MAINE

HIGHWAY SAFETY
IMPROVEMENT PROGRAM
2022 ANNUAL REPORT

Photo source: Federal Highway Administration

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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

Maine continues to use a data driven approach for HSIP project selection, assessing various aspects of crash performance. Before and After crash results comparisons on safety projects have consistently shown performance improvement over the years. HSIP selection process is re-evaluated each year to see if there are opportunities for enhancement and for improved alignment for the state's SHSP.

Spot improvement project selection, particularly with regard to intersection safety, has been driven by HSM methodology this year, using our custom GIS intersection network screening process which computes excess crashes with EB adjustment for urban and rural stop and signal-controlled intersections on public highways in Maine regardless of jurisdiction. We continue to identify High Crash Locations each year as an additional consideration in prioritizing our spot improvement project candidates.

MaineDOT now has the capability to perform segment-based highway network safety screening to enhance our data-driven safety analysis capabilities using a GIS-based application developed by Office of Safety and Mobility staff members. As with the intersection-based screening tool, our segment screening tool uses the HSM excess crash method with EB adjustment. We continue to collect cross slope information for the second lane of 2-lane rural highways using our ARAN 9000 by driving these roadways in the opposite direction of our normal pavement condition network collection activities as time and weather allows.

In addition to spot improvements projects, Maine has used lane departure crash data to systemically evaluate our highway network for potential center line rumble strip locations as well as median cable barrier locations and has funded safety projects for both countermeasures. Maine's rumble strip program for non-interstate roadways installations are of the sinusoidal type and have been since 2018. We continue to use data to identify horizontal curves that could benefit from the installation of edge line rumble strips to mitigate went-off-road crashes on these curves.

Maine's 2020 annual VMT was approximately 12.48% lower than 2019 levels, but our 2021 VMT rebounded to approximately 3% lower than that experienced in 2019. 2022 VMT to date is nearly the same as 2021 VMT with the majority of the annual reduction occurring on our Interstate Highways on weekdays which we suspect is the result of continued telework or hybrid office/telework schedules for those who once relied on those roadways daily for commuting purposes.

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.

MaineDOT's HSIP program is managed by the Office of Safety and Mobility which is led by a director level position that reports directly to the Chief Engineer. The Office of Safety and Mobility consists of a highway safety engineering section, mobility engineering section, travel analysis specialist, crash records section, and ADA Coordinator providing a single unit within the Department with the resources needed to perform data-driven safety and mobility analysis and coordinate safety candidate identification and evaluation efforts.

In addition to identification of safety candidates through data driven analysis and network screening, the Office of Safety and Mobility coordinates regularly with a wide variety of resources within MaineDOT including Regional Operations, Local Roads, our Active Transportation Planner, Traffic Engineering, and Regional Planners to identify additional areas of concern and potential safety and spot improvement candidates and to ensure that HSIP funding is being used for projects that support the initiatives and strategies identified in Maine's Strategic Highway Safety Plan.

The Department's Safety/Mobility Committee was created within MaineDOT and is comprised of a cross representation of MaineDOT functional areas that meets quarterly to review and coordinate work on potential safety and mobility projects, and to provide input on prioritization of HSIP projects for inclusion in the work plan. This committee is co-chaired by the Safety Office Director and the State Traffic Engineer.

Where is HSIP staff located within the State DOT?
   Other-Office of Safety and Mobility

MaineDOT's Office of Safety and Mobility reports directly to the Chief Engineer who is part of the Department's Executive Office.

How are HSIP funds allocated in a State?

- SHSP Emphasis Area Data
- Other-Use Benefit Cost Criteria

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

Local roads are included with the state-wide project candidates. Maine captures crash and roadway data for all public roads and can evaluate all locations within the state based on similar crash and benefit/cost

performance comparisons. Local safety project requests based on crash concerns are reviewed and evaluated as part of the candidate screening process using our network safety screening tools and methods.

Maine has an on-line public crash data query tool available to them to help with local analysis - and MPOs/RPOs have utilized this tool and praise its capabilities. The Office of Safety and Mobility has also made crash data available to the public through the Department's Map Viewer application for their use, and provides technical assistance to MPOs and municipalities that would like help evaluating their safety areas of concern.

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

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

Describe coordination with internal partners.

Though the Office of Safety and Mobility is the primary unit responsible for the development of HSIP project candidates, we coordinate with other units throughout the organization daily. Candidates generated from data-driven safety analysis or identified through other means are field reviewed through road safety audits or assessments that generally involve our region traffic engineers, regional planners, and active transportation planner.

We also include other subject matter experts throughout the Department as warranted based on the type of safety issues we are investigating. Other systemic and spot improvement HSIP candidates are generated by our Traffic Engineering Group in the Bureau of Maintenance and Operations. Appropriate countermeasures are evaluated by the Safety Engineering section for each candidate using the Highway Safety Manual and checked to make sure the proposed candidate is an HSIP eligible activity in support of the Strategic Highway Safety Plan. This results in a vetted list of projects recommended for funding ranked in order of safety benefit/cost.

In our experience, safety and mobility concerns are most often inextricably linked and MaineDOT strives to consider both throughout the project evaluation process. To that end the Department merged our Transportation Analysis unit, formerly in the Bureau of Planning, into the Office of Safety forming a new Office of Safety & Mobility. MaineDOT also has a standing Safety/Mobility Committee charged with functioning as a formal vehicle for communication and coordination of all work being performed in both areas. This Committee is co-chaired by the Director of the Office of Safety & Mobility and the State Traffic Engineer, and permanent members of this committee come from the following units within the Department:

- Office of Safety & Mobility (Safety Engineering)
- Office of Safety & Mobility (Mobility Engineering)
- Office of Safety & Mobility (Crash Records)
- M&O (Traffic Engineering)
- M&O (Region Traffic Engineer)
- M&O (ITS Manager)
- Planning (Regional Planner)
- Planning (Active Transportation Planner)
- Project Development (Multimodal Program Director)
- Project Development (Assistant Bureau Director)
- FHWA Maine Division (Safety & Operations Engineer)

The Safety/Mobility committee generates a prioritized list of projects recommended for funding to the Department's Core Executive Team for final approval and inclusion in the work plan.

Identify which external partners are involved with HSIP planning.

- FHWA
- Governors Highway Safety Office
- Law Enforcement Agency
- Local Government Agency
- Local Technical Assistance Program
- Regional Planning Organizations (e.g. MPOs, RPOs, COGs)

Describe coordination with external partners.

The MaineDOT Office of Safety has continuing communications and good relationships with all State, local and Federal partners. In addition to standard state partners such as the Bureau of Highway Safety, we also coordinate with Bureau of Motor Vehicles and DHS for alcohol/drug-related issues. In addition, we regularly work with AAA, Maine Motor Transport Association, Maine Turnpike, Bicycle Coalition of Maine, United Bikers of Maine (motorcycles) and others. We look for input from all and communicate out to them when needed. One means of communicating and coordinating with these external partners is through the Maine Transportation Safety Coalition (MTSC) which meets quarterly for the purpose of coordination.

Our coordination efforts with our MPO/RPO partners occurs on an ongoing basis as well in addition to the performance target setting activities required each year. We try to include these partners in our road safety audit/assessment efforts and obtain their assistance in reviewing High Crash Locations within their respective areas for further investigation by the Office of Safety. These partners are also included in our annual regional "synergy" meetings as part of the work plan development process to coordinate all project work including safety work.

Program Methodology

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

Yes
MaineDOT currently has an HSIP Manual in draft form pending final approval by our Safety/Mobility Committee and Engineering Council.

Select the programs that are administered under the HSIP.

