


# Implementing the HRRRP

Hosted by  
FHWA Office of Safety Programs



For the next hour and a half we will be discussing the Highway Safety Improvement Program and HRRRP

This project was initiated in an effort to improve the implementation of the HRRRP through the exchange of information between states and potentially save lives on the eligible roadways. In the Spring, Division safety engineers and specialists were interviewed about their state's HRRRP; in some cases follow-up was made with state DOTs and others. The findings from those interviews will be presented today.

# AGENDA

- Welcome – Joe Toole
- HSIP Updates – Erin Kenley
- Implementing the HRRRP
  - Challenges and Practices
  - MPO Coordination – Josh Schneider
  - System-wide Approach – John Miller
- Questions
- Wrap-Up



Our Agenda will take next thru a brief HSIP update

Then we will get into the HRRRP portion of the presentation

The presentation will begin with some crash facts, and the HRRRP obligation picture.

The challenges faced by states trying to implement the program and state's noteworthy practices will follow.

We have two guest presenter – Josh Schneider, Transportation Planner, NJTPA will talk about their coordination efforts as they administer the program in their region in NJ and John Miller – Traffic Safety Engineer, Missouri DOT with discuss system-wide practices.

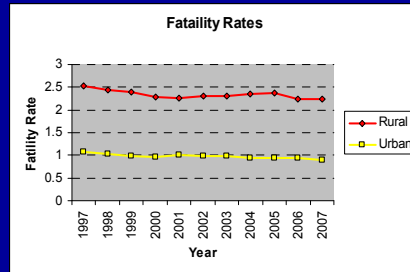
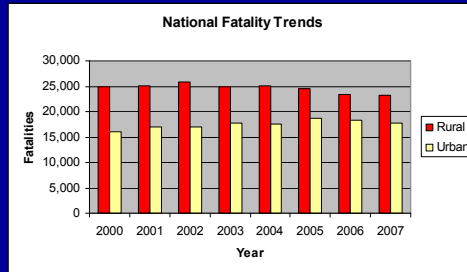
## HSIP News

- Annual Reports Due 8/31/2009!
- HSIP On-Line Reporting Tool
- HSIP Manual and Workshops
- CRF Clearinghouse
- SHSP IPM
- HSIP/SHSP Peer to Peer Program and other Technical Assistance



# Fatality Trend

- National Fatality Trends



The number of crashes on rural roads have always exceeded those occurring on urban roadways. Although there has been a downward trend in the number of fatalities occurring on rural roadways the fatality rate on rural roads have remained constant at more than twice that of urban roadways

If we are to reduce the fatalities and serious injuries throughout the nation, those occurring on rural roads needs to be addressed.

HRRRP is one tool that can be used to address this

# High Risk Rural Road Program

- **HRRRP**

- Set aside Provision under SAFETEA-LU
- \$90 million HSIP apportionment per year
- Correct or improve hazardous locations or features
- Rural major or minor collector or a rural local road
  - accident rate for fatalities and incapacitating injuries exceeds the statewide average
  - increases in traffic volume likely to create an accident rate for fatalities and incapacitating injuries that exceeds the statewide average
- Construction and operational improvements



SAFETEA-LU introduced a new set-aside provision known as the High Risk Rural Roads Program (HRRRP). This program is a component of the HSIP and is set-aside after HSIP funds have been apportioned to the States. It provides \$90 million of HSIP apportionment per year for high risk rural roads (HRRR) highway safety improvement projects. Projects may be selected on any public HRRR to correct or improve hazardous road locations or features. the HRRRP must consider the safety needs on all public roads.

