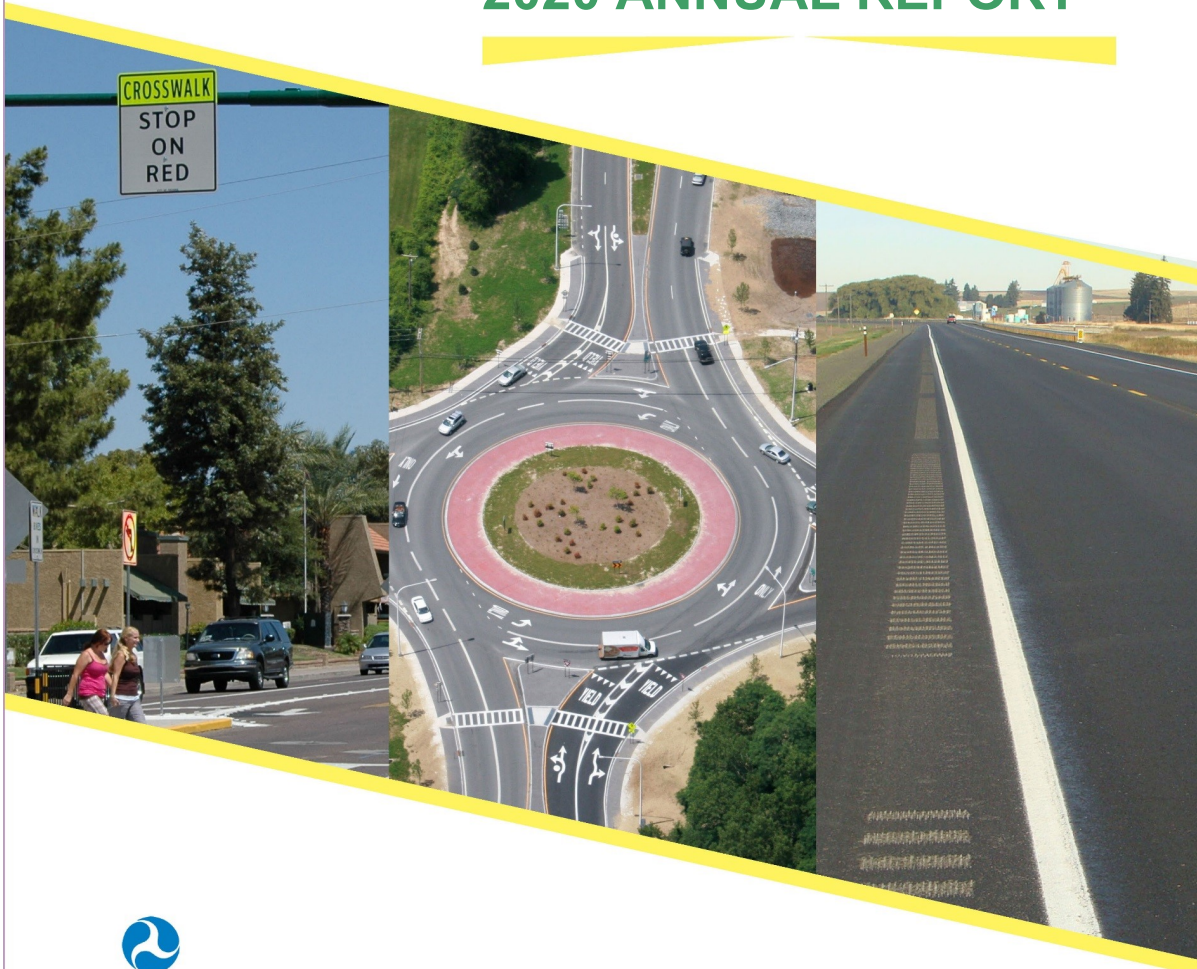




UTAH

HIGHWAY SAFETY IMPROVEMENT PROGRAM 2020 ANNUAL REPORT



U.S. Department of Transportation
Federal Highway Administration

Photo source: Federal Highway Administration

Table of Contents

Disclaimer	3
Protection of Data from Discovery Admission into Evidence	3
Executive Summary	4
Introduction	5
Program Structure.....	5
Program Administration	5
Program Methodology	9
Project Implementation	15
Funds Programmed.....	15
General Listing of Projects	17
Safety Performance	20
General Highway Safety Trends.....	20
Safety Performance Targets.....	26
Applicability of Special Rules.....	27
Evaluation	29
Program Effectiveness	29
Effectiveness of Groupings or Similar Types of Improvements	29
Project Effectiveness	35
Compliance Assessment.....	40
Optional Attachments.....	43
Glossary.....	44

Disclaimer

Protection of Data from Discovery Admission into Evidence

23 U.S.C. 148(h)(4) states “Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for any purpose relating to this section[HSIP], 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 identified or addressed in the reports, surveys, schedules, lists, or other data.

23 U.S.C. 148(h)(4) states “Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for any purpose relating to this section[HSIP], 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 identified or addressed in the reports, surveys, schedules, lists, or other data. 23 U.S.C. 409 states “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 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.”

Executive Summary

From 2013-2016, the State of Utah experienced an increase in traffic fatalities each year. The 2017-2019 period has marked a return to our past long-term downward trends in fatalities. Serious injury crashes peaked in 2015 and have trended downward each year since. We are hopeful that our efforts to prioritize safety projects with the greatest potential to reduce fatalities will continue to reduce both fatalities and serious injuries in the years to come. We continue to use both crash analysis and systemic modeling to identify the projects most likely to reduce fatalities and serious injuries. We also modified our project selection process in 2019 to fund the projects with the highest B/C ratios even if doing so results in HSIP funding not being allocated to each region evenly.

The FAST Act approved by Congress four years ago removed our ability to fund education and enforcement efforts with HSIP funds. We have been using State funds to continue these programs. Education and enforcement remain important parts of our comprehensive safety strategy to reduce severe crashes.

Introduction

The Highway Safety Improvement Program (HSIP) is a core Federal-aid program with the purpose of achieving a significant reduction in fatalities and serious injuries on all public roads. As per 23 U.S.C. 148(h) and 23 CFR 924.15, States are required to report annually on the progress being made to advance HSIP implementation and evaluation efforts. The format of this report is consistent with the HSIP Reporting Guidance dated December 29, 2016 and consists of five sections: program structure, progress in implementing highway safety improvement projects, progress in achieving safety outcomes and performance targets, effectiveness of the improvements and compliance assessment.

Program Structure

Program Administration

Describe the general structure of the HSIP in the State.

UDOT's Safety Programs Engineer (located within the Traffic & Safety Division) 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. The UDOT region offices also 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 project delivery, assigning project managers, and proceeding according to standard federal environmental, design, and construction processes.

HSIP funds can be used for infrastructure improvements on any publicly owned roadway. Any local agency may apply for HSIP funding as long it controls 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. UDOT also works with Metropolitan Planning Organizations to help them integrate safety into their long-range planning efforts.

The project process includes the following steps:

- Crash data evaluation and coordination with region offices to identify candidate projects.
- Analysis of candidate projects to determine anticipated benefit/cost ratios.
- Joint prioritization and selection of projects between the Central Traffic & Safety office and the region offices.
- Programming of projects into discrete funding years.
- Assignment of project managers and beginning of design process.
- Advertisement and construction.
- Evaluation based on three years of crash data before and after construction.
- Reporting in the annual HSIP report.

Additionally, UDOT began during FY20 to implement a new procedure that will take effect beginning in FY23. UDOT's four region offices have historically been prorated a percentage of Utah's HSIP funds based on the relative numbers of severe crashes that occur within each region. The region offices were given discretion to prioritize their funding allocation to projects of their choosing as long as those projects had an estimated

2020 Utah Highway Safety Improvement Program

benefit-cost ratio greater than 1.0. This historic funding allocation model will continue through FY22. Beginning in FY23, however, regions will not be given a set funding allocation. Instead, funding will be prioritized based on projects' benefit-cost ratio. This means that the projects most likely to reduce severe crashes will be funded regardless of location. The Traffic and Safety Division believes that this new process will lead to fewer severe crashes and help Utah best meet the Zero Fatalities goal.

Where is HSIP staff located within the State DOT?

Operations

How are HSIP funds allocated in a State?

- Central Office via Statewide Competitive Application Process
- Formula via Districts/Regions

UDOT has historically allocated funds to region offices according to a preset formula based on the share of severe crashes occurring within each region. This model will continue through FY22. Beginning with FY23, however, UDOT plans to move to a competitive selection process based on estimated project benefit-cost ratio.

Describe how local and tribal roads are addressed as part of HSIP.

Local roads are eligible for HSIP funds if projects meet program requirements. UDOT currently lacks comprehensive roadway data for local roads (non-State and non-Federal Aid) that would make it easier to compare relative safety needs on State roads and local roads, especially for systemic treatments. However, efforts are underway to work with other State agencies, local governments, and emergency dispatch centers to develop more complete roadway inventory data on local roads. In the meantime we will continue to perform hot-spot analysis on all public roads, including locals. Once we identify a hotspot location and potential countermeasures, we approach the local government to assess their willingness to proceed with an HSIP-funded safety project.

UDOT does perform crash analysis on non-State Federal Aid routes and accepts applications from local agencies for HSIP funding consideration on all public roads. We also apply the usRAP safety protocol to select non-State Federal Aid and local routes. To date, we've completed coding for all Federal-aid routes except for those in the following counties, which are expected to be completed by the end of 2020: Carbon, Duchesne, Emery, Garfield, Grand, Kane, San Juan, Sanpete, Sevier, Uintah, and Wayne.

Identify which internal partners (e.g., State departments of transportation (DOTs) Bureaus, Divisions) are involved with HSIP planning.

- Design
- Districts/Regions
- Maintenance
- Operations
- Planning
- Traffic Engineering/Safety

The Central Traffic & Safety office leads the HSIP effort, but various other divisions are involved in the process. The traffic/safety, project management, maintenance, and design groups are all involved at the region level, both with helping to identify candidate projects and to design and construct them.

Describe coordination with internal partners.

Planning

UDOT uses two methods to plan HSIP projects. For the first method, the Traffic & Safety Division works throughout the year with each region to determine their priority projects for HSIP funding consideration. The Traffic & Safety Division then screens the crash data, traffic data, and input from the region offices to determine whether each project meets HSIP eligibility criteria. For the second method, the Traffic & Safety Division employs a network-wide approach to identify projects. This is done by looking at crash and roadway attribute data from a statewide perspective. UDOT has several efforts underway to identify projects systemically and through network screening tools, including the usRAP model and BYU crash prediction model.

Design

After projects are programmed, project managers from the applicable UDOT region offices are assigned to each project. These project managers then shepherd the projects through UDOT's standard federal environmental, design, and construction processes. Project managers generally invite Traffic & Safety staff to attend scoping and design review meetings to make sure that the safety elements are properly incorporated into the project.

