

BLOOMINGTON • MONROE COUNTY



HIGHWAY SAFETY IMPROVEMENT PROGRAM GUIDELINES

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Overview

The Bloomington/Monroe County Metropolitan Planning Organization (BMCMPPO) is responsible for administering the local Highway Safety Improvement Program (HSIP) process within the urbanized area, including establishing project selection procedures, soliciting projects from Local Public Agencies (LPAs), evaluating project applications, and awarding funding to projects. The Indiana Department of Transportation (INDOT) retains final authority regarding which projects are funded.

There are six general provisions guiding the Indiana State Highway Safety Improvement Program:¹

- 1) *The candidate project shall demonstrate that it will address one of the infrastructure emphasis areas outlined in the Indiana Strategic Highway Safety Plan:*²
 - a. Roadway Departure Crashes
 - b. Intersection Crashes
 - c. Large Vehicle Conflict Crashes
 - d. Roadway Restriction Related Crashes
 - e. Vulnerable User Crashes
 - f. Human Factors Contribution to Crashes
- 2) *The candidate project must demonstrate a workable plan to address the identified safety problem.*
- 3) *The candidate project must demonstrate a financially sound design concept.* For site-specific projects, a benefit/cost ratio at or above 2.0 is the minimum standard for eligibility. Low-cost systematic countermeasures may be better suited to a program-based benefit/cost analysis.
- 4) *All project documentation is subject to review and eligibility determination by the multi-agency Highway Safety Advisory Committee.* INDOT and FHWA retain the right to refuse Federal safety funding for projects that can not document eligibility (justification of need) and cost effectiveness.
- 5) *Where new devices are installed, the owner agency agrees to fund all future maintenance.*
- 6) *Post-construction analysis is a requirement for all completed projects.* For site-specific projects, the normal standard is comparison of crash history for three continuous years before the start and end of project construction. Other low-cost systematic improvements not based on crash history may have post-construction reporting periods of different length.

All phases of project implementation (Preliminary Engineering, Right-of-Way, Construction, and Construction Engineering/Inspection) are eligible under the HSIP program; however, HSIP funds may not be used as a component of a larger project. Local Public Agencies will be required to provide a minimum local match in the amount of 10% of the project cost.

Project Selection

There are two project categories for HSIP funding: low-cost systematic improvements (e.g., sign replacement, backing plates on signal heads, pedestrian countdown signals, etc.), and site-specific improvements (e.g., roadway realignment/reconfiguration, new signals, etc.). In keeping with statewide and federal goals, low-cost systematic strategies are preferred strategies. Some large scale site-specific projects, such as intersection reconstruction, would rapidly expend the funds and could tie up multiple years of funding. In addition, such projects would likely involve right-of-way acquisition, which would cause a significant lag in project implementation. Low-cost systematic and smaller scale site-specific projects can be implemented more quickly and are preferred.

¹ Indiana Department of Transportation. Local Highway Safety Improvement Program Project Selection Guidance. July 2009.

² Indiana Department of Transportation. Strategic Highway Safety Plan. October 1, 2010

Project selection procedures differ for low-cost systematic and site-specific projects. Generally, site-specific projects require a greater burden of proof on the applicant to demonstrate the cost-effectiveness of the proposed strategy. A Road Safety Audit (RSA) must be performed for all proposed HSIP projects, regardless of type. The specific project selection procedures are detailed below.

Low-Cost Systematic Improvements

The low-cost systematic improvement project types listed below are eligible for BMCMPPO HSIP funding. LPAs should prioritize improvements based on the greatest anticipated safety benefit. The project application requires the LPA to discuss its prioritization method. LPAs are required to perform the benefit/cost analysis and Road Safety Audit (RSA) reports no later than the design phase of the project. It is not necessary to demonstrate a particular cost/benefit ratio for these types of projects.

