safety plan to guide future HSIP safety investments (Davis, 2016, pers. comm.).

Local Agency Action Items

Thurston County successfully addressed the issue of high-crash density using a systemic, data-driven process. To incorporate this approach into crash analysis a local agency could:

- » **Work** with the state DOT to identify funding and other resources to support a systemic or other data-driven process in conjunction with HSIP project identification and application.
- » **Cooperate** with other local agencies in the region to conduct a systemic analysis for the region.
- » **Collaborate** with other agencies to incorporate systemic methodology in the HSIP.

References

1. Davis, Scott, Traffic Engineering and Operations Manager, Thurston County. 2016. Personal communication with Howard Preston/CH2M HILL.
2. U.S. Federal Highway Association (FHWA). 2013. *Systemic Safety Project Selection Tool*. <https://safety.fhwa.dot.gov/systemic/fhwasa13019/sspst.pdf>. Accessed September 19, 2017.
3. Washington Traffic Safety Commission (WTSC). 2016. *Washington State Strategic Highway Safety Plan*. <http://wtsc.wa.gov/target-zero/>. Accessed September 19, 2017.

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CASE STUDY 12 –

Environmental Documentation Assistance

Problem

Many agencies do not participate in the Highway Safety Improvement Program (HSIP) process because they have not previously (or regularly) prepared the complex environmental documentation required for federally funded projects that use federal funding.

Noteworthy Solution

Minnesota Department of Transportation (MnDOT) streamlined the environmental documentation process for low-cost safety countermeasures designed for minimal environmental impacts, including:

- » Enhanced pavement markings.
- » Upgraded traffic signs.
- » Street lighting.
- » Edge and centerline rumble strips.

These countermeasures do not require reconstruction and are typically confined to the existing roadway. If outside the road edge, they do not require grading. Even though the list of project types is short, it represents the majority of projects proposed by local agencies for implementation through the state's HSIP.

The first step of the streamlined process is developing a one-page (two sided) spreadsheet— the Environmental Documentation for Federal Projects with Minor Impacts (Appendix D). This form is completed by local agency staff and includes such basic information as:

- » Project location.
- » Project purpose and need.
- » Contact information for the project manager.
- » Estimated cost.
- » Date for beginning work.
- » Project type (i.e., traffic markings, rumble strips, signs, guardrail installation, lighting).
- » Confirmation that the project will not affect historic properties or threatened and endangered species.
- » Federal Action Determination Statement concluding the improvement is a Class II Action (categorical exclusion) with no foreseeable change to the quality of the human environment.

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The local agency engineer signs the completed form and sends it to MnDOT's Division of State Aid for Local Transportation for review and approval (Refer to Appendix D). This form also is online at (MnDOT, 2017):

<http://www.dot.state.mn.us/stateaid/environmental-forms.html>.

After selecting local project applications for funding through the HSIP, the Division of State Aid assembles a comprehensive list of proposed improvement projects across all local agencies and forwards this list to MnDOT's Office of Environmental Stewardship to review for possible impacts on Historic Properties and Endangered Species. Once there is confirmation of no impact, MnDOT, acting on behalf of the U.S. Federal Highway Administration (FHWA), makes a Determination of No Effect for each project on the list (Appendix E). The majority of projects that pass review are cleared for further project development and implementation. In certain instances, projects that pass review may be subject to further study.

When local agencies focus on low-cost safety strategies that do not require regrading or reconstruction, they can obtain environmental clearance for project implementation with minimum effort

Local Agency Action Items

MnDOT successfully streamlined the environmental documentation process for low-cost safety countermeasures. To develop a single-review process, a local agency could:

- » **Discuss** project documentation and implementation barriers, procedural alternatives, and streamlining opportunities in the environmental process with the state HSIP coordinator.
- » **Identify** safety countermeasures expected to have minimum or negligible environmental impact.
- » **Consolidate** the environmental documentation workload through a workshare agreement with other local agencies.

Reference

1. Minnesota Department of Transportation (MnDOT). 2017. *State Aid for Local Transportation, Environmental Forms & Information*. <http://www.dot.state.mn.us/stateaid/environmental-forms.html>. Accessed September 19, 2017.

CASE STUDY 13 –

Bundled Project Strategy

Problem

Complying with U.S. Federal Highway Administration (FHWA) guidelines for Highway Safety Improvement Program (HSIP) funding may be time and cost prohibitive for individual (small) projects.

Noteworthy Solution

To help local agencies comply with FHWA guidelines and taking into account the need for cost and time efficiencies given agencies' limited/finite resources, Minnesota DOT (MnDOT) decided to bundle local agency projects collectively by district. Each MnDOT district created one single project containing numerous safety improvements to local roads. This has led to reduced complexity and paperwork. MnDOT has contacted county engineers to share experiences, workloads, and materials with other local agencies to promote more efficient and cost-effective projects.

The bundling approach has been successful in implementing HSIP-funded projects across Minnesota. Examples include (Tasa, 2017, pers. comm):

- » Installation of chevrons at more than 1,000 horizontal curves in 22 counties.
- » Installation of more than 2,000 miles of enhanced road edges (6-inch edge lines and rumble strips/stripes).
- » Addition of street lights to almost 100 rural intersections.

This approach has also resulted in the following cost savings (Tasa, 2017, pers. comm):

- » A reduction in unit costs because of the large quantities of materials purchased and equipment provided for bundling.
- » A reduction in project development and administrative costs.
- » Greater efficiencies in providing oversight to a single large project.

Benefits of Bundling

- 1. Promotes greater participation** – more counties involved in a wider deployment of safety countermeasures.
- 2. Promotes greater project development efficiencies** – a single, large contract instead of multiple small contracts.
- 3. Creates partnerships** – local agencies collaborate for future multiagency highway improvement projects.

Even though the bundling approach was successful overall, MnDOT identified three potential barriers to implementing bundled projects. Barriers and solutions are as follows.

Barrier 1. Identifying Project Location and Scope

Solution: MnDOT developed safety plans in every Minnesota county to document the systemic risk assessment of county facilities (Case Study 10 in this Manual). These plans included a comprehensive list of suggested safety improvements and corresponding project forms that could be submitted by counties during the HSIP solicitation process. This enables county engineers to discuss multicounty safety projects with their peers.

Barrier 2. Performing Contract Administration

Solution: MnDOT's state aid staff developed a process that assigned responsibility to a lead county for administering the contract, paying the contractor, and working with participating counties.

Barrier 3. Completing Interagency Working Agreements

Solution: MnDOT developed an interagency agreement describing the working arrangements between agencies:

- » Counties involved.
- » Designated lead county and their responsibilities.
- » Responsibilities of the participating counties for reimbursing the lead county.
- » Insurance requirements.
- » Effective dates.
- » A process for changing the terms and conditions of the agreement.

Appendix F provides an example of an interagency agreement. This first multicounty project plan can be used as a guide by county engineers.

Local Agency Action Items

MnDOT successfully developed a bundling process involving multicounty participation that reduces documentation and streamlines processes for easier HSIP delivery. To develop a streamlined process, a local agency could:

- » **Work** with other regional agencies to develop an agreement for collaboration on HSIP planning and contracting.
- » **Bundle** existing planned projects with regional agencies to reduce project administration and oversight time and effort and reduce project costs.
- » **Identify** a local/regional agency with experience in complying with federal procurement guidelines.

Reference

1. Tasa, Lou, Minnesota Department of Transportation (MnDOT). 2017. Personal communication with Howard Preston/CH2M HILL.

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CASE STUDY 14 –

Local Safety Engineering Assistance Program

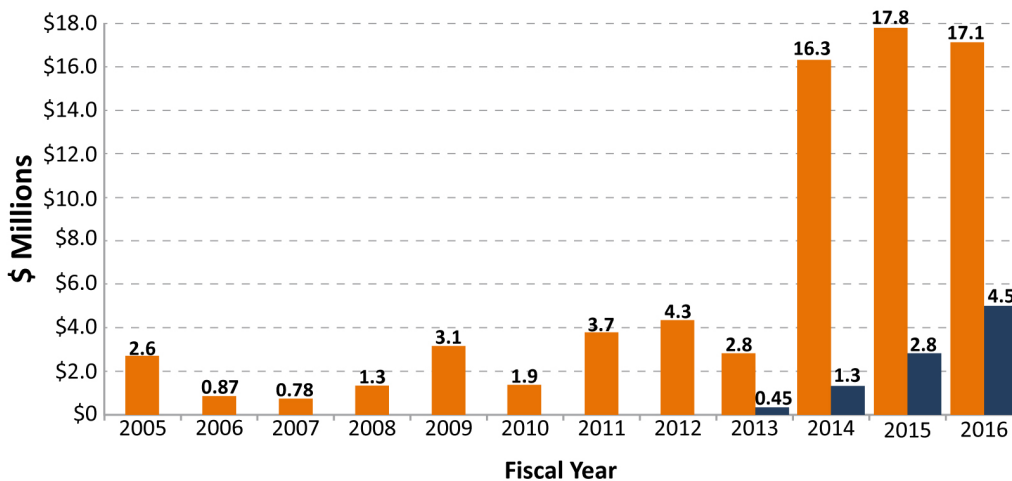
Problem

Participating in the Highway Safety Improvement Program (HSIP) requires a major effort to prepare construction documents and plans. This can be a barrier to local agency participation.

