

ALDOT

HIGHWAY SAFETY IMPROVEMENT PROGRAM

PROJECT APPLICATION GUIDELINE



REVISED JULY 2020

The purpose of the Highway Safety Improvement Program shall be to achieve a significant reduction in traffic fatalities and serious injuries on all public roads.

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The core of the Highway Safety Improvement Program (HSIP) project application package is the HSIP Application Spreadsheet which is located on the Traffic and Safety Operations Section website. The spreadsheet and all other referenced documents including the HSIP Project Quarterly Update Form and the Alabama Strategic Highway Safety Plan can be obtained by visiting the Traffic and Safety Operations Webpage (link provided below) or contacting the Traffic and Safety Operations Section.

<https://www.dot.state.al.us/dsweb/divTed/TrafficSOS/index.html>

1 Overview

The Traffic and Safety Operations Section (TSOS), a part of the Traffic Engineering Division of the Alabama Department of Transportation (ALDOT) Design Bureau, prepared this Highway Safety Improvement Program (HSIP) Project Application Guideline to provide guidance to those who wish to apply for HSIP funds for proposed safety projects. This Project Application Guideline will help applicants identify, evaluate, and select countermeasures and prepare a complete application for submittal. HSIP projects may originate from a range of project sponsors including ALDOT Regional or Area offices, counties, and municipalities.

- **Applications for HSIP funding may be submitted for projects which meet the following criteria:**
 - Projects consistent with the most current version of the Alabama Strategic Highway Safety Plan (SHSP)
 - Projects to improve a roadway safety concern as identified by one of the following methods:
 - Analysis of historical crash data;
 - Identification of systemic risk factors and countermeasures as accepted by the TSOS;
 - Application of systematic or programmatic countermeasures as previously approved by the TSOS.

- **Activities ineligible for HSIP funding:**
 - Highway maintenance activities (e.g. resurfacing, guardrail/end anchor replacement, roadway striping);
 - Grade separation projects;
 - Major horizontal or vertical realignments;
 - Major drainage improvements, e.g., culvert and bridge culvert extensions;
 - Major utility relocations (as a percentage of project costs);
 - Projects requiring extensive right-of-way acquisitions;
 - Work zone activities necessary for the management of a construction site;
 - Non-infrastructure activities.

1.1 Relationship of the HSIP to the Alabama Strategic Highway Safety Plan (SHSP)

The Alabama SHSP defines the State's comprehensive framework for reducing crashes. To be eligible for use of HSIP funds, projects must be "consistent" with the Alabama SHSP and **must correct or improve a hazardous road location or feature or address a highway safety problem** as required by federal legislation. Contact the Traffic and Safety Operations Section to determine the eligibility of any project types that are not included in the list below:

- Intersection projects including
 - Signalized intersections
 - Non – signalized intersections
 - Freeway ramps and ramp termini
 - Intersections without left and right turn lanes
 - Offset Intersections
 - Atypical Intersections
 - Roundabouts

- Segment projects including
 - High risk rural roads
 - New installations of median barriers, bridge rail and associated guardrail
 - Rumble strip (edge line, shoulder, or centerline)
 - Pavement widening in a manner that provides substantive safety benefit
 - Sloped Pavement Edge
 - Wet weather crash remediation
 - Roadway Departure
 - Road safety audits and reviews
 - Pedestrian improvements
 - Bicyclist improvements
 - High Risk Driver Behavior
 - Local Road Safety Plans

1.2 HSIP Identification Methods

HSIP project candidate locations may be identified through various means including analysis of historical crash data, the identification of systemic risk factors, or the application of programmatic countermeasures as approved by the TSOS.

This section identifies proven cost-effective infrastructure countermeasures that are permitted to address either systemic or site-specific (non-systemic) highway safety issues. This list is not all-inclusive and other proposed improvements or programs may be approved by the Traffic and Safety Operations Section based upon their documented effectiveness.

- HSIP eligible systemic safety improvements may be implemented as standalone projects or incorporated into existing or planned projects such as an upcoming resurfacing project. Systemic Safety Improvements focus on system wide crash types and associated risk factors over site specific historical crash data. While not as heavily weighted as it is for the non-systemic safety improvements, a benefit-cost analysis should still be conducted for all systemic safety improvement applications. Benefit-cost analysis for systemic countermeasure applications may be done using either historic crash data or expected crash rates based on accepted HSM methodology.
 - Widen/Improve shoulders in a manner that provides substantive safety benefit
 - Crossover Closures on Divided Highways
 - Install rumble strips on shoulders or provide edge line rumble stripes, and centerline rumble strips
 - Low-Cost Countermeasures at Stop-Controlled Intersections
 - Enhanced signing/markings that provides substantive safety benefit (example: enhanced horizontal curve signing)
 - Initial Local Road Safety Plans (LRSPs)
 - Low Cost Pedestrian Safety Improvements
 - Flashing Yellow Arrow (FYA) Signal modifications
 - Signal Backplates with Retroreflective Borders
 - Smart Channel Right Turns at Signalized and Unsignalized Intersections
 - Sloped Pavement Edge

