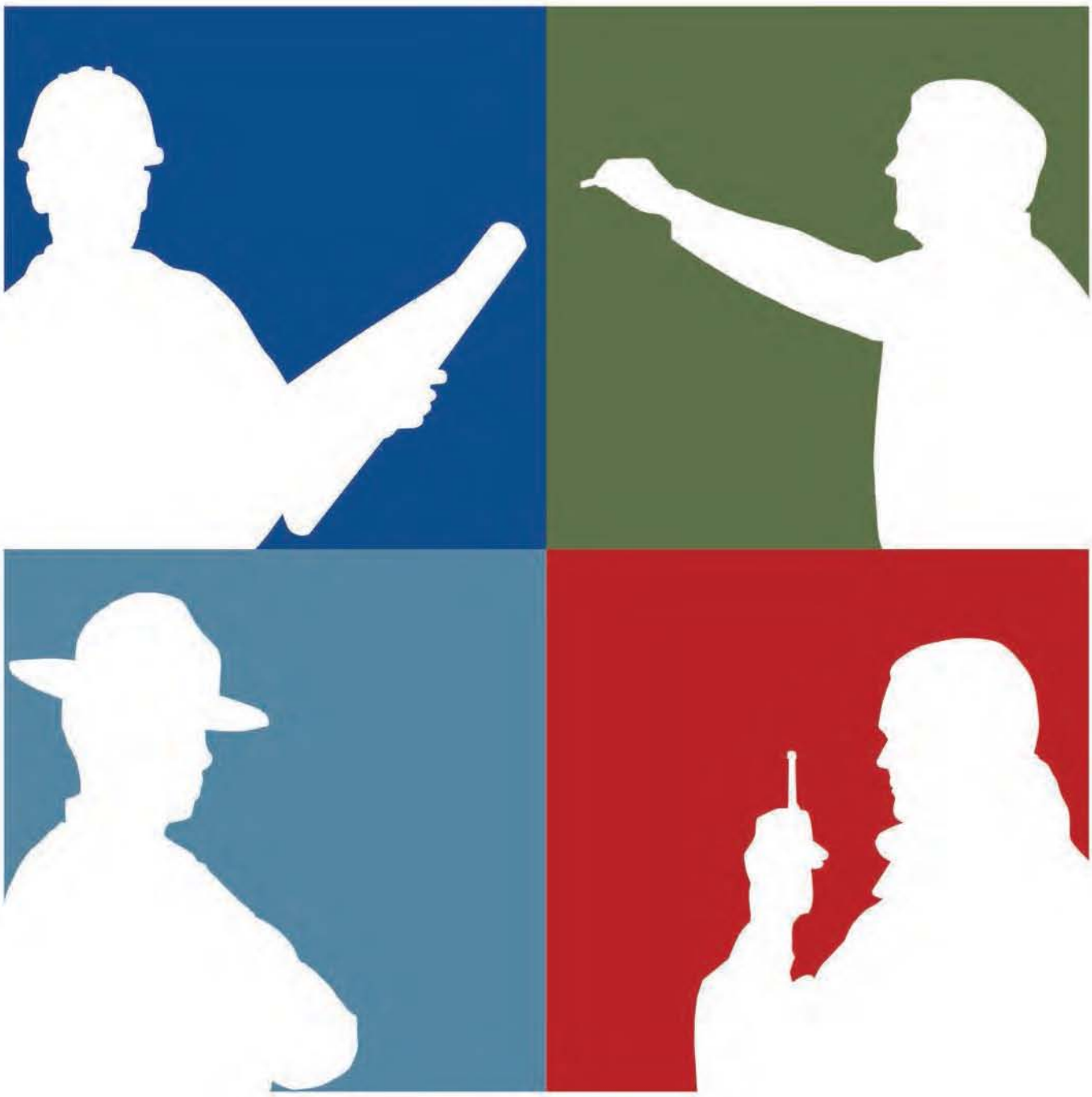
Maine's 2017 Strategic Highway Safety Plan



Engineering • Education • Enforcement • Emergency Services

MaineDOT

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION
16 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0016

Paul R. LePage
GOVERNOR

David Bernhardt
COMMISSIONER

November 20, 2017

RE: Maine's update to the "S*trategic Highway Safety Plan (SHSP)"*

This letter indicates our support for the 5th edition of Maine s Strategic Highway Safety Plan (SHSP). This newest version of the SHSP addresses behavioral, enforcement, engineering and emergency response aspects. It represents great team work between our offices and many other highway safety partners. The plan reflects many updates and outlines data driven strategies developed to improve safety on our roads.

Maine experiences about 33,000 crashes each year that, too often, have devastating personal impacts. Maine has experienced a recent 5-year annual average of about 150 crash deaths and thousands of injuries. While that is an improvement over the levels seen 10 and more years ago, the number of fatalities has increased in Maine and nationwide in the past several years. That recent trend change is concerning.

Crashes are almost always preventable and the SHSP is developed to outline the major common areas of safety concern. The goal of Maine's SHSP is to identify key transportation safety issues and to develop effective action plans that would improve public safety. The Plan is a core resource to guide investment decisions toward programs and identify counter-measure strategies that will best achieve a significant reduction in highway fatalities and serious injuries.

Coordinated and focused safety efforts must continue. This plan requires ongoing attention, and it is important to continually discuss, assess, update and implement safety strategies outlined in the SHSP. Maine supports the national goal of *Driving Toward Zero Deaths*.

Sincerely yours,

John E. Morris, Commissioner
Maine Department of Public Safety

Matthew Dunlap, Secretary of State
Department of Secretary of State

David Bernhardt, P.E., Commissioner
Maine Department of Transportation

U.S. Department of Transportation
Federal Highway Administration

U.S. Department of Transportation
Federal Highway Administration

Maine Division

40 Western Ave, Rm 614
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207-622-8350

October 19, 2017

In Reply Refer To:
HDA-ME

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Subject: Update to Maine Department of Transportation's Strategic Highway Safety Plan

Dear Messrs. Bernhardt, Dunlap and Morris:

This letter serves as the Federal Highway Administration's approval of the process used to update Maine's Strategic Highway Safety Plan (SHSP) as outlined in the September 25, 2017 letter from Mr. Duane Brunell, MaineDOT Safety Engineer. We appreciate that Maine frequently revisits and adjusts their SHSP based on the latest data and evaluation of existing strategies.

The Highway Safety Improvement Program (HSIP) is a core federal-aid program under the Fixing America's Surface Transportation Act (FAST Act). Legislated under 23 U.S.C. §148, the HSIP requires each State to develop a Strategic Highway Safety Plan. The purpose of a SHSP is to assist States in identifying key transportation safety needs and to guide investment decisions toward those strategies that have been shown to achieve a significant reduction in highway fatalities and serious injuries, along with reducing their subsequent costs to society. Maine's SHSP is the guiding document that identifies data-driven strategies and countermeasures to reduce fatalities and serious injuries on Maine roads. The SHSP promotes collaboration among safety stakeholders and identifies common goals.

Current guidance on the SHSP, and information on minor revisions to the SHSP process as a result of the FAST Act, can be found on FHWA's FAST Act website at:
https://safety.fhwa.dot.gov/legislationandpolicy/fast/shsp_guidance.cfm
https://safety.fhwa.dot.gov/legislationandpolicy/fast/guidance.cfm

We thank you and your staff for your support and efforts in updating the SHSP. Our collective efforts are improving safety across Maine.

Should you have any questions, please contact me at 207-512-4911 or Wayne Emington, Safety & Operations Engineer, at 207-512-4919.

Sincerely yours,

Todd D. Jorgensen
Division Administrator

ec:
Cheryl Martin, FHWA
Joyce Taylor, Maine DOT
Rhonda Fletcher, MaineDOT
Duane Brunell, Maine DOT
Lauren Stewart, Maine BHS
Patti Morneault, Maine BMV
Barbara Rizzuti, NHTSA
Eric Adair, FMCSA
Alan Vitcavage, FMCSA

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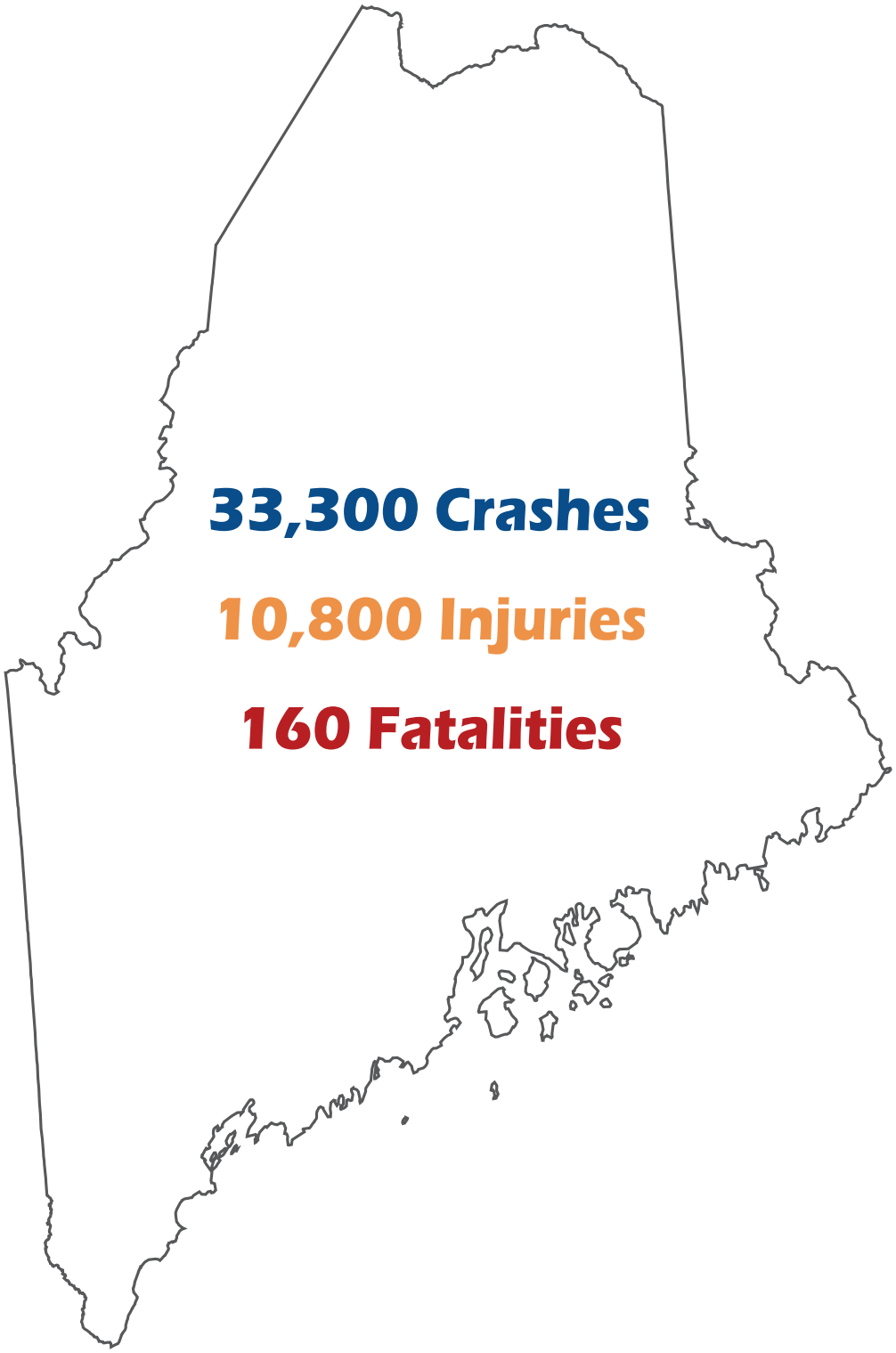
SHSP Focus Areas:

Focus Catagories

Road Settings | Behavior | Road Users Groups | Special Vehicle Classes | Large Animals (Moose/Deer)

Maine 2016 Crash Counts



Snapshot Look at Focus Areas

Crash trends of strategic interest are summarized below with the latest 2016 results shown. All crash types are important, and strategic effort in any focused safety area has merit. The priority focus areas below were selected based largely on the number of resulting fatalities. If effective strategies are implemented, attention to these focus areas would have the most impact in reducing crashes and their resulting injuries and death. As is the case in this table, most results reported in other sections will be based on the most recent 5-year annual average (5YAA), unless otherwise stated.

SNAPSHOT LOOK AT FOCUS AREAS					
Maine Top Crash Types (Based On Annual Average Of Last 5 Years' Experience)					
LEAD FOCUS AREAS	**5 Year Average**	**5 Year Average**	**Severity Comparison**	**2007-2011 Experience**	
	Annual Crashes	**Annual Fatalities**	**Fatalities/1000 Crashes**	**Annual Crashes**	**Annual Fatalities**
	(2012-2016)	(2012-2016)	(2012-2016)		
All Crash Types	31,414	151	4.8	30,137	144.8
Lane Departure	9,358	104	10.1	9,241	102.8
Speed	4,425	48	14.9	5,321	68.4
Unbelted	———	62	———	———	55.8
16-18 Year Old	2,949	11	3.7	3,635	14.0
16-20 Year Old	5,347	17	3.2	6,231	21.6
21-24 Year Old	4,663	18	3.9	4,487	24.4
Alcohol	1,250	42	34.2	1,432	44.2
* Distracted/Inattentive	3,256	11	3.1	11,188	37.8
65-98 Year Old	5,630	38	6.6	4,599	32.2
Motorcycles	580	20	34.4	600	19.2
Winter	5,936	13	2.2	6,306	13.6
Intersections	8,931	20	2.0	8,835	17.2
Large Trucks	537	5.2	8.6	564	10.2
Pedestrians	276	12	46.6	263	12.2
Moose	353	1	2.8	502	1.8
Bicycles	205	2	10.8	199	1.2

* **Note**: The significant variance in this area is due to the 2011 MCRS change in distracted driving reporting definition.

Data Notes:

1. Total fatality counts are from Maine Fatal Accident Report System (FARS). Crash and injury data is from MaineDOT systems that track crashes on public roads.
2. Crashes can be caused by a combination of factors, so one crash may have relationships to several of the categories listed in this report.

Note:
See additional background on these topics in Maine Transportation Safety Coalition's (MTSC's) 2016 Maine Highway Safety Facts.

Focus Area Champions

Duane Brunell **(MaineDOT)** ..... Lane Departure

Lt. Rick Doyon **(Biddeford Police Department)**.....Illegal/Unsafe Speed

Lauren Stewart **(Maine Bureau of Highway Safety)**.....Safety Belts/Traffic Records

Corinne Perreault **(Maine Bureau of Highway Safety)**.....Younger Drivers

Aaron Turcotte **(Maine State Police)**.....Impaired Driving

Pat Moody **(AAA, Northern New England)** ..... Distracted Driving

Linda Grant **(Maine Bureau of Motor Vehicles)** ..... Mature Drivers

Eric Bellevance **(Maine Bureau of Motor Vehicle)**..... Motorcycles

Greg Stone **(Maine Turnpike Authority)** ..... Winter

Dennis Emidy **(MaineDOT)** .....Intersections

Brian Parke **(Maine Motor Transport Association)** .....Commercial Trucks and Buses

Patrick Adams **(MaineDOT)** .....Pedestrians and Bicyclists

Richard Bostwick **(MaineDOT)**.....Large Animals (Moose/Deer)

Sgt. John Lizanecz/Owen Davis **(York Police Department)**.....Operating After Suspension

Shaun St. Germain **(Maine Emergency Medical Services)**.....Emergency Services/Incident Management

Lieutenant Bruce Scott **(Maine State Police)**.....Enforcement Strategies

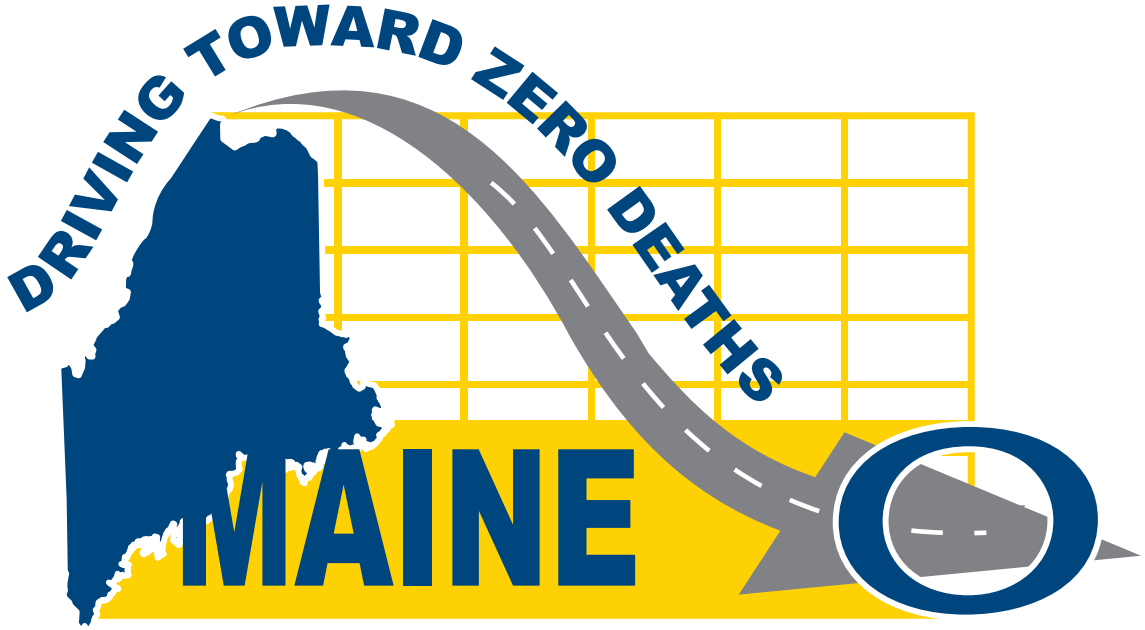
Metropolitan and Regional Planning Organization Members

Rick Harbison **(GPCOG)**.....Southern District

Jennifer Williams **(ATRC)** .....Western District

Dianne Rice **(BACTS)** .....Northern District

Crystal Hitchings **(WCCOG)** .....Eastern District


DRIVING TOWARD ZERO DEATHS
MAINE

Our Goal

Maine's overall safety goal is to drive safety performance toward zero deaths.