Noteworthy Solution

In fiscal year (FY) 2013, the New Jersey Transportation Planning Authority (NJTPA) created the Local Safety Engineering Assistance Program (LSEAP) to help implement projects administered under the Local Safety Program (LSP) and High Risk Rural Roads Program (HRRRP) (NJTPA, 2013). The LSEAP provides design assistance through plans, specifications, and cost estimates (PS&Es). In order to make LSEAP viable, the New Jersey Department of Transportation (NJDOT) increased funding for authorizations from \$2.8 million in FY 2013 (when LSEAP was implemented) to an average of \$17 million per year for FYs 2014-2016 (Figure 14-1). Details on the LSP and HRRRP are online at (NJTPA, 2017): <http://www.njtpa.org/local-safety>.

Figure 14-1. NJTPA Local Safety and High Risk Rural Roads Program



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Under the LSEAP, consultants are co-managed by the NJTPA and sub-regions. Consultant contracts are HSIP-funded; NJTPA administers these contracts and provides project oversight. Each project sponsor is responsible for technical direction, supervision, and reviews the development of the project's PS&Es. The scope of work for the consultant contracts includes survey, right-of-way, engineering, design, and the necessary permitting services to prepare PS&Es.

Projects are divided into preliminary engineering and final design phases. Funds for preliminary engineering are released when the contracts are executed. Preliminary engineering plans and environmental documents are submitted to NJDOT Bureau of Programmatic Resources, which reviews and approves project Categorical Exclusion Documents (CEDs). Once the CEDs are approved, NJTPA authorizes the final design phase and the consultant prepares the full PS&E package. PS&Es are submitted to NJDOT Local Aid for review and federal construction authorization is requested.

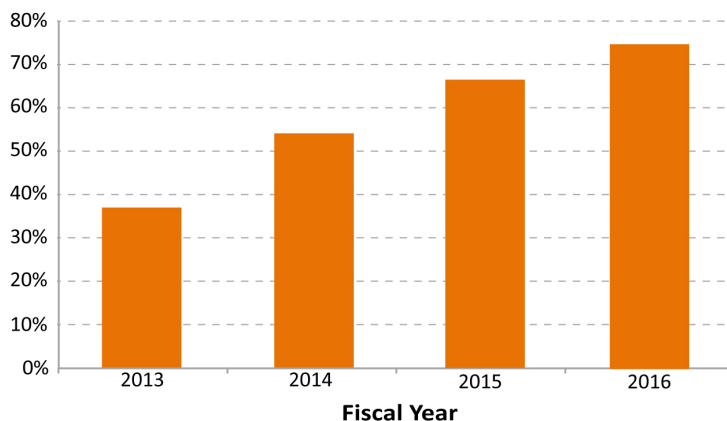
Table 14-1 summarizes the LSEAP and Figure 14-2 shows the percentage of projects requesting design assistance by fiscal year. The percentage of projects has grown from 38% requesting assistance in FY 2013 to 75% requesting assistance in FY 2016.

Table 14-1. Annual Summary of Local Safety Engineering Assistance Program (New Jersey)

	Construction Authorizations	Design Costs	# of projects in design	Total # of projects selected for the program year	% of total projects requesting design assistance
FY 2013	\$ 2,816,000	\$ 462,294	5	13	38%
FY 2014	\$ 16,328,484	\$ 1,332,811	8	15	53%
FY 2015	\$ 18,288,233	\$ 2,805,863	12	18	67%
FY 2016	\$ 19,650,000	\$ 4,474,771	16	22	75%

Source: (Mittman, 2017, pers. comm)

Figure 14-2. Percentage of Projects Requesting Design Assistance by Fiscal Year (New Jersey)



Source: (Mittman, 2017, pers. comm); Adapted by FHWA

Local Agency Action Items

NJTPA successfully created a local agency assistance program to help advance projects selected under the LSP and HRRRP and prepare construction documents. To develop a similar program, local agencies could:

- » **Consolidate** HSIP project implementation efforts by cooperating with other local agencies or obtaining assistance from the state HSIP coordinator.
- » **Use** outside resources and assistance for HSIP project design and construction administration.
- » **Discuss** opportunities with the state DOT for developing local assistance programs that access either in-house DOT support or consultants funded under the HSIP. This will provide local agencies with design and construction administration of safety projects.

References

1. North Jersey Transportation Planning Authority (NJTPA). 2013. *The Local Safety and High Risk Rural Roads Programs*. http://www.njtpa.org/getmedia/42817bbf-6fcf-4c8b-a7c1-910c4174e9a7/LSP_revised.pdf.aspx. Accessed September 21, 2017.
2. Mittman, Christine, North Jersey Transportation Planning Authority (NJTPA). 2017. Personal Communication with Howard Preston/CH2M HILL.
3. North Jersey Transportation Planning Authority (NJTPA). 2017. *NJTPA Local Safety and High Risk Rural Roads Program webpage*. <http://www.njtpa.org/local-safety>. Accessed September 21, 2017.

CASE STUDY 15 –

Dedicated HSIP Funding Support for Local System Safety Projects

Problem

Some local agencies believe that local road safety projects cannot compete for funds with state road safety projects on an even playing field.

Noteworthy Solution

Minnesota and North Dakota committed to support local system safety projects by dedicating federal safety funding from their states' Highway Safety Improvement Program (HSIP). Each state dedicates a portion of its HSIP funding for local system projects to address severe crashes (involving fatalities plus incapacitating injuries) that occur on local systems. The funding designated for local systems is set aside so that local agencies are only competing with each other, and not competing with the state system for the same allotment of funding.

MnDOT

In 2011, Minnesota DOT (MnDOT) first set aside HSIP funding for local system safety improvements. Since then, MnDOT has committed more than \$80 million of HSIP funding, which has benefitted many of the state's 87 counties. Between 2011 and 2016, approximately 300 local system safety projects were funded by HSIP and 85% of the counties have implemented at least 1 HSIP-funded project. Most projects incorporated 1 or more of the following safety improvements (Devoe, 2016, pers. comm.):

- » Enhanced road edges – \$37 million for 6-inch edge lines, grooved-in, wet reflective markings and edge line rumble strips.
- » Enhancements at horizontal curves – \$7 million for chevrons, shoulder paving, and edge line rumble strips.
- » Improvements at rural intersections – \$10 million for street lighting, improved signs and markings, and dynamic warning systems.

MnDOT indicates that establishing the set aside and corresponding safety improvements has resulted in an approximate 25% reduction in the number of county traffic fatalities (Devoe, 2016, pers. comm.).

Crow Wing County has implemented more than 12 HSIP-funded safety projects totaling approximately \$1.5 million. These 12 projects have included \$1 million for 162 miles of enhanced 6-inch grooved-in edge lines, \$0.3 million for 389 miles of enhanced curve warning signs, and \$0.2 million for street lighting at 31 rural intersections (Bray, 2016, pers. comm.).

Crow Wing County also completed a follow-up study of these projects to document effectiveness. The county found that road departure crashes along the segments with enhanced edge lines decreased by 58% and crashes in the curves with the enhanced warning signs (chevrons) decreased 34% (Bray, 2016, pers. comm.). The County also found the crash reduction at the lighted rural intersections was small (possibly due to the relatively small number of crashes in the previous period), but also noted two unexpected complimentary benefits (Table 15-1).

- » Maintenance personnel stated snow and ice removal operations at the lighted intersections were faster and more efficient.
- » County residents commented that greater nighttime visibility at intersections enhanced safety.

NDDOT

North Dakota Department of Transportation (NDDOT) developed its Local Road Safety Program in 2015 and, like MnDOT, committed to earmarking part of its HSIP for implementing local system safety improvements. The Fiscal Year (FY) 2017 to FY 2020 HSIP includes participation by 18 counties, 3 cities, and 2 tribes (Table 15-2) (Kuntz, 2016, pers. comm.).

Table 15-1. MnDOT HSIP Funding for Local System Safety Projects 2011 to 2016

	Greater Minnesota Counties								GMC*	Metro	Total
	Segments			Curves	Intersections				Total	Total	
	Enhance Marking	Edge Line Rumbles	Total		Lights	Signs	Dynamic Warning	Total			
2011	\$0.8	\$2.8	\$3.6	\$0.5	\$0.7	0	0	\$0.7	\$4.8	\$5.8	\$10.6
2012	\$1.6	\$0.8	\$2.4	\$0.9	\$0.9	\$0.1	0	\$1.0	\$4.3	\$5.2	\$9.5
2013	\$1.8	\$1.0	\$2.8	\$0.6	\$1.7	\$0.1	0	\$1.8	\$5.2	\$2.9	\$8.1
2014	\$4.9	\$3.8	\$8.7	\$3.1	\$0.5	\$0.1	\$1.2	\$1.8	\$13.6	\$6.2	\$19.8
2015	\$2.8	\$5.7	\$8.5	\$1.3	\$1.0	\$0.5	\$1.5	\$3.0	\$12.8	\$2.7	\$15.5
2016	\$3.9	\$6.6	\$10.5	\$0.4	\$0.3	0	\$1.6	\$1.9	\$12.8	\$6.8	\$19.6
Total	\$15.8	\$20.7	\$36.5	\$6.8	\$5.1	\$0.8	\$4.3	\$10.2	\$53.5	\$29.6	\$83.1

Notes:

Costs are represented in millions of U.S. dollars.

