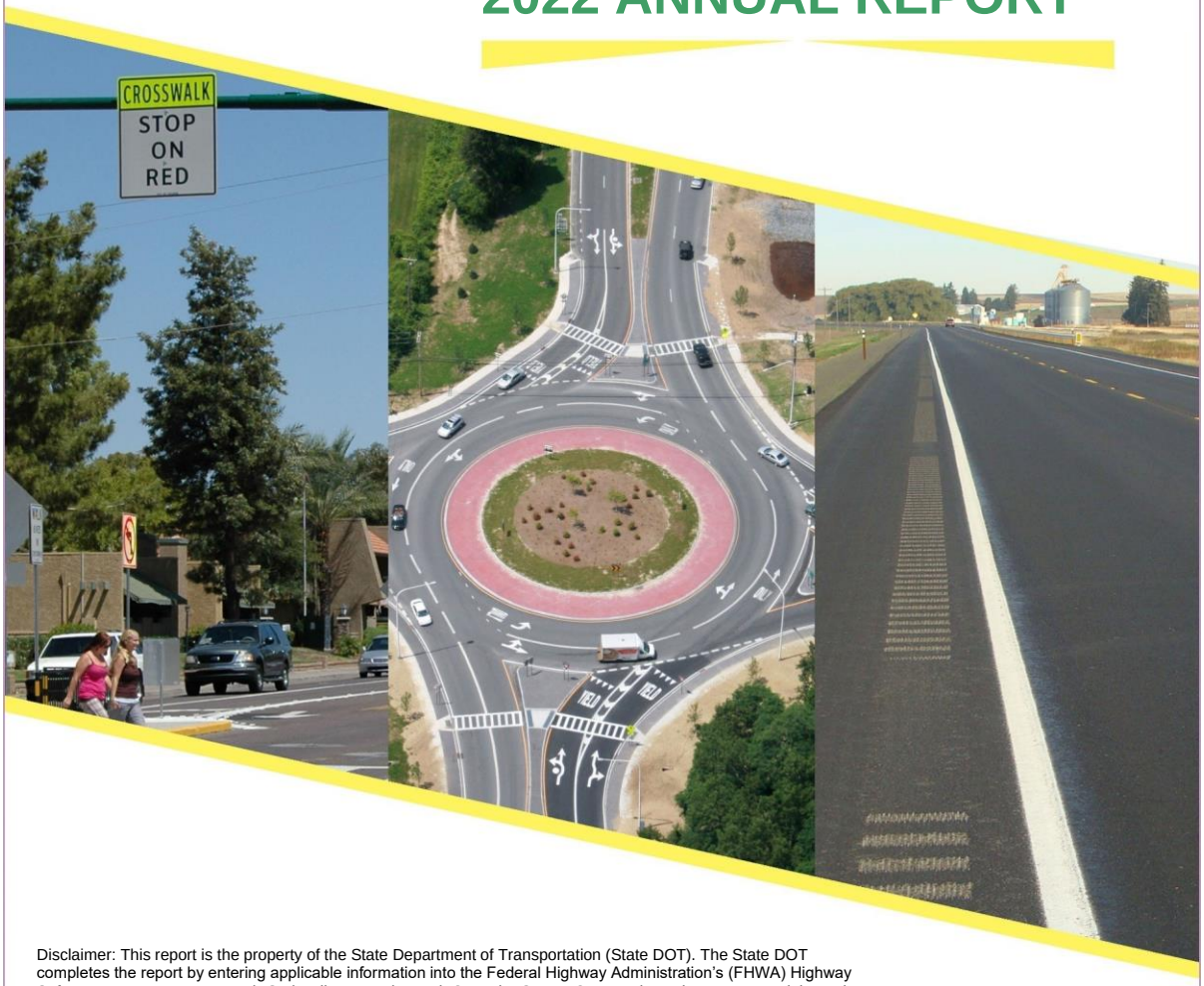
UTAH

HIGHWAY SAFETY IMPROVEMENT PROGRAM

2022 ANNUAL REPORT



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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. 407 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 marked a return to our past long-term downward trends in fatalities. Suspected serious injury crashes peaked in 2015 and then trended downward through 2019. However, 2020 and 2021 experienced significantly higher numbers of fatal and suspected serious injury crashes than in previous years, resulting in higher totals for both metrics than at any other time in the last decade. These rises mirror trends seen in other states during the COVID-19 pandemic and in the year that followed. We are hopeful that our efforts to prioritize safety projects with the greatest potential to reduce fatalities and suspected serious injuries will lead to a resumption of the downward trends in those crash types as more normal traffic patterns emerge following the pandemic.

We continue to use both crash analysis and systemic modeling to identify the projects most likely to reduce fatalities and suspected serious injuries. We 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 of the state evenly. The first two years of this change have proven to be a success and we expect that continuing along this path will lead to the best projects being funded each year.

The FAST Act approved by Congress five years ago removed our ability to fund education and enforcement efforts with HSIP funds. We used State funds to continue these programs while the FAST Act was in effect. The Bipartisan Infrastructure Law restored our ability to use HSIP funds for education and enforcement purposes, so UDOT plans to resume using federal funds for these purposes.

During FY22, we were able to officially sign a new Strategic Highway Safety Plan (SHSP). The new SHSP has been upgraded to emphasize a web-based version rather than a static PDF report. The new web version is complete with charts that show real-time crash and fatalities data. This allows SHSP readers to use this real-time data to track progress and inform decisions regarding the different focus areas.

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 federal HSIP mandates. 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 as 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 benefit-cost ratio greater than 1.0. This historic funding allocation model has continued 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

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 local roads. 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 performs 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. UDOT completed coding for all Federal-aid routes in all counties of the state during the FY21 period.

Additionally, near the end of FY22, UDOT senior leadership made a commitment to collaborating more closely with local municipalities towards the shared goal of improving roadway safety. Going forward, UDOT will be working closely with local governments to provide better insights from crash data and other traffic safety support.

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

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. During FY22, UDOT also created a calibrated predictive model of all State-managed roadways. The calibration is based on SPFs from the HSM. This will allow UDOT to quantify the safety benefits of systemic countermeasures for selection by region offices if the countermeasure fits within their future plans. It is anticipated that this model will be available for implementation in FY23. Preliminary countermeasures may include rumble strips, median barrier, raised median, horizontal curve treatments, and others.

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 Brigham Young University (BYU), the University of Utah, and Utah State University 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.

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. They completed coding of all federal-aid routes in all counties of the state in the FY21 period.

UDOT has used Utah State University to conduct research into educational materials that could be used to educate first responders about the limitations of automated driving systems. UDOT plans to partner again with Utah State in FY23 to analyze skid data for potential safety applications.

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 Mountainland Association of Governments (MAG) in 2018. During the FY21 period, coding of all necessary usRAP roadway attributes was completed for all federal aid routes in all counties across the state.

SHSP Partners

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

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

Two new program administrative changes are worthy of mention here. First, UDOT is planning to take advantage of the recently restored ability to use up to 10% of HSIP for its Zero Fatalities educational campaign. Only about 2.5% of FY22 HSIP funds will be obligated for the Zero Fatalities campaign, but future year obligations will be much closer to reaching the 10% mark.

Second, UDOT’s leadership has made the decision to commit at least 15% of HSIP funding each year to infrastructure projects that address vulnerable road user (VRU) safety. UDOT will be required by FHWA in FY23 and FY24 to obligate at least 15% of HSIP on VRU projects, but UDOT intends to maintain this commitment each year indefinitely, whether or not it is required to do so by FHWA. It is also worth noting that UDOT took notice of its increase in pedestrian crashes and was already working on developing a portfolio of VRU-related infrastructure projects before FHWA put requirements in place to mandate doing so. As a result, we already have a list of projects programmed in FY23 and FY24 that are capable of obligating 15% of the total HSIP funding amount.

