Implementing the HIGH RISK RURAL ROADS PROGRAM

March 2010

U.S. Department of Transportation
Federal Highway Administration

Safe Roads for a Safer Future
Investment in roadway safety saves lives

Disclaimer and Quality Assurance Statement

Notice

This document contains findings from research and subsequent follow-up to States' implementation of the High Risk Rural Roads Program (HRRRP) within the context of States' programs and policies. Resources and practices listed are for informational purposes and for consideration in implementing the HRRRP. The inclusion of State resources and practices in this document does not imply validation or endorsement by FHWA Office of Safety. If any information in this document is in conflict with the May 19, 2006, FHWA HRRRP guidance memo, the memo is still considered the official FHWA guidance.

This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The U.S. Government assumes no liability for the use of the information contained in this document.

The U.S. Government does not endorse products or manufacturers. Trademarks or manufacturers' names appear in this report only because they are considered essential to the objective of the document.

Quality Assurance Statement

The Federal Highway Administration (FHWA) provides high-quality information to serve Government, industry, and the public in a manner that promotes public understanding. Standards and policies are used to ensure and maximize the quality, objectivity, utility, and integrity of its information. FHWA periodically reviews quality issues and adjusts its programs and processes to ensure continuous quality improvement.

Photographs

All photographs contained herein were provided by the original photographers for the purpose of this document.

Technical Report Documentation Page

1. Report No. FHWA-SA-10-012	**2. Government Accession No.**	**3. Recipient's Catalog No.**
4. Title and Subtitle Implementing the High Risk Rural Roads Program		**5. Report Date** March 2010 **6. Performing Organization Code**
7. Author(s) Brian Chandler, Rosemarie Anderson		**8. Performing Organization Report No.**
9. Performing Organization Name and Address Science Applications International Corporation (SAIC) Mail Stop E-12-3 8301 Greensboro Drive McLean, VA 22102-3600		**10. Work Unit No. (TRAIS)** **11. Contract or Grant No.** DFTH61-05-D-00025, T-09-002
12. Sponsoring Agency Name and Address Office of Safety Federal Highway Administration 1200 New Jersey Ave, SE Washington, DC 20590-9898		**13. Type of Report and Period Covered** Final Report April 2009 - March 2010 **14. Sponsoring Agency Code** HSSP

15. Supplementary Notes

The Contract Manager for this report was Rosemarie Anderson (FHWA Office of Safety). Brian Chandler (SAIC) was the Principal Investigator. John Dewar (FHWA) provided invaluable guidance. Julie Zirlin, Ryan Tenges, Noel Mehlo and Alan Ho (FHWA) conducted the initial research that forms the basis of this document.

The Technical Oversight Working Group included: LeRoy Bergmann, Iowa DOT; Walter Beyer, Elmore County Public Works; Joe Santos, Florida DOT; Khaled Ksaibati, University of Wyoming, Jim Allen, Illinois DOT; Dave Engstrom, Minnesota DOT; Jeff Vernick and Josh Schneider, North Jersey Transportation Planning Authority; Randy Ronning, CalTrans Division of Local Assistance; Gene Russell, Kansas State University; Sarah Weissman, Rutgers; and Karen Yunk (FHWA).

16. Abstract

This report documents common challenges, noteworthy practices and lessons learned experienced through the implementation of the High Risk Rural Roads Program. After 4 years of the High Risk Rural Roads Program (HRRRP), the overall obligation rate for the program has remained low. Given the HRRRP potential to improve rural road safety, this has been a major concern to the Federal Highway Administration (FHWA), proponents, and stakeholders of the program. FHWA embarked on a research project to identify the challenges the States faced in implementing their HRRRP as well as any lessons learned and noteworthy practices to share with other States.

By documenting and sharing these practices other States will gain insights as to how they can advance their programs. States can use these documented practices to launch their HRRRPs, identify next steps for a program already moving forward, or implement noteworthy practices to improve an established program. Implementing the HRRRP can make a real difference in rural road safety, and the complexity of implementing the program should not inhibit States in their pursuit of improved safety on rural roads.

17. Key Words State, safety, rural, HRRRP, obligation.	**18. Distribution Statement** No restrictions.

19. Security Clasif. (of this report) Unclassified	**20. Security Clasif. (of this page)** Unclassified	**21. No. of Pages** 52	**21. Price** N/A

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

Table of Contents

Executive Summary **1**
1. Introduction **3**
1.1 High Risk Rural Road Program 3
1.2 Purpose 4
1.3 Obligation of HRRRP Funds 4
2. National Overview of Rural Roadway Crashes **6**
3. Challenges to HRRRP Implementation **9**
3.1 Crash Data Collection, Analysis and Use 9
3.2 Project Selection 10
3.3 Local Agency Issues 10
3.4 Administration and Policies 11
4. State Practices for Implementation **12**
4.1 Crash Data Collection, Analysis and Use 12
4.2 Project Selection 14
4.3 Local Agency Coordination 16
4.4 Administration and Policies 18
5. State Case Studies **19**
6. Summary **25**

List of Tables & Figures

Figure 1: HRRRP Funds Available for Obligation **5**
Figure 2: Percent of Available HRRRP Funds Obligated **5**
Figure 3: Percent Rural Miles of Total Roadway Miles **6**
Figure 4: Urban/Rural Traffic Fatality Rates **8**
Table 1: Total Traffic Fatalities: Urban vs. Rural **7**

Appendices

A – 23 U.S.C. §148 (a)(3)(B) Sample List of Construction and Operational Improvements **A1**
B – Stakeholder Feedback Questions **B1**
C – Functional System Mileage by Ownership **C1**
D – HRRRP Resources **D1**
E – HRRRP State Contacts **E1**
F – 23 U.S.C. §148 (f) High Risk Rural Roads Program **F1**
G – Project Application Example **G1**
H– HRRRP Project Solicitation Example **H1**
I – Local Agency Involvement Process **I1**
J – Public Interest Finding Request Example **J1**

Abbreviations

AADT	Average Annual Daily Traffic
ADT	Annual Daily Traffic
DOT	Department of Transportation
FARS	Fatality Analysis Reporting System
FFY	Federal Fiscal Year
FY	Fiscal Year
FHWA	Federal Highway Administration
GIS	Geographic Information System
GPS	Global Positioning System
HRRRP	High Risk Rural Roads Program
HSIP	Highway Safety Improvement Program
LTAP	Local Technical Assistance Program
MPO	Metropolitan Planning Organization
NACo	National Association of Counties
NHTSA	National Highway Traffic Safety Administration
RPO	Regional Planning Organization
RSA	Road Safety Audit/Assessment
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SAMS	Safety Analysis Management System
SHSP	Strategic Highway Safety Plan
STIP	Statewide Transportation Improvement Program
STP	Surface Transportation Program
TraCS	Traffic and Criminal Software
USDOT	United States Department of Transportation
VMT	Vehicle Miles Traveled
TIP	Transportation Improvement Program

This page intentionally left blank

EXECUTIVE SUMMARY

The High Risk Rural Roads Program (HRRRP) was initiated to address safety on the lower functional class of rural roads - a segment of the system often overlooked.

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy For Users (SAFETEA-LU) established the Highway Safety Improvement Program (HSIP) as a core Federal aid program administered by the Federal Highway Administration (FHWA) beginning in FY 2006. The purpose of the HSIP is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads. Over $1.2 billion is authorized annually through FY 2009 for the HSIP. The High Risk Rural Roads Program (HRRRP) was established through a set aside from each State's apportionment of HSIP funds for construction and operational improvements on high risk rural roads. The set aside is a total of $90 million per year nationally and is applied proportionally from the States' HSIP apportionments.

After 4 years of the HRRRP, the overall obligation rate for the program has remained low. Given the HRRRP potential to improve rural road safety, this has been a major concern to the Federal Highway Administration (FHWA), proponents, and stakeholders of the program. FHWA embarked on a research project to identify the challenges the States face in implementing the HRRRP as well as any lessons learned and noteworthy practices those who had implemented HRRRP wished to share.

The research found the most common difficulties the States experience with implementation of the HRRRP include:

- Collecting crash and exposure data, especially on locally owned roads, to analyze locations for potential improvements.
- Determining criteria for selecting the best projects, soliciting proposals, and choosing which projects to fund.
- Coordinating among Federal, State, and local transportation partners.
- Working within the context of existing State policies and legislation as well as the limited resources to administer the HRRRP.

Collecting and analyzing crash data can be a challenge, especially at the local level. The HRRRP regulation requires a crash rate to be calculated to identify eligible roadways. Typically, traffic volumes are used as the exposure data to calculate crash rates. Many States do not have traffic volume data for local routes, causing a gap in the ability to compare roadways. However, States are using diverse types of exposure data to determine crash rates as well as innovative ways to collect and use the data to support HRRRP implementation. For example,

- Crash rates are determined using the lane miles data element to identify HRRRP-eligible routes.
- Data from similar routes and neighboring counties, population densities, and other socioeconomic data are utilized to develop estimated traffic volumes for all roads.

When selecting projects, a number of stakeholders are typically involved. The number and types of agencies invited to the table during the selection process varies by State. States have developed methodologies to choose the best projects for implementation given their State-specific policies. For example,

- Many States tie HRRRP projects directly to their Strategic Highway Safety Plan (SHSP) emphasis areas and strategies.
- Joint committees of interested stakeholders are formed to review proposed projects and select those to implement. Local agency input is solicited during the selection process.
- In others, the State DOT provides incentives for project proposals tied to other State safety initiatives (e.g., Road Safety Audits, Transparency Report).

Research showed that collaboration between agencies at all levels in a State is an essential element to the implementation of the HRRRP. This was shown in several forms, including, but not limited to:

- The offering of HRRRP-focused training and technical assistance for local agency practitioners by the State DOT or the State's Local Technical Assistance Program.
- The assistance of planning organizations to administer the program.
- The use of websites dedicated to the HRRRP to get information to local agencies. Many include rules, data collection and analysis tools, and a project submission portal.

The HRRRP, like many new Federal-aid programs, comes with some administrative requirements. Available funds for the HRRRP are generally low and many States have adopted noteworthy strategies to make efficient use of these funds. For example,

- States have combined Federal and State funds, including the use of State DOT forces to provide labor, to implement an HRRRP system-wide warning sign installation effort cost-effectively.
- Others have used existing on-call contracts to implement improvements quickly.

Fatality rates on rural roadways continue to outpace those of urban roadways. The HRRRP has brought new attention to the safety needs on rural roads. States have taken advantage of this funding source and implemented numerous projects across the country to reduce potential fatalities and serious injuries on rural roadways. However, the program is significantly under-obligated.

This document identifies common challenges and shares noteworthy practices and lessons learned. States can use these documented practices to launch their HRRRPs, identify next steps for a program already moving forward, or implement noteworthy practices to improve an established program. Implementing the HRRRP can make a real difference in rural road safety, and the complexity of implementing the program should not inhibit States in their pursuit of improved safety on rural roads.

1. INTRODUCTION

In 2007, 57 percent of traffic fatalities in the United States occurred on rural roads.

Many rural roadways lack shoulders and clear zones that can provide an area of recovery for roadway departures, which is the most prevalent crash type on these roadways. Speeds tend to be higher in rural areas, and driver behavior issues (e.g., alcohol involvement, safety belt usage) are more evident.

The difficulty in addressing rural road safety is immediately evidenced by the number of miles of rural roads in the United States – nearly 3 million. Additionally, jurisdiction of these roadways varies across the nation. State DOTs maintain some portion of these roads, but the vast majority is owned, maintained, and operated by thousands of local governments.

1.1 High Risk Rural Road Program

SAFETEA-LU established the Highway Safety Improvement Program (HSIP) as a core Federal-aid program beginning in FY 2006. The purpose of the HSIP is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads. Over $1.2 billion is authorized annually through FY 2009 for the HSIP. The High Risk Rural Roads Program (HRRRP) was established through a set-aside from each State's apportionment of HSIP funds for construction and operational improvements on high risk rural roads. The set-aside is a total of $90 million per year nationally and is applied proportionally from the States' HSIP apportionments.

High risk rural roads are defined as those roadways that are functionally classified as rural major collectors, rural minor collectors, or rural local roads with a fatal and incapacitating injury crash rate above the statewide average for those functional classes of roadway, or likely to experience an increase in traffic volume that leads to a fatal and incapacitating injury crash rate in excess of the average statewide rate.

Potentially qualifying roadways are those functionally classified as:

- Rural Major Collector
- Rural Minor Collector
- Rural Local Road

Projects may be selected on any public HRRRP-eligible road to correct or improve hazardous road locations or features. Under this program improvements are restricted to construction and operational improvements as outlined in 23 U.S.C. Section 148(a)(3)(B), included in Appendix A, which shows a sample list of eligible construction and operational improvements. In addition, as stated in the December 24, 2008, HSIP Final Rule 23 CFR Part 924.11(c)(2), HRRRP funds can only be used for construction and operational improvements on high risk rural roads and the planning, preliminary engineering, and roadway safety audits related to specific high risk rural road improvements.

The HSIP Reporting Guidance, dated May 15, 2009, requires the HRRRP portion of the report to show basic program implementation information, the methodology used to identify locations, and the overall effectiveness of implemented projects, including a list of projects. This reporting should be consistent with the reporting for other projects that use general HSIP funds. The States must submit the reports to their FHWA Division Administrator no later than August 31st of each year.

1.2 Purpose

The HRRRP was developed to help States implement solutions on the lower functional classes of rural roadways, a segment of the system often overlooked. Given the HRRRP potential to improve rural road safety, the low obligation rate has been a significant concern to the Federal Highway Administration (FHWA), proponents, and stakeholders of the program. FHWA embarked on a research project to identify the difficulties States faced in implementing the HRRRP as well as lessons learned and noteworthy practices the States wished to share. This research formed the basis for this document. Research discussion topics are included in Appendix B.

This document is intended to help the States optimize the use of their HRRRP funding through lessons learned, identifying common challenges, and reviewing noteworthy practices. It incorporates the results of stakeholder feedback and research to illustrate challenges and noteworthy practices for HRRRP implementation.

The document is structured into six major sections. Section 2 introduces the traffic safety problem on rural roads through crash data analysis and comparisons. Section 3 examines common challenges faced by States as they implement the HRRRP. Sections 4 and 5 showcase noteworthy practices in select States as they implement their HRRRP. At the end of the document, Section 6 provides an overall summary of the findings on HRRRP.

1.3 Obligation of HRRRP Funds

The HRRRP was established under SAFETEA-LU legislation with funding beginning in FY 2006. All 4 fiscal years of available funds have now been apportioned to the States for obligation. The final year funds, for FY2009, were made available to the States on October 1, 2008. Only 44 percent of funds available have been obligated by the States as of September 31, 2009.