- Bicycle Safety
- Horizontal Curve
- Intersection
- Left Turn Crash
- Local Safety
- Low-Cost Spot Improvements
- Median Barrier
- Pedestrian Safety
- Right Angle Crash
- Roadway Departure
- Rural State Highways
- Segments

- Shoulder Improvement
- Sign Replacement And Improvement
- Skid Hazard
- Wrong Way Driving
- Other-Median Cable Barrier -install completed in 2014
- Other-Speed management
- Other-Guard rail/end treatment upgrades

Program: Bicycle Safety

Date of Program Methodology:8/1/2014

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?
Other-As speci

What data types were used in the program methodology?

Crashes
- All crashes
- Fatal and serious injury crashes only

Exposure
- Traffic
- Volume
- Population

Roadway
- Roadside features

What project identification methodology was used for this program?

- Crash frequency
- Crash rate
- Critical rate
- Excess proportions of specific crash types
- Probability of specific crash types
- 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?

- selection committee

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:2
Ranking based on net benefit:1

Program: Horizontal Curve

Date of Program Methodology:4/1/2017

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?
Other-Being evaluated as a systemic need

What data types were used in the program methodology?

Crashes
- All crashes
- Fatal and serious injury crashes only

Exposure
- Traffic
- Volume
- Other-Highway Corridor Priority

Roadway
- 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-Systemic approach being used to identify corridors of most exposure
- 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-Benefit to Cost ranking
- selection committee

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
Ranking based on B/C:2
Available funding:1

Program: Intersection

Date of Program Methodology:4/1/2017

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

Roadway

- Functional classification
- Roadside features
- Other-MaineDOT's Highway Corridor Priority classifications

What project identification methodology was used for this program?

- Crash frequency
- Crash rate
- Critical rate
- Excess proportions of specific crash types
- Other-HSM-based screenings

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-Benefit to Cost

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
Ranking based on B/C:1
Available funding:2

Program: Left Turn Crash

Date of Program Methodology:8/1/2014

What is the justification for this program?

- Addresses SHSP priority or emphasis area
- Other-Part of intersection strategy along with center left turn lane considerations

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		
• Fatal and serious injury crashes only		

What project identification methodology was used for this program?

- Crash frequency
- Crash rate
- Critical rate
- Excess proportions of specific crash types
- 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?

- Other-Benefit/Cost Prioritization

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
Ranking based on B/C:1
Available funding:2

Program: Local Safety

Date of Program Methodology:8/1/2014

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

Roadway
- Horizontal curvature
- Roadside features

What project identification methodology was used for this program?

- Crash frequency
- Crash rate
- Critical rate
- Excess proportions of specific crash types
- 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?

- Other-Usually work with MaineDOT's Local Roads unit
- selection committee

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:2
Ranking based on net benefit:1

Program: Low-Cost Spot Improvements

Date of Program Methodology:8/1/2014

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

Roadway
- 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

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?

- selection committee

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:2
Cost Effectiveness:1

Program: Median Barrier

Date of Program Methodology:7/1/2010

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?
Other-Systemic need

What data types were used in the program methodology?

Crashes	**Exposure**	**Roadway**
• All crashes	• Other-limited access highway	• Median width

What project identification methodology was used for this program?

- Other-Risk factors noted above.
- Probability of specific crash types

Are local roads (non-state owned and operated) included or addressed in this program?
No

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

How are projects under this program advanced for implementation?

- selection committee

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

Program: Pedestrian Safety

Date of Program Methodology:1/1/2018

What is the justification for this program?

- Addresses SHSP priority or emphasis area
- Other-increasing number of pedestrian fatalities

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

Roadway
- 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

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-These projects are normally coordinated through MaineDOT's Bike/Ped coordinator
- selection committee

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:2
Cost Effectiveness:1

Program: Right Angle Crash

Date of Program Methodology:8/1/2014

What is the justification for this program?

- Addresses SHSP priority or emphasis area
- Other-Part of Intersection Strategies

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
- Fatal and serious injury crashes
  only

What project identification methodology was used for this program?

- Crash frequency
- Crash rate
- Critical rate
- Excess proportions of specific crash types
- 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?

- Other-Benefit/Cost Prioritization

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
Ranking based on B/C:1
Available funding:2

Program: Roadway Departure

Date of Program Methodology:4/1/2017

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?
Other-Systemic funding - such as for centerline rumble strips

What data types were used in the program methodology?

Crashes	Exposure	Roadway
• All crashes • Fatal and serious injury crashes only	• Traffic • Volume • Lane miles	• Median width • Horizontal curvature • Functional classification • Roadside features • Other-Posted speed limit

What project identification methodology was used for this program?

- Crash frequency
- Crash rate
- Critical rate
- Excess proportions of specific crash types
- Level of service of safety (LOSS)
- Other-Systemic for both Head On and Went Off Road (WOR). Curves will be focus for WOR

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?

- selection committee

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:2
Ranking based on net benefit:1

Program: Rural State Highways

Date of Program Methodology:8/1/2014

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**
	• Traffic	
	• Volume	

What project identification methodology was used for this program?

- Other-Coordinated with towns where speed concerns are expressed

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?

- selection committee

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

Program: Segments

Date of Program Methodology:4/1/2017

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?
Other-Systemic funding - such as for centerline rumble strips

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
- Other-Posted speed limit

What project identification methodology was used for this program?

- Crash frequency
- Crash rate
- Critical rate
- Excess proportions of specific crash types
- Level of service of safety (LOSS)
- Other-Systemic for both Head On and Went Off Road (WOR). Curves will be focus for WOR

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?

- selection committee

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:2
Ranking based on net benefit:1

Program: Shoulder Improvement

Date of Program Methodology:8/1/2014

What is the justification for this program?

- Addresses SHSP priority or emphasis area
- Other-Lane Departure, Bicycles, Pedestrians

What is the funding approach for this program?

What data types were used in the program methodology?

Crashes	Exposure	Roadway
• All crashes • Fatal and serious injury crashes only		

What project identification methodology was used for this program?

- Crash frequency
- Crash rate
- Critical rate
- Excess proportions of specific crash types
- 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?

- Other-Benefit/Cost Prioritization

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

Ranking based on B/C:1

Available funding:2

Program: Sign Replacement And Improvement

Date of Program Methodology:8/1/2014

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	Exposure	Roadway
• All crashes • Fatal and serious injury crashes only	• Traffic • Volume	• 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

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?

- selection committee

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:2
Ranking based on net benefit:1

Program: Skid Hazard

Date of Program Methodology:8/1/2014

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
- Fatal and serious injury crashes only

What project identification methodology was used for this program?

- Crash frequency
- Crash rate
- Critical rate
- Excess proportions 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?

- selection committee

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
Ranking based on B/C:1
Available funding:2

Program: Wrong Way Driving

Date of Program Methodology:12/31/2017

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
- All crashes
- Fatal crashes only
- Fatal and serious injury crashes only

Exposure
- Other-Laregely driven by ramp design components

Roadway

What project identification methodology was used for this program?

- Other-Maine State Police input
- Other-ramp design
- Probability of specific crash types

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

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

How are projects under this program advanced for implementation?

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).

Program: Other-Median Cable Barrier -install completed in 2014

Date of Program Methodology:7/1/2016

What is the justification for this program?

- Addresses SHSP priority or emphasis area

What is the funding approach for this program?
Other-Department saw this as a systemic need

What data types were used in the program methodology?

Crashes	Exposure	Roadway
• All crashes		• Median width • Other-Limited access roadway

What project identification methodology was used for this program?

- Probability of specific crash types

Are local roads (non-state owned and operated) included or addressed in this program?
No

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

How are projects under this program advanced for implementation?

- selection committee

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

Program: Other-Speed management

Date of Program Methodology:10/1/2017

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

- Traffic
- Volume

What project identification methodology was used for this program?

- Other-Coordinated with towns where speed concerns are expressed

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

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

How are projects under this program advanced for implementation?

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).

Program: Other-Guard rail/end treatment upgrades

Date of Program Methodology:10/1/2017

What is the justification for this program?

- Addresses SHSP priority or emphasis area
- Other-State looking to make sure current standards met, especially in high speed/high volume locations

What is the funding approach for this program?
Funding set-aside

What data types were used in the program methodology?