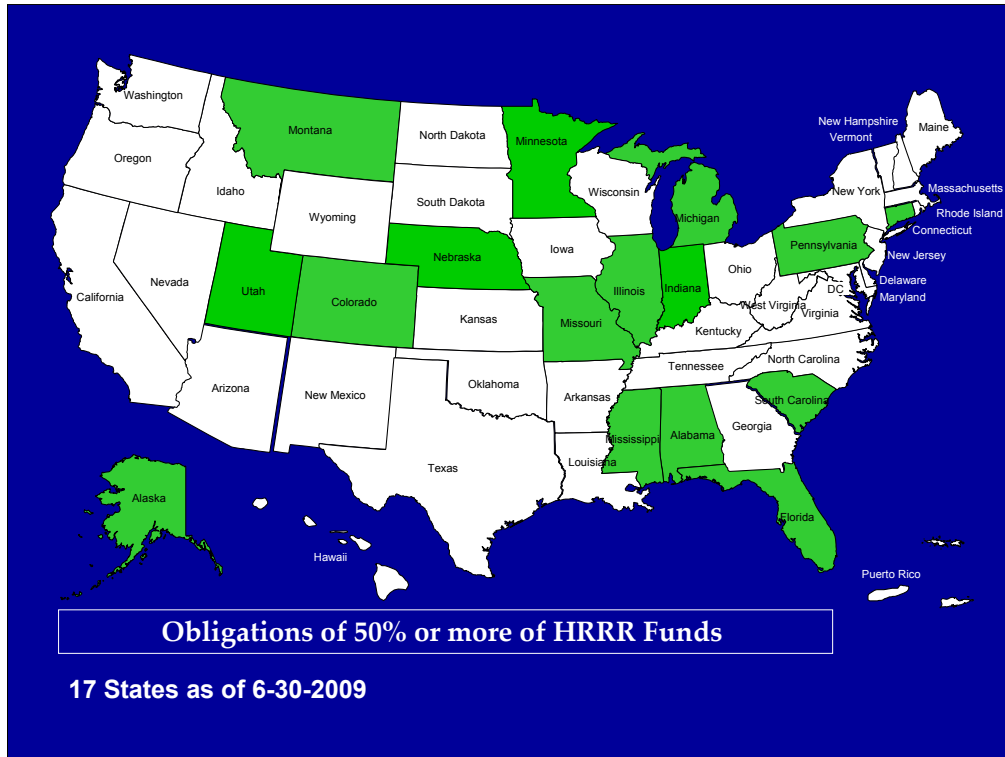
HRRR is defined as

**"...any roadway functionally classified as a rural major or minor collector or a rural local road --**

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

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."

The HRRRP funds construction and operational improvements



**Obligation rate**

Only 17 states including Hawaii have obligated more than 50 percent of their available funds

Only 1 state obligated 100% of available funds by June 30<sup>th</sup>

# High Risk Rural Road Program

- **Obligation Rate**

- FY 06, 07, 08, 09 = \$359 million
- 29% obligated by 6/30/09 = \$105 million
- \$40 M in FY 09 (3<sup>rd</sup> Quarter)
- 11 States obligated > \$4 million each
- 17 States obligated > 50% of their funds
- 24 States obligated < 25%
- 8 States obligated Zero



A total of \$359 million have become available for the program since FY06. At the end of June 2009 only 29% of that total had been obligated - \$105 million. In the first 3 quarters of fiscal year 09 \$40 million was obligated (38% of total obligation) – marked improvement in obligation.

As shown before 17 states have obligated more than 50%

11 states have obligated more than \$4M

24 states have obligated less than 25%

And 8 states have not obligated any of their available HRRRP funds

This is not necessarily an indication that nothing is going on with the HRRRP in those states. Most states are actively involved in some or various stages of HRRRP activity.

# Challenges

- **Identifying Roadway**
  - Crash data collection and analysis
  - Exposure data
  - Linking crash data with exposure data
  - Location identification and selection
- **Analyzing the Problem**
  - Identifying projects
  - Project Prioritization
  - System-wide; Spot Location (high crash)
  - Expertise



The research shows that challenges encountered by states fell in 3 main categories

- Those encountered in an effort to identify HRRR
  - This included problems with relevant data (collection and analysis of crash data and exposure data); linking those data sets; and identifying qualifying locations
- Issues were also identified in analyzing the problem at selected locations
  - This involved issues with selecting projects, prioritization, decisions for selection; and expertise in analysis (or lack of)

# Challenges

- **Program Administration and Policy**
  - Project application approaches
  - Promotion, Communication, and Coordination with local agencies
  - DOT staffing levels
  - State oversight of local projects
  - Mechanisms to transfer funds to local agencies



- Challenges also came in the form of Program Administration and Policy
  - The lack of or limited outreach to local agencies that own and maintain hundreds of mileage of qualifying HRRR has been a drawback
  - Additionally the process or approach used to solicit projects may present a challenge to agencies unfamiliar with the process
  - Low staffing levels at some DOT have affected the administration and therefore the implementation of the program as well as the oversight of projects
  - Funding – the level of funding and transfer of funds are issues in many states

# Identifying Roadway

- **Crash data collection and analysis**
  - Lack of crash data on local roads
  - Problems locating crash
  - Sharing data
  - Expertise to analyze
  - Poor records
  - Low number of K and A crashes



HRRRP like the HSIP is a data driven process. Not all states have a comprehensive crash database system. For most the system only accounts for roadways on the state system. However, states have been progressively improving their databases and including local roads.

