

## **INDOT**

# **Special Rules for Eligibility of Highway Safety Improvement Projects**

Indiana Department of Transportation (**INDOT**) document *Highway Safety Improvement Program Local Project Selection Guidance* governs Local Public Agency (**LPA**) participation in the Highway Safety Improvement Program (**HSIP**). Presented in that document are practices for LPA and Metropolitan Planning Organization (**MPO**) activities to identify eligible safety improvement projects for HSIP funding. You are urged to review this document prior to making an application for “HSIP project eligibility. The document is available on the INDOT website at: <http://www.in.gov/indot/files/LocalHSIPProjectSelectionGuidance.pdf>

This memorandum sets forth special rules regarding determination of eligibility of local safety projects funded all or in part by HSIP funds. The special rules enumerated in this memorandum are in effect from the date of this memorandum to the terminal date for obligation of funds in Federal Fiscal Year 2014. The terminal date of obligation of funds is September 26, 2014. After the terminal date, all HSIP eligibility rules will revert to the current version of the *Highway Safety Improvement Program Local Project Selection Guidance* that is approved for use at that time. The eligibility of all projects that have not been obligated by the terminal date will then be eligible only if they meet the requirements set forth in the *Highway Safety Improvement Program Local Project Selection Guidance*. It is recommended that LPA and MPO organizations become familiar with the aforementioned document in order to save time and effort in selecting and submitting candidate projects for review of eligibility under HSIP funding regulations. Project eligibility determinations are made by INDOT and are final.

At all times the federal regulations governing eligibility of project funding under MAP-21 are in force. 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 development and adherence to the Indiana Strategic Highway Safety Plan (**SHSP**). To ensure that application of the HSIP is organized to provide 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**).

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

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

INDOT and FHWA retain final authority to deny funding for any project not meeting the requirements set out in FHWA Safety Program Guidance. INDOT will deny eligibility of any project deemed to be lacking in any of the aforementioned eligibility requirements for safety

funding. After review of the application, INDOT may take one of the following options:

1. Approve eligibility of the project funding request as submitted.
2. Deny eligibility due to a lack of documentation or failure of the proposal to meet one of the eligibility requirements.

In the case of denial of project eligibility, the MPO or LPA will be informed that the application is ineligible or HSIP funding. The LPA may make corrections to faults found in the application or project proposal and re-submit if the current call is still open, or may submit the application in the next project call cycle. Note that calls for new projects are scheduled and are under the authority of the INDOT, LPA Grant Administration Division.

In addition, the FHWA or INDOT may occasionally select at random project(s) for detailed process review.

## HSIP Project Eligibility Requirements

In all cases, candidate safety projects must demonstrate eligibility in order to receive HSIP funding. The key elements to achieve eligible project selection for the HSIP program are as follows:

1. The proposed countermeasure to these crashes must address one or more of the emphasis areas listed in the current version of the **Indiana Strategic Highway Safety Plan (SHSP)**. See Table below or Indiana’s SHSP, available at [http://www.in.gov/indot/files/shsp\(1\).pdf](http://www.in.gov/indot/files/shsp(1).pdf)

2010 Strategic Highway Safety Plan – 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)

2. The location experiences a higher than normal frequency, rate and/or risk of fatal and incapacitating injury events, herein referred to as Severe Crashes. The applicant must provide explicit evidence that severe crash risk exists and provide a clear explanation as to how the proposed improvement will reduce severe crashes. The Indiana State Police *Automated Reporting Information Exchange System (ARIES)* website is the recognized source for all roadway crash data.

3. The road owner agency applying for HSIP project funding must document that the proposed improvement provides a cost effective countermeasure to the existing traffic safety problem. In most cases involving individual locations with higher than nominal crash history, (also referred to as Hot Spots), a Benefit Cost Analysis. Specifically, a B/C ratio  $\geq 1.0$  is the most accessible means of determining the cost effectiveness of a proposed safety improvement. However, Special Rule # 1 (below) modifies this requirement for certain intersection improvement projects. Also special Rule #2 (below) describes the revised (expanded) list of systemic safety improvements that are the considered to be cost effective under this memorandum.

### **Special Rule #1: Intersection Improvement Projects**

For the limited time period extending from the data of this memorandum to September 26, 2014, a special rule governing the assumption of cost effectiveness requirement for HSIP funding of intersection improvement projects is modified as follows. All requests for HSIP eligibility findings for intersection improvement projects must include a benefit/cost analysis for traffic safety. However, projects that do not achieve a Benefit/Cost Ratio of 1.0 may still be considered by INDOT for HSIP funding eligibility under the following conditions:

- The HSIP portion of the project must not exceed a spending limit of \$2,000,000.
- The applicant must provide a detailed narrative to explain that the location experiences a higher than normal frequency, rate and/or risk of fatal and incapacitating injury events (severe crashes); and how the proposed project will reduce severe crashes.
- The narrative will be a strong factor in INDOT's appraisal of HSIP eligibility.