Almost every other day a person loses their life in a Maine vehicle crash. Crashes occur on our roads nearly one hundred times a day. When looking at the underlying story lines related to these frequent and tragic events, one consistently finds that these occurrences are almost always preventable. Many stakeholders are working together to improve these results and this Strategic Highway Safety Plan develops action plans related to Enforcement, Education, Engineering and Emergency/Incident Response that are necessary to affect safety improvements. The Plan defines the crash focus areas and outlines the strategies that the various stakeholders can employ together in a coordinated, comprehensive program. The effectiveness of these strategies and crash performance results will be periodically evaluated and updated.

Additional Key Strategic Safety Partners

County and Local Law Enforcement
Federal Highway Administration
Federal Motor Carrier Safety Administration
Maine Center for Disease Control
Maine Department of Education
Maine Department of Inland Fisheries and Wildlife
Maine Office of Substance Abuse and Mental Health Services
Maine State Police
Maine Transportation Safety Coalition
Maine Tribal Representatives
Metropolitan Planning Organizations
National Highway Transportation Safety Administration
Regional Planning Organizations

Maine's SHSP Update Process

Maine's Strategic Highway Safety Plan (SHSP) has seen a number of updates since it was first released in 2005. It has always been a collaborative effort involving various state agencies, other safety stakeholders, and federal partners. New strategic focus areas and champions have been added over the years to coordinate the strategic direction of road safety mitigation opportunities. This ongoing collaborative approach recognizes that road safety is not one-dimensional. There are behavioral aspects, along with physical location facets, that need to be collectively considered. Enforcement, Education, Engineering and Emergency Services ALL need to be part of the safety discussion. This statewide coordinated effort is not just a document. The listed team of SHSP Focus Area Champions meets regularly, and is often in informal discussions about state safety needs including moving the safety agenda ahead. In most cases, the identified 'Lead' in each of the listed strategies is the primary funding source.

Some of the strategies in Maine's SHSP have separate dedicated task forces that meet to push ahead on pragmatic steps to improve safety. The product of those efforts helps create some of the strategies you find in the following topical SHSP sections. Other strategies reflect those included in Maine's Bureau of Highway Safety's Highway Safety Plan. At MaineDOT, there is a Highway Safety Committee that engages departmental involvement in safety issues, and Work Plan development. It ensures that Highway Safety Improvement Program projects, identified in the Statewide Transportation Improvement Program, are consistent with and address SHSP priorities. In addition, these MaineDOT bureaus actively promote and pursue safety initiatives relative to their projects.

During this most recent SHSP update process, we have again taken a data-driven approach. Strategic areas have been selected based on leading crash and fatality trends. Together, these strategies represent a diverse list of traffic safety issues. Often, in any single crash, several of these focus area factors may be at play. A young driver who was speeding and distracted while unbelted demonstrates four focus areas that compound the potential for a serious crash.

Maine has very good traffic data systems that include police crash data, the Fatal Analysis Reporting System, and road infrastructure characteristics. There is good data and analysis sharing among agencies. This contributes to data quality as data from one source validates data from another. Maine also produces the biennial Highway Safety Facts booklet, linked below, that documents dominant safety concerns with data displays and 10-year trends. Topics in this document track closely with those in the SHSP. http://www.maine.gov/mdot/safety/docs/2017/MaineHighwaySafetyFacts_12.2016.pdf

The 2017 SHSP was a combined effort of focus area champions who are in contact with other stakeholders to ensure best strategies are identified, reflect current needs and follow current best practices. Some strategies were added, some deleted and some strategic areas were amplified based on predicted positive safety performance impact. It is also important that identified strategies are implementable and effective. For any safety focus areas that have had significant adverse trends, strategic activities were redefined and strengthened. Pedestrian safety is a good example. Some strategies expanded. One example is the 2014 section entitled Emergency Medical Services that expanded and now is titled Emergency Services/Incident Management with broader strategies.

The SHSP recognizes that safety needs are constantly evolving, so the strategies included here are continually subject to review and potential change.

Core Outcome Performance Measures

Fixing America's Surface Transportation Act or "FAST Act" includes provisions on safety performance target-setting requirements. Safety Performance Management Measures (Safety PM) Final Rules implement the performance management requirements to assess serious injuries and fatalities on all public roads.

The Safety PM Final Rule establishes five performance measures as the five-year rolling averages for:

1. **Number of fatalities**
2. **Rate of fatalities per 100 million Vehicle Miles Traveled (VMT)**
3. **Number of serious injuries**
4. **Rate of serious injuries per 100 million VMT**
5. **Number of non-motorized fatalities and non-motorized serious injuries.**

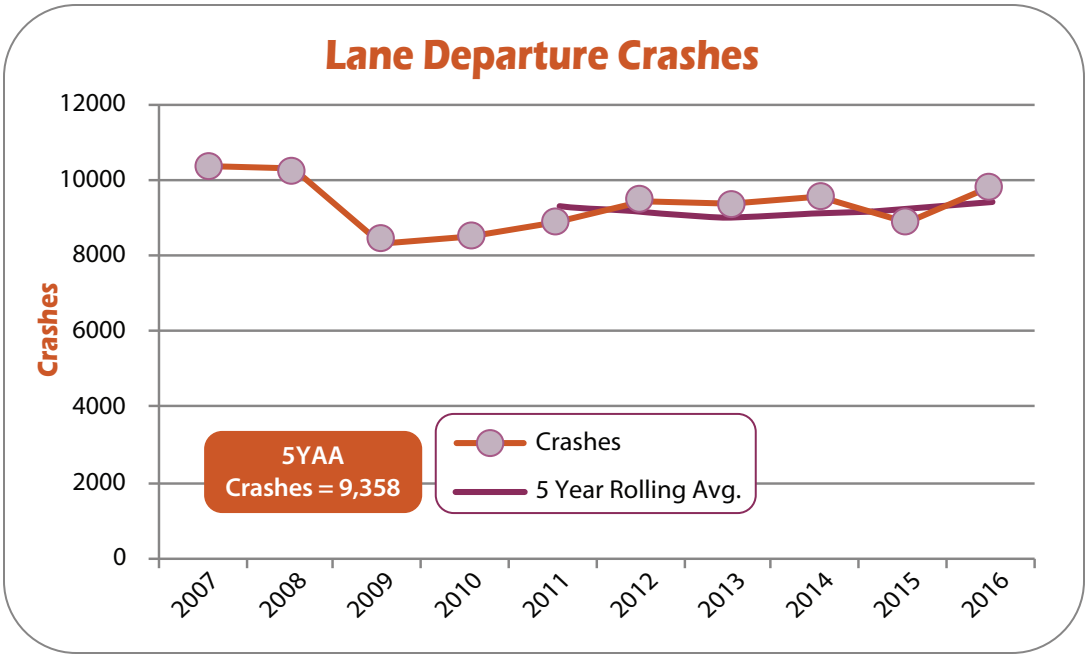
The first four performance measures are shared by MaineDOT, the Maine Bureau of Highway Safety, and Maine's four Metropolitan Planning Organizations (MPO). The fifth performance measure is a requirement for MaineDOT and the MPOs.

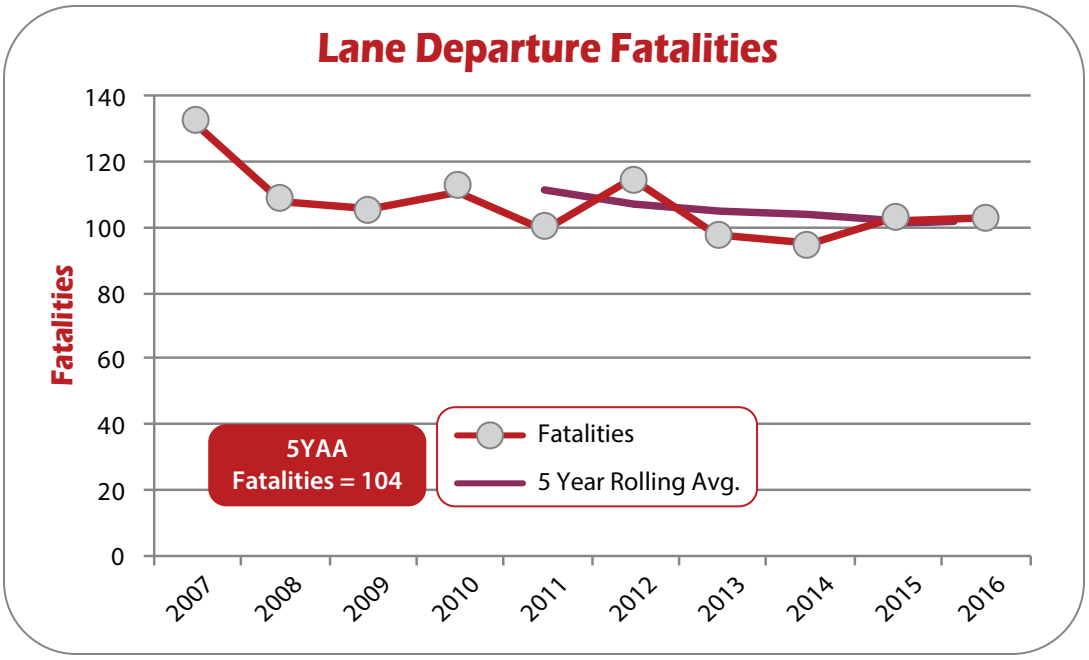
The Safety PM Final Rule also establishes the process for state departments of transportation and Metropolitan Planning Organizations to establish and report their safety targets. It also includes the process that FHWA will use to assess state DOTs' progress toward meeting their safety targets.

Together, these regulations will improve data; foster transparency and accountability; and allow safety progress to be tracked locally, statewide and at the national level. They will inform state DOTs' and MPOs' planning, programming, and decision-making for the greatest possible reduction in fatalities and serious injuries.

Safety performance targets will be set each year. Below are Maine's safety performance targets for 2018. With the recent trend of increasing fatalities, both in Maine and nationwide, our goal is to stabilize that trend and subsequently return to an overall reduction.

Maine 2018 Safety Performance Targets	5 YEAR AVERAGES	
	2016 Baseline	**2018** Target
Number of Fatalities	151.2	153.4
Number of Serious Injuries	832.4	763
Rate of Fatalities	1.04	1.03
Rate of Serious Injuries	5.71	5.12
Number of Non-Motorized Fatalities and Serious Injuries	91.2	90


Lane Departure Crashes
12000
10000
8000
6000
4000
2000
0
Crashes
5YAA
Crashes = 9,358
Crashes
5 Year Rolling Avg.
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016


Lane Departure Fatalities
140
120
100
80
60
40
20
0
Fatalities
5YAA
Fatalities = 104
Fatalities
5 Year Rolling Avg.
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

Lane Departure

Our Challenge

A lane departure crash occurs when a vehicle leaves its designated lane and is involved in either a head-on or went-off-road crash. The results are devastating, whether the vehicle collides head-on with an oncoming vehicle, slams into a fixed object, rolls over, or has some other severe impact.

Lane departure is Maine's most frequent fatal crash type.

- Lane departure (LD) crashes account for about 30% of Maine's crash total (5-year annual average).
- An average of 104 fatalities result from LD crashes. The percentage has remained relatively unchanged in the last 10 years, representing about 70% of Maine's total crash fatalities. About 33% of LD fatalities were head-on, and 67% were went-off-road.
- On Maine's highest priority corridors (that have the highest traffic volumes and posted speed limits over 45 miles per hour), head-on collisions are the deadliest crash type.
- LD crashes have high severity. A fatality occurs in five out of 1,000 crashes on average for all crash types. For went-off-road, the rate increases to eight fatalities out of 1,000 crashes. For head-on, the rate is 43 fatalities in every 1,000 crashes.
- 48% of LD fatalities were speed-related.
- Weather plays a role in Maine's LD crashes. On wintry road surfaces (snow, slush, ice), 3,700 LD crashes a year result in an average of 13 fatalities. On wet road surfaces, 1,121 crashes result in 13 fatalities annually.
- Most fatalities do NOT occur on major or interstate highways. 56% of LD fatalities occur on these non-major highway road classes: major collectors (25%), minor collectors (9%) and local roads (22%).
- One crash type that we included in lane departure is wrong way crashes. These occur on interstate roads when a driver uses the wrong direction, such as using an incorrect ramp. Worst case situations often occur when the driver is mentally or substance impaired.

Lane Departure Strategies

Identify and evaluate key corridors that experience the highest incidence of lane departure crashes.
This can be either on a spot or systemic basis.

- **Reasoning**: Incidents and/or specific crash clusters will be identified as priority candidates for improvement projects on key corridors.
- **Lead**: MaineDOT
- **Timing**: Ongoing

Reduce interstate head-on crashes by installing median cable guardrail (begun in 2009).

- **Reasoning**: Where narrow medians exist, (usually 50' wide or less) and median barriers do not currently exist, there is susceptibility for out-of-control vehicles to cross the median and head into the opposing, oncoming lane. This is dangerous and severe for all involved. Median cable barriers (or extended w-beam installations) can stop the crossing vehicle before it goes into oncoming lanes. The design of the tensioned cables also reduces the degree of impact compared to striking a rigid rail system. Both crash data and anecdotal reports following the initial installations have been positive.
- **Lead**: MaineDOT
- **Timing**: The first installation was completed on I-295 and Route 1, Brunswick in 2009. Most interstate installations are complete. Two remaining short sections were recently identified and have been added to MaineDOT's 2019 Work Plan - Interstate 95 in Fairfield, and Route 701 in Scarborough/South Portland.

Identify priority areas where edge line and center line rumble strips should be installed to reduce went-off-road and head-on crashes. Continue to identify additional corridors for treatment.

- **Reasoning**: At the close of 2014, Maine had about 55 miles of non-interstate rumble strips (mostly centerline). For 2015, about 90 miles more were added. In 2016, another 150 miles were added, and installation in future years will address many of the highest-volume, higher-speed roadways. Rumble strips have demonstrated both nationally, and here in Maine, that they are an effective mitigation to reduce head-on and went-off-road crashes. Collectively, corridors where centerline rumble strips have been installed have shown significant crash reduction. There are now over 300 miles of Maine highway that have rumble strips.
- **Lead**: MaineDOT
- **Timing**: Rumble strip projects are scheduled in each construction year through 2019.

Enhance speed and distracted driving enforcement by targeting high incidence locations.

- **Reasoning**: Major driver-contributing factors related to lane departure crashes are speed and distracted driving. Focused enforcement would have a direct benefit to reducing lane departure crashes and fatalities.
- **Lead**: State Police, sheriffs and municipal enforcement agencies
- **Timing**: Ongoing - high visibility

Merge "safety" thinking into MaineDOT project planning procedures through the use of road safety audits and corridor analysis to help prioritize future safety needs.

- **Reasoning**: Provides a coordinated, collective look at selected corridors and high crash locations to allow development of holistic, efficient and well-thought-out improvement plans.
- **Lead**: MaineDOT
- **Timing**: Ongoing through internal training/ communication

Wrong way crashes on the interstate are very infrequent, but when they occur, they often are devastating. They are difficult to classify, and for purposes of this strategic plan, will be treated as lane departure crashes. Wrong way occurrences often originate with vehicles taking an exit ramp to enter a highway. Misdirection also occurs when a driver misuses a median crossover or makes a U-turn within the lane's normal direction of travel. At times, drivers may be getting misunderstood cues from GPS or smart phone applications and turning prematurely. A pilot project with two types of a dynamic warning signs is being conducted on I-295, Freeport. MaineDOT will be addressing interstate ramps from various perspectives:

1. Review ramp locations for low-to mid-cost safety improvements that could include: pavement markings; improved sign installation; travel line striping for turning guidance; islands that prevent improper turns onto exit ramps; improved exit lighting; and raised or flush pavement markers. Camera monitoring has been used to assess driver behaviors and decision making.
2. Identify higher risk ramp locations and install flashing LED wrong way signs.
3. At select locations, install full monitoring dynamic wrong way systems that also send e-alerts and photos to key people to validate the entrance of a wrong way vehicle and provide appropriate response.

- **Reasoning**: High severity of resulting head-on crashes.
- **Lead**: MaineDOT and Maine State Police
- **Timing**: Ongoing. Select ramps that need mitigation including various levels of dynamic and/or high visibility signing are being considered.

Evaluate high friction surface treatments.

- **Reasoning**: There may be horizontal or vertical curves where basic loss of traction may be a contributing factor to a driver losing lane discipline. There are pavement treatments that can improve friction and thus improve safety at such locations. Maine may have limited opportunities in this area, but locations will be evaluated to determine if such a treatment could be beneficial. Pilot projects may be identified.
- **Lead**: MaineDOT
- **Timing**: Ongoing efforts for location

identification, mitigation, evaluation and implementation.