Some of the challenges associated with crash data are:

Lack of efficient data on local roads – attributes relevant for analysis may be missing

Locating crashes on rural and local roads can be difficult when a linear referencing system does not exist. Often crashes are recorded as located between intersections; in rural areas intersection can be great distances apart, making crashes difficult to locate.

Because of legal issues some DOTs do not share data with the local agencies resulting in cumbersome processes to get local agencies to analyze local areas

Low number of K and A crashes and/or scattered distribution makes it difficult to analyze.

# Identifying Roadway

- **Guidance** <http://safety.fhwa.dot.gov/safetealu/memos/memo051906.cfm>
  - Comprehensive statewide crash and roadway data systems
  - State and local crash files
  - Other State or local fatal and injury data sources
  - National data, such as the Fatality Analysis Reporting System (FARS)



The Guidance states 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.

These could be state and/or local crash files (accident reports)

Other state or local fatal and injury sources – enforcement, EMS, hospital

Or use of Fatality Analysis Reporting System (FARS) – fatal and severe injury crash data

# Identifying Roadway

- **Comprehensive Crash System**
  - FL, IL, NJ, IA
- **Crash Frequency**
- **SHSP**
- **Transparency Reports**



Not all states have a comprehensive crash system; however States that do include FL, IL, NJ and IA. FL used Section 408 grant funds to develop data analysis requirements for HRRR. IL used HSIP funds to develop their database with the assistance of the local agencies. In NJ and IA locals have access to the system via the web. For the most part FL and IL conduct the analysis for the locals.

Most states currently used crash frequency; in AL crashes over a 3 year period is used.

West Virginia has tied their HRRRP to their transparency report – address locations on that report on qualifying functionally classified roads

New Hampshire tying their program to SHSP – address roadway departure which makes up 70% of the state crashes and address curves with upgraded signage, etc.

# Identifying Roadway

- **Locating Crashes**
  - Linear Referencing
  - GIS
  - System-wide
- **Expertise to analyze**
  - Training (IL, AL)
  - DOT provide analysis/assistance (IL, GA)
  - LTAP (WY)
- **Low number of K and A crashes**
  - EPDO methodology for comparison of K&A, as well as Total crashes per mile (MO)
  - May use less severe crashes to increase sample size (FL)



Using a linear referencing system and GIS can prove efficient in locating crashes on eligible roadways.

FLDOT developed a linear referenced system for local roads and geo-located all crashes. In NJ the TSRC manually geocoded the local crash data for a 3 year period using the services of university students. A system-wide approach has been the path taken by some states that have issues locating crashes to implement treatment to crash locations. MO is employing the system-wide approach for their HRRRP and will discuss this later in the presentation.

Often the local road agents are not familiar with the analysis methodologies that will determine eligible roadways. In IL and AL the DOT have provided training to local personnel. In WY the LTAP has provided the analysis. Hands on technical assistance is provided to the locals with HRRR in GA and IL.

In rural areas K and A crashes tend to be scattered over large areas and concentrations are few. Many states have included less severe crashes to increase their sample sizes. In MO they have employed an Equivalent Property Damage Only methodology and looks at total crashes per mile.

# Identifying Roadway

- **Exposure data**

- **Guidance**

- Vehicle Miles Traveled (VMT)
    - Average Daily Traffic (ADT)
    - Lane miles or roadway miles
    - Turning movement counts
    - Population or Per capita data
    - Highway Performance Monitoring System (HPMS)



The guidance states that eligible roadways must have accident rate for fatalities and incapacitating injuries that exceeds the statewide average rate for roadways of similar functional class.

The availability of exposure data on local roads to calculate these rates in many cases are not available for roadways of eligible functional class.

According to the guidance exposure data can take the following forms:

**Vehicle Miles Traveled (VMT)**

**Average Daily Traffic (ADT)**

**Lane miles or roadway miles**

**Turning movement counts**

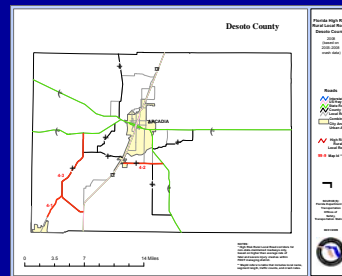
**And if those are not available then**

**Per capita data can be used (population, licensed drive over a given area)**

**Alternatively, Highway Performance Monitoring System (HPMS) data can be utilized however this data usually cannot be located. Therefore it is useful if pursuing system-wide projects.**

# Identifying Roadway

- Linking crash data with exposure data
  - Linear referencing system
  - GIS
  - Collecting exposure data for specific locations



Linking crash and exposure data is made easier through a linear referencing system and GIS. In FL the process of developing a linear referencing system required the use of a third party map set for line work on local roads, developing edit processes to define roadway segments, and manually validating the linear referencing system. Nearly 93,000 miles of local roads in Florida required this linear referencing. Crashes are located using a crash locator tool and AADTs were a combination of a research effort and HPMS.

