1. INTRODUCTION

The Highway Safety Improvement Program (HSIP) is used by the Utah Department of Transportation (UDOT) to fund projects that advance roadway safety goals in Utah. Utah’s ultimate roadway safety goal is Zero Fatalities and HSIP funds are critical to our efforts in reaching that goal.

1.1. HSIP Description

The HSIP is a core highway program that is part of the federal transportation bill – the Fixing America’s Surface Transportation Act (FAST Act). This legislation states that the purpose of the HSIP is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned public roads and roads on tribal lands, through the implementation of primarily infrastructure-related highway safety improvements. The HSIP requires a data-driven, performance-based, strategic approach to improving highway safety on all public roads.

Under the previous federal transportation bill (MAP-21), a state could use HSIP funds on non-infrastructure safety projects that met the overarching requirement such as education, enforcement, and workforce development. Most non-infrastructure related activities that were allowed through MAP-21 were discontinued with the FAST Act. UDOT expects that important non-infrastructure related efforts, strategies and activities used to address highway safety problems will once again become HSIP-eligible with future legislation.

1.1.1. Sub-Programs

The federal HSIP includes the Railway-Highway Crossings Program (RHCP) as a sub-program. However, the focus of this manual is the core HSIP. It does not cover the RHCP.

1.1.2. Relationship to State Strategic Highway Safety Plan

Utah’s Strategic Highway Safety Plan (SHSP) defines Utah’s safety goals and describes a program of strategies to improve safety. The SHSP was developed in cooperation with a broad range of multidisciplinary stakeholders. In order to obligate HSIP funds, UDOT must produce a program of projects or strategies that reduce safety problems identified in the SHSP. UDOT must also evaluate and update its SHSP on a regular basis.

1.2. Purpose of the HSIP Manual

The purpose of this manual is to:

- Define the parameters of the HSIP.
- Define the roles of different parties involved with this program.
- Define and describe HSIP processes.
• Provide readers with a solid understanding of how the HSIP is managed within the state of Utah by UDOT.

The manual is useful for the following audiences:

• UDOT employees and managers involved with HSIP processes.
• UDOT consultants that are contracted to perform functions within HSIP processes.
• Federal regulators (e.g. the Federal Highway Administration (FHWA)) seeking to determine how UDOT is implementing the HSIP.
• General public.

This manual can be downloaded from the UDOT website by going to the following webpage: www.udot.utah.gov/go/hsip.

1.3. Manual Outline

This manual is organized into the chapters listed below.

• Chapter 1: Introduction
• Chapter 2: Program Oversight & Funding
• Chapter 3: Special Rules
• Chapter 4: Partners
• Chapter 5: Highway Safety Improvement Project Process
• Chapter 6: Non-Infrastructure Project Process
• Chapter 7: Reporting

Chapters 5 and 6 contain the bulk of the information that will be most useful to readers.

1.4. Relationship of HSIP & SSIP

UDOT manages a State-funded program called the Spot Safety Improvement Program (SSIP). The two programs are similar in purpose, which is funding roadway safety projects. UDOT follows similar processes for both programs. SSIP lends itself well to projects where UDOT crews or procurement contracts can be used to complete the work because unlike HSIP projects, SSIP projects are not required to follow federal requirements such as competitive bidding. SSIP funds may also be used proactively to mitigate potential safety hazards that do not have an expected benefit-to-cost ratio greater than one. See the SSIP Manual for more information on this program.

1.5. Safety Program Information Legal Protections

Under U.S. law (Section 23 USC 409), crash data is protected from use in a court of law. UDOT aggressively exercises its rights to keep crash data and associated safety program information out of courts of law. Section 23 USC 409 reads as follows:
Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 [152] of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.

1.6. Acronyms

Many different acronyms are used throughout this manual. The following is a list of those acronyms and a description of what each of them stands for.