Integrate lane departure safety evaluations into MaineDOT's paving planning. Primarily look to identify low-cost items that could easily be addressed as part of a paving project without significantly changing the project scope.

- **Reasoning**: Better integration of safety into the ongoing work process can gain efficiencies and provide a more holistic and systemic approach in addressing corridor needs.
- **Lead**: MaineDOT
- **Timing**: Ongoing

Use safety edge treatment on key corridors to minimize sudden dropoffs and vehicle transition issues from the shoulder to the travel lane.

- **Reasoning**: Provides a potential solution to overcorrection issues.
- **Lead**: MaineDOT
- **Timing**: Currently being provided on priority corridors.

Went-Off-Road Crashes on curves represent another engineering focus. MaineDOT is undertaking an intense data study to identify the best systemic opportunities to address key exposures including specific curve risk factors and high nighttime crashes which are over-represented. Analysis of data can be accomplished through a number of tools.

1. Utilize a variety of safety mitigations such as advance warning signage, advisory speed signs, flashing beacons, curve markings on pavement, rumble strips in advance of curve, transverse lines in shoulders with decreasing spacing, edgelines to narrow lane width, guardrail post-mounted delineators and regular delineators at select locations.
2. Enhance delineation at select locations, such as pavement markings (durable, all-weather reflective striping, raised and recessed pavement markers, wider, more reflective, chevrons), LED barrier-mounted tubes and dynamic chevrons.
   - **Reasoning**: Provides clear driver cues to help motorists maintain lane discipline and make necessary speed adjustments.
   - **Lead**: MaineDOT
   - **Timing**: Ongoing at select locations

Improve clear zones in select sections of roads to provide added clearance from fixed objects such as trees, utility poles and ledge.

- **Reasoning**: Reduce hazards to vehicles that run off the road.
- **Lead**: MaineDOT
- **Timing**: Ongoing

Coordinate efforts of MaineDOT with local municipalities through continuing the Local Technical Assistance Program (LTAP) and other municipal outreach. The MaineDOT Local Roads Center helps communities identify safety needs and varied solutions, particularly those that are low cost. This includes sign replacement and training.

- **Reasoning**: Extends communication of needed strategies to a municipal audience for local road needs.
- **Lead**: MaineDOT
- **Timing**: Ongoing

Explore pavement markings and sign

enhancement opportunities at select locations, such as on critical curves that improve driver cues and bring about speed mitigation. Once best signing and striping opportunities are identified and added to the safety toolbox, criteria should be defined to determine locations that would benefit most. Good striping practices are important to enable vehicle lane departure warning technologies to signal lane deviation to the driver.

- **Reasoning**: To provide enhanced roadway cues to drivers.
- **Lead**: MaineDOT
- **Timing**: Ongoing

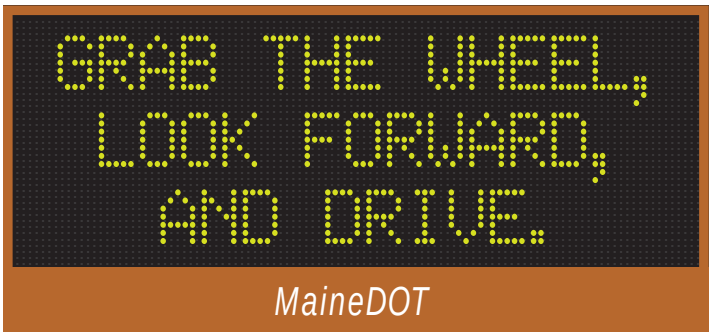
Behavior strategies – include lane departure messages in broader outreach and media efforts.

MaineDOT

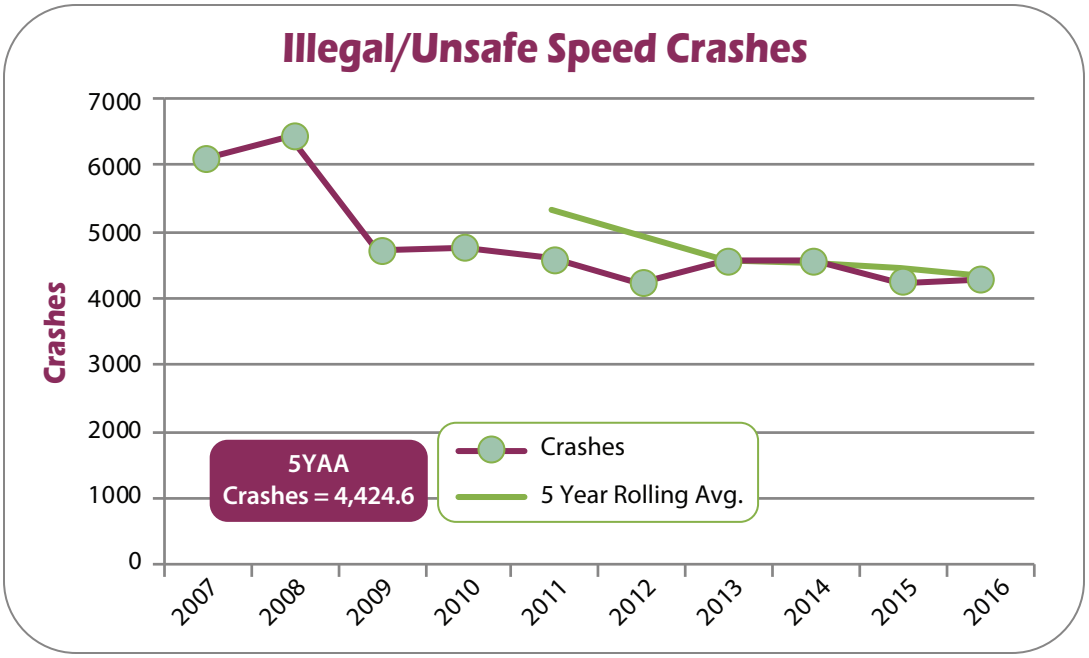
- **Reasoning**: LD crashes result from a wide range of driver behaviors. These behaviors (speed, impaired driving, fatigue, distractions and safety belt usage) contribute to LD issues and severity of crash injuries. Initiatives to engage the driving public and create change will need to be a partnered, ongoing effort. This includes safety messaging on changeable message signs (CMS). MaineDOT is currently upgrading CMS on the interstate.
- **Lead**: **Cooperative efforts with all agencies as opportunities are identified.**
- **Timing**: Ongoing

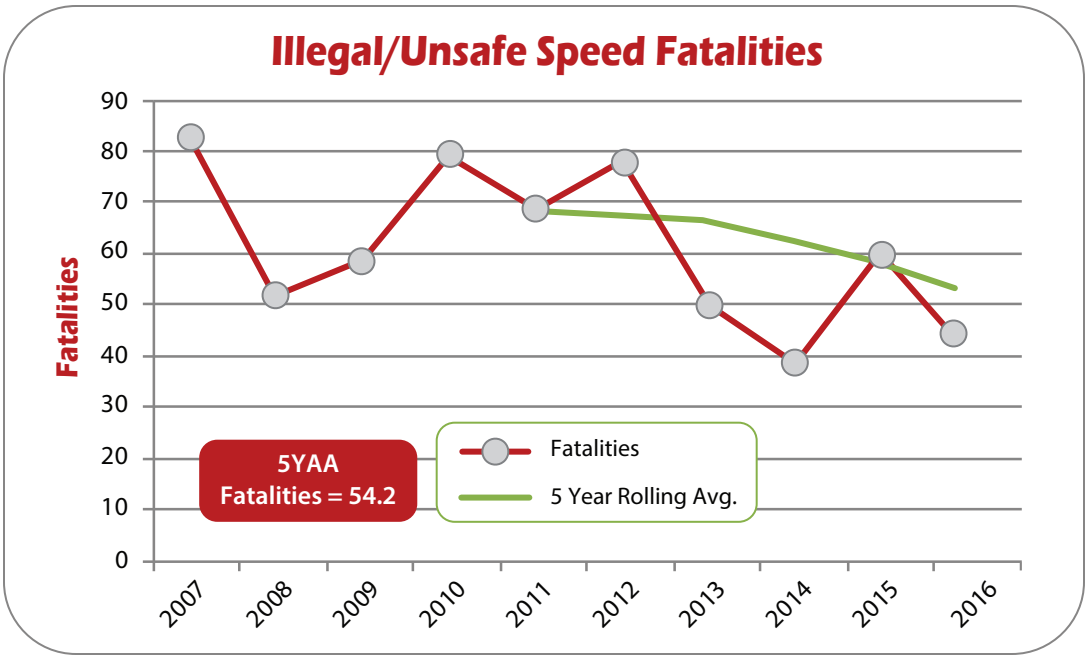
Continue review of guardrail and end treatment safety performance. Update MaineDOT policies, qualified products list, and installations as needed.

- **Reasoning**: Maintain guardrail systems up to safe operating standards.
- **Lead**: MaineDOT
- **Timing**: Ongoing



MaineDOT


Illegal/Unsafe Speed Crashes
Crashes
7000
6000
5000
4000
3000
2000
1000
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Crashes = 4,424.6
Crashes
5 Year Rolling Avg.


Illegal/Unsafe Speed Fatalities
Fatalities
90
80
70
60
50
40
30
20
10
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Fatalities = 54.2
Fatalities
5 Year Rolling Avg.

Illegal/Unsafe Speed

Our Challenge

Speed is cited as a factor in an average of 4,400 crashes a year. Speed is the leading cause of fatal crashes in Maine.

Speed is a great concern because it frequently leads to other driver errors and results in serious injury crashes. Speed limits are designed for drivers to safely maneuver the roads and provide sufficient time to stop if there is an unexpected event. Furthermore, the dangers associated with speeding are compounded by winter driving conditions. Failure to adjust speed for weather-related road conditions contributes to a significant number of crashes.

Speed-related crashes account for 14% of total crashes, 27% of all serious injuries and 34% of total fatalities. Adjusting speed for weather-related road conditions is a problem. Unsafe speed was noted annually in 3,000 crashes on snowy, slushy or icy road surfaces, and another 500 occurred on wet road surfaces.

Illegal/Unsafe Speed Strategies

Enhance speed enforcement efforts by targeting high incident locations. These locations can be determined by crashes, citations/warnings for speed, complaints, and speed data recorders. This includes Maine State Police troops and the air wing unit conducting Strategic Area Focused Enforcement (SAFE) and dedicated speed details in high crash locations. This is a data-driven approach to statewide speed enforcement by eight troops of the Maine State Police.

- **Lead**: **State/municipal law enforcement, Department of Public Safety (DPS)**
- **Timing**: Ongoing

Conduct a data-driven speed enforcement campaign. A speed campaign focuses on decreasing the speed-related crashes by partnering with municipal law enforcement in select areas.

- **Reasoning**: Focusing enforcement efforts in the areas of greatest concern will allow Maine to make the most significant difference in speed-related crashes.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: Ongoing

Continue to produce public service announcements via television, web, radio, and newspapers for speed-related issues and their effect on public safety.

- **Lead**: **BHS/Department of Public Safety**
- **Timing**: Ongoing

Utilize portable dynamic speed feedback trailers and portable post-mounted speed feedback signs to provide drivers travel speed information. Use of these tools will be coordinated with communities and municipal law enforcement agencies. The recorded radar data can be used by police agencies to determine best days/times for enforcement opportunities.

- **Reasoning**: To influence speed reduction and traffic calming.
- **Lead**: **MaineDOT working with police departments and cities/towns.**
- **Timing**: Ongoing

Identify opportunities where enhanced advance warning and flagger paddle signing can be used.

- **Reasoning**: Although fines are doubled in highway construction work zones, excessive speed is still an issue.
- **Lead**: **MaineDOT**
- **Timing**: Ongoing

Utilize changeable message signs to reinforce focused speed enforcement campaigns.

- **Reasoning**: To better coordinate public safety awareness campaigns.
- **Lead**: **MaineDOT and the Bureau of Highway Safety**
- **Timing**: Ongoing

Municipal and county speed enforcement. This is a data-driven approach to encourage law enforcement agencies to enforce speed limits in their jurisdiction. Selected agencies will be funded to procure speed measuring equipment (radar and/or data collection devices) to support their speed enforcement efforts.

- **Reasoning**: To focus speed enforcement efforts where they will have the most benefit
- **Lead**: **Bureau of Highway Safety**
- **Timing**: Ongoing

Provide LED speed limit signs where there are reductions in posted speed limits on limited highways.

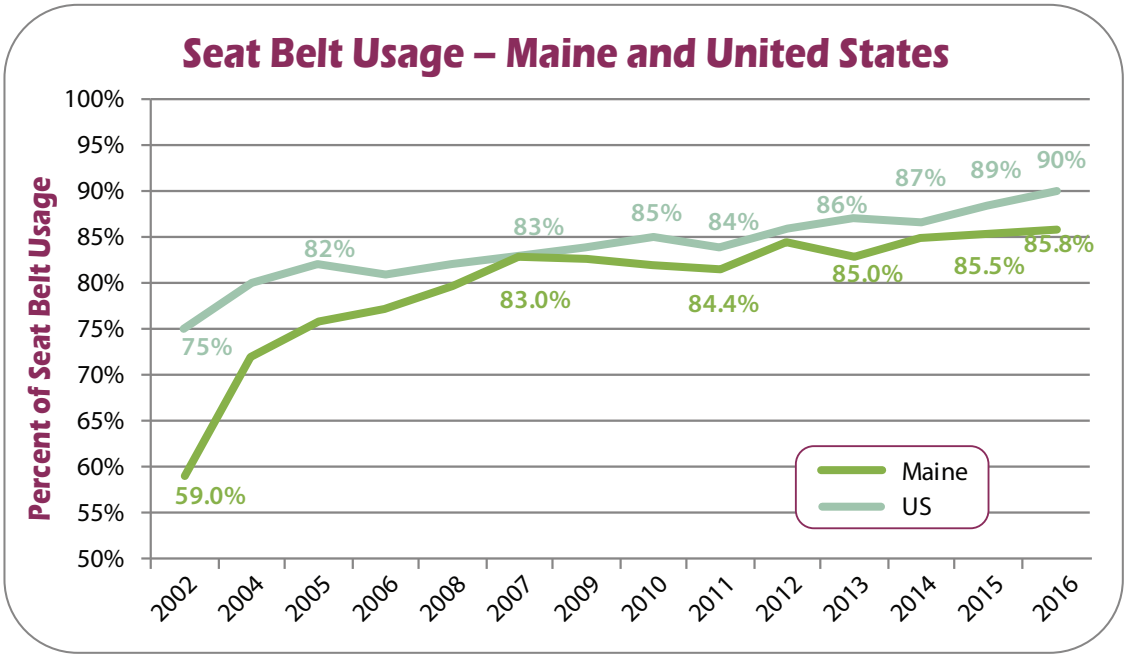
- **Reasoning**: Alert drivers to reduced speed sections of roadway.
- **Lead**: **MaineDOT**
- **Timing**: Ongoing

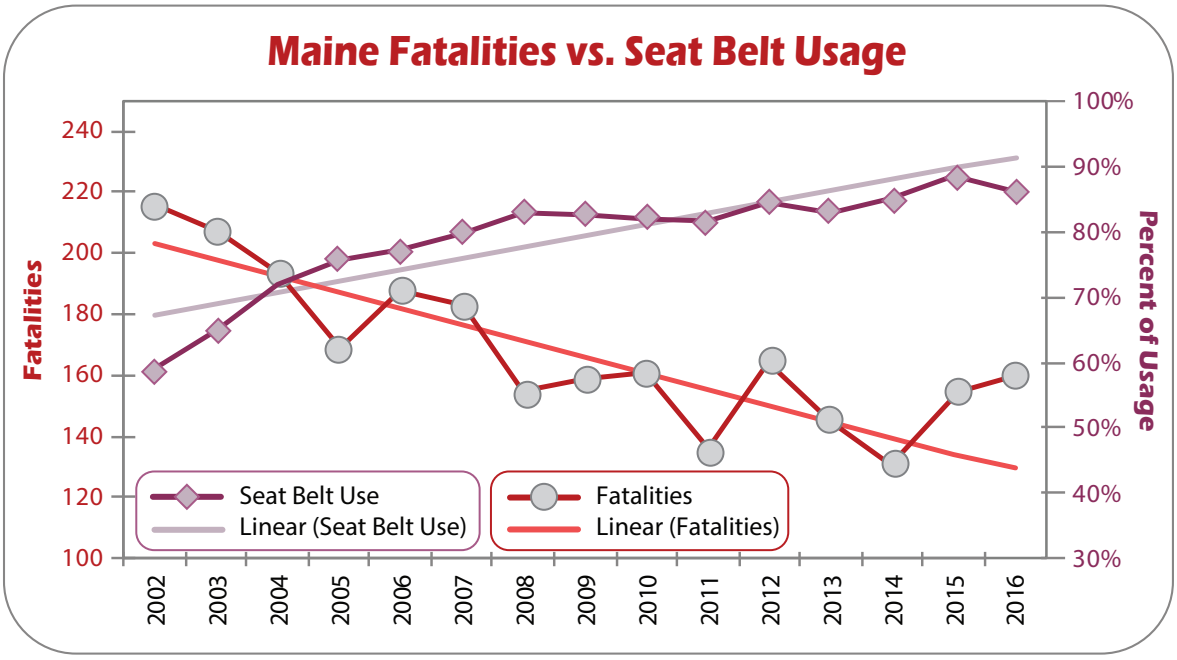
Include traffic-calming features in road design at select locations to encourage vehicle speeds at desired levels.

