Montana Highway Safety Improvement Program

An RSPCB Peer Exchange

Introduction and Background

This report provides a summary of a peer-to-peer (P2P) videoconference sponsored by the Montana Department of Transportation (MDT) and the Federal Highway Administration (FHWA) Office of Safety. The videoconference format provided a low-cost opportunity for agencies to share information on administering the Highway Safety Improvement Program (HSIP) in rural states.

The event included an introduction to the HSIP by the FHWA Office of Safety, overviews of each State's HSIP process by State Department of Transportation (DOT) representatives, and roundtable discussions among the states regarding the operation of their HSIP. Representatives from each State DOT were joined by safety specialists in their respective State FHWA Division Offices to learn about noteworthy practices in the HSIP. (See Appendix A for a complete list of participants.)

Proceedings of the Montana Peer Exchange

The FHWA Office of Safety's HSIP manager welcomed videoconference participants and provided an overview of the peer exchange objective: to respond to MDT's request to learn more about how to improve and enhance its HSIP process by gathering information about the structure and administration of neighboring states' programs. Topics covered included:

- Identifying and prioritizing projects for HSIP funding and how the Strategic Highway Safety Plan (SHSP) has changed the process;
- Using cost/benefit ratios to prioritize projects;
- Implementing systematic improvements through HSIP;
- Implementing low-cost safety improvements; and
- Managing crash data.

Following the introduction, MDT and each peer agency presented summaries on how they administer their HSIP, including project selection and prioritization criteria, SHSP linkages, examples of implementing systematic improvements through the HSIP, and their management of crash data. (See Appendix B for the agenda.) Summaries appear below.

Montana Department of Transportation (MDT)

MDT's Safety Management System Section Supervisor and the Traffic and Safety Bureau Chief discussed Montana's program. MDT maintains 12,000 of Montana's 75,000 public road miles. Ten percent of MDT-maintained roads are located within tribal reservations. MDT receives $10.5 million in annual HSIP funding, which is administered through the Traffic and Safety Bureau at DOT headquarters.

This funding includes $750,000 from the High Risk Rural Roads Program (HRRRP) and $3.6 million from the Railway-Highway Grade Crossing Program (RHGCP).

MDT provided the following information regarding its HSIP:
- Historically, Montana's HSIP has focused on hotspots, which are identified by querying the Montana Highway Patrol crash database and reviewing locations based on requests by law-enforcement agencies. MDT nominates projects once per year based on site reviews, available mitigation options, and their associated benefit-cost ratio.
- Some systematic improvements have been implemented through Montana's HSIP but not as standard practice.
- Montana's Comprehensive Highway Safety Plan (CHSP) includes a significant engineering component.
- A powerful Oracle data management system queries and analyzes crash data.
- MDT's geographic information system mapping is used primarily for display purposes and not analysis.

Idaho Transportation Department (ITD)

ITD's Office of Highway manages both $10.5 million in annual HSIP funding and $4 million in behavioral safety program funding from the National Highway Traffic Safety Administration (NHTSA). Funds are distributed to local partners through a resolution signed by its Transportation Board.

ITD's Highway Safety Manager and Research Analyst Principal presented an overview of ITD's HSIP:
- ITD addresses fatal and serious injury crashes on all public roadways in Idaho.
- ITD districts are decentralized; HSIP funding is allocated based on the district's lane miles, traffic volumes, and total number of fatalities and serious injuries. Each district develops a data-driven and fiscally constrained program of projects. If needed, ITD headquarters staff meet with district staff and the Local Highway Technical Assistance Council to balance the program.
- Low-cost, near-term projects focus on safety corridors and/or hotspots with an emphasis on systematic improvements.
- All crash data in Idaho is electronic with most reports available for analysis within ten days of the incident. ITD maintains a web-based safety data analysis system and is in the process of linking crash data to roadway data to allow staff to analyze crash types by roadway characteristic. ITD provides data on high-crash locations to districts including crash frequency, severity, and rates.

