



HIGHWAY SAFETY IMPROVEMENT PROGRAM LOCAL PROJECT SELECTION GUIDANCE

Effective for projects submitted for calls after

December 1, 2010

<http://www.in.gov/indot/div/engineering/shsp.htm>

Indiana Department of Transportation

3/21/2014

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Table of Contents

Introduction 4

Guiding Principles 5

Identifying Traffic Safety Problems and Countermeasures 6

HSIP Project Eligibility Requirements..... 7

 Addresses SHSP Emphasis Area 8

 Needs Analysis 8

 Sources of crash data 9

 Safety Summaries 9

 Financial Analysis 10

 Maintenance of HSIP Installations 10

 Post Construction Safety Evaluation..... 10

 Cover Letter 11

Steps to Project Selection 12

 Selection Process for Public Agencies within MPO areas 15

 Selection Process for Public Agencies outside MPO areas 17

 High Crash Location Projects 18

 Low Cost Systematic - Improvement Projects 19

 Short Form Application for High Priority Systematic Countermeasures 19

Programming and Development of Selected Projects..... 23

Appendix 24

 HSIP Local Project Proposal Checklist 25

 Financial Analysis Tools..... 26

 HELPERS Program..... 27

 Glossary..... 28

Local Highway Safety Improvement Program Project Selection Guidance

<http://www.in.gov/indot/div/engineering/shsp.htm>

Effective for projects submitted for calls after July 1, 2010

Introduction

The “Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users” (**SAFETEA-LU**), which was signed into law on August 10, 2005, established the Highway Safety Improvement Program (**HSIP**) as a core Federal-aid program. The overall purpose of this program is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads through the implementation of infrastructure-related highway safety improvements.

Detailed provisions pertaining to the HSIP, such as qualifying projects and federal funding share, are defined in Section 148 of Title 23, United States Code (**23 USC 148**). Required provisions include State development of a Strategic Highway Safety Plan (**SHSP**), in consultation with other key State and local highway safety stakeholders, and a number of reporting requirements.

To ensure that application of the HSIP is organized and systematic providing the greatest benefits to safety, the Federal Highway Administration (**FHWA**) has established a formalized HSIP process that consists of three major components: planning, implementation and evaluation. These requirements are contained in Part 924, Title 23 Code of Federal Regulations (**23 CFR 924**).

The US Code, federal regulations and policy guidance are available at http://safety.fhwa.dot.gov/hsip/policy_guide/#code.

Complete Federal Highway Administration HSIP guidance is available at <http://safety.fhwa.dot.gov/hsip/>

This Indiana Department of Transportation (**INDOT**) document provides guidance to govern Local Public Agency (**LPA**) participation in HSIP. Presented here are practices for LPA and Metropolitan Planning Organization (**MPO**) activities to identify eligible safety improvement projects for HSIP funding. The features addressed in this document include among others, monitoring network performance relative to traffic safety and screening sites and features for safety issues, identifying feasible crash countermeasures, analyzing cost effectiveness of alternative investment choices and prioritizing needs among candidate projects to deliver an efficient safety program.

Procedures contained in this document are subject to change following evaluation for effectiveness in future guidance.

Guiding Principles

The impact that traffic crashes have on the economy of Indiana is measured in terms of billions of dollars per year – greater than \$3-Billion in 2009. While property damage crashes provide valuable information on potential safety problems, the federal charge for the application of highway safety funding directs a focus on fatal and severe injury crashes. Consequently, the purpose of local HSIP project funding is to deliver to our road users cost effective countermeasures to hazards identified through data analysis as the greatest contributors to incapacitating injury or fatality producing crashes.

Doing so requires identifying either high crash locations with demonstrated overrepresentation of severe crashes or a systematic application of proven countermeasures to address system-wide safety needs. Since a limited amount of funding is available to make roads safer, Indiana must make fiscally sound choices in where and how to spend safety funding. Governments can have a great number of potential problem sites or systematic safety needs and there is limited HSIP funding to address them. Therefore, consistent systematic rating and prioritization of safety needs and countermeasures is the best means to making wise spending decisions.

In all cases, candidate projects must demonstrate eligibility in order to receive HSIP funding.

Identifying Traffic Safety Problems and Countermeasures

INDOT requires that projects submitted for funding under the HSIP address a highway safety problem identified as an infrastructure emphasis area in Indiana’s SHSP. Table 1 lists eligible HSIP projects and the corresponding Indiana SHSP emphasis areas (Table 2).