- **Reasoning**: To provide physical cues to traffic to reduce travel speed.
- **Lead**: **MaineDOT**
- **Timing**: Ongoing

Utilize portable rumble strips at select high speed/ high volume work zone locations.

- **Reasoning**: To slow traffic and help alert drivers to stay focused on the road and watch out for workers.
- **Lead**: **MaineDOT and Maine Turnpike Authority**
- **Timing**: Ongoing


Seat Belt Usage – Maine and United States
Percent of Seat Belt Usage
100%
95%
90%
85%
80%
75%
70%
65%
60%
55%
50%
2002
2004
2005
2006
2008
2007
2009
2010
2011
2012
2013
2014
2015
2016
59.0%
75%
82%
83.0%
83%
85%
84.4%
84%
85.0%
86%
85.5%
87%
89%
85.8%
90%
Maine
US


Maine Fatalities vs. Seat Belt Usage
Fatalities
240
220
200
180
160
140
120
100
Percent of Usage
100%
90%
80%
70%
60%
50%
40%
30%
2002
2003
2004
2005
2006
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
Seat Belt Use
Linear (Seat Belt Use)
Fatalities
Linear (Fatalities)

Seat Belt Usage

Our Challenge

Maine's primary seat belt law has gained more compliance, but many unbelted fatalities still occur. Maine's seat belt usage rate of 85.8% in 2016 has increased slightly compared to recent levels. The rate is slightly below the national average of 90%. Maine's usage rate has steadily increased since 2002. Not using seat belts does impact the fatality results in some of the other crash topic sections.

The charts show that as Maine's seat belt use has increased, the number of unbelted fatalities has decreased.

In 2013, there were 56 unbelted fatalities in passenger vehicles. This is 42.7% of the 117 passenger motor vehicle crash fatalities (does not include large trucks, pedestrians, bicycles, motorcycles, ATVs, etc.). This strategy also includes improved/increased/proper use of child car seats.

Safety Belt Strategies

Participate in the "Click It or Ticket" high visibility enforcement campaigns. MeBHS has seen an increase in the number of law enforcement departments participating in the "Click It or Ticket" enforcement campaign. However, unbelted fatalities continue to be a problem. Maine averaged 62 unbelted fatalities a year from 2012-2016.

- **Reasoning**: Encourage increased use of safety belts by drivers and passengers.
- **Lead**: **Bureau of Highway Safety and law enforcement agencies**
- **Timing**: Ongoing

Maine State Police TOPAZ Team strives to increase seat belt compliance and decrease unrestrained fatalities. The Maine State Police Targeted Occupant Protection Awareness Zone (TOPAZ) project is planned to sustain enforcement. The TOPAZ team is made up of troopers focused on seat belt enforcement in zones with the highest unbelted fatalities. MeBHS, through observational study data, can determine where the unbelted driving is occurring and when it tends to occur. The MSP TOPAZ team will work on targeted days and times, and will focus on those most prone to driving unbuckled.

- **Reasoning**: To provide data-driven focused seat belt enforcement.
- **Lead**: **Bureau of Highway Safety and Maine State Police**
- **Timing**: Ongoing

Child Passenger Safety Technician and Instructor Training for training and certification of new Child Passenger Safety (CPS) technicians and recertification for those with expired credentials. This will include classes for special needs restraints and busing restraints.

- **Reasoning**: To assure that instructors statewide are up to date on their credentials.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: Ongoing

Child Passenger Safety Basic Awareness Training will be delivered to licensed childcare providers, transporters, and law enforcement officials. This updated training will ensure that young passengers are properly restrained during transit by caregivers.

- **Reasoning**: Provide training to caregivers responsible for transporting those in child seats.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: Ongoing

Conduct periodic observational seat belt survey and child occupant seat belt survey.

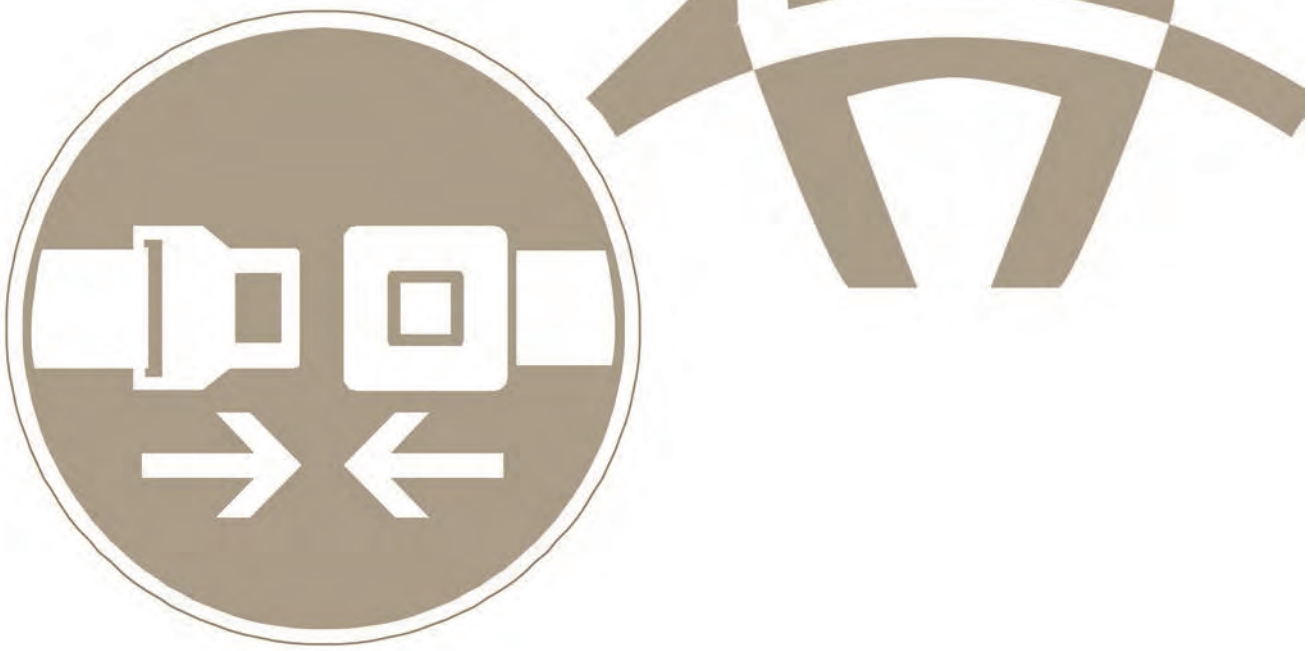
- **Reasoning**: Assess seat belt usage progress and identify future outreach needs.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: Ongoing

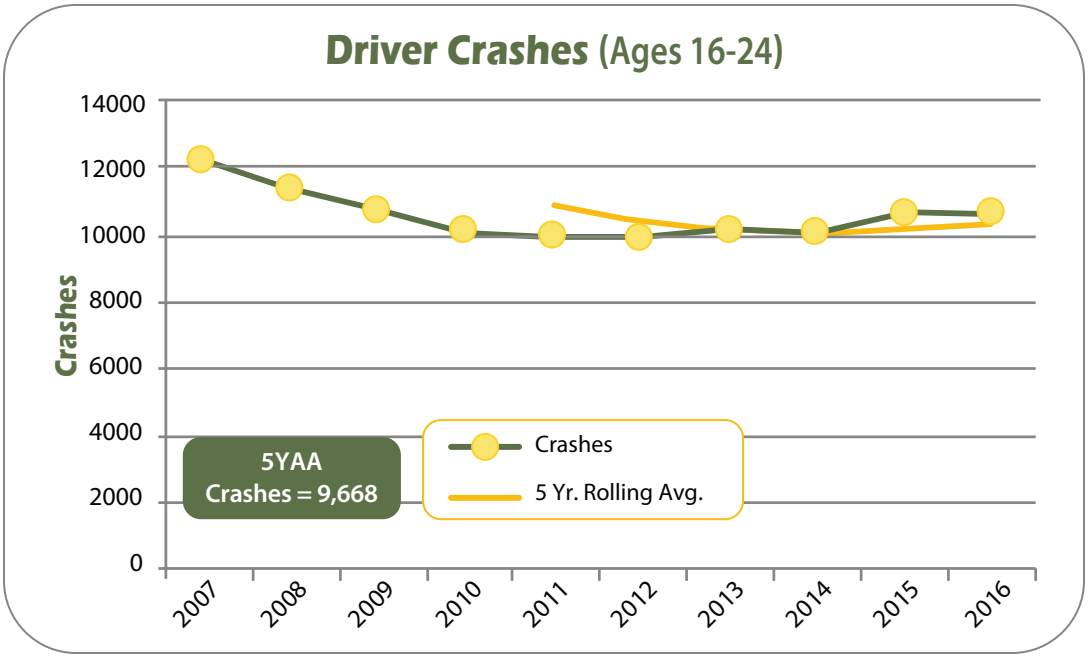
Utilize changeable message signs to reinforce "Buckle Up - No Excuses" and other focused safety belt enforcement campaigns.

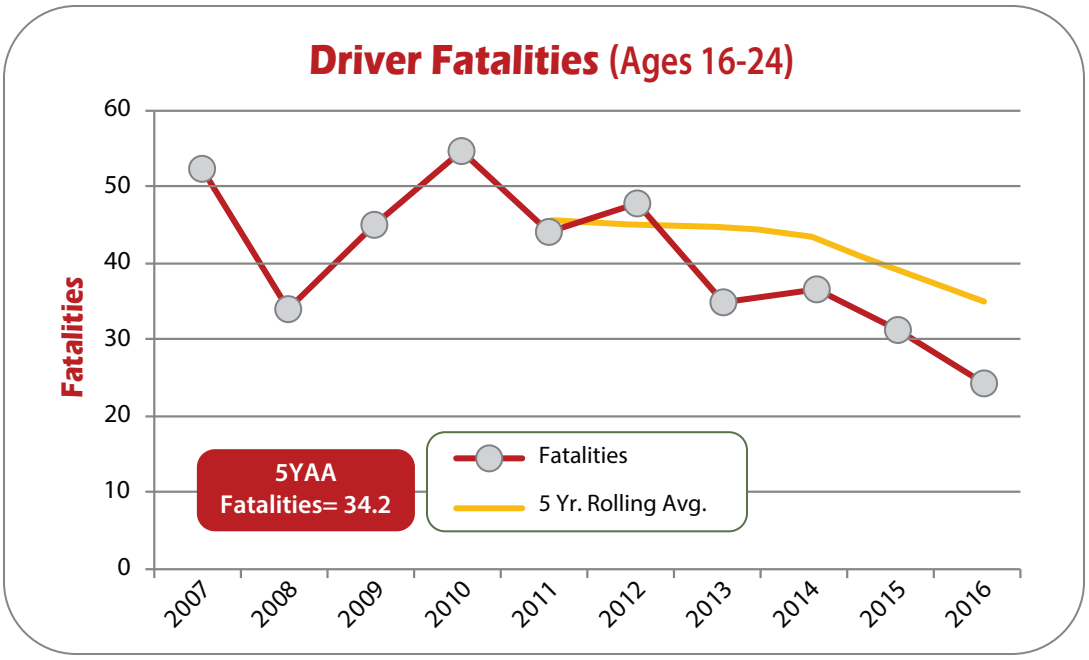
- **Reasoning**: To better coordinate public safety awareness campaigns.
- **Lead**: **MaineDOT and Bureau of Highway Safety**
- **Timing**: Ongoing

Utilize the seat belt convincer unit to educate young vehicle occupants on the importance of seat belt use.

- **Reasoning**: Increase seat belt use among younger travelers.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: Ongoing




Driver Crashes (Ages 16-24)
Crashes
14000
12000
10000
8000
6000
4000
2000
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Crashes = 9,668
Crashes
5 Yr. Rolling Avg.


Driver Fatalities (Ages 16-24)
Fatalities
60
50
40
30
20
10
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Fatalities= 34.2
Fatalities
5 Yr. Rolling Avg.

Younger Drivers

Our Challenge

Younger drivers are defined here as those between the ages of 16 and 24. The youngest of those drivers, aged 16 to 18, have safety vulnerabilities due to driving inexperience and other factors. The next age tier of young drivers, while slightly more experienced, may also be subject to risk taking, and at age 21, can legally consume alcohol. This latter age group has seen significant increases in deadly crash experience in recent years.

Overall, younger drivers have a much higher crash and fatality rate than the average driver.

The good news is that crashes have declined slightly, but so has the population of younger drivers. Of the total Maine traffic deaths, 25% involve younger drivers.

From the 2011 Youth Risk Behavior Survey, here are some teen driver safety findings:

- 7.7% of students rarely or never wore a seat belt when riding in a car driven by someone else. Maine had an 8.4% rate.
- During the 30 days before the survey, 24.1% of students had ridden one or more times in a car driven by someone who had been drinking alcohol.
- 8.4% rarely or never wore a seat belt when driven by someone else.

The Maine Young Driver Safety Committee (YDSC) includes Public Safety, Transportation, Health and Human Services, Bureau of Motor Vehicles and organizations such as Northern New England AAA. The committee developed a Teen Driver Safety Strategic Plan. The plan is intended to be one component of a comprehensive, community-based effort to address teen driver safety issues.

Younger Driver Strategies

Methods to increase the safety of teen drivers and their teenage passengers are greatly needed and vigorously sought. Graduated Driver Licensing (GDL) is being continually evaluated and enhanced. Overall, it is considered effective.

- **Reasoning**: To establish guidelines where young new drivers can get training and supervised road time before driving independently.
- **Lead: Bureau of Highway Safety & Bureau of Motor Vehicles**
- **Timing**: Ongoing.

Integrate a diversity of partners and stakeholders to participate in the Young Driver Safety Committee (YDSC) activities.

- Include partners and stakeholders to advocate and implement the YDSC strategic plan.
- Create a fact sheet describing the work of the YDSC.
- Provide partners and stakeholders with the most current research and evidence-based young driver safety-focused programs.
- Collect and distribute related crash data involving young drivers to educate audiences that can influence this driver segment.
- Create a Maine-focused young driver safety awareness toolkit for use and distribution at the local and state levels.
- Create an evaluation plan for the use of the YDSC awareness toolkit.

Increase parental involvement in developing a safe teen driver program. Provide parent-focused education regarding teen driver issues.

Topics:

- Current graduated driver's license and state laws.
- Modeling good driving habits.
- Setting rules and consequences for actions.
- Monitoring teen driver behaviors and activities:
  1. Brainstorm various venues to promote parent education.
  2. Create parent-based website to include information listed previously.
  3. Create fact sheets on the issues identified previously.

Develop an interactive teen driver awareness outreach program. This program would be delivered to middle and high schools throughout the state. By using a blend of social media, and technology, this interactive program provides state-specific information on rules and regulations to help teen drivers make good choices while driving. The seat belt convincer unit and driving simulator are tools that can be used as part of this outreach.

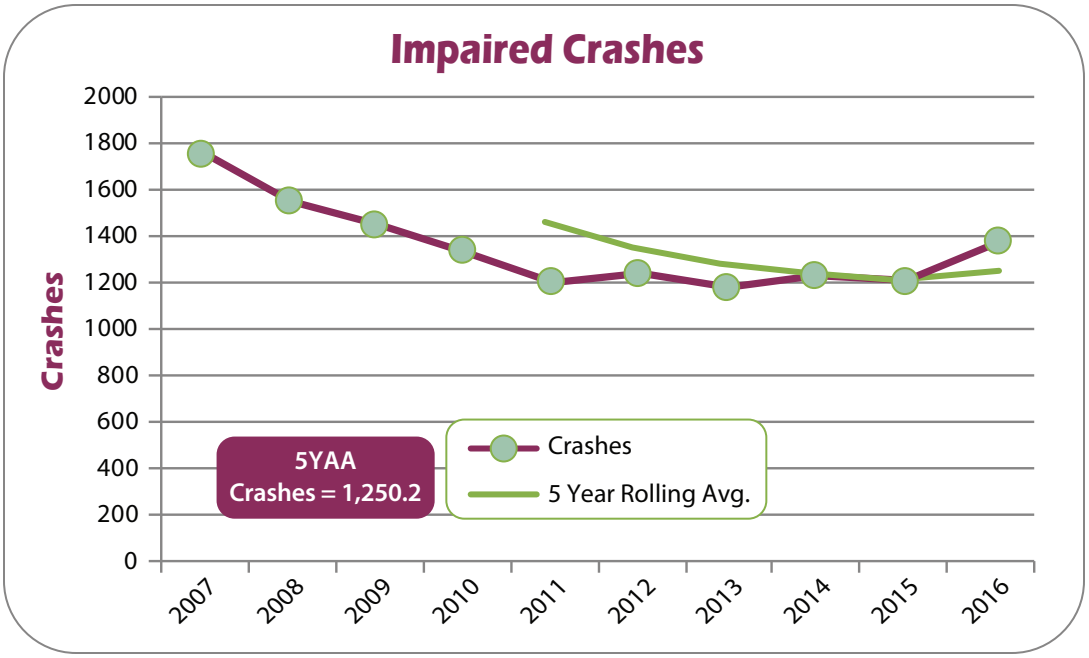
- **Reasoning**: Connect young people and their influencers with factual information related to the dangers that surround driving.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: Ongoing

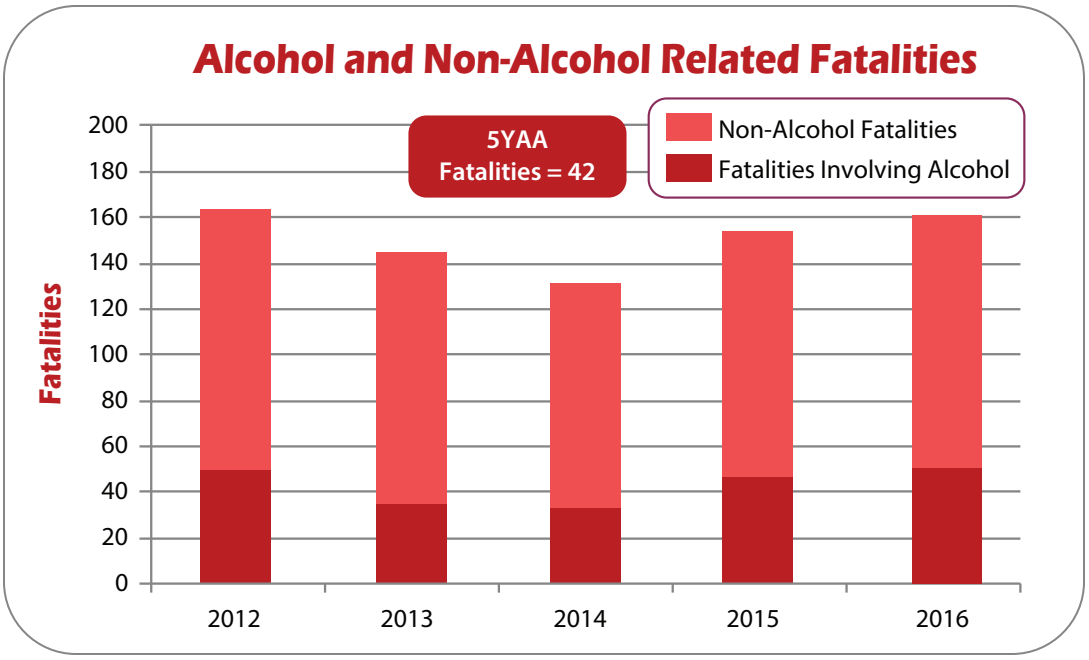
Host periodic Young Driver Expos. AAA of Northern New England leads this activity in conjunction with their Dare to Prepare program. The Teen Driver Expo and Dare to Prepare program provide education for young drivers, pre-drivers and parents. National speakers and presenters are sought to discuss and demonstrate topics that appeal to and influence teens and impress upon them the importance of making good driving choices.