Maintenance & Operations

Each region office works with their maintenance and operations staff to give them an opportunity to suggest safety projects based on their experience maintaining the state roadway network every day. Periodic meetings are held between region traffic and safety engineers and maintenance crews. Their round of meetings in the fall is where engineers specifically solicit safety project ideas from maintenance staff. Following these meetings, region traffic and safety engineers submit safety project applications for projects they believe merit funding. These applications are then reviewed by Central Traffic & Safety as described above.

Access to Data

In order to assist each of our partners in this process, we have developed an online crash visualization and analysis tool so everyone has equal access to safety data.

Identify which external partners are involved with HSIP planning.

- Academia/University
- FHWA
- Governors Highway Safety Office
- Local Government Agency
- Regional Planning Organizations (e.g. MPOs, RPOs, COGs)
- Other-SHSP Partners

Describe coordination with external partners.

Academia

UDOT has active and ongoing partnerships with both Brigham Young University (BYU) and the University of Utah to further safety work in Utah. BYU has worked with UDOT over the past several years to develop and continually refine Bayesian crash predictive models that show where crashes are over-represented. Each year BYU provides model output reports to the region offices. The reports show potential safety project locations and countermeasures for their consideration.

2020 Utah Highway Safety Improvement Program

The University of Utah has been working with UDOT the last few years to improve the statewide crash database and to expand the usRAP model on non-State maintained roads.

FHWA

We work closely with the Safety Operations Engineer in the local FHWA office to ensure that we are complying with appropriate guidelines in our implementation of the HSIP. We routinely involve him in coordination meetings with the region offices so that he stays informed about the projects we are selecting and implementing with our HSIP funds.

Governor's Office of Highway Safety

The Utah Highway Safety Office (HSO) is housed within the Department of Public Safety. We hold regular meetings involving the HSO to ensure coordination of data, funding, and strategies for our respective programs.

MPOs

The MPOs in Utah have been very motivated to integrate safety into their planning process. UDOT has tried to use several different tools to accomplish this goal, with mixed results. During the past couple of years we have made significant headway by introducing our MPO partners to the usRAP safety model and showing how it can be used as a regional safety planning tool. Specific conversations were held with Cache MPO in 2017 and MAG in 2018. We are currently working toward coding non-State Federal-aid routes in all Utah counties. To date, we've completed coding for all Federal-aid routes except for those in the following counties, which are expected to be completed by the end of 2020: Carbon, Duchesne, Emery, Garfield, Grand, Kane, San Juan, Sanpete, Sevier, Uintah, and Wayne.

SHSP Partners

SHSP Partners are actively involved in working groups for each of our SHSP emphasis areas.

Describe other aspects of HSIP Administration on which the State would like to elaborate.

UDOT focuses its infrastructure improvements primarily on the Roadway Departure Crashes, Drowsy Driving, Distracted Driving, and Intersection Safety emphasis areas. The other emphasis areas (Public Outreach and Education, Use of Safety Restraints, Impaired Driving, Aggressive Driving, Pedestrian Safety, Teen Driving Safety, Motorcycle Safety, and Speed Management) are addressed primarily through non-infrastructure efforts such as education, media, and enforcement campaigns. UDOT partners with other state, local, and federal agencies to implement the non-infrastructure components of the SHSP. The FAST Act removed UDOT's ability to fund education and enforcement efforts with HSIP, so we have been using state funds to continue those programs.

A "Zero Fatalities" goal (ut.zerofatalities.com) is also part of the SHSP. UDOT began displaying weekly safety messages on variable message signs during the summer of 2015 to encourage safe driving behaviors such as seat belt use. Those safety messages continue to be posted today.

Program Methodology

Does the State have an HSIP manual or similar that clearly describes HSIP planning, implementation and evaluation processes?

Yes

Select the programs that are administered under the HSIP.

- HRRR
- Low-Cost Spot Improvements
- Other-Reduce Serious and Fatal Injuries

Program: HRRR

Date of Program Methodology:10/1/2016

What is the justification for this program?

- Other-Crash data trigger from FHWA

What is the funding approach for this program?

Funding set-aside

What data types were used in the program methodology?

Crashes

- Fatal crashes only

Exposure

Roadway

- Functional classification

What project identification methodology was used for this program?

- Crash frequency

Are local roads (non-state owned and operated) included or addressed in this program?

Yes

Are local road projects identified using the same methodology as state roads?

Yes

How are projects under this program advanced for implementation?

- Other-Coordination with region offices

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must

equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Relative Weight in Scoring

Available funding:50

Other-Ability of region to identify eligible project:50

Total Relative Weight:100

Program: Low-Cost Spot Improvements

Date of Program Methodology:3/5/2014

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes

- All crashes
- Fatal and serious injury crashes only

Exposure

- Traffic
- Volume
- Lane miles

Roadway

- Median width
- Horizontal curvature
- Functional classification
- Roadside features

What project identification methodology was used for this program?

- Crash frequency
- Crash rate
- Excess proportions of specific crash types
- Other-Hierarchical Bayesian Model
- Relative severity index

Are local roads (non-state owned and operated) included or addressed in this program?

Yes

Are local road projects identified using the same methodology as state roads?

No

Describe the methodology used to identify local road projects as part of this program.

We accept safety project applications from local government agencies that submit them through their respective region offices. We are also working on applying the usRAP model to federal aid routes in counties across the state. In addition, we conduct hot spot analysis on all public roads statewide to identify other opportunities on local roads.

How are projects under this program advanced for implementation?

- Competitive application process
- Other-usRAP model outputs

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Relative Weight in Scoring

Ranking based on B/C:20

Available funding:20

Ranking based on net benefit:20

Other-Time to Completion:20

Other-Coordination with other Projects:20

Total Relative Weight:100

Program: Other-Reduce Serious and Fatal Injuries

Date of Program Methodology:3/5/2014

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes

- All crashes
- Fatal and serious injury crashes only

Exposure

- Traffic
- Volume
- Lane miles

Roadway

- Median width
- Horizontal curvature
- Functional classification
- Roadside features

What project identification methodology was used for this program?

- Crash frequency
- Crash rate
- Critical rate
- Excess proportions of specific crash types
- Other-Hierarchical Bayesian
- Other-usRAP model
- Relative severity index

Are local roads (non-state owned and operated) included or addressed in this program?

Yes

Are local road projects identified using the same methodology as state roads?

No

Describe the methodology used to identify local road projects as part of this program.

We accept safety project applications from local government agencies that submit them through their respective region offices. We are also working on applying the usRAP systemic model to federal aid routes in counties across the state.

How are projects under this program advanced for implementation?

- Competitive application process
- Other-usRAP model outputs

Select the processes used to prioritize projects for implementation. For the methods selected, indicate the relative importance of each process in project prioritization. Enter either the weights or numerical rankings. If weights are entered, the sum must equal 100. If ranks are entered, indicate ties by giving both processes the same rank and skip the next highest rank (as an example: 1, 2, 2, 4).

Relative Weight in Scoring

Ranking based on B/C:20

Available funding:20

Ranking based on net benefit:20

Other-Timeline to completion:20

Other-Coordination with other projects:20

Total Relative Weight:100

What percentage of HSIP funds address systemic improvements?

23

HSIP funds are used to address which of the following systemic improvements?

- Add/Upgrade/Modify/Remove Traffic Signal
- Cable Median Barriers
- Clear Zone Improvements
- High friction surface treatment
- Horizontal curve signs
- Install/Improve Lighting
- Install/Improve Pavement Marking and/or Delineation
- Pavement/Shoulder Widening
- Rumble Strips
- Upgrade Guard Rails

What process is used to identify potential countermeasures?

- Crash data analysis
- Data-driven safety analysis tools (HSM, CMF Clearinghouse, SafetyAnalyst, usRAP)
- Engineering Study
- Road Safety Assessment
- Stakeholder input

Does the State HSIP consider connected vehicles and ITS technologies?

Yes

Describe how the State HSIP considers connected vehicles and ITS technologies.

Connected and autonomous vehicles are identified as a Special Safety Area in our SHSP. We do not have a committed program of HSIP funds being used for V2I technologies. However, we do consider project applications submitted by our region offices. If an application for V2I or other ITS-related technologies is submitted and is worthy of funding, we are able to program the project. We have funded (or are currently funding) ITS technologies such as variable speed limit signing and wrong-way driving sign arrays. We also funded a project to use DSRC technology in snow plows in order to allow them to coordinate their movements with signalized intersections, thereby facilitating much faster snow clearance on a key arterial street.

Does the State use the Highway Safety Manual to support HSIP efforts?

Yes

Please describe how the State uses the HSM to support HSIP efforts.

All construction projects that are funded with HSIP funds are assessed using the following procedures from the HSM:

1. Preliminary analysis is done with crash history and CMFs following procedures of Part D from the HSM.
2. If a more technical analysis is warranted, the predictive method of Part C is used by utilizing the spreadsheet tools developed and published in the CMF Clearinghouse.
3. Where applicable, potential infrastructure projects are also compared to the usRAP results, which represent a risk-based approach based on roadway characteristics.
4. Methods in Chapter 4 are used to prioritize potential locations of systemic treatments such as rumble strips (with region offices weighing in on priority).
5. Utah maintains a list of approved mitigation measures from Part D and the CMF Clearinghouse.
6. Systemic projects are developed on the basis of roadway characteristics by using a sensitivity analysis involving the SPFs and CMFs found in the HSM.
7. Benefit-cost ratios are calculated based on guidance from Chapter 7. No HSIP funds are applied to projects that have a benefit cost ratio less than 1 unless the project can be justified systemically.
8. All projects are prioritized based on benefit-cost ratio.

The Bayesian statistical methods outlined in the HSM are also used extensively in a modeling partnership with Brigham Young University in order to identify hot spot crash locations for consideration of HSIP funding.

Describe program methodology practices that have changed since the last reporting period.

UDOT began during FY20 to implement a new procedure that will take effect for programming of projects beginning in FY23. Under this new process, HSIP projects will be prioritized based on their estimated benefit-cost ratios. This means that the projects most likely to reduce severe crashes will be funded regardless of where they are located within the state. The new process was used during FY20 to identify projects to add to

2020 Utah Highway Safety Improvement Program

UDOT's three-year plan for FY23. The Traffic and Safety Division believes that the process change will lead to fewer severe crashes and help Utah best meet its Zero Fatalities goal.

Prior to this process change, UDOT's four region offices were prorated a percentage of Utah's HSIP funds to program based on the relative numbers of severe crashes that occurred within each region. The region offices were given discretion to prioritize their funding allocation to projects of their choosing as long as those projects had an estimated benefit-cost ratio greater than 1.0.

Describe other aspects of the HSIP methodology on which the State would like to elaborate.