Table 1 Highway Safety Improvement Project Types

	Safety project Type	SHSP Emphasis Area(s)
1	An intersection or road segment safety improvement	1,2,5
2	Pavement and shoulder widening (including addition of a passing lane to remedy an unsafe condition)	1,2
3	Installation of rumble strips or another warning device, if the rumble strips or other warning devices do not adversely affect the safety or mobility of bicyclists, pedestrians, and the disabled	1,2
4	Installation of a skid-resistant surface at an intersection or other location with a high frequency of accidents	1,2
5	An improvement for pedestrian or bicyclist safety or safety of the disabled	5
6	Construction of any project for the elimination of hazards at a railway-highway crossing that is eligible for funding under section 130, including protection devices	3
7	The conduct of a model traffic enforcement activity at a railway-highway crossing	3
8	Construction of a traffic calming feature	5
9	Elimination of a roadside obstacle	1
10	Improvement of highway signage to meet MUTCD retroreflectivity requirements and new pavement markings where none existed before	2,3,5
11	Installation of a priority control system for emergency vehicles at signalized intersections	2,4
12	Installation of a traffic control or other warning device at a location with high crash potential	1,2
13	Safety-conscious planning	All
14	Improvement in the collection and analysis of crash data	All
15	Planning integrated interoperable emergency communications equipment, operational activities, or traffic enforcement activities (including police assistance) relating to workzone safety	4
16	Installation of new guardrails, barriers and crash attenuators where none existed before.	1,4
17	Construction, installation and maintenance of signs (including fluorescent, yellow-green signs) at pedestrian-bicycle crossings and in school zones	2,5
18	Construction and operational improvements on high-risk rural roads	1,2,3,4,5
19	A safety project under any other section of USC Title 23 -- includes a project to promote the awareness and education of the public concerning highway safety matters (including motorcyclist safety) and a project to enforce highway safety laws.	3,5,6

Table 2 SHSP Emphasis Areas

1	Lane Departure Crashes
2	Intersection Crashes
3	Large Vehicle Conflict Crashes (Large Trucks and Trains)
4	Roadway Restriction Related Crashes (quick crash clearance and work zone safety)
5	Vulnerable User Crashes (pedestrian, bicycle and motorcycles)
6	Human Factor Contribution to Crashes (Alcohol, Occupant Protection, Young Drivers and Dangerous Driving)

The FHWA provides guidance on safety countermeasures that advance highway safety that should be a consideration in all types of federal aid funding. The Transportation Planner’s Safety Desk Reference identifies and summarizes the information in the National Cooperative Highway Research Program (NCHRP) Report 500 Series of interest to transportation planners. It is located on the FHWA Web site at: http://tsp.trb.org/assets/FR1_SafetyDeskReference_FINAL.pdf

For expanded guidance and information regarding best practices and treatments for specific areas of traffic safety, the complete National Cooperative Highway Research Program (NCHRP), Report 500 series is available on the Transportation Research Board (TRB) web site at <http://pubsindex.trb.org/default.asp>

HSIP Project Eligibility Requirements

All project documentation is subject to review and eligibility determination by the multi-agency Highway Safety Advisory Committee (HSAC). In order to provide advice regarding policy for the various safety programs, the INDOT Office of Traffic Safety has established a multi-agency HSAC. The HSAC will also act as the final authorization body for determination of eligibility of all local safety program project funding decisions. The HSAC will provide oversight of the project selections made by MPOs and will be the direct approving authority for proposed projects from public agencies outside MPO areas. FHWA and INDOT retain the right to refuse funding eligibility to any proposed project that the HSAC finds does not meet the minimum requirements for federal aid safety funding as set out by federal guidance and/or this document.

Note: INDOT will not approve the use of HSIP funds for projects intended to address capacity enhancement, beautification, economic development, bridge need or to meet federal requirements for a railroad quiet zone. Additionally, annual maintenance needs are not eligible for federal aid.

There are six general requirements guiding HSIP project eligibility:

☑ REQUIRED ELEMENT #1

Addresses SHSP Emphasis Area

The first eligibility requirement for local HSIP funding is that the project must address one of the emphasis areas (see Table 1) in Indiana’s SHSP, available at <http://www.in.gov/indot/files/shsp.pdf>

In January 2009, with the promulgation of new HSIP regulations in 23 CFR Part 924, INDOT began a process to evaluate and revise the original SHSP. This action successfully completed in late 2010 with the signing of the SHSP by Governor Mitch Daniels and its endorsement by FHWA.

This new document provides coordination of purpose, data sources, problem identification and emphasis areas. The lead state agencies evaluate implementation action plans annually as part of the following federally required highway safety action plans and reports, Highway Safety Improvement Program (Per 23 CFR 924), Highway-Rail Grade Crossing Safety Action Plan (Per 49 U.S.C. § 202), Highway Safety Plan (Per 23 U.S.C. § 402), and Commercial Vehicle Safety Plan (Per 49 CFR 350).

☑ REQUIRED ELEMENT #2

Needs Analysis

The vast majority of crashes involve driver error due to confusion or inattention to traffic and road conditions. However, conditions in the roadway environment often contribute to recurrent crashes that in other situations may not have a negative effect on safety and the causes are sometimes not easy to isolate. Without analysis of the specific situation, the correct set of countermeasures may not be readily apparent. The best practice is to begin all safety evaluations without a preconceived selection of the countermeasure. For high crash locations, a review of the pattern of crashes is most often vital to determining the appropriate set of countermeasures. If review of appropriate data indicates a repeating pattern of crashes at disparate locations or a type of location is encountering high risk of future severe crashes, it may be appropriate to deploy a low cost crash countermeasure systematically over a wide area or corridor.

It is required that selection of countermeasures for an HSIP funded high crash location project employ a review procedure modeled on the RSA process to evaluate conditions and crash history by an interdisciplinary team involving interests including engineering and emergency responders along with parties representing road and/or adjacent land users. While the RSA process utilizes an independent team of experts to bring a fresh perspective to the existing conditions, it is not always practical for the RSA team to work entirely independently of the local road agency but the team’s recommendations must always be free of preconceived decisions. The report generated from an RSA process should provide all the documentation necessary to make a decision regarding the use of HSIP funds. Local

public agencies must include in their application, a response to the RSA recommendations. A good place to begin learning about the RSA process is at <http://safety.fhwa.dot.gov/rsa/>.