A cover letter must also be submitted by the project sponsor LPA, as described on page 11 of the *Highway Safety Improvement Program Local Project Selection Guidance*, and in compliance with any applicable MPO issued rules. A map clearly depicting the project area or specific locations where the safety improvements will be constructed is also required with the submission. All eligibility decisions by INDOT are final.

### **Special Rule #2: Low Cost Systemic Safety Improvement Projects**

The current version of the *Highway Safety Improvement Program Local Project Selection Guidance* includes descriptions and prioritization criteria for ten Low Cost Systemic Safety Improvements. Special Rule #2 adds eight additional systemic project types that may be found eligible for HSIP funding.

### **Short Form Application for High Priority Systemic Countermeasures**

Previously, 8 of the 10 systemic improvement types found in the *Highway Safety Improvement Program Local Project Selection Guidance* were eligible to use a short form application for

eligibility review. Special Rule #2 establishes that 18 systemic improvement types (the original 10 plus 8 new) listed below may use the attached short form application for INDOT determination of HSIP project eligibility.

The High Priority Low Cost Systemic Countermeasures listed here-in are considered likely to provide a strong benefit to safety in the state of Indiana. As a result, these improvement types are exempt from the eligibility requirement that a B/C ratio > 1.0 be demonstrated.

Applications for HSIP eligibility determination for the 18 listed systemic improvement types may use the attached short form, but also must be accompanied by a cover letter by the project sponsor LPA, as described on page 11 of the *Highway Safety Improvement Program Local Project Selection Guidance*, and in compliance with any applicable MPO issued rules. A map clearly depicting the project area or specific locations where the safety improvements will be constructed is also required with the submission.

The current approved form, Highway Safety Improvement Program Low Cost Systemic LPA Project Eligibility Request dated August 1, 2013 is attached to this memorandum. Do not use any previous version of the short form to apply for systemic projects.

Proposals for the low cost systemic safety improvements noted below require justification documentation aggregated for the area of the proposed improvement project. Analysis of crash data for a minimum of three continuous years will typically allow the applicant to meet this requirement. For certain type of projects, use of other data as described for each project type that may indicate a risk of severe crashes will be allowed. In either case a safety needs analysis must be documented, including a clear account of the safety performance problem and explanation of how the proposed HSIP investment will address that problem.

***NOTE: Any federal-aid project is subject to review by the FHWA. LPA's are responsible for documenting safety countermeasure installation priorities., LPA's are strongly encouraged to document their projects thoroughly.***

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## **LISTING OF LOW-COST SYSTEMIC SAFETY IMPROVEMENT TYPES**

For those items identified with an asterisk (\*), information regarding the original low cost systemic types of safety improvement types, including description and best methods to prioritize sites, is contained in the *Highway Safety Improvement Program Local Project Selection Guidance*.

Under Special Rule #2, the following items safety improvement types may use the attached short form application for eligibility determination. A description and prioritization methods for the new items on the expanded list of systemic safety improvement types follows the list:

- 1 \*Conduct inventory of traffic signs and upgrade warning & regulatory signs to meet MUTCD retroreflectivity requirements
- 2 \*Upgrade traffic signals to a minimum of one signal head per travel lane
- 3 \*Install black backing plates with reflective border on all traffic signal heads.
- 4 \*Make changes to yellow interval traffic signal timing or signal interconnect to improve safety
- 5 \*Install pedestrian push button and countdown heads on traffic signals
- 6 \*Install new pedestrian crosswalk warning signs, flashing beacons, special pavement markings
7. \*Upgrade guardrail end treatments to current standards
8. \* Install or upgrade passive or new active warning device at railroad crossings
9. \*Improve visibility of intersections by providing lighting
- 10.\* Install guardrails or median barrier at locations where none existed before  
**(The following are new systemic safety improvement types)**
11. Install or upgrade pedestrian curb ramps and refuge areas at areas of high conflict between pedestrians and vehicular traffic
12. Improve visibility of unsignalized intersections by installing upgraded/new warning devices
13. Install new centerline or edgeline pavement markings on unmarked roadways
14. Add centerline and/or edgeline rumble stripes (pavement marking over rumble) to rural public roads with speed limit  $\geq 50$  mph
15. Add FHWA recommended High Friction Surface Treatments (HFST) to spot locations
16. Improve the visibility of curves by upgrading curve warning signs and markings
17. Install median cable barrier system on divided roads with grass median
18. Remove or shield permanent roadside safety obstructions

### **Description / Prioritizations methods for New Low-Cost Systemic Safety Improvement Types**

11. Install or upgrade pedestrian warning devices, curb ramps and refuge areas at locations of high conflict between pedestrians and vehicular traffic

This project type addresses exposure of pedestrians to vehicles at high conflict locations. The eligibility of locations for crosswalk, refuge and pedestrian warning improvements will be based on higher than nominal level of conflict between motor vehicles and pedestrian users. The applicant must show evidence that there are high levels of conflict by comparison of vehicular volumes to pedestrian volumes. Where pedestrian counts are lacking, the LPA may use map tools to demonstrate that the proposed improvements are located on important pedestrian corridors or in the immediate vicinity of major pedestrian generators. All curb ramps, cross walks or refuge areas placed with federal funds must comply with applicable Americans with Disabilities (ADA) regulations.