Crashes	Exposure	Roadway
	• Traffic	
	• Volume	
	• Other-posted speed limit	

What project identification methodology was used for this program?

- Other-Evaluation of hardware

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?

- selection committee

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:2
Other-Selection of locations of need as noted above:1

What percentage of HSIP funds address systemic improvements?

35

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

- Add/Upgrade/Modify/Remove Traffic Signal
- Cable Median Barriers
- Horizontal curve signs
- Install/Improve Pavement Marking and/or Delineation
- Install/Improve Signing
- Rumble Strips
- Traffic Control Device Rehabilitation
- Upgrade Guard Rails
- Wrong way driving treatments

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
- SHSP/Local road safety plan
- Stakeholder input

Does the State HSIP consider connected vehicles and ITS technologies?

Yes

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

MaineDOT continues to expand the use of ITS technologies and has assigned an ITS manager position within the Traffic Engineering section in the Bureau of Maintenance and Operations. The Department is in the process of creating our Transportation Management Center (TMC) and evaluating the deployment of additional technologies. The ITS Manager has a permanent/formal seat on the Department's Safety/Mobility Committee, and the Director of the Office of Safety and Mobility participates on the ITS Steering Committee.

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.

MaineDOT has created and deployed a web-based GIS application to perform network safety screening of intersection assets in accordance with the HSM. Specifically, we have chosen to screen using excess expected average crash frequency with EB adjustment as our methodology. We have extended this method further by computing excess crash costs to provide weight and focus to those facilities that are experiencing the most severe injuries and fatalities in our efforts to lessen the number and severity of these events. The Department also uses HSM methods to perform alternative countermeasure analysis for individual locations and prioritization of projects recommended for funding. This year MaineDOT has developed a prototype safety screening tool for roadway segments which also is based on excess crashes with EB adjustment. This tool is based on ArcGIS Online technology and is in the form of a web-based dashboard. Though serviceable the tool is still being refined.

Project Implementation

Funds Programmed

Reporting period for HSIP funding.
Calendar Year

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

FUNDING CATEGORY	PROGRAMMED	OBLIGATED	% OBLIGATED/PROGRAMMED
HSIP (23 U.S.C. 148)	$25,094,358	$5,104,171	20.34%
HRRR Special Rule (23 U.S.C. 148(g)(1))	$0	$0	0%
Penalty Funds (23 U.S.C. 154)	$0	$4,245,699	0%
Penalty Funds (23 U.S.C. 164)	$0	$0	0%
RHCP (for HSIP purposes) (23 U.S.C. 130(e)(2))	$0	$1,095,420	0%
Other Federal-aid Funds (i.e. STBG, NHPP)	$1,842,300	$0	0%
State and Local Funds	$4,349,740	$0	0%
Totals	$31,286,398	$10,445,290	33.39%

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%

MaineDOT's Office of Safety & Mobility and our Local Roads Center are available to provide data and technical assistance to towns to help towns prioritize safety investments within their areas of responsibility. Highways within tribal areas are considered as part of our statewide safety analysis and eligible for safety project candidate funding identified as part of that analysis. There are no specific funding allocations for projects on either local or tribal road systems

How much funding is programmed to non-infrastructure safety projects?
0%

How much funding is obligated to non-infrastructure safety projects?
0%

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.
None. MaineDOT Safety Office continues to work with internal and external partners to coordinate and integrate safety and seek the best opportunities to cost-effectively improve traffic safety. This process continues to be enhanced over time.

Describe any other aspects of the State's progress in implementing HSIP projects on which the State would like to elaborate.
2021 construction costs in Maine continued to rise substantially for most all types of projects, not just safety projects. Contractors in Maine have had difficulty finding qualified workers to increase their capacity to take on more work, and have had difficulty procuring materials needed to perform the work.

Maine's leading crash exposure continues to be Lane Departure, experiencing 70% of state-wide fatalities in this category. Additional systemic safety opportunities are being evaluated to achieve a better funding mix that is reflective of SHSP priorities and to address these lane departure crashes. 2016 was the first year where we fielded calls on public noise-related concerns. MaineDOT's 2018-2021 statewide rumble strip contracts specified that only sinusoidal center line rumble strips would be installed. This has substantially reduced the number of noise complaints we have received from the public.

Although not necessarily directly translating to HSIP funding, but certainly contributing to safety planning, there is continued dialogue with MPO's/RPO's on local safety needs and a cooperative approach on safety performance target setting.

Pedestrian traffic fatalities are still a concern and a focused outreach program continued to be delivered throughout the state in 2021. This program includes public engagement and road safety audits and seeks to identify potential bike/pedestrian hazard mitigation that could be funded through HSIP or other fund sources. MaineDOT is also in the process of developing a pedestrian safety toolbox to identify appropriate safety countermeasures for locations with demonstrated vehicle/pedestrian crash exposure.

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
018769.20-STATEWIDE, INTERSTATE STRIPING	Roadway delineation	Longitudinal pavement markings - remarking	115.999	Miles	$1215000	$1610587	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	0	0	State Highway Agency	Systemic	Lane Departure	Explore pavement markings and sign enhancement opportunities
018769.21-STATEWIDE, INTERSTATE STRIPING	Roadway delineation	Longitudinal pavement markings - remarking	54.49	Miles	$976791	$976791	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	0	0	State Highway Agency	Systemic	Lane Departure	Explore pavement markings and sign enhancement opportunities
019001.00-SANFORD, ALFRED & SCHOOL ST	Intersection traffic control	Modify control – new traffic signal	1	Locations	$1655610	$1840000	HSIP (23 U.S.C. 148)	Urban	Minor Arterial	15,473	45	State Highway Agency	Spot	Intersections	Develop Solutions for Reviewed Locations
020581.20-STATEWIDE, STRIPING 2020	Roadway delineation	Longitudinal pavement markings - remarking	116	Miles	$4759977	$5951345	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	0	0	State Highway Agency	Systemic	Lane Departure	Explore pavement markings and sign enhancement opportunities
020581.21-STATEWIDE, STRIPING 2021	Roadway delineation	Longitudinal pavement markings - remarking	54.49	Miles	$2063817	$5084771	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	0	0	State Highway Agency	Systemic	Lane Departure	Explore pavement markings and sign enhancement opportunities
021783.00-EDGECOMB, ROUTE 1	Intersection geometry	Add/modify auxiliary lanes	1	Locations	$1995871	$2755247	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	11,460	50	State Highway Agency	Spot	Intersections	Develop Solutions for Reviewed Locations
022879.00-HERMON, ROUTE 2	Intersection geometry	Add/modify auxiliary lanes	1	Locations	$327889	$964359	Penalty Funds (23 U.S.C. 154)	Rural	Major Collector	5,840	45	State Highway Agency	Spot	Intersections	Develop Solutions for Reviewed Locations
022962.00-POWNAL, ROUTE 9	Intersection traffic control	Modify control – two-way stop to all-way stop	1	Locations	$151227	$234726	Other Federal-aid Funds (i.e. STBG, NHPP)	Rural	Major Collector	1,627	35	State Highway Agency	Spot	Intersections	Develop Solutions for Reviewed Locations