Wyoming Department of Transportation (WYDOT)

Wyoming receives about $18 million per year in HSIP funding, including transfer funds, which it uses to focus on hotspots. District offices select HSIP projects; the Highway Safety Office provides screening information and project listings to help districts prioritize them.

The Highway Safety Program Manager of WYDOT presented an overview of Wyoming's HSIP.
- Wyoming's SHSP focuses on reducing fatalities and serious injuries. The Highway Safety Office is trying to communicate that message to the rest of WYDOT; however, most do not view safety as a crash reduction operation in Wyoming.
- Wyoming is implementing a data management system. In 2008, Wyoming deployed an electronic crash data collection system. All crash reports are now stored in a database maintained by the Highway Safety Office. Crash reports, 80 percent of which are submitted electronically, are typically entered into the system within ten days of the occurrence of a crash.
- In 2008, WYDOT deployed its Critical Analysis Reporting Environment (CARE) system, which links roadway features with traffic volumes. The Highway Safety Office uses the CARE system to identify hotspots, determine crash concentrations, and crash types. The system is also used to analyze safety and planning issues in corridors.

South Dakota Department of Transportation (SDDOT)

SDDOT manages $10.5 million in annual HSIP funding for both State and local roads. South Dakota's safety program receives an additional $4.5 million under the Repeat Offender Law--23 U.S.C. §164 (Penalty Transfer Program) because it does not have a repeat

intoxicated driver law. SDDOT has been selecting their HSIP projects using a hotspot approach. However, the agency is interested in exploring alternative ways to allocating HSIP funding, since a balance of safety funds remains at the end of most years.

Representatives from SDDOT's Office of Project development provided additional information on South Dakota's HSIP:
- SDDOT conducts roadway safety improvement inspections at actual crash locations when requested by regional traffic engineers, law enforcement, or municipalities. These inspections last two to three days and result in a list of recommended projects and associated cost-benefit ratios.
- SDDOT developed a safety software module based on the Highway Safety Manual (HSM) two-lane rural crash prediction method. The safety module can query the entire State highway system and develop cost-benefit ratios by segment for safety improvements.
- South Dakota has installed 250 miles of rumble strips or stripes on roads with a four-foot or greater shoulder over the last three years. Plans are underway to explore other systematic approaches, including rural intersection improvements and guardrail installations.

South Dakota is currently updating its SHSP. SDDOT is working directly with the Office of Highway Safety (in the Department of Public Safety) to form a steering committee; the goal is to develop an SHSP that will use all of the State's HSIP funding.

North Dakota Department of Transportation (NDDOT)

The NDDOT Traffic Operations Section administers North Dakota's HSIP. In FY2011, North Dakota received $9.5 million in HSIP funds as well as $600,000 from the HRRRP and $2 million from the RHGCP. Although North Dakota has the most miles of roadway per capita, only 7,000 of the State's 107,000 miles of roadway are on the State system. As a result, the State implements many small city and county projects through its HSIP, including signing and marking projects (up to $20,000 each).

NDDOT's Traffic Operations Engineer and Transportation Engineer III highlighted additional elements of North Dakota's HSIP:
- North Dakota's SHSP includes two main engineering emphasis areas: Lane Departure and Intersection Safety.
- In 2010, NDDOT developed an HSIP implementation plan to prioritize, analyze, evaluate, and implement infrastructure safety projects. North Dakota has implemented spot improvements but recently began developing systematic improvement projects. Plans include installing centerline, shoulder, and transverse rumble strips on all State highways within four years.
- Each fall, NDDOT solicits project suggestions from towns, counties, and tribes. A list of high-crash locations is also sent to agencies for their comments and recommendations.
- NDDOT conducts Roadway Safety Reviews (RSR, similar to a Roadway Safety Audit (RSA)) for high-crash locations on the State highway system. Local agencies can request an RSR for high-crash locations on the local roads, but they are not required. NDDOT conducts ten to fifteen RSRs per year, which result in a few large projects and many smaller projects, such as signing and pavement marking revisions that cities and counties implement.
- NDDOT identifies projects through a fatal crash review team that meets several times per year to develop engineering recommendations based on fatal crash data.