Non-Infrastructure Projects

UDOT uses some of its HSIP funding for eligible non-infrastructure projects that aid roadway safety efforts. Such projects include:

Integrating Safety Into Planning

UDOT Traffic & Safety Division personnel work internally with other UDOT divisions to integrate safety planning into their core processes. UDOT also works with MPOs and other safety partners across the state to supply them with needed data and tools so they can better integrate safety into their internal planning processes. Integrating safety into UDOT and MPO planning processes helps all agencies proactively address safety.

Improving Crash Data Analysis

HSIP funding is also used to improve UDOT's crash database. The ability to accurately locate crashes and understand crash characteristics is vital to programming HSIP funds.

University & Consultant Support

The Traffic & Safety Division uses HSIP funding to contract with universities and consultants who assist with various HSIP functions. The functions include items such as program management, project management, crash data mapping, statistical analysis, safety modeling, report preparation, SPF/CMF development, training, and HSM analysis.

UDOT previously used HSIP funding for education and enforcement efforts that fall within the State's Zero Fatalities effort umbrella. With passage of the FAST Act that led to ineligibility of those activities, UDOT has been using State funds to continue those efforts.

High Risk Rural Road Special Rule

UDOT was subject to the HRRR Special Rule during FY20 (and will also be for FY21). To identify HRRR-eligible projects, we first look at the roads that qualify for application of the funding. Then, we look for systemic improvements such as warning signs, shoulder treatments, barrier/guardrail, and rumble strips that could be applied to make the roads safer. It is generally difficult to find crash hot spots on these roads due to the lower volumes and crash concentrations so we rely heavily on systemic approaches to finding locations where the money can be wisely spent. We are also occasionally able to use projects that are already planned for HSIP funding when those projects have been selected through other means and are located on a route that qualifies for HRRR funds.

Project Implementation

Funds Programmed

Reporting period for HSIP funding.

Federal Fiscal Year

Enter the programmed and obligated funding for each applicable funding category.

FUNDING CATEGORY	PROGRAMMED	OBLIGATED	% OBLIGATED/PROGRAMMED
HSIP (23 U.S.C. 148)	\$38,218,408	\$32,084,695	83.95%
HRRR Special Rule (23 U.S.C. 148(g)(1))	\$1,498,607	\$1,331,318	88.84%
Penalty Funds (23 U.S.C. 154)	\$0	\$0	0%
Penalty Funds (23 U.S.C. 164)	\$0	\$0	0%
RHCP (for HSIP purposes) (23 U.S.C. 130(e)(2))	\$0	\$0	0%
Other Federal-aid Funds (i.e. STBG, NHPP)	\$0	\$0	0%
State and Local Funds	\$6,445,486	\$6,445,486	100%
Old HRRR	\$40,203	\$40,203	100%
Totals	\$46,202,704	\$39,901,702	86.36%

How much funding is programmed to local (non-state owned and operated) or tribal safety projects?

0%

How much funding is obligated to local or tribal safety projects?

0%

We still have a few local safety projects that are going through the construction or closeout phases, but none of the funds available for programming or obligation in FY20 were used on new local projects. There is one project currently planned to be constructed on a local road in FY22.

How much funding is programmed to non-infrastructure safety projects?

21%

How much funding is obligated to non-infrastructure safety projects?

25%

How much funding was transferred in to the HSIP from other core program areas during the reporting period under 23 U.S.C. 126?

\$0

How much funding was transferred out of the HSIP to other core program areas during the reporting period under 23 U.S.C. 126?

\$46,791,601

Discuss impediments to obligating HSIP funds and plans to overcome this challenge in the future.

Over the past few years we have made great strides toward getting our HSIP funds obligated by the fiscal year end. In both FY19 and FY20 we were able to effectively obligate all of our HSIP funds. The main reason we were able to reach our goal of full obligation was that we consistently encouraged the four region offices to over-program, and they delivered enough of the projects to obligate all available FY19 and FY20 funding.

The principal ongoing challenges we face when trying to achieve full obligation are:

- Reprogramming funds that return from closed projects (or from projects where scope changes reduce the budget) to other projects where they can be spent.
- Delays in project delivery timelines that prevent projects from advertising in the fiscal year originally intended.
- Projects that are cancelled for political, practical, or economic reasons.

Over-programming is our primary mitigation tool, which means planning more projects than we have budget for. Experience has taught us that there will always be some projects that ultimately get cancelled and others that return part of their budget, so the only way to have all of our funds obligated at the end of the year is to plan for these occurrences. In the event that we run out of HSIP funds to obligate, we have the option to delay advertisement to the following fiscal year or use some state funds as a temporary bridge across the fiscal year boundary. These measures were necessary in both FY19 and FY20 because we were very aggressive with over-programming.

Describe any other aspects of the State's progress in implementing HSIP projects on which the State would like to elaborate.

Project delivery is administered through the UDOT region offices. We work closely with our region counterparts to make sure safety projects are addressed in a timely manner. After projects are programmed, project managers from the applicable UDOT region offices are assigned to each project. These project managers then shepherd the projects through UDOT's standard federal environmental, design, and construction processes.

General Listing of Projects

List the projects obligated using HSIP funds for the reporting period.

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
SR-130; North Cedar to MP 9 (PIN 11532)	Intersection traffic control	Modify control - two-way stop to roundabout	1	Intersections	\$1000000	\$6100000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	11,000	55	State Highway Agency	Spot	Intersections	Intersection Improvements
SR-59; Passing and Turn Lanes (PIN 14365)	Roadside	Roadside grading	4	Miles	\$1000000	\$6000000	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	5,000	65	State Highway Agency	Systemic	Roadway Departure	Grading
SR-24; MP 104-117, Roadside Improvements (PIN 15335)	Roadway	Rumble strips - edge or shoulder	28	Miles	\$5000000	\$18538430	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	760	65	State Highway Agency	Systemic	Roadway Departure	Rumble Strips
SR-113; Shoulder Widening Charleston to Midway (PIN 15574)	Shoulder treatments	Widen shoulder - paved or other	4	Miles	\$750000	\$5445000	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	3,000	45	State Highway Agency	Spot	Roadway Departure	Shoulder Widening
Various Routes; No-Pass Pennants Centerline RS (PIN 16321)	Roadway	Rumble strips - center	299	Miles	\$658010	\$658010	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	0	0	State Highway Agency	Systemic	Lane Departure	Rumble Strips
U of U Crash Database Management FY21 (PIN 16329)	Non-infrastructure	Data/traffic records	1	Numbers	\$300000	\$300000	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	All roads public	N/A	Data	All
Traffic & Safety Program Management Support FY21 (PIN 16331)	Non-infrastructure	Non-infrastructure - other	1	Numbers	\$1800000	\$1800000	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	All roads public	N/A	Program Management Support	All
I-80; MP 0-20, Cable Barrier (PIN 16430)	Roadside	Barrier - cable	20	Miles	\$7500000	\$7500000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	8,000	80	State Highway Agency	Systemic	Roadway Departure	Barrier
I-80/SR-201 Aux Lane Connector to SR-36 (PIN 16443)	Roadway	Roadway widening - add lane(s) along segment	2.2	Miles	\$2100000	\$5650000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	26,000	75	State Highway Agency	Spot	Roadway Widening	Roadway Widening
I-15; MP 260.0-260.5, Off-ramp Widening & Aux	Roadway	Roadway widening - add lane(s) along segment	0.8	Miles	\$800000	\$2200000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Interstate	121,000	70	State Highway Agency	Spot	Roadway Widening	Roadway Widening

2020 Utah Highway Safety Improvement Program

PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
Reconfig (PIN 16494)															
US-189; MP 8.8-18.7, Median Barrier Upgrade (PIN 16506)	Roadside	Barrier - concrete	10.2	Miles	\$2000000	\$6730000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	26,000	55	State Highway Agency	Spot	Roadway Departure	Barrier
SR-132 Pvmnt Rehab & Rumblestrips Var Routes (PIN 16554)	Roadway	Rumble strips - edge or shoulder	38.3	Miles	\$278907	\$2889365	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural	Multiple/Varies	0	0	State Highway Agency	Systemic	Roadway Departure	Rumble Strips
US-6; SR-68 Elberta to I-15 (PIN 16580)	Roadway	Rumble strips - edge or shoulder	8.7	Miles	\$131000	\$5600000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	3,700	60	State Highway Agency	Systemic	Roadway Departure	Rumble Strips
I-15/SR-13 Interchange SB On-ramp Widening (PIN 16663)	Roadway	Roadway widening - add lane(s) along segment	1	Miles	\$350000	\$6600000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	29,000	75	State Highway Agency	Spot	Roadway Widening	Roadway Widening
SR-97; Intersection Improvements at 5100 West (PIN 16668)	Intersection geometry	Auxiliary lanes - add left-turn lane	1	Intersections	\$3000000	\$4000000	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	11,000	50	State Highway Agency	Spot	Intersections	Intersection Improvements
SR-31; 2.0-2.6, Runaway Truck Ramp (PIN 17335)	Roadside	Roadside - other	1	Truck Ramp	\$1000000	\$1000000	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural	Major Collector	1,800	40	State Highway Agency	Spot	Roadway Departure	Truck Ramp
SR-63/SR-12 Roundabout (PIN 17337)	Intersection traffic control	Modify control - two-way stop to roundabout	1	Intersections	\$2000000	\$9600000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	7,900	55	State Highway Agency	Spot	Intersections	Intersection Improvements
SR-35; MP 5.4-6.1, Roadside Improvements (PIN 17485)	Shoulder treatments	Widen shoulder - paved or other	0.5	Miles	\$1029159	\$1029159	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural	Major Collector	800	50	State Highway Agency	Systemic	Roadway Departure	Shoulder Widening
SR-126; MP 10.73, Free Right Elimination (PIN 17510)	Intersection geometry	Splitter island - remove from one or more approaches	1	Approaches	\$550000	\$550000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	35,000	45	State Highway Agency	Spot	Intersections	Intersection Improvements
SR-150; MP 13.5-15.5, Shoulder Widening & Rumble Strips (PIN 17608)	Roadway	Rumble strips - edge or shoulder	2	Miles	\$1271000	\$1271000	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural	Major Collector	1,200	55	State Highway Agency	Systemic	Roadway Departure	Rumble Strips

