STATE OF ALABAMA

DEPARTMENT OF TRANSPORTATION

Highway Safety Improvement Program (HSIP)

Program Management Manual

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SECTION I: BACKGROUND

1.1 Introduction and Purpose

A primary mission of the Alabama Department of Transportation (ALDOT) is to serve as the steward of federal and state transportation funding designated to improve highway safety and to invest resources to accomplish that goal. ALDOT has consolidated its safety program functions through the creation of the Office of Safety Operations (OSO). OSO has been directed to effectively manage available highway safety resources and programs as described in the Alabama Strategic Highway Safety Plan (SHSP) which is briefly summarized in Section 1.4.

The purpose of this document is to provide guidance for OSO personnel and other ALDOT engineers, planners and safety practitioners as well as safety project sponsors such as counties and municipalities. It is intended to help users understand the management system used to identify, evaluate, prioritize, select, and manage safety improvement projects from initiation through completion of the projects. This document will be modified as needed to provide additional or new guidance when needed to accomplish ALDOT's highway safety program activities.

It should be noted that this document is intended to serve as a guidance document for Alabama transportation professionals to use in concert with the ***Highway Safety Manual (HSM)*** published by the American Association of State Highway and Transportation Officials (AASHTO) in collaboration with the Transportation Research Board (TRB) and the National Cooperative Highway Research Program (NCHRP). Technical guidance on the analysis of highway safety issues is provided in the HSM which is available on-line at www.highwaysafetymanual.org, along with other highway safety-related resources for practitioners.

1.2 Responsibilities of ALDOT's Office of Safety Operations (OSO)

The OSO within the ALDOT organization is responsible for administering the Department's safety operations activities, including the Highway Safety Improvement Program (HSIP), which seeks to reduce traffic crashes through the application of traffic and highway engineering principles. The ALDOT's State Safety Operations Engineer is the main contact for this area of the Department's activities. Contact information for all of the OSO staff members can be found in Section 7 of this document.

1.3 Current Federal Transportation Law (MAP-21)

On July 6, 2012, the federal transportation bill entitled "*Moving Ahead for Progress in the 21st Century*", also known as MAP-21, was signed into law as the nation's latest authorization for federal surface transportation funding. MAP-21 provides a 27-month reauthorization of funding for a more consolidated, focused set of transportation program investments intended to improve safety, economic competitiveness, multimodal mobility and access, environmental considerations, and accelerated project delivery.

With MAP-21, safety remains the number one priority of the US Department of Transportation. The Highway Safety Improvement Program (HSIP) was retained and its goals were significantly elevated from previous transportation authorizations. MAP-21 establishes a number of new requirements for Strategic Highway Safety Plans (SHSP) which are the fundamental policy documents that address highway safety and establish state-level priority focus areas.

The HSIP has been funded at an annual average funding level of $ 2.4 billion nationally. MAP-21 now requires states to establish safety performance targets for the number of serious injuries and fatalities, in terms of absolute numbers and the rates of fatalities and serious injury per 100 million vehicle miles of travel (MVMT). The State of Alabama is in the process of establishing these targets in line with ALDOT's historic focus on reducing highway-related fatalities, injuries, and property damage as well as other measures of safety performance. More information on ALDOT's highway safety performance targets is located in Section 1.6.

The new federal guidance for the HSIP emphasizes a data-driven, performance-based, strategic approach to improving highway safety on all public roads. The foundation for this approach is a safety data system which each state is required to operate and maintain. The safety data system must identify key safety problems, establish relative severity, and adopt strategic and performance-based goals to maximize safety. MAP-21 ensures on-going progress toward achieving safety targets by requiring regular updates of the SHSP and defining clear linkages between the SHSP and State safety programs, including investments in projects. Guidance from MAP-21 no longer requires the Rail Highway Crossing Program to be part of the HSIP. States are now required to incorporate safety strategies focused on older drivers and pedestrians. Additionally, if traffic fatalities and serious injuries per capita increase during the most recent two-year period, the State is required to include measures in the SHSP to address the increase(s) in those rates.

1.4 Relationship to 2012 Alabama Strategic Highway Safety Plan (SHSP)

The Alabama SHSP represents the State's comprehensive framework for reducing crashes. The 2012 SHSP was enhanced by shifting the focus of the plan and reorganizing plan elements. The five major statewide emphasis areas for the second edition of the SHSP were selected through a data evaluation process that identified the most prevalent fatality and injury crash types and grouped similar crash types together to create a framework to address roadway safety. These statewide emphasis areas are listed below.

- Driver behavioral crashes;
- Infrastructure countermeasures;
- Legislative initiatives;
- Traffic safety information systems (TSIS); and
- Outreach with the safety stakeholder community.

As part of the 2012 SHSP effort, the State of Alabama created its "*Safe Home Alabama*" website at http://www.safehomealabama.gov/ for access at all times for citizens, community leaders, transportation professionals and other interested parties. The website provides information and resources on highway safety in Alabama.

The 2012 SHSP was developed using feedback from the third "*Safety Home Alabama*" Traffic Safety Summit held in November 2011 in conjunction with feedback from representatives of multiple Alabama roadway safety advocacy groups. **All HSIP projects must relate to the State's most recent SHSP (2012).**

1.5 Highway Safety Trends in Alabama

ALDOT's Office of Safety Operations compiles extensive data on the locations, causes, characteristics, and outcomes of crashes for all surface transportation modes operating in Alabama. The OSO also compiles and analyzes historical data and trends, such as those shown in this section.

