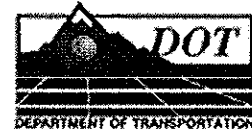


STATE OF COLORADO

DEPARTMENT OF TRANSPORTATION

HQ Safety and Traffic Engineering Branch
4201 E. Arkansas Avenue, 3rd Floor
Denver, Colorado 80222
303.757.9654 (Voice)
303.757.9219 (Fax)



October 31, 2011

TO: City/County Transportation Officials
FROM: Bryan K. Allery
Acting Branch Manager
RE: Federal Hazard Elimination Program

Applications for Federal Hazard Elimination Project Funds for FY 2013-2015 are being requested at this time. Applications are due in by January 31st, 2012. Completed applications are to be sent to your local CDOT Region Traffic Engineer who will review the applications and then forward to this office for analysis:

Colorado Department of Transportation Region Traffic Engineers

Bernie Guevara - Region 1 Traffic Engineer 18500 E. Colfax Ave. Aurora, CO 80011	Sasan Delshad - Region 2 Traffic Engineer 905 Erie Ave. Pueblo, CO 81002
Zane Znamenacek - Region 3 Traffic Engineer 222 South 6th St., #317 Grand Jct., CO 81501-2769	Ina Zisman - Region 4 Traffic Engineer 1420 2nd Street Greeley, CO 80632
Mike McVaugh - Region 5 Traffic Engineer 3803 N. Main Ave., #306 Durango, CO 81301	Steve Hersey - Region 6 Traffic Engineer 2000 South Holly St. Denver, CO 80222
Ref: FY2013-2015 Federal Hazard Elimination Program (A Map of the CDOT Regions is also Included with the Application Form for Reference)	

Any project selected for this federal funding must be included in, or added to, the Statewide Transportation Improvement Program (STIP) and, if in an urban area, in the appropriate Transportation Improvement Program (TIP) of the respective Metropolitan Planning Organization (MPO). Local governments within an MPO are advised to send a copy of their applications to their respective Organization; for example: City of Denver to DRCOG, City of Colorado Springs to PPACG, City of Ft Collins to North Front Range Transportation and Air Quality Planning Council.

This program is administered by CDOT for which there may be an indirect cost or overhead charge of approximately 1%. This indirect cost is not eligible for federal funding.

Please complete the enclosed application form for each project of interest and submit with any supporting documents desired. The attached procedure descriptions are for your reference only and need not be considered or included with your application. All requests will be for the construction fiscal years of 2013 - 2015. Funding is contingent on the continuation of this Federal Safety program. The application process, final analysis, and notification of approval or denial are expected to be completed by the end of March 2012. Your participation in this program is greatly appreciated.

FEDERAL HAZARD ELIMINATION PROGRAM

This program provides federal funds (90% Federal, 10% State/Local) for projects that improve the safety of high accident locations. The 10% Local Funds are required for projects located off the State Highway System. The major factors in evaluating applications are the accident history and the cost-benefit.

Eligible projects are safety projects on your jurisdiction's street or highway system, as well as any other public road. Projects with costs for right-of-way, because of the possible long lead time required for its acquisition, are not encouraged, but allowed.

As in the past, projects should cost no less than \$50,000. Only projects of \$50,000 and over will be funded because the overhead is about the same for any size project and the cost effectiveness of the federal dollar diminishes below this amount. Smaller projects can be combined to meet this \$50,000 threshold.

The prioritization will only consider candidate projects that have a potential for accident reduction. The approved method of evaluation is based on determining the level of safety through the appropriate Safety Performance Function, or the observed cumulative Binomial Probability (BP) of an accident type or related accident characteristics. An observed accident frequency above the expected, statewide average or a cumulative Binomial Probability of 90% or greater suggests the presence of an accident pattern and a susceptibility to correction. CDOT will calculate the level of safety and/or cumulative BP, and Benefit Cost Ratio (B/C) in accordance with the attached procedures. Candidate projects that have a potential for accident reduction will then be prioritized using the B/C as we have done in the past.

If there is a safety improvement desired on a state highway, please coordinate with your local CDOT Traffic Engineer about CDOT applying for the funds or making a joint application.

Questions regarding the application process and evaluation criteria can be directed to:

Bryan K. Allery - CDOT Staff Traffic, 303.757.9967

Ron Nelson – CDOT Staff Traffic, 303.512.5101

Shane Chevalier – CDOT Staff Traffic, 303.512.5109

David Swenka – CDOT Staff Traffic, 303.512.5103

Distribution: City/County Transportation Officials
CDOT Region Traffic Engineers

Attachment: Application Form and sample Procedures for Calculating the Level of Safety, BP, and B/C Ratio

Electronic Versions of the forms are available at:

<http://www.coloradodot.info/library/traffic/traffic-manuals-guidelines/fed-hazard-elim-railroad-cross-prog>

Procedure for Calculating the Benefit Cost Ratio

(For reference only – CDOT will complete the calculations)

The benefit/cost ratio (B/C) is the annual expected benefit divided by the estimated annual average project cost. The B/C formula used is:

$$BC = \frac{B}{C} = \frac{\text{Expected Benefit}}{\text{Estimated Cost}} = \frac{\text{Equivalent Uniform Annual Benefits}}{\text{Equivalent Uniform Annual Costs}}$$

$$B = [(PDO)(a) + (INJ)(b) + (FAT)(c)](ARF)$$

Where: PDO is the Number of Property Damage Only Accidents
INJ is the Number of Injury Producing Accidents
FAT is the Number of Fatality Producing Accidents
a is cost per PDO accident (\$8,200)
b is cost per INJ accident (\$68,100)
c is cost per FAT accident (\$1,290,000)
ARF is the Accident Reduction Factor for the type of proposed improvement(s)

and: $C = (PCE)(CRF) + AMC$
PCE is the Project Cost Estimate
CRF is the Capital Recovery Factor
AMC is the Annual Maintenance Cost

The following sources provide the information required to prepare the benefit/cost ratios:

1. The Federal Hazard Elimination Program Application submitted by the requesting agency identifies the location by street names or by milepoints, describes the existing hazard and proposed improvement, and provides a project cost estimate.
2. Documented accident history is verified and/or provided by CDOT Safety and Traffic Engineering Branch. A minimum accident history of two years is required (three to five years is preferred). Property damage only, injury, and fatal accidents are then expressed as the number of accidents per year.
3. Accident costs are based on nationally established figures.
4. Accident Reduction Factors (or forecasts) are based on the specific type of improvement proposed and are compiled from the National Cooperative Highway Research Program (NCHRP) Report 162.
5. The Project Cost Estimate is obtained from the application submitted by the requesting agency (after being evaluated and approved by the CDOT Region offices). This amount should include estimates for materials, construction, mobilization, engineering, and contingency costs.
6. Capital Recovery Factors (CRF) are based on the estimated service life of the type of improvement proposed and an assumed rate of return (interest rate). A table of Capital Recovery Factors is also available in NCHRP Report 162.
7. Annual Maintenance Costs are included in the analysis only when they are expected to be greater than the maintenance costs incurred if no improvements were made. The specific costs can be obtained from CDOT Staff Maintenance.