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
023030.00-WEST BATH, STATE ROAD	Intersection traffic control	Modify control – other	1	Locations	$578205	$1092483	HSIP (23 U.S.C. 148)	Rural	Major Collector	6,904	45	State Highway Agency	Spot	Intersections	Develop Solutions for Reviewed Locations
023733.00-REGION 3, CABLE GUARDRAIL	Roadside	Barrier- metal	1.205	Miles	$282357	$313730	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	0	0	State Highway Agency	Systemic	Lane Departure	Continue review of guardrail and end treatment safety performance.
023761.00-2020 STATEWIDE RUMBLE STRIPS	Roadway	Rumble strips – center	100	Miles	$602254	$669950	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	6,000	45	State Highway Agency	Systemic	Lane Departure	Identify priority areas for centerline and edge line rumble strips
023791.00-WELLS, ROUTE 109	Intersection geometry	Add/modify auxiliary lanes	1	Locations	$92000	$110000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	16,478	40	State Highway Agency	Spot	Intersections	Develop Solutions for Reviewed Locations
023793.00-WELLS, ROUTE109	Intersection traffic control	Modify control – new traffic signal	1	Locations	$208369	$366000	Penalty Funds (23 U.S.C. 154)	Rural	Principal Arterial-Other	9,689	40	State Highway Agency	Spot	Intersections	Develop Solutions for Reviewed Locations
023801.00-WINDHAM, ROUTE 202	Intersection traffic control	Modify control – new traffic signal	1	Locations	$105548	$275134	Other Federal-aid Funds (i.e. STBG, NHPP)	Rural	Minor Arterial	6,092	50	State Highway Agency	Spot	Intersections	Develop Solutions for Reviewed Locations
023871.21-STATEWIDE STRIPING 2021 CONTRA	Roadway delineation	Longitudinal pavement markings - remarking	618	Miles	$208903	$261128	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	0	0	State Highway Agency	Systemic	Lane Departure	Explore pavement markings and sign enhancement opportunities
024199.00-TURNER, ROUTE 4	Intersection geometry	Add/modify auxiliary lanes	0.291	Miles	$1241050	$1400000	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Other	13,360	45	State Highway Agency	Spot	Intersections	Develop Solutions for Reviewed Locations
024209.00-PALMYRA, ROUTE 2	Roadside	Roadside - other	1	Locations	$300145	$743875	Penalty Funds (23 U.S.C. 154)	Rural	Principal Arterial-Other	3,306	45	State Highway Agency	Spot	Intersections	Develop Solutions for Reviewed Locations
024235.00-2021 STATEWIDE RUMBLE STRIPS	Roadway	Rumble strips – center	100	Miles	$569314	$741642	HSIP (23 U.S.C. 148)	Rural	Multiple/Varies	6,000	45	State Highway Agency	Systemic	Lane Departure	Identify priority areas for centerline

| 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
															and edge line rumble strips
024257.00- NORRIDGEWOCK, RIVER ROAD	Roadside	Barrier- metal	0.5	Miles	$61600	$84500	Other Federal-aid Funds (i.e. STBG, NHPP)	Rural	Major Collector	2,492	45	State Highway Agency	Systemic	Lane Departure	Continue review of guardrail and end treatment safety performance.
024259.00- MADISON, EAST MADISON ROAD	Roadside	Barrier- metal	0.1	Miles	$101600	$130000	Other Federal-aid Funds (i.e. STBG, NHPP)	Rural	Minor Collector	1,013	50	State Highway Agency	Systemic	Lane Departure	Continue review of guardrail and end treatment safety performance.
024359.00- BRUNSWICK EXIT 28 LIGHTING- FREEPORT CAMERAS	Lighting	Interchange lighting	2.442	Miles	$1976257	$2195841	HSIP (23 U.S.C. 148)	Rural	Principal Arterial-Interstate	35,400	65	State Highway Agency	Spot	Intersections	Develop Solutions for Reviewed Locations
025228.19- INTERSTATE 295 SERVICE PATROL	Roadway	Roadway - other	49.97	Miles	$102521	$113912	Penalty Funds (23 U.S.C. 154)	Multiple/Varies	Principal Arterial-Interstate	54,180	65	State Highway Agency	Systemic	Emergency Services/Incident Management	Promote a culture of safety
025228.20- INTERSTATE 95-295 SERVICE PATROL	Roadway	Roadway - other	49.97	Miles	$143383	$159315	Penalty Funds (23 U.S.C. 154)	Multiple/Varies	Principal Arterial-Interstate	54,180	65	State Highway Agency	Systemic	Emergency Services/Incident Management	Promote a culture of safety

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	145	131	156	160	172	136	157	165	153
Serious Injuries	865	815	754	746	728	685	689	607	710
Fatality rate (per HMVMT)	1.010	0.913	1.050	1.070	1.140	0.910	1.040	1.250	1.040
Serious injury rate (per HMVMT)	6.010	5.680	5.080	4.980	4.810	4.560	4.560	4.590	4.810
Number non-motorized fatalities	15	11	19	21	23	8	19	11	21
Number of non-motorized serious injuries	59	88	64	72	75	72	61	48	61

Annual Fatalities
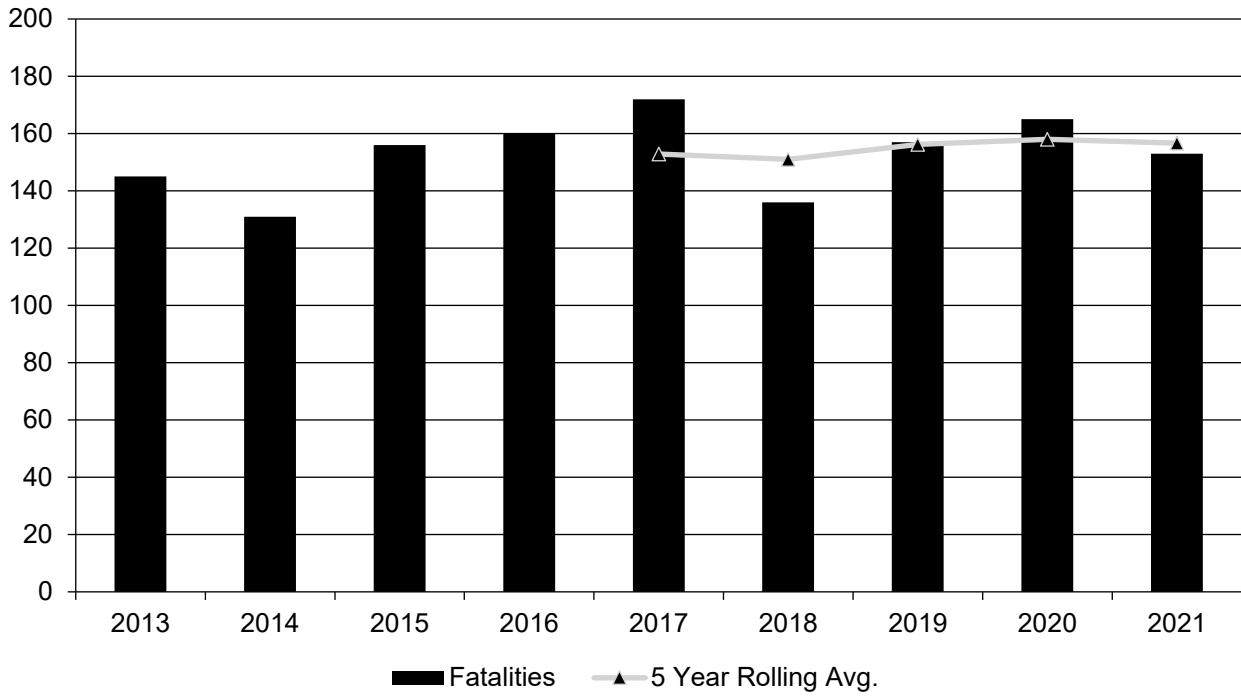
Annual Serious Injuries

Fatality rate (per HMVMT)