2020 Utah Highway Safety Improvement Program

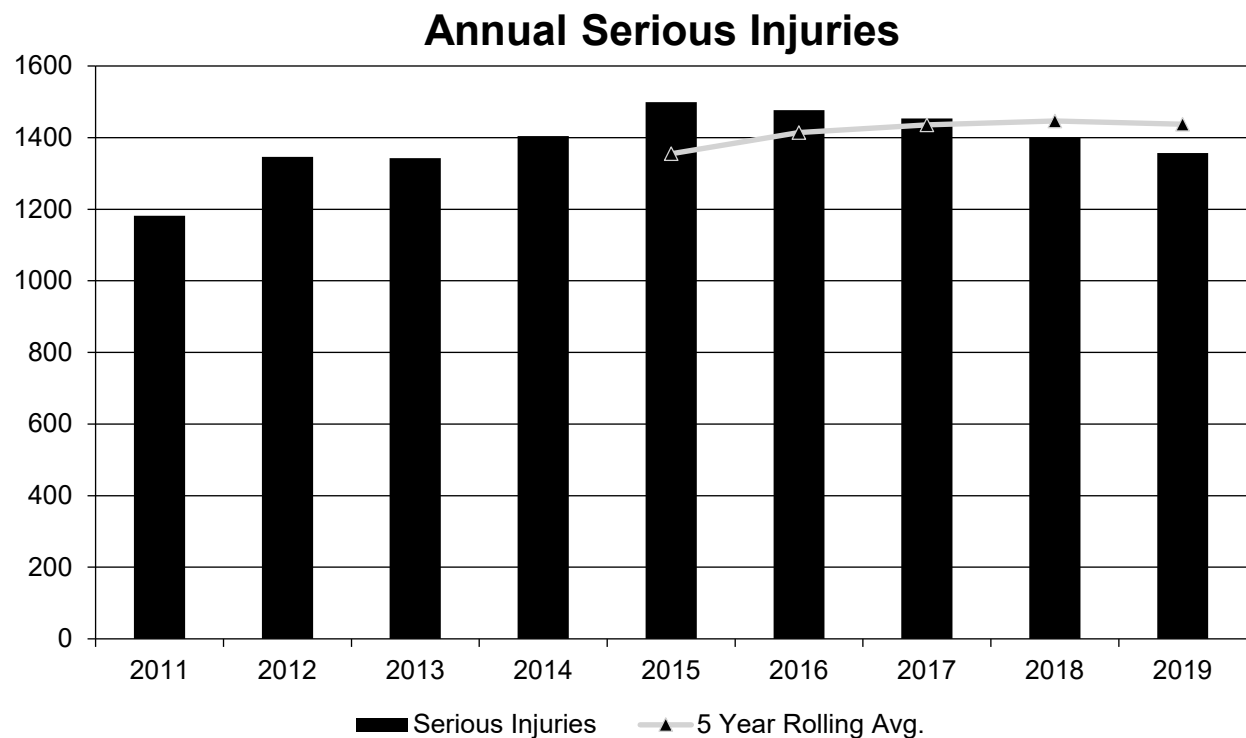
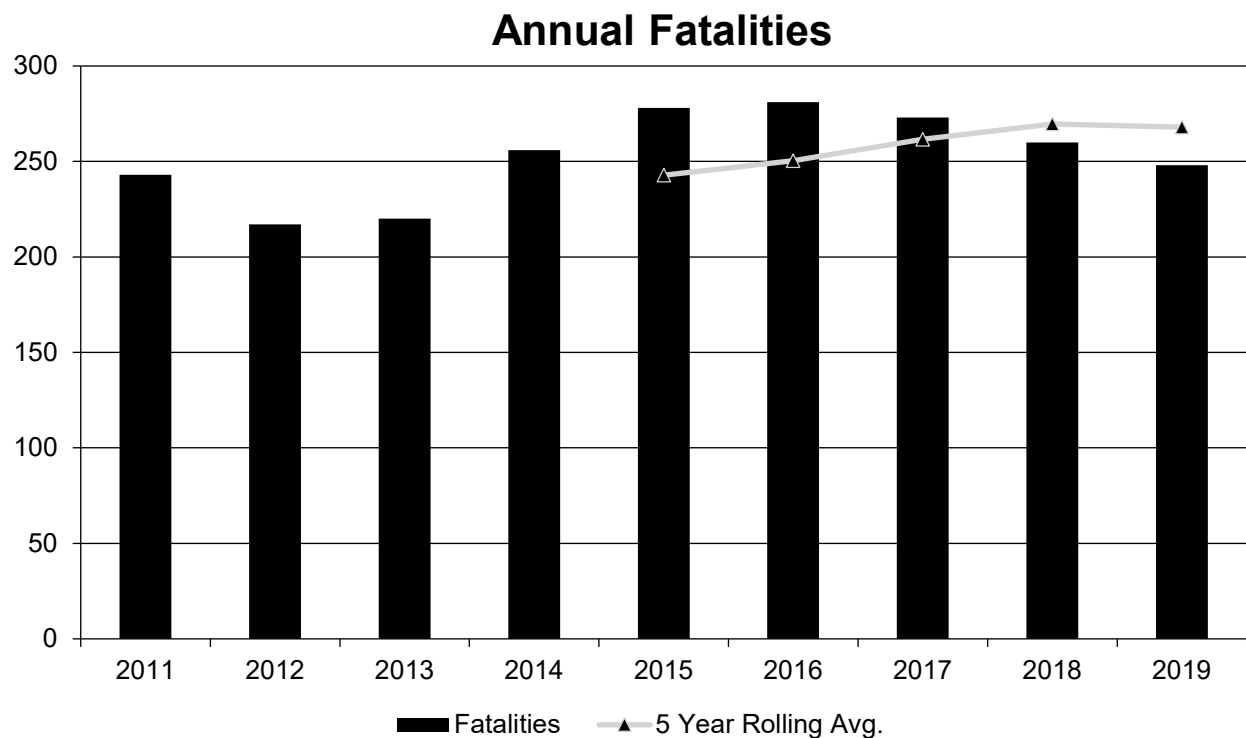
PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST(\$)	TOTAL PROJECT COST(\$)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
MUTCD Curve Sign Updates (R2) (PIN 17742)	Roadway signs and traffic control	Curve-related warning signs and flashers	1	Region	\$834000	\$834000	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	0	0	State Highway Agency	Systemic	Roadway Departure	Curve Signs
MUTCD Curve Sign Updates (R3) (PIN 17743)	Roadway signs and traffic control	Curve-related warning signs and flashers	1	Region	\$224820	\$224820	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	0	0	State Highway Agency	Systemic	Roadway Departure	Curve Signs
FY2020 Mandli Communications Collection (PIN 17779)	Non-infrastructure	Data/traffic records	1	Numbers	\$480000	\$480000	HSIP (23 U.S.C. 148)	N/A	Multiple/Varies	0	0	State Highway Agency	N/A	Data	All
SR-143; MP 30-40, Signing & Guardrail (PIN 18306)	Roadside	Barrier- metal	0.9	Miles	\$500000	\$500000	HRRR Special Rule (23 U.S.C. 148(g)(1))	Rural	Major Collector	870	55	State Highway Agency	Spot	Roadway Departure	Barrier

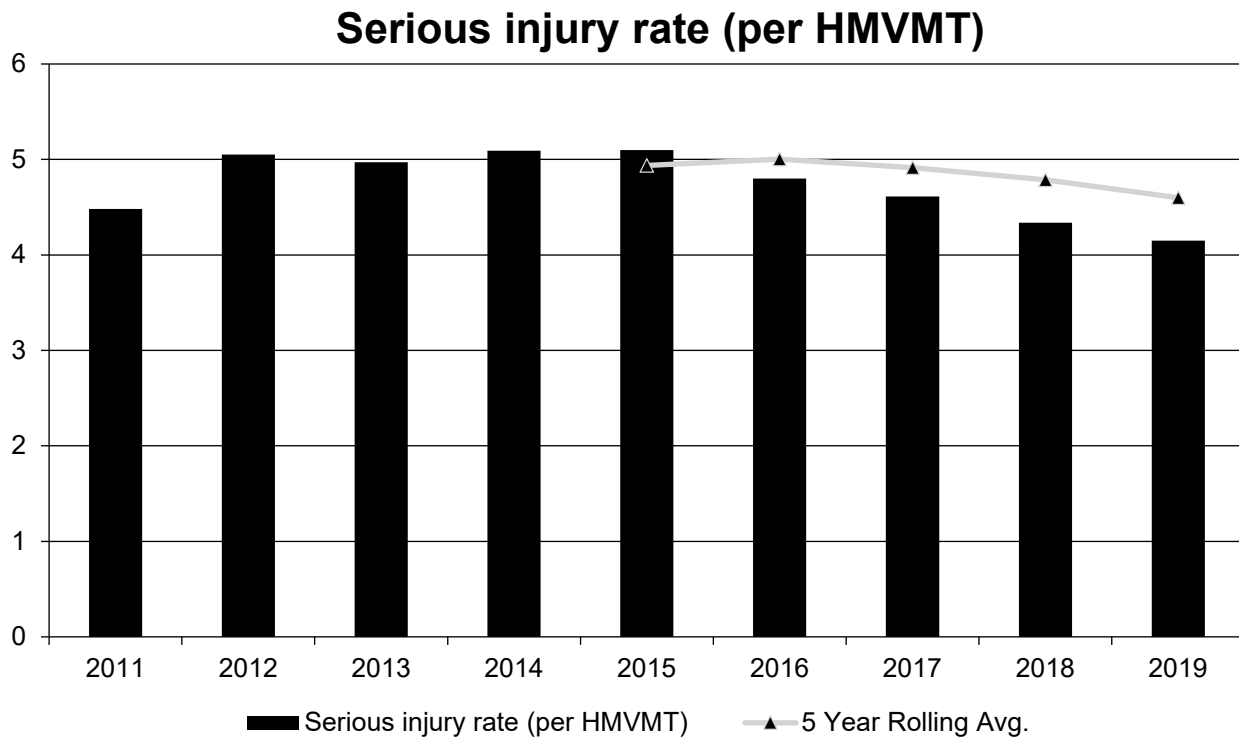
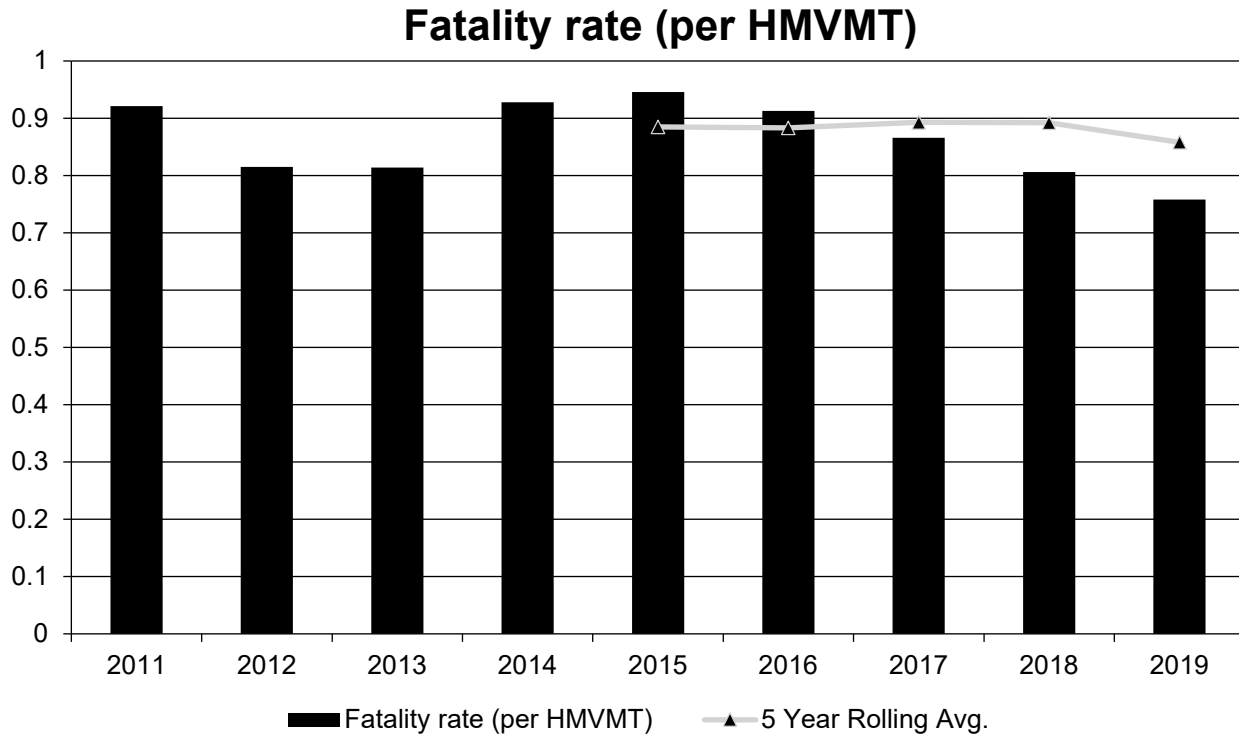
Safety Performance