Figure 1 is a graphical representation of total apportioned funds available to each State for obligation. The amount of funds apportioned varies from State to State. About half the States were apportioned less than $5 million for HRRRP. Another 22 States were apportioned between $5 million and $10 million, and 4 States received over $10 million in HRRRP apportionment.

Figure 2 represents the obligation rates of apportioned HRRRP funds by State. A few States have made significant progress in obligating funds, but the national obligation of HRRRP funds is low. Twenty-three States have yet to obligate even one quarter of their available funding. Another 12 have obligated between 25 percent and 75 percent of their apportionment, and 15 States have obligated over 75 percent as of September 30, 2009. Of those, six have fully obligated their HRRRP funding: Alaska, Colorado, Kentucky, Mississippi, Nevada, and Oklahoma.

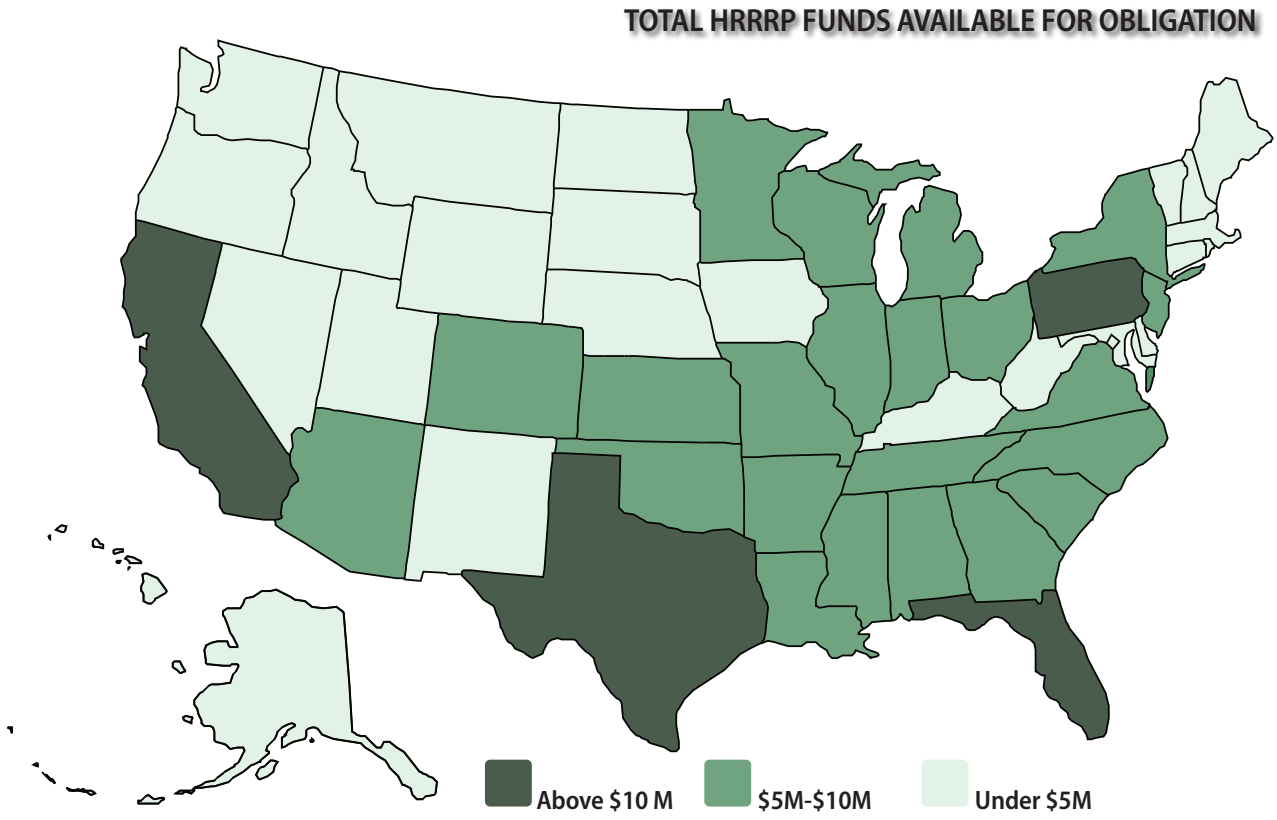


Figure 1: HRRRP funds available for obligation. Source: USDOT FHWA Office of Safety,

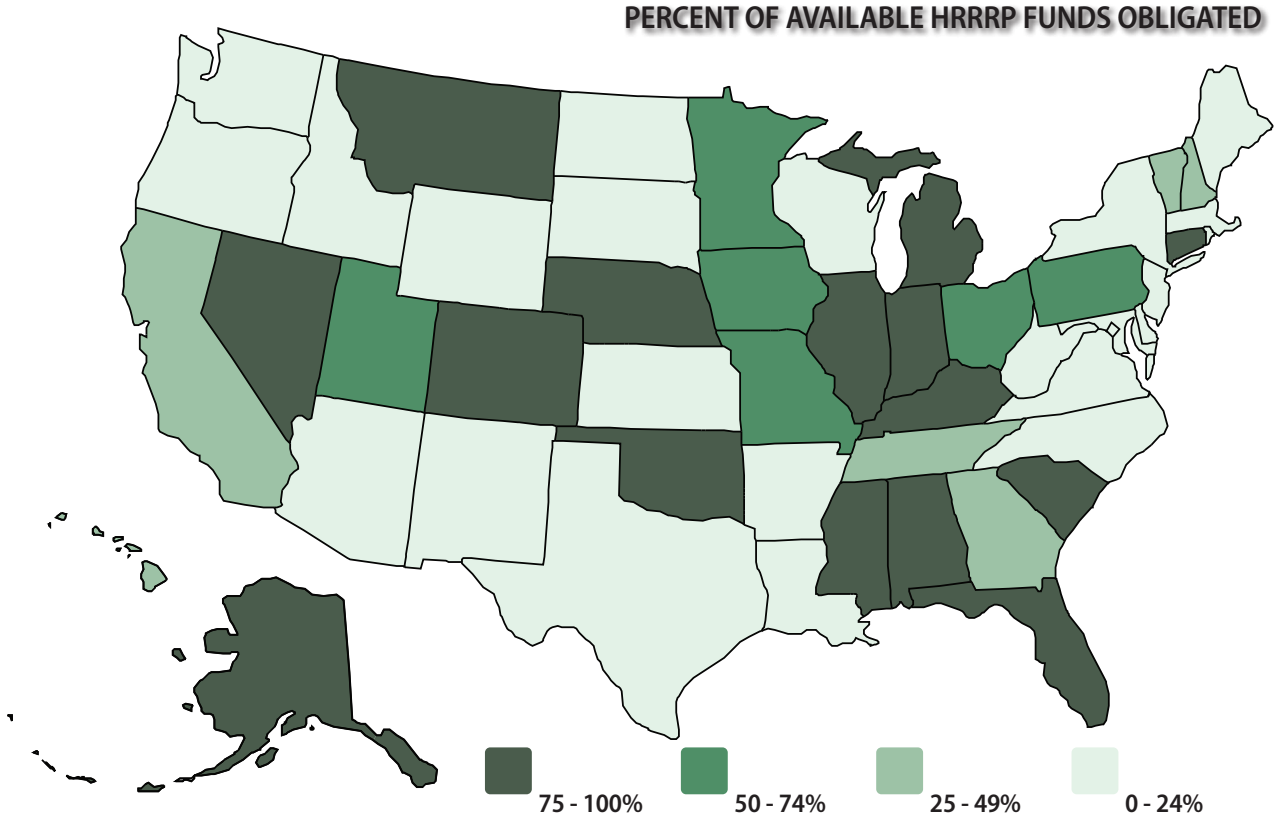


Figure 2: Percent of available HRRRP obligated as of September 30, 2009. Source: USDOT FHWA Office of Safety

2. NATIONAL OVERVIEW OF RURAL ROADWAY CRASHES

As shown, rural roadways are a significant portion of the highway system in the United States. Figure 3 shows the percentage of total roadway miles functionally classified as rural for each State. Only eight States have less than 50 percent of their total roadway miles functionally classified as rural. In 27 States, more than 75 percent of the total roadway mileage is on roadways designated as rural. In fact, of the total public rural roadway mileage in the United States, 91 percent falls within the rural major collectors, rural minor collectors, or rural local roads functional classes. Jurisdiction of these roadways is shared among Federal, State and local agencies, and varies from State to State as shown in Appendix C.

In 2007 only 23 percent of the Nation's population lived in rural areas, but 57 percent of fatalities on our Nation's roadways occurred on rural roads. Table 1 shows national rural and urban fatality data for the years 2000 through 2007. As shown, traffic fatalities on rural roadways have historically exceeded those on urban roadways.

Crashes on rural roads tend to be severe as a result of the following:

- Rural collectors and local roads tend to lack features such as paved shoulders, clear zones, and divided directions of travel.
- Rural roads tend to have higher average vehicle speeds, partially due to relatively low volumes.
- The data indicates that there is typically more alcohol involvement in fatal crashes in rural areas.
- Data indicates rural areas have lower safety belt usage.
- When a crash does occur, medical facilities tend to be at greater distances; as a result, crash victims have longer wait times for medical treatment.

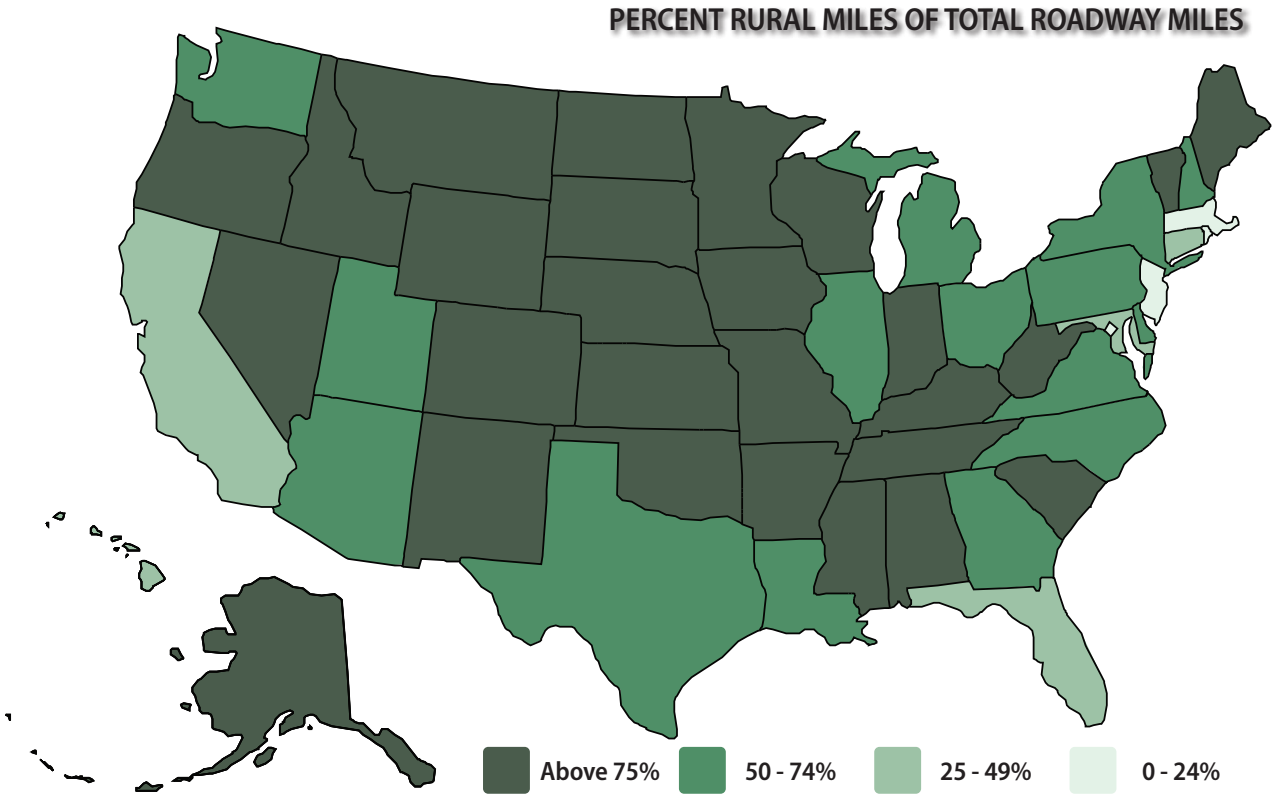


Figure 3: Percent Rural Miles of Total Roadway Miles. Source: FHWA Highway Statistics 2007: Public Road Length 2007 Miles by Ownership http://www.fhwa.dot.gov/policyinformation/statistics/2007/hm10.cfm

ANNUAL ROADWAY FATALITIES, 2000-2007

Year	Rural Fatalities	Urban Fatalities	Total
2000	24,838	16,113	40,951
2001	25,150	16,988	42,138
2002	25,896	17,013	42,909
2003	24,957	17,783	42,740
2004	25,179	17,581	42,760
2005	24,587	18,627	43,214
2006	23,646	18,791	42,437
2007	22,866	17,497	40,363

Table 1: **Annual Roadway Fatalities, 2000-2007**
Source: USDOT, National Highway Traffic Safety Administration (NHTSA) – "Traffic Safety Facts" Fatality Analysis Reporting System (FARS), 2000-2007

In order to compare fatalities in urban areas to those in rural areas more accurately, it is important to factor in an exposure component. The most common exposure component used is vehicle miles traveled (VMT) on each system. On a per-mile basis, urban roads tend to carry a significantly higher number of vehicles per day than rural roads. Because of this, the levels of exposure on urban roadways are much higher than those on rural roads. As a result, fatality rate (per 100 million miles traveled) is a more appropriate measure to fairly compare these roadway types.

Figure 4 is a graphical representation of rural and urban fatality rates for the years 2000 through 2007. As indicated in the graph, the difference in the rates has remained constant over the 8 year period. Nationwide, rural fatality rates have been more than twice that of urban areas. When rural and urban fatality rates are compared, it is evident that rural roadways have an over-representation of fatalities.