Fatality rate (per HMVMT) — 5 Year Rolling Avg.
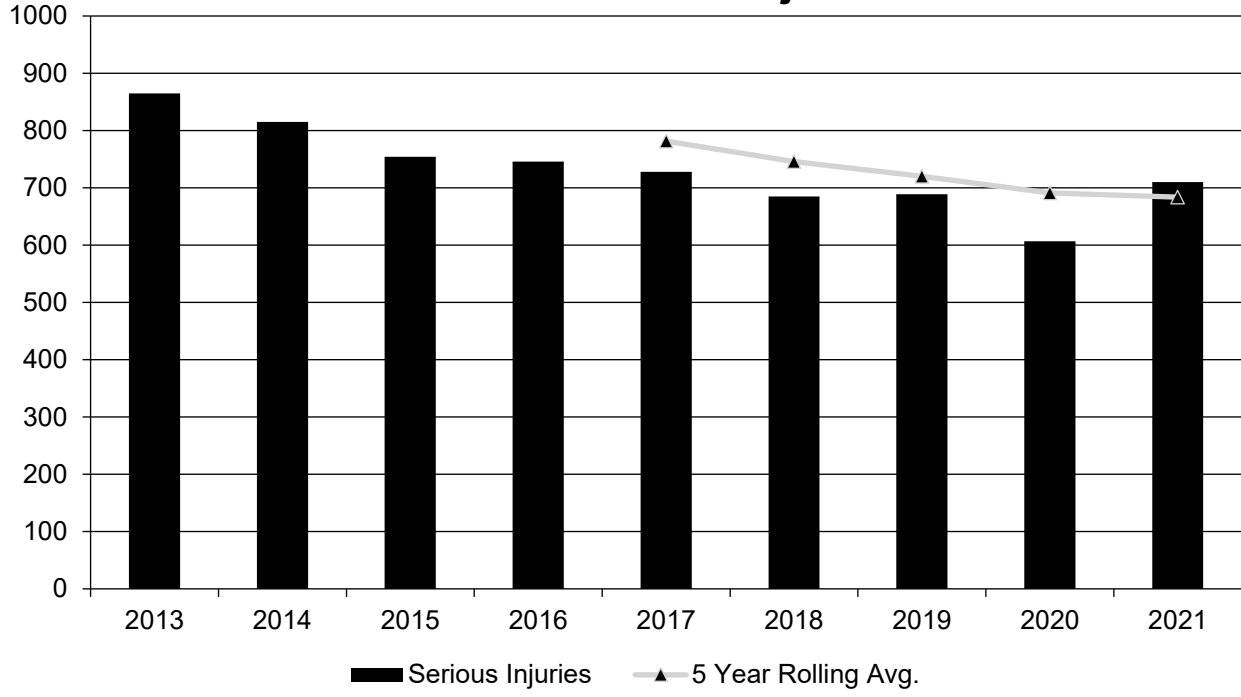
Serious injury rate (per HMVMT)

Serious injury rate (per HMVMT) — 5 Year Rolling Avg.
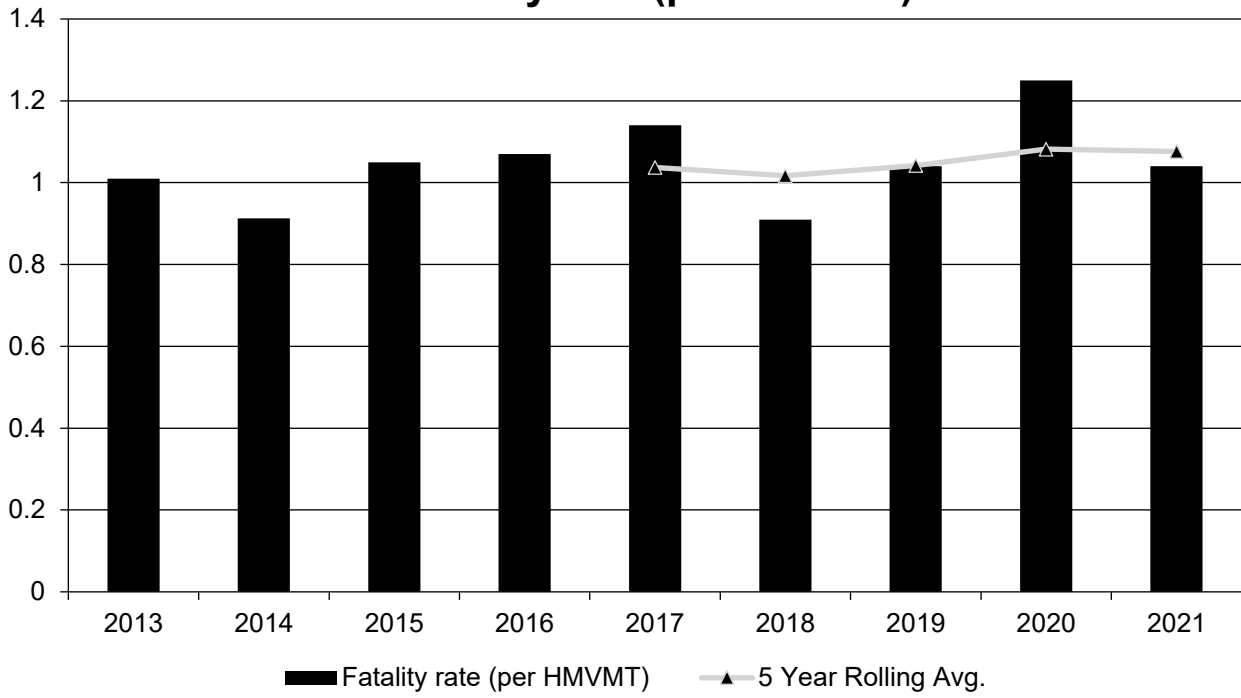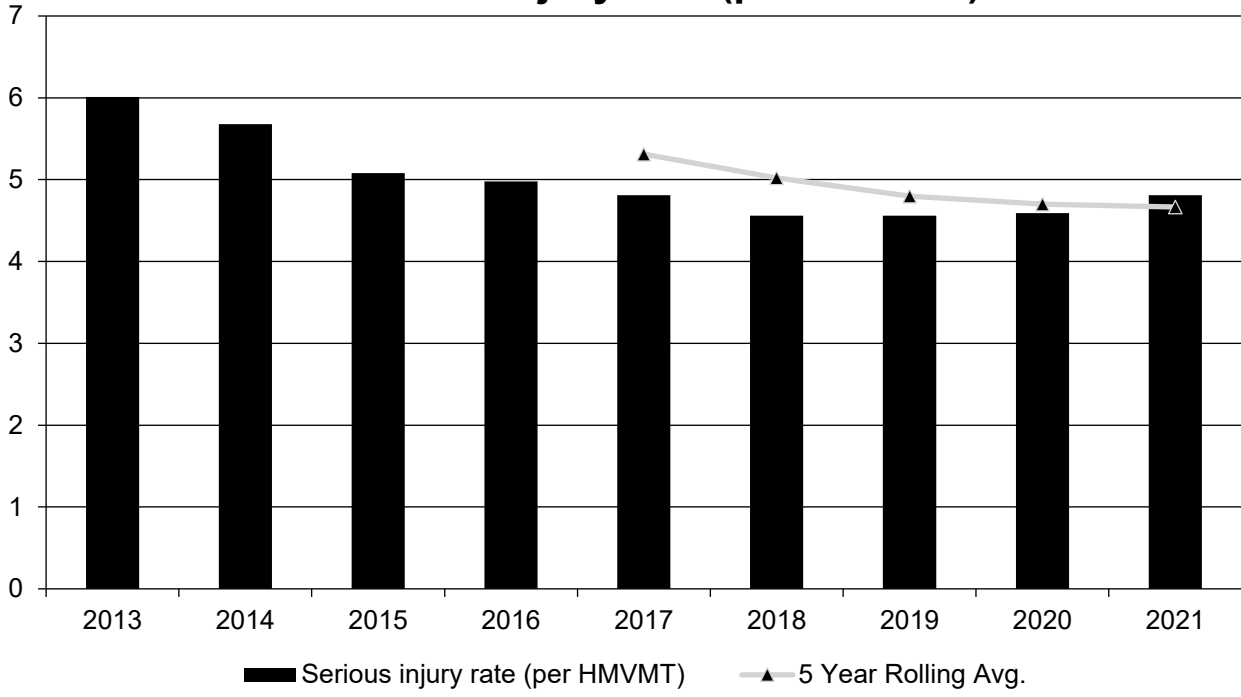
Non Motorized Fatalities and Serious Injuries
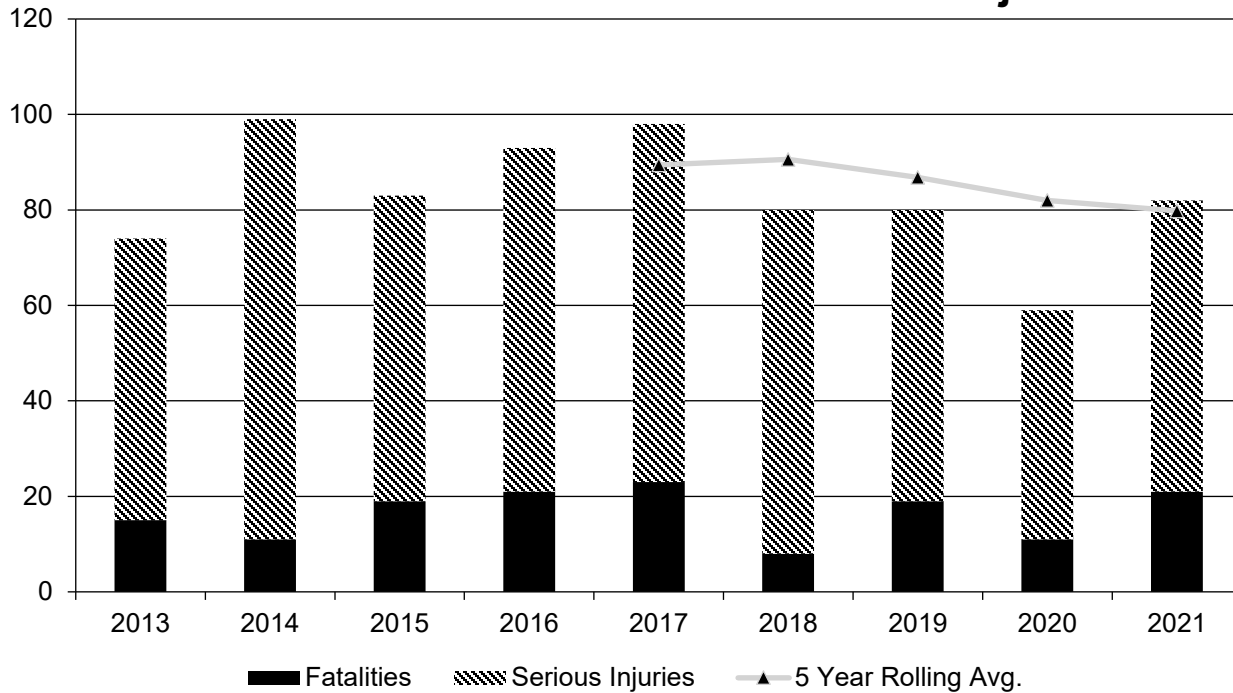
Describe fatality data source.
Other
If Other Please describe