In Texas, AADT were collected for only those roadways that had sufficient crashes for a potential HRRR.

In some area transportation models are able to link the 2 sets of data

# Identifying Roadway

- **Location identification and selection**
  - Develop rates per lane mile (MO, NJ, IN)
  - Develop rates per road mile (MI)
  - Non-state maintained roadway volumes generated from a modeling process (FL)
  - System-wide solutions (MO, IA)
  - Rural intersections where F&A crashes occur with the most frequency compared to statewide intersection rate (VA)
  - Local system volume data requested only of roadways with F&A history (TX)
  - Priority crash “zones” (WA)



Some ways in which locations are identified and selected:

In NJ the AADT were not readily available on all eligible rural roads, crash rates were developed by lane miles. Their procedure entailed breaking all the rural roads down into segments of similar size (# lanes, shoulder), FC, and speed limit. Then rates were calculated for each individual segment (# severe crashes/centerline miles) and compared those to the state average for that specific segment characteristic type. If the average was above the state average, it was flagged. With this methodology, the need for AADT was negated.

**In FL Non-state maintained roadway volumes generated from a modeling process**

**In MO and IA they are pursuing system-wide solutions**

**In VA rural intersections where F&A crashes occur with the most frequency compared to statewide intersection rate**

**In (TX) Local system volume data requested only of roadways with F&A history**

**In (WA) Priority crash “zones”**

# Analyzing the Problem

- **Identifying projects**
  - Road Safety Audits/Assessment
  - Corridor Analysis
  - SHSP
  - Transparency report
  - Available tools from other sources



For most states project identification is done through a formal RSA process or through an assessment or field view. In Pennsylvania District 6, the MPO conduct RSAs on eligible roadways to identify projects. TN also conduct RSAs on eligible locations to determine projects – these are funded 100%. In Northern NJ projects were identified under a larger planning study conducted by the MPO - Regional Safety Priorities.

In Minnesota the SHSP was the main guidance for project selection and evaluation. Local Road Safety Plans allows the local agencies to focus their efforts.

In WV and NM the HRRRP is closely tied to transparency reports which have identifies projects.

Projects are also identified from other locations with similar characteristics

# Analyzing the Problem

- **Project Prioritization**

- Benefit-Cost Analysis
- Spatial distribution
- Crash Frequency
- Rate
- Available funds
- Availability of Match



The research shows that states prioritize projects in a number of different ways: these range from a more sophisticated benefit-cost analysis (FL); to

Making sure that as many jurisdiction in a state benefit from the Program (regardless of the rate) (equitable distribution);

Crash frequency and availability of funds are also factors that play a role in prioritization.

Available funds vs project cost has been a prioritization as well as availability of local match

## Analyzing the Problem

- **System-wide; Spot Location (high crash)**
  - Data (availability, efficiency, frequency of K + A crashes)
  - SHSP
  - 5% Report
  - Cost-Benefit



Many have grappled with the issue of system-wide treatments or high crash spot location treatment. Most have made the decision for system-wide treatment only after the problems of data presents an insurmountable feat. Additionally, this also brings to the forefront biggest benefits to the overall network (high crash spot location improvement or treating the overall network)

# Analyzing the Problem

- **Expertise**
  - Training
  - Technical Assistance
  - Dedicated staff



Many local agencies does not have the expertise to analyze the problem in selected location. Many states have provided

**Training (IL, AL require all county engineers to go through LCSI and data mining training)**

**Technical Assistance (WYLTAP, LALTAP, WIDOT**

**Dedicated staff (IADOT part time, GADOT)**

**LTAP**

## Analyzing the Problem

- **Type of HRRRP Projects**
  - Same as HSIP (except planning, data, enforcement at railroad crossing)
  - Low cost safety improvements (signing, striping)
  - Large projects (multiple years of HRRR funding)



All projects in the guidance under the HSIP are eligible for the treatment of the HRRRP however exceptions are - planning, Improvement in the collection and analysis of crash data , enforcement at railroad crossing

**Please Note: Planning, PE and RSA related to a specific HRRR Improvement project can be funded with HRRRP funds**

Most states are concentrating on low cost safety improvements. Upgrade guiderail, signing, striping. Intermediate cost projects – modifying curves, intersection redesign, roundabouts. In NJ, they try to avoid projects that may include an environmental process because of delays in implementation. In Arkansas one project is programmed for improvement – roadway experiencing a high frequency of roadway departure crashes – they are considering multiple years for HRRRP funds for this project.