Roundtable Discussion

Following the State presentations, facilitators led a roundtable discussion. A summary of the discussion appears below.

    Q: *How often do you develop your HSIP and how does safety fit into your organizational structure?*
    A: All states develop their HSIP on an annual basis. The HSIP extends four or five years to match the Statewide Transportation Improvement Program (STIP). Safety fits into the organizational structures of each peer State differently.
- MDT's Highways and Engineering Division includes a Traffic and Safety Engineering Bureau which is responsible for providing management, design, and technical support for traffic and safety engineering functions, and managing and coordinating the HSIP and RHGCP. The State Highway Traffic Safety Office,

within MDT's Rail, Transit, and Planning Division, manages Montana's behavioral safety programs and develops its CHSP.

- ITD's Office of Highway Safety manages the HSIP, the SHSP, crash data, and NHTSA behavioral safety programs. The Office of Highway Safety partners with engineering staff to implement systematic projects.
- North Dakota's HSIP is administered by NDDOT's Traffic Operations Section, which also oversees traffic operations studies, crash analysis, RSAs, speed limit requests, turn-lane requests, signing requests, lighting studies, signal maintenance, and signal studies. NDDOT's Traffic Safety Office administers behavioral safety programs.
- SDDOT's Planning and Engineering Division within the Project Development Office manages the HSIP. The South Dakota Department of Public Safety manages behavioral safety, emergency response, and enforcement programs.
- WYDOT's Highway Safety Office manages Wyoming's HSIP, maintains the State's crash data, and administers its behavioral grant and motorcycle safety programs. The Highway Safety Office works regularly with the Traffic Office on safety issues.

Q: *Describe how your State prioritizes HSIP projects.*
A: A number of prioritization methods were described:

- Montana and Wyoming prioritize projects based on a benefit-cost ratio, which is weighted by crash type. In Wyoming, a list of projects prioritized by the benefit-cost ratio is provided to districts to review and incorporate into the STIP depending on their alignment with other management systems.
- South Dakota also uses a benefit-cost ratio but does not formally split funding between systematic projects and those identified based on the benefit-cost analysis.
- North Dakota prioritizes HSIP projects based on its HSIP implementation plan, which provides direction for implementing systematic improvements that address SHSP emphasis areas. NDDOT does not develop benefit-cost ratios for its projects; rather, it conducts an evaluation of the economic costs of crashes and those costs are linked to the infrastructure emphasis areas in its SHSP.
- Idaho evaluates the economic cost of crashes and ties that to its SHSP Lane Departure and Intersection emphasis areas. Beginning with that analysis, districts and local governments analyze the safety data to identify where problems are occurring. Districts create a list of project candidates and complete a benefit-cost analysis. Once a district submits project candidates, a small team determines which should receive funding based on the data, the economic cost of crashes, and the benefit-cost ratios.

Q: *How much flexibility do you have in advancing projects identified through RSAs?*
A: Each State discussed its flexibility:

- South Dakota spends about $500,000 annually on performing and implementing the recommendations of RSAs on county and local roads. RSAs are performed at locations where concerns have been identified and result in a formal report that recommends projects.
- North Dakota studies its RSA locations to determine whether any countermeasures fit within its HSIP implementation plan. NDDOT implements two to three RSA recommendations each year.
- Wyoming does not have a formal RSA program but conducts a similar process through its Local Technical Assistance Program using funding from HRRRP. The process includes analyses of crash data and windshield road review video to identify locations with likely safety issues. WYDOT develops and distributes a list of projects for those locations to local agencies for their consideration.
- Idaho treats RSA-identified projects the same as standard HSIP projects, providing funding priority to projects that are data-driven, low-cost, near-term, and that align with SAFETEA-LU requirements and Idaho's SHSP.