*GMC = Greater Minnesota County

Source: (Devoe, 2016, pers. comm)

Table 15-2. NDDOT HSIP Funding for Local System Safety Projects 2017 to 2020

HSIP Summary					
	2017	2018	2019	2020	Total
State	\$11.42	\$3.8	\$2.1	\$1.8	\$19
City	\$2.3	\$0.2	0	0	\$2.5
County	\$0.2	\$2.1	\$0.7	0	\$3.0
Tribal	\$0.8	0	0	0	\$0.8
Local Subtotal	\$3.3	\$2.3	\$0.7	0	\$6.3
Total	\$7.5	\$6.1	\$2.8	\$1.8	\$18.3

*Costs are represented in millions of U.S. dollars.

Source: (Devoe, 2016, pers. comm)

The 30 programmed safety projects on the local system are valued at approximately \$6.3 million—\$2.5 million for city projects, \$3 million for county projects, and \$0.8 million for tribal projects. These projects are the result of a data-driven analytical process and use effective, low-cost safety countermeasures including:

- » **Rural Countermeasures:** Counties and tribes submitted HSIP funding applications for projects providing enhanced road edges (grooved- in edge lines and edge rumble strips), chevrons, and advanced curve warning signs and intersection street lighting.
- » **Urban Countermeasures:** The cities of Bismarck, Grand Forks, and Valley City submitted applications for projects providing pedestrian enhancements (countdown timers and advance pedestrian interval), red signal enforcement lights at signalized intersections, and road diet (four-lane undivided to three-lane) conversions along roadway segments.

Local Agency Action Items

MnDOT and NDDOT successfully committed to support local system safety projects by using federal safety funding from the state’s HSIP. To support local system safety projects, a local agency could:

- » **Work** with the state HSIP coordinators to dedicate HSIP funds for local agency projects and establish processes that improve access to HSIP funds for local agencies.
- » **Apply** for HSIP funding for a wider variety of safety projects.
- » **Identify** a champion to encourage other local agencies to increase local project representation in the statewide HSIP distribution.

References

1. Bray, Tim, Crow Wing County. 2016. Personal communication with Howard Preston/CH2M HILL.
2. Devoe, Eric, Minnesota Department of Transportation (MnDOT). 2016. Personal communication with Howard Preston/CH2M HILL.
3. Kuntz, Shawn, North Dakota Department of Transportation (NDDOT). 2016. Personal communication with Howard Preston/CH2M HILL.

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CASE STUDY 16 –

Comprehensive Approach to Local Road Safety

Problem

Local agencies manage a high percentage of roads but have varying levels of expertise and funding to develop and implement traffic safety projects.

Noteworthy Solution

Local road safety improvements are emphasized in Ohio's Strategic Highway Safety Plan (SHSP) and in the Highway Safety Improvement Program (HSIP). The Ohio Department of Transportation (ODOT) spends about \$102 million each year on improving high-crash and severe-crash locations on local roads.

ODOT also works with local partners to fund investments that improve safety on Ohio roads (ODOT, 2017a). ODOT collaborates with the Local Technical Assistance Program (LTAP), the County Engineers Association of Ohio (CEAO), metropolitan planning organizations (MPOs), and local governments and agencies to comprehensively expand training, technical assistance, and funding opportunities to local partners. These collaborative relationships have evolved into resources that can help local agencies when applying for federal HSIP funding:

- » District Office Highway Safety Resources.
- » Statewide Steering Committee.
- » Program Resource Guide.
- » The Township Sign Safety Program.
- » County Roadway Safety Audits Program.
- » County Engineers Association Funding.

Highway Safety District Offices

ODOT's district offices facilitate discussions with local governments and agencies about safety program planning and development. In each district, a dedicated Highway Safety Coordinator is the liaison between local agencies and department staff and helps agencies navigate the HSIP process.

ODOT has 12 district offices and one central office (Figure 16-1) with planning and engineering staff at each District office (ODOT, 2014), allowing ODOT district staff to develop close working relationships with local agencies. District staff are also encouraged to participate in local government meetings, including (ODOT, 2014):

- » City council meetings.
- » Regional planning commission meetings.
- » Economic development meetings.
- » County commissioner meetings.

The ODOT district safety coordinator is the first point of contact and works directly with local officials to develop projects using the statewide planning process. Local agencies applying for HSIP funding can use their ODOT district office for HSIP application assistance (ODOT, 2014).

Requests for low-cost safety improvements may qualify for an abbreviated application, allowing a shorter, more cost-efficient study to be conducted instead of a more detailed and costly formal study (ODOT, 2017b). HSIP applications are reviewed by the local district office before they are submitted

to the central office, where they are reviewed by a multi-discipline committee.

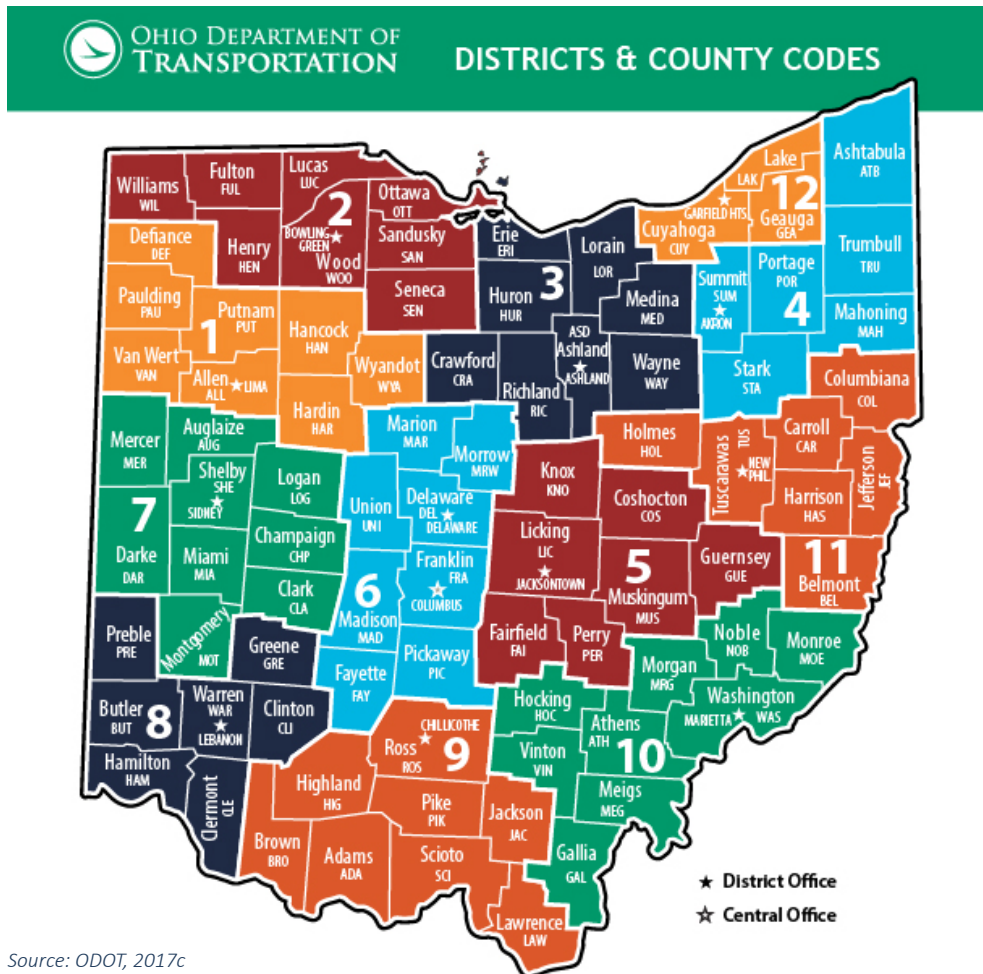
The Ohio Highway Safety Improvement Program 2016 Annual Report describes the HSIP application process (OH, 2016).

“A multi-discipline committee at ODOT headquarters reviews all applications and supporting safety studies. The committee can approve a proposal, select a different safety strategy or request further study before allocating money. ODOT spends approximately \$85 million dollars in safety funds annually through this program. Once funding is secured, safety projects are scheduled for construction. How quickly projects proceed to construction depends on the available funding and complexity of the project. Short-term, low-cost projects can be implemented

within a few months. Other projects that require environmental mitigation, complex engineering design and/or utility and right of way relocation may take several years. In all cases, ODOT encourages sponsors to act as quickly as possible. Upon project completion, the department monitors locations to make sure the improvements are reducing crashes as designed.”

