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# Implementing the High Risk Rural Roads Program (HRRRP)

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## **Background**

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) established the Highway Safety Improvement Program (HSIP). Within HSIP, a specific focus on rural roads was created with the High Risk Rural Roads Program (HRRRP). High risk rural roads are defined in SAFETEA-LU as: any roadway with a functional class of rural major or minor arterial or rural local road on which the fatal and serious injury crash rate exceeds the statewide average for that functional class (or where volumes are expected to make the rate higher). Specific funding was set aside to pay for improvements under this program.

The focus on reducing fatal and serious injury crashes is consistent with the Washington State Strategic Highway Safety Plan, Target Zero.

## **Program Development**

Implementing the HRRRP in the state of Washington required development of a new methodology to address risk on county roads. Fatal and serious injury crashes show up in a wide variety of locations on the county road system. From 2002-2006 there were more than 3,900 fatal or serious injury crashes spread over more than 39,000 miles of county roads. So a good risk program needed to focus on low-cost, widespread solutions that could cover a significant number of miles. With this focus in mind, the determination was made that “above average” rates would be defined on a county-by-county basis, rather than evaluating individual roadways. Evaluating individual roadways would have ultimately resulted in “chasing” roads where a previous fatal or serious injury crash occurred. But for a risk-based program, any roads with similar characteristics in selected counties needed to be eligible for safety improvements.

## **Problem Identification**

Problem crash types to be addressed by the HRRRP needed to be identified in addition to the above average counties. To accomplish this, the 2002-2006 fatal and serious injury data on county roads was analyzed by collision type. More than half (54 percent) of all these collisions were found to be run-off-road collisions. Run-off-road collisions are single vehicle collisions where a driver will either hit a fixed object or overturn his/her vehicle. Since so much of the problem was contained within this single collision type, this became the focus of the HRRRP.

Next, to determine the “above average” counties, the top 25 percent (10 of 39) of counties were identified based on the rate of fatal and serious injury run-off-road crashes per mile. The top 25 percent (10 of 39) of counties were also identified based on the rate of fatal and serious injury run-off-road crashes per million vehicle miles traveled. Any county that fit within the top 10 of either category was determined to be above average by rate and was eligible for funding with the HRRRP funds. A total of 16 counties (41 percent) were thus eligible for funding (four counties were in the top 10 in both rate categories).

It should be noted that the rates used did not include rural local access road mileage. Based on the fact that the HRRRP methodology had not been previously used for making safety improvements on county roads, funding was restricted to rural major and minor arterials. Due to higher volumes, these classes of county roads are a better investment from a risk perspective for the first implementation of HRRRP funds. Since these would be the only roads eligible for funding, these were the only roads used to determine the rate of crashes.

The amount of funding provided to each of the 16 counties was based on the rate of these fatal and serious injury run-off-road crashes per mile. Counties with higher rates received larger shares of the funding.

## Implementing Solutions

With the counties and funding levels identified, the next step was to determine what kind of improvements should be made. Eligible counties were told that with the HRRRP focused on risk, only low-cost, widespread solutions addressing run-off-road safety would be allowed (not higher-cost spot improvements). This was to avoid spending the majority of these funds in one or two spot locations that make up a very small percentage of the overall fatal and serious injury problem in any county. Suggestions were provided to agencies on the types of solutions that might be included.

As of October 2009, all counties that submitted eligible projects should at least be underway with design work, and a few of the projects should be nearing completion. The types of solutions actually proposed and funded with these projects are:

- Install edge line striping
- Install center line striping
- Install raised pavement markers (RPMs)
- Upgrade pavement markings
- Install curve ahead pavement markings
- Upgrade edge lines to profiled thermoplastic
- Remove fixed objects (mailboxes, trees)
- Delineate fixed objects
- Improve clear zone
- Replace roadside hardware
- Add delineation to guardrail
- Upgrade guardrail end treatments
- Install guardrail (limited)
- Add a safety edge to pavement
- Improve shoulders (limited)
- Install rumble strips (edge line, center line, transverse)
- Install guide posts
- Review/update curve warning speeds
- Install warning signs/beacons and pavement markings at curves
- Upgrade signing
- Improve sight distance
- Install illumination

Counties were also responsible for determining the roads where improvements were to be made, based on their knowledge of roadway characteristics, crash history, and volumes.

## **Program Evaluation**

This approach to rural road safety was well received by a majority of counties. Only time will tell if a measurable decrease in fatal and serious injury collisions will follow. Since before and after measurement of a risk-based program is challenging, improvement (crash reduction) will likely be measured at the county level. Future evaluation of the program will include measuring for reductions in fatal and serious injury crashes, with a focus on run-off-road collisions.

Funding safety improvements on rural roads will probably follow a similar pattern in the future. Data-driven analysis will be done to identify key problems/locations. Low-cost, widespread solutions will be funded. Higher-cost spot improvement projects will still have funding available in some form (as they did for both urban and rural locations through the HSIP in this year's grant selections). But the biggest focus for rural road safety will be on implementing low-cost solutions over as many miles of roadway as possible.