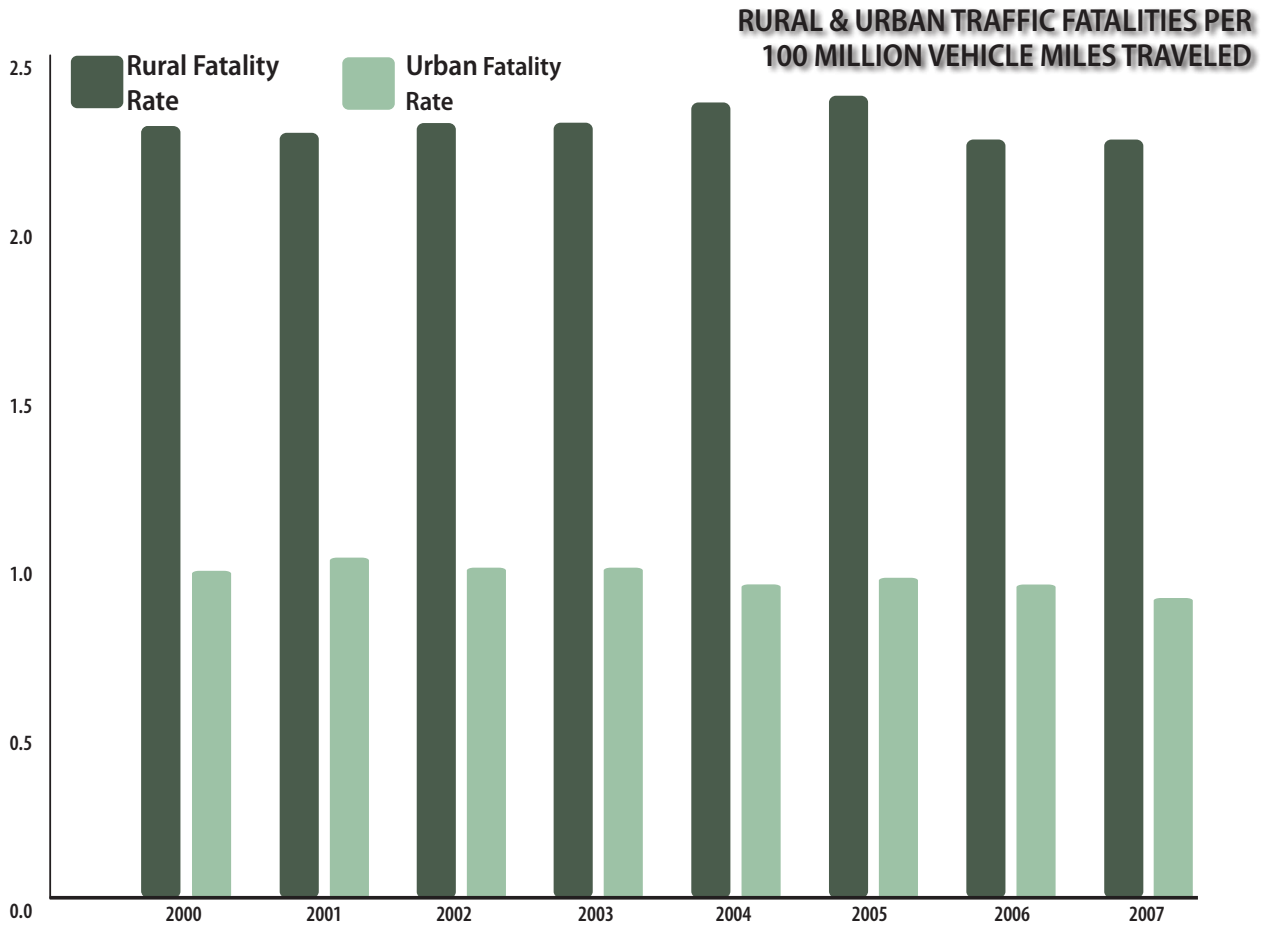


Figure 4: **Rural and Urban Traffic Fatality Rates 2000-2007**
Source: NHTSA Traffic Facts 2007 Data, Rural/Urban Comparison - DOT HS 810 996.

3. CHALLENGES TO HRRRP IMPLEMENTATION

In implementing the HRRRP States have experienced a number of challenges, most of which fit within four main categories:

1. Crash data collection, analysis and use
2. Project selection
3. Local agency issues
4. HRRRP administration and policies

3.1 Crash Data Collection, Analysis, and Use

HRRRP Requirements

The Highway Safety Improvement Program (HSIP) is based on data-driven decision making for safety investments. The HRRRP statutory requirements are similarly grounded, requiring that locations being considered for HRRRP funding qualify by having a severe crash rate (fatal and incapacitating injury crashes) above the statewide average for routes of the same functional class. One requirement of the HRRRP language is the use of data normalized for exposure. This requirement has presented a hurdle to many States in identifying suitable locations for HRRRP investment.

A provision in the HRRRP language allows safety investments on rural roadways where it is expected that the severe crash rate will be above the statewide average in the future. However, decision makers often focus first on locations with a history of severe crashes. Although the reasons for addressing these locations first vary, the one most often given is limited available funding to address identified "hot spots."

3.1.1 Determining Crash Rate

Three major elements are needed to meet the HRRRP requirement for determining severe crash rates on eligible routes: crash location, crash severity, and some element of exposure (e.g., traffic volume). All three elements have presented barriers to HRRRP implementation.

Crash Location

Locating traffic crashes at the site where they occurred, especially on the rural locally owned roadway system, can be challenging for States. Severe crash data elements (e.g., location, contributing circumstances) are usually available in most State databases; however, the exact location of crashes occurring on locally owned roads presents a problem for most States. Municipal and county roadways often do not have mile markings. Crashes are usually recorded between intersections or at street addresses. In rural areas intersections are far apart and property sizes are large, so the precision of this data is lacking. This lack of information makes safety improvement investment decisions more difficult.

Crash Severity

Crash severity, especially for fatal and incapacitating injury crashes, is often readily available for both State and locally owned roadways. However, the definition of incapacitating injury can vary by jurisdiction within a State. Often times the level of injury is not precisely defined, allowing for variance among law enforcement personnel in the field.

Additionally, there may not be follow-up with EMS and hospital personnel after leaving the scene of a crash to confirm injury severity.

Exposure Data

It is important for the transportation agency to normalize its crash data for exposure when selecting eligible locations for the HRRRP. Traffic volume, usually in terms of Average Daily Traffic (ADT) or vehicle miles traveled (VMT), are the most commonly used exposure data. According to the May 2006 FHWA HRRRP guidance, other types of exposure data include lane miles, population, and the number of registered drivers in a region.

Collecting traffic counts can require a significant investment of resources. This data is generally collected routinely at the State level, but local agencies may not have the funds for equipment purchase or personnel to gather volume data on their roadway system. Without this information, crash rates for locally owned roadways cannot be calculated by volume, making rate comparisons more difficult.

Identifying eligible locations can be difficult for the practitioner. Even when the three data elements described are available, linking these elements to each other often poses additional challenges. Sometimes

datasets are on different databases or use different referencing systems, and establishing connections among them can be difficult.

Another difficulty arises if the crash data to be used for decision making is not published in a timely fashion. A 2007 HSIP research effort found that of those States studied, approximately one-third must wait more than 9 months after the crash event before data becomes available. Lack of access to a comprehensive, timely dataset can present a challenge to the practitioner in performing data analysis in the location selection process

3.2 Project Selection

Selecting HRRRP projects can be a difficult task, particularly for States attempting to effectively distribute projects among jurisdictions with eligible roadways. Part of the challenge relates directly to crash data issues previously discussed. If a State lacks local crash data, the DOT may not have the information needed to make appropriate decisions on all eligible locations.

Limited or absent safety engineering expertise can present an obstacle to some jurisdictions. In order to identify eligible locations, analyze the problems, and choose appropriate countermeasures, some level of safety engineering expertise is required. Without specific training and experience, it may be difficult for agencies to effectively address rural road safety needs. This may be particularly difficult for local jurisdictions where often a transportation engineer is not on staff.

Only construction and operational projects are eligible for HRRRP funding.
Data system improvement, enforcement, and education efforts are not eligible. The sample list of eligible projects is available in Appendix A.

There are many issues associated with funding that directly affect the HRRRP project selection process. In particular:

1. HRRRP funds are relatively low. However, many States attempt to distribute funds equitably and efficiently among jurisdictions, resulting in a need to set limits on the level of funding for eligible individual projects. The level of funding dictates the types of strategies that can be implemented to address the identified safety issues; however, these strategies may not be the most effective solutions.
2. The Federal requirement for matching funds from State and local agencies for some types of safety improvements directly impacts the types of projects selected. For example, a local public agency may have no funds available for a match; in that case the agency is limited to only those safety countermeasures that are 100 percent federally funded. Examples of 100 percent federally funded items include pavement marking, signing, and roundabouts, among others. A complete list can be found in Title 23 U.S. Code Section 120.

3.3 Local Agency Issues

From discussions with the States, the complication of funding local projects was noted as one of the most significant obstacles to implementing the HRRRP. These obstacles can be categorized in two main ways:

1. The local agency perceives the Federal Aid process is too cumbersome for the relatively small amount of HRRRP funding available.
2. The DOT has not historically invested in outreach to local agencies.

Local agencies (e.g., counties, municipalities, tribal entities) are often structured differently than the State DOT, usually with limited staff or staff time to focus on safety project implementation. Additionally, these agencies are often not familiar with working within the requirements of the State's Federal Aid funding application process. Completing Federal Aid applications is usually not routine for local agencies; therefore a learning curve is usually involved, which can render the process a nuisance. Additionally, due to the large number of local jurisdictions within each State, there are numerous local agencies competing for the same pot of money. As at the State level, local politics can have some influence on transportation funding priorities within local agencies, councils of government, and regional planning organizations as well.

3.3.1 Local Agency HRRRP Outreach

State DOTs have a mandated responsibility for oversight of local transportation entities when using Federal funds on specific projects, but in some cases the State struggles with this role. If communication and coordination between the municipal, county, or tribal agency and the DOT is not well established through outreach efforts, local agencies may have difficulty understanding the process by which HRRRP funds are acquired and used. Lack of understanding can lead to lack of interest, which may ultimately lead to reduced safety investment on locally owned and tribal roadways with significant needs.

3.4 Administration and Policies

Overall, HRRRP funding through the life of SAFETEA-LU is approximately 6 percent of the total HSIP. Some States struggle to invest resources in a new program with relatively limited available funds.

Improving locally owned road safety must be supported by the DOT for significant safety investment to occur at the local level. An HRRRP with emphasis on locally owned system projects presents logistical and administrative challenges to some State DOTs.

Additionally, there are a few States with a relatively small number of eligible rural miles on which the HRRRP funds can be used. These States may not feel that the program warrants the investment of staff time.

3.4.1 Processes for DOT Investment on Local Routes

Some State DOTs do not have the financial and administrative procedures in place to properly allocate HRRRP funds to municipal, regional, and county agencies. State contracting regulations and State-to-local obligation authority can be hindrances. In some States, complications stem from State legislation that is difficult to modify. Unfamiliarity with the development of interagency agreements may slow the process, becoming a deterrent or leading to delays in HRRRP project implementation.

HRRRP fund matching requirements can also become a challenge to program implementation at the local level. In general, Federal safety funding requires a 10 percent match from State or local agencies. For projects selected on locally owned roads, the agency may be faced with a match requirement that exceeds its ability to participate financially.

States may struggle with management of projects administered by a local agency. Federal funds have stricter administrative requirements than State or local funds. These may include restrictions on sources of project materials, required worker wages, and project materials inspections and documentation. States may have to either provide the staffing to oversee the local project or train local staff on project administration.

3.4.2 Staffing State and Local Safety Programs

Staffing levels at the State and local levels have been declining in recent years. Fewer employees are available to address traffic safety needs and administer State and Federal program requirements. The HRRRP was introduced at a time when States may not have been able to adequately manage another program. States may choose not to participate due to staffing issues, and in some cases the State HRRRP may be staffed with personnel who are not experienced in Federal-aid or local agency coordination.

As the number of staff at the State level is reduced, services like crash data analysis and training at the local level, often provided by the State DOT, may be cut back or eliminated. Staffing shortages for project management at the local level may also prevent an agency from applying for funds. State agencies willing to train locals on HRRRP implementation may also find reluctance from the local agencies to invest the time to be educated due to staff shortages.

4. STATE PRACTICES FOR HRRRP IMPLEMENTATION

Despite the challenges faced by the States, some have developed noteworthy practices to support the implementation of their HRRRP. These noteworthy practices, processes, and resources fall into four main categories:

- Crash data collection, analysis and use
- Project selection
- Local agency coordination
- HRRRP administration and policies

Each topic area is discussed below with a narrative overview followed by a brief description of select State practices. Some States' website information is available in Appendix D. Additionally, State HRRRP contacts are listed in Appendix E.

4.1 Crash Data Collection, Analysis and Use

The statutory requirements of program implementation indicate a comparison must be made between severe crash rates (accident rate for fatalities and disabling injuries) on the potentially eligible rural roadway and a statewide average for roadways of a similar classification.

The FHWA HRRRP guidance recognizes that many States are not in a position to provide comparable crash rates for all roadways (i.e., State-maintained and locally maintained) throughout the State. Interim methods of problem identification are allowed. Section IV of the guidance states in part, "If a State does not currently have the capability of locating crashes on all public roadways, the State may adopt interim practices that utilize the best available data resources until a comprehensive statewide roadway and crash data system is implemented." (See Appendix D for additional information regarding the HRRRP guidance).

The guidance suggests a number of other sources the States can use for exposure data in the absence of a comprehensive statewide crash and roadway data system. These include:

- Lane miles of roadway.
- Per capita data, including registered vehicles and/or licensed drivers.
- National data systems such as the Highway Performance Monitoring System and the FHWA's Highway Statistics.
- Alternate analyses, including basic comparisons of State vs. local fatalities and incapacitating injuries.
- Projected growth patterns identified by Metropolitan Planning Organizations, city/county planning organizations, and growth management organizations. This can help identify roads likely to have an increase in fatalities and incapacitating injuries.

4.1.1 Surrogate Exposure Data

In Missouri, lane miles are used as a surrogate for traffic volumes in calculating crash rates.

The Missouri DOT (MoDOT) did not have traffic volumes available for its local rural roadways. To handle exposure, the State analyzed crashes on eligible high risk rural roads by using lane miles as a surrogate for traffic volume. MoDOT filtered the entire system of roadways (State and local) by these criteria, and then selected final routes to develop a high risk rural roads candidate list. A detailed description of the Missouri data analysis process is included in Section 5.

New Jersey developed rates per mile, then compared them to the State average.

To calculate crash rates for eligible rural roads for the HRRRP, New Jersey used centerline road miles. Fatal and incapacitating injury crashes per centerline mile are available for most roadways. The New Jersey DOT decided to use this method of rate calculation to make crash rates comparable across all classifications of roadway in the State.