To provide some context for the State of Alabama's historical highway safety trends, Table 1 shows the total number of injuries and fatalities on Alabama roads from 2001 through 2013. Within that period, the highest number of injuries occurred in 2004 and the highest number of fatalities occurred in 2006. Since the mid-2000s, considerable progress has been made to reduce both injuries and fatalities across Alabama. The number of fatalities has hovered between 848 and 899 for the past five years that data were available. This data, along with other statistics, are analyzed by OSO and used by ALDOT personnel and other professionals to guide the planning, development, design, construction, management, and operations of Alabama's roadways.

Table 1: Total Injuries and Fatalities in Alabama (2001-2013)

Year	Number of Injuries	Number of Fatalities
2001	42,900	998
2002	44,400	1,038
2003	43,800	1,001
2004	45,400	1,154
2005	44,200	1,148
2006	43,000	1,208
2007	39,655	1,110
2008	35,619	964
2009	35,969	848
2010	38,328	862
2011	38,017	899
2012	40,202	870
2013	37,558	842

Sources: Critical Analysis Reporting Environment (CARE)

1.6 Highway Safety Performance Targets

In 2012, the passage of MAP-21 established the requirement for states to develop performance targets for certain elements of their highway transportation system. These targets were required to be consistent with federal guidance (to be issued subsequent to the passage of MAP-21) and for each state's performance targets to form the basis for performance targets developed for every urbanized area of the state. Metropolitan planning organizations (MPOs), the primary transportation policy and planning entities in urbanized areas, have the responsibility for developing their respective performance targets.

ALDOT will lead the statewide effort to establish statewide and MPO performance targets. For example, for National Highway System (NHS) roadways and non-NHS roadways, safety targets are required to be developed at the

state level as well as the MPO level, if they are located in an MPO area. The establishment of Alabama's state-level and MPO targets are in the developmental stages and will be posted on the OSO website at https://www.dot.state.al.us/dsweb/divTed/TrafficSOS/index.html when they are available. It should be noted that the performance targets are dependent on the publication of final administrative rules by the U.S. Department of Transportation which will guide the target development by states and MPOs.

1.7 Integration of Safety Into All ALDOT Programs

In 2012, ALDOT began a major examination of its transportation programs with the intention of reviewing how safety considerations were being integrated into all the agency's activities. This assessment is continuing and results from it will be included in future versions of this document.

1.8 "*Toward Zero Deaths*" (TZD) Target Goal

The U.S. Department of Transportation (USDOT) has adopted its "*Toward Zero Deaths*" (TZD) target goal, making the elimination of fatalities a national highway safety priority. ALDOT has adopted this goal as an important component of its safety programs. In the U.S., one person dies every 16 minutes in a traffic crash. Over the course of a lifetime, nearly every U.S. resident is touched by consequences of traffic crashes. Led by USDOT's TZD Steering Committee, the *National Strategy on Highway Safety* provides a platform of consistency for state agencies, private industry, national organizations and others to develop safety plans that prioritize traffic safety culture and promote the national TZD vision.

The State of Alabama's TZD goal is to reduce roadway fatalities to 50% of the 2010 level over the next 25 years. This reduction will be achieved by strategic planning, cooperation between multiple agencies and disciplines, continuous improvement of data collection and analysis, and evaluation methods leading to safety programs and projects. Ultimately, ALDOT intends to achieve this goal through the creation of an organizational culture that is focused on safety and translating and strengthening all phases of its transportation program, including planning, design, construction, management and operations, and its outreach and educational efforts with the public.

SECTION II: ALABAMA'S HIGHWAY SAFETY FOCUS AREAS

One of Alabama's most effective tools for improving highway safety across the state is addressed in the SHSP's section on "*Infrastructure Countermeasures*". This element of the SHSP describes how investments in redesigned and newly designed highway infrastructure can be an important method for reducing crash-related fatalities, injuries, and property damage.

ALDOT uses the majority of its HSIP funds for infrastructure program elements on state roadways, since they typically carry the highest traffic volumes and experience the largest number and higher severity crashes in the State. This may change because MAP-21 expanded the eligibility of highway safety improvement projects to all public roads.

2.1 Alabama SHSP Infrastructure Countermeasures

The 2012 Alabama SHSP identified priority infrastructure countermeasures which form the foundation of safety investments in ALDOT's HSIP program. These safety improvement types are related directly to the design and operating characteristics of intersections and road segments. These improvements fall into three main categories:

- Intersection safety assessment and improvement;
- Roadway departure crash reduction; and
- Traffic operation guidance for transportation users

The ALDOT HSIP program supports the improvement types described in the Alabama SHSP. A more specific list of eligible projects is located in Section 3.3. The HSIP is designed to identify locations and countermeasures that will produce an improvement in safety for a reasonable investment of resources. If specific crash locations and crash characteristics are known, the opportunities for crash reductions are analyzed in order to apply proven, appropriate countermeasures. The optimal countermeasure(s) and its effectiveness will vary from site to site depending on the dominant crash type and severity at each site. Thus, thorough analyses of candidate highway safety improvements are needed to assure the best use of available HSIP resources.

Detailed information on potential infrastructure countermeasures can be found in the Alabama SHSP (2012 – Second Edition) which can be found on-line at https://www.dot.state.al.us/dsweb/divTed/TrafficSOS/pdf/Alabama_SHSP_081117.pdf.
The American Association of State Highway and Transportation Officials' (AASHTO's) Highway Safety Manual provides a useful technical resource for safety practitioners on potential infrastructure countermeasures. It can be found at http://www.highwaysafetymanual.org/Pages/default.aspx.