An RSA may also help define the size and area of treatment for some low cost systematic countermeasures and is the *recommended* approach.

Note: RSA teams can also be used to review projects under design by other designers to look for those subtle factors that may lead to future crash problems.

Sources of crash data

Review of crash history is a necessary part of discovering sites with safety concerns and is frequently needed to determine the best countermeasure to the safety concerns. The best source of data for analysis of crash histories is provided by the Indiana State Police Vehicle Crash Records System (**VCRS**) database that is now a part of the Automated Reporting Information Exchange System (**ARIES**) website. The ARIES system undergoes continual updates and improvement so that crash data is becoming increasingly more available and accurate. Therefore, any multiyear crash analysis should be conducted using the most recent crash data available. Access to this data source is available to MPOs and most LPAs. While ARIES should serve as the primary source for essential crash data, other legitimate sources for reliable data may supplement ARIES data. For example, the Fatal Accident Reporting System (**FARS**) or local law enforcement sources may be appropriate data sources.

While strictly speaking it is not required to use calendar years as the basis for all multiyear crash history analysis, most of the available and new analysis tools use a calendar basis for their equations so INDOT *recommends* the use of 3 to 5 continuous calendar years for analysis of crash history.

Safety Summaries

If an LPA lacks the resources to conduct an area-wide crash analysis there are other means to identify sites where safety issues could exist. An LPA may use the annual Five Percent Report or some other pre-approved local safety monitoring process to determine sites for further analysis and possible eligibility for selection as safety projects. Any locally developed safety monitoring process must include crash severity as part of the process. The Five Percent Reports for Indiana and all other states is available on the FHWA website at <http://safety.fhwa.dot.gov/hsip/fivepercent>

The Indiana Criminal Justice Institute (**ICJI**) provides an Indiana Crash Facts Book on its website at <http://www.in.gov/cji/2572.htm> that contains crash data summaries. While focused primarily upon driver behavior contributions to crashes, planners can find helpful county-level data that can inform comprehensive local safety planning.

☑ REQUIRED ELEMENT #3

Financial Analysis

Safety program dollars are limited in amount but they present an opportunity to save lives and prevent severe injuries so it is very important that this funding be used wisely. To use HSIP safety funds in the best manner possible federal requirements currently call for a financial analysis to document the safety benefits versus the project's lifecycle cost. A Benefit/Cost analysis (**B/C**) is a requirement for individual sites that have a high priority due to severe crash history. For projects proposed to address sites of this type INDOT *recommends* a B/C ratio at or above 2.0 based on acceptable crash reduction factors and an accurate total project cost estimate including all phases of project development is the acceptable financial standard. In all cases, 1.0 is the minimum acceptable B/C ratio.

Fortunately, tools are available to assist the crash and financial analysis process. The Hazard Analysis Tool (**HAT**) Software provides a relatively easy-to-use benefit/cost analysis form.

NOTE: LPAs, MPO's and RPO's can obtain HAT software from the INDOT Office of Traffic Safety at no cost.

Most systematically applied low cost crash countermeasures also should use a Benefit/Cost analysis to establish financial eligibility. However, some low cost crash countermeasures applied on a system wide basis do not readily lend themselves to conventional B/C analysis so, in those cases, a program planning-based method for prioritizing and assessing the merits of investment choices may be used.

☑ REQUIRED ELEMENT #4

Maintenance of HSIP Installations

Where the approved HSIP project involves the installation or placement of new traffic safety devices the LPA will commit in the project agreement to either identify an existing or establish a new maintenance program to maintain the devices. The LPA agrees to replace the devices when damaged or worn out at their own expense per the criteria established by the aforementioned maintenance program.

☑ REQUIRED ELEMENT #5

Post Construction Safety Evaluation

Federal guidance for HSIP funding requires that the LPA agree to conduct a post construction safety performance analysis of the project for a pre-established period before and after construction of the project. For those projects that require analysis of crash history, there must be an analysis of crashes of the type identified in the project proposal for a minimum period of three full years before and three full

years after construction of the project is complete. For those systematic improvements that don't lend themselves to approval based solely on analysis of site crash histories a time period will be identified in the project proposal that will define the pre and post construction analysis process used to justify project funding . The post construction analysis report of any projects taking place in communities within an MPO will be submitted to its' MPO for approval while communities outside MPO areas will submit their reports to the Local Technical Assistance Program (**LTAP**) HELPERS manager for approval. The MPOs and the HELPERS Manager will then forward the reports to the INDOT Traffic Safety Office to meet federal reporting requirements.

