COLORADO

HIGHWAY SAFETY IMPROVEMENT PROGRAM

2017 ANNUAL REPORT

U.S. Department of Transportation
Federal Highway Administration

Photo source: Federal Highway Administration

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Disclaimer

Protection of Data from Discovery Admission into Evidence

23 U.S.C. 148(h)(4) states “Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for any purpose relating to this section [HSIP], shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location identified or addressed in the reports, surveys, schedules, lists, or other data.”

23 U.S.C. 409 states “Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for the purpose of identifying, evaluating, or planning the safety enhancement of potential accident sites, hazardous roadway conditions, or railway-highway crossings, pursuant to sections 130, 144, and 148 of this title or for the purpose of developing any highway safety construction improvement project which may be implemented utilizing Federal-aid highway funds shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location mentioned or addressed in such reports, surveys, schedules, lists, or data.”

Executive Summary

Colorado's (5 year average) fatalities and fatal crash rates have increased in 2016. Both (5 year average) serious injuries and the serious injury crash rate have seen little change in 2016.

In FY 2016, Colorado was notified as being non-compliant with 23 U.S.C. Section 164. CDOT requested that 100% of the penalty amount be shifted from the National Highway Preservation Program (NHPP) and 100% of those funds be assigned to the Highway Safety Improvement Program (HSIP). The funding assigned to the HSIP is being used for eligible activities described in 23 U.S.C. Section 148 to correct hazardous locations, reduce identified safety problems, proactively address safety risks, and address safety emphasis areas identified in Colorado's Strategic Highway Safety Plan (SHSP). Additionally, High Risk Rural Roads and Local Agency safety improvements will be specifically focused on and incorporated in FY 2018 and going forward.

Colorado uses HSIP resources to incorporate safety improvements across a broad range of maintenance, safety and non-infrastructure projects. Innovative methodologies developed and used by CDOT will continue to identify more locations, on a statewide scale, with the greatest potential for crash reduction. Applications of new Highway Safety Manual concepts and systemic approaches are also being integrated into the HSIP program.

The SHSP implementation plan will target goals and devise strategies in each emphasis area to see where improvements can made in order to support the vision of moving towards zero deaths. In the next fiscal year, CDOT hopes to solicit a greater number of off system (non-state highway) locations with high potential for crash reduction with the help of local agencies partners and stakeholders.

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.

Colorado's overall HSIP program is administered by the Traffic & Safety Engineering group at CDOT headquarters.

Regional CDOT traffic and safety engineering staff work internally and in consort with local agencies to identify projects with safety improvement needs. Initial review and analysis occur at this regional level. Upon acceptance by the region as a viable and potentially necessary safety project, the region makes a request to HQ for final review and analysis and associated HSIP funding eligibility criteria. Upon completion of final review and quantitative and qualitative analysis by HQ traffic and safety engineering staff of projects submitted by CDOT Regional traffic and safety engineering, the projects are either approved or denied and budgeted accordingly against the projected regional allocation for the fiscal year in which the funding is needed. In an effort to increase safety overall across the state, thorough dialogue between HQ and the requesting region occurs on a project-by-project basis when additional information, background, or data are needed in the event that a project appears to fall short of eligibility. Additionally, because projects that are awarded HSIP funding are required to address individual areas of focus as defined within the Strategic Highway Safety Plan (SHSP), as part of the review and analysis process, our group confirms that such projects do in fact fall within the SHSP areas of focus.

Upon approval of such HSIP funding the CDOT regions are responsible for final project delivery on-system. In the event that a local agency is receiving HSIP funding for off-system safety improvements, the CDOT regional staff coordinate with such local agencies regarding HSIP funding to enable these local agencies to deliver these projects.

Where is HSIP staff located within the State DOT?

Engineering

Enter additional comments here to clarify your response for this question or add supporting information.

2017 Colorado Highway Safety Improvement Program
Within Transportation Systems Management & Operations (TSM&O)

Under HQ Traffic Safety & Engineering

How are HSIP funds allocated in a State?

Formula via Districts/Regions

Enter additional comments here to clarify your response for this question or add supporting information.

HSIP funds are allocated to each CDOT Region based upon crash distribution and the program is administered through the central CDOT headquarters group.

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

Under this program all public roadways are eligible for participation. Submittals for projects not located on the State Highway system are solicited from local authorities through the various Metropolitan Planning Organizations (MPO's) and the Special Highway Committee of the Colorado Counties, Inc. and the Colorado Municipal League. These candidate proposals for safety improvement projects are submitted for locations identified using the locals' own high hazard locations identification system. As with the Region applications, all submittals will be required to meet the minimum criteria. Copies of project applications received in the Safety and Traffic Engineering Office from locals are submitted to the Region offices for comments, evaluation and approval. The Region offices are specifically requested to verify project cost estimates, and when necessary, are also requested to make project cost adjustments with the submitting local authorities' concurrence. In addition to CDOT's standard practice of soliciting local agencies, for FY 2017 CDOT has included a separate solicitation for High Risk Rural Roads (HRRR) to facilitate safety improvements on off-network (non CDOT state hwy/freeway) locations.

Approximately one half of the HSIP funding is allocated toward off-system locations because approximately half of all statewide crashes occur off system. The allocation is based on statewide crash distribution. In recent years, there have not been enough off system safety improvement projects to use the full allocated amount. In such cases, the state will apply those unused funds for state highway safety improvement projects. CDOT will look to offer more support in helping local agencies submit enough projects to account for their full allocation in the future.

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

Traffic Engineering/Safety
Design
Planning
Operations
Governors Highway Safety Office
Other-Office of Financial Management & Budget
Other-CDOT Regions

Enter additional comments here to clarify your response for this question or add supporting information.

Describe coordination with internal partners.

The CDOT HQ Traffic and Safety Engineering (TSE) branch periodically produces a statewide composite listing of potential locations for crash reduction is compiled for all highway segments and intersections performing at a sub-standard level of service of safety (LOSS) as well as identifying crash patterns that are over-represented at those locations. This listing is provided to each CDOT Region where their traffic units, roadway design staff and transportation planners can coordinate and select appropriate safety improvement projects with the goal of reducing roadway fatalities and serious injuries. The Regions use the listing along with other information such as their own operational reviews, input from citizens, staff and city/county personnel as well as other ongoing or scheduled construction activities in order to determine the most feasible and beneficial candidate safety projects. The Region may also choose to nominate other safety project locations besides those mentioned on the listing.

Applications for new highway safety improvement projects are sent to TSE branch for evaluation to determine HSIP eligibility and level of funding. The TSE branch works with the Office of Financial Management & Budget (OFMB) to determine the amount of HSIP funding available for the current fiscal year as well as how much is anticipated to be available in future fiscal years for HSIP project planning and scheduling. The TSE branch also works with OFMB to obtain status updates on HSIP obligation and expenditure amounts for ongoing projects. Approved HSIP projects are incorporated into the Integrated Safety Plan in coordination with the CDOT Office of Transportation Safety group and their safety programs.

Identify which external partners are involved with HSIP planning.

Regional Planning Organizations (e.g. MPOs, RPOs, COGs)
Governors Highway Safety Office
Local Technical Assistance Program
Other-Local Agencies

Enter additional comments here to clarify your response for this question or add supporting information.

LTAP does not have a formal role in this planning; however, LTAP periodically provides input to CDOT for HSIP planning and implementation.

Describe coordination with external partners.

In an effort to maintain consistency in data, analysis, and understanding of safety needs statewide, and subsequent implementation of such safety improvement projects CDOT HQ Traffic & Safety Engineering staff communicate and work directly with external entities and governing bodies such as FHWA, state and local law enforcement, other state agencies, MPO's, municipalities, counties, and other interested parties.

Additionally, at the regional level, CDOT Regional traffic & safety engineering staff coordinate more directly with local government officials, the citizenry, other such stakeholders having traffic and safety concerns that are specific to their particular region, and media relations.

These individual areas of focus enable the regions to be more directly in touch with local needs for which HSIP funding may be eligible. This then translates to CDOT's overall ability to integrate HSIP funded solutions utilized within any specific region into the statewide efforts to reduce crash severity, crashes overall, and progress toward the goal of Zero Deaths.

Have any program administration practices used to implement the HSIP changed since the last reporting period?

No

Are there any other aspects of HSIP Administration on which the State would like to elaborate?

Yes

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

In early FY 2016, Colorado was notified as being non-compliant with 23 U.S.C. Section 164. CDOT requested that 100% of the penalty amount be shifted from the National Highway Preservation Program (NHPP) and 100% of those funds be assigned to the Highway Safety Improvement Program (HSIP). The funding assigned to the HSIP are being used for eligible activities described in 23 U.S.C. Section 148 to correct hazardous locations, reduce identified safety problems, proactively address safety risks, and address safety emphasis areas identified in the State Strategic Highway Safety Plan.

Program Methodology

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

Yes

To upload a copy of the State processes, attach files below.

File Name:

2017 Colorado Highway Safety Improvement Program
HSIP_2016.pdf

Select the programs that are administered under the HSIP.

HSIP (no subprograms)
HRRR
Other-General

Enter additional comments here to clarify your response for this question or add supporting information.

HRRR would apply if the special rule is in effect annually.

Program: HRRR

Date of Program Methodology: 4/4/2017

What is the justification for this program? [Check all that apply]

FHWA focused approach to safety

What is the funding approach for this program? [Check one]

Funding set-aside

What data types were used in the program methodology? [Check all that apply]

Crashes	Exposure	Roadway
All crashes	Traffic Volume	Functional classification

What project identification methodology was used for this program? [Check all that apply]

Crash frequency
Expected crash frequency with EB adjustment
Crash rate
Level of service of safety (LOSS)
Excess expected crash frequency using SPFs
Excess expected crash frequency with the EB adjustment
Probability of specific crash types
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?

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Yes

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

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).

Rank of Priority Consideration

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

Enter additional comments here to clarify your response for this question or add supporting information.

Program: HSIP (no subprograms)

Date of Program Methodology:

What is the justification for this program? [Check all that apply]

What is the funding approach for this program? [Check one]

What data types were used in the program methodology? [Check all that apply]

Crashes **Exposure** **Roadway**

What project identification methodology was used for this program? [Check all that apply]

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?

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Yes

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

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).

Enter additional comments here to clarify your response for this question or add supporting information.

Program: Other-General

Date of Program Methodology: 1/1/2000

What is the justification for this program? [Check all that apply]

What is the funding approach for this program? [Check one]

What data types were used in the program methodology? [Check all that apply]

Crashes	Exposure	Roadway
All crashes	Traffic Volume	Functional classification

What project identification methodology was used for this program? [Check all that apply]

Crash frequency
Expected crash frequency with EB adjustment
Level of service of safety (LOSS)
Excess expected crash frequency using SPFs
Excess expected crash frequency with the EB adjustment
Probability of specific crash types
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

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

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).

Rank of Priority Consideration

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

Enter additional comments here to clarify your response for this question or add supporting information.

What percentage of HSIP funds address systemic improvements?

5

HSIP funds are used to address which of the following systemic improvements? Please check all that apply.

Cable Median Barriers
Rumble Strips
Traffic Control Device Rehabilitation
Pavement/Shoulder Widening
Install/Improve Signing
Install/Improve Pavement Marking and/or Delineation
Upgrade Guard Rails
Clear Zone Improvements
Safety Edge
Install/Improve Lighting
Add/Upgrade/Modify/Remove Traffic Signal

Enter additional comments here to clarify your response for this question or add supporting information.