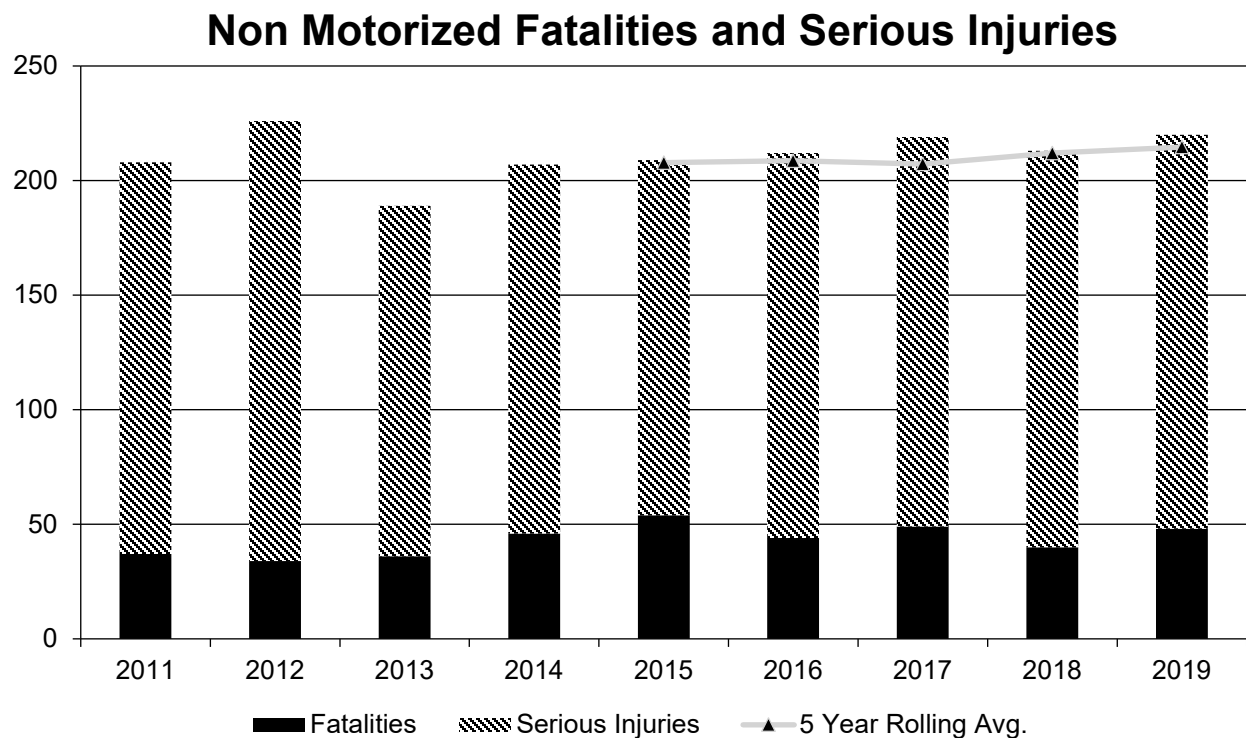
General Highway Safety Trends

Present data showing the general highway safety trends in the State for the past five years.

PERFORMANCE MEASURES	2011	2012	2013	2014	2015	2016	2017	2018	2019
Fatalities	243	217	220	256	278	281	273	260	248
Serious Injuries	1,182	1,346	1,343	1,404	1,499	1,477	1,453	1,399	1,357
Fatality rate (per HMVMT)	0.921	0.815	0.814	0.928	0.946	0.913	0.866	0.806	0.758
Serious injury rate (per HMVMT)	4.481	5.053	4.971	5.092	5.099	4.799	4.611	4.337	4.149
Number non-motorized fatalities	37	34	36	46	54	44	49	40	48
Number of non-motorized serious injuries	171	192	153	161	155	168	170	173	172







Describe fatality data source.

State Motor Vehicle Crash Database

To the maximum extent possible, present this data by functional classification and ownership.

Year 2019

Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Principal Arterial (RPA) - Interstate	32	120.2	0.97	3.64
Rural Principal Arterial (RPA) - Other Freeways and Expressways	2.2	2.8	1.62	1.38
Rural Principal Arterial (RPA) - Other	30.8	103.6	1.63	5.49
Rural Minor Arterial	15.4	59.4	1.86	7.25
Rural Minor Collector	4	18.4	1.58	7.14
Rural Major Collector	18.4	55.8	1.9	5.77

2020 Utah Highway Safety Improvement Program

Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Local Road or Street	12.4	65.6	1.02	5.42
Urban Principal Arterial (UPA) - Interstate	23	149.8	0.29	1.87
Urban Principal Arterial (UPA) - Other Freeways and Expressways	4	13	0.91	2.94
Urban Principal Arterial (UPA) - Other	66	416.8	1.19	7.53
Urban Minor Arterial	26.2	179.8	0.99	6.82
Urban Minor Collector	3.2	16	1.18	5.61
Urban Major Collector	13.6	111.8	0.73	5.96
Urban Local Road or Street	17	124.2	0.44	3.2

2020 Utah Highway Safety Improvement Program

Year 2019

Roadways	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
State Highway Agency	194.8	960.4	0.96	4.7
County Highway Agency				
Town or Township Highway Agency				
City or Municipal Highway Agency				
State Park, Forest, or Reservation Agency				
Local Park, Forest or Reservation Agency				
Other State Agency				
Other Local Agency				
Private (Other than Railroad)				
Railroad				
State Toll Authority				
Local Toll Authority				
Other Public Instrumentality (e.g. Airport, School, University)				
Indian Tribe Nation				
All Other	73.2	476.6	0.75	4.96

Some years do not have data for fatality and serious injury rates for the "Other Freeways and Expressways" functional class (both urban and rural) because UDOT did not collect VMT data for this functional class until 2014.

Provide additional discussion related to general highway safety trends.

The 5-year rolling average for total fatalities increased each year from 2015-2018 but decreased slightly in 2019. The 5-year rolling average for fatality rate was virtually flat from 2015-2018 but decreased significantly in 2019. The actual number of annual fatalities has gone down the past 3 years and the fatality rate has gone down each of the last 4 years. The fatality rate reduction from the high in 2015 to the low in 2019 represents a 20% drop.

2020 Utah Highway Safety Improvement Program

Trends for serious injuries have been similar. The 5-year rolling average for serious injuries increased each year from 2015-2018 and then decreased in 2019. The 5-year rolling average for serious injury rate, however, has decreased the past 3 years. Actual numbers of serious injuries and the serious injury rate have decreased for the past 4 years. The serious injury rate reduction from the high in 2015 to the low in 2019 represents a 19% drop.

Safety Performance Targets

Safety Performance Targets

Calendar Year 2021 Targets *

Number of Fatalities:251.7

Describe the basis for established target, including how it supports SHSP goals.

Step 1: Fatalities and Serious Injuries were reduced by 2.5% per year for 2020 and 2021 to reflect the goal set in our SHSP. Step 2: The 5-year rolling averages were computed using the values calculated in Step 1. The 2017-2021 value for each performance measure is our 2021 target.

Number of Serious Injuries:1363.2

Describe the basis for established target, including how it supports SHSP goals.

Step 1: Fatalities and Serious Injuries were reduced by 2.5% per year for 2020 and 2021 to reflect the goal set in our SHSP. Step 2: The 5-year rolling averages were computed using the values calculated in Step 1. The 2017-2021 value for each performance measure is our 2021 target.

Fatality Rate:0.780

Describe the basis for established target, including how it supports SHSP goals.

Step 1: Fatalities and Serious Injuries were reduced by 2.5% per year for 2020 and 2021 to reflect the goal set in our SHSP. Step 2: VMT, which can be highly variable from year-to-year, was held constant from our 2019 estimate for 2020 and 2021. There were no adjustments made to the 2020 VMT to reflect potential COVID-19 impacts. Step 3: Rates were estimated using the values calculated in Step 1 and Step 2 and also reflect a 2.5% reduction per year. Step 4: The 5-year rolling averages were computed using the values calculated in Step 1 through step 3. The 2017-2021 value for each performance measure is our 2021 target.

Serious Injury Rate:4.210

Describe the basis for established target, including how it supports SHSP goals.

Step 1: Fatalities and Serious Injuries were reduced by 2.5% per year for 2020 and 2021 to reflect the goal set in our SHSP. Step 2: VMT, which can be highly variable from year-to-year, was held constant from our 2019 estimate for 2020 and 2021. There were no adjustments made to the 2020 VMT to reflect potential COVID-19 impacts. Step 3: Rates were estimated using the values calculated in Step 1 and Step 2 and also reflect a 2.5% reduction per year. Step 4: The 5-year rolling averages were computed using the values calculated in Step 1 through step 3. The 2017-2021 value for each performance measure is our 2021 target.

Total Number of Non-Motorized Fatalities and Serious Injuries:215.2

Describe the basis for established target, including how it supports SHSP goals.