ODOT’s innovative partnerships with LTAP and ODOT, along with an emphasis on a data-driven analysis process, are instrumental in improving local road safety.

Figure 16-1. ODOT District and Central Offices



Source: ODOT, 2017c

Statewide Steering Committee

ODOT created the Statewide Steering Committee to share information/resources and create a central repository for distributing crash data and trends. The Committee includes representatives from local, state, and federal government agencies who have access to and share crash information with hundreds of other safety organizations across Ohio. Since crash data and many available crash analysis resources are centrally located, this statewide information strategy is the most effective way to implement strategies that address fatalities on Ohio roads. It informs local agencies, provides high-quality data without increasing costs, and helps increase local agency staff expertise on data analysis and crash trends (OH, 2016). Members of this Committee are also the primary contributors to and reviewers of ODOT's SHSP

Program Resource Guide

ODOT publishes the Program Resource Guide (ODOT, 2017d), which documents available funding opportunities for local governments, transportation advocacy groups, planning organizations, and citizens. The Guide provides best practices for soliciting funding and locating points of contact when applying for funding and will, "improve access to funding programs and resources and help continue the development of Ohio's transportation infrastructure" (ODOT, 2017d).

ODOT Signal Timing Program

ODOT consults with district offices and local communities in providing signal timing upgrades in areas with high intersection crashes and prioritizes upgrades in locations where crashes are linked to poor signal timing (ODOT, 2017e).

Township Safety Sign Grant Program

Each year, ODOT allocates \$1 million under the Township Safety Sign Grant Program for safety signage upgrades, including signs (typically curves and intersection), posts, and applicable hardware (ODOT, 2017a). Townships can apply for up to \$50,000 in funding if the Township:

1. Has a greater than average crash rating based on a 5-year history.
2. Has not previously received funding under the program.

County RSA Program

ODOT partners with LTAP and CEAO to conduct safety audits as part of the HSIP-funded Roadway Safety Audit (RSA) Program. The RSA Program focuses on making improvements to roads where serious injuries and fatalities are higher than the state average.

County Engineers Association Safety Set Aside

Each year, members of the CEAO can request funding for safety upgrades on county-maintained roads. If applications are accepted, CEAO allocates a portion of its total \$12 million CEAO safety set aside budget to the approved applicant for various road improvements. The applicant can then request additional HSIP funds from ODOT. ODOT prioritizes applications eligible for safety funding by funding match (such as a CEAO safety set aside).

Local Agency Action Items

The ODOT successfully developed a comprehensive range of resources to engage and encourage local agencies with varying levels of experience to participate in the HSIP. To develop similar partnerships, an agency could:

- » **Identify** the gaps in the HSIP process that deter local agency participation and collaborate with other local agencies on addressing gaps.
- » **Communicate** needs for expanded training, technical assistance, local programs, and funding opportunities to the DOT/U.S. Federal Highway Administration.
- » **Collaborate** with other agencies, associations, and safety stakeholders to form a steering committee to distribute information on available programs and resources.

References:

1. OH. 2016. *Ohio Highway Safety Improvement Program 2016 Annual Report*. <https://safety.fhwa.dot.gov/hsip/reports/pdf/2016/oh.pdf>. Accessed October 23, 2017.
2. Ohio Department of Transportation (ODOT). 2014. *Rural Consultation Process*. <http://www.dot.state.oh.us/Divisions/Planning/SPR/StatewidePlanning/Documents/ODOT%20Rural%20Consultation%20Process.pdf>. Accessed October 23, 2017.
3. Ohio Department of Transportation (ODOT). 2017a. *Township Safety Sign Grant Program*. http://www.dot.state.oh.us/Divisions/Planning/LocalPrograms/Pages/Township_Safety_Sign_Grant_Program.aspx. Accessed November 30, 2018.
4. Ohio Department of Transportation (ODOT). 2017b. *Highway Safety Improvement Program – Funding Application Process*. <http://www.dot.state.oh.us/Divisions/Planning/ProgramManagement/HighwaySafety/HSIP/Pages/Funding-Application-Process.aspx>. Accessed October 23, 2017.
5. Ohio Department of Transportation (ODOT). 2017c. *ODOT District Map and Contact Information*. <http://www.dot.state.oh.us/districts/Pages/default.aspx>. Accessed October 23, 2017.
6. Ohio Department of Transportation (ODOT). 2017d. *Program Resource Guide*. <http://www.dot.state.oh.us/Divisions/Planning/LocalPrograms/Documents/ProgramResourceGuide.pdf>. Accessed October 23, 2017.
7. Ohio Department of Transportation (ODOT). 2017e. *Other Highway Safety Programs*. <http://www.dot.state.oh.us/Divisions/Planning/ProgramManagement/HighwaySafety/HSIP/Documents/Other%20Safety%20Programs.pdf>. Accessed February 8, 2018.

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CASE STUDY 17 –

New Data-driven Approach to Support Safety Countermeasures with Short Service Lives

Problem

Local agency engineers have declined participation in the Highway Safety Improvement Program (HSIP) because the one-time infusion of safety funds is overshadowed by increasing maintenance costs, which are the sole responsibility of the local agency.

Noteworthy Solution

FHWA's Minnesota Division partnered with Minnesota Department of Transportation (MnDOT) and Minnesota's county engineers to develop a new project funding approach for the state that removes the maintenance funding barrier. This approach changes the classification for some projects typically classified as maintenance so they are eligible for HSIP funding. For example, U.S. Federal Highway Administration (FHWA) had previously determined that the HSIP should not fund pavement markings on rehabilitation projects (Stein, 2017, pers. comm.). Under this new data-driven approach, maintenance costs of countermeasures with short design lives (such as pavement markings) would be classified as periodic refreshing (instead of maintenance) and considered eligible for HSIP funding, providing that:

- » The local agency completes a systemic assessment of its system that includes prioritizing facilities and identifying high-risk locations.
- » The local agency prepares a safety plan for its system that includes the results of the systemic assessment and the prioritized listing of high-risk locations, and identifies suggested safety projects.
- » The local agency submits the safety projects to the state DOT as part of the HSIP solicitation process.
- » State DOT HSIP managers determine that the proposed project is consistent with local agency and statewide priorities and include the project in the annual HSIP.
- » The local agency implements the initial safety project, which includes pavement markings.
- » After the safety project is complete, if in the future the location still has potential for crashes based on site roadway and traffic characteristics, refreshing markings would be considered a new project and eligible for HSIP funding.

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The key to this new project funding approach is collaboration between the local agency, state DOT, and FHWA. The local agency conducts the systemic assessment, prepares a safety plan, and submits projects to state safety program managers for funding. The state DOT identifies statewide priorities and commits to including local agencies in the HSIP. FHWA provides technical oversight and funding support.

This partnership has resulted in several positive outcomes, including (Vizecky, 2017, pers. comm.):

- » More counties participated in the HSIP (about 85% of Minnesota's 87 counties have had at least 1 project funded).
- » MnDOT met its commitment to dedicate more than 50% of HSIP funding to safety projects on local systems.
- » Counties have installed almost \$16 million of enhanced edge lines.
- » Fatal crashes on the county roadway system have been reduced by 25%.

Local Agency Action Items

FHWA's Minnesota Division successfully worked with MnDOT and local agencies to reclassify projects requiring HSIP funding. To participate in a similar program, other local agencies could:

- » **Identify** obstacles preventing applications for HSIP funding and projects.
- » **Maintain** a data-driven assessment of the roadway system for future confirmation of safety priority.
- » **Collaborate** with FHWA, state, and other local agencies to resolve identified obstacles using innovative approaches to justify HSIP funding eligibility.

References

1. Stein, Will, U.S. Federal Highway Administration (FHWA). 2017. Personal communication with Howard Preston/CH2M HILL.
2. Vizecky, Mark, Minnesota Department of Transportation (MnDOT). 2017. Personal communication with Howard Preston/CH2M HILL.



Source: FHWA

SUMMARY

SUMMARY

This *Noteworthy Practices Manual* presents solutions to some of the common barriers faced by local agencies when implementing federally-funded HSIP projects. The Manual also shares best practices to support local agencies' efforts to implement federally-funded safety projects. A series of example case studies draw on previous state and local agency experiences and provide a model for local agencies to overcome barriers hindering participation in HSIP. Finally, this Manual provides action items for local agencies to follow independently or cooperatively with state DOT's or other local agencies to implement federally-funded HSIP projects.

The FHWA, state, and local agencies provided source material for the *Noteworthy Practices Manual*.



Source: FHWA

REFERENCES

REFERENCES

Introduction

1. U.S. Federal Highway Administration (FHWA). 2015. Highway Statistics 2014. *Public Road Length – 2014, Miles By Ownership*. <https://www.fhwa.dot.gov/policyinformation/statistics/2014/hm10.cfm>. Accessed November 20, 2017.
2. National Highway Traffic Safety Administration (NHTSA). 2015. *Fatality Analysis Reporting System (FARS) Encyclopedia*. <https://www-fars.nhtsa.dot.gov/Main/index.aspx>. Accessed November 20, 2017.