- 1) *Conduct replacement of outdated regulatory and, warning signs to meet Manual of Uniform Traffic Control Devices (MUTCD) retroreflectivity requirements.* The basis for this project type is to assist LPAs in meeting the Federally mandated requirements to upgrade warning, regulatory, and guide signs to current standards of the MUTCD.³ Regulatory and warning signs are eligible for replacement based on the following criteria:
 - a. Signs that are known to be in place longer than 10 years
 - b. Signs that do not have prismatic sheeting
 - c. Signs that are damaged to the extent that their nighttime retroreflectivity is inadequate.
 - d. Signs that fail to meet minimum retroreflectivity requirements
 - e. If the cost estimate exceeds available funding, replacement of signs will be prioritized on the basis that warning and stop signs are highest priority followed by other regulatory and guide signs.
- 2) *Upgrade traffic signals to a minimum of one signal head per travel lane.* The basis for this project type is a well established crash reduction factor associated with this countermeasure. Proposed locations can be prioritized based on crash history and traffic volume.
- 3) *Install black backing plates on all signal heads at a traffic signal.* The basis for this project type is a well established crash reduction factor associated with this countermeasure. Proposed locations should be prioritized based on crash history and traffic volume.
- 4) *Install pedestrian push button and countdown heads at traffic signals.* This countermeasure is described in INDOT Design Standards and is eligible at public road crosswalks. Prioritization of locations should be made according to crash history, pedestrian volume, traffic volume, and pedestrian conflicts.
- 5) *Install new pedestrian crosswalk warning signs, flashing beacons, special pavement markings and refuge areas.* Justification of locations should be according to a documented pedestrian plan that identifies corridors serving pedestrian traffic generators such as multimodal trails, schools, libraries, retail and Central Business District (CBD). Proposed locations should be prioritized based on traffic volume, and pedestrian conflicts.
- 6) *Make changes to signal timing to improve safety.* The basis for this project type is a well established crash reduction factor associated with this countermeasure. Proposed locations can be prioritized based on crash history and traffic volume.
- 7) *Install new lighting at intersections and at trail crossings.* The basis for this project type is a well established crash reduction factor associated with this countermeasure. Proposed locations should be prioritized based on crash history, traffic volume, and pedestrian conflicts.
- 8) *Install new guardrail end sections upgraded to current standards.* This activity is considered preventative maintenance under HSIP guidance that allows for the replacement of substandard

³ http://safety.fhwa.dot.gov/roadway_dept/night_visib/policy_guide/

guardrail end sections (such as buried ends) with current guardrail end sections contained in INDOT Standards and Specifications. In order to provide the proper transition to existing guardrail, not more than 100 feet of the existing guardrail may also be replaced at each end section. Proposed locations should be prioritized based on crash history and traffic volume.

- 9) *Install new guardrail at approved locations where none existed before.* New runs of guardrail may be placed according to INDOT Standards and Specifications where the need is determined, according to Chapter 49 of the INDOT Design Manual. Proposed locations should be prioritized based on crash history and traffic volume.
- 10) *Install new stop signs at railroad crossings that lack active warning devices.* The basis for this project type is a well established crash reduction factor associated with this countermeasure. The LPA may install new stop signs at any public road crossing of an active railroad line that currently lacks active warning devices such as railroad activated lights and gates. If existing stop signs are present but are in poor condition they may be replaced under the basis of item 1 above. Proposed locations should be prioritized based on crash history and traffic volume. The placement of any new stop sign requires an engineering analysis for justification of placement. The LPA should coordinate the placement of traffic control devices at railroad crossings with the railroad.
- 11) *Other improvements as authorized by INDOT/FHWA.* Certain systematic improvements may be authorized on a temporary basis by INDOT and FHWA in order to allow MPOs additional flexibility in spending HSIP funds. These supplemental authorizations, when applicable, will be conveyed to the LPAs during the annual HSIP call for projects.

Site-Specific Improvement Projects

The selection process for site-specific improvement projects entails a greater level of analysis than is required for low-cost systematic improvements. In particular, a benefit/cost ratio greater than 2.0 is required for all site-specific projects. Additionally, projects must be located at one of the top 50 crash locations in the County, or another location formally approved by the Policy Committee. Road Safety Audits (RSA) are also required for site-specific projects. The RSA report should define the safety issues and identify alternatives and recommended crash countermeasures.⁴ The RSA team must consist of independent un-biased experts. The LPA application must include a formal written response to the findings of the RSA team. The LTAP HELPERS Engineer can assist the LPA in locating qualified team members for the RSA.

The benefit/cost ratio is based on the relationship of the type and number of crashes to the specific countermeasures proposed. Therefore, the proposed treatment must be capable of reducing the types of crashes associated with the site. In order to facilitate benefit/cost analysis, the BMCMPO will provide a benefit/cost spreadsheet to the Local Public Agencies (LPAs). To complete the worksheet, it will be necessary for the LPAs to consult the police reports for the crashes under consideration. At the request of the LPA, the BMCMPO can provide a list of the crash record numbers for any particular location so that the crash reports can be more easily obtained. Relationships between crash type and countermeasures are detailed in FHWA's "Desktop Reference for Crash Reduction Factors."