The process begins with categorizing all rural roads with similar characteristics (e.g., number of lanes, shoulder widths, functional classification, and posted speed limit). Rates are then calculated for each individual segment by severe crashes per centerline mile. These are compared to the State average for that particular roadway type. If the rate is above the State average, it is flagged as an HRRRP candidate segment.

Roadways are categorized based on characteristics like shoulder width and speed limit.

Colorado DOT compares segments statewide to determine HRRRP candidates.
The location identification process in Colorado evaluates highway spots and segments against all other similar locations in the State. Colorado DOT (CDOT) analyzes the entire State crash database and gives values to segments based on crash history, factoring in lane mileage as the exposure component. Segments above a certain prioritization value (using CDOT's Weighted Hazard Index) and on qualifying roadways are candidates for the HRRRP. A secondary analysis filters for spot and intersection candidates, and the resulting locations are submitted to the CDOT regions for review.

Purdue University assists Indiana with rate calculations and GIS research.
To determine crash rates for local rural roadways, an interim measure of crashes per rural lane mile is being used. In addition, GIS layers of roadway crash and location information are being developed for all HRRRP-qualifying locally owned roadways to improve crash data analysis.

Virginia focused its HRRRP on rural intersections.
About half of all Virginia crashes occur at intersections, leading Virginia DOT (VDOT) to focus its HRRRP efforts on rural intersections with a history of fatal and incapacitating injury crashes. VDOT uses a statewide intersection crash rate to compare with rural intersection crash rates on major and minor collectors and rural local roadways. A ranked list of these intersections is developed and the top tier of these is targeted for Roadway Safety Assessments (RSAs) and HRRRP projects

4.1.2 Traffic Volume Estimating

Florida uses a model to estimate traffic volume on locally owned roads.
Florida DOT (FDOT) keeps a database of fatal and incapacitating injury crashes on all public roads as well as the roadways' features. Traffic volume information is used in determining crash rates on State routes. Roadways not maintained by the State use volume information developed through the combination of a research effort and the use of the Highway Performance Monitoring System (HPMS) sites from the FDOT Transportation Statistics Office. Volume estimates are based on known or accepted AADT values on neighboring State and locally owned roadways, population densities, and other socio-economic data.

Linear referencing is accomplished with GIS data and is used to complete analysis with geo-located crash data. A detailed description of this process is available in Section 5.

4.1.3 Traffic Volume Collection

Local agencies in Texas collect traffic volume on high-crash roadways.
The Texas DOT includes locally owned roadways for consideration in the HRRRP, but struggles with crash rate data due to a lack of traffic volume counts on locally owned roads. On rural municipal and county roadways where fatal and incapacitating injury crashes are occurring above a certain threshold, the DOT asks local agencies to gather volume data for those roads only. A crash rate can then be developed that allows equal comparison with State-owned, qualifying HRRRP routes.

4.1.4 University Support

Michigan DOT and a local university provide analysis tools to localities.
The Michigan DOT asks local agencies to submit their current roadway traffic volumes, classification, and appropriate crash data information to support HRRRP projects. The DOT provides free software to local agencies requesting it. *RoadSoft* was developed by Michigan Technological University's LTAP Center with DOT sponsorship. The *RoadSoft* organization provides tools and training to augment local agency efforts. Ten years of crash data and crash report images are also provided to the local agency to support problem identification as a foundation for HRRRP project submittals. The Michigan DOT provides a review of project submittals on request.

4.2 Project Selection

The selection of HRRRP projects has similarities to other project selection processes, but is also different due to the program's strict selection criteria regarding roadway classification and history of crashes. Procedures for HRRRP project selection vary from State to State. In some States the DOT has control over the selection process. The DOT will collect data, complete the analysis, and make project selection decisions without local participation. In other States, roadway owners from the county and municipal level as well as other stakeholders are included on a selection committee.

The research shows that project selection is a two-pronged process that first considers road ownership and then establishes what criteria will be used to select the final project.

The following three scenarios were evident where road ownership was a focus.

1. Needs on the rural State-owned system far outstrip available HRRRP funding, and investments at the State level could result in more lives saved, so no funds are spent on the locally owned system; for example, Missouri.
2. Federal transportation funding is rarely used for significant projects on the local system, especially for safety improvements. The decision is made that all HRRRP funds will be spent only on qualifying locally owned roads. Examples include Alabama and Washington.
3. Qualifying locally owned roads will compete with State routes for HRRRP funding based on objective data analysis and project benefit-cost calculations; for example, Colorado.

A number of States have found innovative ways to make HRRRP project selection decisions. Three are highlighted below and discussed in the following pages.

1. Some States have aligned project selection to match existing Strategic Highway Safety Plan (SHSP) strategies and traffic safety emphasis areas. Tying HRRRP directly to the SHSP provides synergy for both initiatives.
2. In some States, the DOT has provided data to local agencies and given locals the authority to select projects based on their own priorities. This provides local government partners a significant incentive to get involved in the program.
3. States have given priority to local-level HRRRP projects that shows a tie to other State safety programs. Examples include incentives for Road Safety Audit efforts and for linking HRRRP projects to the State's existing Transparency Report.

4.2.1 Tie to Strategic Highway Safety Plan (SHSP)

Iowa DOT focused on low-cost, system-wide solutions.

The HRRRP connects to the SHSP roadway departure emphasis area.

The Iowa DOT made the decision early in the HRRRP process to connect the HRRRP to the State's SHSP roadway departure emphasis area. The State invests in system-wide, local sign improvements on qualifying routes that could be implemented immediately to ensure rapid and effective deployment of available program funds. Currently, project selection is based on a priority system analyzing crash densities per mile, crash rates by traffic volume, and a benefit-cost ratio with counties being the only local agencies competing for funds. Projects have a maximum limit of $500,000 of HRRRP funds; each jurisdiction is limited to implementing one project per year. Iowa's application for HRRRP funding can be found in Appendix G.

Nevada DOT's strategies are tied directly to SHSP.
HRRRP roadway safety investment strategies in Nevada are based on the State's lane departure Critical Emphasis Area (CEA) from the SHSP. Crash data analysis for HRRRP qualifying roadways is analyzed to identify lane departure crashes, and the list is further narrowed through countermeasure analysis to determine those projects with the best benefit-cost ratios.

4.2.2 Local Road Focus

Illinois utilizes HRRRP funds exclusively on locally owned roads.
The Illinois DOT (IDOT) directs all HRRRP funding to rural local agencies using a two-pronged approach for project selection.

1. IDOT solicits safety improvement projects from local agencies based on local knowledge of safety needs, and then ranks the proposed projects by benefit/cost ratio.
2. IDOT also looks at statewide trends and systematic solutions to address those crash types. They approach the local agency with this information and offer assistance with Road Safety Assessments, technical assistance, and safety funding.

4.2.3 Committee Selection Process

New Jersey developed a joint State/local committee to select projects.

North Jersey Transportation Planning Authority (NJTPA), an MPO, solicits projects from local agencies in its region. Submitted projects are reviewed and prioritized by a technical review committee consisting of the New Jersey Department of Transportation (NJDOT), NJTPA, FHWA and local agencies. Each application is reviewed and graded on the safety need, construction readiness, and cost. After approval is granted, applicants work directly with NJDOT officials to fulfill Federal authorization requirements. Details are available in the New Jersey case study in Section 5.

Oregon steering committee selects HRRRP projects.

Most HRRRP safety investments in Oregon target qualifying county roadways. After all submitted project requests are screened for eligibility, the HRRRP Steering Committee considers combining similar projects regionally or statewide. Qualifying roadways with ADTs less than or equal to 400 are given special consideration.

4.2.4 Benefit-Cost Ratio

Washington solicits projects from locals and prioritizes them by benefit-cost ratio.

The Washington State DOT developed a crash analysis methodology for all roads within the State and identified priority crash "zones" for these roadways. Local agencies are eligible for funding if there is at least one qualifying zone within their jurisdiction. Qualifying zones must suffer four fatal or incapacitating injury crashes in 5 years, each within 1 mile. Local agencies propose projects which are then prioritized by benefit-cost using crash history and accepted crash reduction factors for proposed countermeasures.

In Colorado project proposals must meet a minimum benefit-cost ratio.

HRRRP projects are solicited from local authorities through the MPOs; the Special Highway Committee of the Colorado Counties, Inc.; and the Colorado Municipal League. These candidate improvement projects are selected for locations identified using the locals' own high hazard location identification system. Submitted projects are required to meet minimum benefit-cost values established by the Colorado DOT (CDOT). Project applications received by the CDOT Safety and Traffic Engineering Office are given to the CDOT region offices for comments, evaluation, and approval, since the regions have close connections to the local agencies involved.

4.2.5 Local Agency Selection

Maine solicits local agency input to choose locations and countermeasures.

Maine's project selection begins with data analysis by the State DOT staff to identify problem spots and sections of eligible roadways. Maine DOT then completes a field evaluation to confirm the data at each candidate spot or section. Once municipal and county roadway project candidates are filtered in this way, local agency input is sought to provide a local perspective on countermeasure selection. Final project selection is influenced by benefit-cost calculations, but other factors (e.g., degree of local agency interest) are used as well.

Mississippi gives priority to counties utilizing a Safety Circuit Rider.

Mississippi has agreed to fund all projects on qualifying roadways identified by counties participating in the Safety Circuit Rider program – an effort involving a safety-focused staff member providing assistance across the State. These projects may not be at the top of a statewide HRRRP prioritized list if crash data alone is considered, but they are the top problem locations within those counties participating in that program. This serves as an incentive for local agency participation in the Safety Circuit Rider program and can be used to encourage local political support for the program.

Montana promotes RSA connection to HRRRP project through incentives.

Local coordination for the HRRRP is through the solicitation process for projects. The statewide public involvement and planning process and interaction at conferences and meetings also provide opportunities for agency coordination on HRRRP issues. Montana DOT solicits nominations for safety projects directly from the counties for qualifying local system roadways. Locations of concern are identified by enforcement, local agencies, and traffic studies. Montana provides a funding incentive to local agencies that identify HRRRP-eligible projects through Roadway Safety Audits.

Michigan provides funding incentives for Transparency Report locations.

The Michigan DOT directs local agencies to a web site with fatal and incapacitating injury crash maps on the local system. Local agencies are given the option to select eligible roads and segments up to 8 miles in length. In Michigan, funding incentives are given to local agencies that choose to address locations listed on the DOT Transparency Report. Michigan DOT's solicitation letter of HRRRP projects from locals can be found in Appendix H.

4.3 Local Agency Coordination

Given that the majority of HRRRP-eligible roadways in most States are found on the locally owned road system, it is imperative to have or establish a mechanism for outreach between the local agencies and the State DOT so that local agencies can engage in the HRRRP process.

State practice related to coordination with local agencies has taken the form of providing support to local government agencies' staffs as they learn about the HRRRP and consider participation. HRRRP-specific training and technical workshops in low-cost safety improvements and Highway Safety Improvement Program (HSIP) processes also support HRRRP efforts.

Other strategies include special coordinators at the district and local level, websites with helpful HRRRP-related information for locals, and use of LTAP centers to support coordination efforts between State and local governments

4.3.1 State DOT Support

Alabama trained county engineers in data analysis and low-cost safety improvements.
Alabama dedicates all HRRRP funding to qualifying municipal and county roadways. In the first year Alabama divided available HRRRP funds equally among the State's 67 counties as they developed a specific procedure. In coordination with relevant stakeholders, including local agency representatives, ALDOT developed a process requiring county engineers to participate in data analysis and low-cost safety improvement training to qualify for funding.

Illinois holds HRRRP-focused workshops.
The Illinois DOT has representatives who attend quarterly meetings of the Illinois Association of County Engineers Traffic Safety Committee and the Illinois Municipal League Public Works Committee. These meetings prove invaluable in considering the local perspective on safety projects and in helping to guide policy to achieve mutual goals.

Each year Illinois DOT prepares a Circular Letter to solicit local agencies for candidate HRRRP projects. The letter is followed by multiple workshops around the State that include information on funding, the application process, and methods for identifying safety improvement opportunities and selecting appropriate safety treatments. Workshops have included presenters and attendees from engineering and enforcement agencies.

In addition, IDOT, FHWA, and local experts have cooperated to promote the HRRRP. Efforts have included Road Safety Assessments, visits to local agencies, and technical support for a benefit-cost spreadsheet application to analyze the cost effectiveness of potential projects.

Ohio DOT provides training.
Ohio DOT (ODOT) staff deliver safety-related presentations around the State, including an HRRRP component. ODOT makes discussion of the HRRRP a priority at quarterly district safety meetings, opening the floor to local agencies and ODOT management. ODOT created a website to support the HRRR program and to help staff and local governments learn about its requirements. It includes links to maps and other tools that identify eligible HRRR locations based on functional class and crash rates.

ODOT also uses the Ohio Township Association and Ohio Municipal League to engage local agencies in the HRRRP process. In addition, training is provided to District personnel and consultants through ODOT. These outreach activities have resulted in an increase in the number of local system applications for HRRRP funds.

Minnesota's mobile forum shares HRRRP information with county engineers.
Minnesota has developed a mobile forum to educate local agencies and help them gain knowledge of the HRRRP process. The forum travels around the State, speaking mainly to county engineers—transportation partners who have a strong association with the State. To further assist the local agencies with HRRRP implementation, the Minnesota State Aid for Local Transportation Office holds meetings to discuss the program and provides HRRRP-related resources on its web site. Local agencies can access the Center for Excellence in Rural Safety web site for additional information.

California developed a web site to support HRRRP for the locals.
The California Department of Transportation (Caltrans) developed a web site that provides information on eligible roadway definitions, the application process, and funding guidelines to local agencies. The web site also contains a link to a roadway classification map to assist local agencies in determining eligible roadways. All city and county public works departments are notified by email when a call for projects is announced. The local agencies are directed to the HRRRP web site and are given 3 months to complete an application. Caltrans calculates the Safety Index for all eligible projects, prioritizes them from high to low, and then funds projects up to California's HRRRP apportionment.

Colorado DOT meets regularly with local agencies to discuss HRRRP.
As a commitment to HRRRP implementation, Colorado DOT State traffic, regional, and headquarters engineers and their staffs have frequent conversations and regularly scheduled meetings with local agencies concerning the HRRRP and other local concerns. Eligible locations are reviewed with local agencies and possible mitigation measures are discussed to find candidate projects for this program. In addition, each of the six regions within the State has a safety coordinator who solicits potential projects from locals.

Georgia DOT's special coordinators navigate locals through the HRRRP process.
Georgia DOT has special coordinators for the HRRRP. These coordinators assist the local agencies in location identification, project selection, and navigating the application process. These coordinators have significant experience in letting projects, helping projects move to implementation quickly.