2020 Utah Highway Safety Improvement Program

Step 1: Fatalities and Serious Injuries were reduced by 2.5% per year for 2020 and 2021 to reflect the goal set in our SHSP. Step 2: The 5-year rolling averages were computed using the values calculated in Step 1. The 2017-2021 value for each performance measure is our 2021 target.

Describe efforts to coordinate with other stakeholders (e.g. MPOs, SHSO) to establish safety performance targets.

We held a series of meetings with our MPO and SHSO partners to coordinate and gain consensus on our safety performance targets.

Does the State want to report additional optional targets?

No

Describe progress toward meeting the State's 2019 Safety Performance Targets (based on data available at the time of reporting). For each target, include a discussion of any reasons for differences in the actual outcomes and targets.

PERFORMANCE MEASURES	TARGETS	ACTUALS
Number of Fatalities	272.0	268.0
Number of Serious Injuries	1445.0	1437.0
Fatality Rate	0.890	0.858
Serious Injury Rate	4.750	4.599
Non-Motorized Fatalities and Serious Injuries	212.0	214.6

We remain committed to our goal of Zero Fatalities. Our fatality rate continues to decline despite Utah ranking No. 4 among states for growth in 2019 (1.7%) and No. 1 since 2010 (16%). We met four of our five targets for 2019, with the target for the total number of non-motorized fatalities and serious injuries being slightly exceeded by 2.6.

We continue to focus on opportunities to reduce non-motorized fatalities and serious injuries. Non-motorized fatalities increased from 40 to 48 (20%) between 2018 and 2019. This is not an acceptable trend and we continue to monitor this area closely and seek to identify and implement projects that will improve safety for this important population. There was only a slight change (reduction of one) in the number of non-motorized serious injuries between 2018 and 2019.

1 Source: <https://www.census.gov/newsroom/press-releases/2019/popest-nation.html>

Applicability of Special Rules

Does the HRRR special rule apply to the State for this reporting period?

Yes

Provide the number of older driver and pedestrian fatalities and serious injuries 65 years of age and older for the past seven years.

PERFORMANCE MEASURES	2013	2014	2015	2016	2017	2018	2019
Number of Older Driver and Pedestrian Fatalities	47	38	53	50	58	42	51
Number of Older Driver and Pedestrian Serious Injuries	114	118	146	149	139	142	165

During the process of preparing data for this year's HSIP report, we discovered that previous year data for older driver and pedestrian crashes has significant errors. These errors have been corrected in this report. As a result, the numbers reported this year differ considerably from what was reported in previous years.

Evaluation

Program Effectiveness

How does the State measure effectiveness of the HSIP?

- Benefit/Cost Ratio
- Other-Reduction of severe crashes

Based on the measures of effectiveness selected previously, describe the results of the State's program level evaluations.

The two measures of effectiveness chosen by UDOT are B/C ratio and reduction of severe crashes. Results presented in this report show that UDOT is making progress in both measures. The overall weighted B/C of the 3-year before/after project results is 1.8. And for several years in a row now, Utah has achieved reductions in both fatal and serious injury crashes.

What other indicators of success does the State use to demonstrate effectiveness and success of the Highway Safety Improvement Program?

- HSIP Obligations

Describe significant program changes that have occurred since the last reporting period.

UDOT began during FY20 to implement a new procedure that will take effect for programming of projects beginning in FY23. Under this new process, HSIP projects will be prioritized based on their estimated benefit-cost ratios. This means that the projects most likely to reduce severe crashes will be funded regardless of where they are located within the state. The new process was used during FY20 to identify projects to add to UDOT's three-year plan for FY23. The Traffic and Safety Division believes that the process change will lead to fewer severe crashes and help Utah best meet its Zero Fatalities goal.

Prior to this process change, UDOT's four region offices were prorated a percentage of Utah's HSIP funds to program based on the relative numbers of severe crashes that occurred within each region. The region offices were given discretion to prioritize their funding allocation to projects of their choosing as long as those projects had an estimated benefit-cost ratio greater than 1.0.

Effectiveness of Groupings or Similar Types of Improvements

Present and describe trends in SHSP emphasis area performance measures.

Year 2019

SHSP Emphasis Area	Targeted Crash Type	Number Fatalities (5-yr avg)	of	Number Serious Injuries (5-yr avg)	of	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Roadway Departure		108		412.6		0.35	1.32
Intersections		63.4		562.6		0.2	1.8

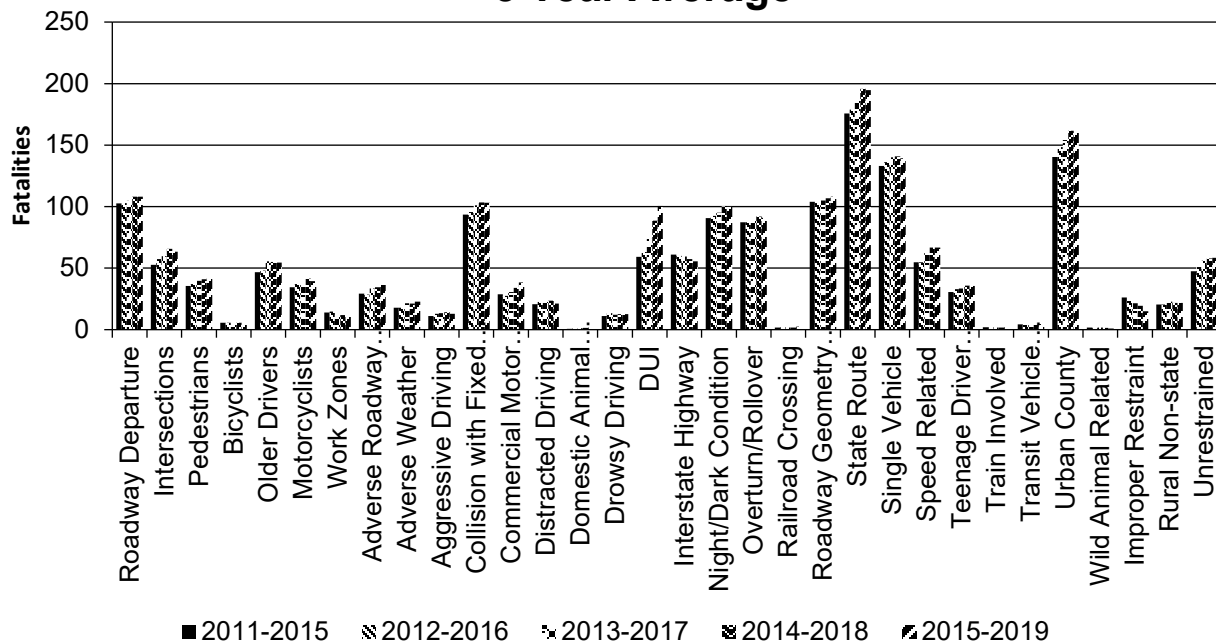
2020 Utah Highway Safety Improvement Program

SHSP Emphasis Area	Targeted Crash Type	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Pedestrians		42	120.4	0.14	0.39
Bicyclists		5	47.2	0.02	0.15
Older Drivers		54.4	228.6	0.18	0.73
Motorcyclists		39.4	199	0.12	0.64
Work Zones		11.6	58	0.04	0.18
Adverse Roadway Surface Condition		36.2	218.4	0.12	0.7
Adverse Weather		22.8	127	0.07	0.41
Aggressive Driving		13	61.2	0.04	0.19
Collision with Fixed Object		103.2	443.4	0.33	1.42
Commercial Motor Vehicle Involved		38.4	111.6	0.12	0.36
Distracted Driving		21.2	143.8	0.07	0.46
Domestic Animal Related		1.8	3.6	0.01	0.01
Drowsy Driving		12.6	60	0.04	0.19
DUI		100.6	162.4	0.32	0.52
Interstate Highway		55.6	278.4	0.18	0.89
Night/Dark Condition		99.8	395.6	0.32	1.27
Overturn/Rollover		91	329.6	0.29	1.06
Railroad Crossing		2.4	3.6	0.01	0.01
Roadway Geometry Related		108	497	0.34	1.59
State Route		194.8	960.4	0.62	3.07
Single Vehicle		139.2	609.4	0.44	1.95
Speed Related		66.8	280	0.21	0.89
Teenage Driver Involved		35.4	264.6	0.11	0.85
Train Involved		2	3.8	0.01	0.01