- Non-Systemic Safety Improvements – These are safety improvements that do not fall into the broad safety improvement categories described on the previous page but provide quantifiable safety benefits to transportation system users. Non-systemic safety improvements may be corridor- or site-specific. For non-systemic safety improvements, a benefit-cost analysis (B/C analysis) must be completed. The B/C analysis will help to identify the appropriate and cost-effective countermeasure(s) for the specific safety issue identified. Some of these projects may require right-of-way acquisition and/or utility relocation. If HSIP funds are used to pay for right-of-way acquisition and/or utility relocation the benefit cost calculation must include these costs. The more common countermeasures are noted below.
 - Geometric Countermeasures
 - Modifying intersecting angle (skew)
 - Modifying atypical intersection
 - Widening of receiving lane throat width for turning operations
 - Provide illumination to improve night visibility of complex intersection or roadway alignments
 - Provide/improve intersection channelization
 - Improve intersection sight distance
 - Provide offset left-turn and right-turn lanes
 - Implement treatments to delineate edge lines, curbs, medians, and obstacles
 - Improve curb radii
 - Left-turn and right-turn traffic control and geometric improvements at signalized intersections
 - Improve stop and yield controlled intersection sign conspicuity such as the use of oversized signs or by using flashing beacons mounted on sign post or LED illuminated signs
 - Construct roundabout
 - Construction of intersection left- and right-turn lanes
 - Intersection illumination
 - Access management applications
 - Removal of unneeded crossovers
 - Turn restrictions
 - Driveway closure, relocation or redesign
 - Traffic calming improvements
 - Modification of lane transition lengths
 - Addition or modification of acceleration/deceleration lanes
 - Addition of passing lanes
 - Addition of truck-climbing lanes
 - Minor horizontal or vertical realignments
 - Addition of a passing lane, to include truck lanes where appropriate
 - Traffic Control Device Countermeasures
 - One-way/wrong-way signing and use of signing, markings, and active traffic control devices to reduce wrong-way driving
 - Provide larger and oversize signs to assist in decision-making
 - Provide lane assignment signing on intersection approaches
 - Channelization

- Upgrade pedestrian crossings
 - Provide/improve ramp gore delineation
 - Utilization of speed feedback signs
 - Utilization of variable speed limit signs
 - Installation of overhead guide signs
 - Installation of chevrons and other horizontal curve-related signing
 - Addition of back plates along with retro-reflective markings
 - Flashing yellow arrows
 - Active dilemma zone detection
 - Additional signal head indications
 - Corridor and isolated traffic signal timing improvements (specifically the use of interconnected and/or time-based coordinated systems, adaptive systems, etc.)
- Roadside and Roadway Departure Countermeasures
 - Installation of roadside barrier (e.g. guardrail, cable barrier) at currently unshielded sites, including median barriers and crash attenuators (generally only permitted where removing, redesigning, or relocating the obstacles are not physically feasible and/or is cost-prohibitive i.e. shielding of rock cuts, etc., buildings, large fills.)
 - Installation of edge line and centerline rumble strips and rumble stripes
 - Improve shoulders
 - Horizontal curve widening
 - Installation of sloped pavement edge
 - Pavement drainage improvements, superelevation adjustments, use of slotted or grated drains, and wet pavement spot resurfacing
 - Clear Zone Improvements (Mitigation of roadside hazards)
 - Remove trees/fixed object removal
 - Flattening of slopes
 - Elimination of vertical headwalls and exposed pipe end
 - "Traffic safe" cross drain headwalls and side drain headwalls
 - Removal of curbs protruding onto shoulders
 - Providing breakaway or bend away sign supports
 - Extend cross-drain culverts and pipes outside of clear zone – limited HSIP eligibility
 - Bridge deck/concrete pavement antiskid treatment to improve friction number
 - Installation of High Friction Surface Treatment (HFST) in curves or approaches to intersections
 - Pedestrian infrastructure safety improvements including new sidewalks, missing sidewalk gaps, pedestrian crossing features, and ramps
 - High visibility markings
 - Signage
 - Rapid Flash Beacons
 - Median Refuge Islands

- Safety Assessments
 - Performance of road safety assessments (RSAs) and/or road safety reviews (RSRs) by ALDOT and/ or local agencies
 - Safety and operational studies for high crash corridors

Detailed information on conducting Highway Safety Analysis and potential countermeasures can be found in The American Association of State Highway and Transportation Officials' (AASHTO) Highway Safety Manual (HSM) and the Crash Modification Factors Clearinghouse respectively.