DOT .................. Department of Transportation
ePM.................. UDOT’s Electronic Program Management Software
FAST Act.......... Fixing America’s Surface Transportation Act
FHWA ................. Federal Highway Administration
HRRRP ............... High Risk Rural Roads Program
HSIP ................. Highway Safety Improvement Program
HSM .................. Highway Safety Manual
MAP-21 .............. Moving Ahead for Progress in the 21st Century Act
MPO .................. Metropolitan Planning Organization
PE .................... Professional Engineer
PM .................... Project Manager
PTOE ................ Professional Traffic Operations Engineer
RHCP ................ Railway-Highway Crossings Program
SHSP ................ Strategic Highway Safety Plan
STIP ................ Statewide Transportation Improvement Program
SSIP ................ Spot Safety Improvement Program (State Funded)
UDOT ............... Utah Department of Transportation
usRAP ............... Unites States Road Assessment Program
VMT ................. Vehicle Miles Traveled
23 USC .............. Title 23 United States Code
2. PROGRAM OVERSIGHT & FUNDING

The FAST Act provides annual funding to the 50 states and the District of Columbia as follows:

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
<th>2020</th>
</tr>
</thead>
</table>

Source: U.S. Department of Transportation Federal Highway Administration

Utah’s portion is approximately $20 million per year after required set-asides (see section 2.1.1).

2.1. HSIP

The HSIP is administered at the federal level by the U.S. Department of Transportation’s FHWA Office of Safety. FHWA works with each state’s Department of Transportation (DOT) to achieve implementation of the HSIP at the state level. As such, UDOT is responsible for implementing the program within Utah. Each state DOT is accountable to FHWA for making sure that HSIP money is spent on appropriate activities. However, states are given considerable flexibility to determine how to best implement the HSIP in their areas.

2.1.1. Federal Oversight & Funding

In order to obligate HSIP funds, each state must fulfill the following requirements:

- Develop, implement and update an SHSP that identifies and analyzes highway safety problems and opportunities.
- Produce a program of projects or strategies to reduce identified safety problems.
- Evaluate the SHSP on a regularly recurring basis to ensure the accuracy of data and priority of proposed strategies.
- Submit annual HSIP Report (See Chapter 7).

Each state’s annual apportionment of HSIP funds is subject to set-asides for the RHCP and State Planning and Research.

The FHWA website includes information about various aspects of the HSIP. To access this information, click on the following link: http://safety.fhwa.dot.gov/hsip.

2.1.2. State Oversight & Funding

UDOT’s Safety Programs Engineer oversees HSIP activities within Utah. This person is responsible for setting the policies and procedures required to fulfill the federal HSIP mandate set forth by the FAST Act.
UDOT uses its federal HSIP apportionment to pay for the following items:

- HSIP infrastructure projects.
- Non-infrastructure needs, such as the collection, analysis, and improvement of safety data that are important to furthering the HSIP goals.
- Fees for consultants that perform specific supporting roles in the HSIP.

The main source of feedback provided by UDOT comes in the form of the annual HSIP Report. This document is described in Chapter 7.
3. SPECIAL RULES

Two notable special rules are contained within the HSIP and are described in the subsections below. One rule is related to rural road safety. The other pertains to safety of drivers over the age of 65.

3.1. High Risk Rural Road Safety

Versions of the federal transportation bill prior to MAP-21 contained a High Risk Rural Roads Program (HRRRP) embedded within the HSIP. MAP-21 removed the requirement for each state to implement an ongoing HRRRP. MAP-21 did, however, implement a special rule requiring states to monitor crashes on rural roads and take measures to address such crashes if they meet a certain threshold. The FAST Act continues this requirement. In Utah, a High Risk Rural Road is identified as a rural major or minor collector or a rural local road that exhibits significant safety risk based on:

- A concentration of crashes at a spot location or on a corridor that can be mitigated by proven safety countermeasures;
- Roadway attributes (as identified in a road safety audit, engineering study, field review, or similar) that present a risk to drivers, pedestrians, or bicyclists that can be mitigated by proven safety countermeasures; and/or
- A quantitative safety model, such as usRAP.

The rule states that if the fatality rate on rural roads increases over the most recent two-year period for which data are available, in the next fiscal year UDOT must obligate an amount at least equal to 200% of its 2009 fiscal year HRRRP set-aside and use the money to address crashes on rural roads.

3.2. Older Drivers

MAP-21 also implemented a special rule within the HSIP related to older drivers and pedestrians, which was continued under the FAST Act. This rule states that if fatalities and serious injuries per capita for drivers and pedestrians over the age of 65 increase during the most recent two-year period for which data are available, UDOT is required to incorporate strategies focused on older drivers and pedestrians in the next SHSP update.
4. PARTNERS

The HSIP is a partnership between federal agencies, the UDOT Traffic & Safety Division, the four UDOT region offices, local agencies, consultants, and construction contractors. Each partner plays an important role in the success of this program. Chapter 4 describes the roles of these major partners.