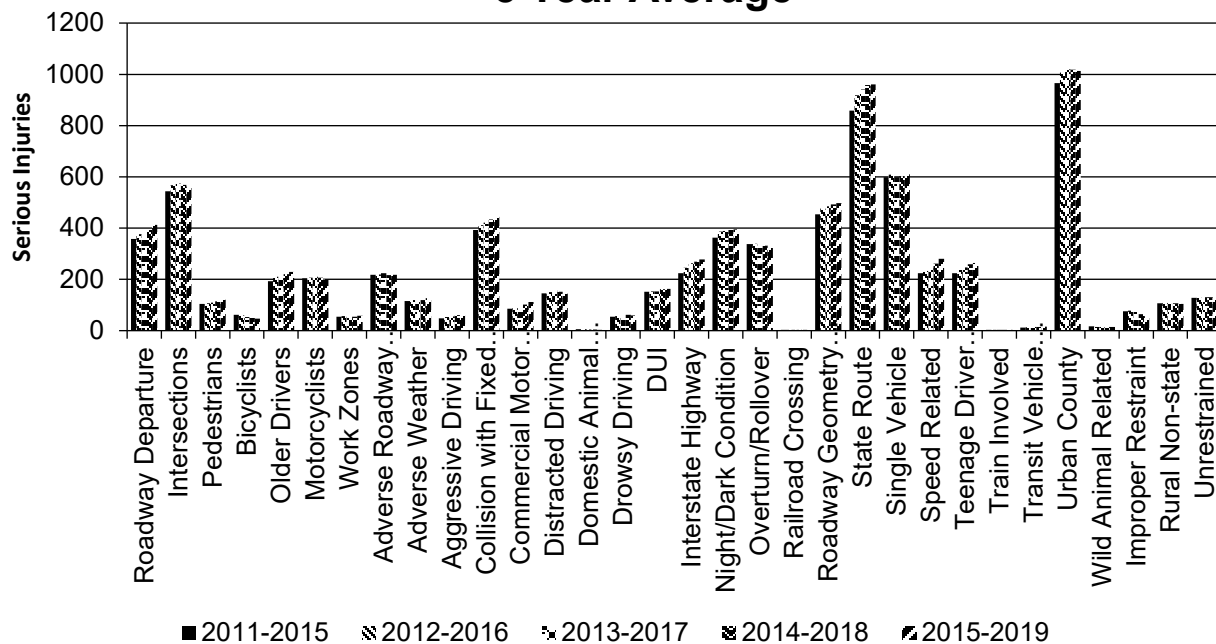
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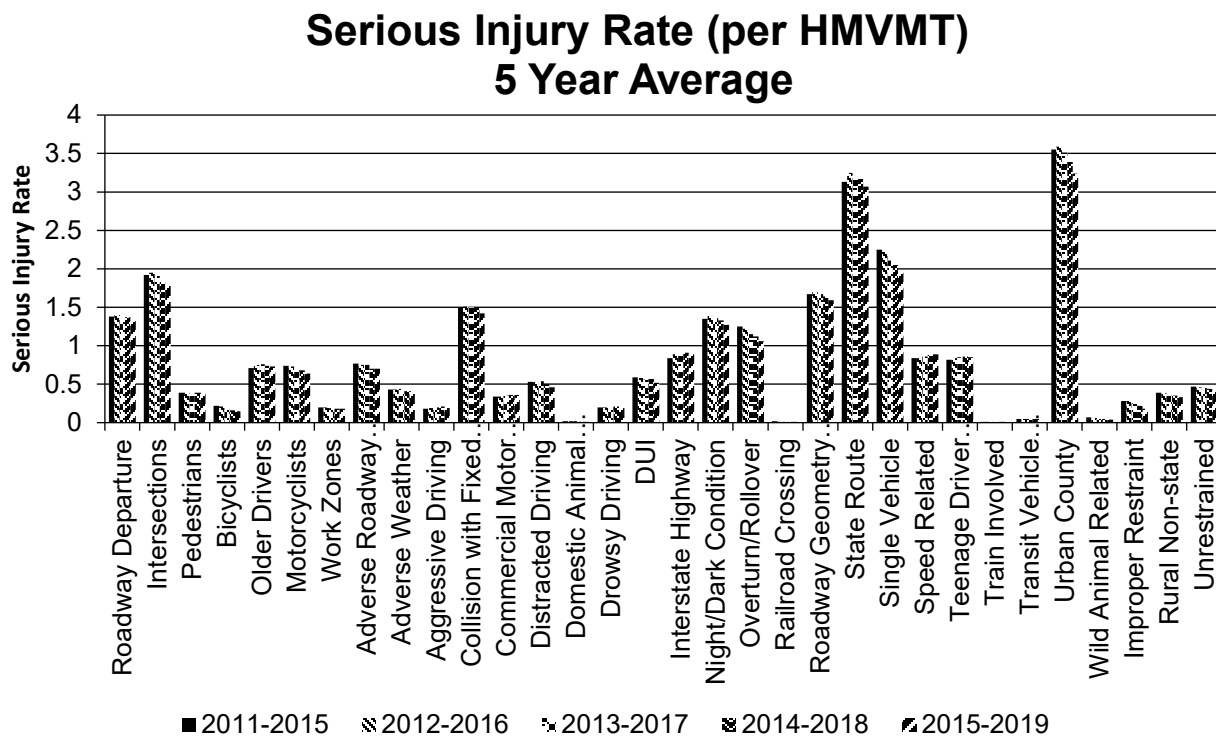
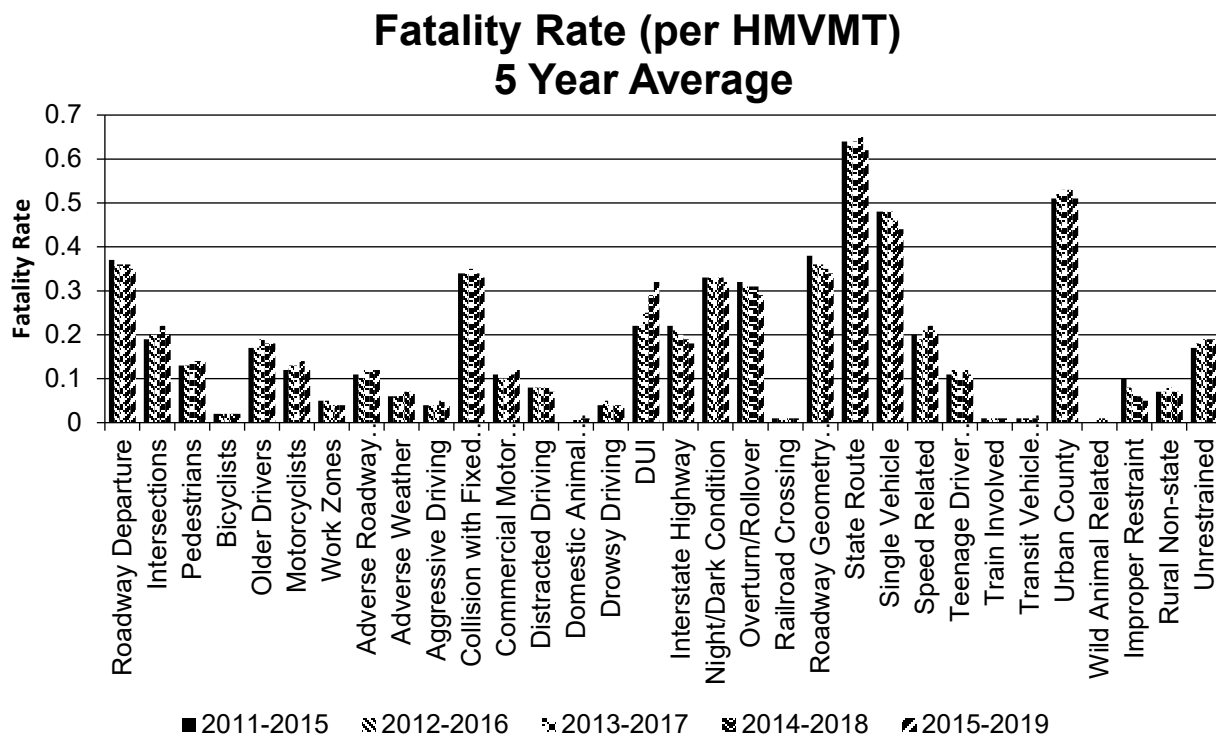
SHSP Emphasis Area	Targeted Crash Type	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Transit Vehicle Involved		4.6	15.8	0.01	0.05
Urban County		159.8	1,013.4	0.51	3.24
Wild Animal Related		1	14	0	0.04
Improper Restraint		15	56.6	0.05	0.18
Rural Non-state		21.8	104.4	0.07	0.33
Unrestrained		58.4	131	0.19	0.42

Number of Fatalities 5 Year Average



Number of Serious Injuries 5 Year Average





Has the State completed any countermeasure effectiveness evaluations during the reporting period?

No

2020 Utah Highway Safety Improvement Program

Each year we enter our before/after results for projects that have achieved 3 years of post-construction crash history, so there is information available there for specific types of projects. But we have not completed any grouped studies of the effectiveness of certain types of countermeasures.

Project Effectiveness

Provide the following information for previously implemented projects that the State evaluated this reporting period.

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
No Passing Zone Signage; Various Locations (PIN 12301)	Various rural types	Roadway signs and traffic control	Roadway signs (including post) - new or updated	2.00	5.00	1.00		1.00	1.00		3.00	4.00	9.00	6.1
SR-225; Interchange Signing Improvements (PIN 12175)	Urban Minor Arterial	Roadway signs and traffic control	Roadway signs (including post) - new or updated	18.00	24.00					10.00	11.00	28.00	35.00	-0.93
I-15 & I-84; Interstate Structure Protection (PIN 12176)	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier concrete -	1.00								1.00		0.01
US-89; MP 402.54-403.70, Median Barrier (PIN 12884)	Urban Principal Arterial (UPA) - Other	Roadside	Barrier concrete -							1.00		1.00		1.41
I-80; MP 99.50-113, Upgrade Barrier (PIN 12221)	Urban Principal Arterial (UPA) - Interstate	Roadside	Barrier - cable	72.00	66.00	1.00		5.00	3.00	10.00	11.00	88.00	80.00	13.62
US-191; MP 251.45 - 259.19, Roadside Improvements (PIN 12191)	Rural Principal Arterial (RPA) - Other	Roadside	Barrier- metal											0
SR-14; MP 13-17, Guardrail & Barrier Improvements (PIN 12187)	Rural Minor Arterial	Roadside	Barrier- metal		1.00					2.00		2.00	1.00	1.58
US-163; MP 0.00-41.41, Install Guardrail (PIN 12188)	Rural Major Collector	Roadside	Barrier- metal											0

2020 Utah Highway Safety Improvement Program

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
SR-39; Shoulder Imps (MP 36.86 - 48.12) (PIN 11382)	Rural Major Collector	Roadside	Barrier- metal											0
Rural Roads in Garfield County (PIN 11742)	Rural Local Road or Street	Roadway signs and traffic control	Roadway signs (including post) - new or updated	3.00	4.00							3.00	4.00	-0.03
Various Locations; Install Rumble Strips (PIN 12190)	Various rural types	Roadway	Rumble strips - edge or shoulder	33.00	40.00	2.00	2.00	5.00	8.00	23.00	24.00	63.00	74.00	-7.75
SR-132; Safety Improvements (MP 34.80-38.75) (PIN 11393)	Rural Minor Arterial	Roadside	Roadside - other	9.00	4.00					3.00	4.00	12.00	8.00	-0.22
SR-35/SR-208 Intersection Realignment (PIN 11395)	Rural Major Collector	Intersection geometry	Auxiliary lanes - add left-turn lane											0
I-15 & I-70; Interstate Structure Protection (PIN 12931)	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier concrete -	3.00	2.00						4.00	3.00	6.00	-0.48
SR-12; MP 64.3-117.0, Sign and Geometry Improv (PIN 12186)	Rural Minor Arterial	Roadway signs and traffic control	Roadway signs (including post) - new or updated	2.00	2.00			1.00			4.00	3.00	6.00	3.36
SR-14; MP 35.4-35.7, Curve Improvements (PIN 12192)	Rural Minor Arterial	Roadside	Barrier concrete -	1.00	1.00	1.00				1.00		3.00	1.00	11.99
SR-266/SR-71 Intersection Reconstruction (PIN 11404)	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Modify traffic signal timing - left-turn phasing (permissive to protected-only)	12.00	2.00					13.00	2.00	25.00	4.00	1.45