Iowa focuses on local safety needs by supporting a University position.
There is significant State support for the HRRRP in Iowa. State safety and NHTSA crash data program funds are used to fund a position with local agency emphasis at Iowa State University's Institute for Transportation (InTrans). The purpose is to focus specifically on local system crash data, the HRRRP, development of crash analysis tools for local use, and development and maintenance of an internet application site.

4.3.2 LTAP Support

Wisconsin coordinates HRRRP through LTAP Circuit Riders.
The Wisconsin DOT involves locals in the HRRRP through its LTAP Circuit Rider program. These traveling safety experts coordinate the HRRRP at the local level. In addition to the LTAP Circuit Riders, the DOT employs local agency coordinators in each region to provide local transportation discussions of the HRRRP.

Wyoming LTAP assists counties in needs identification.
WYDOT is utilizing the University of Wyoming LTAP center to assist with coordination and communication with counties and municipalities.

The Wyoming Rural Road Safety Program was developed through research and pilot implementation.

The LTAP center assisted WYDOT in development of a Wyoming Rural Road Safety Program (WRRSP) through research and pilot implementation. The WRRSP assists the counties in identifying their roadway safety needs. Detailed information regarding Wyoming's local agency involvement process can be found in Appendix I.

4.3.3 Locals Helping Locals

Illinois DOT utilizes county engineers to liaise with smaller units of government.
The Illinois DOT established regional District offices with a Bureau of Local Roads and Streets that oversees implementation of federally funded projects. County engineers are familiar with the Federal process. These local engineers are then used as liaisons to townships or smaller municipalities to develop HRRRP projects on the local system.

4.4 Administration and Policies

In order to overcome the administrative complexities of the HRRRP, States have developed innovative contracting strategies to utilize funding quickly and efficiently. The use of public forces for labor and bulk materials purchases has allowed States to effectively "multiply" the HRRRP funds. On-call contracts have decreased the amount of time that elapses between project selection and completion.

Some States have augmented DOT staffing with outside resources for HRRRP data analysis, problem identification, project selection, and administration.

4.4.1 Leveraging Resources with Innovative Contracting

Missouri DOT combined Federal and State funds to stretch HRRRP dollars.
The Missouri DOT found an innovative way to leverage HRRRP funds to maximize the safety benefit on rural roadways. Since the main elements of the roadway construction project are labor, equipment, and materials, the DOT distributed responsibility for those items in three distinct directions for a system-wide signing project:

1. HRRRP funds were used to purchase sign posts.
2. MoDOT's Headquarters used State funds to produce chevrons in their in-house Sign Production Center.
3. MoDOT maintenance staff at the district level installed the signs.

This cooperation resulted in the completion of significant safety treatments at a fraction of the typical cost. MoDOT's letter requesting a finding in the public interest to leverage these funds can be found in Appendix J.

Ohio used existing on-call contracts to implement improvements quickly.
Ohio DOT developed a funding agreement allowing the agency to implement low-cost safety improvements quickly. In 2007, ODOT received FHWA approval (through a Public Interest Finding) to use HRRRP funding on existing materials contracts. The materials are installed at eligible locations using ODOT labor. The agreement also allows ODOT to use HRRRP funding on existing electrical, guardrail, sign, pavement, and shoulder contracts where a contractor has been hired for on-call improvements that cannot be done by ODOT forces. All contracts are competitively bid and meet FHWA procurement standards.

4.4.2 Consultant Program Management

Utah hires consultants to manage HRRRP.
The Utah DOT outsources management of the HRRRP (utilizing HSIP funds) to consultants experienced in local agency crash problems, countermeasure identification, and project management. Utah uses its HRRRP funds on locally owned roads only.

The Utah DOT developed a strategy for safety investments after the introduction of the HRRRP. The DOT provides the crash data for counties with a population of 50,000 or less and the consultant manages the rest of the process. The consultant discusses which sites to improve with locals, develops construction plans, oversees project management, and assists with final inspection. To date, eight counties have completed system-wide signing improvements with nearly 2,000 signs installed.

Florida DOT

All-Roadway Crash Rate Development

Description

In 2006, in order to meet the High Risk Rural Road Program (HRRRP) requirements to determine rural project crash rate eligibility, the Florida Department of Transportation (FDOT) developed the data requirements needed to define the crash rates per million vehicle miles traveled. The project was funded with Section 408 grant funds from 2006 thru 2009.

In 2008 FDOT completed crash rate analyses for both State-maintained and locally maintained roads. The analyses were completed by developing a linear referencing system for locally owned roads, geo-locating all crashes, defining rural facility types, establishing AADT, and developing a process to conduct crash analyses for locally owned road segments and intersections.

The process of developing a linear referencing system required the use of third party-developed maps for line work on locally owned roads, developing edit processes to define roadway segments, and manually validating the linear referencing system. Nearly 93,000 miles of locally owned roads in Florida required new linear referencing.

The process of geo-locating all crashes involved a batch process where crashes were initially determined to be on locally owned roads. Crashes were then located using an in-house tool to assist technicians in geo-locating crashes. Since 2006 nearly 400,000 crashes have been located on locally maintained roads.

Establishing AADT data for locally owned roads was accomplished through the combined efforts of a research project and the use of the Highway Performance Monitoring System (HPMS) sites from the FDOT Transportation Statistics Office.

Key Accomplishments

- Estimated traffic volume data is available for locally owned roads in Florida.
- Crash rates are established for all roads in the State.
- State and locally owned roads can be analyzed together as a single system.

Results

Currently, FDOT updates the data on an annual schedule. As data update processes become more refined, a more frequent update will be scheduled and the data may be used to conduct on-demand analyses. FDOT anticipates using HSIP funds to maintain and update both the data and analysis applications to further meet the analysis requirements for the HRRRP.

Contact

Joseph Santos
Transportation Safety Engineer
Florida Department of Transportation
(850) 245-1502
joseph.santos@dot.state.fl.us

Minnesota DOT

Centralized Management

Description

Minnesota's Highway Safety Improvement Program (HSIP), which includes HRRRP, has evolved over the last 3 years.

Minnesota's project selection for safety projects was historically a decentralized process. Districts selected projects for their Area Transportation Improvement Program (ATIP). Except for the Metro District (Minneapolis/St. Paul), local agencies had limited ability to use Federal safety funds for stand-alone safety projects, even though almost half of the fatalities in Minnesota occur on locally owned roads.

During FY 2008, project selection became centralized. A combined solicitation was developed for the selection of local and State projects. Only stand-alone safety projects were considered. The 2007 Minnesota Strategic Highway Safety Plan (SHSP) was the main guidance for project selection and evaluation.

HRRRP funding will total approximately $1.5 million per year for Minnesota and will be distributed to the State's ATPs proportionally by frequency of fatal and serious injury crashes.

Mn/DOT's Office of Traffic, Safety and Technology (OTST) has developed a listing of eligible county and State rural major and minor collectors and rural local roads based on crash data. Though some State-maintained roadways are considered eligible, the Office made a conscious decision to allow HRRRP projects only on locally owned roads.

Key Accomplishments

- Fifty percent of all HSIP and 100 percent of all HRRRP funds are set aside for local entities.
- Centralized management of the HRRRP program allows for effective and consistent projects.
- Local entities are better able to identify safety projects on eligible roadways.
- Road Safety Plans allow local agencies to focus on projects that will reduce fatalities on their roadway systems.

Results

Local agencies in Minnesota are now programming stand-alone safety projects. Twenty-one such projects were identified and selected for funding for a total of $4.5 million. These are the first projects that will utilize this funding category. Additional projects have been through a second solicitation for FY 2011-2012. Final approvals are in process.

Local entities will be developing Road Safety Plans which are designed to prioritize low-cost safety improvements for each jurisdiction. These identified projects will receive priority for future funding solicitations.

Contact

David Engstrom
State Traffic Safety Engineer
Minnesota Department of Transportation
(651) 634-5100
david.engstrom@dot.state.mn.us

Missouri DOT

System-wide Safety Improvements

Description

Since Missouri's locally owned roads had solid crash data but lacked traffic volume information, MoDOT decided to rank its HRRRP roads based on severe crashes occurring per mile of roadway on both the State-maintained and locally maintained routes. Since Missouri maintains 32,000 miles of road, and over 75 percent of fatalities occur on the State system, it was not surprising that no locally owned roads rose to the top in this initial crash data analysis. As a result of the State's findings, Missouri focused on system-wide improvements on its State system rather than funding improvements to locally owned roads.

The study led to an initial set of 137 routes, deemed Missouri's "High Risk Rural Road System."

Due to limited HRRRP funds, Missouri searched for ways to stretch the funding to increase its effectiveness. One strategy combined Federal and State resources to complete the first round of HRRRP projects. FHWA provided HRRRP funds to purchase signposts for chevron sign installations around curves. MoDOT's Central Office provided chevrons from their Sign Production Center and MoDOT districts offered their maintenance personnel to install the signs. This cooperation resulted in a significant reduction in project cost.

Missouri's system-wide safety philosophy has proved effective at reducing severe crashes, particularly those involving roadway departure. The next step for Missouri was expanding the HRRRP system from the original 137 roadways to the entire system of eligible routes. By including additional roads, the State is able to address more potential severe crashes with low-cost, system-wide countermeasures.

Missouri DOT's previous standard for edgeline striping required a roadway to carry 1,000 vehicles per day. Based on recent research, MoDOT believed lowering this threshold would be beneficial. The agency lowered the traffic volume requirement to 400 ADT, adding nearly 6,000 miles of roadway to the State system of roadways with edgeline striping. Since a significant portion of this mileage (88 percent) is eligible for HRRRP funds, MoDOT is utilizing HRRRP funds for eligible routes. For consistency, the State is using its own operational funds to add edgeline pavement markings to routes not meeting the HRRRP eligibility criteria.

Key Accomplishments

- MoDOT forces were used to leverage funds.
- HRRRP funds were used as seed money for edge markings on 5,300 miles of rural road.
- Missouri is on track to spend 100 percent of the available HRRRP funds.

Results

Missouri has leveraged its small amount of HRRRP funding to make a big difference. By the end of 2011, more than 5,000 miles of Missouri's rural highways will have HRRRP-funded safety improvements. At the same time, Missouri's statewide fatalities continue to decrease, from 1,257 in 2005 to 960 in 2008.

Signs installed with mixed funding

Contact

John P. Miller
Traffic Safety Engineer
Missouri Department of Transportation
(573) 526-1759
John.P.Miller@modot.mo.gov

Iowa DOT

Working with Local Agencies

Description

The Iowa DOT administers the HRRRP through its Office of Local Systems. The office has staff dedicated to administering county and city Federal-aid projects. Local projects are administered by the Secondary Roads Engineer, who is assisted by technical staff. This single point of contact for local agencies has provided a strong communication link to assist the local agencies with the administration of their Federal-aid highway and bridge projects. Local Systems has an extensive web site that provides guidance documents for all the aspects of Federal-aid project administration.

For the HRRRP, the Office of Local Systems collaborates closely with the State DOT's Office of Traffic Safety and Office of Transportation Data in furnishing crash and traffic data on all of Iowa's roads. The DOT also partners with Iowa State University's Institute for Transportation (InTrans). InTrans has provided technical expertise to develop crash location maps for all counties in Iowa, including qualifying HRRRP routes. Counties can annually submit applications for up to $500,000 in HRRRP funds for site-specific or corridor safety improvements.

To further assist counties with selection of HRRRP candidates and to determine appropriate safety mitigation, the Iowa DOT Office of Traffic Safety has partnered with InTrans at Iowa State to create a part-time safety liaison engineer. The position is currently staffed by a retired county engineer with extensive experience in rural road safety issues. He has been visiting all of Iowa's county engineering offices to assist in their review of qualifying HRRRP roads and to keep them informed of available safety training provided annually at no cost to the counties.

Key Accomplishments

- Iowa DOT developed a single point of contact for local agency assistance.
- The agency compiled crash and traffic volume data into maps to assist counties in selecting project locations.
- Iowa DOT created a local agency safety liaison position at InTrans to assist with project and countermeasure selection.

Results

This activity has resulted in funded projects that involve shoulder widening on routes with above-average rates for Single Vehicle Run-Off Road crashes, intersection reconstruction to improve approach angles and site distance, and horizontal curve reconstruction to improve driver expectancy. A project has been initiated to replace four-way intersections with serious intersection-related crashes with roundabouts.

Contacts

LeRoy Bergmann
Secondary Roads Engineer
Iowa Department of Transportation
(515) 239-1506
leroy.bergmann@dot.iowa.gov

Rod Halverson
Design Tech Specialist
Iowa Department of Transportation
(515) 239-1147
rod.halverson@dot.iowa.gov

Illinois DOT & Williamson County

Road Safety Assessments (RSAs)

Description

With 63 percent of all public highway miles on rural, locally owned systems, and with 23 percent of crash fatalities on these systems, Illinois realized the value of and difficulty in making investments to address these safety needs.

In early 2006, Illinois DOT (IDOT) conducted one of its first Road Safety Assessments (RSAs) on South Market Street in Williamson County. This RSA resulted in identification of risks related to roadway departure crashes and support of an HRRR safety improvement project. The project included 2-ft. paved shoulders, shoulder rumble strips, chevrons, strategic tree removal, fixed object modifications, and roadside hardware improvements. The total cost for the project on this 4.4-mile roadway was $867,000.

Cooperation between State and local agencies in the State and across disciplines supports this work. With the new Highway Safety Improvement Program (HSIP) funding and emphasis on locally owned roads with the HRRRP, Williamson County was an early example of a local agency that sought out new ideas for implementation.

Williamson County had a history of strong safety law enforcement efforts, evidenced by increasingly aggressive measures to enforce DUI laws in their region. But fatalities in the County were not declining. The County Engineer and Sheriff worked jointly with Illinois DOT to implement innovative traffic safety countermeasures

Key Accomplishments

- A partnership between State DOT and County led to the implementation of safety countermeasures.
- The County's Engineering and Enforcement leadership joined together to complete Road Safety Assessments (RSAs) on HRRRP-eligible roadways.

Results

In the 5 years prior to the improvements, South Market Street experienced 31 roadway departure crashes (including 16 injury and 3 fatal crashes). In the 2 years after the improvements, there have been 12 roadway departure crashes, only 1 injury crash, and 1 fatal crash.

South Market Street before improvements

South Market Street after improvements

Contact

Priscilla Tobias
State Safety Engineer
Illinois Department of Transportation
(217) 782-3568
priscilla.tobias@illinois.gov

North Jersey Transportation Planning Authority:

MPO-led HRRRP

Description

The North Jersey Transportation Planning Authority (NJTPA) leads the annual solicitation of HRRRP projects in close coordination with the New Jersey Department of Transportation (NJDOT) for 13 counties in northern New Jersey.