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 and Intersection Safety emphasis areas. Most of the other emphasis areas (Public Outreach and Education, Use of Safety Restraints, Impaired Driving, Drowsy Driving, Distracted Driving, Aggressive Driving, Teen Driving Safety, Motorcycle Safety, and Speed Management) are addressed primarily through non-infrastructure efforts such as education, media, and enforcement campaigns. The other emphasis area, Pedestrian Safety, gets addressed with a combination of infrastructure improvements and non-infrastructure efforts. UDOT partners with other state, local, and federal agencies to implement the non-infrastructure components of the SHSP. UDOT funded its education and enforcement efforts with state funds during the period in which the FAST Act was in effect, but it will be funding those efforts with HSIP now that federal eligibility for these activities has been restored.

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
- HSIP (no subprograms)
- Other-Zero Fatalities Safety Campaign

Beginning in FY23, UDOT will be setting aside 15% of annual HSIP funds for vulnerable road user (VRU) projects. This will apply in all years regardless of whether the VRU federal requirement is triggered.

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	Exposure	Roadway
• All crashes		• 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: HSIP (no subprograms)

Date of Program Methodology:10/1/2019

What is the justification for this program?

- Addresses SHSP priority or emphasis area
- FHWA focused approach to safety

What is the funding approach for this program?

Competes with all projects

What data types were used in the program methodology?

Crashes	Exposure	Roadway
• All crashes	• Traffic • Volume • Lane miles	• 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?

Yes

How are projects under this program advanced for implementation?

- Competitive application process

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:100
Total Relative Weight:100

Program: Other-Zero Fatalities Safety Campaign

Date of Program Methodology:11/15/2021

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?

Funding set-aside

What data types were used in the program methodology?

Crashes	Exposure	Roadway
• All crashes		

What project identification methodology was used for this program?

- Crash frequency
- Crash rate
- Probability of specific crash types

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-Consulting with a marketing/PR firm

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).

Rank of Priority Consideration

Available funding:1
Cost Effectiveness:2

What percentage of HSIP funds address systemic improvements?

47

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

- Cable Median Barriers
- Install/Improve Lighting
- Other-Raised medians
- Rumble Strips

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 in FY18 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 in conjunction with the SPFs of Part C are used to prioritize potential locations of systemic treatments such as rumble strips, median barrier, and raised medians.
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.
9. The CAP-X and SPICE worksheets provided at the CMF clearinghouse are used to help decide on installation options of various intersections. Intersections that warrant further study use IHSDM and capacity projection models to determine the best alternatives.
10. Where applicable, design deviations use the predictive methods of Part C to evaluate the safety impact of proposed deviations.

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

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.

Zero Fatalities Safety Campaign

During the FAST Act period, UDOT used State funds for education and enforcement efforts that fall within the State's Zero Fatalities effort umbrella. However, UDOT plans to resume using HSIP funds for these efforts now that federal eligibility for them has been restored in the new federal transportation bill passed earlier in FY22.

High Risk Rural Road Special Rule

UDOT was not subject to the HRRR Special Rule during FY22, but there were still some HRRR funds from previous years that were obligated during FY22 in order to use them all up. UDOT anticipates being subject to the HRRR Special Rule again in FY24. 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)	$29,943,578	$26,340,450	87.97%
HRRR Special Rule (23 U.S.C. 148(g)(1))	$158,470	$158,470	100%
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	$6,066,181	$5,962,414	98.29%
Totals	$36,168,229	$32,461,334	89.75%

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

1%

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

1%

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

27%

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

30%

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?

$0

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. From FY19 to FY22 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 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. This became a significant challenge during the last half of FY21 when several projects delayed advertisement to FY22 in order to get better bid prices. This was primarily due to a market where construction costs skyrocketed and bids came in significantly higher than already-inflated engineers estimates.
- Projects that are canceled 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 canceled 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 from FY19 to FY22 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
500 W; 3300 S to 3900 S (PIN 14034)	Intersection traffic control	Modify traffic signal – add flashing yellow arrow	1	Intersections	$250000	$250000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	21,500	35	State Highway Agency	Spot	Intersections	Intersection Improvements
U of U Crash Database Management FY22 (PIN 14470)	Miscellaneous	Data collection	1	Numbers	$311763	$311763	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	Non-infrastructure	Non-infrastructure	Data	Data
Traffic & Safety Program Management Support FY22 (PIN 14473)	Miscellaneous	Miscellaneous - other	1	Numbers	$1900000	$1900000	HSIP (23 U.S.C. 148)	N/A	N/A	0	0	Non-infrastructure	Non-infrastructure	Program Management Support	All
Statewide Roadway Data Inventory FY22 (PIN 16330)	Miscellaneous	Data collection	1	Numbers	$505000	$505000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0	0	State Highway Agency	Non-infrastructure	Data	Data
SR-171; MP 9.20-9.23, Safety Improvements (PIN 17837)	Pedestrians and bicyclists	Medians and pedestrian refuge areas	1	Intersections	$1800000	$3245000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	21,500	45	State Highway Agency	Spot	Intersections	Intersection Improvements
I-15; Various Locations, Cable Barrier (PIN 18301)	Roadside	Barrier – cable	16	Miles	$4400000	$4400000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	22,800	80	State Highway Agency	Systemic	Roadway Departure	Barrier
I-70; Various Locations, Cable Barrier (PIN 18302)	Roadside	Barrier – cable	16	Miles	$4800000	$4800000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	4,300	80	State Highway Agency	Systemic	Roadway Departure	Barrier
SR-36; MP 62.89-65.12, Median Barrier (PIN 18296)	Roadside	Barrier – concrete	2	Miles	$1900000	$1900000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other Freeways & Expressways	30,000	60	State Highway Agency	Systemic	Roadway Departure	Barrier
SR-201; MP 0-10, Various Safety	Intersection geometry	Innovative Intersection (e.g. MUT, RCUT, QR)	1	Intersections	$2448000	$2723000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other Freeways & Expressways	20,500	60	State Highway Agency	Spot	Intersections	Intersection Improvements