Case Study 1 – Strategic Highway Safety Plan Involvement

1. U.S. Federal Highway Administration (FHWA). 2013. *New Jersey Highway Safety Improvement Program 2013 Annual Report*. <https://safety.fhwa.dot.gov/hsip/reports/pdf/2013/nj.pdf>. Accessed November 6, 2018.
2. U.S. Federal Highway Administration (FHWA). 2014. *New Jersey Highway Safety Improvement Program 2014 Annual Report*. <https://safety.fhwa.dot.gov/hsip/reports/pdf/2014/nj.pdf>. Accessed November 6, 2018.
3. U.S. Federal Highway Administration (FHWA). 2015. *New Jersey Highway Safety Improvement Program 2015 Annual Report*. <https://safety.fhwa.dot.gov/hsip/reports/pdf/2015/nj.pdf>. Accessed November 6, 2018.
4. U.S. Federal Highway Administration (FHWA). 2016. *New Jersey Highway Safety Improvement Program 2016 Annual Report*. <https://safety.fhwa.dot.gov/hsip/reports/pdf/2016/nj.pdf>. Accessed November 6, 2018.
5. New Jersey Department of Transportation (NJDOT). 2015. *New Jersey Strategic Highway Safety Plan*. <http://www.state.nj.us/transportation/about/safety/pdf/2015strategichighwaysafetyplan.pdf>. Accessed July 27, 2017.
6. North Dakota Department of Transportation (NDDOT). 2013. *North Dakota's Strategic Highway Safety Plan*. September.

Case Study 2 – Crash Mapping Analysis Tool

1. Iowa Department of Transportation (Iowa DOT). *Crash Mapping Analysis Tool*. <https://icat.iowadot.gov/>. Accessed May 2020.
2. Minnesota Department of Transportation (MnDOT). 2015. *Minnesota Crash Mapping Analysis Tool*. <http://www.dot.state.mn.us/stateaid/crashmapping.html>. Accessed April 2015.

Case Study 3 – HSIP Application Guidance Document

1. New Hampshire Department of Transportation (NHDOT). 2012. *Strategic Highway Safety Plan*. https://www.nh.gov/dot/projects/documents/2012_2016_strategic_highway_safety_plan_single_pages_suitable_for_printing.pdf. Accessed November 30, 2018.
2. New Hampshire Department of Transportation (NHDOT). 2013. *Highway Safety Improvement Program Manual and Guidance*. https://www.nh.gov/dot/org/projectdevelopment/highwaydesign/hwysafetyimprovements/documents/hsip_nhguidance_122013.pdf. Accessed November 30, 2018.
3. New Hampshire Department of Transportation (NHDOT). 2017. *Highway Safety Improvement webpage*. <https://www.nh.gov/dot/org/projectdevelopment/highwaydesign/hwysafetyimprovements>. Accessed August 17, 2017.

Case Study 4 – HSIP Application Preparation Assistance

1. Kuntz, Shawn, North Dakota Department of Transportation (NDDOT). 2016. Personal communication with Howard Preston/CH2M HILL.
2. Leuer, Derek, Minnesota Department of Transportation (MnDOT). 2016. Personal communication with Howard Preston/CH2M HILL.
3. North Dakota Department of Transportation (NDDOT). 2017. *Local Road Safety Program*. https://www.dot.nd.gov/divisions/safety/docs/LSRP/VIEW_CentralRegion_Agency_BottineauCounty.pdf. Accessed November 30, 2018.

Case Study 5 – Safety Training for Local Agencies

1. Federal Highway Administration (FHWA). 2014a. *Improving Safety on Rural Local and Tribal Roads – Safety Toolkit*. https://safety.fhwa.dot.gov/local_rural/training/fhwasa14072/isrltrst.pdf. Accessed September 18, 2017.
2. Federal Highway Administration (FHWA). 2014b. *Crash Modification Factor (CMF) Clearinghouse*. <http://safety.fhwa.dot.gov/tools/crf/resources/>. Modified October 2014.
3. Federal Highway Administration (FHWA). 2017. Federal Highway Administration (FHWA) Website. <https://safety.fhwa.dot.gov/>. Accessed September 18, 2017. Lois Goldman New Jersey
4. Minnesota Department of Transportation (MnDOT). 2015. *Traffic Safety Fundamentals Handbook*. <http://www.dot.state.mn.us/stateaid/trafficsafety/reference/2015-mndot-safety-handbook-large.pdf>. Accessed September 18 2017.
5. North Jersey Transportation Planning Authority (NJTPA). 2016. *New Jersey Highway Safety Improvement Program Manual*. <https://www.state.nj.us/transportation/about/safety/pdf/2016hsipmanual.pdf>. Accessed November 30, 2018.
6. North Jersey Transportation Planning Authority (NJTPA). 2016b. Internal Database.

Case Study 6 – Local HSIP Advisory Committee

1. California Department of Transportation (Caltrans). 2015. *California Strategic Highway Safety Plan 2015-2019*. http://www.dot.ca.gov/trafficops/shsp/docs/SHSP15_Update.pdf. Accessed September 18, 2017.
2. Fatality Analysis Reporting System (FARS). 2017. Database. <https://www.nhtsa.gov/research-data/fatality-analysis-reporting-system-fars>. Accessed September 25, 2017.
3. Kochevar, Ken, Caltrans. 2017. Personal communication with Howard Preston/CH2M HILL.
4. Mattox, Mark, Town of Paradise. 2016. Personal communication with Howard Preston/CH2M HILL.
5. U.S. Federal Highway Administration (FHWA). 2005. *Federal Highway Administration Research and Technology Coordinating, Developing, and Delivering Highway Transportation Innovations*. Chapter 3. Publication Number: FHWA-HRT-04-100. September.

Case Study 8 – Local Agency Safety Program

1. Florida Department of Transportation (FDOT). 2017a. Local Agency Traffic Safety Academy. <http://www.tampabaytrafficsafety.com/LATSA/SitePages/Home.aspx>. Accessed October 9, 2017.
2. Florida Department of Transportation (FDOT). 2017b. *Florida Department of Transportation’s District Seven Design-Build Pushbutton Contract*. <http://www.tampabaytrafficsafety.com/DBPB>. Accessed October 23, 2017.
3. U.S. Federal Highway Administration (FHWA). 2013. *Safety Summit Yields Tenfold Increase in Number of Safety Applications Submitted by Local Agencies – Florida*. https://rspcb.safety.fhwa.dot.gov/noteworthy/html/localrural_fl1.aspx?id=96. Accessed October 9, 2017.

Case Study 9 – Support for Road Safety Assessments

1. U.S. Federal Highway Administration (FHWA). 2014. Road Safety Audits (RSA). <https://safety.fhwa.dot.gov/rsa/>. Accessed May 2020.
2. Sheehan, Timothy, Safety Design Unit Chief Bureau of Safety Programs and Engineering for Illinois Department of Transportation. 2017. Personal communication with Howard Preston/CH2M HILL.

Case Study 10 – Local Road Safety Plans

1. Minnesota Department of Transportation (MnDOT). 2008. *Strategic Highway Safety Plan*.
2. Minnesota Department of Transportation (MnDOT). 2014. *Final Report for the Minnesota County Roadway Safety Plans*. January.
3. Minnesota Department of Transportation (MnDOT). *Facts about Crashes, Budget, Fatality Rates*. Database. <http://www.dot.state.mn.us/trafficeng/publ/triviacard/>. Accessed February 11, 2018.
4. North Dakota Department of Transportation (NDDOT). 2013. *North Dakota Strategic Highway Safety Plan*. September.
5. North Dakota Department of Transportation (NDDOT). 2015. *North Dakota Local Road Safety Program*. June.
6. Vizecky, Mark, Minnesota Department of Transportation (MnDOT). 2017. Personal communication with Howard Preston/CH2M HILL.
7. Minnesota Department of Transportation (MnDOT). 2018. Safety Plan Handout. <http://www.dot.state.mn.us/stateaid/trafficsafety/county/tzd-handout-final.pdf>. Accessed October 15, 2018.

Case Study 11 – Systemic Safety Evaluation

1. Davis, Scott, Traffic Engineering and Operations Manager, Thurston County. 2016. Personal communication with Howard Preston/CH2M HILL.
2. U.S. Federal Highway Association (FHWA). 2013. *Systemic Safety Project Selection Tool*. <https://safety.fhwa.dot.gov/systemic/fhwasa13019/sspst.pdf>. Accessed September 19, 2017.
3. Washington Traffic Safety Commission (WTSC). 2016. *Washington State Strategic Highway Safety Plan*. <http://wtsc.wa.gov/target-zero/>. Accessed September 19, 2017.

Case Study 12 – Environmental Documentation Assistance

1. Minnesota Department of Transportation (MnDOT). 2017. *State Aid for Local Transportation, Environmental Forms & Information*. <http://www.dot.state.mn.us/stateaid/environmental-forms.html>. Accessed September 19, 2017.

Case Study 13 – Bundled Project Strategy

1. Tasa, Lou, Minnesota Department of Transportation (MnDOT). 2017. Personal communication with Howard Preston/CH2M HILL.