HRRRP safety projects are implemented on eligible rural roads across a diverse landscape in the northern and central areas of the State. Of the slightly more than 3,800 centerline roadway miles classified as rural, approximately 636 miles are eligible segments – primarily located on locally owned roadways. These segments were identified using *Plan4Safety*, a GIS-based crash data analysis tool, developed by the Transportation Safety Resource Center at Rutgers University. Lists and maps of eligible segments were made available as part of the HRRRP solicitation package. In order to qualify for potential funding, projects must meet the following criteria:

- Safety need. Improvements must address a proven safety need in the region supported by clear, timely, data-driven evidence.
- Construction ready. Projects must be completed within 2 years of Federal authorization date.
- Low cost. With only $1 million allocated in the NJTPA TIP each year to support this effort, these limited funds must be utilized very carefully. Although projects between $75,000 and $500,000 can be considered for funding, typical projects average in the $100,000 - $250,000 range.
- Existing right-of-way. Due to stringent environmental laws and high property costs, most HRRRP projects are limited to work completed within the existing limits of the pavement (e.g., striping, signing, skid resistance treatments, lighting, and beacons).

New Jersey rural road

A technical review committee consisting of NJDOT and NJTPA engineers and planners determines proposal eligibility and evaluates those eligible proposals on a competitive basis. Each application is reviewed and graded on several different criteria, including the requirements listed above, as well as potential for safety benefit. The committee then recommends projects for funding approval by the NJTPA Board of Trustees.

After approval is granted, applicants work directly with NJDOT staff to fulfill Federal authorization requirements. NJDOT leads the authorization process, and NJTPA maintains a monitoring and facilitation role. Additionally, the project sponsor is instructed to keep detailed before/after crash records at the project location.

Key Accomplishments

- The MPO effectively leads the HRRRP solicitation.
- The MPO works closely with the State Department of Transportation on HRRRP project selection and administration.
- Projects include skid resistant surface treatments, guardrail improvements, signing, and striping to improve safety on curves.

Results

New Jersey has leveraged its HRRRP funding through NJTPA and the other two MPOs that cover the State as an effective liaison to local governments. To date, over $1.4 million in HRRRP funding has been allocated to improve safety on northern New Jersey's rural roads in the NJTPA region.

Contact

Jeffrey Vernick
Manager, Corridor Studies and Project Planning
North Jersey Transportation Planning Authority
(973) 639.8429
jvernick@njtpa.org

6. SUMMARY

Rural traffic fatalities are a significant issue that must be addressed at the Federal, State, and local level. Thousands of lives are lost each year, and many potential deaths can be prevented with traffic safety solutions.

Although some States still struggle with the HRRRP, tremendous progress has been made. The obligation rate has steadily increased over the life of the program. However, obligation rate alone should not be used as a ruler to measure the success of this program. The research has shown that many States with low obligation rates have developed practices in data collection and analysis, project selection, program coordination, and training that will ensure successful implementation of the program.

The HRRRP was developed to help States implement solutions on locally owned roadways, a segment of the system often overlooked. States have been faced with a number of barriers to implementation. These include the collection, analysis, and identification of crash and exposure data; the intricacies involved in determining suitable projects for the program; and the complexities associated with the coordination of different levels of government and other stakeholders.

However, some States have worked through these road blocks and others continue to work towards full implementation of the HRRRP. States have discovered innovative ways to collect, analyze, and use the data to support HRRRP implementation. For example, Missouri and New Jersey are among the States that identify HRRRP-eligible routes using lane miles as an exposure data element to calculate crash rates, and Florida uses data from similar routes, neighboring counties, population densities, and other socio-economic data to develop estimated traffic volumes for all roads.

When selecting projects for the HRRRP, the number of stakeholders involved varies from State to State. In New Jersey, the MPOs play an integral role in the initial project selection process and local agency coordination. Iowa, Nevada, and Minnesota are among the States that tie HRRRP projects directly to their Strategic Highway Safety Plan (SHSP) emphasis areas and strategies.

In Montana and Michigan the State DOT provides incentives for project proposals tied to other State safety programs, like Road Safety Audits or Transparency Reports.

Direct and/or indirect support to local government by the DOT and others is invaluable to the successful implementation of the HRRRP. Many States have provided HRRRP hands-on training and technical assistance to local agencies through the DOT or LTAP centers. California and Ohio, among others, have developed web sites dedicated to the HRRRP – including its rules, data collection, and analysis tools – and a project submission portal.

Some States are developing noteworthy strategies to optimize the use of available HRRRP funds. For example, Missouri combined Federal and State funds, and used State DOT personnel to provide labor, to cost-effectively implement a HRRRP system-wide warning sign installation effort. Ohio used existing on-call contracts to quickly implement improvements.

The HRRRP has brought attention to the safety needs on rural roads. States that have taken advantage of this funding source have implemented numerous safety projects across the country with the potential to reduce fatalities and injuries on rural roadways. Whereas the noteworthy practices identified in this document do not compose an exhaustive list, by documenting and sharing these practices other States will gain insights as to how they can advance their programs. There is no one methodology or procedure that will fit all State programs. Examples shown may have to be massaged to fit within the State policy structure.

The HRRRP, although faced with challenges, has enormous potential to improve rural road safety if implemented. It has already brought added attention to the safety needs of these roadways as evidenced by the insurgency of other types of funding to rural roads in some States. Oftentimes the concern is that funding to address these roadways is lacking because they are less traveled; here there is a dedicated source of funds to be utilized on roadways with higher than normal severe crash rates or the potential for this occurring in the future.

APPENDIX A:

23 U.S.C. §148 (a)(3)(B) Sample List of Construction and Operational Improvements

(B) Inclusions.--The term 'highway safety improvement project' includes a project for one or more of the following

(i) An intersection safety improvement.

(ii) Pavement and shoulder widening (including addition of a passing lane to remedy an unsafe condition).

(iii) Installation of rumble strips or another warning device, if the rumble strips or other warning devices do not adversely affect the safety or mobility of bicyclists, pedestrians, and the disabled.

(iv) Installation of a skid-resistant surface at an intersection or other location with a high frequency of accidents.

(v) An improvement for pedestrian or bicyclist safety or safety of the disabled.

(vi) Construction of any project for the elimination of hazards at a railway-highway crossing that is eligible for funding under section 130, including the separation or protection of grades at railway-highway crossings.

(vii) Construction of a railway-highway crossing safety feature, including installation of protective devices.

(viii) The conduct of a model traffic enforcement activity at a railway-highway crossing. (NOT eligible under HRRRP)

(ix) Construction of a traffic calming feature.

(x) Elimination of a roadside obstacle.

(xi) Improvement of highway signage and pavement markings.

(xii) Installation of a priority control system for emergency vehicles at signalized intersections.

(xiii) Installation of a traffic control or other warning device at a location with high accident potential.

(xiv) Safety-conscious planning. (NOT eligible under HRRRP)

(xv) Improvement in the collection and analysis of crash data. (NOT eligible under HRRRP)

(xvi) Planning integrated interoperable emergency communications equipment, operational activities, or traffic enforcement activities (including police assistance) relating to workzone safety. (Only "operational activities relating to workzone safety" are eligible under HRRRP; "Planning integrated interoperable emergency communications equipment and traffic enforcement activities relating to workzone safety" are NOT eligible under HRRRP)

(xvii) Installation of guardrails, barriers (including barriers between construction work zones and traffic lanes for the safety of motorists and workers), and crash attenuators.

(xviii) The addition or retrofitting of structures or other measures to eliminate or reduce accidents involving vehicles and wildlife.

(xix) Installation and maintenance of signs (including fluorescent, yellow-green signs) at pedestrian-bicycle crossings and in school zones.

(xx) Construction and yellow-green signs at pedestrian-bicycle crossings and in school zones.

(xxi) Construction and operational improvements on high risk rural roads.

APPENDIX B:

Stakeholder Feedback Questions

Status of HRRRP

1. Thus far, your State has obligated $X in HRRR funds. Does your State currently have an active HRRR program?
   a. If no, why not?
   b. If yes, how much money do you expect to obligate? What noteworthy practices has your State implemented that may be useful to other States? Are any of the above documented, and if so, where?

Crash Data

2. Does your State have a comprehensive roadway and crash data system that is used to identify the eligible roadway segments for HRRRP?
   a. If no, what data is used to identify eligible locations?

Methodology for determining HRRR locations

3. What is your process for determining HRRR locations and projects? Are local roads (non-State) a part of your HRRRP?
4. How do you engage local stakeholders in determining eligible HRRR locations and projects for your State?
5. Do they use a different methodology to determine eligible locations and projects on locally owned and operated rural roads?

Types of Projects

6. What process do you use to select HRRR projects from among the eligible locations and segments?
7. What types of "construction and operational improvements" are included in your HRRR projects?
8. How are you mixing projects to maximize the availability of the funds in your State? For example, proceeding with a group of low cost projects, or projects with similar countermeasures.

Obligating Funds

9. How are HRRRP funds obligated for identified eligible projects?
   a. Is the process for obligating funds a deterrent to prospective project owners, local or State? How is this overcome?
10. What other funding sources are available from which HRRR eligible projects are implemented?

Future Needs

11. We are conducting a review of best practices across the country. What information from other States would you be most interested in to help advance your program?
12. What are the lessons you learned in implementing the program that might be useful for other States?

APPENDIX C:

Functional System Mileage by Ownership on Rural Roads

State	Major Collector						Minor Collector		
	State Highway Agency	County	Town, Township, Municipal	Other Jurisdictions	Federal Agency	Total	State Highway Agency	County	Town, Township, Municipal
Alabama	2,235	8,979	506	-	8	11,728	32	6,262	306
Alaska	1,307	28	29	56	15	1,435	877	33	45
Arizona	1,766	1,530	230	9	766	4,301	412	996	128
Arkansas	8,934	3,489	90	-	-	12,513	262	6,471	158
California	823	11,356	208	13	267	12,667	47	8,033	97
Colorado	1,367	3,506	118	23	480	5,494	117	7,512	268
Connecticut	806	-	145	-	-	951	22	-	377
Delaware	455	-	-	-	2	457	228	-	1
District of Columbia	-	-	-	-	-	-	-	-	-
Florida	403	3,558	155	-	-	4,116	-	3,292	61
Georgia	5,514	7,009	32	3	134	12,692	2	7,277	27
Hawaii	224	87	-	-	-	311	-	123	-
Idaho	1,143	2,582	27	1,866	57	5,675	-	1,977	-
Illinois	2,245	10,510	1,017	6	7	13,785	44	1,883	1,513
Indiana	4,697	5,853	214	-	-	10,764	18	9,510	177
Iowa	104	13,536	699	1	-	14,340	-	15,878	285
Kansas	1,778	20,705	353	-	47	22,883	9	9,189	40
Kentucky	6,121	2	-	-	46	6,169	8,931	18	1
Louisiana	4,668	5	-	-	-	4,673	2,968	209	2
Maine	3,220	-	-	-	-	3,220	2,196	-	-
Maryland	1,139	386	9	-	-	1,534	338	1,408	27
Massachusetts	204	-	922	6	7	1,139	7	-	763
Michigan	436	15,763	440	-	-	16,639	-	4,324	46
Minnesota	1,018	15,026	136	-	36	16,216	16	11,548	434
Mississippi	3,621	7,849	202	-	4	11,667	73	2,247	42
Missouri	16,168	258	27	-	-	16,453	5,969	246	5

Minor Collector			Local					
Other Jurisdictions	Federal Agency	Total	State Highway Agency	County	Town, Township, Municipal	Other Jurisdictions	Federal Agency	Total
-	-	6,600	1	44,956	4,516	169	819	50,461
-	94	1,049	614	2,288	1,532	1,754	1,145	7,333
16	634	2,186	357	12,703	2,748	215	11,662	27,685
-	-	6,891	199	55,666	4,506	-	2,173	62,544
19	98	8,294	1	31,447	3,558	2,985	13,083	51,074
28	1,034	8,959	20	40,054	1,959	573	5,114	47,720
-	-	399	10	-	4,108	247	17	4,382
-	-	229	2,112	-	100	31	81	2,324
-	-	-	-	-	-	-	-	-
-	-	3,353	-	22,202	2,691	-	1,893	26,786
5	99	7,410	13	47,908	3,438	76	1,010	52,445
-	-	123	1	1,043	-	47	101	1,192
1,602	496	4,075	7	10,752	-	11,309	7,373	29,441
3	-	3,443	347	1,768	69,913	328	216	72,572
-	-	9,705	24	45,039	3,125	-	-	48,188
2	-	16,165	5	58,954	4,964	372	103	64,398
-	19	9,257	5	81,793	4,795	-	873	87,466
-	6	8,956	5,450	37,732	2,197	255	731	46,365
-	-	3,179	2,468	28,204	2,471	2	618	33,763
-	-	2,196	11	-	11,975	136	167	12,289
-	2	1,775	199	8,556	362	101	31	9,249
4	1	775	24	-	4,988	359	20	5,391
-	-	4,370	11	52,553	2,471	38	1,604	56,677
37	155	12,190	5	14,782	61,205	978	2,668	79,638
-	9	2,371	142	40,731	2,317	29	518	43,737
-	-	6,220	893	68,727	4,993	-	1,324	75,937

APPENDIX C Continued:

State	Major Collector						Minor Collector		
	State Highway Agency	County	Town, Township, Municipal	Other Jurisdictions	Federal Agency	Total	State Highway Agency	County	Town, Township, Municipal
Montana	3,032	3,136	16	11	867	7,062	113	7,259	21
Nebraska	2,259	8,970	221	-	29	11,479	3	8,335	401
Nevada	1,610	413	2	-	49	2,074	264	1,957	9
New Hampshire	1,072	-	23	-	-	1,095	842	-	298
New Jersey	3	917	42	5	-	967	8	310	104
New Mexico	3,700	154	16	-	6	3,876	2,518	405	3
New York	3,663	1,895	113	1	20	5,692	495	7,891	1,137
North Carolina	7,993	-	1	-	-	7,994	6,719	-	9
North Dakota	1,162	10,042	256	-	62	11,552	-	-	-
Ohio	7,966	3,126	239	-	-	11,331	1,125	5,040	463
Oklahoma	5,902	14,623	692	-	13	21,230	-	2,971	39
Oregon	1,392	5,799	82	16	1,003	8,292	63	4,890	70
Pennsylvania	7,027	15	181	-	-	7,223	7,111	-	144
Rhode Island	135	-	10	-	-	145	32	-	92
South Carolina	10,326	131	-	-	27	10,484	1,977	175	1
South Dakota	1,142	10,364	265	12	661	12,444	-	5,728	431
Tennessee	5,108	-	-	-	-	5,108	-	10,105	422
Texas	34,675	1,028	53	-	84	35,840	14,232	3,800	51
Utah	1,593	1,492	81	-	28	3,194	31	3,336	91
Vermont	1,145	-	863	-	-	2,008	10	-	871
Virginia	9,176	-	117	-	1	9,294	2,363	-	78
Washington	1,595	6,385	192	-	-	8,172	-	6,088	116
West Virginia	5,637	-	-	-	-	5,637	2,226	-	1
Wisconsin	1,400	10,333	845	1	-	12,579	13	4,535	2,269
Wyoming	2,161	661	3	1	52	2,878	266	6,637	6
Total	**191,261**	**211,501**	**9,872**	**2,030**	**4,778**	**419,442**	**62,979**	**177,898**	**11,930**