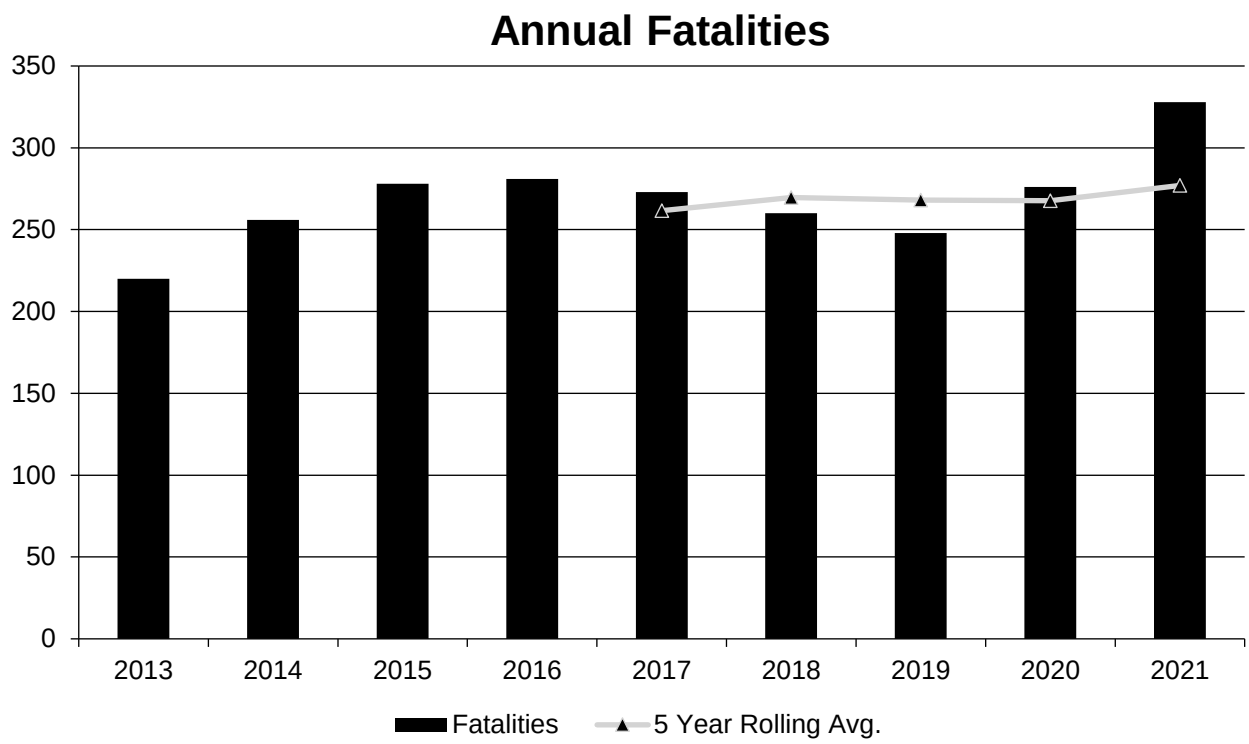
PROJECT NAME	IMPROVEMENT CATEGORY	SUBCATEGORY	OUTPUTS	OUTPUT TYPE	HSIP PROJECT COST($)	TOTAL PROJECT COST($)	FUNDING CATEGORY	LAND USE/AREA TYPE	FUNCTIONAL CLASSIFICATION	AADT	SPEED	OWNERSHIP	METHOD FOR SITE SELECTION	SHSP EMPHASIS AREA	SHSP STRATEGY
Improvements (PIN 18297)															
SR-39; MP 19.36, Construct Roundabout (PIN 19667)	Intersection traffic control	Modify control – Modern Roundabout	1	Intersections	$3120000	$3120000	HSIP (23 U.S.C. 148)	Rural	Minor Arterial	3,350	50	State Highway Agency	Spot	Intersections	Intersection Improvements
R1 Sight Distance Project Incorporation (PIN 19721)	Miscellaneous	Data analysis	200	Miles	$200000	$200000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0	0	State Highway Agency	Non-infrastructure	Data	Data
R2 Sight Distance Project Incorporation (PIN 19722)	Miscellaneous	Data analysis	200	Miles	$200000	$200000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0	0	State Highway Agency	Non-infrastructure	Data	Data
R3 Sight Distance Project Incorporation (PIN 19723)	Miscellaneous	Data analysis	200	Miles	$200000	$200000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0	0	State Highway Agency	Non-infrastructure	Data	Data
R4 Sight Distance Project Incorporation (PIN 19725)	Miscellaneous	Data analysis	200	Miles	$200000	$200000	HSIP (23 U.S.C. 148)	Multiple/Varies	Multiple/Varies	0	0	State Highway Agency	Non-infrastructure	Data	Data
SR-204; MP 1.23-1.95, Corridor Lighting (PIN 19988)	Lighting	Continuous roadway lighting	1	Miles	$546000	$546000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	22,000	40	State Highway Agency	Spot	Pedestrians	Lighting
Various Locations; Lighting Improvements (PIN 19995)	Lighting	Intersection lighting	4	Miles	$2406000	$2406000	HSIP (23 U.S.C. 148)	Urban	Principal Arterial-Other	34,500	40	State Highway Agency	Systemic	Pedestrians	Lighting