- **Reasoning**: To engage young drivers and their parents on how to keep young drivers safe.
- **Lead**: AAA of Northern New England
- **Timing**: Ongoing

Driver education student and parent presentation. Maine State Police will work with driver education classes, statewide, to provide a standardized presentation or video. This will be done during the one hour segment when the state requires parents to participate in their child's driver education. The presentation will focus on topics that affect young drivers, trying to reduce fatalities by focusing on safety issues.

- **Reasoning**: To engage young drivers and their parents on how to keep young drivers safe.
- **Lead**: Maine State Police
- **Timing**: Ongoing


Impaired Crashes
Crashes
2000
1800
1600
1400
1200
1000
800
600
400
200
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Crashes = 1,250.2
Crashes
5 Year Rolling Avg.


Alcohol and Non-Alcohol Related Fatalities
Fatalities
200
180
160
140
120
100
80
60
40
20
0
2012
2013
2014
2015
2016
5YAA
Fatalities = 42
Non-Alcohol Fatalities
Fatalities Involving Alcohol

Impaired Driving

Our Challenge

Maine's alcohol-related fatalities were 60% of the total fatalities during the mid-1970's to 1980. This improved to a level of around 20% between 2002/2003.

The percent of alcohol-related fatalities has risen to about 28% since 2002/2003.

Maine is equal to the Fatality Analysis Reporting System's national rate of 28% as reported in 2015. This strategic focus area also includes attention to drug-related issues, which will include marijuana with Maine's recreational legalization of that substance in 2017. Presence of other drugs in drivers obviously presents safety concerns as well.

Impaired Driving Strategies

Increase public awareness of drug-impaired driving through media campaigns, press releases and signage.

- **Reasoning**: Public awareness may reduce the incidence of drug-impaired driving, and may increase the public's reporting of impaired drivers to law enforcement.
- **Lead**: **Maine State Police, MaineDOT, Maine Turnpike Authority, Bureau of Highway Safety and municipal law enforcement**
- **Timing**: Ongoing

Regional Impaired Driving Task Force Teams for enforcement efforts by the Cumberland County, Hancock County, Penobscot County, Sagadahoc County and York County Regional Impaired Driving Enforcement (RIDE) teams. The regional teams will conduct numerous saturation patrols and sobriety checkpoints in selected locations throughout their jurisdictions.

- **Reasoning**: Focus enforcement in key areas.
- **Lead**: **Bureau of Highway Safety and selected sheriff's offices**
- **Timing**: Ongoing

State Police Impaired Driving Reduction Enforcement Team (SPIDRE) for enforcement efforts by the Maine State Police. The statewide team will conduct numerous saturation patrols and sobriety checkpoints in selected locations throughout the state. The team will also be assisting municipal and county agencies at joint impaired driving checkpoints.

- **Reasoning**: Focus enforcement in key areas.
- **Lead**: **Bureau of Highway Safety and the Maine State Police**
- **Timing**: Ongoing

Continued use of a breath alcohol testing vehicle. This mobile command unit will assist Maine law enforcement in their efforts to combat impaired driving. This mobile unit will work with the SPIDRE and RIDE Teams as well as assisting other LEAs.

- **Reasoning**: Assist law enforcement in impaired driving work.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: Ongoing

Provide Impaired Driving Enforcement Campaigns to encourage participation in enforcement details and checkpoints including those that support the NHTSA national campaigns. The Drive Sober Maine campaign was designed to further combat the impaired driving problem outside of the two-week national campaign(s). Agencies in the counties with the highest alcohol-related crashes may receive larger grant awards.

- **Reasoning**: Provide focused enforcement.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: Ongoing

Provide specialized law enforcement training. Funds will support specialized training, travel and materials for state, municipal, and county law enforcement. Training would include standardized field sobriety testing, Advanced Roadside Impaired Driving Enforcement (ARIDE), drug recognition, and blood draws in the campaign against driving under the influence of drugs and alcohol. The number of drug recognition experts (DREs) in the state has declined over the last couple of years. At one point, there were 120 DREs in the state, but currently there are approximately 108.

This drop can be attributed to the proficiency test requirements. In some jurisdictions, officers are not often called upon to perform a DRE function, which makes it difficult for them to meet the requirement.

- **Reasoning**: Enhance and expand impaired enforcement capabilities with additional Drug Recognition Expert classes.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: Initiate in late winter 2018

Conduct Maine Periodic Impaired Driving Summits to increase awareness of the growing issue of drug impaired driving. Maine has hosted previous successful summits. Impaired Driving Summits are attended by over 200 people. Several out-of-state national speakers present at the conference.

- **Reasoning**: Educate and elevate awareness of drugged driving issues.
- **Lead**: **Bureau of Highway Safety and AAA**
- **Timing**: 2018

Establish a Judicial Outreach Liaison (JOL) to be responsible in developing a network of contacts with judges and judicial educators to promote judicial education related to sentencing and supervision of DWI offenders, court trial issues and alcohol/drug testing and monitoring technology. In addition, the JOL makes presentations at meetings, conferences, workshops, media events and other gatherings that focus on impaired driving and other traffic safety programs.

- **Reasoning**: To identify barriers that hamper effective training, education or outreach to the courts and recommend alternative means to address these issues and concerns.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: 2018

Provide blood drug testing. According to the National Highway Traffic Safety Administration's 2007 National Roadside Survey, more than 16 % of weekend/nighttime drivers tested positive for illegal, prescription or over-the-counter drugs. More than 11% tested positive for illicit drugs. This will allow Maine to test blood for drugs and gather data to assist us with our efforts to decrease impaired driving crashes and fatalities.

- **Reasoning**: Maine has been identified as being deficient in testing blood for drugs in deceased and alive drivers involved in a fatal crash.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: 2018

Continue law enforcement training in Advanced Roadside Impaired Driving Enforcement (ARIDE). The Enforcing Underage Drinking Laws (EUDL) taskforce is creating a guide and training on how to use media to complement law enforcement efforts.

- **Reasoning**: Train law enforcement officers to better recognize signs and symptoms of alcohol and drug impairment.
- **Lead**: **Maine Criminal Justice Academy**
- **Timing:** Ongoing

Training software development through NHTSA for standardized online training.

- **Reasoning**: Officers who were trained in earlier, outdated Standard Field Sobriety Testing (SFST) models need easy access to receive the most current training and the ability to refresh their training on a regular basis. Justice Planning and Management Associates (JPMA) currently produces the online mandatory training for the Maine Criminal Justice Academy.
- **Lead**: **NHTSA is developing software**
- **Timing**: 2018

Traffic Safety Resource Prosecutor (TSRP) to facilitate a coordinated, multidisciplinary approach to the prosecution of traffic crimes with a strong focus on impaired driving. Tasks include assisting Maine law enforcement, prosecutors, motor vehicle hearings examiners, DHHS lab technicians, and other state agencies with training, investigation and prosecution of traffic safety and impaired driving-related crimes. The TRSP will also assist with the implementation and coordination of the Impaired Driving Special Prosecutors (IDSPs) within selected prosecutorial districts in Maine. The TSRP is encouraged by NHTSA and has proven to be effective in the fight against impaired driving.

- **Reasoning**: Provides a specialized resource to assist prosecutors to prepare for trial, and even assist in prosecution of serious impaired driving cases.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: Ongoing.

Impaired Driving Special Prosecutors (IDSP) for Maine's five most populous counties.

- **Reasoning:** Prosecutors who have received advanced training are able to provide expert traffic safety-related prosecution to selected Maine district attorney offices. The IDSP communicates regularly with Maine's TSRP to promote standardized law enforcement investigation and prosecution of OUI.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: Ongoing

Note: Given challenges related to medicinal marijuana use, provide training/technical assistance for law enforcement around marijuana-specific impaired driving.

Law enforcement phlebotomy technicians will assist law enforcement in establishing blood alcohol and/or drug concentrations in impaired driving suspects.

- **Reasoning**: Due to recent Supreme Court rulings and the position of Maine hospitals, blood draws are problematic for law enforcement. To address this, selected qualified police officers are being trained to draw blood for evidence in OUI investigations. Blood evidence is imperative in our effort to combat drugged driving.
- **Lead**: **Bureau of Highway Safety and selected police and sheriff agencies**
- **Timing**: Ongoing

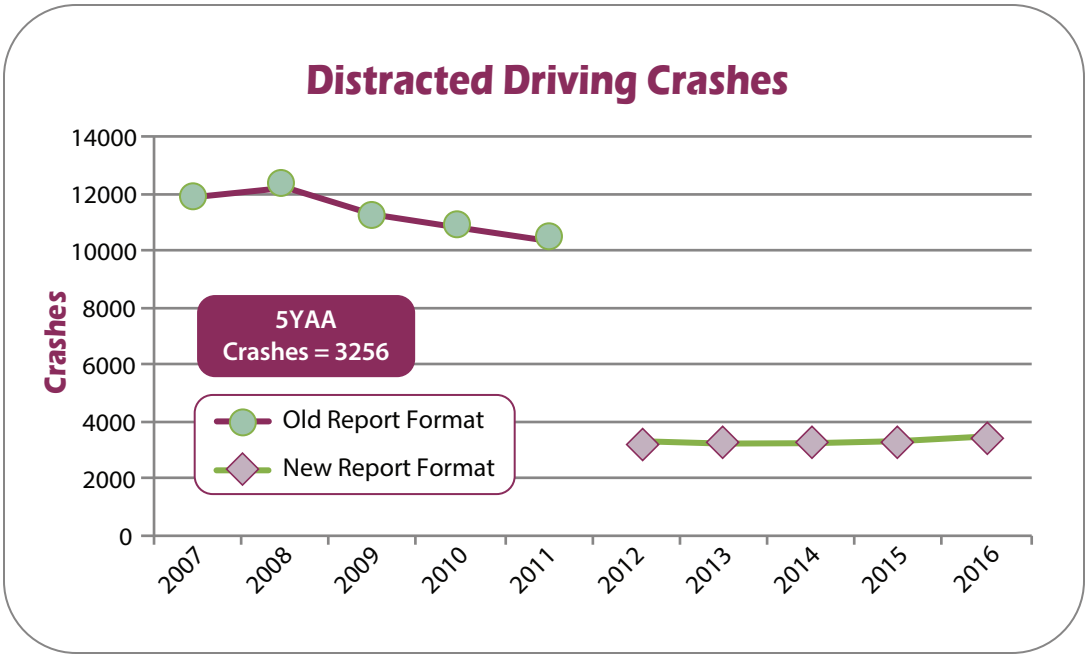
Provide for specialized law enforcement training and supplies necessary to detect, apprehend, and prosecute motorists suspected of operating under the influence of alcohol and/or drugs. The Maine Impaired Driving Task Force has identified that a best practice methodology for OUI investigation dictates a three-pronged approach:

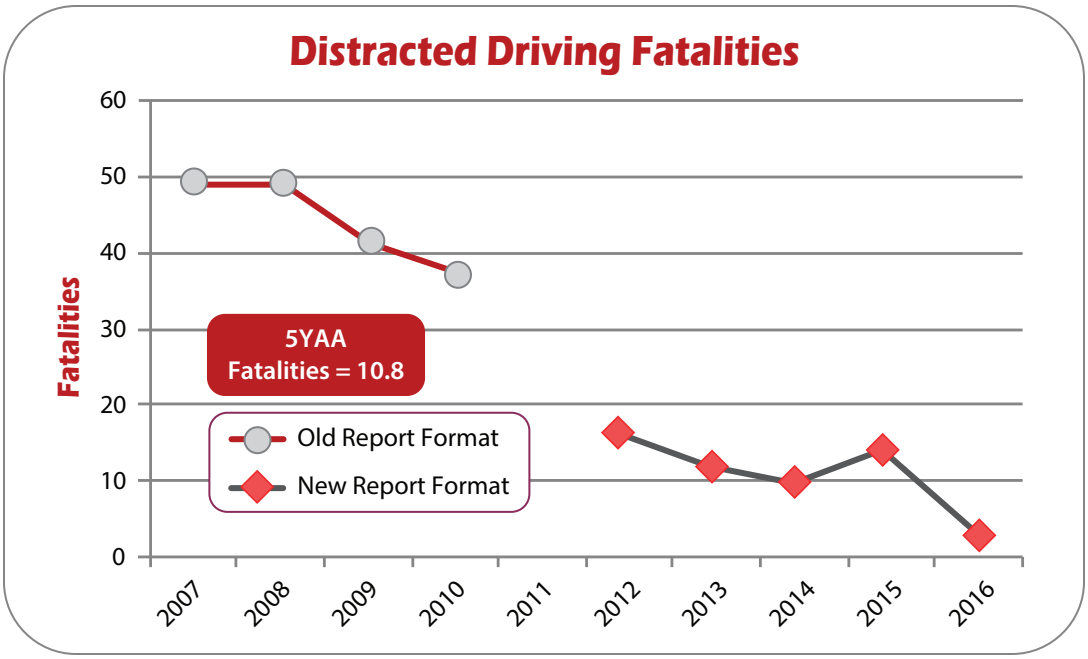
1. The NHTSA approved curriculum in Standardized Field Sobriety Testing which is mandatory for all new police officers trained at the Maine Criminal Justice Academy's Basic Law Enforcement Training Program;
2. the Advanced Roadside Impairment Driving Enforcement program offered to experienced patrol officers who desire better awareness of OUI drug cases; and
3. the Drug Recognition Expert program for those police officers who excel in OUI enforcement.

- **Reasoning**: To provide necessary ongoing training to detect, apprehend, and prosecute impaired motorists.
- **Lead**: **Bureau of Highway Safety and Maine State Police**
- **Timing**: Ongoing

The Impaired Driving Task Force shall meet to discuss impaired driving-related concerns and recommend long-term strategy solutions. Many of the previously mentioned programs have resulted from these meetings. This task force comprises law enforcement, prosecutors, MeBHS, the Maine Criminal Justice Academy and the Maine Bureau Motor Vehicles.

- **Reasoning**: To recommend long-term impaired driving strategy solutions.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: Ongoing


Distracted Driving Crashes
Crashes
14000
12000
10000
8000
6000
4000
2000
0
5YAA
Crashes = 3256
Old Report Format
New Report Format
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016


Distracted Driving Fatalities
Fatalities
60
50
40
30
20
10
0
5YAA
Fatalities = 10.8
Old Report Format
New Report Format
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

Distracted Driving

Our Challenge

While vehicles and highways have never been safer, crashes and fatalities continue to climb.

In recent years, we have experienced a significant spike in car crashes and fatalities – greater than any other two-year increase in half a century. With 94% of crashes being the direct result of driver behavior, there is little doubt that distracted driving is a significant factor.

The proliferation of smartphone use while driving has been identified as a significant catalyst for the increase. However, direct correlating data is hard to come by. The first landmark study of cell phone related crash risk was completed in 1997 and showed a quadrupled risk for those driving while using a cellphone.

Many motorist have the "do as I say, not as I do" mentality when it comes to cellphone use while driving. Drivers know that texting and driving is a dangerous behavior, but many continue to do it. Many claim they are good at it, and others try to text only at a red light. Texting and driving is dangerous and now rivals impaired driving as the number one traffic safety concern in the United States. Texting, emailing, browsing or otherwise interacting with social media has become commonplace on our highways. Safety advocates and insurance companies are seeking ways to curb this deadly and costly behavior.