☑ REQUIRED ELEMENT #6

Cover Letter

Each LPA application must be accompanied by a cover letter signed by the highest elected official of the local public agency (county, city or town) that owns or maintains the public road(s) where the proposed infrastructure project will be constructed. The cover letter must include the following elements:

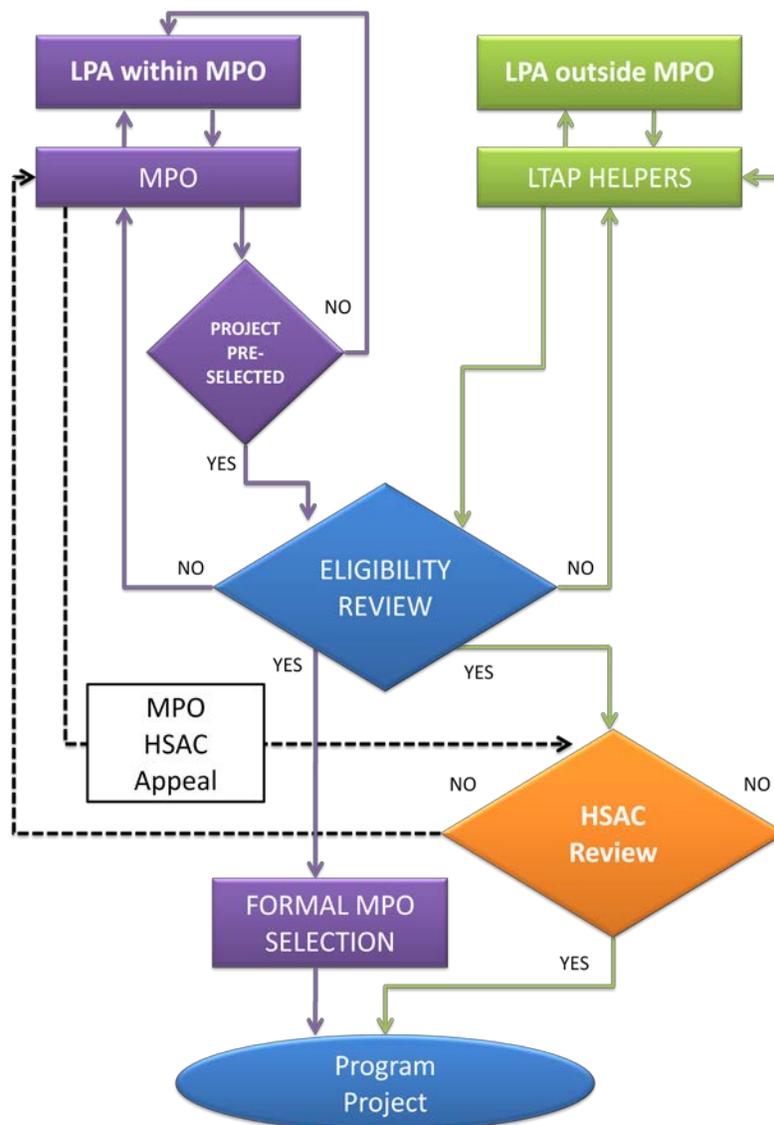
- The project cost estimate including all anticipated phases of project development and construction. This estimate will set the maximum amount of HSIP funding (federal aid and match) being sought.
- The timeline for project development and construction.
- Where new devices are installed, the owner agency must acknowledge the requirement to fund all future maintenance.

Steps to Project Selection

This section lays out the basic steps that must be followed for a project to be approved for Federal Aid using funding under the HSIP.

Project selection for communities inside of MPO areas will be managed by their MPO. Project selection for communities outside of MPO areas will be managed by the LTAP HELPERS project. HELPERS assist LPA and Rural Planning Organizations (**RPO**). A description of the HELPERS project can be found in the appendix.

Chart 1 Project application flow



An LPA should follow four steps to apply for HSIP project funding:

☑ STEP #1 Use a methodical process to establish safety needs

- Any candidate project affecting an INDOT maintained facility must have documented approval from the appropriate INDOT district planning director.
- LPAs may use the annual Five Percent Report or some other pre-approved local safety monitoring process to determine site locations for safety analysis.
- Crash data collection and analysis when required must include a minimum of three continuous years of crash data. The ARIES Web portal at <http://crashreports.in.gov> allows free access for government agencies to Indiana's State Police Crash database, which is the state of Indiana's repository for traffic collision reports completed by all of Indiana's law enforcement agencies. Access can be obtained by filling out a Web Access Agreement, which can be obtained by contacting John Nagle, Safety Management Engineer, (317-232-5464), jnagle@indot.in.gov.
- Traffic volume data from the same years as crash data (when available)
- All relevant roadway inventory and/or condition data.
- Likewise, a rational process must be used to determine need for low cost systematic safety improvements with a known crash reduction factor. Location selection should tie crash history or factors causing greater than normal exposure to crashes to the sites chosen.

☑ STEP #2 Prioritize safety needs according to the severity of the problem

- The number or rate of severe crashes can best be expressed by the index of crash costs (**Icc**) in the HAT software.
- Other pre-approved methods for establishing project priority may be used. MPO partners should contact the INDOT Traffic Safety Office to discuss pre-approval of your suggested prioritization method prior to using an alternate method as part of any call for local safety projects.
- The severity of a safety site can usually be established by using form F1 on the HAT Software version 2.1.79 (distributed after 8/7/2007). The Index of Crash Cost (Icc) indicates the relative severity of an intersection or road segment by number of standard deviations from nominal safety. This is a very good indicator of relative severity.
- Note that the Highway Safety Manual (**HSM**) method examines a wider variety of road types but does not consider crash severity so the applicant still must identify the number of fatal and severe injury crashes reported at the location.