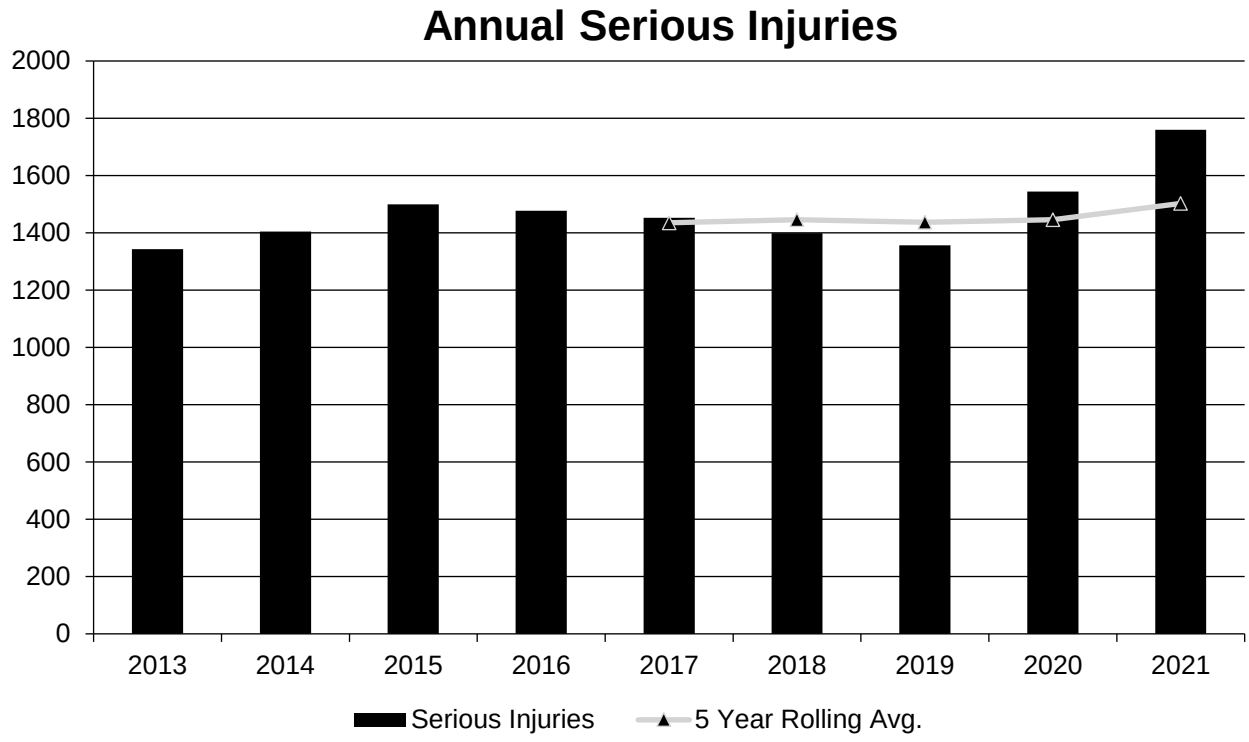
Safety Performance

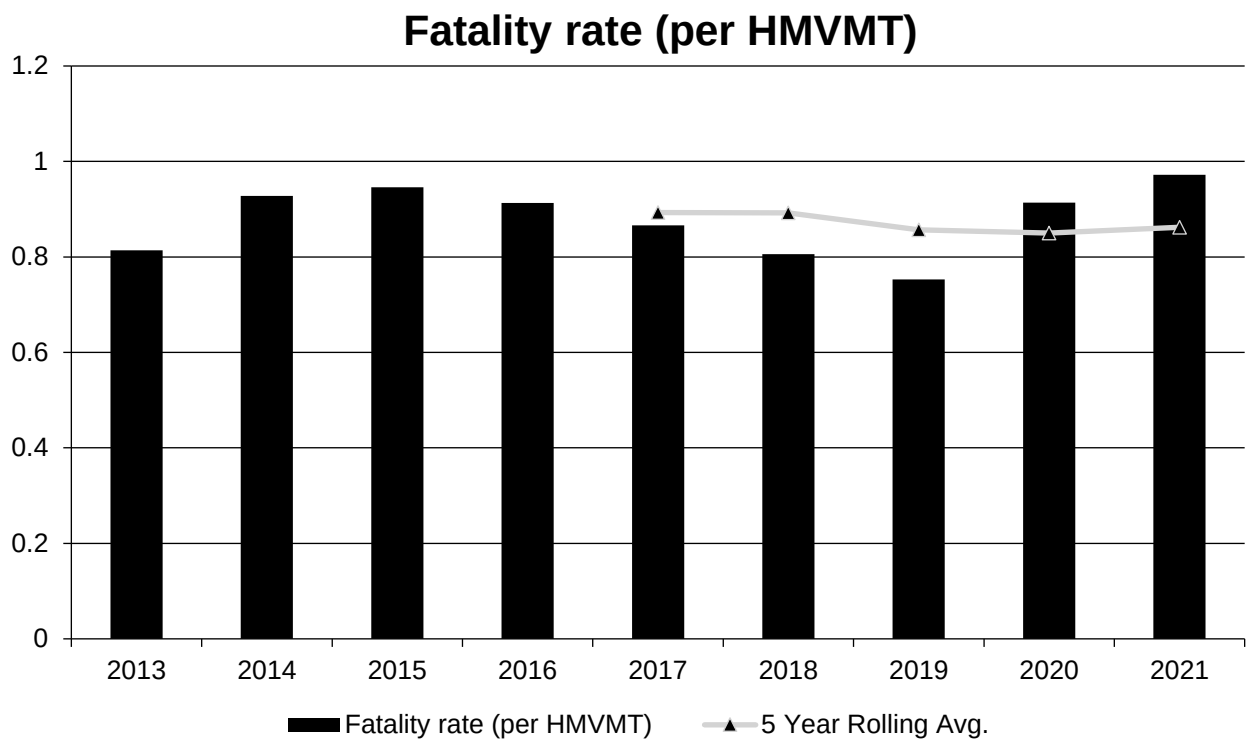
General Highway Safety Trends

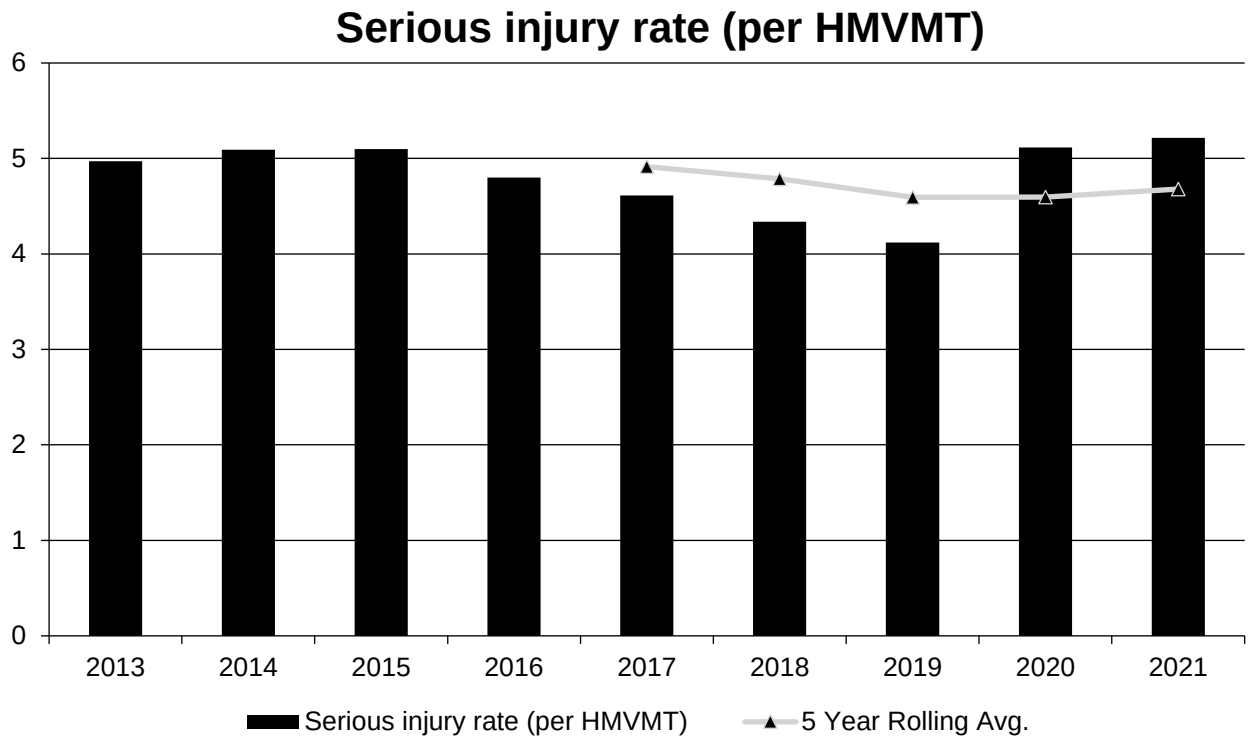
Present data showing the general highway safety trends in the State for the past five years.

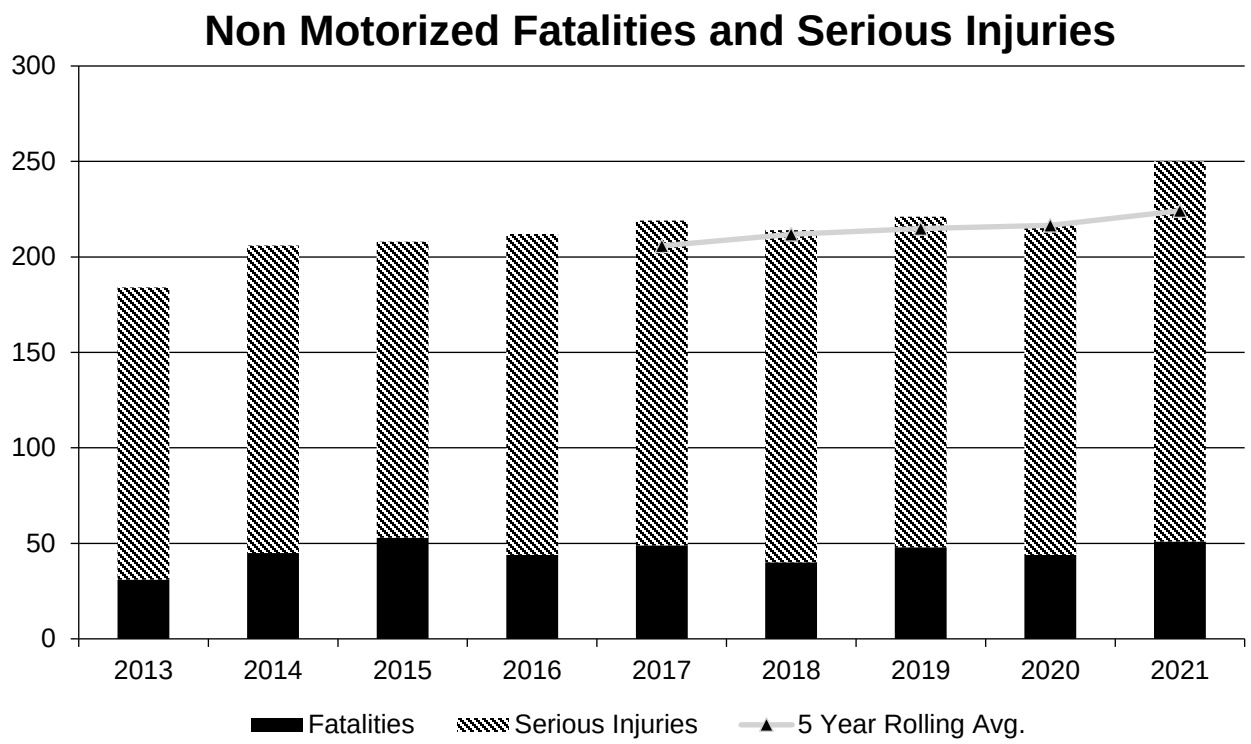
PERFORMANCE MEASURES	2013	2014	2015	2016	2017	2018	2019	2020	2021
Fatalities	220	256	278	281	273	260	248	276	328
Serious Injuries	1,343	1,404	1,499	1,477	1,453	1,399	1,357	1,544	1,760
Fatality rate (per HMVMT)	0.814	0.928	0.946	0.913	0.866	0.806	0.753	0.914	0.972
Serious injury rate (per HMVMT)	4.971	5.092	5.099	4.799	4.611	4.337	4.120	5.114	5.214
Number non-motorized fatalities	31	45	53	44	49	40	48	44	51
Number of non-motorized serious injuries	153	161	155	168	170	174	173	173	199