What process is used to identify potential countermeasures? [Check all that apply]

Engineering Study
Road Safety Assessment
Crash data analysis
SHSP/Local road safety plan
Data-driven safety analysis tools (HSM, CMF Clearinghouse, SafetyAnalyst, usRAP)
Stakeholder input
Other-Requests by local agencies for investigations

Enter additional comments here to clarify your response for this question or add supporting information.

Does the State HSIP consider connected vehicles and ITS technologies?

Yes

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

In addition to CDOT's employment of ITS technology statewide, CDOT is currently evaluating the potential safety benefits of proposed connected vehicle technology for on-system application and implementation. At this time the state is looking into potentially partially funding, through HSIP, specific aspects of emerging connected vehicle infrastructure and ITS technology which potentially presents safety benefits.

At this time, CDOT is focused on awarding HSIP funding to proposed projects which incorporate proven and developed mitigation components. However, in light of CDOT's awareness of modern technology and the ever-changing automotive and transportation industry in terms of technological advancement, it is the hope of the state of Colorado to ultimately realize academically predicted safety benefits such that it may continue to reasonably and responsibly provide funding through monies awarded through the HSIP to improve safety through technology.

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.

Quantitative analysis methodology as described within the 1st Edition (2010) of the Highway Safety Manual (HSM) is incorporated into the software, manual techniques, and systemic analysis processes that are employed by the CDOT Traffic & Safety Engineering staff who are charged with responsibly determining HSIP funding eligibility for safety related projects statewide. Subject matter from the HSM that is incorporated into CDOT's HSIP efforts includes but is not limited to the following: Fundamentals, Data Requirements, CMF/CRF Selection, Safety Performance Functions(s) (SPF's) Development, Diagnostics, Countermeasure Selection, Economic Appraisal (Benefit/Cost analysis), Predictive Methodology, Network Screening, etc..

Have any program methodology practices used to implement the HSIP changed since the last reporting period?

No

Are there any other aspects of the HSIP methodology on which the State would like to elaborate?

Yes

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

In addition to the HSM methodology that Colorado has incorporated into the HSIP efforts, CDOT and its consultants have developed, and continue to develop and refine Safety Performance Functions (SPF's) that are specific to Colorado roadways, highways, freeways, interchanges, and intersections. CDOT believes this method allows the agency to be better prepared to address the specific safety concerns on Colorado roadways with respect to Colorado ADT, specific driving conditions, and driving habits.

Project Implementation

Funds Programmed

Reporting period for HSIP funding.

State Fiscal Year

Enter additional comments here to clarify your response for this question or add supporting information.

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

FUNDING CATEGORY	PROGRAMMED	OBLIGATED	% OBLIGATED/PROGRAMMED
HSIP (23 U.S.C. 148)	$14,511,267	$40,571,569	279.59%
HRRR Special Rule (23 U.S.C. 148(g)(1))	$0	$0	0%
Penalty Funds (23 U.S.C. 154)	$0	$0	0%
Penalty Funds (23 U.S.C. 164)	$4,862,993	$10,781,528	221.71%
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	$0	$0	0%
Totals	$19,374,260	$51,353,097	265.06%

Enter additional comments here to clarify your response for this question or add supporting information.

Obligation amounts also cover amounts programmed from previous fiscal years which explains why obligated amounts exceed programmed amounts.

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

$2,235,461

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

$2,637,592

Enter additional comments here to clarify your response for this question or add supporting information.

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

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$108,031

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

$103,080

Enter additional comments here to clarify your response for this question or add supporting information.

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

Enter additional comments here to clarify your response for this question or add supporting information.

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

CDOT's Office of Financial Management and Budget (OFMB) does not typically obligate HSIP funding until the project has invoices submitted while under construction. The purpose of this is limit the possibility of having inactive projects. However, this does impact Colorado HSIP obligation rates as this tends to result in delayed obligation of funds for HSIP projects. There are longer than expected start up times for safety improvement projects, especially those run by local agencies. Special attention will now be given to construction scheduling and priority for fund programming will be given to projects that can deliver on a timely basis.

Does the State want to elaborate on any other aspects of it's progress in implementing HSIP projects?

Yes

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

The OFMB is working with the HSIP program managers to find ways to manage Section 164 penalty funds so that those funds can be obligated immediately. It is anticipated that Section 164 penalty funding will continue into future fiscal years in Colorado.

General Listing of Projects

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

													RELATIONSHIP TO SHSP	
PROJECT NAME	**IMPROVEMENT CATEGORY**	**SUBCATEGORY**	**OUTPUTS**	**OUTPUT TYPE**	**HSIP PROJECT COST($)**	**TOTAL PROJECT COST($)**	**FUNDING CATEGORY**	**FUNCTIONAL CLASSIFICATION**	**AADT**	**SPEED**	**OWNERSHIP**	**METHOD FOR SITE SELECTION**	**EMPHASIS AREA**	**STRATEGY**
C-470 TOLLED EXPRESS LANES SEGMENT 1	Roadway		13.7	Miles	$6300000	$282002726	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial - Other Freeways and Expressways	90,000		State Toll Authority	Spot	Lane Departure	
95th St: Isabelle to Valmont Rd.	Intersection geometry		1	Intersections	$949500	$1055000	HSIP (23 U.S.C. 148)	Rural Minor Arterial	8,000		City of Municipal Highway Agency	Spot	Intersections	
US34 & Boyd Lake Ave.	Intersection traffic control		0.5	Miles	$495000	$1395000	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	43,000		State Highway Agency	Spot	Intersections	
Valmont & 29th Street HES	Intersection geometry		2	Locations	$3375555	$3415555	Penalty Funds (23 U.S.C. 164)	Urban Minor Arterial	21,000		City of Municipal Highway Agency	Spot	Intersections	
SH 96A - Arkansas River to US50B	Pedestrians and bicyclists		4.6	Miles	$1856000	$11659401	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	0		State Highway Agency	Spot	Pedestrians	
US 85 Resurf Ph-I, & SH 392 Intersection	Intersection geometry		4.75	Miles	$7300000	$20672141	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other Freeways and Expressways	14,000		State Highway Agency	Spot	Intersections	
I-25/ARAPAHOE RD INTERCHANGE	Interchange design		2.7	Miles	$1250000	$84550385	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Interstate	246,000		State Highway Agency	Spot	Intersections	
SH 82 & El Jebel Road Intersection Impr	Intersection traffic control		1	Miles	$1360000	$1360000	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other	21,000		State Highway Agency	Spot	Intersections	
TELLER CR 1 HES IN CRIPPLE CREEK	Roadside		1	Locations	$467352	$510836	HSIP (23 U.S.C. 148)	Rural Major Collector	2,100		State Highway Agency	Spot	Roadway Departure	
I-25: 120th Avenue (SH 128) to SH 7	Roadway		20.5	Miles	$6500000	$96035444	Penalty Funds (23 U.S.C. 164)	Rural Principal Arterial - Interstate	120,000		State Highway Agency	Systemic	Roadway Departure	
SH95 SHERIDAN RESURFAING: Hampden to Ari	Roadway		6.8	Miles	$544890	$7062284	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other	36,000		State Highway Agency	Spot	Roadway Departure	
FY14 Denver Traffic Signals	Intersection traffic control		4	Intersections	$1100000	$1650000	HSIP (23 U.S.C. 148)	Multiple Intersections	0		City of Municipal Highway Agency	Spot	Intersections	
I-70 GW Canyon Variable Speed Signing	Advanced technology and ITS		17	Miles	$3400000	$5600000	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Interstate	17,000		State Highway Agency	Systemic	Lane Departure	
Adaptive Signals US 287 & SH 119	Intersection traffic control		2	Locations	$1416321	$3089794	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	0		State Highway Agency	Spot	Intersections	
84th Ave & Grant St Intersection Rebuild	Intersection geometry		1	Intersections	$2418563	$2418563	HSIP (23 U.S.C. 148)	Urban Minor Arterial	13,000		City of Municipal Highway Agency	Spot	Intersections	
SH96 EAST OF FOUNTAIN RIVER PED XING IMP	Pedestrians and bicyclists		0.3	Miles	$91049.74	$91049.74	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	18,000		State Highway Agency	Spot	Pedestrians	
SH30:POTOMAC TO AIRPORT BLVD.	Roadway		1.9	Miles	$30000	$5365719	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	27,000		State Highway Agency	Spot	Lane Departure	

													RELATIONSHIP TO SHSP	
PROJECT NAME	**IMPROVEMENT CATEGORY**	**SUBCATEGORY**	**OUTPUTS**	**OUTPUT TYPE**	**HSIP PROJECT COST($)**	**TOTAL PROJECT COST($)**	**FUNDING CATEGORY**	**FUNCTIONAL CLASSIFICATION**	**AADT**	**SPEED**	**OWNERSHIP**	**METHOD FOR SITE SELECTION**	**EMPHASIS AREA**	**STRATEGY**
I-70:C470 TO 32ND CABLE RAIL	Roadside		4.5	Miles	$2589156	$2589156	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Interstate	9,000		State Highway Agency	Spot	Roadway Departure	
REGION 2 GUARDRAIL PROJ (I-25, SH 115)	Roadside		30	Miles	$2313796	$2313796	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Interstate	30,000		State Highway Agency	Systemic	Roadway Departure	
I-70 Wolcott East	Roadway		9.5	Miles	$2600000	$14369570	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Interstate	26,000		State Highway Agency	Spot	Roadway Departure	
SH224:SAFETY IMPROVEMENTS	Intersection traffic control		3.6	Miles	$500000	$500000	HSIP (23 U.S.C. 148)	Urban Minor Arterial	11,000		State Highway Agency	Spot	Intersections	
SH 83 & CNTY RD 404 SAFETY IMPROVEMENTS	Interchange design		2	Miles	$150000	$150000	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	6,500		County Highway Agency	Spot	Intersections	
SH96 SAFETY UPGRADE MP85.44-86.33	Roadside		1	Miles	$1057175	$1057175	HSIP (23 U.S.C. 148)	Rural Minor Arterial	1,280		State Highway Agency	Spot	Roadway Departure	
US 550/160 PCCP DIAMOND GRINDING	Roadway delineation		3.9	Miles	$1214000	$6965944	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other	6,000		State Highway Agency	Spot	Lane Departure	
US 24 CORRIDOR IMPROVEMENTS - DESIGN	Roadway		3.4	Miles	$100000	$1100000	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other Freeways and Expressways	35,000		State Highway Agency	Spot	Roadway Departure	
POWERS BLVD - BRADLEY & SB I-25 SIGNALS	Intersection traffic control		2	Locations	$875930	$928625	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other Freeways and Expressways	15,000		State Highway Agency	Spot	Intersections	
SH21 AND MESA RIDGE PKWY SIGNALIZATION	Intersection traffic control		2	Locations	$418329	$741817	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other Freeways and Expressways	12,000		State Highway Agency	Spot	Intersections	
HWY 94 & PEYTON HWY	Intersection geometry		1	Miles	$125000	$125000	HSIP (23 U.S.C. 148)	Rural Minor Arterial	3,500		State Highway Agency	Spot	Lane Departure	
I-25 MEDIAN CABLERAIL PHS II	Roadside		24	Miles	$542938	$642938	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Interstate	97,000		State Highway Agency	Spot	Roadway Departure	
SH 83 AND WALKER RD NEW SIGNALIZATIONS	Intersection traffic control		1	Intersections	$31671	$31671	HSIP (23 U.S.C. 148)	Rural Principal Arterial - Other	6,500		State Highway Agency	Spot	Intersections	
CDOT ROADWAY LIGHTING CONTROLS	Lighting		0	Numbers	$40581	$40581	HSIP (23 U.S.C. 148)	Multiple Locations	0		State Highway Agency	Systemic	Data	
SH95:52ND TO 58TH/RALSTON(MM9.5-MM10.1)	Roadway signs and traffic control		0.6	Miles	$200000	$3975734	HSIP (23 U.S.C. 148)	Urban Principal Arterial - Other	49,000		State Highway Agency	Spot	Pedestrians	
2017 INTERSECTION SPF DEVELOPMENT - FHU	Non-infrastructure		0	Numbers	$249756	$249756	HSIP (23 U.S.C. 148)	Multiple Intersections	0		State Highway Agency	Systemic	Data	
INT. SAFETY IMPROVEMENTS CO. SPRINGS	Intersection traffic control		1	Locations	$75000	$75000	HSIP (23 U.S.C. 148)	Multiple Intersections	0		City of Municipal Highway Agency	Spot	Intersections	