2 Project Application Process

The Traffic and Safety Operations Section accepts project applications for HSIP funding continuously year-round and reviews applications on a quarterly basis: January 1st, April 1st, July 1st, and October 1st. A properly completed HSIP project application provides the most compelling, accurate, and timely data and information for the proposed project. The information presented by the project sponsor in the application must document that the proposed improvements define an eligible, cost-effective project which will improve highway safety in accordance to ALDOT standards. Project applications which are incomplete, contain inadequate information, or are poorly prepared will be returned to the sponsor for revision.

2.1 Responsibilities of the Sponsor of the HSIP project application

Project sponsors are responsible for familiarizing themselves with the HSIP process which includes reviewing all applicable guidelines as well as the Alabama SHSP. The sponsor will then complete the HSIP application and submit the application to the appropriate personnel. Sponsors external to ALDOT shall submit all HSIP project applications directly to their ALDOT Area Local Transportation Engineer. Sponsors or application preparers within ALDOT shall submit their applications directly to their ALDOT Region Highway Safety Engineer.

2.2 Responsibilities of the ALDOT Region Offices and the Traffic and Safety Operations Section for the HSIP Application Process

The ALDOT Region Offices and the Traffic and Safety Operations Section collaborate on the management of the HSIP including the management of HSIP-funded projects. The respective HSIP duties for both the Regions and the Traffic and Safety Operations are listed below. The Region Office shall not forward an HSIP project application to the Traffic and Safety Operations Section for further review until the Region office duties listed below are completed.

ALDOT Region Office duties related to HSIP applications:

- 1) The Region Highway Safety Engineer or designee serves as the primary point of contact for potential ALDOT HSIP project sponsors and assists them in understanding the HSIP program requirements. The Region Local Transportation Engineer or designee serves as the primary point of contact for potential non-ALDOT project sponsors and assists them in understanding the HSIP program requirements.

- 2) The Region Highway Safety Engineer or Local Transportation Engineer reviews each HSIP project application to verify that all the required data and information is included as noted below:
 - a. Verify each application meets all federal eligibility requirements;
 - b. Verify each proposed project is consistent with the Alabama SHSP as explained in Section 1.2 of this Project Application Guideline;
 - c. The Region Safety Engineer or Local Transportation Engineer reviews the HSIP technical project justification and verify that it has been prepared with sound engineering principles and is consistent with the HSIP Project Application Guideline; and
 - d. The Region Safety Engineer or Local Transportation Engineer forwards the reviewed application to the TSOS for final review with recommendation for approval.
- 3) In the event the application receives final approval and funding, the Region Safety Engineer or Local Transportation Engineer enters the project into ALDOT's Comprehensive Project Management System (CPMS).
- 4) The Region Safety Engineer or Local Transportation Engineer assigns an ALDOT Project Manager to manage and advance the project through completion (project close-out).
- 5) The Region Safety Engineer or Local Transportation Engineer attends specified plan reviews consistent with the agreed-upon project schedule between the Traffic and Safety Operations Section and the project sponsor (including cities or counties participating through sponsor agreements).
- 6) The Region Safety Engineer or Local Transportation Engineer shall provide quarterly project updates utilizing the ALDOT HSIP Project Update Form

Traffic and Safety Operations Section Duties related to HSIP applications:

- 1) The Traffic and Safety Operations staff shall confirm the project is eligible for funding, is consistent with the current SHSP, is based on sound technical engineering analyses, and whether HSIP funds are available for the project.
- 2) The Traffic and Safety Operations staff reviews the HSIP project application including Region Office recommendations:
 - a. If approved, the application continues through the project funding process;
 - b. If rejected, the application is returned to the Region with comments regarding actions required.
- 3) If the application is approved, the Traffic and Safety Operations Section will notify the Region Office of approval, facilitate as able the projects reaching "Planned" status, and facilitate authorization of the projects as appropriate based on available funding.
- 4) The Traffic and Safety Operations Section staff coordinates HSIP project authorizations with FHWA to ensure they are aware of all projects that are approved for HSIP funding.
- 5) The Traffic and Safety Operations Section staff participates in plan reviews for HSIP projects.
- 6) The Traffic and Safety Operations staff serve as technical advisor to Region Offices and project sponsors regarding HSIP program requirements and preparing applications.