2.2 Vulnerable Highway System Users

Pedestrians and bicyclists of all ages are considered vulnerable users of the roadway in comparison to individuals in cars and trucks who have the protection of their vehicle around them. Additionally, seniors (generally over the age of 65) and children (younger than driving age) are considered even more vulnerable to fatalities and injuries than the general population. Because of the increased emphasis of federal policy on providing alternatives to vehicular

transportation across the US, there is a high level of interest nationally in developing criteria to improve roadway designs that provide improved safety for people of all ages who walk or use their bicycles. The MAP-21 legislation states that "…*if traffic fatalities and serious injuries per capita for drivers and pedestrians over the age of 65 in a state increases during the most recent two-year period for which data are available, that state shall be required to include, in its subsequent Strategic Highway Safety Plan (SHSP), strategies to address the increases in those rates…"* Additional technical resources for project sponsors interested in strategies to improve safety for vulnerable highway system users can be found at http://safety.fhwa.dot.gov/intersection/vuln_users/.

SECTION III: FEDERAL AND STATE SAFETY PROGRAM GUIDELINES

3.1 Sources of HSIP Funding

As of fiscal year 2014, the State of Alabama received approximately $ 45 million per year in federal funds for highway safety-related projects and programs. Typically, project costs are supported by federal funds (in the amount of 90% of the project costs) and non-federal funds (in the amount of 10% of the project costs). Non-federal matching funds may be provided by ALDOT, other state funding sources, local agencies, units of local government, or other non-federal sources. These matching funds and their source (agencies providing the funds) must be provided in order for the project to be considered for inclusion in the HSIP.

ALDOT allocates its federal HSIP funding in eight (8) program categories as shown in Table 2. In most cases, the federal share of HSIP project costs is ninety (90) percent with local funds covering the remaining ten (10) percent, except for certain safety improvements listed in 23USC120(c) which are funded with 100% federal funds. The eligible HSIP activities in Alabama are described in Section 3.3. More detailed descriptions of these program categories follow.

Table 2: Typical State of Alabama HSIP Funding Breakdown

Safety Category	Percent of Total Program
Systemic Safety Programs (e.g. pavement widening, rumble strips, etc.)	50.0
Site-Specific Safety Projects (e.g. wrong-way driver countermeasures, median cross-over protection, etc.)	15.0
Site-Specific Projects Requested by ALDOT Regions	15.0
Safety Studies (Road Safety Assessments or Road Safety Reviews)	7.5
Safety Research and Data Collection	5.0
Enhanced Enforcement Activities	3.0
Safety Outreach Programs	2.5
Miscellaneous Programs and Projects	2.0
TOTAL	**100.0**

Depending on the various needs and types of project requests received from project sponsors across HSIP program categories, ALDOT may adjust the allocations of funding within the HSIP according to federal and state policy direction.

3.2 General HSIP Project Eligibility

The federal funding requirements for the HSIP program are described in detail in Title 23 Section 148 of the United States Code (23USC148) which is located on-line at http://www.ecfr.gov/cgi-bin/text-idx?rgn=div5&node=23:1.0.1.10.49. In additional to the federal guidelines, ALDOT has included additional criteria to tailor the program to meet Alabama HSIP requirements. There is also federal guidance (23USC409) pertaining to the discovery and admission of evidence of certain reports and surveys related to highway safety.

To be eligible for HSIP funding from ALDOT, the following criteria must be met:

- The proposed project must address a stated goal(s) of the Alabama SHSP, including the reduction of crashes, fatalities, injuries or property damage in support of the State's established safety performance measures.
- There must be a documented description of the safety issue(s) along with supporting data and quantitative and/or qualitative information on the proposed safety countermeasures.
- A project sponsor(s) must be identified who is willing to implement the project according to federal and ALDOT guidance and requirements.

3.3 HSIP Project Types

Potential HSIP projects may come from a variety of sources, including the analysis by ALDOT of crash data, field observations by ALDOT and/or local governments, law enforcement agencies, emergency response organizations, and others. The OSO develops many types of safety studies. For example, the OSO periodically updates the list of high-crash locations, including intersections and roadway segments on state-maintained roads. These lists are distributed to the ALDOT Region Offices. ***HSIP project sponsors should review these lists and note on the project application if the proposed improvement location appears on one of the OSO high-crash location lists or is identified in one of OSO's safety studies. If so, project sponsors should identify in the HSIP project application in which OSO report the location is described.*** .

Section 3.3 identifies the approved cost-effective infrastructure countermeasures permitted under the ALDOT HSIP program funding to address systemic or site-specific highway safety issues. This list is not all-inclusive and other proposed improvements or programs may be approved by ALDOT based upon their documented effectiveness. Proposed HSIP improvements which have been proven to be effective through benefit/cost (B/C) analysis are normally funded.

The following project types are approved cost-effective infrastructure countermeasures permitted under the HSIP funding to address systemic or site-specific highway safety issues. ***This list is not exhaustive and other improvements or programs may be approved based upon their documented effectiveness through benefit/cost (B/C) analysis.***

- ***Systemic Safety Improvements*** – are those infrastructure improvements that ***prevent crashes or minimize their severity.*** Examples include roadway widening projects to improve safety, installation of median barriers, pavement widening along rural routes, installation of rumble strips, and state system horizontal curve re-signing. Improvements identified through OSO safety studies or through the use of the RISE program are generally approved as systemic safety improvements and may be included with other improvements, e.g., maintenance resurfacing, etc. These may include many of the non-systemic safety improvements noted below. For a current list of approved Systemic Safety Improvements, please contact the OSO at https://www.dot.state.al.us/dsweb/divTed/TrafficSOS/index.html.