Annual Fatalities
350
300
250
200
150
100
50
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
Fatalities
5 Year Rolling Avg.


Annual Serious Injuries
2000
1800
1600
1400
1200
1000
800
600
400
200
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
Serious Injuries
5 Year Rolling Avg.


Fatality rate (per HMVMT)
1.2
1
0.8
0.6
0.4
0.2
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
Fatality rate (per HMVMT)
5 Year Rolling Avg.


Serious injury rate (per HMVMT)
6
5
4
3
2
1
0
2013
2014
2015
2016
2017
2018
2019
2020
2021
Serious injury rate (per HMVMT)
5 Year Rolling Avg.



Describe fatality data source.

State Motor Vehicle Crash Database

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

Year 2021

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	30.4	100	0.85	2.82
Rural Principal Arterial (RPA) - Other Freeways and Expressways	1.8	3	2.1	3.44
Rural Principal Arterial (RPA) - Other	31.8	98.4	1.59	4.96
Rural Minor Arterial	17	62.8	1.94	7.13
Rural Minor Collector	5.4	20.4	1.87	7.2
Rural Major Collector	18	64.8	1.75	6.22

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	13.6	82.6	1.1	6.67
Urban Principal Arterial (UPA) - Interstate	23.4	138.6	0.29	1.7
Urban Principal Arterial (UPA) - Other Freeways and Expressways	4.2	11.2	0.87	2.35
Urban Principal Arterial (UPA) - Other	70.2	444.8	1.25	7.92
Urban Minor Arterial	26.8	183.4	1	6.83
Urban Minor Collector	2.4	22.4	0.75	6.88
Urban Major Collector	16.2	116.6	0.85	6.11
Urban Local Road or Street	15.8	155.4	0.41	4

Year 2021

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	203.4	959.2	0.93	4.41
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	73.6	543.6	0.71	5.24

Provide additional discussion related to general highway safety trends.

The 5-year rolling average for total fatalities increased from 2017-2018, decreased from 2018-2020, and then increased again from 2020-2021. The 5-year rolling average for fatality rate was essentially the same in 2017 and 2018, decreased from 2018-2020, and then increased from 2020-2021. The actual number of annual fatalities went down each year from 2017 to 2019 but saw significant upticks in 2020 and 2021 that resulted in the 2021 figure far outpacing the previous high of the last decade that occurred in 2016. The annual fatality rate decreased sharply from 2017-2019 but then increased even more sharply from 2019-2021, resulting in the 2021 figure being higher than the previous high of the last decade that occurred in 2015.

Trends for suspected serious injuries have been similar. The 5-year rolling average for suspected serious injuries increased from 2017-2018, decreased in 2019, and then increased in both 2020 and 2021. The 5-year rolling average for suspected serious injury rate, however, decreased from 2017-2019, stayed almost exactly constant from 2019-2020, and then increased in 2021. Actual numbers of serious injuries and the suspected serious injury rate decreased significantly from 2017 to 2019, but both metrics rose sharply in 2020 and 2021 to levels higher than any other year in the past decade.

The rise in crashes and crash rates in 2020 was associated with a spike in crashes coupled with significantly reduced traffic volumes, both of which are likely attributable to the COVID-19 pandemic. Traffic volumes rebounded in 2021, but fatal and suspected serious injury crashes increased from 2020-2021 by an even larger margin, which resulted in the fatal and suspected serious injury rates being higher than at any point in the last decade.

Safety Performance Targets

Safety Performance Targets

Calendar Year 2023 Targets *

Number of Fatalities:296.8

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

Step 1: The number of fatalities from 2021 were reduced by 2.5% per year for 2022 and 2023 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 2019-2023 value for this performance measure is our 2023 target.

Number of Serious Injuries:1610.2

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

Step 1: The number of suspected serious injuries from 2021 were reduced by 2.5% per year for 2021 and 2022 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 2019-2023 value for this performance measure is our 2023 target.

Fatality Rate:0.895

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

Step 1: The number of fatalities from 2021 were reduced by 2.5% per year for 2022 and 2023 to reflect the goal set in our SHSP. Step 2: The 2021 VMT estimate was held constant for 2022 and 2023 given the highly variable nature of VMT from year-to-year. 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 2019-2023 value for this performance measure is our 2023 target.

Serious Injury Rate:4.898

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

Step 1: The number of suspected serious injuries from 2021 were reduced by 2.5% per year for 2022 and 2023 to reflect the goal set in our SHSP. Step 2: The 2021 VMT was held constant for 2022 and 2023 given the highly variable nature of VMT from year-to-year. 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 2019-2023 value for each performance measure is our 2023 target.

Total Number of Non-Motorized Fatalities and Serious Injuries:234.6

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

Step 1: The number of fatalities and suspected serious injuries from 2021 were reduced by 2.5% per year for 2022 and 2023 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 2019-2023 value for each performance measure is our 2023 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 SHSP 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 2022 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	251.7	277.0
Number of Serious Injuries	1363.2	1502.6
Fatality Rate	0.780	0.862
Serious Injury Rate	4.210	4.679
Non-Motorized Fatalities and Serious Injuries	215.2	224.2

We remain committed to our goal of Zero Fatalities. Implementing measures to improve safety through the HSIP is bringing UDOT closer to that goal. Our fatality rate is down 42% from 2000. Despite being the country's fastest-growing state between 2010 and 2020, and the state with the 2nd largest percent growth from 2020 to 2021, Utah's fatality rate for 2021 of 0.96 is 28% lower than the national average of 1.33 fatalities per 100 million vehicle miles traveled*.

We continue to focus on opportunities to reduce fatalities and suspected serious injuries across all performance measures. These increases represent unacceptable trends. We continue to monitor each performance measure closely, seeking to identify and implement projects that will improve safety and significantly reduce the number of fatalities and suspected serious injuries on Utah's roads.

*Source: https://www.nhtsa.gov/press-releases/early-estimate-2021-traffic-fatalities

Applicability of Special Rules

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

No

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	2015	2016	2017	2018	2019	2020	2021
Number of Older Driver and Pedestrian Fatalities	52	50	58	42	51	62	66
Number of Older Driver and Pedestrian Serious Injuries	146	147	138	140	166	144	182

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 continuing to show a strong overall B/C ratio for the infrastructure projects it is selecting. The overall weighted B/C of the 3-year before/after project results is 3.7. Unfortunately, fatal and suspected serious injury crashes have risen sharply in both 2020 and 2021 to levels higher than at any other point in the last decade. This rise mirrors nationwide trends.