Q: *Do you provide HSIP funding to local agencies?*
A: Each State discussed its policies regarding HSIP funding to local agencies:

- Idaho allocates 12.5 percent of its HSIP funding to local agencies.

- South Dakota and Montana do not generally transfer HSIP funding to local agencies.
- MDT focuses HSIP funding on the State system, where more fatal crashes occur. As the local government traffic safety service, MDT provides State funding to local agencies.
- NDDOT sends an annual solicitation for project proposals to local agencies, counties, and cities; however, such entities do not generally participate in HSIP.

Q: *Does your State have a safety corridor program?*
A: Corridor programs described:
- Montana's SHSP includes high-crash corridors as an emphasis area. These 10- to 15-mile corridors are identified based on queries of crash frequency and severity. Idaho evaluates the safety health of corridors based on weighted factors like crashes, roadway geometrics, shoulder width, roadway-departure prevention measures, and access management. Corridors can range from 30 to 50 miles and are rated as good, fair, or poor.
- North and South Dakota do not have safety corridor programs.
- Wyoming is considering the use of corridors.

Q: *Does your State have an evaluation process for its HSIP?*
A: Evaluation processes described:
- Wyoming evaluates the effectiveness of safety treatments by comparing the impacts of multiple treatments at the same location. WYDDOT also conducts theme-based studies, for instance, on treatments installed at the State's top 300 curves.
- Montana, Idaho, South Dakota, and North Dakota are interested in establishing evaluation processes for their HSIPs but face challenges in moving beyond Federally-required evaluation criteria.

Q: *Does your State use SafetyAnalyst?*
A: None of the states are currently using SafetyAnalyst. Montana was part of the pool-fund study for SafetyAnalyst but does not currently use it. Idaho is considering using SafetyAnalyst but has faced challenges in making it operational.

Q: *Does your State restrict access to crash data?*
A: In North Dakota, South Dakota, and Wyoming, access to crash data can be requested. In Montana, access to crash data is restricted to MDT and the Montana Highway Patrol. Idaho maintains a web-based crash data system and, once redacted, treats crash data as public.

Key Takeaways

Participating states appreciated the **opportunity to learn from their peers** and, in particular, understand that their **agencies share many of the same challenges** in implementing their respective highway safety programs. Many states also expressed that this event helped them identify opportunities for **flexibility in the HSIP**. Finally, states learned about **approaches to evaluating countermeasure deployments**.

Appendix A: Event Participants

Idaho		
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Appendix B: Agenda

MONTANA PEER EXCHANGE/WORKSHOP AGENDA

May 5, 2011 – 9am to 12:30pm MDT

Purpose: Montana is seeking to improve its Highway Safety Improvement Program (HSIP). The conversation circle will give Montana and the peer states the opportunity to discuss their HSIP programs (15 minutes each). Ten minutes will be available for Q&A after each discussion. The following topics should be addressed:

- Program Structure/Administration
- Project Identification and Prioritization
    - Relationship to SHSP
    - Inclusion of Systemic Improvements
- Data Management Systems

9:00 am	Welcoming Remarks/Introductions
9:10 am	Workshop Overview and Expected Outcomes
9:15 am	Host State – Kraig McLeod, Montana Department of Transportation
9:40 am	Peer State – Brent Jennings, Idaho Transportation Department
10:05 am	*Break*
10:15 am	Peer State – Matt Carlson, Wyoming Department of Transportation
10:40 am	Peer State – Sonia Downs, South Dakota Department of Transportation
11:05 am	Peer State – Chris Holzer, North Dakota Department of Transportation
11:30 am	*Break*
11:40 am	Open Discussion - facilitated by FHWA Office of Safety

- Challenges
- Key Takeaways
- Next Steps

12:30 pm   Adjourn