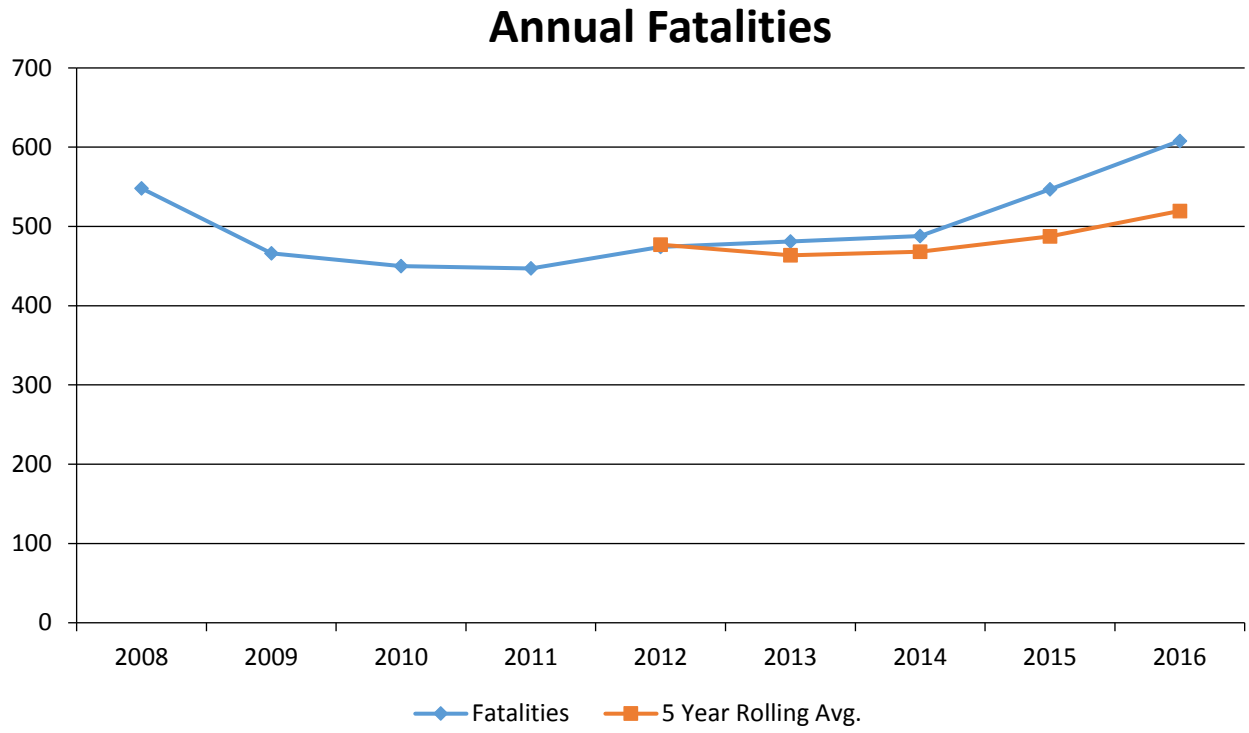
Enter additional comments here to clarify your response for this question or add supporting information.