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

- HSIP Obligations

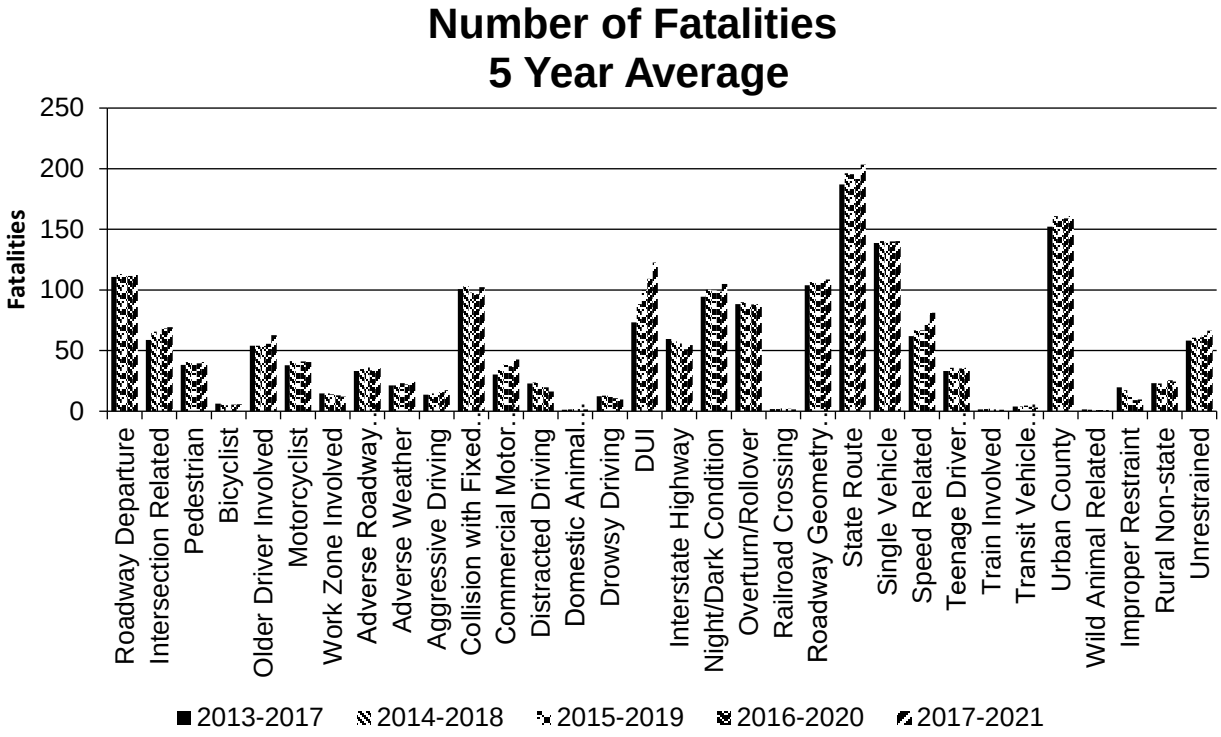
Effectiveness of Groupings or Similar Types of Improvements

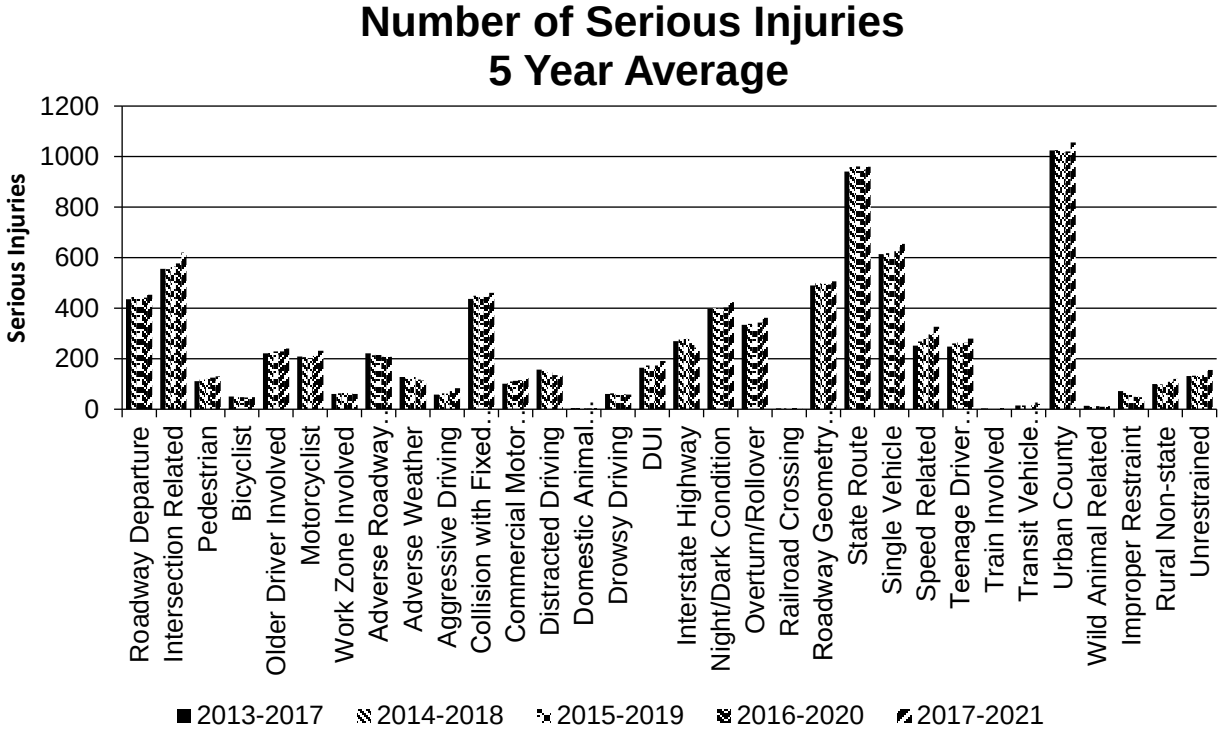
Present and describe trends in SHSP emphasis area performance measures.