- Prior to making any application for project funds, an MPO submit an alternate prioritization methodology for review and approval by the HSAC. Note that crash severity is a required element to be used in any alternate method. If the alternate methodology is approved by the HSAC, the LPAs within the planning area of that MPO may be permitted to use it to provide a priority for candidate project applications.

☑ **STEP #3**

Use an RSA to identify crash problems and potential solutions for high-crash locations

- The goal of the RSA is to use unbiased safety experts to provide a fresh view of safety needs and to produce recommendations that the roadway owner will consider and provide a response to their recommendations.
- Any LPA contemplating safety improvements to an intersection or road segment should use an RSA process to define the problem(s) and establish alternatives for viable safety improvements. Submission of a candidate location for HSIP funding requires an RSA report to define the safety issue(s) and recommend effective crash countermeasures.
- Information regarding the RSA process is available on the Federal Highway Administration Website at <http://safety.fhwa.dot.gov/rsa/>. LTAP may also be a source of information on the RSA process, and will maintain a list of persons trained to participate on RSA teams.
- Communities outside MPO planning areas may contact the HELPERS program to assist in facilitating an RSA upon request
- The basic elements of an RSA are:
 - Assemble an RSA Team (Independent experts to provide un-biased advice)
 - RSA Team conducts the safety audit (On site inspection and data review)
 - Produce an RSA report including safety improvement recommendations
 - The LPA must provide a written response to the RSA recommendations

☑ **STEP #4**

Apply for funding approval through the process established for your LPA

- As described below and in Chart 1, all applications will be submitted via the appropriate organization depending on the planning group of the LPA. Communities inside MPO planning areas submit to their MPO, while communities outside MPO areas submit to the HELPERS Project Manger. Final project eligibility determination will be made by the HSAC.
- The HSAC will conduct up to two calls for candidate projects each year.

- MPOs will determine priorities for safety funding in their area and submit the highest priority candidate HSIP projects to the HSAC for final determination of eligibility.
- Each MPO safety project call concludes with the submission of a list of formally selected projects with prioritized by the fiscal year of construction as reflected in the local TIP.
- No reimbursement of project costs will be made using HSIP funds until project eligibility has been authorized by the FHWA.
- LPAs outside of MPO areas will first submit their candidate project applications to the HELPERS Engineer at LTAP. The HELPERS Engineer will review the applications to determine which candidate projects are appropriate for possible federal aid and will forward those applications to the HSAC for determination of project eligibility.
- Both the MPOs and the HELPERS Project will be responsible for reviewing the candidate applications and will only approve and forward those applications that have appropriate intent to improve safety, use accurate analysis techniques and are complete with all required elements.

Selection Process for Public Agencies within MPO areas

Applications for funding of candidate projects may be submitted by an LPA to the MPO at any time but approval of funding will be withheld by the MPO until the HSAC approves project eligibility at the conclusion of the cycle established for each call for safety projects. Funding applications must be submitted by the MPO on or before the closing date of the project call to be considered for funding in that cycle. After the MPOs have pre-selected safety projects, they will forward a list of the projects and the application documentation to the INDOT Office of Traffic Safety where they will be date stamped and reviewed for completed documentation of need and financial prioritization. If all of the listed project applications are complete, the list of projects from each MPO will be forwarded to the members of the HSAC for finding of eligibility.

NOTE: Electronic submittals are encouraged and may be sent to:
mholowaty@indot.in.gov

INDOT and FHWA retain final authority to deny funding for any project not meeting the requirements set out in FHWA Safety Program Guidance. The Office of Traffic Safety will forward to the HSAC the documentation of any project deemed to have outstanding questions regarding its eligibility for safety funding. The HSAC may then vote three options:

1. The HSAC may vote to approve the funding request as is.
2. The HSAC may table the project funding request and request the LPA to furnish additional justification documentation. The MPO will be asked to remove temporarily the project in

question from their current list of approved safety projects until the needed documentation is submitted and eligibility is approved at the next call for safety projects.

3. The HSAC may vote to deny HSIP funding to the project and inform the MPO to remove the project from their list of approved HSIP projects.

A determination by the HSAC that a project is ineligible for HSIP funding is final. In addition, the HSAC will occasionally select at random project(s) for detailed review.

The intent is that whenever possible, INDOT will report the funding decisions for each MPO within 60 days after a "Call for Safety Projects" has closed. The current intent is to have two such project calls each year.

MPOs each establish their own local process to answer the state calls for projects as well as to meet their obligations under 23 CFR Part 450. This process typically follows these steps:

1. MPO issues a local HSIP call for projects to solicit applications from eligible LPAs in the metropolitan planning area. This call for projects will normally coincide with and support INDOT's call for local HSIP projects to Group III and IV LPAs.
2. Eligible LPAs submit complete project applications to the MPO by the deadline specified in the MPO's call for projects.
3. MPO validates consistency of the proposed project with the adopted Long Range Transportation Plan, determines initial project eligibility under the HSIP Program, and develops a prioritized and fiscally constrained list of eligible projects to be considered by the HSAC this program cycle.
4. MPO uploads the prioritized and fiscally constrained list of projects, along with the project applications and other supporting documentation, to the appropriate section of the Indiana MPO Council FTP Site by the established INDOT deadline for submitting projects to be considered by the HSAC this program cycle.
5. INDOT Office of Traffic Safety disseminates uploaded project applications and support documentation to the HSAC.
6. HSAC evaluates submitted project applications and votes to take one of the following actions regarding each project:
 - a) Approve project eligibility based on the information submitted,
 - b) Delay an eligibility determination until such time as the MPO and the LPA submit any additional information requested by the HSAC, or
 - c) Disapprove the request to fund the project with HSIP funds. A determination by the HSAC that a project is ineligible for HSIP funding is final.