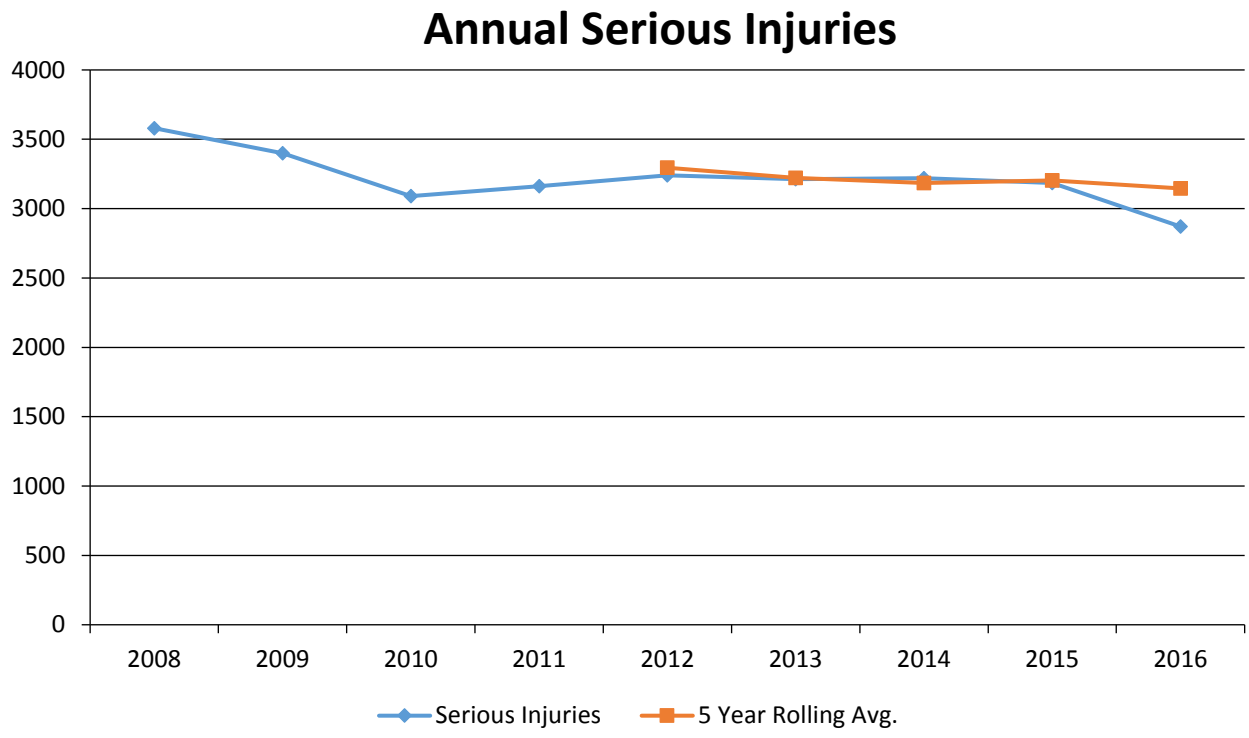
Safety Performance

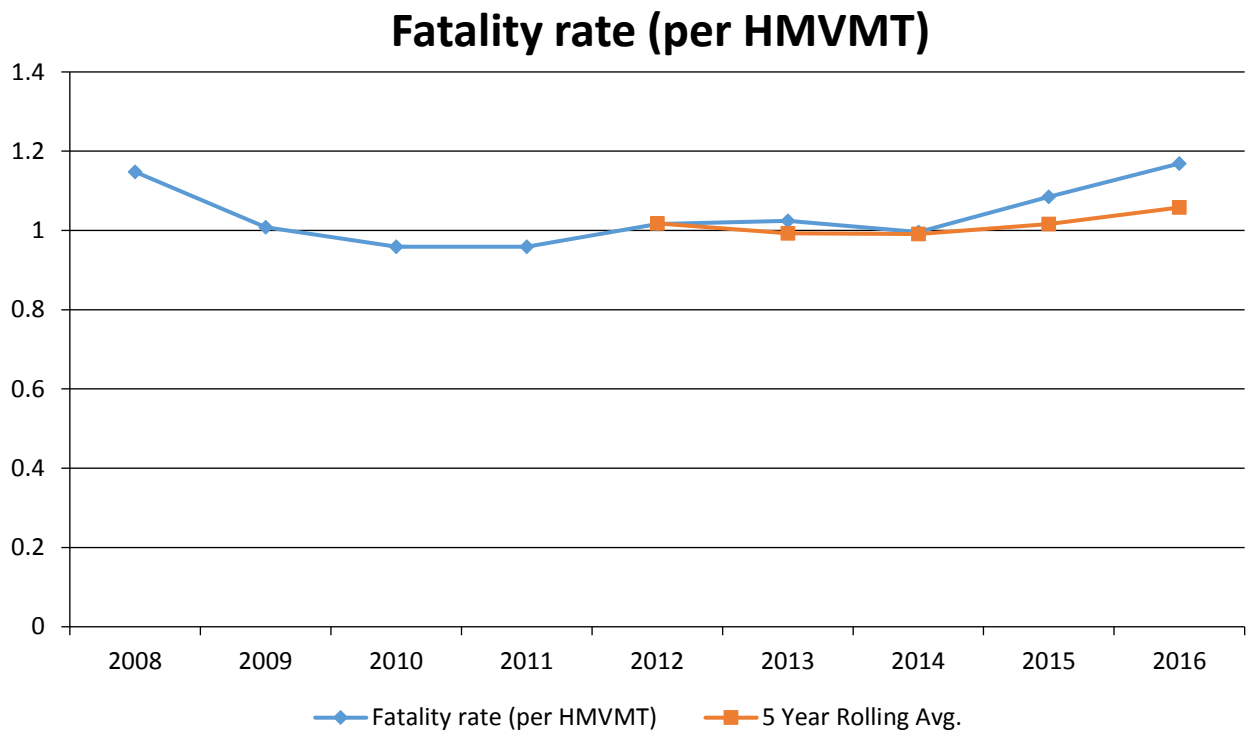
General Highway Safety Trends

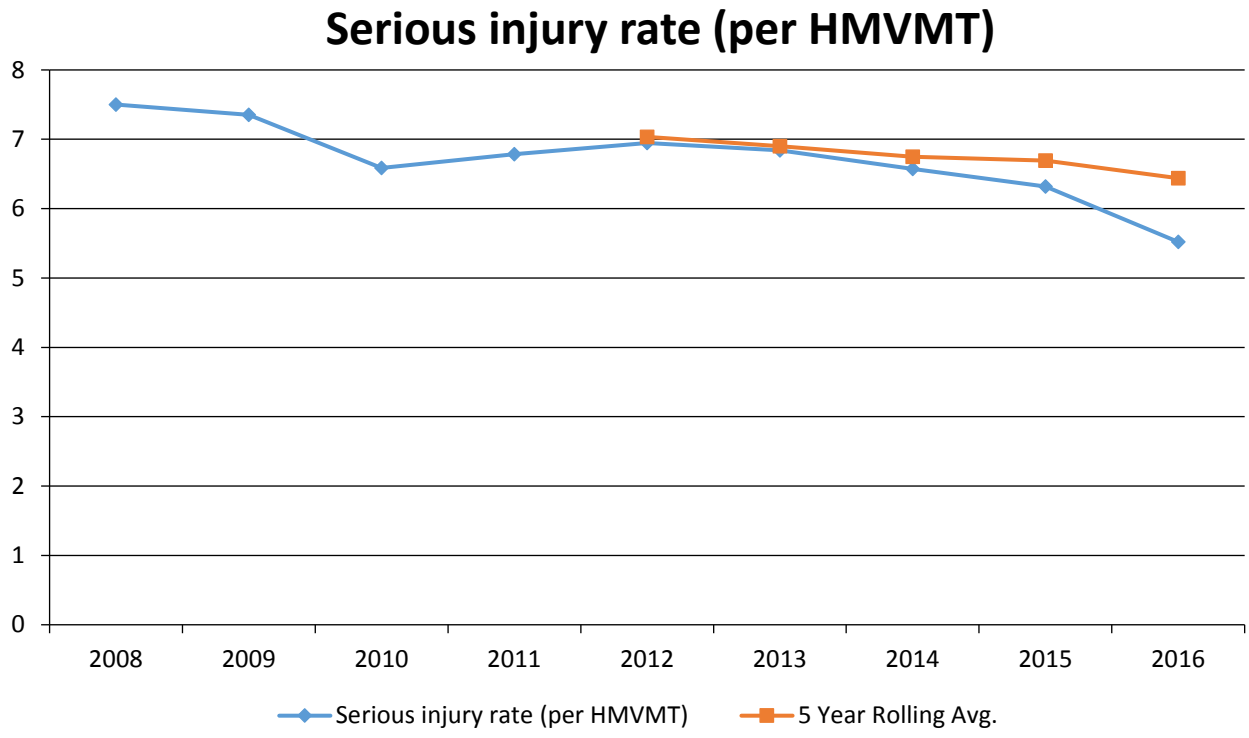
Present data showing the general highway safety trends in the State for the past five years.

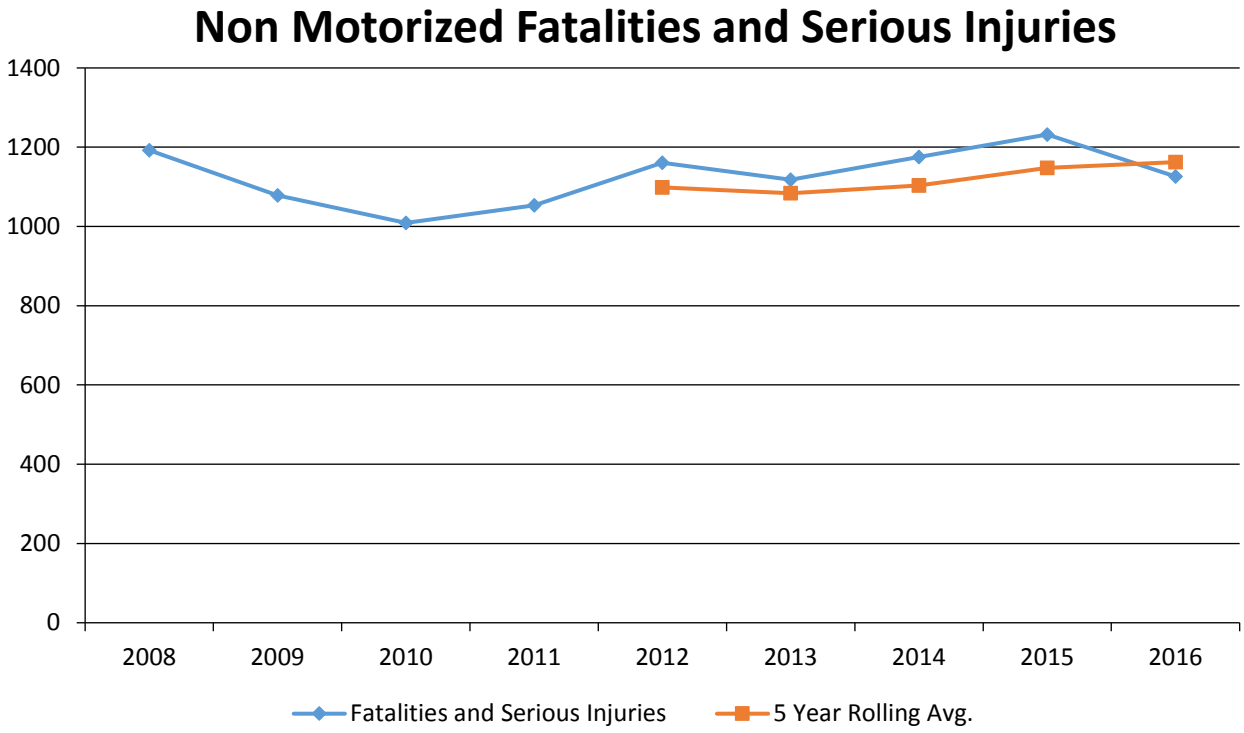
PERFORMANCE MEASURES	2008	2009	2010	2011	2012	2013	2014	2015	2016
Fatalities	548	466	450	447	474	481	488	547	608
Serious Injuries	3,580	3,399	3,091	3,163	3,241	3,212	3,219	3,186	2,871
Fatality rate (per HMVMT)	1.148	1.008	0.959	0.959	1.016	1.024	0.996	1.085	1.169
Serious injury rate (per HMVMT)	7.501	7.352	6.585	6.787	6.949	6.839	6.571	6.317	5.520
Number non-motorized fatalities	157	149	129	135	166	157	171	187	225
Number of non-motorized serious injuries	1,035	929	880	918	995	961	1,004	1,045	901


Annual Fatalities
700
600
500
400
300
200
100
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
Fatalities
5 Year Rolling Avg.


Annual Serious Injuries
4000
3500
3000
2500
2000
1500
1000
500
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
Serious Injuries
5 Year Rolling Avg.


Fatality rate (per HMVMT)
1.4
1.2
1
0.8
0.6
0.4
0.2
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
Fatality rate (per HMVMT)
5 Year Rolling Avg.


Serious injury rate (per HMVMT)
8
7
6
5
4
3
2
1
0
2008
2009
2010
2011
2012
2013
2014
2015
2016
Serious injury rate (per HMVMT)
5 Year Rolling Avg.



Enter additional comments here to clarify your response for this question or add supporting information.

Serious injuries totals for calendar year 2016 may show slightly lower totals than expected as a result of incomplete 2016 crash data.

Describe fatality data source.

FARS

Enter additional comments here to clarify your response for this question or add supporting information.

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

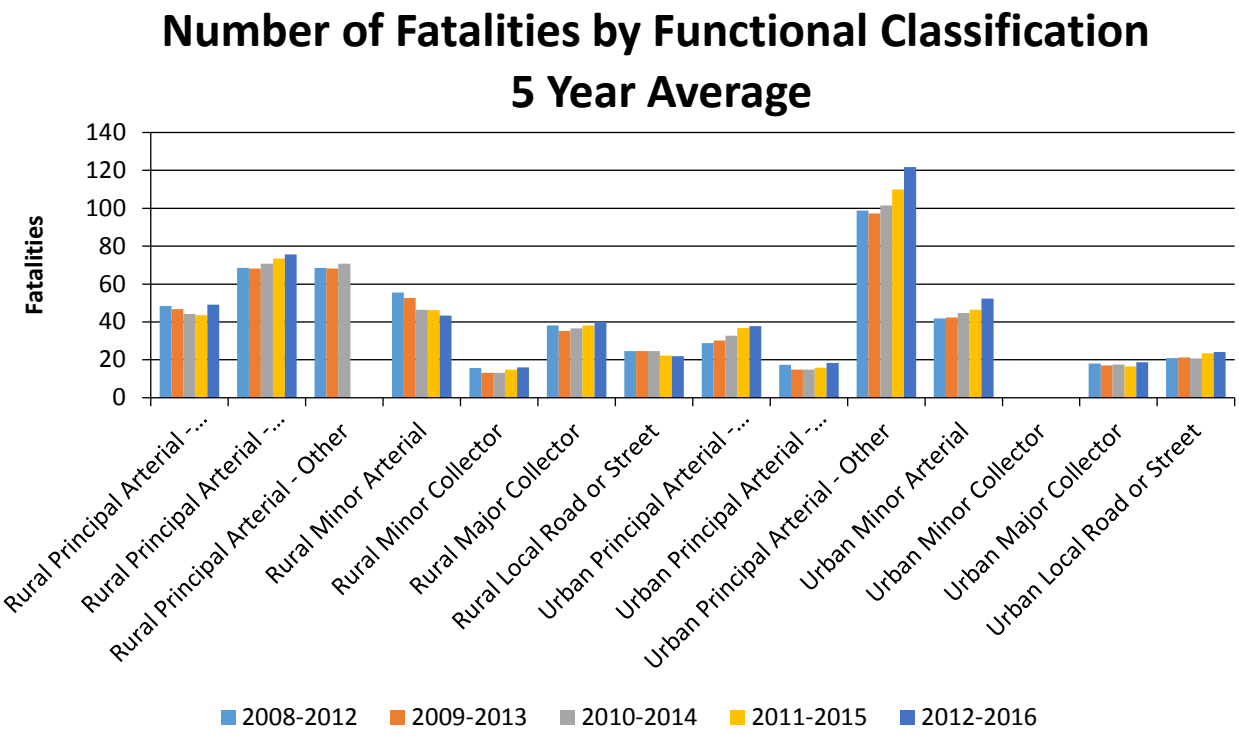
Year 2016

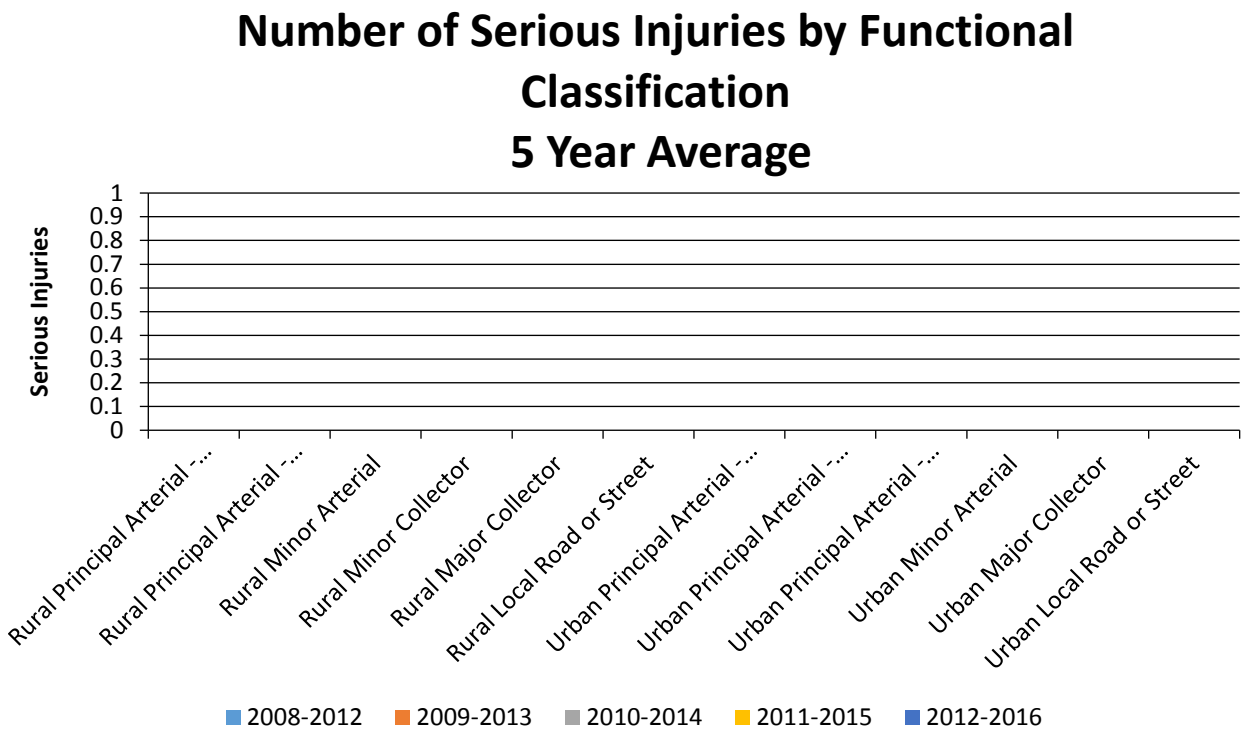
Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Principal Arterial - Interstate	49.2	0	0	0
Rural Principal Arterial - Other Freeways and Expressways	75.6	0	0	0
Rural Principal Arterial - Other				