4.1. Federal Highway Administration

It is FHWA’s responsibility to manage the HSIP on the federal level. They work with state DOTs to implement the program. FHWA also provides program implementation guidance on their website, which may be found at http://safety.fhwa.dot.gov/hsip. Each fiscal year, UDOT must submit the HSIP report (described in Chapter 7) to the FHWA Utah Division office, which then forwards it to the FHWA Office of Safety in Washington, DC. Contact information for the person currently serving as the Safety Program Manager in the FHWA Utah Division is listed below.

Roland Stanger  
FHWA Safety Program Manager for Utah  
roland.stanger@dot.gov  
(801) 955-3515

4.2. UDOT Traffic & Safety Division

The UDOT Traffic & Safety Division is responsible for the general implementation and oversight of all of UDOT’s safety programs, including the HSIP. Division staff perform multiple functions to facilitate the infrastructure and non-infrastructure processes described in Chapters 5 and 6.

The Safety Programs Engineer heads the HSIP implementation effort. The contact information for the person in this position at the time of this writing is listed below.

W. Scott Jones, PE, PTOE  
Safety Programs Engineer  
wsjones@utah.gov  
(801) 965-4285

4.3. UDOT Region Offices

The UDOT region offices play a major role in the development and implementation of HSIP projects. They work in concert with the UDOT Traffic & Safety Division to identify potential project locations, submit HSIP funding applications, and participate in the screening and prioritization process. Once projects are selected and funded in each region, the region offices take ownership of the projects, assign Project Managers (PMs),
and implement them according to standard federal environmental, design, and construction processes. Contact information for UDOT’s region offices is available at http://www.udot.utah.gov/main/f?p=100:pg:0:::1:T,V:38.

4.4. Local Agencies

HSIP funds can be used for infrastructure improvements on any publicly owned roadway. MAP-21 emphasized, and the FAST Act furthers, coordination with a broad range of stakeholders. Local agencies are one such group. Any local agency may apply for HSIP funding as long it owns the right-of-way for the location in question. However, the Traffic & Safety Division researches the crash history at these locations just as they do with projects developed internally. In order for HSIP funds to be used, all locations must show either a proven crash history or have characteristics that conform to systemic situations that UDOT has identified as a funding priority.

For HSIP-funded projects on non-state roads, the local agency right-of-way owner will be a partner in the project. In this case, projects will follow the standard UDOT Local Government project process.

In addition to identification of infrastructure projects, UDOT also works with Metropolitan Planning Organizations (MPOs) to help them integrate safety into their long-range planning efforts. UDOT continues to work with the MPOs to develop safety action plans and present workshops to MPO leadership in order to build support for safety planning at the regional level.

4.5. Consultants & Contractors

The UDOT Traffic & Safety Division and region offices often contract portions of HSIP projects (both infrastructure and non-infrastructure) to consultants and contractors. Infrastructure projects are constructed by private contractors chosen through UDOT’s standard procurement processes.

4.6. Safety Organizations

The Traffic & Safety Division works with numerous agencies and organizations that are involved in roadway safety. These organizations’ input is sought as programs are developed and implemented. Their insight is especially valuable for creating roadway safety education and enforcement campaigns.
5. HIGHWAY SAFETY IMPROVEMENT PROJECT PROCESS

The term "highway safety improvement project" means strategies, activities, and projects on a public road that are consistent with the SHSP and correct or improve a hazardous road location or feature, or address a highway safety problem.

This chapter discusses, and Figure 1 depicts, the overall process by which HSIP projects are planned, analyzed, prioritized, programmed, implemented, and evaluated. The six-step process involves collaboration between the UDOT Traffic & Safety Division, FHWA, and the UDOT region offices to select projects and then move them through to construction.

The collaboration process, which is similar for HSIP and SSIP projects, is depicted in Figure 2. This sub-process includes details specifically related to UDOT’s project application, scoping and funding activities that take place inside the overall HSIP process.