7. INDOT Office of Traffic Safety endeavors to publish and distribute a list of approved/disapproved projects within 60 days of the end of the program cycle to the MPO.
8. MPO notifies the LPA of the HSCA determination.
9. In consultation with the LPA, the MPO selects validated projects to be programmed into the appropriate year of the TIP and STIP.
10. LPA and MPO work with the INDOT District LPA Coordinator to advance programmed projects following procedures contained in the *INDOT LPA Process Guidance Document*.

Selection Process for Public Agencies outside MPO areas

For local public agencies outside MPO areas the HELPERS project will act as the gatekeeper that all applications for federal HSIP funding will have to pass in-order to reach the HSAC for a funding approval decision. The LTAP HELPERS program will contact the MPO and/or RPO for their areas and encourage their participation in all project identification and selection activities, as part of the HELPERS Project.

Funding applications must be submitted by the HELPERS Engineer on or before the closing date of the project call to be considered for funding in that cycle. INDOT and FHWA retain final authority to deny funding for any project deemed not to meet eligibility requirements as described above in the MPO Selection Process.

More detailed information regarding the operation of the HELPERS Project is available at the LTAP Web site at <http://rebar.ecn.purdue.edu/LTAP/TechAssist/HELPERS.aspx>

High Crash Location Projects

Many cities, towns and counties have intersections or short segments of roadway where a larger than usual share of crashes have occurred. In many cases, the number of crashes may not be much higher than usual but the severity of crashes has been unusually bad. Often these sites call for mid to relatively high cost safety improvements such as curve corrections or intersection improvement projects to add auxiliary turn lanes, roundabouts, Michigan left turn treatments or other innovative intersection designs.

Candidate projects intended to correct safety problems at a particular site should address the most severe crash problems identified by the LPA. Locations experiencing a history of fatal and incapacitating injury crashes will have priority over sites with property damage crashes or any other perceived need.

For individual intersections or short road segments a multiyear crash analysis must be presented that clearly demonstrates the safety needs at the location and define the size of the problem. The analysis must use a minimum of three continuous years of crash data (most analysis software uses calendar years) and (when available) reasonably accurate traffic volume data for the same period. The same data set will be used in the economic analysis required as part of the application. In addition, the LPA should have a method to demonstrate that the proposed project has been prioritized using an approved method and is one of the highest safety needs in the LPA's area.

It is required that LPAs use the statewide Vehicle Crash Records System (**VCRS**) database maintained by the Indiana State Police and available via the ARIES website as the source for crash data. LPA's may include local law enforcement sources of crash data; however, they should include an explanation as to why the local data source is a better choice. Note the failure of a local enforcement agency to meet the requirements of state law and submit all crash records to the Indiana State Police in a timely manner may be cause to deny approval for HSIP funding of candidate projects in that jurisdiction.

Low Cost Systematic - Improvement Projects

Proposals for the low cost systematic safety improvements noted below require justification documentation aggregated for the entire system as a single improvement project. However, whenever possible, analysis of crash data for a minimum of three continuous years or use of other data as described for each project type that would indicate an exposure to severe crashes at a greater than nominal rate or probability should be documented.

Short Form Application for High Priority Systematic Countermeasures

Certain High Priority Low Cost Systematic Countermeasures have been amply demonstrated to provide a very strong benefit to safety in the state of Indiana. As a result, certain pre-selected types of systematic improvements need only submit a cover letter from the LPA and a form with project information. The form is located in the appendix. From the list below of Low Cost Systematic Countermeasures, items (1, 2, 3, 4, 5, 6 and 10) may use this simplified application process.

NOTE: Any federal-aid project is subject to review by the FHWA. LPA's are responsible for executing, documenting and recording a process that establishes installation priorities. Although submission of the process and determinations is not required for short-form project applications, LPA's are strongly encouraged to document their projects thoroughly.

Low Cost Systematic Countermeasures

1. High Priority ♦ Conduct replacement of outdated regulatory, warning and guide signs to meet MUTCD retroreflectivity requirements – Form Application Eligible!

The basis for this project type is to assist LPAs on meeting the federally mandated time requirements to upgrade warning, regulatory, and guide signs to current standards of the Manual of Uniform Traffic Control Devices (**MUTCD**) and allow for the use of local HSIP funds to accomplish the needed upgrades. The federal policy can be found at:

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

NOTE: The LPA should use an existing inventory system to determine the regulatory, warning and guide signs that are eligible for replacement. If the LPA lacks an inventory system an RSA process may be used to assess the needs on a representative 10% of the road miles in that jurisdiction. If an RSA is used, creation of an inventory system must be a component of the project.

Criteria:

- a) Signs that are known to be in place longer than 10 years
- b) Signs that do not meet MUTCD requirements
- c) Signs that are at the time of the inventory/RSA are damaged to the extent that their nighttime retroreflectivity is inadequate.
- d) Signs that fail to meet minimum retroreflectivity requirements (reference below)

Reference from FHWA website: The standard in Section 2A.09 requires that agencies maintain traffic signs to a minimum level of retroreflectivity outlined in [Table 2A-3](#) of the MUTCD.