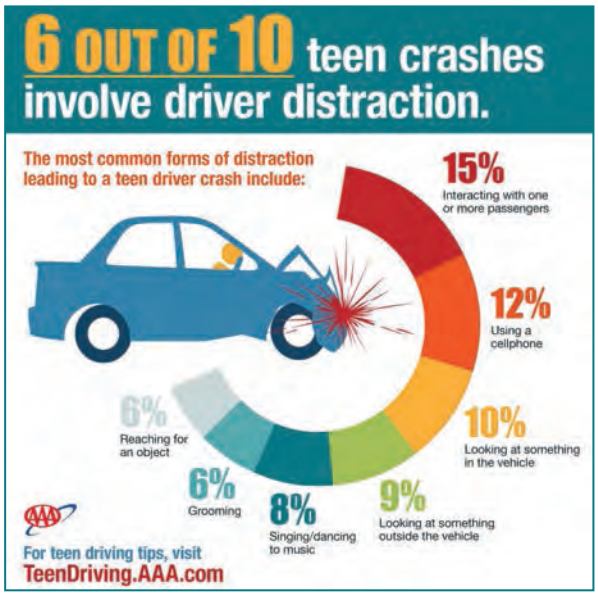
NHTSA estimated in 2012 that distraction was a factor in roughly 10% of all fatal motor vehicle crashes and 18% of all crashes causing injury. The exact toll is unknown because investigators often have difficulty measuring the extent to which driver distraction is a contributing factor in a crash. Methods of reporting are improving, but current estimates likely underestimate how frequently distraction causes crashes.

Young drivers are particularly susceptible to engaging in distracting behaviors.

A 2015 AAA Foundation for Traffic Safety study on teen driver distraction revealed that distraction was a factor in 58% of all crashes studied, including 89% of road-departure crashes and 76% of rear-end crashes. NHTSA previously has estimated that distraction is a factor in only 14 percent of all teen driver crashes.

The most common forms of distraction leading up to a crash by a teen driver included:

- Interacting with one or more passengers: **15% of crashes**
- Cell phone use: **12% of crashes**
- Looking at something in the vehicle: **10% of crashes**
- Looking at something outside the vehicle: **9% of crashes**
- Singing/moving to music: **8% of crashes**



With evolving vehicle technology and "hands free" laws, it is important to recognize that distraction is real and safety misconceptions are plentiful. Over the last five years, the AAA Foundation has led efforts to better understand "cognitive driver distraction," showing that dangerous mental distractions exist even when drivers keep their hands on the wheel and their eyes on the road. Most recently, the AAA Foundation found that unsafe mental distractions from technology use while driving, such as dialing a phone or sending a voice command, can persist up to 27 seconds after the actual use of the device has ended.

MENTAL DISTRACTION – WHAT WE KNOW.

Mental distractions can dangerously affect drivers behind the wheel. Just because a driver's eyes are on the road and hands are on the wheel does not mean they are safe. Hands-free is not risk-free.

MENTAL DISTRACTION – WHAT IT MEANS.

Attention is key to safe driving, yet many technologies can cause drivers to lose focus of the road ahead. Hands-free and voice-command features, increasingly common in new vehicles, may create mental distractions that unintentionally provide motorists with a false sense of security about their safety behind the wheel. Not all technology is created equal and some vehicle infotainment and smartphone systems can be frustrating and misinterpret your voice command creating another layer of confusion.

DISTRACTION – WHAT CAN BE DONE?

Maine is dedicated to promoting road safety and reducing driver distraction through public education, enhancing laws and collaboration with law enforcement and highway engineering. Well-established safety research and decades of experience with other traffic safety issues suggest that changing dangerous behavior involves a variety of approaches, including well-written laws with substantial penalties for violations, highly visible enforcement and public education.

Maine's crash reporting system went through a significant update in 2011, including how distracted driving crash data is captured. In the pre-2011 crash report, there was a contributing factor, "driver inattention-distraction. "An officer could indicate general driver inattention when the crash circumstances clearly pointed to that.

The new report form, adopted by law enforcement agencies during 2011, now has a dedicated "driver distracted by" section that indicates very specific distractions such as "electronic communication devices" (cell phone, pager, etc.). A driver would usually need to self-report the distracted activity or a credible witness would need to report it. The general inattention aspect was no longer captured, so there is a significant drop in what is reported for distracted driving. The reporting change was instituted to better categorize the types of distractions that lead to crashes. Since law enforcement agencies adopted the new reporting format at different times throughout the year, 2011 distracted data is partial.

Maine did add a "Distracted by Unknown Cause" option to the crash report in 2016 to capture those distraction/inattention crashes that could not otherwise be reported.

In 2009, Maine enacted a distracted drivers law that includes this definition: "Operation of a motor vehicle while distracted." This means the operation of a motor vehicle by a person who, while operating the vehicle, is engaged in an activity:

1. that is not necessary to the operation of the vehicle; and
2. that actually impairs, or would reasonably be expected to impair, the ability of the person to safely operate the vehicle.

In 2011, the following texting-specific Maine law was added:

"A person may not operate a motor vehicle while engaging in text messaging."

Distracted Driving Strategies

Increase public awareness of the dangers of distracted driving. Unlike the social stigma surrounding drinking and driving, driving while texting, engaging in social media or talking on the phone aren't perceived as unacceptable despite the overwhelming scientific evidence of the serious crash risk these behaviors pose.

- **Reasoning**: There is a crucial disconnect between public perception of distracted driving and one's own personal behavior. Providing educational materials would aid in helping the public understand the true risks of their actions. A concerted effort should include all agencies/advocates providing a consistent message to all age groups.
- **Lead**: **Bureau of Highway Safety/AAA Northern New England**
- **Timing**: Ongoing

Provide simulated distracted driving education to educate Maine drivers about the dangers of distracted driving, including texting while driving. The Maine Bureau of Highway Safety's distracted driving simulators, safety presentations and marketing materials will be used. Distracted driving is particularly a problem for young drivers, who are still mastering the skills needed for safe driving. Outreach is geared towards pre-permitted and newly permitted teens at middle schools and high schools. This project will also reach the 40-45 year-old demographic for which our data indicates a higher incidence of distracted driving crashes.

- **Reasoning**: Improve driver awareness of the safety impact of distracted driving.
- **Lead** : **Bureau of Highway Safety**
- **Timing**: Ongoing

Conduct high visibility distracted driving enforcement (including texting). Enforcement locations will be selected depending on their historical distracted driving crash activity. Similar efforts in other states targeted drivers using cell phones. Studies conducted during and after this campaign revealed a 50% reduction in the observed cell phone use rate while driving.

One aspect of this effort will be distracted driving enforcement on I-95, I-295 and at designated high crash locations. Each detail will be carried out by two officers working in tandem to detect distracted motorists.

Another focus area will be to provide distracted driving enforcement in work zones, where a key concern is drivers not paying attention.

- **Reasoning**: Establish public awareness that law enforcement is focusing on distracted driving.
- **Lead**: **Bureau of Highway Safety and law enforcement agencies**
- **Timing**: Ongoing

Enrich Maine's current distracted driver law by encouraging policy-makers to support legislation that would prohibit texting while driving.

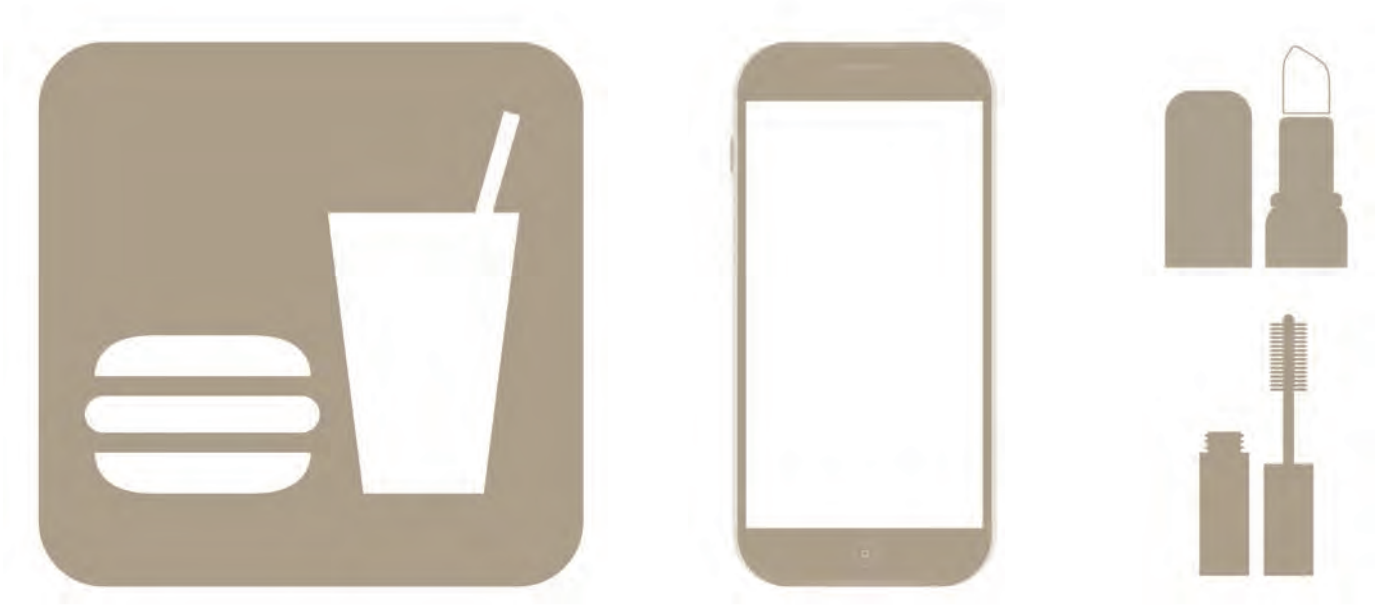
- **Reasoning**: A majority of Maine drivers (94%) support laws against reading, typing or sending text messages or emails while driving, according to the AAA Northern New England public affairs survey.
- **Lead**: **AAA Northern New England**
- **Timing**: Ongoing

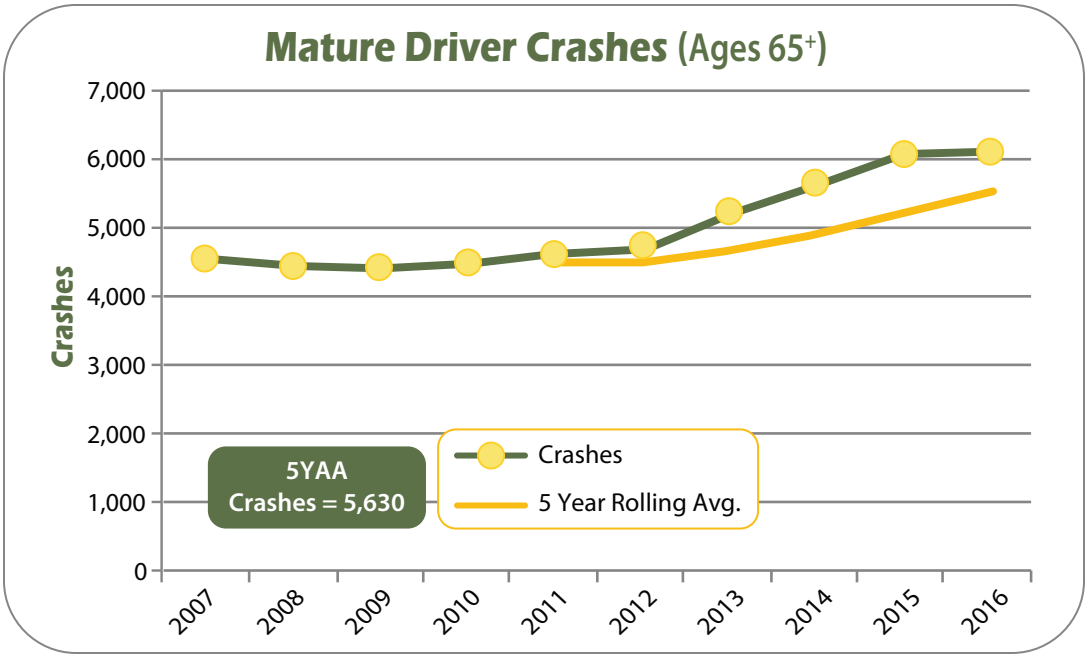
Support the enforcement community in its efforts to curb distracted driving.

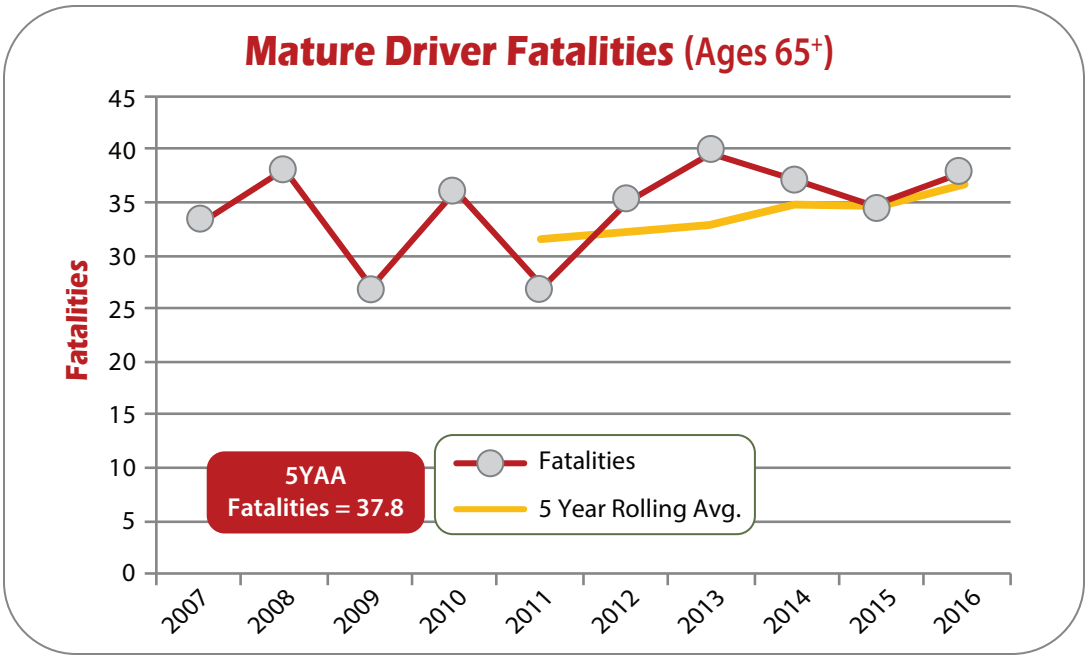
- **Reasoning**: High visibility enforcement has been shown to change driver behavior, including programs such as "Click It or Ticket." By adopting the "Put It Down" campaign and making available materials and funding to municipal and state law enforcement, it would follow that this campaign would also be successful in changing driver behavior.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: Ongoing

Distracted Driving Observational Survey. Cell phone use and texting while driving can degrade driver performance in three ways: visually, manually, and cognitively. Talking and texting while driving have grown in the past decade as drivers take their cell phones into their vehicles. NHTSA's high-visibility enforcement (HVE) model is a proven technique to change driver behavior and change it quickly, thereby enhancing the effect of traffic laws. HVE combines strong laws, vigorous, highly visible law enforcement activity, targeted advertising that emphasizes the enforcement, and evaluation. Maine intends to use the Connecticut demonstration model to conduct cell phone use.

- **Reasoning**: To better measure the type and amount of distracted driving that is done. It is hard to determine based on crash data since crash-involved individuals are not always forthcoming.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: Ongoing




Mature Driver Crashes (Ages 65+)
Crashes
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Crashes = 5,630
Crashes
5 Year Rolling Avg.


Mature Driver Fatalities (Ages 65+)
Fatalities
45
40
35
30
25
20
15
10
5
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Fatalities = 37.8
Fatalities
5 Year Rolling Avg.

Mature Drivers

Our Challenge

Maine is the "oldest" state by median age (44.2) and the fourth oldest by percent of population over 65 (17.7%). The latter is expected to rise to 26.3% by 2030. A senior driver is defined as any driver over the age of 65.

This group experiences more crashes per mile driven than any other age group except young drivers.

Additionally, a crash involving a senior driver is 1.7 times more likely to lead to serious injury or death than those involving a driver between the ages of 25 and 65. Many factors contribute to these outcomes including gradually diminishing physical, sensory and cognitive capabilities. These are often exacerbated by medications, specific conditions, and increased physical frailty. Mature drivers are involved in an average of about 5,600 crashes each year, resulting in 38 fatalities and 177 serious injuries. Leading crash characteristics are different from those for younger drivers.

They include:

- **Carelessness or inattentiveness**
- **Failure to keep in proper lane**
- **Failure to yield the right of way**
- **Failure to obey traffic signs, traffic control devices, or safety zone laws and**
- **Drowsy, sleepy, asleep or fatigued**.

Mature Driver Strategies

To address these issues in Maine, the Maine Senior Driver Coalition was formed in the spring of 2009. The coalition began with concerned Mainers from varied backgrounds, representing groups of state and private organizations.

Identify enhanced self-screening tools to help seniors recognize driving issues. Develop outreach strategies to introduce the tools to drivers and families most likely to be facing driving transitions. One tool is a battery of tests available through the American Automobile Association's Roadwise Review.

