Montana Department of Transportation
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RESEARCH PROGRAMS

Implementation Report

DEVELOPING A METHODOLOGY FOR IMPLEMENTING SAFETY IMPROVEMENTS ON LOW-VOLUME ROADS IN MONTANA

https://www.mdt.mt.gov/research/projects/planning/lvr-safety.shtml

PROJECT NO: 9679-699

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Introduction and Purpose

Low-volume roads (LVRs) are an integral part of the highway system serving local traffic in rural areas. These roads usually have two lanes, one in each direction of travel, and many of them are unpaved roads owned and operated by local agencies. Recent statistics show that about 45 percent of fatal crashes occur on rural roads, even though only 19 percent of the US population reside in rural areas. This statistic highlights the importance of traffic safety on rural roads, including low-volume roads. While low-volume roads are unique in the type and amount of traffic they serve, they also pose unique challenges for highway agencies concerning safety management programs. Specifically, on roadways with higher traffic volumes, the more frequent occurrence of crashes allows for the direct identification of high crash locations using historic crash data. On low-volume roads, crash occurrence, particularly fatal and serious injury crashes, is less frequent. This makes it difficult to identify candidate sites on the network for possible safety improvements using historic crash data. However, roadway, roadside, and traffic characteristics may lend themselves toward crashes potentially occurring at spot locations due to increased level of risk. Therefore, an approach is needed for identifying candidate sites for safety improvements on low-volume roads without solely relying on crash history. Such an approach would help improve safety on these roads by reducing the number and severity of highway crashes.

The objective of the current project was to develop a method for identifying candidate sites for safety improvements that would help reduce crashes and severities occurring on low-volume roads.

Implementation Recommendations

Recommendation 1:

The first recommendation for the Montana Department of Transportation (MDT) is to review on a periodic basis that the percentage of the Highway Safety Improvement Program (HSIP) funding being spent on low-volume roads balances with the higher severity crash percentages experienced on these roads.

MDT Response:

MDT recognizes the potential benefits of assigning safety funds on low-volume roads that are in line with the safety issues on these roads. However, the Department is hesitant to commit to a fixed percentage or a specific rule in assigning safety funds for reasons

related to the accessibility of crash data on low-volume roads and the different sources used in compiling such data. This approach would provide MDT with the required flexibility to allocate funds on roads with higher safety needs. However, MDT also noted that, in a recent analysis, it was found that the HSIP funds expended on low-volume roads have been indeed proportional to the amount of fatal and serious injury crashes occurring on these roads. MDT wants to maintain this flexibility in assigning safety funds as MDT develops a systemic process for safety management on low-volume roads.

Recommendation 2:

It is recommended MDT assign exclusive personnel for safety management on low-volume roads. This is primarily due to the unique safety challenges encountered on these roads and the multi-agency ownership of the low-volume road network. The appointed staff member(s) would work closely with local transportation agency staff members that oversee implementing the network screening at the local level.

MDT Response:

MDT cannot commit to hiring exclusive staff for low-volume road safety management at this time. MDT recognizes that increased focus and management of low-volume road safety projects is a priority and can be included in standard operating procedures.

Recommendation 3:

The researchers recommend that MDT implement the network screening methodology developed in this project for identifying and ranking candidate sites for safety improvement projects. This research project confirmed the lack of any robust and science-based methodology for LVRs network screening at the national level. Therefore, applying the proposed methodology provides the potential in improving the process for managing safety on these roads.

MDT Response:

MDT envisions that the implementation of the proposed network screening method would be gradual and is expected to take time given the Department's available staff and resources. MDT agrees to include the proposed methodology as the Department works with a selected number of counties in managing safety on local roads under their jurisdictions.

Recommendation 4:

As a large proportion of LVRs are owned and operated by local transportation agencies, appropriate training for the use of the proposed methodology should be provided to local transportation staff for those agencies to successfully adopt the new network screening process. MDT is expected to take the lead in coordinating these training efforts to promote increased involvement of local transportation agencies in safety management on roads within their jurisdictions.

MDT Response:

MDT recognizes that local agency staff may need help in using the new methodology within their jurisdictions. MDT also agrees that appropriate outreach and education on the use of the proposed methodology should be provided to local agency staff for them to successfully engage in the new network screening process. MDT and the Montana Local Technical Assistance Program (LTAP) are expected to take the lead in coordinating these outreach efforts.

Recommendation 5:

The full implementation of the proposed methodology by local government agencies is expected to take time. Therefore, it is recommended that the proposed method be used in the interim for ranking candidate sites as part of identifying systemic safety improvement projects, or as part of selecting safety improvement project sites on local roads, that is, using the methodology score as one of the considerations in selecting safety improvement project sites.

MDT Response:

MDT is in overall agreement regarding the utility and use of the proposed methodology in applications outside the conventional network screening process.

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