- ***Non-Systemic Safety Improvements*** – these ***are safety improvements that do not fall into the broad safety improvement categories described above, but provide quantifiable safety benefits to the 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 to identify the

appropriate and cost-effective countermeasure(s) to apply for the specific safety issue identified. The more common countermeasures are noted below:

- ***Geometric Countermeasures***
  - Modifying intersecting angle (skew)
  - Modifying Y-intersection
  - Widening of receiving lane throat width for turning operations
  - 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, e.g., use of splitter islands
  - Construct roundabout
  - Construction of intersection left- and right-turn lanes
  - Intersection illumination
  - Access management applications
  - 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

- ***Traffic Control Device Countermeasures***
  - Provide advance street name signing
  - Provide overhead street name signing at signalized intersections
  - 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
  - Upgrade pedestrian crossings
  - Provide/improve ramp gore delineation
  - Utilization of speed feedback signs
  - Use of intelligent transportation system (ITS) applications
  - Utilization of variable speed limit signs
  - Installation of overhead guide signs
  - Installation of chevrons and other horizontal curve-related signing
  - Traffic signalization LED conversions

- Addition of back plates along with retro-reflective markings
- 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 guardrail at currently unprotected 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)
  - Installation of edge line and centerline rumble strips and rumble stripes
  - Use of high friction surface treatments
  - Improve shoulders
  - Installation of safety edge
  - Pavement drainage improvements, superelevation adjustments, use of slotted or grated drains, and wet pavement spot resurfacing
  - Mitigation of roadside hazards, e.g., fixed object removal, flattening of slopes, elimination of vertical headwalls and exposed pipe ends, removal of curbs protruding onto shoulders, providing breakaway or bend away sign supports, protection of rock cuts, etc.

- ***Bicycle/Pedestrian Countermeasures***
  - Pedestrian infrastructure safety improvements (i.e. new sidewalks, missing sidewalk gaps, pedestrian crossing features, etc.)

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

- ***Non-Infrastructure, e.g., Human Factors Projects***
  - Public relations activities
  - Enhanced enforcement

3.4 Ineligible Project Activities

The following project activities are generally not approved as safety-related countermeasures due to their low cost-effectiveness ratings and/or not being permitted under the federal HSIP funding category:

- Any work deemed to be a highway maintenance activity, e.g., pavement preservation, traffic control device replacement, etc.;
- 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 the construction site during construction.

3.5 Project Sponsors

As mentioned previously, highway safety improvement projects may originate from a range of project sponsors, including ALDOT headquarters or regional offices, other state agencies, counties, and municipalities. More detailed information on the specific project responsibilities of project sponsors can be found in Section 5.2.

SECTION IV: PROJECT APPLICATION, EVALUATION, AND SELECTION PROCESS

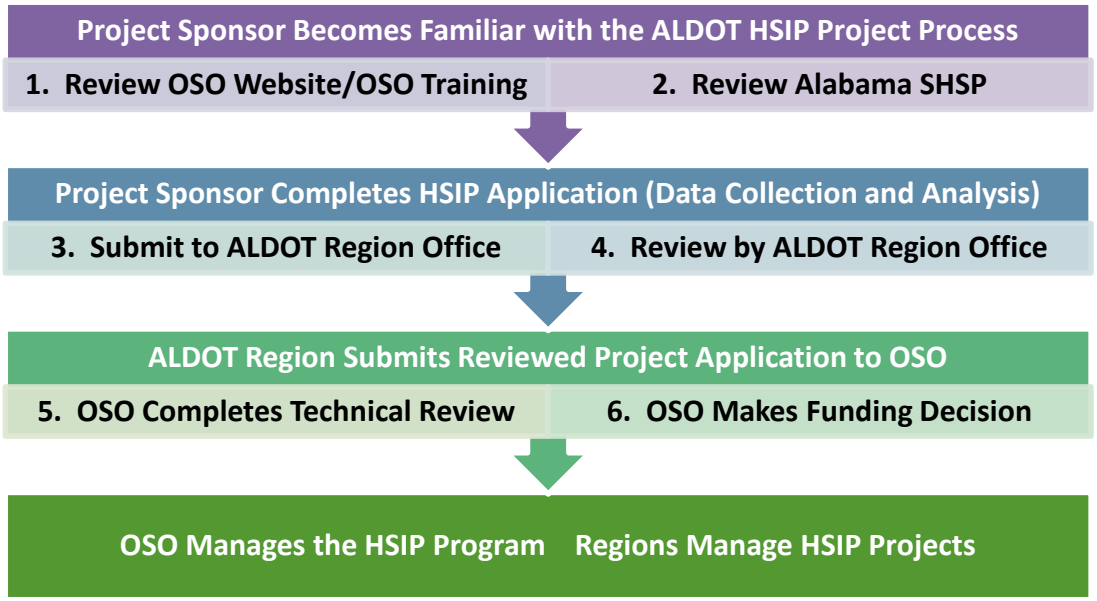
4.1 Project Application Process

Addressing highway safety throughout Alabama is the most important function the ALDOT organization serves. Thus, ALDOT accepts project applications for federal HSIP funding throughout the year and programs eligible, cost-effective highway safety improvement projects.

According to FHWA's Highway Safety Improvement Manual, "….*a highway safety improvement project is defined as a project consistent with the SHSP that corrects or improves a hazardous road location or feature or addresses a highway safety problem*…" The State of Alabama is committed to identifying projects or activities that are most likely to reduce the number and/or potential for fatalities and serious injuries resulting from crashes.

All HSIP project funding decisions are based on safety cost-effectiveness. The HSIP project funding process and requirements are described in Section 4.1. Figure 1 illustrates the sequence of activities in preparing and receiving notice from ALDOT that the proposed HSIP project has been approved.