- **Reasoning**: Self-assessment can lead to early identification of driver issues.
- **Lead**: **AAA Northern New England**
- **Timing**: Ongoing development

Bureau of Motor Vehicles' Senior Driver Assessment Project (SDAP) focuses on identifying and addressing organizational, legal and budgetary issues related to adapting driver test batteries trialed in other states. This project will direct the development of a policy proposal for Maine.

- **Reasoning**: Current evaluation methods do not include cognitive skills testing which should be part of the evaluation process.
- **Lead**: **Secretary of State, Bureau of Motor Vehicles**
- **Timing**: Ongoing

The linking, testing and transportation project will work with senior transit providers in two regions of the state to build a system that offers effective services to senior drivers.

- **Reasoning**: Alternative transportation will allow seniors to have transportation options after their driver's license has been retired.
- **Lead**: **Bureau of Motor Vehicles**
- **Timing**: Ongoing

Use Maine crash data and BMV moving violation data to evaluate mature driver performance in counties where driver interventions have been introduced and compare safety performance with other counties.

Provide education seminars for primary care physicians to help them assess senior drivers. AAA has a self-screening tool "Roadwise Review." AAA has been hosting various senior forums and fairs around the state and presenting their "Keeping the Keys" program at these events. Additionally, the coalition is exploring strategies for publicizing these two programs along with AARP's "We Need to Talk." BMV requires all drivers to report certain physical, mental and emotional conditions. Drivers with these conditions are required to have a medical evaluation or eye examination form completed by their clinician. These reports are used by the BMV to determine whether or not the driver is medically fit to drive. Aging drivers are disproportionately represented in this group. The standards used to determine fitness were updated in 2016. BMV will monitor outcomes of some of these changes, especially vision. Driver visual acuity and visual field values will be compared to crash rates.

Develop BMV driver license examiner training regarding medical conditions.

- **Reasoning:** To better evaluate drivers when administering road tests to individuals with physical, mental and emotional conditions requiring a road test.
- **Lead**: **Bureau of Motor Vehicles**
- **Timing**: Ongoing

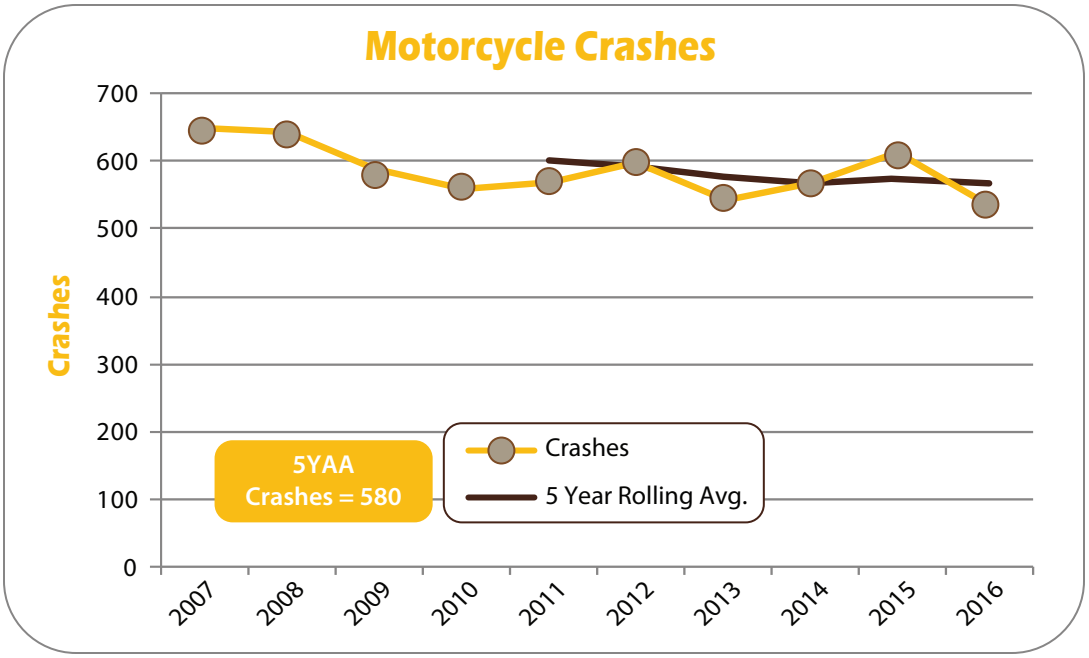
Identify opportunities for improving sign letter sizes and reflectivity as well as pavement markings/ striping to enhance driver cues, particularly at night.

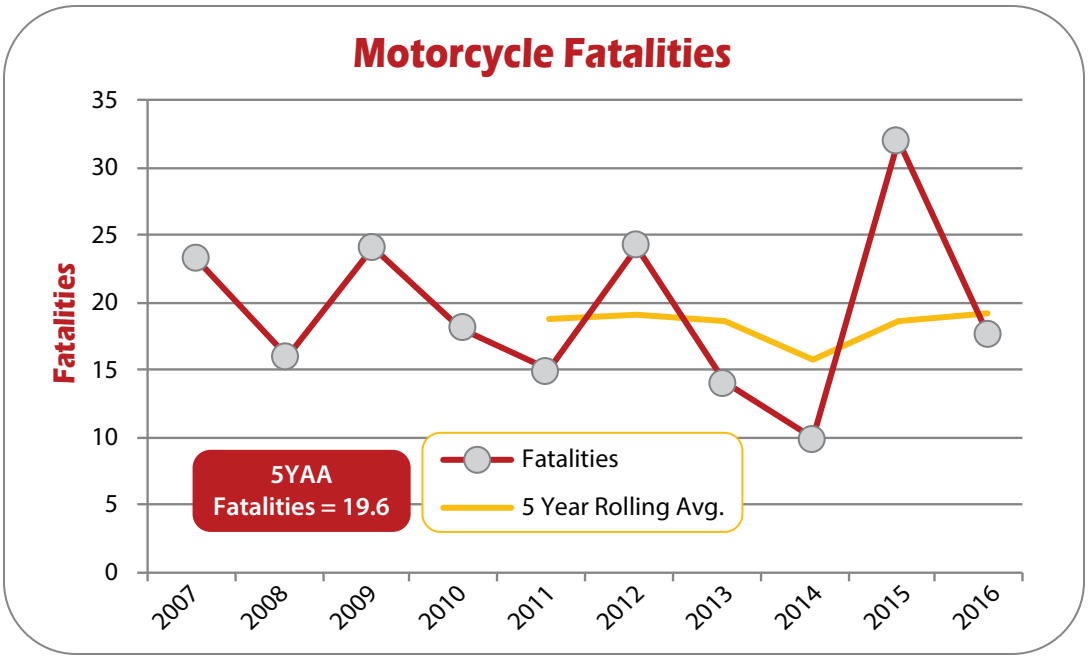
- **Reasoning**: Improve nighttime driver identification of signs and roadway lane locations.
- **Lead**: MaineDOT
- **Timing**: Ongoing

Conduct an "Are You ABLE" educational campaign for the aging road user. As a group, the aging road user is a generally safe driver, with high safety belt use and few citations. However, these past couple of years, Maine has seen an increasing trend in aging road user crashes. Because restricting driving independence is an emotionally charged subject, the best people to have this conversation with the aging road user are family members and health care professionals. Although unsafe driving may be an uncomfortable subject, these centers of influence have the best chance to help older adults consider driving less, avoiding certain road conditions, or stop driving altogether. Centers of influence are also in the best position to determine whether the aging road user has a medical issue, improper medication usage, or a reduced physical function. To help discuss driving issues, they need information on the effects of medications or medical conditions, vision, cognitive skills, and motor functions.

Strategy: MaineGeneral Health will develop and distribute brochures to community centers, health professionals, town offices, etc. Families and health care providers can obtain this information and have an informed conversation to address impairments that occur from the aging process.

- **Reasoning**: Improve awareness of factors to consider when evaluating a mature driver's ability to drive safely.
- **Lead**: Maine Bureau of Highway Safety
- **Timing**: Ongoing


Motorcycle Crashes
Crashes
700
600
500
400
300
200
100
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Crashes = 580
Crashes
5 Year Rolling Avg.


Motorcycle Fatalities
Fatalities
35
30
25
20
15
10
5
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Fatalities = 19.6
Fatalities
5 Year Rolling Avg.

Motorcycles

Our Challenge

Motorcycling in the state of Maine is a passion for many riders. This state offers tremendous scenery and creates quite a grand motorcycle riding season.

Motorcycle crashes resulted in 32 fatalities in 2015, but did decrease to 18 fatalities in 2016. The number of fatalities in 2016 was also below the average number of fatalities for the last five years, which was 19.6. Motorcycle registrations have hovered around 50,000 since 2009.

Motorcycle riders are a concern as they are much more susceptible to serious crash injury.

The two primary factors associated with motorcycle fatalities continue to be speed and alcohol.

Ten-year crash and fatality trends are, on average, stable. Motorcycle registrations have steadily increased during this period.

Motorcycle crash data shows that:

- **Helmets were not worn by about 72% of the riders killed.**

Motorcycle Strategies

Increase participation in the mandatory novice rider hands-on motorcycle education course. Enlist motorcycle dealerships, motorcycle groups, motorcycle rider education schools and other state agencies to promote the courses.

Garner support from the motorcycle rider education community and other parties interested in motorcycle safety.

- **Reasoning**: Hands-on rider education offers skills in a controlled environment to develop the ability and confidence of novice riders. These skills can be life-saving and ultimately contribute to a reduction in motorcycle crashes and fatalities.
- **Lead**: **Bureau of Motor Vehicles**
- **Timing**: Ongoing

Market experienced rider courses by:

- Development of television, radio, and print advertisements, as well as social media and internet resources, to promote the benefits of experienced rider courses.
- Engage motorcycle dealers to offer discounts (to help absorb course fees) with the purchase of a new or used motorcycle.
- Create bumper stickers, magnets, T-shirts and other items to promote experienced rider education.

Engage insurance companies to promote experienced rider courses through existing resources including insurance rate discounts.

- **Reasoning**: Novice rider courses impart basic skills. Experienced rider courses expand on the basic skills and provide an opportunity for riders to become familiar with their personal motorcycle. These advanced skills provide further tools for motorcyclists to avoid crashes and/or fatalities.
- **Lead**: **Bureau of Motor Vehicles, Bureau of Highway Safety**
- **Timing**: In the next three to five years, depending on funding

Conduct motorcyclist safety training including measures designed to increase the recruitment or retention of motorcyclist safety training instructors. In order to retain our current instructors, the Maine BMV, in partnership with MeBHS, will hold an annual Motorcycle Rider Instructor Training Meeting. This meeting will enable the BMV to give annual training updates to all instructors and, by attending the training, maintain their national motorcycle rider instructor training certification.

- **Reasoning**: Maintain quality motorcycle safety instruction.
- **Lead**: **Bureau of Motor Vehicles and Bureau of Highway Safety**
- **Timing**: Ongoing

Develop updates of motorcycle rider training course materials including improvements to curricula.

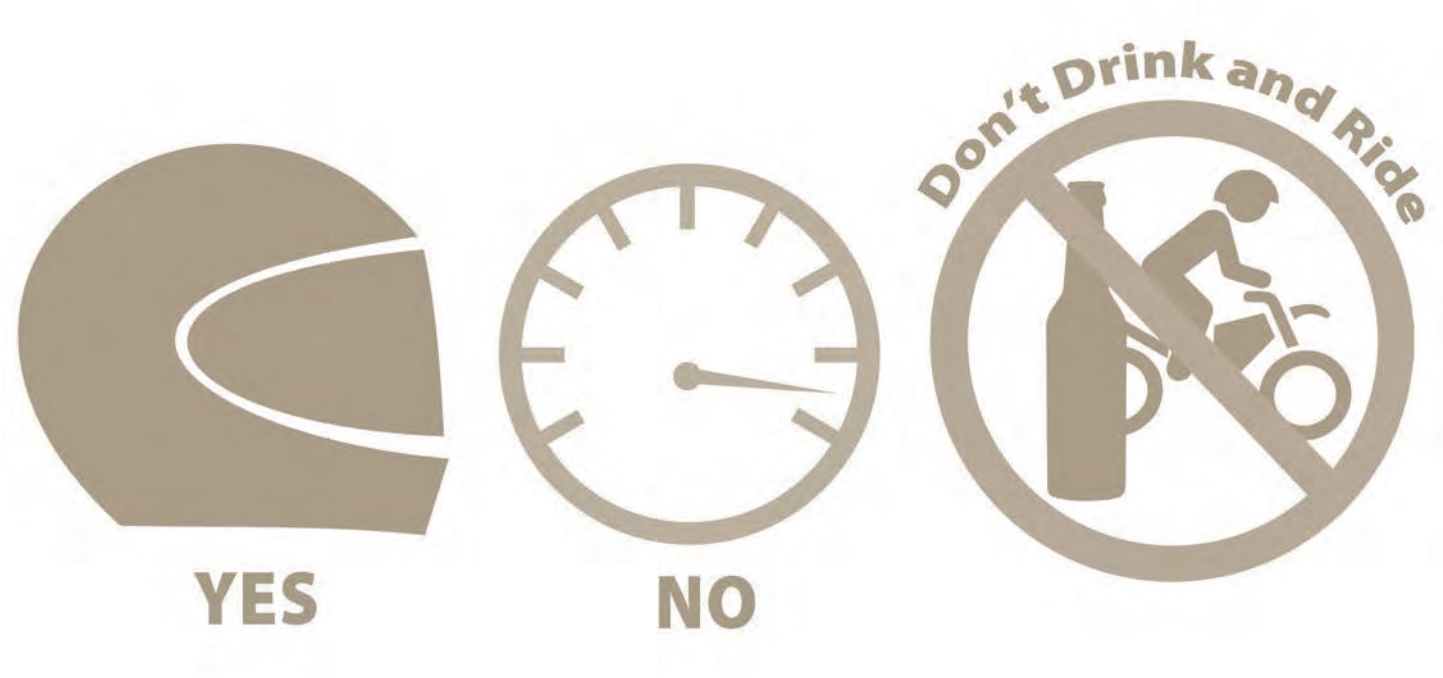
- **Reasoning**: Maintain current materials.
- **Lead**: **Bureau of Motor Vehicles and Bureau of Highway Safety**
- **Timing**: Ongoing

Develop motorcycle public service announcements to encourage experienced rider education.

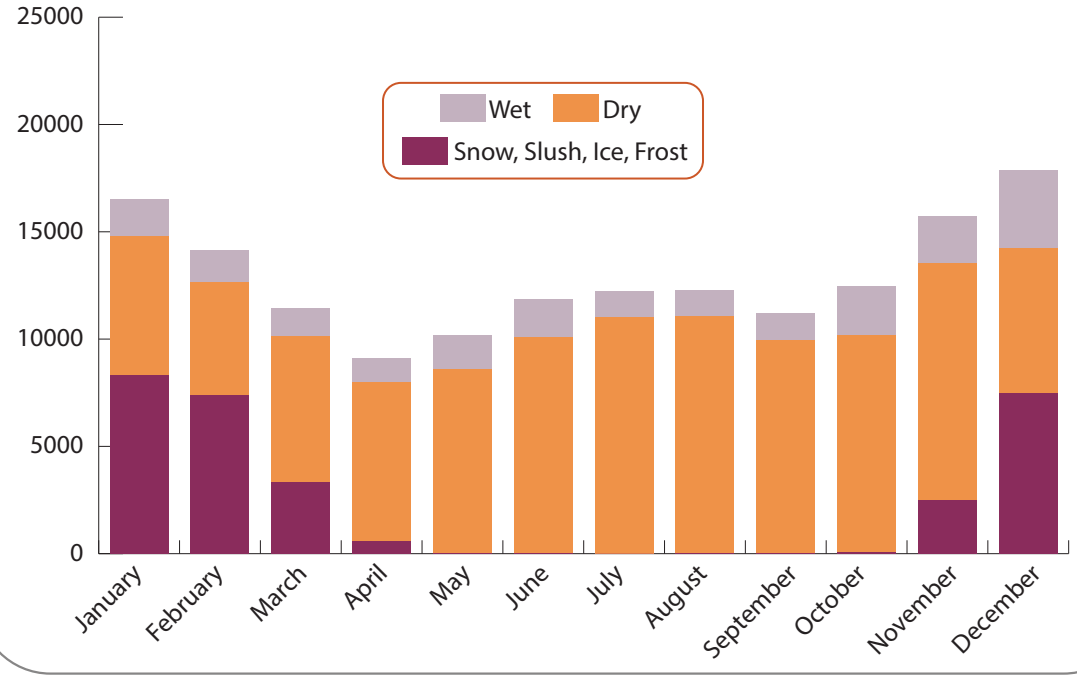
- **Reasoning**: Expand motorcycle safety education by increasing the number of participants. Education helps to correct unsafe driving habits established over years of riding. It also helps to educate riders with new information.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: Ongoing

Conduct a motorcycle safety media campaign in multiple media markets to promote the "Share the Road" concept. The goal of the campaign is to encourage riders not to drink and ride, to make themselves more visible, to always wear protective gear, to ride within personal and legal limits, and to train regularly.

- **Reasoning**: To remind MC operators and other vehicle operators about MC safety considerations.
- **Lead**: **Bureau of Highway Safety**
- **Timing**: Ongoing



Maine Crashes by Road Surface Condition (2012-2016)



Winter Crashes

Our Challenge

5,400 winter crashes account for nearly 20% of Maine's annual crashes.