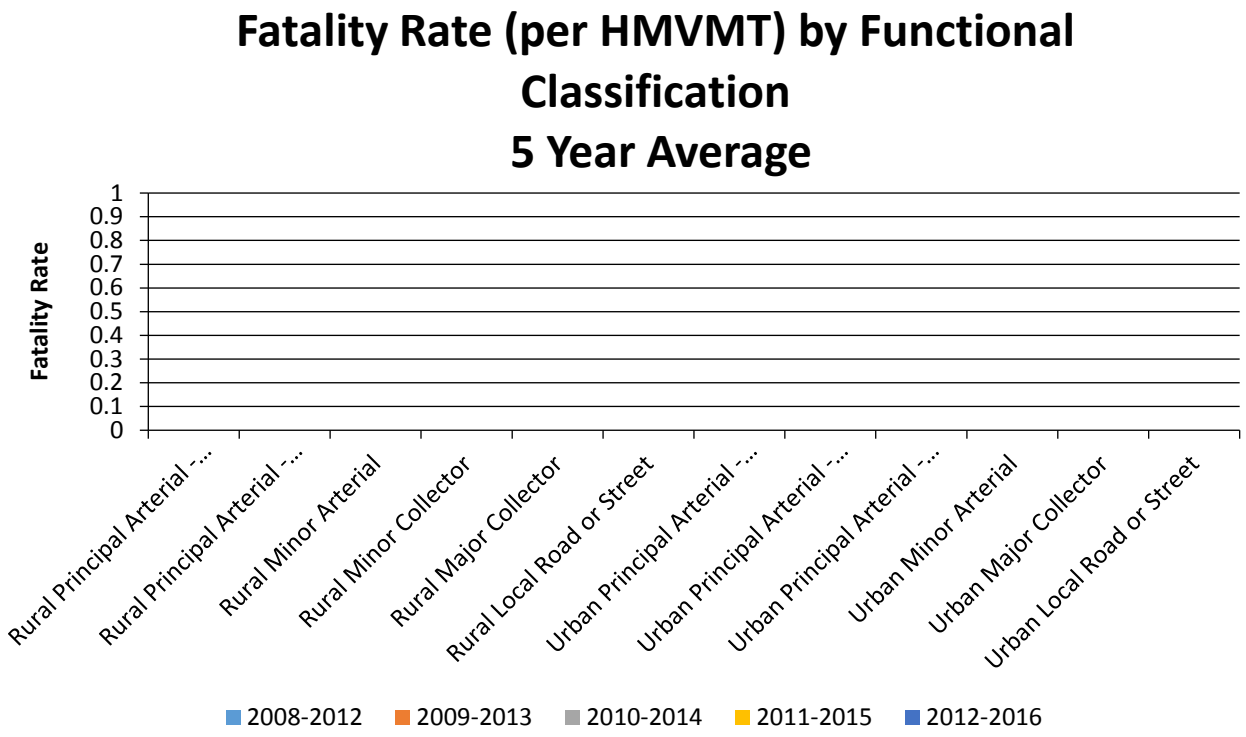
Functional Classification	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
Rural Minor Arterial	43.4	0	0	0
Rural Minor Collector	16	0	0	0
Rural Major Collector	40	0	0	0
Rural Local Road or Street	22	0	0	0
Urban Principal Arterial - Interstate	37.8	0	0	0
Urban Principal Arterial - Other Freeways and Expressways	18.4	0	0	0
Urban Principal Arterial - Other	121.8	0	0	0
Urban Minor Arterial	52.4	0	0	0
Urban Minor Collector				
Urban Major Collector	18.8	0	0	0
Urban Local Road or Street	24.2	0	0	0

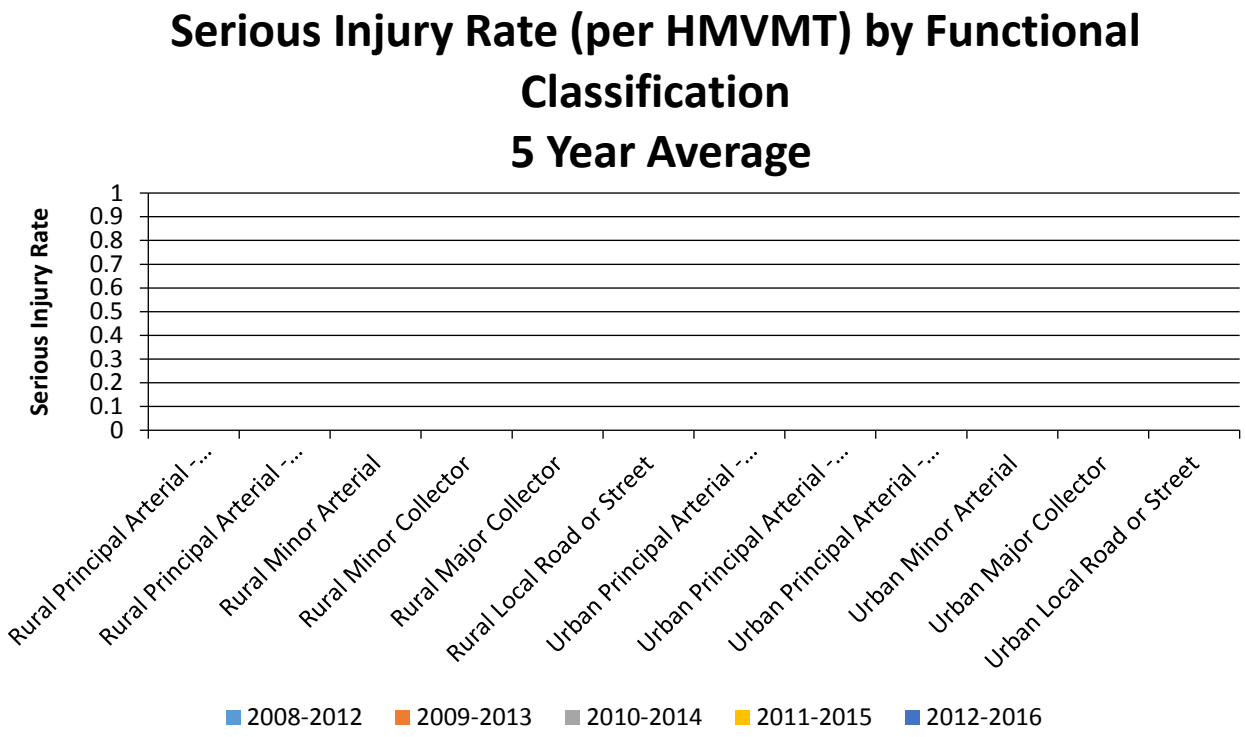
Year 2015

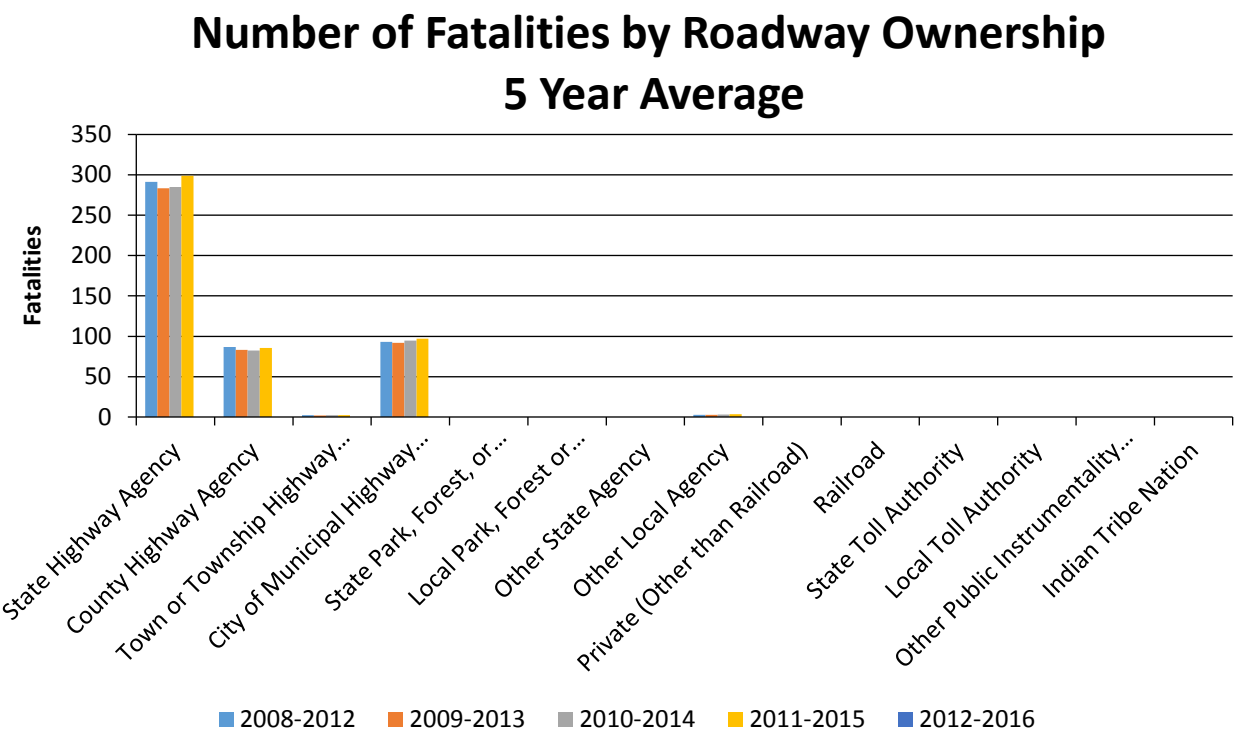
Roadways	Number of Fatalities (5-yr avg)	Number of Serious Injuries (5-yr avg)	Fatality Rate (per HMVMT) (5-yr avg)	Serious Injury Rate (per HMVMT) (5-yr avg)
State Highway Agency	298.8			
County Highway Agency	85.6			
Town or Township Highway Agency	2.2			
City of Municipal Highway Agency	97			
State Park, Forest, or Reservation Agency	0			
Local Park, Forest or Reservation Agency	0			
Other State Agency	0			
Other Local Agency	3.4			
Private (Other than Railroad)	0			
Railroad	0			
State Toll Authority	0			
Local Toll Authority	0			
Other Public Instrumentality (e.g. Airport, School, University)	0			
Indian Tribe Nation	0			


Number of Fatalities by Functional Classification
5 Year Average
Fatalities
140
120
100
80
60
40
20
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Principal Arterial - Other
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial - Other
Urban Minor Arterial
Urban Minor Collector
Urban Major Collector
Urban Local Road or Street
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Number of Serious Injuries by Functional Classification
5 Year Average
Serious Injuries
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Minor Arterial
Urban Major Collector
Urban Local Road or Street
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Fatality Rate (per HMVMT) by Functional Classification
5 Year Average
Fatality Rate
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Minor Arterial
Urban Major Collector
Urban Local Road or Street
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016


Serious Injury Rate (per HMVMT) by Functional Classification
5 Year Average
Serious Injury Rate
1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Rural Principal Arterial -...
Rural Principal Arterial -...
Rural Minor Arterial
Rural Minor Collector
Rural Major Collector
Rural Local Road or Street
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Principal Arterial -...
Urban Minor Arterial
Urban Major Collector
Urban Local Road or Street
2008-2012
2009-2013
2010-2014
2011-2015
2012-2016



Enter additional comments here to clarify your response for this question or add supporting information.