Figure 1: HSIP Project Application and Funding Process



4.2 Responsibilities of the ALDOT Region Offices and OSO

The ALDOT Region Offices and OSO collaborate on the management of the HSIP program, including the management of HSIP-funded projects. Their respective duties are listed below:

4.2.1 ALDOT Region Office duties are to:

- Serve as the primary point of contact for potential HSIP project sponsors and assist them in understanding the HSIP program requirements;
- Conduct a completeness review of the HSIP project applications to make sure all of the requested data and information are included;
- Review the HSIP project applications to verify that they meet all the federal eligibility requirements;
- Verify that proposed projects are consistent with the Alabama SHSP focus areas and desired countermeasures;
- Confirm that the HSIP project sponsor has the local matching funds available and have committed them for the project (if approved by ALDOT);
- Review the HSIP technical project justification and verify that it has been prepared with sound engineering principles and is consistent with the HSIP program guidance;
- Submit written documentation to OSO on the results of the Region Office's completeness and technical reviews and recommendations for HSIP funding and project programming;
- Request FHWA concurrence on the use of HSIP funds once approval of the project is given by OSO;
- Enter the project into ALDOT's Comprehensive Project Management System (CPMS);
- Assign an ALDOT Project Manager who manages and advances the project through its completion (i.e.project close-out); and
- Conduct specified plan reviews consistent with the agreed-upon project schedule between ALDOT/OSO and the project sponsor (including cities or counties participating through sponsor agreements).

4.2.2 OSO Duties are to:

- Review and/or approve the HSIP project application and the Region Office recommendations;
- Confirm the project is eligible for funding, is consistent with the SHSP and its focus areas, is based on sound technical engineering analyses, and has non-federal matching funds available for the project;
- Determine whether federal HSIP funds are available for the project, and if so, works with the appropriate Region Office to establish the project in the HSIP Program;
- Once the project is approved for funding, work with the project sponsor on how to proceed with the project, including (1) confirming the project schedule and letting date; (2) confirming the project budget; (3) confirming the work to be done with HSIP funds, including potential environmental, design, and construction activities; (4) complying with plans preparation requirements; and (5) complying with other project delivery requirements;
- Provide a checklist to the HSIP project sponsor to identify all of the activities that must be complete in order to get the project authorized for funding (a copy of the checklist can be found in the Appendices);
- Participate in plan reviews for HSIP projects (which are managed by the Region Offices);
- Manage the entire program of HSIP projects and coordinate with program management with FHWA;
- Serve as technical advisor to Region Offices and project sponsors on HSIP program requirements;
- Review and approve/disapprove requests for HSIP project schedule changes (in coordination with the Region Office); and

- Review the status of projects where there are significant project delays and determine whether to cancel an HSIP project, require the project sponsor to take corrective actions, and/or reprogram the HSIP funding on other eligible project(s).

4.3 Post-Programming Activities by ALDOT and FHWA

As stated previously, once the HSIP project is authorized by FHWA, the ALDOT Region Office is responsible for entering project information in the Comprehensive Project Management System (CPMS). All HSIP projects must be routed and programmed through OSO using safety funds. OSO encourages subsequent project activities to be completed in a timely manner in order to implement safety projects quickly.

HSIP projects are composed of two parts (1) preliminary engineering (PE) and (2) construction (CN). If the HSIP project is classified as a non-infrastructure countermeasure, it will be entered into CPMS as a special project (SP). Preliminary engineering (PE) budgets are separate projects and must be authorized by FHWA before design work can begin**.** ***Preliminary engineering (PE) and construction (CN) projects that remain in the "Planned" phase for longer than six (6) months without any project activity will be considered for deletion from the HSIP program***

4.4 Project Application Form

A properly completed HSIP project application should provide 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 with FHWA and ALDOT standards. Since proposed safety projects compete with each other for limited federal funding based on safety cost-effectiveness, project sponsors should strive to submit the best possible project applications. Project applications which are incomplete or based on inadequate information, or are poorly prepared are not likely to be approved for funding.

This section describes the required information and data that must be submitted by the project sponsor(s). An electronic version of the form and the explanatory notes are also available at the OSO's website: (https://www.dot.state.al.us/dsweb/divTed/TrafficSOS/index.html).

4.5 Supplemental Project Justification Tools

For the past several years, ALDOT has been working on and partnering with organizations to develop highway safety analysis tools. These tools can assist HSIP project sponsors with identifying project locations as well as determine appropriate potential countermeasures. Among them are ALDOT's Road Improvement Safety Evaluation (RISE) program and software and the U.S. Road Assessment Program (usRAP) sponsored by the American Automobile American Automobile Association (AAA) Foundation for Traffic Safety.

4.5.1 ALDOT Road Improvement Safety Evaluation (RISE) Program

As of 2014, ALDOT's RISE program guidance has the capability of evaluating crashes and identifying appropriate safety enhancements. It is a network screening tool used for road segments which simplifies the analysis of safety countermeasures. In the future, this tool is expected to be used by ALDOT for other types of projects as well. Technical information on the RISE methodology for calculating a project's benefit/cost ratio is under development and will be available on the OSO webpage as soon as it is available.