Minor Collector			Local					
Other Jurisdictions	Federal Agency	Total	State Highway Agency	County	Town, Township, Municipal	Other Jurisdictions	Federal Agency	Total
17	1,401	8,811	670	33,895	1,171	258	11,623	47,617
-	65	8,804	4	42,891	16,386	263	67	59,611
-	44	2,274	309	17,381	221	542	1,396	19,849
5	9	1,154	338	-	7,278	37	138	7,791
-	3	425	2	633	3,699	522	419	5,275
-	215	3,141	258	35,319	1,345	215	11,575	48,712
50	2	9,575	36	6,083	38,086	150	135	44,490
-	-	6,728	43,161	-	4,825	748	2,739	51,473
-	-	-	41	22	65,889	23	1,481	67,456
-	-	6,628	2	17,578	36,086	3,000	505	57,171
-	-	3,010	-	60,410	6,317	604	33	67,364
19	2,366	7,408	11	19,183	1,504	510	4,368	25,576
-	-	7,255	7,454	-	43,075	3,123	746	54,398
-	-	124	14	-	842	-	10	866
-	-	2,153	12,810	16,580	321	191	2,134	32,036
2	226	6,387	3	20,266	33,545	526	1,224	55,564
22	2	10,551	-	42,452	3,884	314	1,275	47,925
-	47	18,130	278	134,332	13,177	2	700	148,489
-	338	3,796	12	16,503	2,174	-	3,794	22,483
9	-	890	-	-	8,391	201	163	8,755
-	-	2,441	31,170	28	605	-	1,326	33,129
-	-	6,204	-	21,057	1,858	10,728	8,549	42,192
-	-	2,227	20,590	-	1,153	-	621	22,364
3	-	6,820	8	4,162	59,647	7	839	64,663
96	802	7,807	226	6,861	676	796	2,141	10,700
1,939	**8,167**	**262,913**	**130,316**	**1,203,494**	**557,087**	**42,764**	**111,345**	**2,045,006**

APPENDIX D:

HRRRP Resources

HRRRP guidance resources

May 19, 2006 HRRRP Guidance Memo
http://safety.fhwa.dot.gov/safetealu/memos/memo051906.cfm

Apportionment and lapsing language for HSIP/HRRRP funds
http://www.fhwa.dot.gov/legsregs/directives/notices/n4510598.htm

FHWA Functional classification guidelines
http://www.fhwa.dot.gov/planning/fcsec2_1.htm

Local and Rural Road Safety Program – FHWA Office of Safety
http://safety.fhwa.dot.gov/local_rural/

HSIP reporting guidance (May 15, 2009)
http://safety.fhwa.dot.gov/safetealu/guides/guide051509.cfm

HSIP Final Rule (December 24, 2008)
http://edocket.access.gpo.gov/2008/E8-30168.htm

"Highway Safety: Preliminary Observations on Efforts to Implement Changes in the Highway Safety Improvement Program Since SAFETEA-LU"
http://www.gao.gov/htext/d081015t.html

SAFETEA-LU guidance on SHSP implementation
http://safety.fhwa.dot.gov/safetealu/guides/guideshsp040506/

Data resources

NHTSA "Traffic Safety Fact Sheets"
http://www-nrd.nhtsa.dot.gov/CATS/listpublications.aspx?Id=A&ShowBy=DocType

Bureau of Transportation statistics
http://www.bts.gov/

Additional rural crash facts:
http://safety.fhwa.dot.gov/local_rural/

National Association of Counties (NACo) Research Abstract Series – County Road Miles by State (2006 Data) April 2008
http://www.wyo-wcca.org/vertical/Sites/%7bD4F54A77-0532-458E-A3AB-D04D95A25F6D%7d/uploads/%7b8A49B1C7-6DE0-4092-AE5E-E4A4DD7FC3FC%7d.PDF

Rural Fatalities link
http://safety.fhwa.dot.gov/local_rural/rural_fatal.cfm

Fatality Analysis Reporting System
http://www-fars.nhtsa.dot.gov/Main/index.aspx

Center for Excellence in Rural Safety (CERS)
http://www-fars.nhtsa.dot.gov/Main/index.aspx

APPENDIX D Continued:

HRRRP Resources

State resources

Caltrans HRRRP web site
http://www.dot.ca.gov/hq/LocalPrograms/HR3

Illinois DOT solicitation to local agencies
http://www.dot.il.gov/blr/manuals/infocirculars/CL2008-17.pdf

Illinois DOT HSIP/HRRRP workshop presentation
http://www.dot.il.gov/safetyEng/01092008_HSIP-HRRRP.pdf

Iowa DOT HRRRP web page
http://www.iowadot.gov/local_systems/programs/hrrr.htm

Iowa DOT crash analysis resources
http://www.iowadot.gov/crashanalysis/index.htm

Local Systems HRRRP Web Page:
http://www.iowadot.gov/local_systems/programs/hrrr.htm

Michigan DOT HRRRP local agency assistance web site
http://www.michigan.gov/mdot/0,1607,7-151-9625_25885_40552---,00.html

Ohio DOT HRRRP information
http://www.dot.state.oh.us/Divisions/TransSysDev/ProgramMgt/CapitalPrograms/Pages/HighRiskRuralRoads.aspx

Traffic and Safety Crash Analysis Resources Page:
http://www.iowadot.gov/crashanalysis/index.htm

Wyoming Rural Road Safety Program
http://wwweng.uwyo.edu/wyt2/techbriefs/roadsafetyaudits.pdf

APPENDIX E:

State HRRRP Contacts

State	Agency	Name	Phone	Email
Alabama	Alabama DOT	Waymon Benifield	(334) 353-6404	benifieldw@dot.state.al.us
Alaska	Alaska DOT	Kurt Smith	(907) 465-6963	Kurt.smith@alaska.gov
Arizona	Arizona DOT	Reed Henry	(602) 712-7374	rhenry@azdot.gov
Arkansas	Arkansas Highways and Transportation Department	Jon Waldrip	(501) 569-2648	jon.waldrip@arkansashighways.com
California	CalTrans	Randy Ronning	(916) 653-4727	randy_ronning@dot.ca.gov
Colorado	Colorado DOT	Bryan Allery	(303) 757-9967	Bryan.Allery@dot.state.co.us
Connecticut	Connecticut DOT	John Carey	(860) 594-2710	john.f.carey@po.state.ct.us
Delaware	Delaware DOT	Randy Grunden	(800) 652-5600	randall.grunden@state.de.us
District of Columbia	District of Columbia DOT	William McGuirk	(202) 671-1493	william.mcguirk@dc.gov
Florida	Florida DOT	Joseph Santos	(850) 245-1502	joseph.santos@dot.state.fl.us
Georgia	Georgia DOT	Norm Cressman	(404) 635-8131	Norm.Cressman@dot.state.ga.us
Hawaii	Hawaii DOT	Sean Hiraoka	(808) 692-7684	sean.hiraoka@hawaii.gov
Idaho	Idaho DOT	Brent Jennings	(208) 334-8557	Brent.Jennings@itd.idaho.gov
Illinois	Illinois DOT	Priscilla Tobias	(217) 782-3568	Priscilla.tobias@illinois.gov
Indiana	Indiana DOT	Michael Holowaty	(317) 232-5337	mholowaty@indot.in.gov
Iowa	Iowa DOT	LeRoy Bergmann	(515) 239-1506	leroy.bergmann@dot.iowa.gov
Kansas	Kansas DOT	Lynn Berges	(785) 296-0410	LBerges@ksdot.org
Kentucky	Kentucky DOT	Tracy Lovell	(502) 564-3020	Tracy.Lovell@ky.gov
Louisiana	Louisiana DOTD	Dan Magri	(225) 379-1871	dan.magri@la.gov
Maine	Maine DOT	Duane Brunell	(207) 624-3278	Duane.Brunell@maine.gov
Maryland	Maryland DOT	Bill Macleod	(410) 787-5844	WMacleod@sha.state.md.us
Massachusetts	Massachusetts Highway Department	Bonnie Polin	(617) 973-7991	Bonnie.Polin@mhd.state.ma.us
Michigan	Michigan DOT	James D'Lamater	(517) 335-2224	dlamaterj@michigan.gov
Minnesota	Minnesota DOT	Dave Engstrom	(651) 634-5100	david.engstrom@dot.state.mn.us

APPENDIX E:

State HRRRP Contacts

State	Agency	Name	Phone	Email
Mississippi	Mississippi DOT	Lanny Glover	(601) 359-7150	LGlover@osarc.state.ms.us
Missouri	Missouri DOT	John Miller	(573) 526-1759	John.P.Miller@modot.mo.gov
Montana	Montana DOT	Pierre Jomini	(406) 444-6113	pjomini@mt.gov
Nebraska	Nebraska Department of Roads	Randy Peters	(402) 479-4594	rpeters@dor.state.ne.us
Nevada	Nevada DOT	Lori Campbell	(775) 888-7333	lcampbell@dot.state.nv.us
New Hampshire	New Hampshire DOT	G. Stuart Thompson	(603) 271-1407	gthompson@dot.state.nh.us
New Jersey	New Jersey DOT	William Beans	(609) 530-2471	William.Beans@dot.state.nj.us
New Mexico	New Mexico DOT	Steve Eagan	(505) 490-3063	Steve.Eagan@state.nm.us
New York	New York State DOT	Barbara O'Rourke	(518) 457-1910	borourke@dot.state.ny.us
North Carolina	North Carolina DOT	Brian Mayhew	(919) 715-7818	Bmayhew@dot.state.nc.us
North Dakota	North Dakota DOT	Chris Holzer	(701) 328-2534	cholzer@nd.gov
Ohio	Ohio DOT	Michelle May	(614) 644.8309	Michelle.May@dot.state.oh.us
Oklahoma	Oklahoma DOT	David Glabas	(405) 521-2861	dglabas@odot.org
Oregon	Oregon DOT	Martin E. Andersen	(503)986-3640	martin.e.andersen@odot.state.or.us
Pennsylvania	Pennsylvania DOT	Christopher Speese	(717) 705-1437	chspeese@state.pa.us
Rhode Island	Rhode Island DOT	Thomas Bushell	(401) 222-2694	tbushell@dot.ri.gov
South Carolina	South Carolina DOT	Joey Riddle	(803) 737-3582	riddlejd@scdot.org
South Dakota	South Dakota DOT	Sonia Trautmann	(605) 773-5361	sonia.trautmann@state.sd.us
Tennessee	Tennessee DOT	Gary Ogletree	(615) 350-3308	Gary.Ogletree@state.tn.us
Texas	Texas DOT	Debra Vermillion	(512) 416-3137	dvermil@dot.state.tx.us
Utah	Utah DOT	W. Scott Jones	(801)965-4285	wsjones@utah.gov
Vermont	Vermont Agency of Transportation	Mario Dupigny-Giroux	(802) 828-0169	mario.dupigny-giroux@state.vt.us
Virginia	Virginia DOT	In-Kyu "Q"Lim	(804) 786-3887	In-Kyu.Lim@VDOT.virginia.gov
Washington	Washington State DOT	Roger Horton	(360) 570-2427	hortonr@wsdot.wa.gov
West Virginia	West Virginia DOH	Donna Hardy	(304) 558-9576	Donna.j.hardy@wv.gov
Wisconsin	Wisconsin DOT	Chuck Thiede	(608) 266-3341	Charles.Thiede@dot.wi.gov
Wyoming	Wyoming DOT	Matt Carlson	(307) 777-4450	matt.carlson@dot.state.wy.us

APPENDIX F:

23 U.S.C. §148 (f) High Risk Rural Roads Program

TITLE 23--HIGHWAYS

CHAPTER 1--FEDERAL-AID HIGHWAYS

Sec. 148. Highway safety improvement program

(a) Definitions.--In this section, the following definitions apply:

(1) High risk rural road.--The term ``high risk rural road" means any roadway functionally classified as a rural major or minor collector or a rural local road--

(A) on which the accident rate for fatalities and incapacitating injuries exceeds the statewide average for those functional classes of roadway; or

(B) that will likely have increases in traffic volume that are likely to create an accident rate for fatalities and incapacitating injuries that exceeds the statewide average for those functional classes of roadway.

. . . . . .

(f) High Risk Rural Roads.--

(1) In general.--After making an apportionment under section 104(b)(5) for a fiscal year beginning after September 30, 2005, the Secretary shall ensure, from amounts made available to carry out this section for such fiscal year, that a total of $90,000,000 of such apportionment is set aside by the States, proportionally according to the share of each State of the total amount so apportioned, for use only for construction and operational improvements on high risk rural roads.

(2) Special rule.--A State may use funds apportioned to the State pursuant to this subsection for any project under this section if the State certifies to the Secretary that the State has met all of State needs for construction and operational improvements on high risk rural roads.

APPENDIX G:

Project Application Example – Iowa DOT

Application for High Risk Rural Road Funding
November 2008

Date:

County Name:

Contact person

PROJECT LOCATION:
(attach a county map showing location of the project)

PROJECT NARRATIVE
(Use additional pages if necessary)

Estimated Project Cost: $

HRRR Funds Applied for: $

Benefit Cost (B/C) Ratio:

POINTS FOR PROJECT RANKING
B/C Ratio Points:
Crash Density Points:
Crash Rate Points:
Total Points:

APPENDIX G Continued:

Project Application Example – Iowa
High-Risk Rural Road Application Instructions

November 2008

General Instructions

Before completing the application you should familiarize yourself with all the information on the Local Systems High Risk Rural Roads web page (http://www.dot.state.ia.us/local_systems/programs/hrrr.htm) and the instructions that follow.