At this time, fatality data is specifically tracked; however, in terms of data, at present CDOT does not distinguish between serious injury and other injuries. As such, no data is being provided under the category of Serious Injury.

Special notes regarding the above provided data:

"Rural Principle Arterial - Other" is listed as 0 because this is included within the value provided for "Rural Principal Arterial - Other Freeways and Expressways"

"Urban Minor Collector" is listed as 0 because this is included within the value provided for "Urban Major Collector"

Are there any other aspects of the general highway safety trends on which the State would like to elaborate?

Yes

Provide additional discussion related to general highway safety trends.

Following the trend seen across the country, fatalities have seen a noticeable increase in Colorado in 2016. Even with increased VMT, fatality rates have also increased. There were no specific areas where the increase of fatalities were over-represented. Serious injuries have remained relatively stable in this time with the rate continuing to decrease over the last several years.

Safety Performance Targets

Calendar Year 2018 Targets *

Number of Fatalities 610.0

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

CDOT analyzed fatal crash data going back to 2002, developed multiple models, created best fit curves, and determined targets based on examination of the various predicted values. Contributing factors were considered, including the following: population growth, increases in VMT, economic growth, potential funding changes, and legislative changes. All of the models indicated future increases in fatal crash numbers, resulting in short term targets with an increase in fatal crashes. The SHSP is an aspirational goal of moving Colorado towards zero deaths and is the long term vision for the state. The targets recognize the uptick in fatals and the need to focus on programs to reduce crashes in order to pursue the aspirational goal. The target of 610 is the predicted five year rolling average.

Number of Serious Injuries 3350.0

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

CDOT analyzed serious injury crash data going back to 2002, developed multiple models, created best fit curves, and determined targets based on examination of the various predicted values. Contributing factors were considered, including the following: population growth, increases in VMT, economic growth, potential funding changes, and legislative changes. All of the models indicated future increases in serious injury crash numbers, resulting in short term targets with an increase in serious injury crashes. The SHSP is an aspirational goal of moving Colorado towards zero deaths and is the long term vision for the state. The targets recognize the uptick in serious injury crashes and the need to focus on programs to reduce crashes in pursuit of the aspirational goal. The target of 3350 is the predicted five year average.

Fatality Rate 1.200

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

CDOT analyzed fatal crash data going back to 2002, developed multiple models, created best fit curves, and determined targets based on examination of the various predicted values. The fatality rate is based on the assumption that fatal crashes and VMT are both increasing in the near term. Contributing factors were considered, including the following: population growth, increases in VMT, economic growth, potential funding changes, and legislative changes. All of the models indicated future increases in fatality rates, resulting in short term targets with an increase in the fatal rate. The SHSP is an aspirational goal of moving Colorado towards zero deaths and is

the long term vision for the state. The targets recognize the uptick in the fatality rate and the need to focus on programs to reduce crashes in order to pursue the aspirational goal. The target of 1.2 is based on the five year moving average.

Serious Injury Rate 6.790

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

CDOT analyzed serious injury crash data going back to 2002, developed multiple models, created best fit curves, and determined targets based on examination of the various predicted values. Contributing factors were considered, including the following: population growth, increases in VMT, economic growth, potential funding changes, and legislative changes. The serious injury rate is based on the assumption that serious injury crashes and VMT are both increasing in the near term. The SHSP is an aspirational goal of moving Colorado towards zero deaths and is the long term vision for the state. The targets recognize the uptick in serious injury crashes and the need to focus on programs to reduce crashes in pursuit of the aspirational goal. The target of 6.79 is the predicted five year average.

Total Number of Non-Motorized Fatalities and Serious Injuries 586.0

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

CDOT analyzed the non-motorized fatalities and serious injury data going back to 2007, developed multiple models, created best fit curves, and determined targets based on examination of the various predicted values. Contributing factors were considered, including the following: population growth, increases in VMT, economic growth, potential funding changes, and legislative changes. All of the models indicated increases in the non-motorized crashes. The SHSP is an aspirational goal of moving Colorado towards zero deaths and is the long term vision for the state. The targets recognize the uptick in the fatality rate and the need to focus on programs to reduce crashes in order to pursue the aspirational goal. The target of 586 is based on the five year moving average.

Enter additional comments here to clarify your response for this question or add supporting information.

For detailed information regarding the methodology for setting such performance targets, please contact CDOT Headquarters Traffic & Safety Engineering.

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

The SHSP process reached out to over 1,000 individuals, inviting them to participate in the process through in person and online meetings, emails, focus groups, surveys, and emphasis area teams. Participants were also invited to the Colorado Traffic Safety Summit to review the emphasis areas and goals for the SHSP. The CDOT offices of transportation safety and traffic engineering coordinated with the Colorado Department of Health and Environment to evaluate historical crash data and develop the various models. CDOT and the MPO's participated in FHWA training on the new rule making and requirements for establishing targets. Various

meetings have been held with CDOT management, planners, MPO's, and CDPHE staff to review CDOT's proposed targets. Meeting are ongoing with individual MPO's to present data, review CDOT's process, and provide assistance in the establishment of individual MPO goals or adoption of the statewide goals. The MPO's are on target to establish or adopt CDOT's targets by the February 2018 deadline.

Does the State want to report additional optional targets?

No

Enter additional comments here to clarify your response for this question or add supporting information.

Applicability of Special Rules

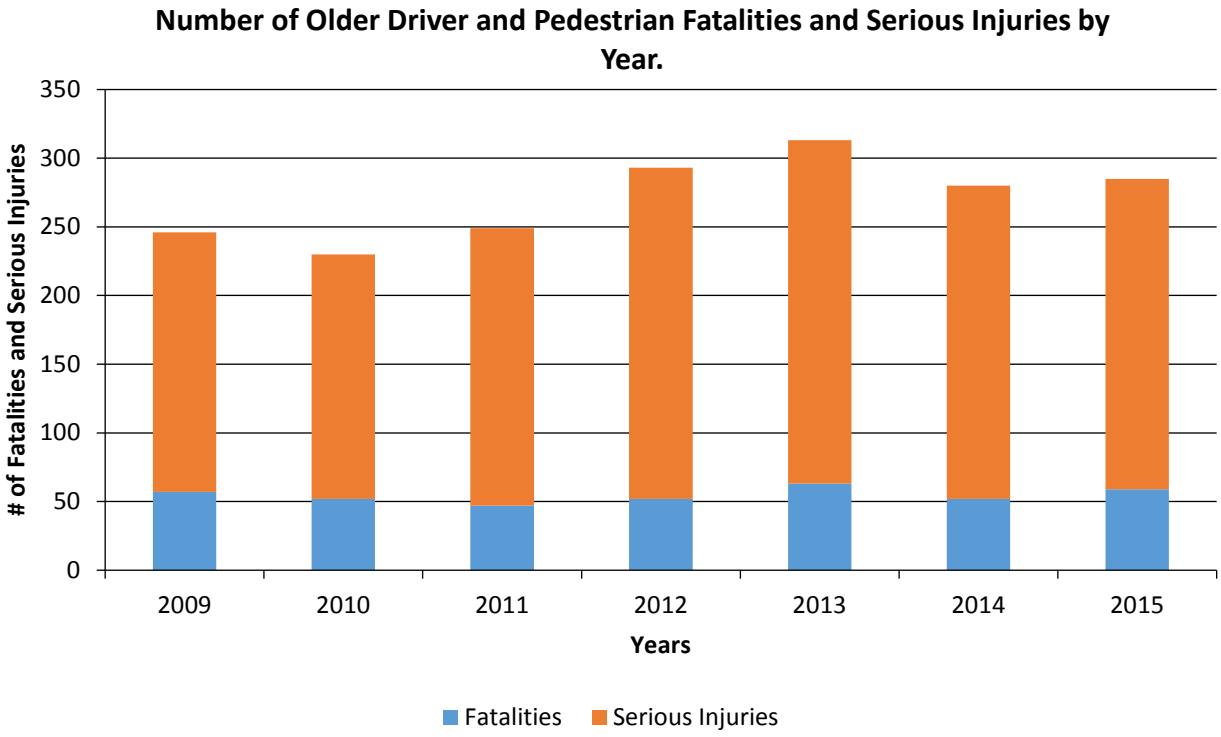
Does the HRRR special rule apply to the State for this reporting period?

No

Enter additional comments here to clarify your response for this question or add supporting information.

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

PERFORMANCE MEASURES	2009	2010	2011	2012	2013	2014	2015
Number of Older Driver and Pedestrian Fatalities	57	52	47	52	63	52	59
Number of Older Driver and Pedestrian Serious Injuries	189	178	202	241	250	228	226



Enter additional comments here to clarify your response for this question or add supporting information.

-

Evaluation

Program Effectiveness

How does the State measure effectiveness of the HSIP?

Change in fatalities and serious injuries
Benefit/Cost Ratio
Lives saved

Enter additional comments here to clarify your response for this question or add supporting information.

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

Overall, the HSIP program in Colorado has had a positive impact on reducing crashes overall, as well as specifically reducing severe and fatal crashes. CDOT relies on crash data to effectively evaluate the overall impact that HSIP in the state of Colorado. Not only does CDOT consider the reduction in crashes overall and reduction is severe and fatal crashes, CDOT also primarily relies on the benefit/cost (B/C) ration that is ultimately realized on a statewide level to gain an understanding of the effectiveness of the HSIP.

Prior to this reporting period, CDOT, in cooperation with an unbiased consultant team, evaluated 48 projects which have five years (2011-2015) of post-installation data available to determine realized B/C ration and compare to those calculated at the time of project HSIP funding eligibility review. Although some projects A final report describing the findings of this endeavor was generated in December, 2016.

Additionally, CDOT completed a FHWA HSIP Self-assessment during the reporting period. The final draft of this report was issued in April, 2016. The results of this report were overall positive regarding the operation and administration of the program. Valuable feedback from FHWA was received within the content of this assessment regarding components which CDOT is doing well and excelling in as well as described areas of potential improvement. CDOT continues to work to address areas of improvement as described within this report.