4.5.2 U.S. Road Assessment Program (usRAP)

The usRAP Program focuses on collecting safety data for rural roads. Currently, ALDOT is testing the usRAP program in two rural counties to analyze suspected over-represented crash locations where traffic volumes are low and crash history data are insufficient to calculate the project benefits and costs as required by the HSIP program. The usRAP program overcomes this challenge by associating the potential crashes with geometric and other site factors to produce a proxy safety rating. Additional information relating to the usRAP methodology and program can be found on-line at http://www.usrap.us/home. ***When RISE and usRAP data and analyses for Alabama locations become available, HSIP project sponsors may use these sources and methodologies to calculate the benefit/cost ratio for their proposed HSIP projects.***

4.6 Project Application Completeness Review

Once the HSIP project application is submitted to the appropriate ALDOT Region Engineer, an application completeness review of the document will occur. If the project application is lacking information, the missing data will be requested by the ALDOT Region HSIP reviewer and incomplete project applications will be returned to the project sponsors, if needed, along with a listing and description of the missing items. A checklist to assist with the application completeness review can be found in the Appendices. ***An HSIP project application should not be forwarded to the OSO for further review by the Region Office until the project sponsor has completed it.***

4.7 HSIP Project Priorities

This section describes the OSO's process for establishing project priorities for the HSIP program. As part of its role in the HSIP program, the OSO has the responsibility for developing a prioritized list of proposed HSIP projects for funding consideration. As described previously, typically, the benefit/cost ratio for the proposed HSIP project is the most important factor in setting project priorities. However, given the changing needs and conditions across Alabama for safety-related improvements, it is important for OSO to have flexibility in setting program priorities to make the best use of the available HSIP funding resources and be as responsive as possible to ALDOT's priority needs.

Table 3 describes the factors used by OSO to determine the HSIP project priority listing. These factors may be weighed by OSO depending on the State's highway safety improvement program priorities. The sum of the criterion values (reflecting the individual weights of the criteria) will determine the project priority. Projects with the highest scores indicate top priority projects.

Following the evaluation of project applications, the OSO will maintain a priority listing of all eligible HSIP projects which can be programmed when federal funds are available.

Table 3: HSIP Project Priority Criteria

HSIP Project Priority Criteria	Assigned Points	Proposed Weight	*Range of Values*
Project Location	5 = project located at a high- risk location established through a safety study (intersection or segment) 0 = project not located at a high-risk location	5	0 to 25
Composite Benefit/Cost Ratio (B/C) for Proposed Project	Value of the B/C ratio	10	10 times the B/C value
Ease of Project Delivery	5 = Relatively easy/straightforward 2 = Some potential risks 0 = Likely to have significant risks	5	0 to 25
Crash Severity Potential	5 = High potential as assessed by OSO 0 = Low potential as assessed by OSO	5	0 to 25
		TOTAL POINTS:	**To be determined by OSO**

4.8 HSIP Project Selection

OSO is responsible for monitoring the availability and use of all federal HSIP funding available to ALDOT. In order to make HSIP funding decisions, the OSO will review the HSIP project priority list and program funding in line with the estimated project costs. OSO will also confirm that all programmed projects meet federal HSIP requirements and that they do not conflict with or are included in any other projects to be let by ALDOT during the year. If additional information is needed to clarify a proposed project, the OSO will contact the project sponsor and/or ALDOT Region Office by phone or electronic mail. OSO will notify all projects 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 project sponsor with a copy sent to the Region Office Engineer.

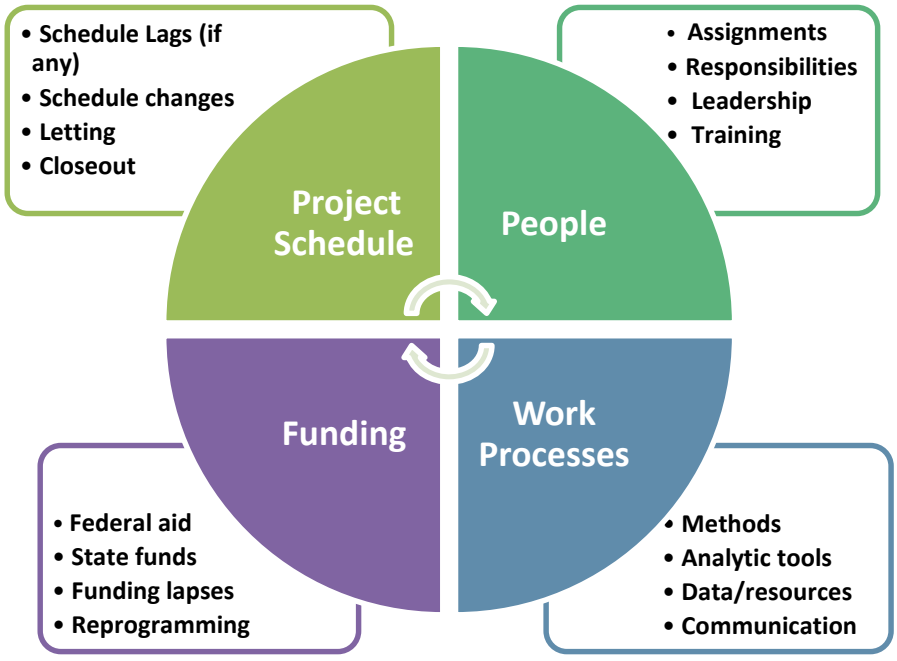
SECTION V: INTEGRATED HSIP PROGRAM MANAGEMENT SYSTEM

As stated previously, ALDOT considers its most important role to be protecting the safety of all highway system users. Thus, ALDOT is committed to take all reasonable actions to identify, fund, and deliver critically-needed safety projects as expeditiously as possible and has developed a program monitoring framework to gauge progress in delivering those projects.

In order to continuously monitor successful safety project implementation, an integrated management system has been developed by OSO. Over time, many of the aspects of the HSIP Program Tracking and Evaluation System will be web-based via ALDOT's website for ease of access by OSO, ALDOT headquarters, ALDOT regions, and other program participants. As a starting point, this section describes the overall framework and processes that will be used to manage the HSIP program. As new features and enhancements to the framework are made, OSO will advise its safety program stakeholders of these changes.