Projects may be located on any of the eligible roads, outside of urbanized areas, as indicated on the map of eligible roads provided on the High Risk Rural Roads web page. However, as you work through the application form, you will note that only roads in the top 15% of eligible corridors using the crash rate or crash density are provided additional points for ranking the applications.

The funding guidelines developed in consultation with county engineers on the planning committee limit the amount of HRRR funds for a single project to $500,000. Those same guidelines also limit a county to only one project per year.

To be considered for funding, all the information on the application form must be completed and the requested supplemental forms must be included.

All questions regarding the HRRR Program should be directed to Rod Halverson in the Office of Local Systems (phone 515-239-1147, fax 515-239-1966, or e-mail Rod.Halverson@dot.iowa.gov). The completed application may be mailed, faxed, or e-mailed.

Project Location

The location description should include the Farm-to-Market route number. If the project does not have a designated Farm-to-Market route number, then provide the 911 street name and the beginning and end points for the project. If the project is a spot location, indicate the county route number and/or street name and the direction and distance from the nearest intersecting route. This information will be used in location description for the project funding agreement if your project is selected. ***A location map is also required to assist in verifying the project is on an eligible route and how many points can be assigned for crash rate and crash density.***

Project narrative

The intent of this narrative is to identify the problem, its relationship to the collision experience, and how the proposal will improve safety. A sketch plan of the current conditions and the proposed improvements may assist with the description of the proposed improvements.

Estimated Project Cost

The project cost estimate does not need to be a detailed engineer's estimate. However, the estimate should include enough detail, considering some "average" conditions for excavation, drainage structures and ROW so that a reasonably close estimate is calculated. ***A copy of the cost estimate, showing how the costs were determined, shall be included with the application***.

APPENDIX G Continued:

Project Application Example – Iowa
High-Risk Rural Road Application Instructions

HRRR Funds Requested

Indicate the amount of HRRR funds requested for the project. ***Keep in mind that maximum for a project is $500,000.***

Benefit/Cost (B/C) Ratio

The B/C ratio is the ratio of the expected benefits (accrued from a crash/severity reduction based on the proposed improvement), to the amount of HRRR funds requested for the project. ***A copy of your B/C Ratio calculations must be included with your application along with copies of the crash data used to determine the total crash benefit***. To calculate the B/C Ratio, use the Office of Traffic and Safety's Benefit / Cost Worksheet (http://www.iowadot.gov/traffic/tsip/tsipB-C.xls), with the following exceptions:

For the Estimated Improvement Cost, insert the amount of HRRR funds that are requested for the project. The ratio of the proposed accident benefit to the amount of HRRR funds requested will be the B/C Ratio inserted in the application.

The B/C Ratio calculations shall be based on crash data from 2001 through 2007, as provided in the Iowa DOT's Crash Mapping and Analysis Tool (CMAT) software.

Points for Project Ranking

Use the information contained in the HRRR web page to compute the points ranking for B/C Ratio, Crash Density, and Crash Rate of your project. The web page contains links to a Crash Density map and a Crash Rate map that will provide information on how many points can be assigned to Crash Density and Crash Rate. Only projects involving those segments of eligible corridors identified on the two maps will receive points for Crash Density and Crash Rate. The sum of the points in the three categories will determine your project ranking. In the event of projects with equal points, the project B/C ratios will be used to rank the projects.

APPENDIX H:

HRRRP Project Solicitation Letter Example – Michigan

Michigan DOT

High Risk Rural Roads

The Michigan Department of Transportation (MDOT) is pleased to announce that we are soliciting new candidate project applications for the fiscal year 2006 High Risk Rural Road (HRRR) program. Federal funds for the HRRR Program derive from SAFETEA-LU. The 2006 budget for this program is estimated to be $2,465,000. We are asking the County Road Association of Michigan and the Michigan Municipal League to distribute this notice to their member agencies.

SAFETEA-LU defines a HRRR as; 1) any roadway functionally classified as rural major or minor collector or a rural local road that the accident rate for fatalities and incapacitating injuries exceeds the statewide average for those functional classes of roadway, or 2) any roadway functionally classified as rural major or minor collector or a rural local road that will likely have increases in traffic volumes that are likely to create an accident rate for fatalities and incapacitating injuries that exceeds the statewide average for those functional classes of roadway.

This data leads to the following calculation of a crash frequency that exceeds the statewide, average accident rate, at a minimum: Within a 5 year time period, at least one crash, resulting in fatalities or incapacitating injuries, has occurred within a segment of eligible roadway no longer than 6.67 miles. However, in order to increase the impact of the HRRR program in 2006, its initial year, MDOT has raised the threshold accident rate for eligibility.

The 2006 eligibility requirements for roadways in the HRRR program are:

1. *The roadway is functionally classified as rural major or minor collector or rural local road.*

2. *Within a 5 year time period, at least 2 intersection crashes, resulting in fatalities or incapacitating injuries have occurred; or 2 such serious crashes have occurred within a 5-mile long segment of such roadway.*

Other requirements:

1. *The proposed projects will need to be developed and obligated on or before September 4, 2006.*

2. *The proposed projects will need to demonstrate a direct correlation to correct an area related to the fatal or incapacitating crash. The proposed project limits must be relevant to the roadway features attributable to the crash, and are subject to approval by MDOT*

APPENDIX H Continued:

HRRRP Project Solicitation Letter Example – Michigan

This program will be managed as follows for fiscal year 2006:

1. Due to the time constraints for fiscal year 2006, each individual project is anticipated to be relatively small in nature. The construction phase only is eligible for federal aid. Right of way, design and construction engineering are not eligible for these funds. Projects are federally funded at 90 percent, with a 10 percent local match, or funded with 100 percent federal funds for projects consisting entirely of traffic control signalization, safety, pavement marking, rail-highway crossing closure, or installation of traffic signs, traffic lights, guardrails, impact attenuators, concrete barrier end treatments, breakaway utility poles, or priority control systems.

2. Projects may be let through MDOT, or via local force account.

3. Eligible projects must meet current standards and warrants. All improvements must address the probable cause of the crash(es) in the project area. The proposed project limits must also address concerns in the area of the crash. Proposed work outside the vicinity of the crashes will be reviewed to ensure the HRRR funds are spent according to the intent of SAFETEA-LU. Possible low cost projects can be found at www.atssa.com/galleries/default-file/LowCostLocalRoads.pdf, and on the enclosed document.

4. All project candidates should be postmarked no later than Friday, June 30, 2006. Projects postmarked after June 30, 2006 may be considered for funding based on the strength of the submitted project and the availability of funds. Projects are reviewed and approved by committee and selected based on criteria which includes:

a. Crash history or potential for crashes

b. Accident analysis to determine the proposed projects scope

c. Crash concentration in the proposed projects limits

d. Existing condition and character of proposed work

e. Factors to determine the future increased traffic volume anticipated to cause crashes (if applicable)

f. Ability to deliver a construction package for obligation within this fiscal year

5. At a minimum, the suggested format for project consideration is an engineering report that clearly identifies the route, project termini, existing and proposed cross sections, estimated project cost and each of the criteria listed above. A map must be included with the report which clearly identifies the location of the proposed project. Pictures, graphics, preliminary plans, etc., included in your engineering report can also be used as supporting evidence and are encouraged.

6. MDOT may be able to assist in identifying eligible roadways under your jurisdiction. For additional

assistance regarding this service, you may contact Dale R. Lighthizer, P.E. of MDOT's Traffic and Safety Division at (517) 373-2334.

7. If there are any social, economic and environmental impacts within the project limits, all impacts must be mitigated before federal funds can be appropriated and obligated. Project applications which have significant negative responses from the public or controversial and may require an environmental assessment will not be considered until all outstanding issues have been resolved.

8. Projects submitted for MDOT's 2007 Local Agency Safety Program may be eligible for the HRRR program. It is encouraged that eligible projects be submitted for this program if they can be developed and obligated in fiscal year 2006.

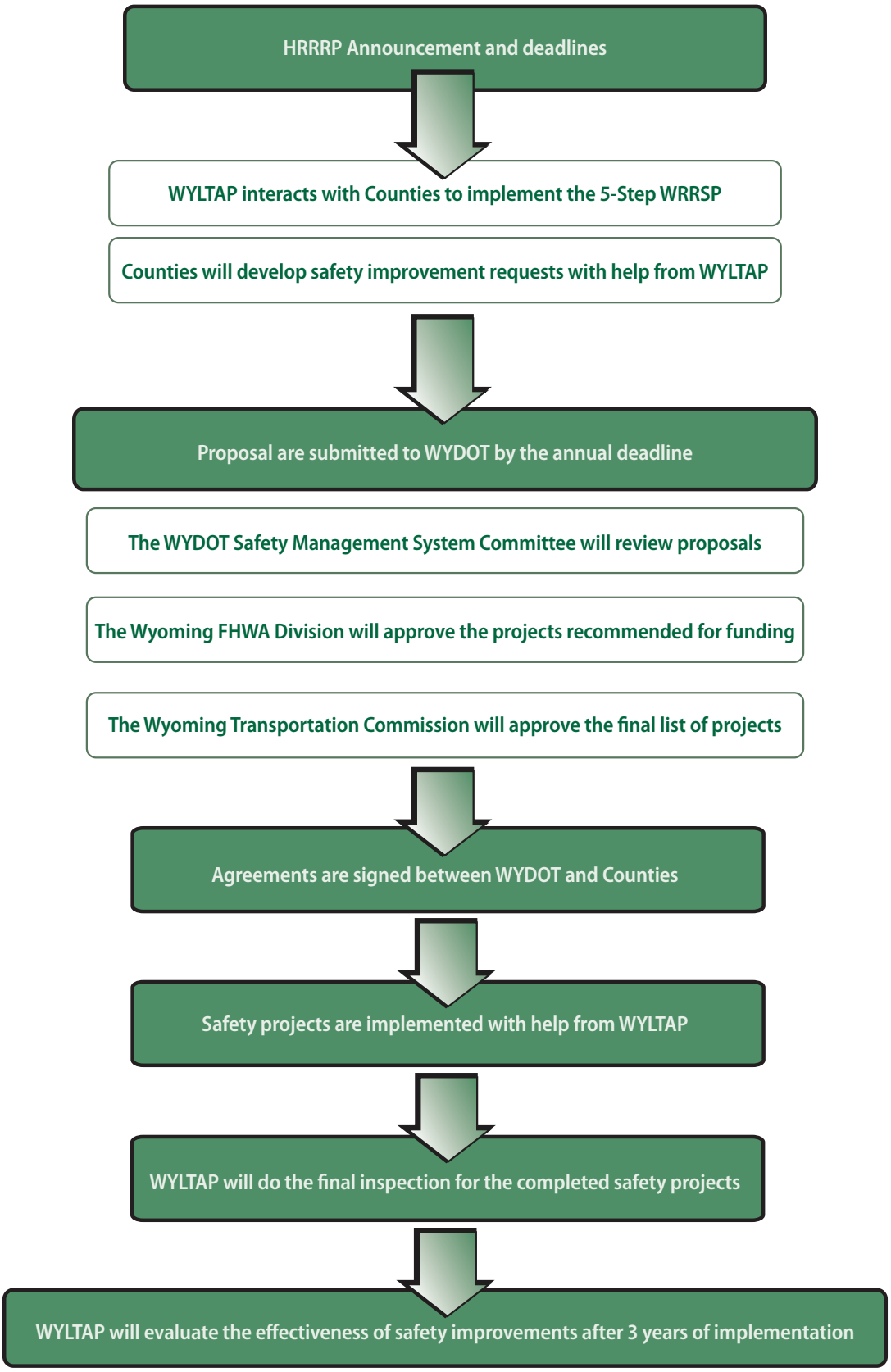
Once projects are selected, local agencies within MPO areas must coordinate with their MPO to ensure inclusion of their project in the area's TIP. Those agencies that are part of a rural task force should notify their members that they are applying for these funds. Rural task force approval is not necessary. Local Agency Programs will coordinate with MDOT Planning to ensure these projects are included in the STIP. Each application is evaluated based on the criteria listed above on a project by project basis and funding availability. If an agency submits multiple projects, a prioritized list must be submitted for consideration.

Local Agencies are to submit eligible projects and supporting information to the following:
Mr. Jim D'Lamater, P.E.,Safety Engineer
Design Division, Local Agency Programs Unit
425 W. Ottawa Street, P.O. Box 30050\
Lansing, Michigan 48909-7550

Depending upon funding availability and project selection, announcements will be made as soon as possible with notifications and project programming instructions sent to each of the local agencies. Our goal is to maintain a fiscally constrained program while maximizing the use of available federal funds. In addition to the HRRR program, MDOT is developing an additional safety program for local agencies titled the Local Safety Initiative (LSI). The LSI is intended to assist local agencies identify high incident areas on their roadway system, and may have funds available for construction work on these areas. If you are interested in this program please contact Mr. Dale Lighthizer, P.E. at (517) 373-2334 for details. If you have any questions, please feel free to contact Jim D'Lamater, P.E. at (517) 335-2224.

APPENDIX I:

Local Agency Involvement Process – Wyoming



APPENDIX J:

Public Interest Finding Request Example - Missouri

Missouri DOT

Letter to FHWA Missouri Division

Re: Public Interest Finding for High Risk Rural Roads Program

The High Risk Rural Roads (HRRR) program will be administered by MoDOT to reduce fatalities and serious injuries on Missouri's minor road system. The 136 routes identified as the HRRR System in Missouri have experienced 205 fatal and 1,033 disabling injury crashes from 2003 to 2005.

In order to stretch the small amount of HRRR funds, MoDOT is requesting a finding in the public interest to utilize a portion of these funds for the purchase of materials (rather than necessitating only contract work with the funds). If approved, MoDOT maintenance forces will use these materials to construct improvements on this portion of HRRR projects. The cost savings of utilizing MoDOT forces for a portion of this effort is significant, allowing us to more efficiently use the $2.6 million funding source to improve safety in Missouri. Specific projects utilizing this flexibility include shoulders (both aggregate and asphalt), rumble strips, and additional warning signs.

Note that some of these projects will be for purchase of materials only, while others will include contract work. Each of these projects will be discussed with FHWA before funds are obligated for expenditure (either as "materials only" or as a contract job).

It is important to note that some HRRR projects will go through the typical contract installation procedure and be placed on MoDOT's STIP.

Our request is for conceptual approval of materials purchases for a portion of HRRR projects. Approval of this request at your earliest convenience would be appreciated.

This page intentionally left blank

For More Information

Rosemarie Anderson
FHWA Office of Safety
202.366-5007 P
rosemarie.anderson@dot.gov

U.S. Department of Transportation
Federal Highway Administration