Case Study 14 – Local Safety Engineering Assistance Program

1. North Jersey Transportation Planning Authority (NJTPA). 2013. *The Local Safety and High Risk Rural Roads Programs*. http://www.njtpa.org/getmedia/42817bbf-6fcf-4c8b-a7c1-910c4174e9a7/LSP_revised.pdf.aspx. Accessed September 21, 2017.
2. Mittman, Christine, North Jersey Transportation Planning Authority (NJTPA). 2017. Personal Communication with Howard Preston/CH2M HILL.
3. North Jersey Transportation Planning Authority (NJTPA). 2017. *NJTPA Local Safety and High Risk Rural Roads Program webpage*. <https://www.njtpa.org/localsafety.aspx>. Accessed May 2020.

Case Study 15 – Dedicated HSIP Funding Support for Local System Safety Projects

1. Bray, Tim, Crow Wing County. 2016. Personal communication with Howard Preston/CH2M HILL.
2. Devoe, Eric, Minnesota Department of Transportation (MnDOT). 2016. Personal communication with Howard Preston/CH2M HILL.
3. Kuntz, Shawn, North Dakota Department of Transportation (NDDOT). 2016. Personal communication with Howard Preston/CH2M HILL.

Case Study 16 – Comprehensive Approach to Local Road Safety

1. OH. 2016. *Ohio Highway Safety Improvement Program 2016 Annual Report*. <https://safety.fhwa.dot.gov/hsip/reports/pdf/2016/oh.pdf>. Accessed October 23, 2017.
2. Ohio Department of Transportation (ODOT). 2014. *Rural Consultation Process*. <http://www.dot.state.oh.us/Divisions/Planning/SPR/StatewidePlanning/Documents/ODOT%20Rural%20Consultation%20Process.pdf>. Accessed October 23, 2017.
3. Ohio Department of Transportation (ODOT). 2017a. *Township Safety Sign Grant Program*. http://www.dot.state.oh.us/Divisions/Planning/LocalPrograms/Pages/Township_Safety_Sign_Grant_Program.aspx. Accessed November 30, 2018.
4. Ohio Department of Transportation (ODOT). 2017b. *Highway Safety Improvement Program – Funding Application Process*. <https://www.dot.state.oh.us/Divisions/Planning/ProgramManagement/HighwaySafety/HSIP/Pages/Funding-Application-Process.aspx>. Access Date of October 23, 2017.
5. Ohio Department of Transportation (ODOT). 2017c. *ODOT District Map and Contact Information*. <http://www.dot.state.oh.us/districts/Pages/default.aspx>. Accessed October 23, 2017.
6. Ohio Department of Transportation (ODOT). 2017d. *Program Resource Guide*. <http://www.dot.state.oh.us/Divisions/Planning/LocalPrograms/Documents/ProgramResourceGuide.pdf>. Accessed October 23, 2017.
7. Ohio Department of Transportation (ODOT). 2017e. *Other Highway Safety Programs*. <http://www.dot.state.oh.us/Divisions/Planning/ProgramManagement/HighwaySafety/HSIP/Documents/Other%20Safety%20Programs.pdf>. Accessed February 8, 2018.

Case Study 17 – New Data-driven Approach to Support Safety Countermeasures with Short Service Lives

1. Stein, Will, U.S. Federal Highway Administration (FHWA). 2017. Personal communication with Howard Preston/CH2M HILL.
2. Vizecky, Mark, Minnesota Department of Transportation (MnDOT). 2017. Personal communication with Howard Preston/CH2M HILL.



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APPENDIXES

Table of Contents

A. Members of the Technical Oversight Working Group	85
B. Sample HSIP Project Application Spreadsheet	87
C. California Local Highway Safety Improvement Program Advisory Charter	89
D. Environmental Documentation for Federal Projects with Minor Impacts	93
E. Sample Determination of No Effect	95
F. Memo and Joint Powers Agreement for the Administration of Federal HSIP Safety Grant	97

APPENDIX A –

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APPENDIX B –

Sample HSIP Project Application Spreadsheet

HSIP-Application (Rev 8/2013)				Project Towns:		Project #:							
New Hampshire Department of Transportation Highway Safety Improvement Program		Highway Safety Improvement Project (HSIP) FY2013-14 Application						Date Rec'd (for office use only)					
Name:		Agency:		Tel:		Email:							
Street Address:		Cell:		Fax:		RPC Name:							
Town, State, Zip		Priority Rank: (if submitting 2+ applications this year)				Site submitted in past yrs?							
Site Type	NHDOT District	County	Major Road/Minor Road	Maintenance	Traffic Control	MP Start/Major Rd SRI	MP End/Minor Rd SRI	Study Period Begins	Study Period Ends				
Major Rd Funct Class			Minor Rd Funct Class		Area Type		Federal System						
Briefly Describe Problem and Proposed Work:													
Crash Data	Crash Type		Rear End	Side/side Same Direction	Left Turn	Right angle	Run off Road	Head On/Side/side Opposite	Pedestrian	Bicycle	Other	Total Related Crashes	Crash Severity Distribution
	Severity	Fatal	K = 1										
		Injury	A = 2										
	B = 3												
	C = 4												
PDO	U+N = 5+6												
	Total												
<i>NOTE: For traffic data, please fill corresponding sections for both sections and segment projects. Do not fill both traffic data sections.</i>										Discount Rate (minimum of return)		3.0%	
Traffic Data (Inter.)	Year	Enter AADT	NB AADT	SB AADT	EB AADT	WB AADT	Other leg AADT	# of Approaches	Crash Rate (Intersection)	Critical Rate (Intersection)	Intersection Node	Traffic Annual Growth Rate	
												0.01	
Traffic Data (Segment)	Year		Sec 1	Sec 2	Sec 3	Sec 4	Sec 5	Total/Average	Speed Limit (Average)	Crash Rate (Segment)	Project location listed on the latest Transparency Report? (Y/N)		
	Segment Length (Mile)												
	Average AADT								Lane Width (ft)	Critical Rate (Segment)			
	Number of Lanes												
Improvement Action	Method for combining multiple CMFs							Project Cost Information					
	Number	Improvement Description	Service Life	CMF Fatal	CMF Injury	CMF PDO	PE cost plus \$5000 (2)	R/W Utility	Construction	Improvement Initial Cost	Annual Maintenance		
	1									\$ -			
	2									\$ -			
	3									\$ -			
	4									\$ -			
Total			0	1.00	1.00	1.00	Total Initial Cost	\$ -	\$ -	\$ -	\$ -		
<i>NOTE: (1) A local agreement is required upon notification of program approval for municipal maintained roads. (2) NH District and Central Office personnel charge review and administration time to project managed by municipalities. Safety Projects not managed by NHDOT shall include a minimum of \$5,000 for NHDOT P.E. costs.</i>							Project Schedule (After STIP Approval)		Begin PE	Target Advert	Begin Construction	Estimated Complete Date	Type of Plan
Project Administered by													
Economic Evaluation	Benefit	Traffic Growth Factor (TGF)	Present Value of Safety Benefits	Cost	Present Value of Project Costs	Project Benefit Information							
		1.00	\$ -			\$ -	Crash Severity	Societal Crash Cost	Related Crashes	Annual Crash Reduction	Estimated Annual Benefit		
	Benefit Cost Ratio						K	\$ 5,463,500	0	-	\$ -		
	Net Benefit						A	\$ 291,300	0	-	\$ -		
	Annual KA						B	\$ 106,400	0	-	\$ -		
	Crash Reduction						C	\$ 60,200	0	-	\$ -		
						PDO	\$ 9,800	0	-	\$ -			
						Total		0	-	\$ -			
Person with Authority to Expend 10% Matching Funds:													
Name (Print):				Signature:				Date:					
<i>NHDOT anticipates providing the 10 percent match for the FY2013-14; however, the applicant should be able to supply the local match if state funding becomes unavailable. Please submit an electronic copy of this spreadsheet to NEVMarshall@dot.state.nh.us and mail a paper copy with signature to the address below.</i>													
Mailing address:													
New Hampshire Department of Transportation Bureau of Highway Design 7 Hazen Drive, P.O. Box 4883 Concord, NH 03302-0483 Attention: Michelle E. Marshall										Towns: Town Engineers are requested to submit applications within their jurisdiction through the Regional Planning Commission and forward them to the State Highway Safety Engineer.			
										Districts: Resident Engineers are requested to submit applications within their residency through the District Engineers and forward them to the State Highway Safety Engineer.			
<small>(3) The yellow are required inputs and white areas are optional. The gray areas are automatically generated by embedded formulas. (4) For all fields, please refer to "Instruction for FY2011-12 Highway Safety Improvement Project (HSIP)"</small>													
Page 1 of 2													