The HSIP requires states to:

- Have a safety data system capable of identifying problems and conducting countermeasure analysis on all public roads.
- Adopt strategic and performance-based goals.
- Advance data collection, analysis, and integration capabilities.
- Determine priorities for the correction of identified safety problems.
- Establish evaluation procedures.

These requirements are addressed by the intermediate processes (from planning to evaluation) discussed in the following sections.
Figure 1: UDOT HSIP Infrastructure Process

PLANNING

COLLECT/EVALUATE CRASH DATA

COLLECT/EVALUATE ROADWAY & TRAFFIC DATA

INPUT FROM UDOT REGIONS & OTHER SAFETY PARTNERS

SCREEN DATA/INPUT

IDENTIFY/SCOPE POTENTIAL SPOT SAFETY LOCATIONS

PREPARE 3-YEAR CRASH HISTORIES

IDENTIFY CRASH CHARACTERISTICS & POTENTIAL MITIGATION MEASURES

DEVELOP BENEFIT-TO-COST RATIOS

COMPLETE REGION REVIEW

REFINE PROJECT SCOPE

PRIORITIZE PROJECTS BASED ON:
- GREATEST BENEFIT TO REDUCE FATAL AND SERIOUS INJURY CRASHES IDENTIFIED IN THE SHSP
- BENEFIT-TO-COST RATIO
- TIMELINE TO COMPLETION
- COORDINATION WITH OTHER PROJECTS

ASSIGN PROJECTS TO 3-YR. PLANNING HORIZON

SET UP PROJECTS

FINALIZE PROJECT SCOPE, SCHEDULE & BUDGET

DESIGN & CONSTRUCT PROJECTS WITH UDOT REGION OVERSIGHT

PREPARE/REPORT 3-YEAR BEFORE/AFTER CRASH HISTORIES

ASSEMBLE INFORMATION FOR HSIP REPORT

ANALYSIS

INPUT FROM UDOT REGIONS & OTHER SAFETY PARTNERS

COLLECT/EVALUATE ROADWAY & TRAFFIC DATA

SCREEN DATA/INPUT

IDENTIFY/SCOPE POTENTIAL SPOT SAFETY LOCATIONS

PREPARE 3-YEAR CRASH HISTORIES

IDENTIFY CRASH CHARACTERISTICS & POTENTIAL MITIGATION MEASURES

DEVELOP BENEFIT-TO-COST RATIOS

COMPLETE REGION REVIEW

REFINE PROJECT SCOPE

PRIORITIZE PROJECTS BASED ON:
- GREATEST BENEFIT TO REDUCE FATAL AND SERIOUS INJURY CRASHES IDENTIFIED IN THE SHSP
- BENEFIT-TO-COST RATIO
- TIMELINE TO COMPLETION
- COORDINATION WITH OTHER PROJECTS

ASSIGN PROJECTS TO 3-YR. PLANNING HORIZON

SET UP PROJECTS

FINALIZE PROJECT SCOPE, SCHEDULE & BUDGET

DESIGN & CONSTRUCT PROJECTS WITH UDOT REGION OVERSIGHT

PREPARE/REPORT 3-YEAR BEFORE/AFTER CRASH HISTORIES

ASSEMBLE INFORMATION FOR HSIP REPORT

PROGRAMMING

IMPLEMENTATION

EVALUATION

HIGHWAY SAFETY IMPROVEMENT PROJECTS

UNIVERSITY OF UTAH TRANSPORTATION \& SAFETY RESEARCH INSTITUTE
Figure 2: UDOT HSIP/SSIP Collaboration Process

**Step 1: Pre-screening**
At any time during the year, Regions, Central Divisions, or other safety partners can identify and explore potential project ideas using various tools and metrics that are available.

As necessary, ideas should be pre-screened in conjunction with Central Traffic & Safety. Local governments must submit ideas through their associated Region.

Central Traffic & Safety performs a preliminary review of the crash history and systemic prioritization and coordinates with the Regions on their findings.

**Step 2: Formal Application**
In order for projects to be considered in the annual safety funds programming effort, a formal application must be submitted using Workflow Manager (WFMan.com).

Regions are able to submit their applications, as well as any local government applications, at any time during the year through Workflow Manager.