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

miles improved by HSIP
More systemic programs
Increased awareness of safety and data-driven process
Increased focus on local road safety
Other-Realized Positive B/C Ratio

Enter additional comments here to clarify your response for this question or add supporting information.

Are there any significant programmatic changes that have occurred since the last reporting period?

Yes

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

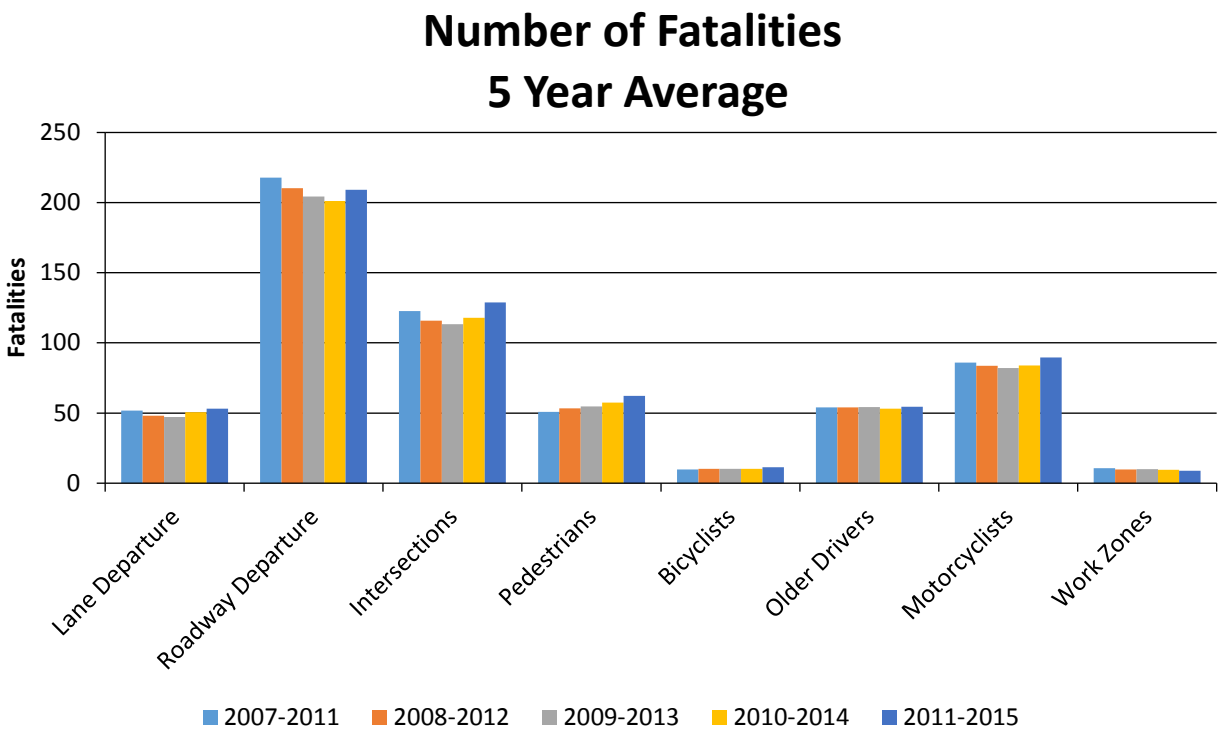
A special HSIP obligation of approximately $2.9M was required to address the increased fatality rate for Colorado High Risk Rural Roads (HRRR) based upon notification from FHWA (23 USC 148(g)(l) - Fiscal Year (FY) 2018 High Risk Rural Roads - Special Rule) of such an increase occurring over the preceding 2-year period. The qualifying criteria and analysis techniques for approving project applications for this HRRR funding is the same as for the HSIP qualifying overall. However, these funds are specifically set aside to address off-system rural roads in Colorado. If the rural road fatality rate should continue to increase, which CDOT is working diligently to avoid, and the aforementioned FHWA special rule continue to apply, this HRRR solicitation will remain in place to help reduce fatalities on rural roads.

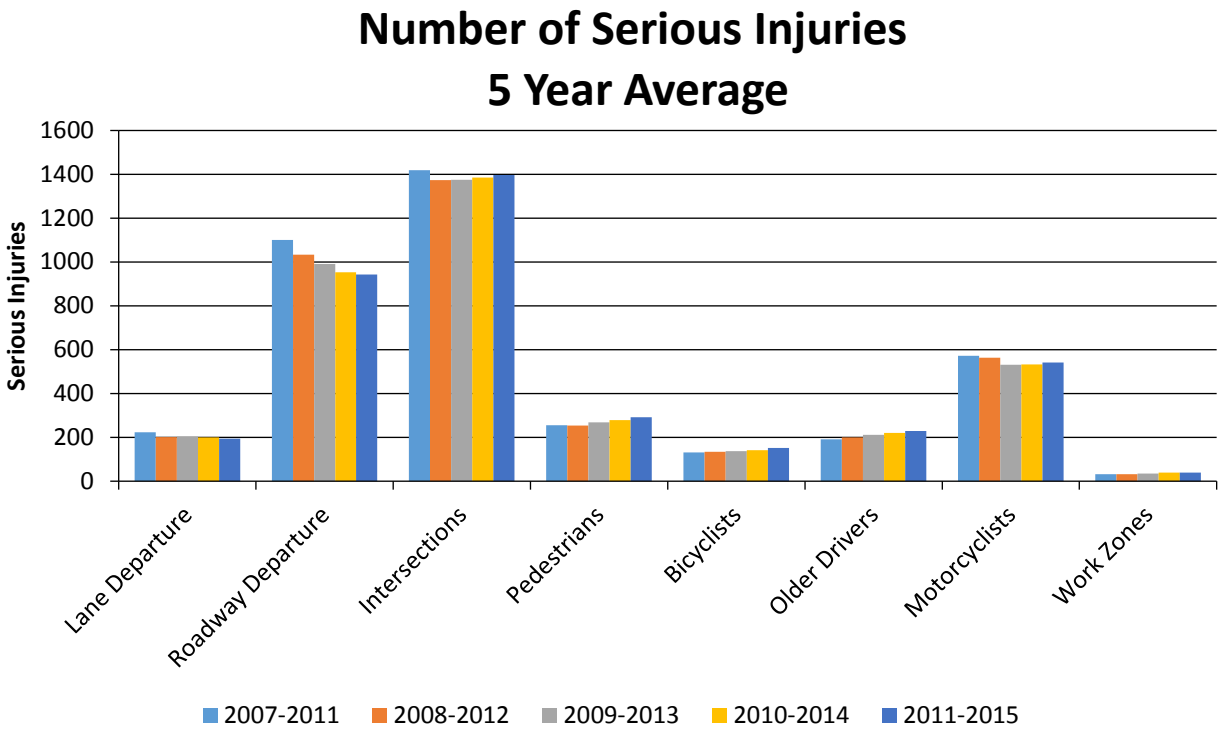
Effectiveness of Groupings or Similar Types of Improvements

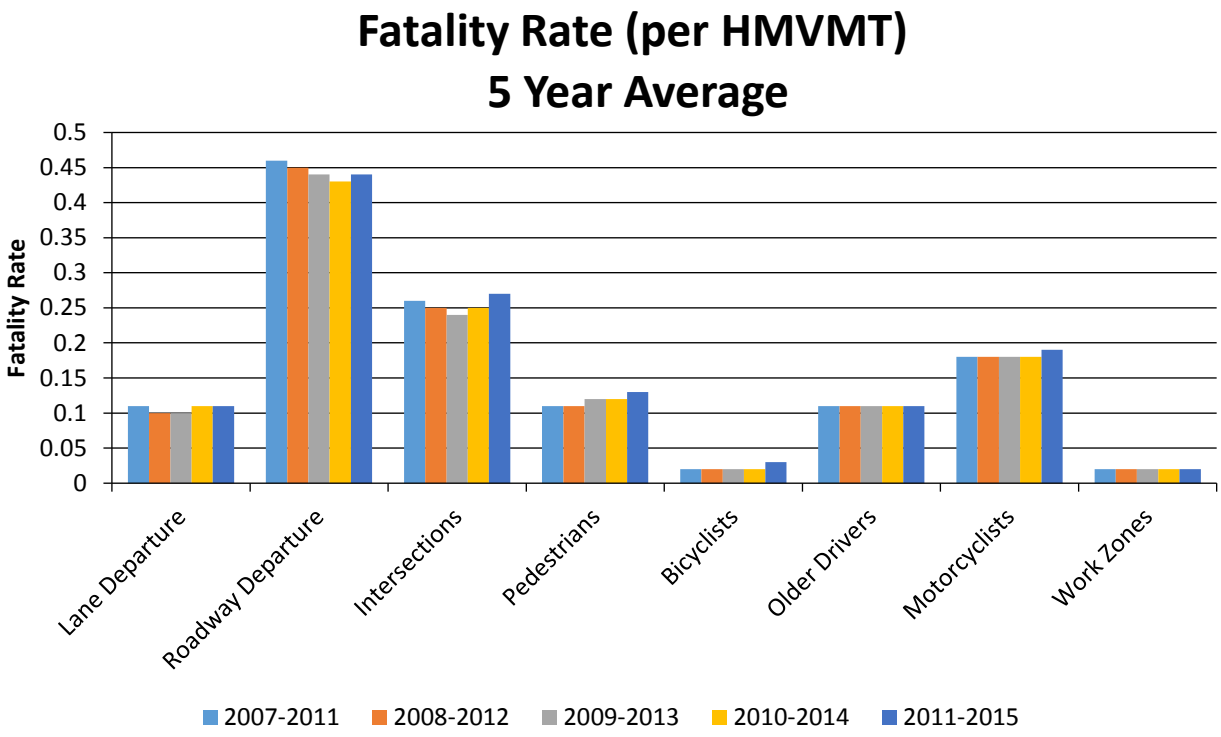
Present and describe trends in SHSP emphasis area performance measures.