NOTE: An appropriate cost estimate for replacement of selected warning, regulatory, and guide signs with prismatic sheeting will be obtained from two or more sign vendors. If the cost estimate exceeds available funding, replacement of signs may be prioritized on the basis that stop signs and warning signs are highest priority followed by regulatory signs and guide signs.

2. High Priority ♦ Upgrade traffic signals on public road approaches to a minimum of one signal head per travel lane – Form Application Eligible!

The basis for this project type is a well established crash reduction factor associated with this countermeasure. Proposed locations are recommended to be prioritized based on any two or more of the following criteria:

- a) crash history
- b) lcc value
- c) traffic volume
- d) B/C ratio

3. High Priority ♦ Install black backing plates on all signal heads on a public road approach traffic signal – Form Application Eligible!

The basis for this project type is a well established crash reduction factor associated with this countermeasure. Proposed locations are recommended to be prioritized based on any two or more of the following criteria:

- a) crash history
- b) lcc value
- c) traffic volume

d) B/C ratio

4. High Priority ♦ Make changes to yellow interval signal timing or interconnect to improve safety on public road approaches – Form Application Eligible!

The basis for this project type is a well established crash reduction factor associated with this countermeasure. Proposed locations are recommended to be prioritized based on any two or more of the following criteria:

- a) crash history
- b) lcc value
- c) traffic volume
- d) B/C ratio

5. High Priority ♦ Install pedestrian push button and countdown heads on a public road approach traffic signal – Form Application Eligible!

This countermeasure is described in INDOT Design Standards and is eligible at public road crosswalks. Prioritization of locations are recommended to be made according to a documented pedestrian plan that identifies corridors serving pedestrian traffic generators such as multimodal trails, schools, libraries, retail and central business districts. Proposed locations are recommended to be prioritized on:

- a) traffic volume
- b) estimated pedestrian conflicts

6. High Priority ♦ Install new pedestrian crosswalk warning signs, flashing beacons, special pavement markings and refuge areas on a public road approach– Form Application Eligible!

Justification of locations are recommended to be according to a documented pedestrian plan that identifies corridors serving pedestrian traffic generators such as multimodal trails, schools, libraries, retail and central business districts. Proposed locations are recommended to be prioritized based on two or more of the following criteria:

- a) traffic volume
- b) estimated pedestrian conflicts
- c) B/C ratio

7. *Improving visibility of intersections by providing lighting*

The basis for this project type is a well established crash reduction factor associated with this countermeasure. Proposed locations must be prioritized based on two or more of the following criteria:

- a) crash history
- b) traffic volume
- c) estimated pedestrian conflicts
- d) B/C ratio

8. *Install new guardrail end sections upgraded to current standards*

This activity is considered an approved HSIP activity to allow for the replacement of substandard 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 must be prioritized based on any two or more of the following criteria:

- a) crash history
- b) lcc value
- c) traffic volume
- d) B/C ratio

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 must be prioritized based on any two or more of the following criteria:

- a) crash history
- b) lcc value
- c) traffic volume
- d) B/C ratio

10. High Priority ♦ Passive warning improvement at railroad crossings that lack active warning devices – Form Application Eligible!

The local highway agency may install (after agreement with the railroad owner) new cross buck assemblies in compliance with the 2009 MUTCD at grade crossings with only passive warning devices.

NOTE: An engineering study is required to place a stop sign instead of the 2009 MUTCD required yield sign.

Improvements are preferable at crossings of short lines and regional railroads. Installing improvements on a rail corridor rather than at ‘spot’ locations is also preferred. Coordination with INDOT district rail/utility coordinators is mandatory as they can assist LPA’s prioritize deployment and secure the required agreement with the railroad owner.

Programming and Development of Selected Projects

Once the LPA has received notification that their candidate project has been approved for funding by the HSAC it is their responsibility to notify the Local Programs Coordinator at the appropriate INDOT District Office and schedule an initial meeting to set project parameters. MPOs are responsible for inclusion of approved project(s) in their Transportation Improvement Plan (**TIP**).

NOTE: INDOT will not program the approved project(s) into the INDOT scheduling system or include them in the Indiana State Transportation Improvement Program (INSTIP) before the initial meeting with the Local Programs Coordinator.

The “INDOT LPA Process Guidance Document” provides the process by which all LPA projects proceed through project development to contract letting.

After a determination of eligibility and notification of federal approval via FHWA Fiscal Management Information System (**FMIS**) form, HSIP funds are eligible for reimbursement of expenses for the preliminary engineering, right of way and construction phases of the project. (Including but not limited to environmental documentation, railroad coordination, utility coordination and construction inspection/engineering).

All projects are expected to be ready for construction no later than four years after approval for HSIP funding. After this date, the LPA must make a request for time extension with an explanation of the project development delay and a new proposed timeline for project completion. The HSAC retains the right to cancel funding of projects that fail to make acceptable progress toward construction within the approved timeline. The project owner or their designee will report on project status at the completion of every project development stage to the appropriate INDOT district LPA coordinator.