Central Traffic & Safety reviews crash and safety model data for each application and provides a formal response:
- Qualifies for funding
- Non-Qualifying

**Step 3: Quarterly Meetings**
Meetings are held between Central Traffic & Safety and the Regions to review projects and applications on a quarterly basis (Dec, Mar, June, Sept).

The primary objectives of these meetings are:
- Review HSIP/SSIP applications.
- Coordinate on next steps related to developing applications into projects.
- Discuss Region plans to prepare concept reports and formal cost estimates.

During the meeting, Central Traffic & Safety and the Regions review applications.

**Notes**
1) As directed by the Region Traffic Operations Engineer and Program Manager, Central Traffic & Safety will move projects out of ePM screen 300 and apply Safety Program funds. The Region Program Manager then assigns a Project Manager and proceeds with delivering the project.

2) The Transportation Commission approves the HSIP budget, as well as each project inside the program, during the annual STIP workshop. Transportation Commission approval is required when adding projects to the program that are over $500,000 or when increasing funds on a project by more than $500,000.

3) When a project is “fast tracked” from application to funding without being prioritized through the annual ranking process, no action will be taken until the Region Traffic Operations Engineer and Region Program Manager express support for moving the project forward.
5.1. Planning

The flowchart below illustrates the activities that are part of the Planning steps of the HSIP infrastructure project process.

The first steps in the planning process are the collection and evaluation of crash, traffic, and roadway attribute data, as well as solicitation of locations from the UDOT region offices and other safety partners.

The Traffic & Safety Division uses statewide hot spot and systemic modeling to pinpoint locations where crashes have occurred or where the models suggest crashes are likely to occur in the future (see sections 5.1.1 and 5.1.2). UDOT’s statewide collection of roadway assets has made systemic modeling based on roadway characteristics much more feasible.

The Traffic & Safety Division screens the model outputs, crash and traffic data, and locations from the region offices and other safety partners to identify potential safety project locations. The Traffic & Safety Division does not determine at this time whether a project will ultimately be funded through the HSIP or SSIP. This determination is made at a later stage of the process.

In order to better address the randomized nature of crashes, the Traffic & Safety Division is continually moving towards processes built upon systemic safety analyses that minimize dependence on retrospective looks back at crash histories. Systemic analyses are better able to statistically predict where crashes are most likely to occur in the future, thereby allowing UDOT to apply safety funds in the places most likely to reduce serious and fatal injury crashes. The following two subsections highlight specific elements of UDOT’s emerging systemic approach.

5.1.1. State System Crash Models

The Traffic & Safety Division continues to work with local universities to create and utilize a statewide crash model of the State highway system. This model allows UDOT to evaluate different roadway attributes (e.g. curve radius, speed limit, shoulder width) and compare those attributes to the observed crashes to determine which variables (or combinations of variables) best correlate to an overrepresentation of expected crashes.
UDOT has also formed a partnership with several entities to implement the United States Road Assessment Program (usRAP) safety model on the State highway system and other Federal-aid routes. This model systematically assesses risk based on crash data and roadway attributes in order to identify major safety shortcomings that can be addressed by practical road improvement measures. The model was originally developed in other countries (principally Australia and the United Kingdom) to rate the safety of specific routes but its introduction to the U.S. is still in the initial stages.

5.1.2. Systemic Safety Project Selection Tools

UDOT worked with a national consultant to apply FHWA’s Systemic Safety Project Selection Tool. This tool provides a framework for identifying roadway characteristics that pose a higher crash risk than other characteristics. Once the risk factors are identified, countermeasures that address the risk factors are selected and specific roadways are prioritized for implementation. The Systemic Safety Project Selection Tool evaluates crash types identified in the SHSP.

5.2. Analysis

The flowchart below illustrates the Analysis steps of the HSIP project process.

Following the Planning steps, potential spot safety locations are moved forward for a more extended analysis. For locations that are identified on the basis of crash density at a single location, a three-year crash history is compiled for those locations. Other potential spot safety locations are identified through the systemic analysis methods mentioned in Sections 5.1 and 5.2. These methods identify roadway attributes that correlate with a larger than expected number of crashes for the particular type of road. Once these attributes are identified, UDOT is able to locate sites around the state that exhibit those attributes.