FARS and MaineDOT Dashboard

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	7.6	26.8	0.36	1.28
Rural Principal Arterial (RPA) - Other Freeways and Expressways	0		0	18.06
Rural Principal Arterial (RPA) - Other	23	81.4	1.29	4.6
Rural Minor Arterial	18.2	80	1.11	4.81
Rural Minor Collector	30.4	105.4	2.05	7.13

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 Major Collector	16.2	60.6	1.18	4.74
Rural Local Road or Street	14.4	91.2	1	6.43
Urban Principal Arterial (UPA) - Interstate	5.6	25.6	0.42	1.96
Urban Principal Arterial (UPA) - Other Freeways and Expressways	0.8	6.2	0.49	3.81
Urban Principal Arterial (UPA) - Other	7.2	46.4	1.03	6.69
Urban Minor Arterial	10.6	64.6	1.06	6.54
Urban Minor Collector	8.2	46.8	4.48	15.11
Urban Major Collector	1	16.8	0.11	4.67
Urban Local Road or Street	6.6	32.2	1.42	6.98

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	129.2	545.4	1.16	4.85
County Highway Agency	0.2	1.6	1.32	9.79
Town or Township Highway Agency	25.6	122.8	1.4	6.73
City or Municipal Highway Agency	0	0	0	0
State Park, Forest, or Reservation Agency	0	0.8	0	12.66
Local Park, Forest or Reservation Agency	0	0	0	0
Other State Agency	0	0	0	0
Other Local Agency	0	0	0	0
Private (Other than Railroad)	0	0	0	0
Railroad	0	0	0	0
State Toll Authority	3.2	15	0.21	0.99
Local Toll Authority	0	0	0	0
Other Public Instrumentality (e.g. Airport, School, University)	0.2	0	1.44	0
Indian Tribe Nation	0	0	0	0

Fatality Data for Federal Functional Class and Roadway Ownership Tables in this report taken from the MaineDOT Data Warehouse and is slightly different than that which is found in the FARS system.

Safety Performance Targets

Safety Performance Targets

Calendar Year 2023 Targets *

Number of Fatalities:160.0

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

Maine Fatality data has varied widely during the 2022 Benchmark Performance Period (2017-2021) ranging from 139 in 2018 to 172 in 2017. The 5-year average was 156.8 through the period. A significantly lower VMT experienced in 2020 due to the pandemic combined with the 2nd highest fatality count during the benchmark period has contributed to the highest fatality rate in Maine since 2006. This will likely result in the 5-year fatality rate continuing to trend upward. The 2022 fatality count as of April 30, 202s is significantly higher than at this point in 2021. Speed, distraction, operating under the influence, and not wearing passenger restraints all have contributed to the increase. Maine is setting its 2023 fatality target equal to the 2022 target and will likely continue to hold it level until this upward trend in fatality counts is reversed.

Number of Serious Injuries:710.0

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

Serious Injuries (A) counts have continued to show steady improvement over the years, but it too, has had erratic performance in the past. The 2022 Benchmark Performance (2017-2021) 5-year average for serious injuries 684.4, a slight decrease from the previous benchmark period. Maine did, however, see a slight increase in serious injuries in 2021 after experiencing substantially fewer in 2020 during the disruptions in traffic caused by COVID. The overall trend in recent years was downward, however, so Maine is taking an optimistic view that this downward trend will continue by setting a 2023 target slightly lower than the 2022 target.

Fatality Rate:1.120

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

Maine has decided to set the 2023 target fatality rate equal to that of the 2022 target fatality rate for the same reasons the fatality count target was set level.

Serious Injury Rate:4.800

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

Serious Injuries (A) rates in Maine have continued to show steady improvement over the years, and as with Serious Injury counts, Maine is taking an optimistic view that this downward trend will continue, and have actually set this rate slightly lower than our 2022 target.

Total Number of Non-Motorized Fatalities and Serious Injuries:85.0

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

As with statewide crash fatalities, this data has varied widely from year to year through the benchmark performance period, mainly due to the disparity observed from 2017 to 2018. The 2019 count matched that of 2018 which perhaps indicates progress. While the 2020 fatality count overall was high, these were largely motor-vehicle related crashes not involving non-motorized system users. Our 2020 non-motorized K&A count of 61 was our lowest in more than 17 years though rose to 83 in 2021. The 5-year Average for the 2017-2021 Benchmark Period was 80.0, slightly lower than the previous evaluation period. It is hoped that our continued focused pedestrian outreach in Maine through STEP and HeadsUp programs will continue to bring down our bike/ped fatality numbers and I recommend setting a slightly lower target for 2023 than that of 2022.

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

The Maine Bureau of Highway Safety and MaineDOT reviewed last year's targets and worked collaboratively to arrive at agreed upon goals and to make sure they are in context with the latest influencing factors such as the unexpected traffic volumes experienced during the COVID-19 pandemic. MaineDOT has earlier discussed its target setting philosophy with MPOs and how it would translate to MPO performance targets. The

Department prepares suggested performance targets for each MPO as a starting point for discussion and provides the necessary data for them to evaluate their own past performance and to either accept MaineDOT's recommendation or to come up with their own in support of the statewide Safety Performance Targets.