In order to be eligible for BMCMPO HSIP funding, the following must be satisfied:

1. The LPA must be within the BMCMPO Planning Area Boundary; and
2. The proposed site-specific improvement project location must be exclusive of INDOT facilities, including intersections where a non-INDOT facility intersects or adjoins an INDOT facility; and

⁴ Information regarding the RSA process can be found at: <http://safety.fhwa.dot.gov/rsa>

3. The proposed site-specific improvement project location must be identified in the list of the top 50 fatal/incapacitating injury crash locations in the most recent BMCMPPO Crash Report, as included in the HSIP Call for Projects. LPAs may appeal to the Policy Committee to allow a project location that is not on the list of eligible project locations. Such appeals may be made concurrent to or prior to applying for HSIP funding. If the appeal is successful, the proposed location will be added to the list of eligible project locations.

Applications for site-specific improvement projects at eligible locations will be prioritized based on the following criteria (total of 100 points possible):

<i>Factor</i>	<i>Measure</i>	<i>Points</i>
Safety*	More than 2.5 Crashes per MEV	30
	More than 2.0 Crashes per MEV	20
	More than 1.5 Crashes per MEV	15
	More than 1.0 Crashes per MEV	10
	More than 0.5 Crashes per MEV	5
Benefit/Cost	Greater than 10	30
	Greater than 5	20
	Greater than 2	10
	Greater than 1	5
	Less than (or equal to) 1	0
Status of Project	Construction & ROW plans complete	25
	PE & Environmental complete	20
	Initial request for construction funding only	15
	Initial request for construction and ROW funding	10
Local Share	25% or more additional	15
OVER Amount	20% or more additional	12
Required	15% or more additional	9
	10% or more additional	6
	5% or more additional	3
	Required local amount	0

*For projects that apply to a road segment rather than an intersection, crash rates should be calculated per MVMT (Million Vehicle Miles Traveled) rather than MEV (Million Entering Vehicles).

Project Application Requirements

LPAs must include the following materials in their applications:

- 1) A cover letter signed by the highest elected official of the LPA that owns or maintains the public road(s) where the proposed infrastructure project will be constructed and a signature by the LPA's highest financial official. The letter shall address all of the following:
 - a) Project intent, including the project location and type of work.
 - b) Explanation of how it was determined that this is one of the worst problems in the area.
 - c) Discussion of the relationship between the type and number of crashes and the treatments proposed.
 - d) Discussion of other treatments that were considered and why were they rejected.

- e) Name and title of the LPA employee that is the primary contact for the project and who is responsible for sign off on project reports and other project milestones.
- 2) A completed Benefit/Cost worksheet or, in the case of systematic improvements, discussion of the prioritization method used.
- 3) A map of the location(s) to be improved. For some low-cost systematic improvements involving multiple locations (e.g., sign replacement), a simple dot map is sufficient.
- 4) A data collection plan for pre/post treatment comparison (some low-cost systematic improvements may not be amenable to evaluation). The data collection plan should clearly indicate the LPA's ability to evaluate the effectiveness of the project, using three years of pre-treatment data and three years of post-treatment data. The analysis should include a breakdown of the type and number of crashes in each of the six years, and the estimated benefits of the project, based on the number of crashes reduced in the three year post-treatment period. Standard crash cost estimates are incorporated into the Benefit/Cost worksheet. Crash data collection and analysis will be the responsibility of the LPA.
- 5) Preliminary cost estimates for each phase of the proposed project (e.g. PE, ROW, Construction, and Inspection Services).
- 6) A proposed timeline for completion of each phase of the project.
- 7) For site-specific projects only:
 - a) Road Safety Audit report, including RSA team member list, description of safety problems, and recommended crash countermeasures.
 - b) LPA response to RSA recommendations.

HSIP Project Selection Process

The process for awarding BMCMPPO HSIP funds to LPA projects shall be as follows:

1. The BMCMPPO will issue a Call for Projects.
2. LPAs will submit completed project applications with appropriate supporting materials to the BMCMPPO by the Call for Projects deadline.
3. BMCMPPO staff will review submitted project applications and, if necessary, work with LPAs to refine or clarify their applications.
4. BMCMPPO Staff and LPAs will present project applications to the Citizens Advisory Committee (CAC) and Technical Advisory Committee (TAC). The CAC and TAC will prioritize the project applications and make recommendations as to which project(s) should be awarded HSIP funding. These recommendations will be forwarded to the Policy Committee.
5. The Policy Committee will approve the local HSIP funding awards.
6. BMCMPPO Staff will submit the approved funding awards to INDOT for evaluation by the Highway Safety Advisory Council (HSAC).
7. The HSAC will make a final determination regarding the BMCMPPO HSIP funding awards.
8. Approved projects will be added to the Transportation Improvement Program (TIP) in accordance with BMCMPPO TIP amendment procedures.