APPENDIX C –

California Local Highway Safety Improvement Program Advisory Charter

<p>Mission</p>	<p>California Local HSIP Advisory Committee is action oriented and supports the goal of to reduce fatalities and serious injuries on all public roadways in California.</p>
<p>Purpose</p>	<p>The committee provides high-level balanced strategic guidance to California’s Local HSIP and other safety programs and efforts regarding safety on California local roadways.</p>
<p>Desired Goals</p>	<ul style="list-style-type: none"> • Ensure that California’s Local HSIP and other safety programs and efforts are consistent with California’s SHSP • Provide vision and strategic priorities for improving local safety programs and processes • Provide recommendation on California Local HSIP and processes • Provide recommendation to streamline decision-making, review and project delivery on safety projects • Identify funding opportunities to meet local roadway safety needs • Encourage, improve and support traffic safety efforts at local agencies
<p>Members</p>	<p>The membership of the Committee shall consist of seven parent organizations. It is the intent that Committee members shall represent both urban and rural areas distributed geographically throughout the State, and to this end, California State Association of Counties and League of California Cities shall have two representatives.</p> <p>Caltrans – (3) California Transportation Cooperative Committee – (1) California State Association of Counties – (2) League of California Cities – (2) Regional Transportation Planning Agency – (1) Metropolitan Planning Organization – (1) Rural County Task Force – (1)</p> <p>Each representative shall have an alternate that will attend in their absence. Alternates are encouraged to attend but not required. At the discretion of the co-chairs, guests and speakers may attend for specific agenda items.</p> <p>The committee is co-chaired by Caltrans and a local representative. The co-chair position for the local member organization can be rotated at any time by the desire of the local representatives.</p>

Advisors and Support	Caltrans Federal Highway Administration Local Technical Assistance Program
Frequency of Meetings	The committee will meet six times annually. Co-chairs may call additional meetings or workshops, as necessary Representatives who miss three consecutive meetings may be relieved of their service to the Committee and the member organization will be asked to name a replacement prior to the next meeting.
Roles and Responsibilities	The roles and responsibilities of committee members are as follows: <ul style="list-style-type: none"> • To act as the accountable representative for your member organization • Gather disseminate, and exchange information and outcomes to your member organization • Be an active participant by either listening to other members and be willing to offer suggestions and/or recommendations that are from the member organization • Any actions assigned to a committee member will be completed by the next meeting or an agreed upon date • Be willing to be assigned to a sub-committee should the need arise • Be willing to serve a minimum of two years on the committee
Reporting Structure	The Local HSIP Advisory Committee makes recommendations to the Division Chief, Local Assistance Program.
Decision Process	It is desired that decisions by the committee should be made by general consensus. Consensus is defined as reaching a decision that all Committee Members will support after a complete discussion of the issues and differing viewpoints. If consensus cannot be reached, a vote of the committee will be the next action and seven 'yes' votes will be required before an action is approved. Recommendations and dissenting opinions will be captured in the meeting documentation
Amendments	This charter can be reviewed, evaluated, adjusted as needed.

Charter Approved for Local HSIP Advisory Committee

JESSE BHULLAR Date
Co-Chair
Office Chief, Bridge, Bond & Safety Program
Caltrans, Division of Local Assistance

TOM MATTSON Date
Co-Chair
California Transportation Cooperative
Committee

STEVEN CASTLEBERRY Date
California State Association of Counties

DEAN LEHMAN Date
California State Association of Counties

ANDREW MAXIMOUS Date
California League of Cities

ADRIANN CARDOSO Date
Regional Transportation Planning Agency

ROSS MC KEOWN Date
Metropolitan Planning Organization

ROBERT PETERSON Date
Local Highway Safety Improvement Program
Manager – Caltrans

RICK TIPPETT Date
Rural County Task Force

GARIN SCHNEIDER Date
Local Highway Safety Improvement Program
District Local Assistance Engineer - Caltrans

APPENDIX D –

Environmental Documentation for Federal Projects with Minor Impacts



STATE AID FOR LOCAL TRANSPORTATION

Sept 2010

Environmental Documentation for Federal Projects with Minor Impacts Page 1 of 2

SP(s) _____ MN Proj. No(s): _____

Project Location: (see attached project location map) _____

Project Purpose and Need: _____

Project Type: check all that apply¹

- Pavement Markings²
- Rumble Stripes
- Rumble Strips
- Signing Installation²
- Guardrail Installation
- Shoulder paving (No widening)
- Lighting
- Engineering Studies
- SRTS Education/Enforcement

Project Manager

Name: _____
Title: _____
Address: _____
Address2: _____
Phone: _____
Email: _____

¹ Any other type of work will require a project memo

² Project will be designed in accordance with the MMUTCD

Estimated project costs

Federal amount \$ _____
Federal amount other \$ _____ (Enter Funding Type Here)
Other funds \$ _____ (Enter Funding Type Here)
Total Project cost \$ _____

Project is listed in the Select STIP Year State Transportation Improvement Program in year Year as Sequence number _____.

Desired date to begin work: Month/Year.

Method of Execution of work.

- County/City will let work for competitive bids.
- County/City will purchase materials under a competitive process and install with their own forces (**NO** federal reimbursement for installation costs).
- County/City will hire a consultant to perform an engineering study.

Environmental Impacts: Check appropriate boxes

Section 106 (Cultural Resources)

- No Historic Properties are affected (see attached letter) (*No Adverse Effect or Adverse Effect will require a project memo*)
- Engineering Studies (No letter Required)

Endangered Species

- Project is in a county which has no federal threatened and endangered species
- Project will have no impact on federal threatened or endangered species (see attached letter)
- Engineering Studies (No letter Required)



Federal Action Determination Statement

Based on the environmental study in accordance with 23 CFR 771.117, it is determined that the proposed improvement is a Class II Action (categorical exclusion) anticipated to have no foreseeable change on the quality of the human environment.

Recommended:

County Engineer

Date

Reviewed and Recommended

District State Aid Engineer

Date

Approved

Director, State Aid for Local Transportation

Date

APPENDIX E –

Sample Determination of No Effect

Summary of Local HSIP Solicitation State Fiscal Years (SFY) 2017, 2018, 2019 & 2020

Project Selection:

- A selection team with representation from the State Aid Division (SALT), the Office of Traffic, Safety, and Technology (OTST) and the Federal Highway Administration (FHWA) ranked each application.
- All projects are required to meet the intent of the Strategic Highway Safety Plan (SHSP)
- The applications were first grouped by Area Transportation Partnership (ATP), then into two (2) categories, proactive and reactive strategies.
- Projects were selected from each ATP based on:

PROACTIVE PROJECTS:

- Developed through the County Roadway Safety Plan (CRSP) process
OR
- Substantial compliance with projects listed in the CRSP
 1. All modified projects must have provided sound documentation for selection to be considered.

REACTIVE PROJECTS:

- Benefit/Cost Analysis of 1.0 or greater.
 - Location must have a significant crash history that includes a fatal and/or serious injury crashes.
- A list of funded proposals by county is provided in Exhibit A.
 - 50 applications were funded (37 Counties and 1 City), totaling about \$17.2 million.

Summary of Funded Proposals by ATP and Project Type.

ATP	Applications Funded
1	12
2	6
3	10
4	2
6	9
7	8
8	3
Total	50

Project Type	Funding Awarded
Chevrons	\$ 220,050
Intersection Modifications	\$ 1,550,000
High Friction Surface Treatment in Curves	\$ 621,000
Intersection Lighting	\$ 181,600
Enhanced Pavement Markings and/or Rumble Strips & StripEs	\$ 7,980,247
2' Shoulder Paving, Rumble Strips & Safety Edge	\$ 2,300,284
Enhanced Pavement Markings and/or Signs at Intersections	\$ 405,810
Upgraded Signs, Pavement Markings and Intersection Lighting	\$ 422,573
Roundabouts	\$ 3,476,200
Total	\$ 17,157,764

APPENDIX F –

Memo and Joint Powers Agreement for the Administration of Federal HSIP Safety Grant

Memo



Minnesota Department of Transportation

Memo

NORTHWEST DISTRICT
3920 Highway 2 West
Bemidji, MN 56601

Office Tel: 218-755-6570
Fax: 218-755-6512

Date: July 22, 2016

To: Howard Preston

Subject: HSIP Projects with multiple Counties under one contract

Howard:

This is in response to your inquiry on how our counties in District 2 plan and program projects that include multiple counties under one contract for the Highway Safety Improvement Program (HSIP).

Each year our District County Engineers, my staff, and I have a Spring Construction Meeting, Annual meeting, and a Federal Aid Programming meeting. In addition to those meetings, I meet informally with them at their offices throughout the year for various reasons that sometimes leads to discussions of future HSIP projects.

At our Federal Aid programming meeting each December, we discuss the possible HSIP projects that each county is considering. It is usually at this meeting that they agree to combine the same type of projects together and submit them to the MnDOT Central Office in St. Paul for the year that funding is available. They have found that making a larger contract is more efficient for everyone and is more likely to be funded sooner. For example, the first one in District 2 was a 6" wide edge line stripe that all the counties wanted as they all do some edge line striping each year. In our meeting, we discussed which county would have the time to develop the project, let it, and do the contract administration. Polk County offered and from that project we learned that it wasn't that difficult to manage a multiple county project as long as there was a clear understanding of the costs and expectations from each county. Since that project was completed, we have had other multiple county projects. Now, often times, the counties decide between themselves in advance of our meeting, who will take the lead in the development and contract administration. We have had a 10 county HSIP project for chevrons, several 2 county HSIP projects for intersection sign improvements, and 4 county HSIP project for rumble stripes and strips that have worked out very well. This is now the norm for discussion of HSIP projects at our district federal aid programming meeting..