- 7) The Traffic and Safety Operations staff review and approve/disapprove requests for HSIP project schedule changes, scope changes, and budget changes in coordination with the Region Office.
- 8) Project sponsor must submit to the Traffic and Safety Operations staff for review and approval/disapproval of any proposed budget, scope, or schedule changes along with justification, as soon as possible.
- 9) The Traffic and Safety Operations staff review the status of projects that are significantly delayed from their established project schedule, and determine whether to cancel the project, require the project sponsor to take corrective actions, and/or reprogram the HSIP funding on other eligible project(s).

2.3 Project Application Evaluation System (we may need to remove this until we can further develop a systemic process)

Systemic projects will be evaluated based on the factors included in Table 2 below. Following the evaluation of project applications, the Office of Traffic Safety Operations will maintain a priority listing of all eligible HSIP projects which may be programmed subject to availability of HSIP funds.

Table 2: HSIP Project Priority Criteria for Systemic Projects

HSIP Project Priority Criteria	Assigned Points	Proposed Weight	Range of Values
Composite Roadside Hazard Rating	Rating: 1-7 https://safety.fhwa.dot.gov/tools/data_tools/mirereport/67.cfm	5	0 to 35
Composite Benefit/Cost Ratio (B/C) for Proposed Project	Value of the B/C ratio	10	10 times the B/C value
Project Delivery estimate from time of Authorization	Delivery <= 6 months - 5 points 6 months < Delivery < 9 months – 4 points 9 months < Delivery < 12 months – 2 points 12 months < Delivery < 18 months – 1 point Delivery > 18months – 0 points	5	0 to 25
TSOS Priority Crash Type Mitigation Effort (if applicable)	Project Targets and expects to significantly reduce priority crash type as identified by TSOS – 5 points Project does not target and expect to significantly reduce priority crash type as identified by TSOS – 0 points	5	0 to 25
TOTAL POINTS:			

2.4 HSIP Project Selection

The Traffic and Safety Operations Section is responsible for monitoring the availability and use of all federal HSIP funding available to ALDOT. To make HSIP funding decisions, the Traffic and Safety Operations Section will review the HSIP project priority list and program funding in conjunction with the estimated project costs. The Traffic and Safety

Operations Section will also confirm that programmed projects do not conflict with any other projects to be let by ALDOT during the year. If additional information is needed to clarify a proposed project, the Traffic and Safety Operations Section will contact the project sponsor and/or ALDOT Region Office. The Traffic and Safety Operations Section will notify all project sponsors about the status of their application (funded or unfunded) as soon as practical following ALDOT's programming decision. ALDOT's official notification letter about the approved funding for the project will be sent to the Region Highway Safety Engineer or Local Transportation Engineer to be forwarded as appropriate to the project sponsor.

3 HSIP Funding

Safety projects funded through the HSIP are intended to have a rapid project delivery. In general, safety projects should be constructed within three years of approval of funding. The preliminary engineering (PE) phase of each project should be completed within 18 months of project authorization. HSIP projects should not typically require significant right-of-way acquisition, utility relocation or environmental mitigation that will necessitate the extension of the project schedule. HSIP project sponsors/applicants who anticipate the need for a time extension to their safety project schedule must receive prior approval from the Traffic and Safety Operations Section.

3.1 Program and Project Monitoring

As a steward of federal funding provided by FHWA, ALDOT must be able to demonstrate clearly that the HSIP program resources are being managed in an appropriate manner and that individual HSIP projects are being managed within the boundaries of federal and state regulations and procedures.

All project sponsors with approved HSIP projects are required to report on the progress of their project implementation activities quarterly using the format HSIP Project Quarterly Update Form.

The Traffic and Safety Operations Section will monitor projects from the time of project programming (funding approval) to final construction and project closeout. The project schedule will be followed (and maintained by the project sponsor) and any significant changes will be reported to the Traffic and Safety Operations Section by the project sponsor and tracked by the Traffic and Safety Operations Section. The project sponsor is responsible for reporting to the Traffic and Safety Operations Section any situations that will cause project delays as soon as possible. During the project, the Traffic and Safety Operations may choose to attend field reviews and/or scoping meetings and review and approve scoping reports as part of the monitoring process for HSIP projects.

3.2 Alabama HSIP Annual Report

The Traffic and Safety Operations Section is required to develop and submit an annual HSIP program evaluation report to the FHWA which documents the state of the program, including projects that have been programmed, obligated, or completed. This report is known as the "*Alabama HSIP Annual Report*". Completed projects are evaluated for effectiveness through an analysis of crashes before and after project construction. ***If the project is on a non-state road, the project sponsor is responsible for providing three (3) years of pre-construction and post-construction crash data for the facility to help evaluate the effectiveness of the project.*** Project sponsors with an interest in referencing this report can find it online at <https://safety.fhwa.dot.gov/hsip/reports/>.