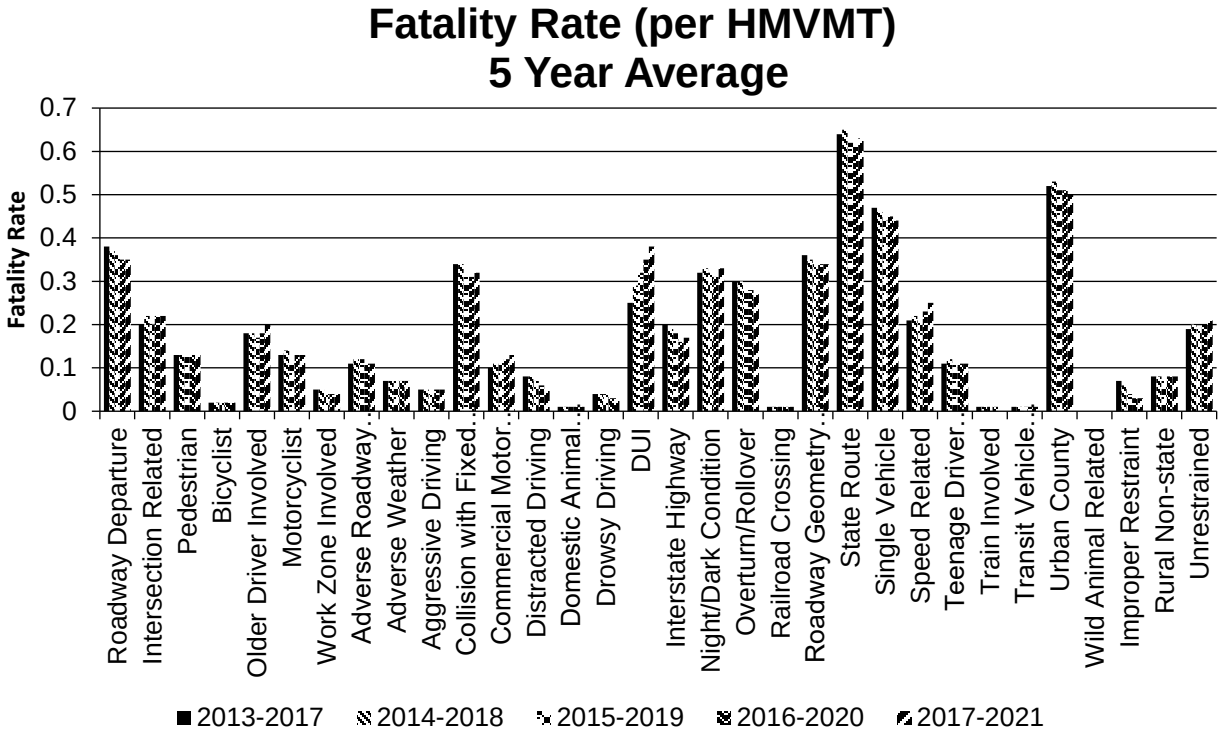
Year 2021

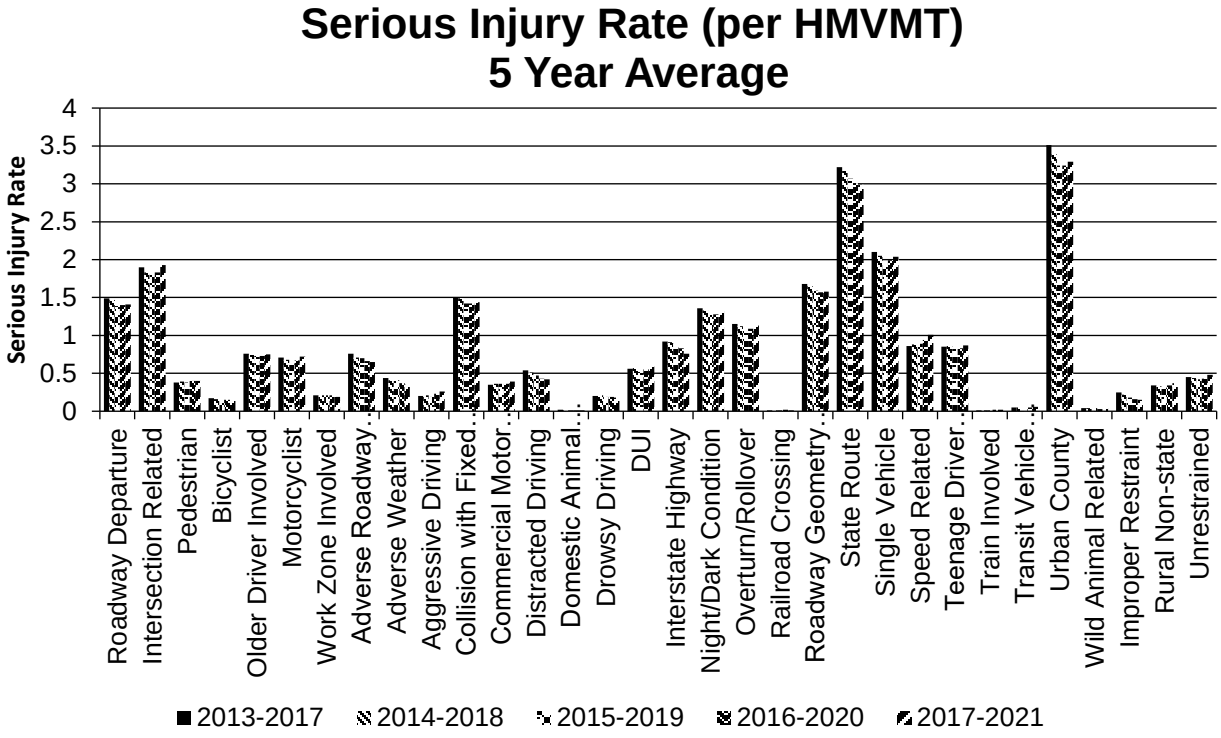
SHSP Emphasis Area	Targeted Crash Type	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Roadway Departure		114	452.6	0.35	1.41
Intersection Related		69.4	620.6	0.22	1.93
Pedestrian		40.6	130	0.13	0.4
Bicyclist		5.8	47.8	0.02	0.15
Older Driver Involved		62.6	240.4	0.2	0.75
Motorcyclist		40.6	231.8	0.13	0.72
Work Zone Involved		12	60.4	0.04	0.19
Adverse Roadway Surface Condition		35.6	207.8	0.11	0.65
Adverse Weather		24.2	113.4	0.07	0.35

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)
Aggressive Driving		17.4	83.6	0.05	0.26
Collision with Fixed Object		102.4	461.2	0.32	1.44
Commercial Motor Vehicle Involved		42.6	124	0.13	0.39
Distracted Driving		16.4	133.2	0.05	0.42
Domestic Animal Related		1.4	4.8	0.01	0.01
Drowsy Driving		9.8	57.8	0.03	0.18
DUI		122.6	190.4	0.38	0.59
Interstate Highway		54.6	244.2	0.17	0.76
Night/Dark Condition		105	424.6	0.33	1.32
Overturn/Rollover		88.2	361.6	0.27	1.13
Railroad Crossing		1.6	4.4	0.01	0.01
Roadway Geometry Related		108.6	506	0.34	1.58
State Route		203.4	959.2	0.63	2.99
Single Vehicle		140.2	654.2	0.44	2.04
Speed Related		81.2	326	0.25	1.01
Teenage Driver Involved		35.8	279	0.11	0.87
Train Involved		1.2	5.2	0	0.02
Transit Vehicle Involved		3	20.6	0.01	0.06
Urban County		160.8	1,056.6	0.5	3.29
Wild Animal Related		1	12	0	0.04
Improper Restraint		9.6	47.4	0.03	0.15
Rural Non-state		24.4	119.8	0.08	0.37
Unrestrained		66.4	155.4	0.21	0.48


Number of Fatalities
5 Year Average
Fatalities
250
200
150
100
50
0
Roadway Departure
Intersection Related
Pedestrian
Bicyclist
Older Driver Involved
Motorcyclist
Work Zone Involved
Adverse Roadway...
Adverse Weather
Aggressive Driving
Collision with Fixed...
Commercial Motor...
Distracted Driving
Domestic Animal...
Drowsy Driving
DUI
Interstate Highway
Night/Dark Condition
Overturn/Rollover
Railroad Crossing
Roadway Geometry...
State Route
Single Vehicle
Speed Related
Teenage Driver...
Train Involved
Transit Vehicle...
Urban County
Wild Animal Related
Improper Restraint
Rural Non-state
Unrestrained
2013-2017
2014-2018
2015-2019
2016-2020
2017-2021


Number of Serious Injuries
5 Year Average
Serious Injuries
1200
1000
800
600
400
200
0
Roadway Departure
Intersection Related
Pedestrian
Bicyclist
Older Driver Involved
Motorcyclist
Work Zone Involved
Adverse Roadway...
Adverse Weather
Aggressive Driving
Collision with Fixed...
Commercial Motor...
Distracted Driving
Domestic Animal...
Drowsy Driving
DUI
Interstate Highway
Night/Dark Condition
Overturn/Rollover
Railroad Crossing
Roadway Geometry...
State Route
Single Vehicle
Speed Related
Teenage Driver...
Train Involved
Transit Vehicle...
Urban County
Wild Animal Related
Improper Restraint
Rural Non-state
Unrestrained
2013-2017
2014-2018
2015-2019
2016-2020
2017-2021