I believe that the county engineers have developed a trusting environment among themselves that comes from our annual meetings and from doing these types of HSIP projects. These multiple county projects are very successful.

I have included with this letter a copy of the intercounty agreement used for our multiple county edge line project from 2011. If there is any other information you would like, please don't hesitate to contact me via phone or email.

Sincerely,

L.C. Tasa
District 2 State Aid Engineer

Joint Powers Agreement for the Administration of Federal HSIP Safety Grant

I:\Projects\8807003\Joint Powers Dist 2

JOINT POWERS AGREEMENT FOR THE ADMINISTRATION OF FEDERAL HSIP SAFETY GRANT Project No. S.P. 088-070-003

THIS AGREEMENT made and entered on the last day of execution below, between the Eleven Mn/DOT District 2 Minnesota Counties of Beltrami, Clearwater, Hubbard, Kittson, Lake of the Woods, Marshall, Norman, Pennington, Polk, Red Lake, and Roseau, herein after referred to as the 'Eleven Counties'.

WITNESSETH:

WHEREAS, each of the Eleven Counties is their own road authority for State Aid Highways; and

WHEREAS, the Eleven Counties desire to provide roadway safety improvements in the form of pavement markings on selected district wide Federal Aid eligible highway routes; and

WHEREAS, the Eleven Counties desire to provide these road safety improvements under one single construction contract; and

WHEREAS, the Eleven Counties wish to clearly identify their mutual duties and responsibilities with respect to the project development, contract administration and project delivery; and

WHEREAS, the Eleven Counties wish to designate Polk County Highway Department as the lead agency for the creation and coordination of activities in the area of project development including creation of final project plans, specifications, advertisements, and bid letting documents; and as the lead agency in the area of contract administration including preparation and solicitation of a contract and bonds from the approved bidder, performing required field documentation, preparation of state and federal reports, making contractor payments, providing field records retention and sustaining the final audit.

NOW, THEREFORE, in consideration of the mutual covenants hereinafter contained, and other good and valuable consideration, all parties agree as follows:

1. Purpose. The purpose of this Agreement is to define the rights and obligations of the Eleven Counties with respect to the delivery of the project.

2. Recitals. The recitals set forth in the whereas clauses above are incorporated by reference as if fully set forth herein.

3. Responsibilities of Polk County:

- a. Polk County shall coordinate the preparation of plans, specifications, estimates, and bid documents in accordance with Mn/DOT State Aid Division requirements.
- b. Review preliminary plans, specification and bid documents with the Eleven Counties and State Aid Division officials. Relay and direct the revision of plans specifications and bid documents to the Eleven Counties as required.
- c. Submit final plans, specifications and bid documents to the Eleven Counties and State Aid for Final Approval.
- d. Conduct the bid opening and award the Contract.
- e. Coordinate all contract administration activities in accordance with Mn/DOT State Aid Division requirements on behalf of the Eleven Counties.
- f. Receive federal funds to be paid by FHWA for the project, pursuant to Minnesota Statutes.
- g. Perform required field documentation including, preparation and submission of required state and federal reports such as, but not limited to, notices, changes in status, diaries, change orders and payment vouchers.
- h. Upon completion of all construction activities in an individual county, provide a bill payable to Polk County Highway Department in the amount of that county's individual required match for construction costs and construction inspection.
- i. Provide permanent project records retention.
- j. Sustain the Audit.

4. Responsibilities of the Eleven Counties: Provide reimbursement to Polk County for equal share of costs incurred for project delivery on behalf of the other counties. Reimbursable items will include labor for coordination of project delivery in the areas of design, field documentation, and unallocated construction cost.

5. Payment of Coordination Costs. Bills and payment for coordination requirements incurred by Polk County will be after the fact. Each county will be billed those costs after all duties described in No. 3 above are completed.

6. Insurance. The Eleven Counties agree that they will, at all times during this Agreement, be prepared to meet the statutory limits for liability. Any insurance costs incurred shall be the costs and expenses of the insured party and shall not be included as a cost of the project or reimbursed in any way by the other party. Nothing in this agreement shall constitute a waiver of the statutory limits on liability set forth in Minnesota Statutes Chapter 466 or a waiver of any available immunities or

defenses, and the limits of liability under Minnesota Statutes Chapter 466 for some or all of the parties may not be added together to determine the maximum amount of liability for any party.

7. Controlling Law. This Agreement shall be governed by the applicable laws of the State of Minnesota.

8. Successors and Assigns. The Eleven Counties respectfully bind themselves, their partners, successors and assigns and all legal representatives of such party with respect to all covenants of this Agreement.

9. Changes. Except as provided herein, the parties agree that no change or modification to this Agreement or any attachments hereto shall have any force or effect unless the change is reduced to writing, dated and made part of this Agreement. The execution of the change shall be authorized and signed in the same manner as for this Agreement.

10. Severability. In the event any provision of this Agreement shall be held invalid and unenforceable, the remaining provisions shall be valid and binding upon the parties unless such invalidity or nonenforceability would cause the Agreement to fail its purpose. One or more waivers by

covenant shall not be construed by the other party as a waiver of a subsequent breach of the same by the other party.

11. Entire Agreement. This Agreement, including all exhibits, constitutes the entire Agreement between the Eleven Counties and supersedes all prior written or oral Agreements. Any term, condition, prior course of dealing, course of performance, usage of trade, understanding, purchase order or agreement purporting to modify, vary, supplement or explain any provision of this Agreement is null and void and of no effect unless in writing and signed by representatives of both parties authorized to amend this Agreement.

12. Effective Date. The Agreement shall be effective upon execution by the parties.

13. Liability and Indemnification. Each county shall be solely liable and responsible for all of the work done within their respective county and funded under the agreement. No party to this agreement shall be liable to any other party to this agreement or any third person for damages claimed by virtue of work funded under this agreement and done outside the geographic confines of its own County. Each party to this agreement shall indemnify and hold harmless any other party to this agreement for any claims or action brought against it for work financed under this agreement and performed outside of its county. Each County assumes full and complete responsibility and liability for work done within its own county and funded under this agreement.

BELTRAMI COUNTY

Approved as to Form and Execution

Beltrami County Attorney

BY [Signature] DATE 5/7/10
County Board Chair

ATTEST [Signature] DATE 5/7/10
County Board Clerk

CLEARWATER COUNTY

Approved as to Form and Execution

Clearwater County Attorney

BY [Signature] DATE 5/13/10
County Board Chair

ATTEST [Signature] DATE 5-11-10
County Board Clerk

HUBBARD COUNTY

Approved as to Form and Execution

Hubbard County Attorney

BY [Signature] DATE 5/19/10
County Board Chair

ATTEST [Signature] DATE 5/19/10
County Board Clerk

KITTSOON COUNTY

Approved as to Form and Execution

Kittson County Attorney

BY [Signature] DATE 6/1/10
County Board Chair

ATTEST [Signature] DATE 6-1-10
County Board Clerk

LAKE OF THE WOODS COUNTY

Approved as to Form and Execution

Lake of the Woods County Attorney

BY [Signature] DATE 6-10-2010
County Board Chair

ATTEST [Signature] DATE 6-9-10
County Board Clerk

MARSHALL COUNTY

Approved as to Form and Execution

Marshall County Attorney

BY [Signature] DATE 6-21-10
County Board Chair

ATTEST [Signature] DATE 6/18/10
County Board Clerk

NORMAN COUNTY

Approved as to Form and Execution

Thomas A. Spheim
Norman County Attorney

BY Lee Ann Hall DATE 6-22-10
County Board Chair

ATTEST Richard M. Mentes DATE 6/22/10
County Board Clerk

PENNINGTON COUNTY

Approved as to Form and Execution

Chris D. P. O'Connell
Pennington County Attorney

BY Donna T. Tenthoff DATE 6/29/10
County Board Chair

ATTEST Samuel Allen DATE 6/29/10
County Board Clerk

POLK COUNTY

Approved as to Form and Execution

John P. Schuchman
Polk County Attorney

BY Wendy A. Pruden DATE 7-27-10
County Board Chair

ATTEST John P. Schuchman DATE 7-27-10
County Board Clerk

RED LAKE COUNTY

Approved as to Form and Execution

John P. Schuchman
Red Lake County Attorney

BY John Ferrell DATE 6/20/10
County Board Chair

ATTEST Robert Schuchman DATE 6-30-10
County Board Clerk

ROSEAU COUNTY

Approved as to Form and Execution

Eric Hansen
Roseau County Attorney

BY Al Johnson DATE 7-6-10
County Board Chair

ATTEST Heesakin DATE 7-16-10
County Board Clerk



Federal Highway Administration
Office of Safety
Safety.FHWA@dot.gov