Appendix

HSIP Local Project Proposal Checklist

Financial Analysis Tools

HELPERS Program

Glossary

Application for High Priority Low Cost Systematic Highway Safety Improvement Project

HSIP Local Project Proposal Checklist

- Cover letter signed by highest elected official of the local public agency (county, city or town) that owns or maintains the public road(s) where the proposed infrastructure project will be constructed.
- Statement of project Intent (e.g. proposed project elements) must address one of the emphasis areas in the current Indiana Strategic Highway Safety Plan.
- project location (County, Township, City/Town and roadway)
- Work Type
- Total project cost (P.E., R/W, Const.)
- Project timeline with dates (P.E., R/W, Const.)
- Justification that this is one of the worst problems in your area**
- Financial analysis**
- RSA Report***

** Not required for **High Priority Low Cost Systematic Safety Improvement Projects**

*** Required for **High Crash Location Project** Submittals and while not required for submittal, recommended for low cost countermeasures

Financial Analysis Tools

The HAT software contains a relatively easy to use form for benefit/cost analysis along with attached lists of crash reduction factors and length of service life for many common crash countermeasures. The list of Crash Reduction Factors (**CRF**) attached to the HAT software was developed specifically for the state of Indiana. However, INDOT recognizes that some possible crash countermeasures may not be defined by this resource so another acceptable CRF source is maintained by The American Association of State Highway and Transportation Officials (**AASHTO**) on-line at: <http://www.transportation.org/?siteid=35&pageid=1490>.

The Michiana Area Council of Governments (**MACOG**) also has a good tool for that can conduct benefit/cost analysis of proposed safety improvements. There are other software and spreadsheet applications for financial analysis and it can be done by hand.

HELPERS Program

1. Serves as the primary monitor for traffic safety performance on local roads outside of MPO areas – e.g. continued assessment of local road system to determine emerging traffic safety needs. Will work with INDOT in identifying and notifying LPA's of crash high crash locations
2. Receiving information and advising agencies outside of MPO areas regarding problem areas and opportunities to make safety improvements. Will be a point of contact for LPA's for addressing identified traffic safety needs
3. Provide agencies outside of MPO areas with specialized traffic safety technical assistance. Much like the Kentucky Circuit Rider the HELPERS Engineer will provide training and technical assistance in finding those low cost safety improvements that LPA's can make on their own.
4. Carry out and assist LPA staff in performing Road Safety Audits (RSA)'s at the request of local agencies outside of MPO areas. The HELPERS Engineer will have a list of trained volunteers to help conduct RSA's at the request of the LPA
5. Assist agencies outside of MPO areas in making application for available federal safety funding when appropriate. When the findings of an RSA indicate that federal aid may be appropriate, the HELPERS Engineer will assist the LPA in filling out the application for local HSIP funding through the web based local funding application portal. They will also forward all necessary supporting information to the Highway Safety Advisory Committee (HSAC) for review and scoring of the applications prior to the competitive funding selection process. Supporting information such as the RSA Report, HAT analysis and Project Estimate will used by the HSAC to make project funding decisions.
6. Assist agencies outside of MPO areas in conducting post construction crash analysis required for federally funded safety improvements. One of the unique requirements of federal safety funding is post construction analysis of the projects to determine the success or failure of the improvements made to improve continually the data and processes that reduce fatal and injury crashes. Three years after construction is complete, the HELPERS Engineer will assist/ advise the LPA in completing the necessary post construction analysis.
7. Functions as the Program Oversight for the portion of Highway Safety Improvement Program (HSIP) funds dedicated to agencies outside of MPO areas safety needs. Note that INDOT district LPA Coordinators will still be the primary project managers for individual local federal aid safety projects once they have been selected and programmed for development. The HELPERS Engineer will provide the LPA's with impartial advice in deciding if federal aid funds are a good fit for a particular safety need. The HELPERS program will monitor the progress of approved local HSIP projects and will work with both the HSAC and the LPA's to keep scheduled projects in line with the available HSIP funding for each fiscal year.

Glossary

23 CFR 924 -- Part 924 of Title 23, Code of Federal Regulations
23 USC 148 -- Section 148 of Title 23, United States Code
AASHTO -- The American Association of State Highway and Transportation Officials
B/C -- Benefit/Cost analysis
CRF -- Crash Reduction Factors
FARS -- Fatal Accident Reporting System
FHWA -- Federal Highway Administration
INDOT -- Indiana Department of Transportation
LPA -- Local Public Agency
LTAP -- Local Technical Assistance Program
HELPERS -- Hazard Elimination Project for Existing Roads and Streets
MPO -- Metropolitan Planning Organization
RPO -- Rural Planning Organization
ARIES -- Automated Reporting Information Exchange System
VCRS -- Vehicle Crash Records System
FMIS -- FHWA Fiscal Management Information System
HAT -- Hazard Analysis Tool (Software)
HSAC -- Highway Safety Advisory Committee
HSIP -- Highway Safety Improvement Program
HSM -- Highway Safety Manual <http://safety.fhwa.dot.gov/hsm/>
ICJI -- Indiana Criminal Justice Institute
Icc -- index of crash costs
MACOG -- The Michiana Area Council of Governments
MUTCD -- Manual of Uniform Traffic Control Devices
NCHRP -- National Cooperative Highway Research Program
RSA -- Road Safety Audit
SAFETEA-LU -- The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SHSP -- Strategic Highway Safety Plan
TIP -- Transportation Improvement Plan
TRB -- Transportation Research Board

