



STATE OF MICHIGAN  
DEPARTMENT OF TRANSPORTATION  
LANSING

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GOVERNOR

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DIRECTOR

January 4, 2008

Mr. John D. Niemela, Director  
County Road Association of Michigan  
P.O. Box 12067  
Lansing, Michigan 48901-2067

Mr. David Worthams  
Transportation Environmental Affairs  
Michigan Municipal League  
320 N. Washington Sq., Ste. 100  
Lansing, Michigan 48933-1288

Dear Mr. Niemela and Mr. Worthams:

Update to Fiscal Year 2009 Federal Local Safety and High Risk Rural Road Programs

In an effort to correlate the use of Federal Safety (STH) and High Risk Rural Road (HRRR) funds with the State of Michigan Strategic Highway Safety Plan and SAFETEA-LU, the Michigan Department of Transportation (MDOT) requires that either a Time of Return (TOR) or Benefit/Cost (B/C) analysis calculation be included with all submitted Safety and HRRR project applications.

MDOT believes that the implementation of Time of Return or Benefit/Cost analysis calculations will allow for a more effective use of safety funds and better align the use of these safety funds with the Strategic Highway Safety Plan (SHSP). The SHSP has a goal of 1.0 fatalities per million miles traveled by 2008, and focuses on the reduction of fatalities and serious injuries. Also as part of SAFETEA-LU, as a requirement of the HRRR program, before and after Benefit/Cost analysis is a required reporting element of this program.

Enclosed is a sheet listing MDOT accepted crash reduction factors for commonly submitted scopes of work and injury costs. Also listed are acceptable reference sources for obtaining crash reduction factors for projects with scopes of work that are not provided. This enclosure will be posted this month on the Local Agency web site, under the Safety/HRRR tab, which can be located at [http://www.michigan.gov/mdot/0,1607,7-151-9625\\_25885\\_40552---,00.html](http://www.michigan.gov/mdot/0,1607,7-151-9625_25885_40552---,00.html).

In order to assist the local agencies in training, MDOT will be giving a presentation on how to do Time of Return and Benefit/Cost calculations at the 2008 County Engineer Workshop, which is scheduled to be held February 5 and 6, 2008.

**Due to these revisions, MDOT will be extending the deadline for applications for the 2009 Safety and High Risk Rural Road programs by one month. All project candidates must be postmarked no later than Friday, March 28, 2008. Projects postmarked after March 28, 2008, at MDOT's discretion, may or may not be reviewed for funding based on the strength**

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**of other submitted projects and the availability of funds. It is recommended that your application be submitted by certified mail or other trackable delivery service.**

MDOT has an Excel spreadsheet available for calculating Time of Returns and Benefit/Cost analysis. If you have any questions or would like to obtain a copy of MDOT's Excel spreadsheet for calculating Time of Returns and Benefit/Cost analysis, please contact Jim D'Lamater at (517) 335-2224 or email at [dlamaterj@michigan.gov](mailto:dlamaterj@michigan.gov).

Sincerely,



for Mark A. Van Port Fleet  
Engineer of Design

Enclosure

cc: Metropolitan Planning Organizations  
Rural Task Forces  
LAP ListServ Members

## Safety Improvements and Crash Reduction Factors

Proposed Improvement	Projected Crash Reduction
Horizontal Curve Flattening	30% Reduction: Head-On, Sideswipe, Fixed-Object, Overturn
Superelevation Modification	20% Reduction: Head-On, Sideswipe, Fixed-Object, Overturn
Vertical Curve Modification	20% Reduction: Head-On, Sideswipe 10% Reduction: Fixed-Object, Overturn
Construct Center Left-Turn Lane	80% Reduction: Rear-End Left-Turn 50% Reduction: Head-On Left-Turn 20% Reduction: Head-On, Angle, Other* 15% Reduction: Non Left-Turn Rear-End
Construct Right-Turn Lane	65% Reduction: Rear-End Right-Turn 20% Reduction: Non Right-Turn Rear-End, Sideswipe-Same Direction
Intersection Improvements (Realignment, Sight-Distance Improvements, Radii Improvements, Etc.)	30% Reduction: Angle 15% Reduction: Rear-End 10% Reduction: Head-On, Sideswipe, Pedestrian, Bicycle, Left-Turn Related
Install/Upgrade Flashing Traffic Signals	30% Reduction: All Crash Types
Install/Upgrade Pedestrian Signals	30% Reduction: Pedestrian, Bicycle
Install Guardrail	55% Reduction: Fatalities and "A" Injuries
Slope Flattening	15% Reduction: Fixed-Object, Overturn
Widen Shoulders to Standard Width	15% Reduction: All Crash Types
Improve/Upgrade Signing and Pavement Markings at Intersections	30% Reduction: Angle, Rear-End 10% Reduction: Head-On, Pedestrian
Install/Upgrade Signing/Delineation on Horizontal Curves	20% Reduction: Head-On, Sideswipe, Fixed-Object, Overturn
Remove Fixed-Objects From Clear Zone (Trees, Culverts, Etc.)	75% Reduction: Fixed-Object Crashes
Install Centerline Rumble Strips	55% Reduction: Sideswipe-Opposite, Head-On
Install Shoulder Rumble Strips	25% Reduction: Fixed-Object, Overturn
Construct Roundabout	76% Reduction: Fatalities and "A" Injuries 39% Reduction: Minor & PDO Crashes
Construct Sidewalk for Pedestrians	85% Reduction: Pedestrian Crashes
Improve Access Management	10% Reduction: Angle, Rear-End
Provide All-Way Stop-Control Operation at Intersection	60% Reduction: All Crash Types

\* "Other" includes any other crash which might be mitigated by the addition of a center left-turn lane in the judgement of the crash analyst.

### REFERENCES:

The references listed below are the sources recognized by MDOT for obtaining crash reduction factors. If you have a situation that none of these sources can provide a crash reduction factor for, please contact Jim D'Lamater, P.E., MDOT Local Agency Programs Safety Engineer, at 517-335-2224, for review and approval to use alternative reference sources.

- 1). MDOT Safety Programs Unit - Crash Reduction Factors (As recommended by K. Kunde, P.E.); October, 1986.
- 2). Selection Process for Local Highway Safety Projects - Transportation Research Record 847; 1982.
- 3). UKTRP – 85-6, University of Kentucky; March, 1985.