Does the State want to report additional optional targets?

No
None

Describe progress toward meeting the State's 2021 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	158.0	156.6
Number of Serious Injuries	725.0	683.8
Fatality Rate	1.120	1.076
Serious Injury Rate	5.020	4.666
Non-Motorized Fatalities and Serious Injuries	89.0	79.8

Unlike last year it appears that Maine has met all five of our 2021 Safety Performance Targets. In 2020 we failed to meet our fatality rate target mainly due to the substantial drop in statewide VMT during the COVID-19 pandemic which was unknown and therefore not reflected in our 2020 targets. The return of 2021 VMT to within 3% of Maine's pre-pandemic level has helped mitigate the impact on both the fatality and serious injury rates in this evaluation period.

Our goal remains to level off our annual fatality count and resulting rate at which point we can work towards further reductions. Maine's serious injury count has been trending downward since 2012. Though we experienced an unusually high serious injury count in 2021 we're hopeful that was an outlier and our progress on reducing serious injuries will continue. Our target setting reflects these goals.

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	27	32	42	28	31	33	29
Number of Older Driver and Pedestrian Serious Injuries	70	78	92	86	95	61	79

Evaluation

Program Effectiveness

How does the State measure effectiveness of the HSIP?

- Benefit/Cost Ratio
- Change in fatalities and serious injuries

Infrastructure projects are evaluated each year with results included with HSIP (before/after injuries and B/C). Systemic improvements like rumble strips are periodically reviewed for collective performance where installed.

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

Maine's fatality rate has continued to trend upward. In 2021, our statewide fatality total was similar to our 2019 count with statewide VMT returning to a level approximately 3% lower than pre-pandemic levels. Our serious injury rate has been steadily decreasing since a peak in 2012. This downward trend continued in 2021 though our 2021 serious injury count saw a sharp increase.

Our overall benefit-cost performance on mitigation efforts has been good. Systemic installations such as center line rumble strips have continued to prove very effective at a relatively low cost. We plan to expand this program as we continue to explore new systemic safety programs that have proven to be successful in other states. We continue to assess our center line rumble strip program for those segments with three years of before/after crash data available which when last evaluated showed an average reduction in fatalities and serious injuries of 62.9% and 48.1% respectively where these are installed. MaineDOT is also continuing a study quantifying the benefits of converting rural two-way stop controlled intersection to all-stop controlled intersections. Preliminary data shows a significant reduction in both the number and severity of crashes at these facilities after conversion. Overall, we are observing a 70% reduction in crash costs with this countermeasure.

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

- # miles improved by HSIP
- Increased awareness of safety and data-driven process
- Increased focus on local road safety
- More systemic programs
- Policy change
- Other-Pedestrian Strategic Focus Outcomes

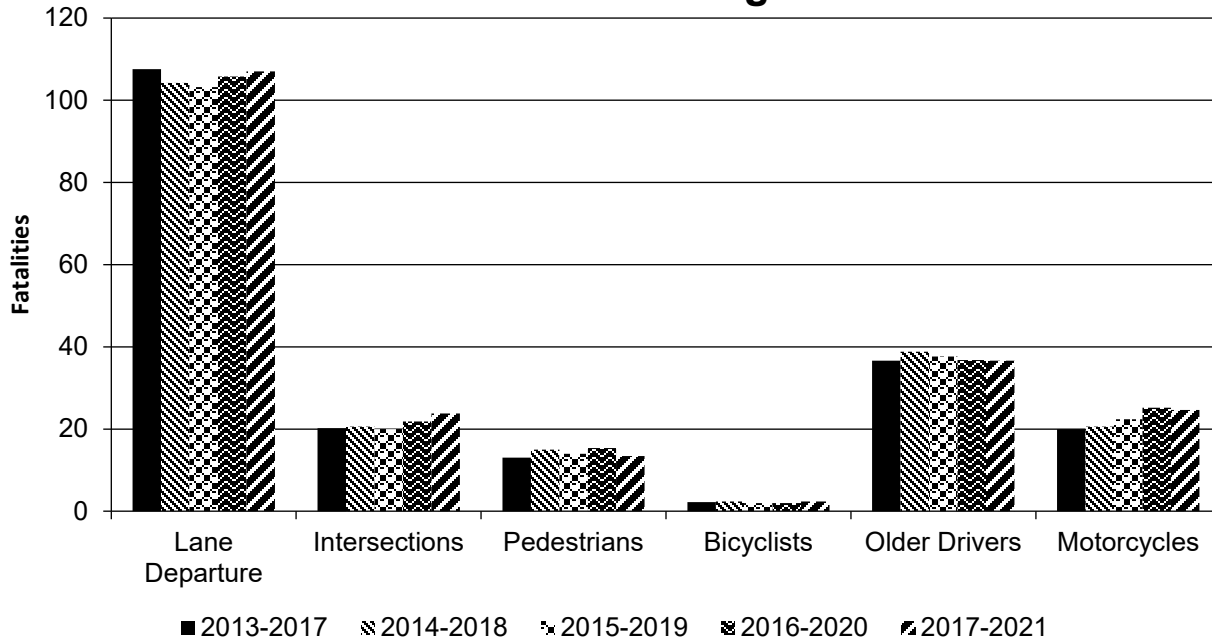## *Effectiveness of Groupings or Similar Types of Improvements*

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)
Lane Departure		107	375	0.74	2.56
Intersections		23.8	156.8	0.16	1.06
Pedestrians		13.4	47.8	0.09	0.32
Bicyclists		2.4	18.2	0.02	0.12
Older Drivers		36.6	72.8	0.25	0.49
Motorcycles		24.6	117.6	0.17	0.8

Number of Fatalities
5 Year Average

■ 2013-2017   ▨ 2014-2018   ⬚ 2015-2019   ▦ 2016-2020   ▧ 2017-2021

Number of Serious Injuries
5 Year Average
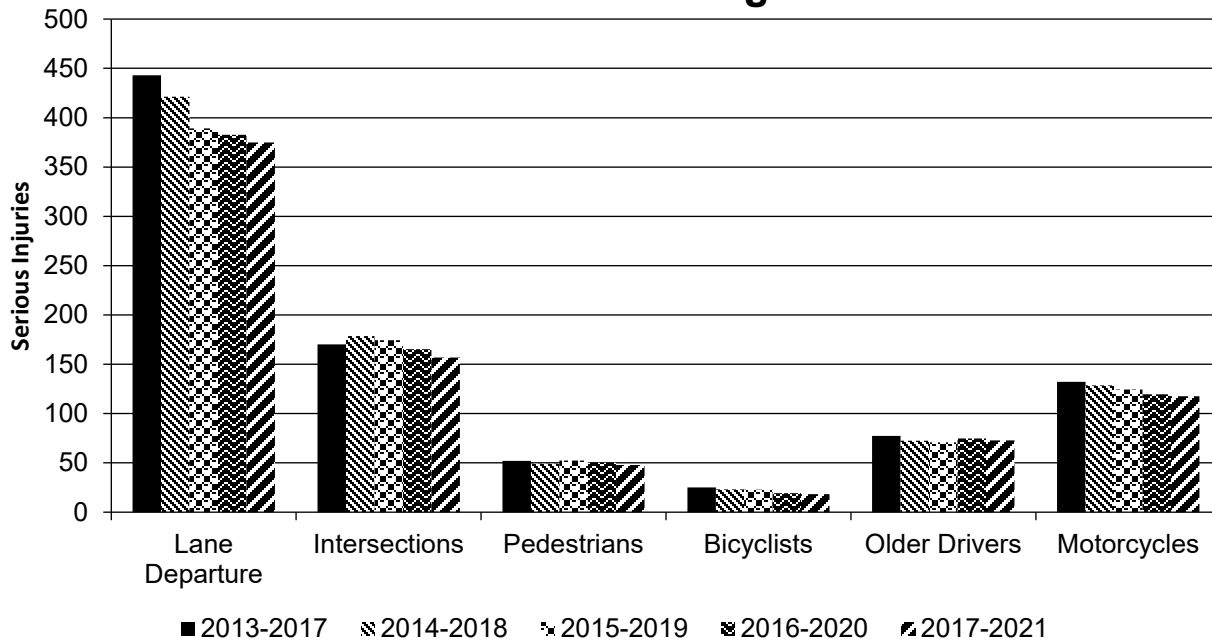
■ 2013-2017   ▨ 2014-2018   ⬚ 2015-2019   ▦ 2016-2020   ▧ 2017-2021