The HSIP Program has four (4) major types of resources to manage in its role as the primary steward of the HSIP program in Alabama as shown in Figure 2. The four resource types include (1) ***Time***, through the monitoring of project schedules and delivery; (2) ***People,*** by assigning internal OSO team members, project sponsors, and other participating groups working on the safety projects; (3) ***Work Processes***, through technical guidance and direction on carrying out safety projects; and (4) ***Funding***, through the financial resources available to the HSIP program from federal and non-federal sources.

Figure 2: Integrated HSIP Program Management Framework



ALDOT, working with all of the HSIP program participants, will use this framework to organize, monitor, and communicate internally and externally to project sponsors and the public on highway safety issues. Table 4 shows the respective program activities and products that are envisioned to be used and develop to manage the HSIP program. Many of these are still in the development stage and will be made available as soon as possible via the OSO website.

Table 4: HSIP Program Monitoring Framework

HSIP Resource Category	Planned Activities and Products
Project Schedule	- Individual HSIP project schedules - Analysis of project delivery trends and performance for HSIP projects - "Lessons Learned" on how to accelerate HSIP project delivery - Information for project sponsors on project lettings and close-outs
People	- Contact information on HSIP-related technical resource people in the OSO and ALDOT Region Offices - Training programs and skill-building for ALDOT and other program participants - Communications linkages to safety advocacy groups in the U.S., statewide, and regionally - Information-sharing about peer DOT safety program activities - Attendance at and resource materials from conferences and other highway safety-related events - Easy on-line access to technical safety-related materials to help expand the knowledge of safety practitioners
Work Processes	- Web-based information on how to access federal HSIP funding for proposed projects - Information on how safety is integrated into other ALDOT work groups and functions - Sample schedules and milestones for typical HSIP projects - New research findings applicable to analyzing and delivering effective safety improvements - News and updates to project sponsors and other interested parties on HSIP activities
Funding	- User-friendly information on potential funding sources for safety-related activities and programs - Historical trend data on ALDOT's expenditure of funds for safety projects - New information from FHWA on HSIP program opportunities, when available

5.1 Timely Use of HSIP Funding

Safety projects funded through the HSIP are intended to have a relatively rapid project delivery. Generally, safety projects should be constructed within three years of authorization of funds. The preliminary engineering (PE) phase of each project should be completed within 12 months of project authorization. Generally, HSIP projects should not require significant right-of-way acquisition 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 OSO. Projects that do not meet the appropriate deadlines ***as determined by OSO*** will be subject to removal from the HSIP funding program and funds will be reprogrammed to other eligible safety projects.

5.2 Other Project Delivery Resources

ALDOT's current policies and procedures state the division of responsibility among its offices, including OSO, its regions, and the local governments certified to carry out federal aid safety projects. ***ALDOT, through OSO, has the responsibility to ensure that HSIP project sponsors are administering the federal aid program in conformance with all applicable federal requirements.*** In addition to utilizing its own resources (in-house, consultant, and contractor), ALDOT has the option to authorize certified local governments, known as Local Public Agencies (LPAs), to perform selected project activities on federal aid projects. LPA program requirements are documented in ALDOT's *Local Public Agency Project Guide* (2012). Safety projects carried out by LPAs in cooperation with ALDOT must adhere to both the policies and guidelines of ALDOT's *LPA Project Guide* and the *LPA Manual for Federal-Aid Projects in Alabama*.

5.3 Guiding Principles for HSIP Program Management

In addition to this organizational framework, there are two guiding principles which will be fundamental in the management of the HSIP program in Alabama. One is known as "*Project Inactivity/Reprogramming Policy*" and the other is "*Linking Quality Projects to Funding Policy*".

- ***Project Inactivity/Reprogramming Policy*** – Federal funding available for HSIP projects is limited and should be applied to the best possible use to provide safety benefits to Alabama's traveling public. In order to achieve this goal, ALDOT will monitor the progress of projects and identify when a project is not progressing. While difficulties and delays occur from time to time on transportation infrastructure projects, safety projects are envisioned to be relatively easy projects to deliver in comparison to larger, more extensive highway projects. As part of its HSIP program monitoring activities, ALDOT will establish reasonable project schedules cooperatively with project sponsors and hold them accountable for meeting the schedules and avoiding unreasonable delays. If significant project delays occur, ALDOT reserves the right to reprogram project funds to another eligible HSIP project.

- ***Linking Quality Projects to Funding Policy -*** ALDOT desires to fund eligible HSIP projects with the most favorable benefit/cost ratios. Thus, project sponsors should be as accurate as possible in describing the nature and scope of the proposed HSIP project and prepare reasonable cost estimates based on actual cost experience with similar projects. OSO professionals and other ALDOT team members, including Region Office personnel, are available to assist project sponsors, if needed.

ALDOT, in cooperation with its project sponsor organizations and FHWA, always endeavors to use its resources – time, technical resources (human capital), funding, and work processes - to their best advantage in delivering positive safety results for the citizens of Alabama.

5.4 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 expected to report on the progress of their project implementation activities at least quarterly at times and in a format designated by ALDOT (see Appendices).

The OSO will monitor projects from the time of project programming (fund authorization) to final construction and project closeout. The project schedule will be followed (and maintained by the project sponsor) and any significant changes will be tracked by the OSO. The project sponsor is responsible for reporting any situations that will cause project delays to OSO as soon as possible. During the project, the OSO 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.

5.5 HSIP Performance Dashboard (*Future Enhancement*)

It is ALDOT's intent to develop a web-based dashboard showing the progress of its highway safety program. This is a key requirement of the MAP-21 legislation with which all states must comply. Transportation dashboards are increasingly being developed and used by state, regional, MPO, and local transportation authorities to track their progress in carrying out their programs and meeting their goals and communicating this information to the public. These dashboards typically reflect the key highway safety performance measures being developed by ALDOT and the MPOs as part of the MAP-21 requirements.