Proposed locations must be prioritized by crashes or conflict/exposure data below:

- Traffic Volumes
- Pedestrian Volumes
- Presence of Major Pedestrian Generators

12. Improve visibility of unsignalized intersections by installing upgraded/new warning devices

The purpose of this systemic safety improvement type is to increase driver awareness of two and four way stop intersections at intersections with higher than nominal risk for severe crashes. The improvement type is the placement of high visibility signs and marking to call attention to the intersection controls. The counter measure may include warning signs, oversized or doubled Stop Signs and placement of new painted center lines and/or stop bars where none have previously existed

Proposed locations will be prioritized by crash history and/or one or more of the following:

- Curvature on an intersection approach or intersection sight distance
- Predominant user speed of the primary high volume roadway  $\geq 35$  mph

### 13. Install new centerline or edgeline pavement markings on unmarked roadways

There is a 24% crash reduction factor associated with the addition of center and/or edgeline pavement markings to an unmarked paved roadway. Pavement condition should be reasonably good for this type of improvement to be effective.

Proposed road segments should be prioritized by crash history and/or one or more of the following:

- Higher traffic volume by AADT
- Higher posted speed limits
- Higher than nominal percentage of large vehicles

### 14. Add centerline and/or edgeline rumble stripes (pavement makings over rumble) to rural public roads with speed limit $\geq 50$ mph

There is a 37% crash reduction factor for head-on and sideswipe crashes and a 9% reduction for all crash types associated with the addition of centerline and edgeline rumble stripes roadways with posted speeds  $\geq 50$  mph. It is critical that the pavement be in relatively good condition and is  $\geq 20$  feet wide for centerline markings and  $\geq 22$  feet wide for both centerline and edgeline rumble stripes. INDOT has issued a pending Design Memorandum 13-13 that describes the criteria for construction of rumble stripes. Due to noise concerns, this improvement type is not intended for urban lower speed roadway, particularly in areas of dense residential land use.

Proposed locations should be prioritized by crash data and at least one of the following:

- Narrow shoulder width
- Long road segments with minimal driveway count

### 15. Add FHWA recommended High Friction Surface Treatments (HFST) to spot locations

HFST is regarded by FHWA as an *Every Day Counts* initiative. The FHWA guidance recommends that the aggregate should be extremely durable, polish-resistant, and provide very high friction. Calcined Bauxite is the best example and most used aggregate in HFST projects around the country. The improvement type consists of increasing the surface friction at critical spot locations that currently have relatively low friction. Construction takes place by hand or by machine application of an epoxy resin coating on the pavement surface then covering with

Calcined Bauxite aggregate at a specified thickness. Both pre and post construction friction testing must be conducted to verify the effect of the treatment.

Proposed locations should be prioritized by crash data and one or more of the following:

- Friction test results indicating low existing pavement friction
- Higher risk locations (road curves, bridge decks, intersection approaches or ramps)

#### 16. Improve the visibility of curves by upgrading curve warning signs and markings

The purpose of this systemic safety improvement type is to increase driver awareness of the degree of approaching curves in order to reduce speed to a safe level. Improvements include high reflectance sign sheeting, oversize or double curve warning signs and the additions of chevron signs in compliance with the MUTCD. Pavement treatments, including placement of high friction surface or milling of centerline and edgeline rumble stripes. Minor shoulder widening may also be used thru the curve.

Proposed locations should be prioritized by crash data, but may be considered for eligibility if crashes are considered with one or more of the following:

- Lack of adequate sight distance around the curve
- Degree of curvature

#### 17. Install median cable barrier system on divided roads with grass median

Cable median barrier has proven to be an effective crash mitigation tool for grass medians on high speed multilane facilities that lack any other type of median barrier system. The present Indiana specification is for a Test Level 4 barrier.

Proposed road segments should be prioritized by crash data; notably, cross-median head-on, run off road left or opposite direction sideswipe events. Median barrier may also be considered for eligibility if a detailed narrative (as described in Special Rule #1) is attached and two or more of the following conditions exist:

- Median width  $\leq$  60 feet
- Posted speed  $\geq$  45 mph
- AADT  $\geq$  20,000 vehicles per day

#### 18. Remove or shield permanent roadside safety obstructions

Permanent roadside objects on high speed roadways such as sign/lighting poles, drainage structures, etc. The objects should be removed, made crash worthy or protected with crash attenuator devices. An LPA may submit a request for a systemic project to add new protection devices to non-crash worthy roadside objects that do not currently have approved attenuator devices. Maintenance activities on existing devices are ineligible for federal aid.

Proposed locations should be prioritized by crash history data, but may be considered for eligibility with two or more of the following:

- Proximity of the object to the travel lane
- Posted speed limit on the roadway
- Traffic Volume on the roadway