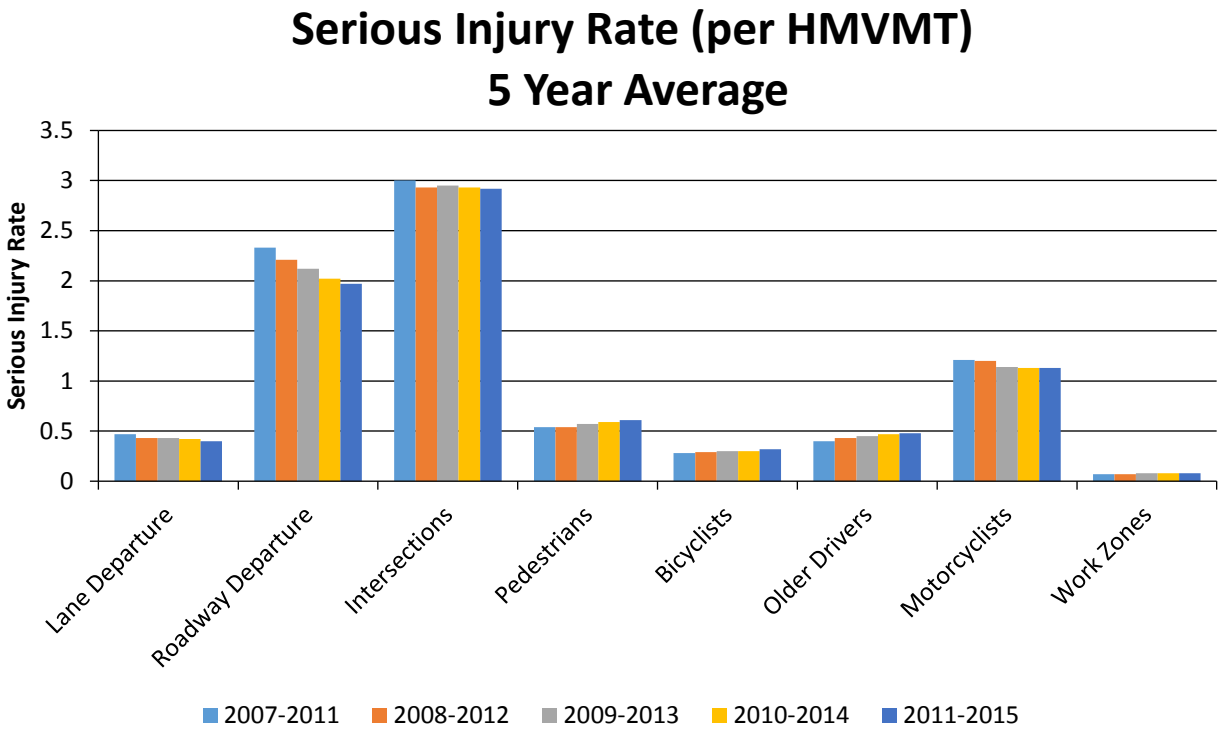
Year 2015

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)	Other 1	Other 2	Other 3
Lane Departure		53.2	194.4	0.11	0.4			
Roadway Departure		209.2	942.6	0.44	1.97			
Intersections		128.8	1,397.4	0.27	2.92			
Pedestrians		62.2	292.4	0.13	0.61			
Bicyclists		11.4	151.4	0.03	0.32			
Older Drivers		54.6	229.4	0.11	0.48			
Motorcyclists		89.6	540.8	0.19	1.13			
Work Zones		8.8	39.4	0.02	0.08			


Number of Fatalities
5 Year Average
Fatalities
250
200
150
100
50
0
Lane Departure
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
2007-2011
2008-2012
2009-2013
2010-2014
2011-2015


Number of Serious Injuries
5 Year Average
Serious Injuries
1600
1400
1200
1000
800
600
400
200
0
Lane Departure
Roadway Departure
Intersections
Pedestrians
Bicyclists
Older Drivers
Motorcyclists
Work Zones
2007-2011
2008-2012
2009-2013
2010-2014
2011-2015





Enter additional comments here to clarify your response for this question or add supporting information.

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

No

Enter additional comments here to clarify your response for this question or add supporting information.
CDOT traffic & safety continually evaluates currently employed and proposed countermeasures for potential effectiveness based upon academic research as well as historical performance of such countermeasures that may have been implemented in other states under similar conditions to address similar crash patterns. Upon our determination as to the viability of such countermeasures for use on Colorado roadways, and if a viable CMF/CRF is available or able to be reasonably approximated, CDOT may award HSIP funding for installation dependent upon project circumstances and projected efficacy of the specific countermeasure with respect to the determined crash pattern(s) at the subject location(s).

Additionally, although CDOT has not completed a formal quantitative review of a specific countermeasure's realized effectiveness upon installation in this reporting period, it should be noted that a statewide evaluation on select projects was completed in the prior reporting period. The results of which indicated a relatively high level of effectiveness for HSIP overall. The primary indicator being the results of a review of 5 years of crash data following installation of such countermeasures. This was compared both to 5 years of crash data preceding countermeasure installation and to the calculated benefit/cost ratio projected at the time of countermeasure analysis / application review for HSIP funding eligibility. In general, overall benefic/cost ratios that were realized positively exceeded those projected during project application review.

It is important to compile a statistically significant data set following installation of such countermeasures in order to conduct a thorough analysis of installed countermeasures. This generally includes a minimum of 3 years of compiled data for areas with significant ADT, and at least 5 years of compiled data for all other areas in general. To that end, CDOT conducts periodic rather than annual countermeasure effectiveness evaluations.

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 INJURY BEFORE	ALL INJURY AFTER	TOTAL BEFORE	TOTAL AFTER	EVALUATION RESULTS (BENEFIT/COST RATIO)
SH 82A - 7.00-11.00 Garfield County CDOT Region 3	Rural Principal Arterial - Other Freeways and Expressways	Roadside	Fencing	178.00	57.00					40.00	11.00	218.00	68.00	5.25

Enter additional comments here to clarify your response for this question or add supporting information.

The above described project is one example of a before and after evaluation that was completed by CDOT & its consultants to evaluate and aide in understand the overall effectiveness of the program in Colorado. In the case of the example, the project is designed to mitigate conflict between vehicles and wildlife in a corridor with particularly high collisions of this type. In this example, the wildlife fencing that was installed proved especially effective in reducing these conflicts. That said, in the interest of being concise for this portion of this annual HSIP report, we have only provided this one example; however, for further examples of various crash pattern mitigation projects for which before and after studies were completed, please review the reports entitled "2015 Study" and "2016 Study" at the following CDOT public website:

https://www.codot.gov/library/traffic/hsip/studies

Are there any other aspects of the overall HSIP effectiveness on which the State would like to elaborate?

No

Compliance Assessment

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

01/01/2015

What are the years being covered by the current SHSP?

From: 2015 To: 2019

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

2019

Enter additional comments here to clarify your response for this question or add supporting information.

Individual strategic focus areas as defined within the SHSP undergo consistent review and updates as data becomes available with the intended goal of meeting the vision defined within the Strategic Highway Safety Program and Colorado's safety initiative: "Moving Toward Zero Deaths".

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

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

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)	100	0								
Access Control (22)	100	100								
One/Two Way Operations (91)	100	100								
Number of Through Lanes (31)	100	100					100	100		
Average Annual Daily Traffic (79)	100	50					100	100		
AADT Year (80)	100	50								
Type of Governmental Ownership (4)	100	100					100	100	100	100
INTERSECTION										
Unique Junction Identifier (120)			100	0						
Location Identifier for Road 1 Crossing Point (122)			100	0						
Location Identifier for Road 2 Crossing Point (123)			100	0						
Intersection/Junction Geometry (126)			100	0						
Intersection/Junction Traffic Control (131)			100	0						
AADT for Each Intersecting Road (79)			100	50						
AADT Year (80)			100	50						
Unique Approach Identifier (139)			0	0						
INTERCHANGE/RAMP										
Unique Interchange Identifier (178)					100	0				
Location Identifier for Roadway at Beginning of Ramp Terminal (197)					100	0				
Location Identifier for Roadway at Ending Ramp Terminal (201)					100	0				
Ramp Length (187)					100	0				

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 Type at Beginning of Ramp Terminal (195)					100	0				
Roadway Type at End Ramp Terminal (199)					100	0				
Interchange Type (182)					100	0				
Ramp AADT (191)					100	0				
Year of Ramp AADT (192)					100	0				
Functional Class (19)					100	0				
Type of Governmental Ownership (4)					100	0				
Totals (Average Percent Complete):	**100.00**	**88.89**	**87.50**	**12.50**	**100.00**	**0.00**	**100.00**	**100.00**	**100.00**	**100.00**

Enter additional comments here to clarify your response for this question or add supporting information.

CDOT does not believe that there are any interchanges or grade-separated ramps that are currently under non-state jurisdiction within Colorado. CDOT has AADT on all Fed-Aid roads. There are 8,752 miles of Rural Collectors that we do not have AADT data on. Most notably we are missing data on Non-State, Non-local paved intersections of which we have approximately 10,000.

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.

Due to the magnitude involved with collecting the missing data elements and the potential system changes that will need to be made, CDOT intends to utilize the next 2-3 years to research and assess various methodologies to meet the 10 year deadline for providing the required information. This planning stage will consist of the following assessment activities:
1. Contact other State DOT's and survey what methodologies they are employing to meet these requirements.
2. Research and monitor 3rd party big data providers. Technology and data collection is progressing rapidly; there is a possibility that companies aware of these requirements may move to collect this information for retail sale.
3. Research other potential sources for the required data elements, including local jurisdictions and MPOs
4. If 3rd party data is not available and other potential sources do not exist, we will move forward with developing a long term plan for collection, including locating and procuring funding.

Provide the suspected serious injury identifier, definition and attributes used by the State for both the crash report form and the crash database using the table below. Please also indicate whether or not these elements are compliant with the MMUCC 4th edition criteria for data element P5. Injury Status, suspected serious injury.

CRITERIA	SUSPECTED SERIOUS INJURY IDENTIFIER(NAME)	MMUCC 4TH EDITION COMPLIANT *	SUSPECTED SERIOUS INJURY DEFINITION	MMUCC 4TH EDITION COMPLIANT *	SUSPECTED SERIOUS INJURY ATTRIBUTES(DESCRIPTORS)	MMUCC 4TH EDITION COMPLIANT *
Crash Report Form	03 Evident Incapacitaing Injury	No	N/A	No	N/A	No
Crash Report Form Instruction Manual	03 Evident incapacitating injury	No	This is an injury other than a fatal injury which prevents the injured person from walking, driving or normally continuing the activities he/she was capable of performing before the injury occurred. Included are severe lacerations, broken or distorted limbs, and internal injuries. This also includes an injured party transported to a hospital because of the severity of the injuries.	No	Severe lacerations. Broken or distorted limbs. Internal injuries. Injured transported to hospital.	No

CRITERIA	SUSPECTED SERIOUS INJURY IDENTIFIER(NAME)	MMUCC 4TH EDITION COMPLIANT *	SUSPECTED SERIOUS INJURY DEFINITION	MMUCC 4TH EDITION COMPLIANT *	SUSPECTED SERIOUS INJURY ATTRIBUTES(DESCRIPTORS)	MMUCC 4TH EDITION COMPLIANT *
Crash Database	03 Evident incapacitating injury	Yes	N/A	No	N/A	No
Crash Database Data Dictionary	03 Evident incapacitating injury	No	This is an injury other than a fatal injury which prevents the injured person from walking, driving or normally continuing the activities he/she was capable of performing before the injury occurred. Included are severe lacerations, broken or distorted limbs, and internal injuries. This also includes an injured party transported to a hospital because of the severity of the injuries.	No	Severe lacerations. Broken or distorted limbs. Internal injuries. Injured transported to hospital.	No

Please describe the actions the State is taking to become compliant by April 15, 2019.
CDOT is updating the statewide crash form from the DR2447 to the DR3447. Along with the crash form, the officer's manual is also being updated to modify the definitions of the injury levels to be in compliance with the MMUCC 4th and 5th editions. Adoption of the new crash form and officer's manual is anticipated in 2018, prior to the required compliance date of April 2019.

Enter additional comments here to clarify your response for this question or add supporting information.

CDOT is currently applying the NHTSA suspected serious injury conversion tables to help define serious injuries for Colorado.

https://safety.fhwa.dot.gov/hsip/spm/conversion_tbl/pdfs/co.pdf

Did the State conduct an HSIP program assessment during the reporting period?
No

When does the State plan to complete it’s next HSIP program assessment.

2019

Enter additional comments here to clarify your response for this question or add supporting information.

Currently the State is developing a process to evaluate the program as a whole. In the interim, to confirm the effectiveness of our efforts to increase safety, our Traffic & Safety Engineering group complete a self-assessment in April 2015 on several statewide projects to gage overall effectiveness.

Optional Attachments

Program Structure:

HSIP_2016.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.