2020 Utah Highway Safety Improvement Program

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
SR-266; Auto Blvd/Main St Intersection Imps (PIN 11405)	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Modify traffic signal timing - left-turn phasing (permissive to protected-only)	7.00	7.00			1.00		4.00	3.00	12.00	10.00	4.35
I-15; MP 108.0 to 188.6 Structure Protection (PIN 12189)	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - concrete	3.00	9.00	1.00		1.00		3.00	5.00	8.00	14.00	5.55
SR-95; MP 117.0-120.5, Roadside Improvements (PIN 12193)	Rural Minor Arterial	Roadside	Barrier- metal											0
I-80; MP 138.7 - 141.1, Shoulder Barrier & Lighting (PIN 13596)	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier- metal	4.00	5.00			1.00	1.00	2.00	4.00	7.00	10.00	-0.22
I-15; Interstate Structure Protection (PIN 12985)	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier - concrete	1.00						1.00		2.00		2.34
Telegraph Rd; Guardrail & Rumble Strips (PIN 13024)	Urban Minor Arterial	Roadway	Rumble strips - center	1.00	1.00					1.00		2.00	1.00	0.03
SR-201/SR-202 Intersection Realignment and Signal (PIN 11367)	Urban Principal Arterial (UPA) - Other Freeways and Expressways	Intersection traffic control	Systemic improvements - signal-controlled	7.00	11.00	1.00		1.00		1.00	3.00	10.00	14.00	2.84
SR-67; Median Cable Barrier (MP 3-10.84) FFY14 (PIN 11384)	Urban Principal Arterial (UPA) - Other Freeways and Expressways	Roadside	Barrier - cable	2.00	3.00					2.00	2.00	4.00	5.00	-0.01
SR-266/500 W. Intersection Imps (PIN 11408)	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Modify traffic signal timing - left-turn phasing	60.00	87.00					38.00	20.00	98.00	107.00	4.19

2020 Utah Highway Safety Improvement Program

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
			(permissive to protected-only)											
SR-266 (4500 South); State Street to 700 East (PIN 11409)	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Modify traffic signal timing - left-turn phasing (permissive to protected-only)	6.00						3.00		9.00		1.71
SR-18; MP 34.40 - 39.10, Install Guardrail (PIN 11413)	Rural Minor Arterial	Roadside	Barrier- metal											0
SR-273; MP 2.0-2.2, Intersection Realign & Signal (PIN 13023)	Urban Minor Arterial	Intersection traffic control	Systemic improvements - signal-controlled								1.00		1.00	-0.5
SR-24; MP 69.40 - MP 73.25 Shoulder Improvements (PIN 12204)	Rural Minor Arterial	Roadside	Barrier- metal											0
I-15, I-80, I-215, SR-201; Structure Protection (PIN 12222)	Urban Principal Arterial (UPA) - Interstate	Roadside	Barrier - concrete											0
US-189 RWIS and VMS, MP 8.00 - 19.4 (PIN 11410)	Rural Principal Arterial (RPA) - Other Freeways and Expressways	Advanced technology and ITS	Dynamic message signs	84.00	133.00			1.00		17.00	29.00	102.00	162.00	1.51
I-15; MP 28.13-31.89, Install Guardrail (PIN 13484)	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier- metal		1.00				1.00	3.00	2.00	3.00	4.00	-31.63
500 W/4800 S; Signal Upgrades (PIN 12218)	Urban Major Collector	Intersection traffic control	Modify traffic signal timing - left-turn phasing (permissive to protected-only)	7.00	6.00					6.00	3.00	13.00	9.00	1.77
US-89; Improve Shoulders (MP	Rural Principal Arterial (RPA) - Other	Roadside	Roadside grading		1.00								1.00	-0.06

2020 Utah Highway Safety Improvement Program

LOCATION	FUNCTIONAL CLASS	IMPROVEMENT CATEGORY	IMPROVEMENT TYPE	PDO BEFORE	PDO AFTER	FATALITY BEFORE	FATALITY AFTER	SERIOUS INJURY BEFORE	SERIOUS INJURY AFTER	ALL OTHER INJURY BEFORE	ALL OTHER INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
69-75) (PIN 11412)														
US-89; Two Segments, Median Barrier (PIN 12892)	Urban Principal Arterial (UPA) - Other	Roadside	Barrier concrete -	2.00	1.00	1.00		1.00		3.00		7.00	1.00	11.59
SR-36; Canyon Rd Intersection Improvements (PIN 12223)	Rural Principal Arterial (RPA) - Other	Intersection geometry	Auxiliary lanes - add acceleration lane	3.00	2.00							3.00	2.00	0.02
SR-24; MP 16.01-24.13, Roadside Improvements (PIN 13041)	Rural Minor Arterial	Roadside	Barrier- metal	5.00	7.00					1.00		6.00	7.00	0.5
I-15 & I-70; Interstate Structure Protection Ph. 2 (PIN 13483)	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier concrete -	4.00	5.00							4.00	5.00	-0.01

Describe any other aspects of HSIP effectiveness on which the State would like to elaborate.

The overall weighted B/C was 1.8 for the projects we reported 3-year before-after crash analysis for this year. This is not as high of a B/C ratio as the previous few years, but it nevertheless still shows that UDOT is selecting to fund HSIP projects that are helping to reduce serious and fatal injury crashes. The actual numbers of fatal and serious injury crashes also decreased for the past several years despite strong growth in VMT. Additionally, the fatal and serious injury crash rates decreased 20% and 19%, respectively, from 2015 to 2019.

Compliance Assessment

What date was the State’s current SHSP approved by the Governor or designated State representative?

10/10/2016

What are the years being covered by the current SHSP?

From: 2016 To: 2021

When does the State anticipate completing it’s next SHSP update?

2021

Provide the current status (percent complete) of MIRE fundamental data elements collection efforts using the table below.

*Based on Functional Classification (MIRE 1.0 Element Number) [MIRE 2.0 Element Number]

ROAD TYPE	*MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
		STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
ROADWAY SEGMENT	Segment Identifier (12) [12]	100	100					100		100	
	Route Number (8) [8]	100	100								
	Route/Street Name (9) [9]	100	100								
	Federal Aid/Route Type (21) [21]	100	100								
	Rural/Urban Designation (20) [20]	100	100					100	100		
	Surface Type (23) [24]	100	3.4					100			
	Begin Point Segment Descriptor (10) [10]	100	100					100		100	
	End Point Segment Descriptor (11) [11]	100	100					100		100	
	Segment Length (13) [13]	100	100								
	Direction of Inventory (18) [18]	100	100								
	Functional Class (19) [19]	100	100					100	100	100	
	Median Type (54) [55]	100	3.4								

ROAD TYPE	*MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
		STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
	Access Control (22) [23]	100	100								
	One/Two Way Operations (91) [93]	100	3.4								
	Number of Through Lanes (31) [32]	100	3.4					100			
	Average Annual Daily Traffic (79) [81]	100	100					100			
	AADT Year (80) [82]	100	100								
	Type of Governmental Ownership (4) [4]	100	100					100		100	
INTERSECTION	Unique Junction Identifier (120) [110]			100	3.4						
	Location Identifier for Road 1 Crossing Point (122) [112]			100	3.4						
	Location Identifier for Road 2 Crossing Point (123) [113]			100	3.4						
	Intersection/Junction Geometry (126) [116]			100	3.4						
	Intersection/Junction Traffic Control (131) [131]			100	3.4						
	AADT for Each Intersecting Road (79) [81]			100	3.4						
	AADT Year (80) [82]			100	3.4						
	Unique Approach Identifier (139) [129]			100	3.4						
INTERCHANGE/RAMP	Unique Interchange Identifier (178) [168]					100	100				
	Location Identifier for Roadway at Beginning of Ramp Terminal (197) [187]					100	100				

ROAD TYPE	*MIRE NAME (MIRE NO.)	NON LOCAL PAVED ROADS - SEGMENT		NON LOCAL PAVED ROADS - INTERSECTION		NON LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
		STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
	Location Identifier for Roadway at Ending Ramp Terminal (201) [191]						100				
	Ramp Length (187) [177]					100	100				
	Roadway Type at Beginning of Ramp Terminal (195) [185]					100	100				
	Roadway Type at End Ramp Terminal (199) [189]						100				
	Interchange Type (182) [172]					100	100				
	Ramp AADT (191) [181]					100	100				
	Year of Ramp AADT (192) [182]					100	100				
	Functional Class (19) [19]					100	100				
	Type of Governmental Ownership (4) [4]					100	100				
Totals (Average Percent Complete):		100.00	78.53	100.00	3.40	81.82	100.00	100.00	22.22	100.00	0.00

*Based on Functional Classification (MIRE 1.0 Element Number) [MIRE 2.0 Element Number]

Describe actions the State will take moving forward to meet the requirement to have complete access to the MIRE fundamental data elements on all public roads by September 30, 2026.

UDOT intends to use a variety of resources to collect the MIRE Fundamental Data Elements by the prescribed date. The following is a general summary of resources that will be used for each data group and the status of that resource.

State-Maintained Roads: FDE for these state roads is 100% complete. These data are collected using our biennial asset inventory and various internally managed business systems.

Non-State Federal-Aid System: These data are collected using various internally managed business systems and the usRAP protocol. Of Utah's 29 counties the urban areas have been collected and more are underway. We plan to finish this effort within a year.

Local Roads: Local road data will be collected through the ARNOLD system. The system is completed and data collection plans are in progress.

Unpaved Roads: State-owned unpaved road data is collected via biennial asset inventory and with internal business systems. Non-state unpaved roads will be collected with the ARNOLD system

Optional Attachments

Program Structure:

200929_HSIP Manual.pdf

Project Implementation:

Safety Performance:

Evaluation:

Compliance Assessment:

Glossary

5 year rolling average: means the average of five individuals, consecutive annual points of data (e.g. annual fatality rate).

Emphasis area: means a highway safety priority in a State's SHSP, identified through a data-driven, collaborative process.

Highway safety improvement project: means strategies, activities and projects on a public road that are consistent with a State strategic highway safety plan and corrects or improves a hazardous road location or feature or addresses a highway safety problem.

HMVMT: means hundred million vehicle miles traveled.

Non-infrastructure projects: are projects that do not result in construction. Examples of non-infrastructure projects include road safety audits, transportation safety planning activities, improvements in the collection and analysis of data, education and outreach, and enforcement activities.

Older driver special rule: applies 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 2-year period for which data are available, as defined in the Older Driver and Pedestrian Special Rule Interim Guidance dated February 13, 2013.

Performance measure: means indicators that enable decision-makers and other stakeholders to monitor changes in system condition and performance against established visions, goals, and objectives.

Programmed funds: mean those funds that have been programmed in the Statewide Transportation Improvement Program (STIP) to be expended on highway safety improvement projects.

Roadway Functional Classification: means the process by which streets and highways are grouped into classes, or systems, according to the character of service they are intended to provide.

Strategic Highway Safety Plan (SHSP): means a comprehensive, multi-disciplinary plan, based on safety data developed by a State Department of Transportation in accordance with 23 U.S.C. 148.

Systematic: refers to an approach where an agency deploys countermeasures at all locations across a system.

Systemic safety improvement: means an improvement that is widely implemented based on high risk roadway features that are correlated with specific severe crash types.

Transfer: means, in accordance with provisions of 23 U.S.C. 126, a State may transfer from an apportionment under section 104(b) not to exceed 50 percent of the amount apportioned for the fiscal year to any other apportionment of the State under that section.