## Program Administration and Policy

- **Project application approaches**
  - Web based process
  - Hands on approach
  - DOT Local Aid Office
  - Third party administration



Although not without its issues the hands on application approach seems to be the most successful in soliciting applications from local agencies for the HRRRP. Where the state DOT or third party administrator guide the local agencies through the application process. Other application approaches include the web-based approach where applications are solicited and submitted via the web. This has the potential to reach the most agencies but may have inherent problems if local agencies do not use the computer on a regular basis or are not computer savvy.

DOT with dedicated local aid offices where the local agencies are used to applying for funding under several different programs will have some success.

## Program Administration and Policy

- DOT staffing levels
  - New Program (inexperience)
  - Staffing Cuts



HRRRP is a new set aside program under the HSIP with the turnover in staff at many state DOTs staff may be inexperienced in administering the program.

Additionally, Staffing Cuts are also a reality and this limits available staff to administer the program and provide technical assistance to locals as necessary.

Increase in obligation rate over the last 9 months may be indicative that staff is gaining the necessary experience

## **Program Administration and Policy**

- **Promotion, Communication, and Coordination with local agencies**
  - DOT District Offices
  - MPOs
  - LTAP/University
  - Circuit Rider Program
  - Consultant
  - Special positions



**There are several methods and procedures through which local agencies are getting involved in the process**

**In IA through DOT District Offices and university)**

**In NJ and PA through the involvement of the MPO/RPO**

**LTAP through out a number of states are getting the locals involved, these include (WY, LA)**

**In AL Training has proved effective in getting local involved**

**DOT Technical Assistance in (GA, IL)**

**The Circuit Rider Program in (MS)**

**In (IA) Special position for HRRRP**

## Program Administration and Policy

- **Mechanisms to transfer funds to local agencies**
  - District Local Aid Office
  - MPO TIP process
  - Force Account
  - Cooperative Agreement
  - Third Party



Transferring funds to local agencies can be a challenge for some state DOTs. For some it is simply a matter of logistics that is not too difficult to overcome but for others it becomes a legal issue. Funds are transferred to local agencies through MPO and TIP process, In some states legally the state DOT cannot transfer funds to local agencies. In Kentucky uses existing programs to feed HRRRP

## Program Administration and Policy

- State oversight of local projects
  - District Office
  - Local Aid/Projects Office
  - Designated Administrator



State oversight of local projects have been cited as a challenge to implementation. Oversight is carried out through these processes:

**District Office generally maintenance office**

**Local Aid/Projects Office**

**Designated Administrator**

## Program Administration and Policy

- **Funding**
  - Small amounts
  - Lapse
  - Requirements
  - Match



Funding is always an issue regardless of the program. Many states all the HRRRP funds goes to the local road system (county and municipal)

HRRR can be addressed with general HSIP funds as well. Although the dedicated HRRR funds may be low; projects on HRRRP eligible roadways can benefit from other funding sources (HSIP, STP (highway safety on all roads))

All remaining FY06 HSIP funds are subject to lapse in FY10 if they have not been spent. Therefore technically HRRRP funds are subject to lapse.

Application requirements for the HRRRP funds have been cited as a deterrent to applying for the funds. States have held training and in some cases have walked applicants through the process. Agencies tend to apply once familiar with the process

Like most federal funds HRRRP funds do require a match. For this reason some local agencies will not apply for these funds because they are unable to provide the match. Some states have provided the match with state funds or used local labor as the required match.

## Program Administration and Policy

- Training
  - Availability



Transportation safety training programs/workshops are available through most states LTAP, FHWA Resource Center, NHI and several state DOTs have provided specialized training.

## Wrap Up

- **Improvement in Obligation**
- **Guidebook**
- **Local Road P2P**

There has been a noticeable improvement in HRRRP funds obligation rate but there is still room for improvement. Given the data, in order to reduce K and A crashes safety concerns on rural roads need to be addressed as appropriate. The HRRRP is a tool be utilized in an effort to reduce crashes on eligible roadways.

The guide book documenting the challenges of HRRRP and noteworthy practices is currently under development and will be completed this winter. It will also include case studies of noteworthy practices.

The Local Road Peer to Peer Program will be available soon. We are currently dotting our I and crossing out tees. Through this program technical assistance will be provided on local road issues. It will operate similar to the RSA P2P.

QUESTIONS??



**Contact Information:**

**Rosemarie Anderson**  
**[Rosemarie.anderson@dot.gov](mailto:Rosemarie.anderson@dot.gov)**  
**202-366-5007**