ALDOT's safety program stakeholders will be advised by the OSO when the HSIP dashboard is available for their use. Among the aspects of the HSIP program under consideration for the dashboard are:

- Historic data and trends on total fatalities;
- Historic data and trends on injuries;
- Historic data and trends on property damages;
- Number of crashes this year compared to last year;
- Percentage of crashes by cause;
- Amount of safety funding committed to projects this year;
- Number of highway safety projects underway in Alabama this year; and
- Other data and information as determined by OSO.

5.6 Alabama HSIP Annual Report

The OSO 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***. It should be noted that 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 on line at http://safety.fhwa.dot.gov/hsip/reports/pdf/al.pdf.

SECTION VI: ALDOT HSIP PROGRAM CONTACT INFORMATION

The OSO organization plays the primary role in the identification, evaluation, and programming of needed highway safety improvement projects under the federal HSIP program and is carried out collaboratively with the ALDOT Region Offices.

6.1 OSO Office

The contact information for the State Safety Operations Engineer and staff located in the OSO is shown in Table 5. The street address for the Office is 1110 John Overton Drive, Montgomery, Alabama 36110.

Table 5: OSO Office Personnel

Name	Title	Phone	Email	Primary Role(s) and Responsibilities
Timothy Barnett, PE, PTOE	State Safety Operations Engineer	(334) 353-6464	barnettt@dot.state.al.us	- State Safety Operations Engineer - Head of Safety Operations Office
Sonya Baker	Safety Engineering Manager	(334) 353-6468	bakers@dot.state.al.us	- HSIP program - HSIP funds/ application process
Stuart Manson, PE	Safety Engineering Analyst	(334) 353-6462	mansons@dot.state.al.us	- Engineering Technical Support (including safety and operational analysis), Crash Analysis, including Benefit-Cost Analyses

6.2 ALDOT Region Offices

Contact information is still under development.

APPENDICES

APPENDIX A: HSIP Project Application Checklist

The following items should be included in the HSIP Project Application to be considered "complete" by ALDOT.

_____ 1. Cover letter from Project Sponsor Agency stating that the designated Contact Person is authorized to work with ALDOT on the project application and that non-federal matching funds will be made available for the HSIP project if it is selected for federal funding.

_____ 2. HSIP Project Application Form - Worksheet 1 & Worksheet 2 (two pages) - signed by authorized representative of the sponsoring agency

_____ 3. Completed Questions form

_____ 4A. For proposed intersection improvement projects - Drawing or map of intersection showing key features, safety problems and proposed countermeasures

_____ 4B. For proposed road segment improvement projects - Drawing or map of project area showing key features, safety problems and proposed countermeasures

_____ 5. Labeled photos of project area with photo key showing location and orientation of photo

_____ 6. Traffic data and traffic growth rate calculations

_____ 7. For proposed intersection improvement projects - Intersection turning movement counts (OPTIONAL)

_____ 8. Crash Summary Form and collision diagram

_____ 9. For proposed traffic signal projects – submit traffic signal warrant worksheets

_____ 10. If proposing a countermeasure that is not in the Improvement Table and spreadsheet, the applicant must provide information to support the service life and crash reduction factors (CRF) for the proposed countermeasure.

_____ 11. Preliminary project cost estimate with any supporting documentation for each proposed countermeasure. Also provide supporting documentation for estimated maintenance costs for each countermeasure.

_____ 12. Engineering study for the proposed HSIP project signed by a Licensed Engineer in the State of Alabama

_____ 13. Other data or information that supports the need for the proposed HSIP project (i.e. news articles, local government resolutions, etc.)

APPENDIX B: Example Calculations for Construction & CE&I Cost for Combined Countermeasures

Proposed Countermeasures or Improvement Actions	Action No.	52. Proposed Countermeasure or Improvement Action	53. Service Life (in yrs)	54. Crash Reduction Factors (CRF)		
				K	A, B, & C	PDO
	1	Pavement Marking Improvement - Center line marking	7	0.25	0.25	0.25
	2	Construction/Reconstruction - Add lanes (without physical separation) - Auxiliary right turn lane	10	0.21	0.21	0.21
	3	Roadside Improvement - New/upgrade guardrail	20	0.35	0.35	0.05
			20	**0.61**	**0.61**	**0.44**
			Max Service Life	**Combined CRF**		

User must include the cost of replacing the countermeasures with the shorter service lives to get to the countermeasures with the longest service life.

Countermeasure 1 has a 7 year Service Life – it will need to be replaced in Year 8 and Year 15.
Countermeasure 2 has a 10 year Service Life – it will need to be replaced in Year 11.
Countermeasure 3 has a 20 year Service Life – it has the longest service life and will not need to be replaced.

For Item 68 (Construction and CE&I cost), the user will need to calculate this cost as:
Countermeasure 1 = Initial Construction/CE&I cost + Replacement cost in Year 8 + Replacement Cost in Year 15
Countermeasure 2 = Initial Construction/CE&I cost + Replacement cost in Year 11
Countermeasure 3 = Initial Construction/CE&I cost

Countermeasure		Initial Construction Cost	CE&I Cost	Replacement Cost	Times to Replace	Total
CM 1	Center Lane Marking	$ 4,000.00	$ 400.00	$ 4,000.00	2	$12,400.00
CM 2	Add Auxiliary Right Turn Lane	$ 40,000.00	$ 4,000.00	$ 10,000.00	1	$54,000.00
CM 3	Add New Guardrail	$ 25,000.00	$ 2,500.00	$ -	0	$27,500.00
					TOTAL	$93,900.00

68. Construction and CE&I Cost
$ 12,400.00
$ 54,000.00
$ 27,500.00
$ 93,900