Fatality Rate (per HMVMT)
5 Year Average
Fatality Rate
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Roadway Departure
Intersection Related
Pedestrian
Bicyclist
Older Driver Involved
Motorcyclist
Work Zone Involved
Adverse Roadway...
Adverse Weather
Aggressive Driving
Collision with Fixed...
Commercial Motor...
Distracted Driving
Domestic Animal...
Drowsy Driving
DUI
Interstate Highway
Night/Dark Condition
Overturn/Rollover
Railroad Crossing
Roadway Geometry...
State Route
Single Vehicle
Speed Related
Teenage Driver...
Train Involved
Transit Vehicle...
Urban County
Wild Animal Related
Improper Restraint
Rural Non-state
Unrestrained
2013-2017
2014-2018
2015-2019
2016-2020
2017-2021


Serious Injury Rate (per HMVMT)
5 Year Average
Serious Injury Rate
4
3.5
3
2.5
2
1.5
1
0.5
0
Roadway Departure
Intersection Related
Pedestrian
Bicyclist
Older Driver Involved
Motorcyclist
Work Zone Involved
Adverse Roadway...
Adverse Weather
Aggressive Driving
Collision with Fixed...
Commercial Motor...
Distracted Driving
Domestic Animal...
Drowsy Driving
DUI
Interstate Highway
Night/Dark Condition
Overturn/Rollover
Railroad Crossing
Roadway Geometry...
State Route
Single Vehicle
Speed Related
Teenage Driver...
Train Involved
Transit Vehicle...
Urban County
Wild Animal Related
Improper Restraint
Rural Non-state
Unrestrained
2013-2017
2014-2018
2015-2019
2016-2020
2017-2021

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)
SR-173; MP 9.29-9.41, Signal Improvements (PIN 14962)	Urban Principal Arterial (UPA) - Other	Intersection traffic control	Modify traffic signal timing – left-turn phasing	52.00	49.00					14.00	9.00	66.00	58.00	3.75
I-15, I-80, I-215; P2-Structure Barrier (PIN 13309)	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier – concrete	7.00	6.00						1.00	7.00	7.00	-0.23
SR-12; MP 0 to MP 30, Barrier & Signage (PIN 14444)	Rural Principal Arterial (RPA) - Other	Roadside	Barrier- metal	2.00	1.00	1.00		2.00				5.00	1.00	55.07
SR-95; MP 16-117, Curve Signage (PIN 13493)	Rural Minor Arterial	Roadway signs and traffic control	Curve-related warning signs and flashers	2.00	1.00					3.00		5.00	1.00	2.56
Various Rtes; TX Turndown & Guardrail Replacement (PIN 15231)	Rural – Multiple	Roadside	Barrier- metal	1.00	1.00			1.00		1.00	1.00	3.00	2.00	8.96
Various Routes; No-Pass Pennant Signing (PIN 14426)	Rural – Multiple	Roadway signs and traffic control	Roadway signs (including post) - new or updated	13.00	5.00					3.00	3.00	16.00	8.00	0.88
4100 S/3200 W Signal Upgrade (PIN 14457)	Urban Minor Arterial	Intersection traffic control	Modify traffic signal – add flashing yellow arrow	12.00	8.00			2.00	1.00	13.00	3.00	27.00	12.00	13.11
I-80; MP 18.7-32.55; EB & WB Median Cable Barrier (PIN 15284)	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier – cable	6.00	28.00	1.00	1.00	4.00	2.00	13.00	14.00	24.00	45.00	2.28
US-91/SR-252 Intersection	Urban Principal	Intersection traffic control	Modify control – new traffic signal	19.00	18.00			1.00	4.00	8.00	6.00	28.00	28.00	-14.64

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)
Improvements (PIN 15157)	Arterial (UPA) - Other													
I-84; MP 0-40, Median Cable Barrier (PIN 15280)	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier – cable	5.00	17.00	3.00		2.00		7.00	5.00	17.00	22.00	13.27
I-15 & I-84; Interstate Structure Protection (PIN 13486)	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier – concrete	2.00	2.00	1.00					1.00	3.00	3.00	8.51
SR-20; MP 0 - 20.49, Roadside Improvements (PIN 13040)	Rural Principal Arterial (RPA) - Other	Roadside	Barrier- metal	1.00						2.00	1.00	3.00	1.00	0.85
Various Routes; Rumble Strips (PIN 14448)	Rural – Multiple	Roadway	Rumble strips – edge or shoulder	25.00	11.00					9.00	7.00	34.00	18.00	2.66
Various Freeway Routes; Structure Protection (PIN 14459)	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier – concrete	4.00	6.00							4.00	6.00	-0.01
SR-35; MP 17.30-20.75, Motorcycle-Safe Guardrail (PIN 13490)	Rural Major Collector	Roadside	Barrier- metal				1.00			1.00		1.00	1.00	-9.3
I-15; MP 132-133, Shoulder Improvements (PIN 14446)	Rural Principal Arterial (RPA) - Interstate	Roadside	Slope Flattening	1.00	2.00			1.00				2.00	2.00	14.47
I-70; MP 96.2 - 146.7, Median Cable Barrier (PIN 14443)	Rural Principal Arterial (RPA) - Interstate	Roadside	Barrier – cable	2.00	5.00					2.00		4.00	5.00	0.51
SR-113 Safety Improvements & Bike Lanes on SR-114 (PIN 13900)	Rural Minor Arterial	Intersection geometry	Add/modify auxiliary lanes	3.00	3.00			1.00		3.00		7.00	3.00	14.69

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

The overall weighted B/C was 3.7 for the projects we reported 3-year before-after crash analysis for this year. This is lower than the similar overall B/C ratios we've reported over the last 5 years, but it still shows a strong return on the safety investments that UDOT is making, and demonstrates that UDOT is selecting projects that are helping to reduce suspected serious and fatal injury crashes.

The actual numbers of fatal and suspected serious injury crashes generally decreased between 2016 and 2019 despite strong VMT growth, but they unfortunately rose sharply in both 2020 and 2021. Fatal and suspected serious injury crash rates experienced similar trends over the past 5 years, including the increases from 2019 to 2021.

Compliance Assessment

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

10/01/2021

What are the years being covered by the current SHSP?

From: 2021 To: 2026

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

2025

The goal is to update the SHSP every four years. Generally the SHSP is approved by its stakeholders as a part of Utah's bi-annual Zero Fatalities Summit. That will happen next year (2023) and then again in 2025, which fits with a 4 year update cycle.

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	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	100	100
	End Point Segment Descriptor (11) [11]	100	100					100	100	100	100
	Segment Length (13) [13]	100	100								
	Direction of Inventory (18) [18]	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
	Functional Class (19) [19]	100	100					100	100	100	100
	Median Type (54) [55]	100	3.4								
	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	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				

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 Beginning of Ramp Terminal (197) [187]					100	100				
	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**	**66.67**	**100.00**	**100.00**

*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 has now collected all required FDE. However, we are still working to merge and organize the data so we are not marking them as complete until data is in a usable and accessible format. For state-maintained roads, FDE are collected using our biennial asset inventory and various internally managed business systems. For the non-state Federal-Aid system, data are collected using various internally managed business systems and the usRAP protocol. This data has all been collected and is going through the organization process. Local road FDE data are collected through the ARNOLD system and are completed and available now. For unpaved state roads, data are collected via biennial asset inventory and with internal business systems. For non-state unpaved roads, data are collected with the ARNOLD system. UDOT anticipates having all MIRE FDE available and complete within 1-2 years.

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.