After specific sites are identified (whether through density-based or systemic analysis), crash characteristics are analyzed and potential measures to mitigate those
characteristics are identified. Benefit-to-cost ratios are calculated for each location based on the crash history, the expected decrease in crashes for a potential mitigation measure, and the cost of that mitigation measure.

Traffic & Safety Division staff, an FHWA representative, and various region staff review the potential HSIP project locations. At this stage of the process, potential projects may be re-analyzed and the scope of the project may be changed as necessary. The modified project will then go through the aforementioned steps a second time.


UDOT is currently using the Highway Safety Manual (HSM) to inform decisions about how to apply safety funds in particular corridors and at specific spot locations. The tools available in the Part C and Part D sections of the HSM allow UDOT to gauge the potential safety impact of different mitigation measures and select the ones that will provide the greatest benefit-to-cost ratio.

5.3. Prioritization

The flowchart below illustrates the activities that are part of the Prioritization steps of the HSIP project process.

Once the Analysis steps are complete, projects that make it through to this stage are prioritized. The prioritization is based on the factors listed in the flowchart and is conducted by the Traffic & Safety Division.

5.4. Programming

The flowchart below illustrates the activities that are part of the Programming steps of the HSIP project process. The Traffic & Safety Division conducts these steps.
Projects that receive sufficient priority to warrant funding are assigned to the three-year planning horizon. A report is compiled for each of the four UDOT regions, showing the HSIP projects that the regions have chosen to fund over the following three-year period. Each project is set up in UDOT’s ePM system and the scope, schedule, and budget are finalized.

Because this covers a three-year period but is re-evaluated regularly, it is possible for re-prioritization or shifts in funding to occur periodically that may result in modified or new projects with higher priorities taking the place of previously programmed projects.

At this stage of the process, feasible projects that do not have a crash history (or are not considered to be a systemic problem) may be considered for funding through the SSIP. SSIP funding may also be used for projects too small to justify using the Federal advertising process or that can be completed more efficiently with State forces.

5.5. Implementation

The flowchart below illustrates the activities that are part of the Implementation steps of the HSIP project process.

![Flowchart](PREPARE/REPORT 3-YEAR BEFORE/AFTER CRASH HISTORIES)

![Flowchart](DESIGN & CONSTRUCT PROJECTS WITH UDOT REGION OVERSIGHT)

After projects have been programmed through the Traffic & Safety Division, the region PMs shepherd the projects through the standard region environmental, design, and construction processes.

5.6. Evaluation

A key component of successfully managing any program is the periodic evaluation and reporting of progress toward pre-determined goals. As mentioned in Chapter 1, the FAST Act legislation states that the purpose of the HSIP is to achieve a significant reduction in traffic fatalities and serious injuries on all public roads, including non-State-owned public roads and roads on tribal lands, through the implementation of primarily infrastructure-related highway safety improvements. This section describes the ways in which UDOT evaluates progress toward this goal. The flowchart below illustrates the evaluation part of the HSIP project process.

![Flowchart](PREPARE/REPORT 3-YEAR BEFORE/AFTER CRASH HISTORIES)

![Flowchart](ASSEMBLE INFORMATION FOR HSIP REPORT)
As discussed in Section 5.2, three years of crash history are analyzed as part of the initial screening process for each HSIP project identified on the basis of crash densities. After three years have elapsed following construction of these types of projects, the crash history for the three-year post-construction period is analyzed. The Traffic & Safety Division compares before and after crash histories to assess each project’s impact on serious and fatal injury crashes.

Systemic projects differ fundamentally from those identified through crash density analysis and thus must also be evaluated differently. They are generally evaluated by looking at before-after comparisons of specific crash types in a large defined area rather than at a single spot location. For example, if rumble strips are systemically placed on a long stretch of roadway, a before-after comparison of run-off-road crashes along the entire stretch may be useful in showing the impact of the project. Other types of systemic projects may need to be evaluated on a statewide basis if they are broadly applied to roads throughout the state and not confined to a specific corridor or geographic area.

The before and after comparisons of crash density-based projects and evaluation of systemic projects are major inputs to the HSIP Report document that UDOT submits to FHWA each year. The HSIP is performance-based and these metrics help to demonstrate the impact HSIP funding is having on reducing crashes and crash severity. The HSIP Report is described in Chapter 7.
6. NON-INFRASTRUCTURE PROJECT PROCESS

Previously with MAP-21, a state could use HSIP funds on non-infrastructure safety projects such as education, enforcement, and workforce development that met the overarching requirement. Most non-infrastructure related activities that were allowed through MAP-21 were discontinued with the FAST Act.