Fatality Rate (per HMVMT)
5 Year Average

Legend: ■ 2013-2017 2014-2018 2015-2019 2016-2020 2017-2021

Serious Injury Rate (per HMVMT)
5 Year Average

Legend: ■ 2013-2017 2014-2018 2015-2019 2016-2020 2017-2021
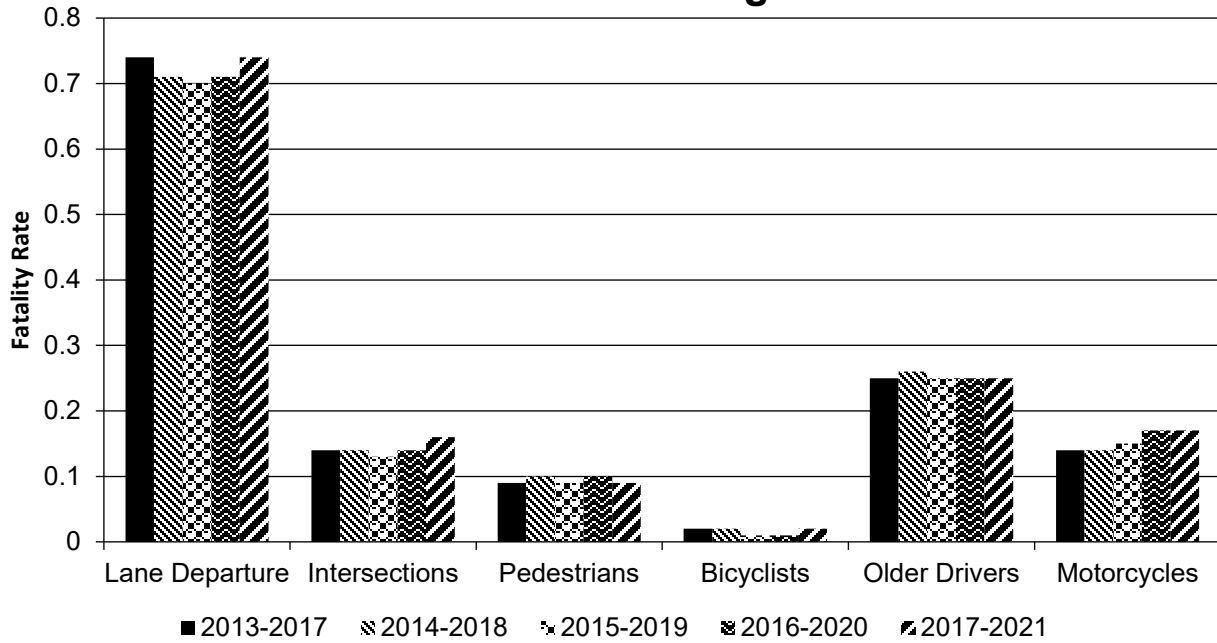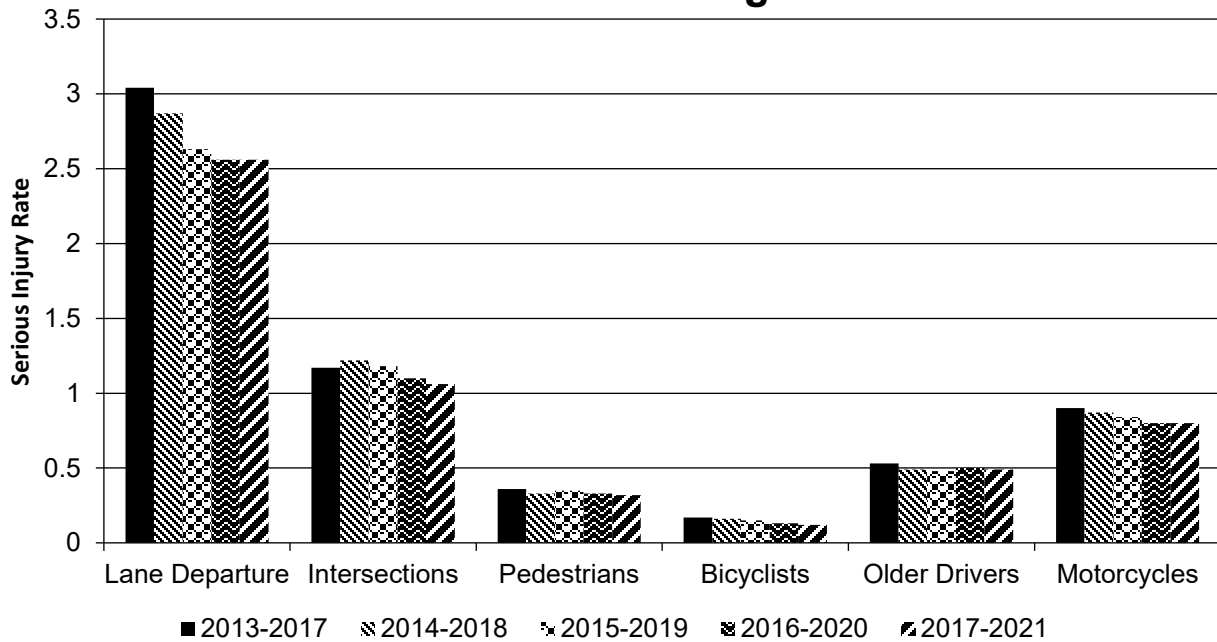
Project Effectiveness

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

Compliance Assessment

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

11/20/2017

What are the years being covered by the current SHSP?

From: 2017 To: 2022

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

2022

We are currently working with our safety partners and stakeholders to update our 2017 manual with a target to publish in November 2022.

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	100					100	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								
	Functional Class (19) [19]	100	100					100	100	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
	Median Type (54) [55]	100	100								
	Access Control (22) [23]	100	100								
	One/Two Way Operations (91) [93]	100	100								
	Number of Through Lanes (31) [32]	100	100					100	100		
	Average Annual Daily Traffic (79) [81]	100	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	100						
	Location Identifier for Road 1 Crossing Point (122) [112]			100	100						
	Location Identifier for Road 2 Crossing Point (123) [113]			100	100						
	Intersection/Junction Geometry (126) [116]			50	50						
	Intersection/Junction Traffic Control (131) [131]			50	50						
	AADT for Each Intersecting Road (79) [81]			100	100						
	AADT Year (80) [82]			100	100						
	Unique Approach Identifier (139) [129]			100	100						
INTERCHANGE/RAMP	Unique Interchange Identifier (178) [168]										
	Location Identifier for Roadway at					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
	Beginning of Ramp Terminal (197) [187]										
	Location Identifier for Roadway at Ending Ramp Terminal (201) [191]					100	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	100				
	Interchange Type (182) [172]										
	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	100.00	87.50	87.50	81.82	81.82	100.00	100.00	100.00	100.00

*Based on Functional Classification (MIRE 1.0 Element Number) [MIRE 2.0 Element Number]
No changes from the last reporting period.

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.

MaineDOT's remaining data elements will mostly be derived programmatically through our GIS tools from our data already in our data warehouse to meet the requirements.

Optional Attachments

Program Structure:

MaineDOT HSIP Manual Draft - 4-21-2021.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.