This chapter describes the different categories of non-infrastructure work items that UDOT uses, or seeks to use, HSIP funding to implement. FHWA requires states to include a narrative explaining their non-infrastructure efforts in their annual reporting.

6.1. Educational Programs

Under MAP-21, states were able to use HSIP funds to carry out non-infrastructure safety projects as provided in the state’s SHSP. Up until the passage of FAST Act, UDOT used HSIP funds for its Zero Fatalities program.

Zero Fatalities is a mutual effort between various partners to address the top behaviors that lead to fatalities on Utah’s roads. These behaviors, which serve as the foundation for Utah’s SHSP, include drowsy driving, distracted driving, impaired driving, aggressive driving, and not buckling up. Television and radio public service announcements, community events, internet articles, and local media stories are used to convey the Zero Fatalities message, raise awareness, influence and change behavior, and ultimately save lives.

UDOT expects that this, as well as other, important non-infrastructure related efforts, strategies, and activities used to address highway safety problems will once again become HSIP eligible with future legislation.

6.2. Improving Crash Data Analysis

HSIP funding may also be used to improve UDOT’s crash database. UDOT geolocates every crash on all Utah public roads. The ability to accurately locate all crashes is very important to UDOT’s efforts to apply correct countermeasures to specific locations, especially when systemic safety modeling is being used.

6.3. Integrating Safety into Planning

UDOT Traffic & Safety Division personnel work with the Planning Division to integrate safety planning into their core processes. UDOT also works with MPOs across the state to supply them with data and tools to better integrate safety into their planning processes. Integrating safety into UDOT and MPO planning processes helps all agencies address safety in a proactive way.
6.4. Consultant Support

The Traffic & Safety Division uses HSIP funding to contract with universities and consultants who assist with various non-infrastructure functions. These functions include items such as program management, project management, crash data mapping, statistical analysis, report preparation, and training.

6.5. Evaluation

Non-infrastructure projects are evaluated by their ability to successfully reduce the targeted crash types identified in the SHSP. For example, media and education campaigns to combat roadway departure crashes can include an emphasis on drowsy and distracted driving behaviors that increase the likelihood of running off the road. The evaluation measure includes a review of whether our combined infrastructure and non-infrastructure initiatives have reduced the number of serious injury and fatal roadway departure crashes.
7. REPORTING

FHWA requires UDOT to submit an annual HSIP Report. An online template walks users through a series of questions and the report is automatically generated based on the input. UDOT’s ability to obligate HSIP funds is conditional upon submission of this report, which is due to FHWA by August 31st of each year. The HSIP Report contains information about UDOT’s implementation of the HSIP. Topics generally include:

- Description of progress toward implementing highway safety improvement projects.
- Assessment of effectiveness of particular projects towards achieving safety goals.
- Assessment of HSIP projects’ contribution to reducing roadway-related fatalities, injuries, and crashes.
- Assessment of HSIP projects’ contribution to mitigating the impacts of roadway-related crashes.
- Determination of whether any special rules apply.

Project-specific before/after crash analysis is an optional item in the HSIP Report. UDOT has voluntarily chosen to supply this information each year.

7.1 Safety Targets

One significant element of the annual reporting process includes documenting safety targets for the following five safety performance measures:

1) The 5-year rolling average for the number of fatalities.
2) The 5-year rolling average for the rate of fatalities per 100 million VMT.
3) The 5-year rolling average for the number of serious injuries.
4) The 5-year rolling average for the rate of serious injuries per 100 million VMT.
5) The 5-year rolling average for the number of non-motorized fatalities and non-motorized serious injuries.

The safety performance targets are intended to enhance safety decision-making, improve collaboration among safety partners, and provide continued transparency and accountability to the public.

7.2 Significant Progress

Each year, FHWA evaluates whether UDOT has met or made significant progress toward meeting their safety targets. UDOT is considered to have met or made significant progress when it meets or is better than the baseline for at least four out of the five targets. The baseline is the 5-year rolling average for the safety performance measure ending the year prior to the establishment of the target being evaluated.