The months of January and February have the greatest amount of snowfall. However, crash activity is highest in December as drivers adjust to wintry road surfaces, and the ice, snow and slush conditions. Run-off-road and head-on collisions on wintry roads double in proportion to those on dry roads. This indicates the degree of vehicle control issues at that time. Not surprisingly, police crash reports cite 'unsafe speed' three times as often when wintry road conditions exist.

A five-year annual average was selected in an attempt to compensate for the year-to-year variability of storm numbers, intensity, location and timing. Long-term trends are a better indicator for measuring success in this area.

Winter Driving Strategies

Enhance detection capabilities of roadway weather conditions.

- Use crash data to identify and analyze high crash locations where winter surface conditions play a significant role.
- Where appropriate, use technology such as Roadway Weather Information Systems and pavement sensors to alert maintenance crews to changes in surface conditions. There are also stand-alone sign systems that can be used to detect wintry or heavy rain conditions and provide weather-related driver feedback. Some information can be relayed to post on area message boards. There is a need to evaluate best locations for such systems.
- Employ the use of mobile weather instruments, such as pavement temperature and humidity sensors, on maintenance and patrol vehicles during periods when road conditions may deteriorate.
  - **Reasoning**: Providing advance notice to road crews, as well as motorists, about changing road conditions will allow drivers to adjust for these changes and allow crews to treat roadways more effectively.
  - **Lead**: **MaineDOT, Maine Turnpike Authority**
  - **Timing**: Ongoing

Provide dynamic sign messaging at key interstate locations advising motorists of wintry, heavy rain or other significant weather conditions and reduced speed limits.

- **Reasoning**: Safety advisory of changing conditions.
- **Lead**: **MaineDOT and Maine Turnpike Authority**
- **Timing**: Ongoing

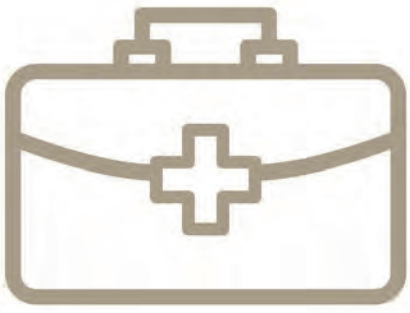
Wind, blowing snow onto roadways, can be hazardous and a surprise to drivers who had been driving on dry and clear roadways. In very select locations, providing windbreaks, such as natural plantings, berms or fencing that may limit the amount of blowing snow.

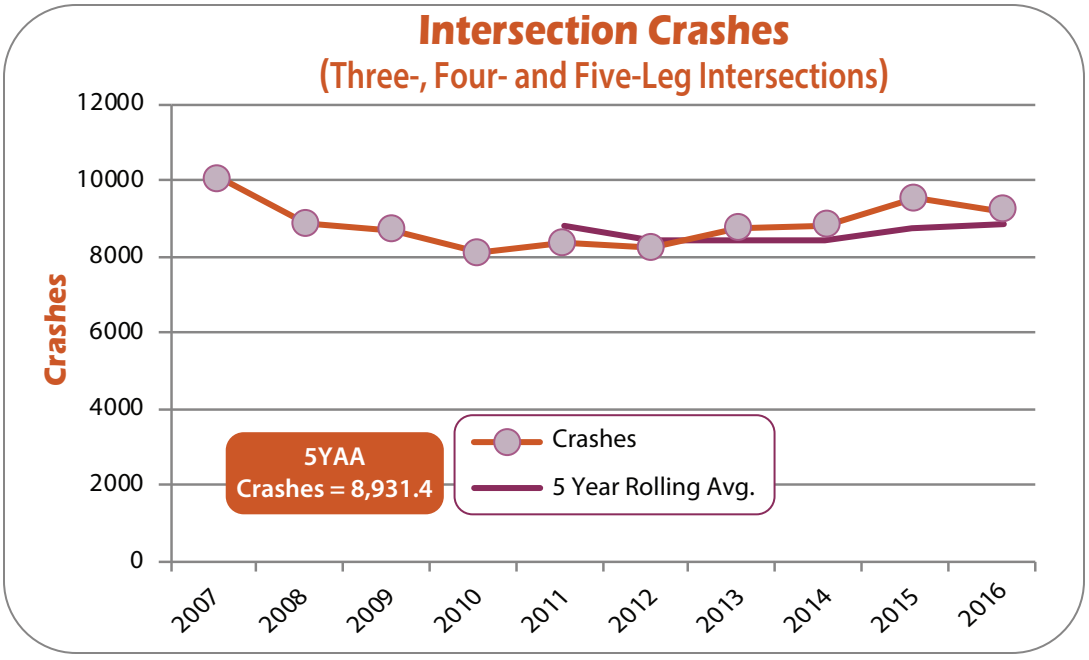
- **Reasoning**: Maintain roads that are clear of snow and ice.
- **Lead**: **MaineDOT and Maine Turnpike Authority**
- **Timing**: Ongoing

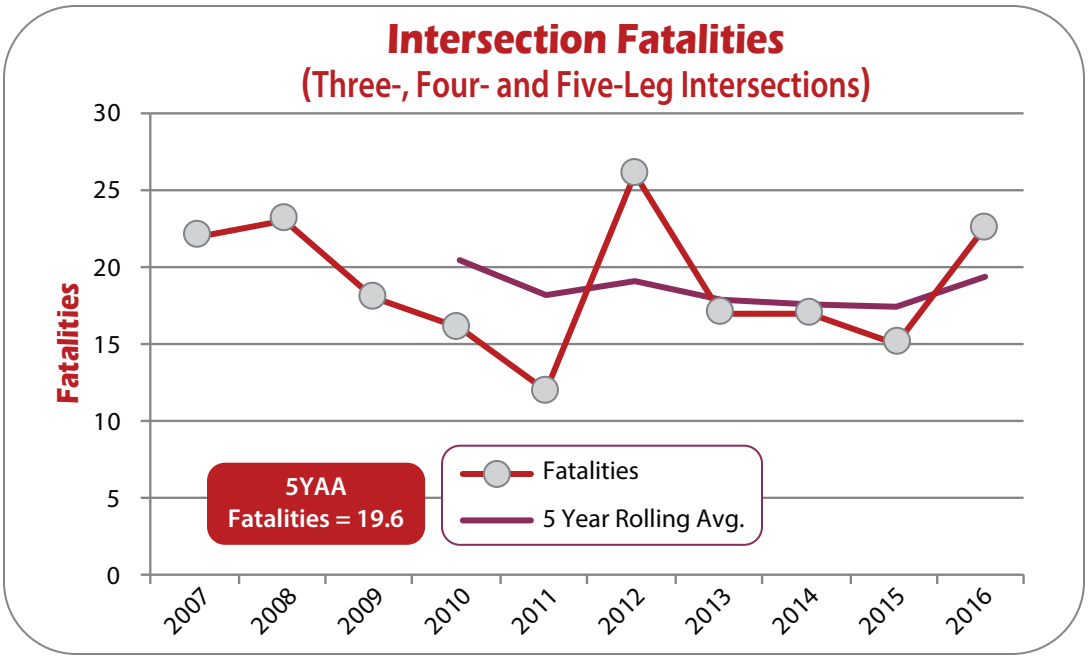
Increase public awareness of the hazards of winter driving, and educate drivers on appropriate driving techniques to use in these conditions.

- Use TV winter driving tips commercials at strategic times such as predicted winter storms.
- Market the same Winter Driving Tips messaging via appropriate websites and print media throughout the winter driving season.
- Continue to participate in the national Clear Roads research project. In addition to evaluating materials, equipment and winter road maintenance methods, Clear Roads also is a resource for states to develop their public outreach programs to educate the public on winter driving (clearroads.org).
  - **Reasoning**: Statistics suggest that drivers are most likely to be involved in winter-conditions-related crashes early in the winter, before they have adjusted their driving habits. This campaign reinforces the need to adjust driving practices before encountering inclement conditions.
  - **Lead: MaineDOT and Maine Turnpike Authority**
  - **Timing**: Ongoing, specifically during the winter season and prior to predicted winter weather events.

MaineDOT facebook post




Intersection Crashes
(Three-, Four- and Five-Leg Intersections)
Crashes
12000
10000
8000
6000
4000
2000
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Crashes = 8,931.4
Crashes
5 Year Rolling Avg.


Intersection Fatalities
(Three-, Four- and Five-Leg Intersections)
Fatalities
30
25
20
15
10
5
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Fatalities = 19.6
Fatalities
5 Year Rolling Avg.

Intersection Crashes

Our Challenge

Intersections are a common crash location. Drivers need to be observant, make proper decisions and follow the rules of the road.

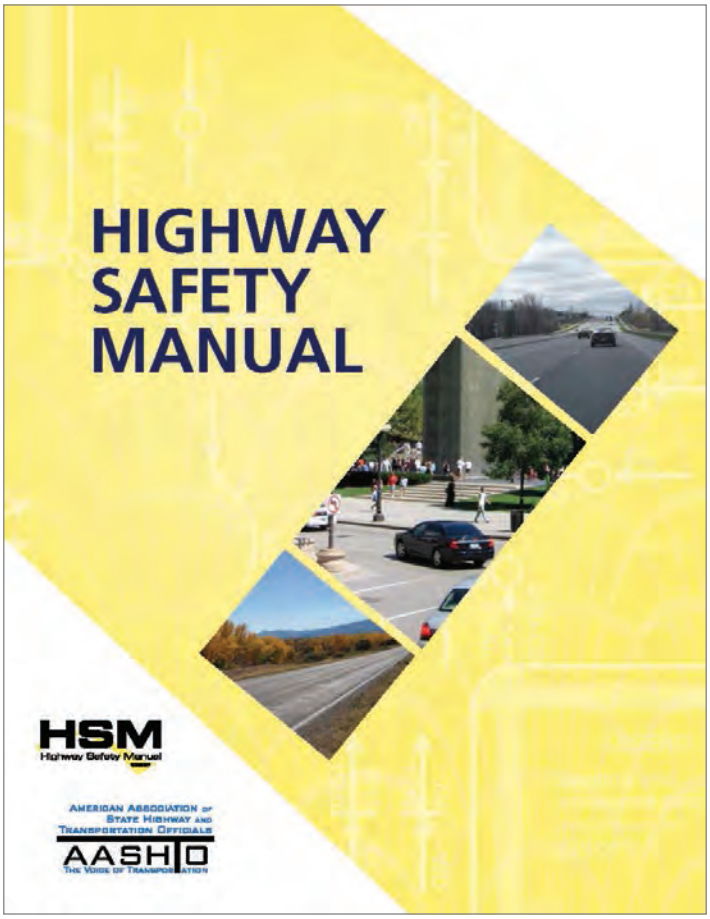
Common crash types that occur annually at intersections include rear-end crashes (4,150) and intersection crashes (3,100). About 110 of these crashes at intersections involve bicyclists and 110 involve pedestrians. An additional 200 crashes occur annually at Maine's 21 roundabouts.

Drivers had the following contributing factors reported in the most recent five-year period:

- **Driver inattention/distraction – 21,600**
- **Failure to yield right of way – 11,800**
- **Following too close – 9,000**
- **Illegal/unsafe speed – 3,400**
- **Ran red light or stop sign – 3,300**
- **Improper turn –1,900**

Intersection Crash Strategies

In 2010, the American Association of State Highway and Transportation Officials (AASHTO) released the Highway Safety Manual (HSM). The HSM is a science-based technical approach that takes the guesswork out of safety analysis. The HSM is a quantitative safety analysis tool that is utilized throughout the Highway Safety Improvement Program (HSIP) process. It includes network screening, safety project evaluations, design alternatives, benefit to cost analysis and priority ranking of safety projects.



Evaluate/identify the locations of most concern.

- Desktop analysis – Review data to develop a list of review sites. The review sites are based upon the HSM Network screening process using the "excess" method. Sites with a high "excess" value are most likely to respond to safety improvements because they are theoretically experiencing more crashes than other similar sites. Along with the HSM method, high crash locations (number of crashes, critical rate factor) and crash severity are also reviewed.
- Solicit input from regions/municipalities.
- Evaluate high pedestrian/bike crash activity.
- Evaluate performance of past safety projects and review as necessary.
  - **Reasoning**: To best determine the most deserving candidates for safety funds.
  - **Lead**: MaineDOT
  - **Timing**: Ongoing

Develop solutions for reviewed locations.

Crash diagrams, photos, traffic data, and other gathered information are used by a team of engineers and traffic professionals to develop a scope of work that will best correct the safety issues at every reviewed location.

Safety benefits are quantified using a Crash Modification Factor (CMF) in estimating the potential change in crash frequency and severity due to installing a particular treatment compared to baseline conditions. Cost estimates are developed to determine a benefit/cost ratio for each project and ranked. Projects are funded based on benefit/cost score and available funds.

- **Reasoning**: To determine the most effective and reasonable safety fixes for problem locations.
- **Lead**: MaineDOT
- **Timing**: Ongoing

Alternative solutions
Use roundabouts and "outside the box" methods to correct problem intersections. Roundabouts have the lowest severity of injury crashes of any intersection type. Evaluate lower-cost/simpler solutions where applicable.

- **Reasoning**: To find new, innovative, and cost-effective solutions to common problems.
- **Lead**: **MaineDOT**
- **Timing**: Ongoing

Enforcement
Work with law enforcement professionals to identify problem intersections. Pursue law enforcement presence as a means to safer intersections where possible.

- **Reasoning**: To make intersections safer through law enforcement.
- **Lead**: **Municipal, state, and county law enforcement**
- **Timing**: Ongoing

Note: Intersections are a common location where distracted driving occurs. The work being done with the distracted driving group needs to address distracted driving at intersections.

Provide improved pavement markings (striping and stencils) that are durable and reflective. Maintaining the designed signage, signal system and pavement markings that make the intersection function effectively is key. Some pavement markings may be recessed to improve durability.

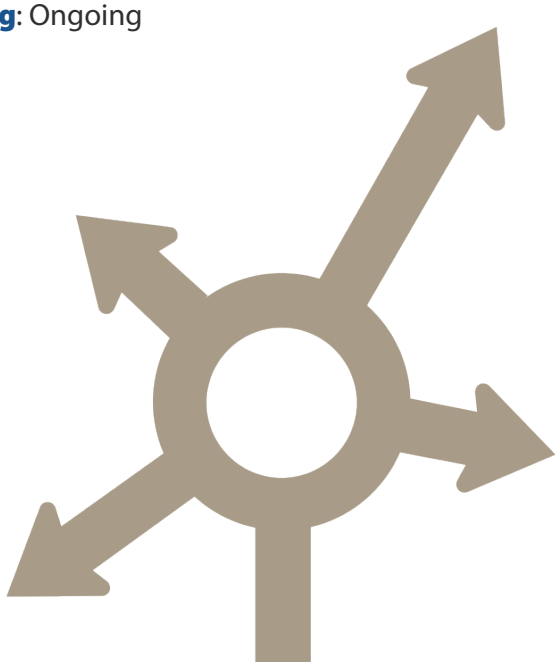
- **Reasoning**: Provide higher visibility for crosswalk locations.
- **Lead**: **MaineDOT**
- **Timing**: Ongoing

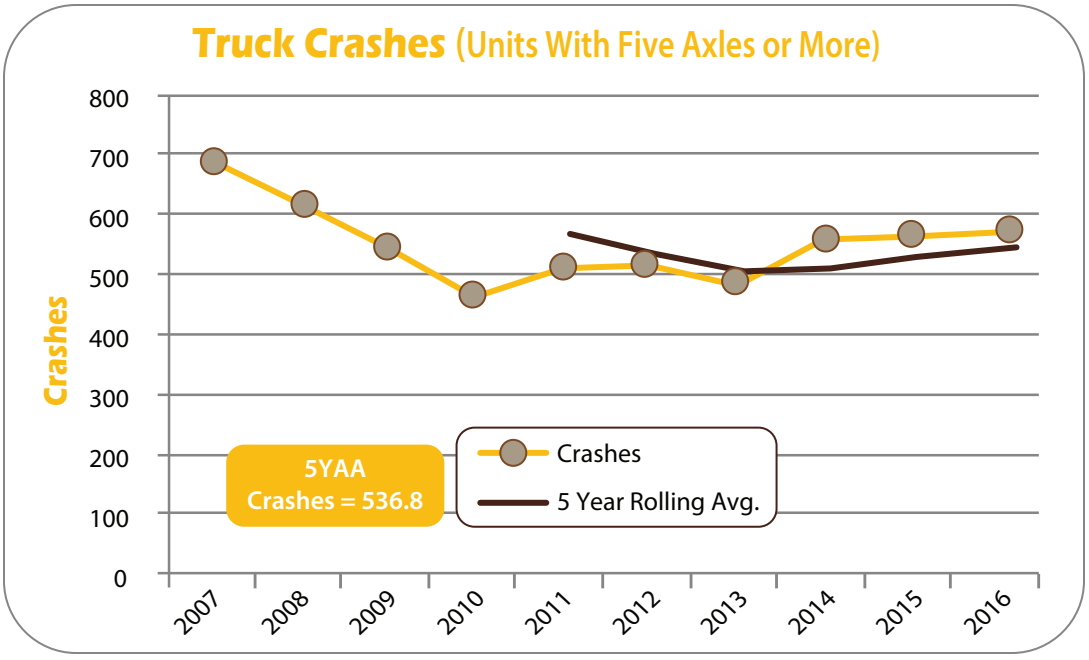
Provide reflective back plates on traffic signals and improve the tethering of signal heads.

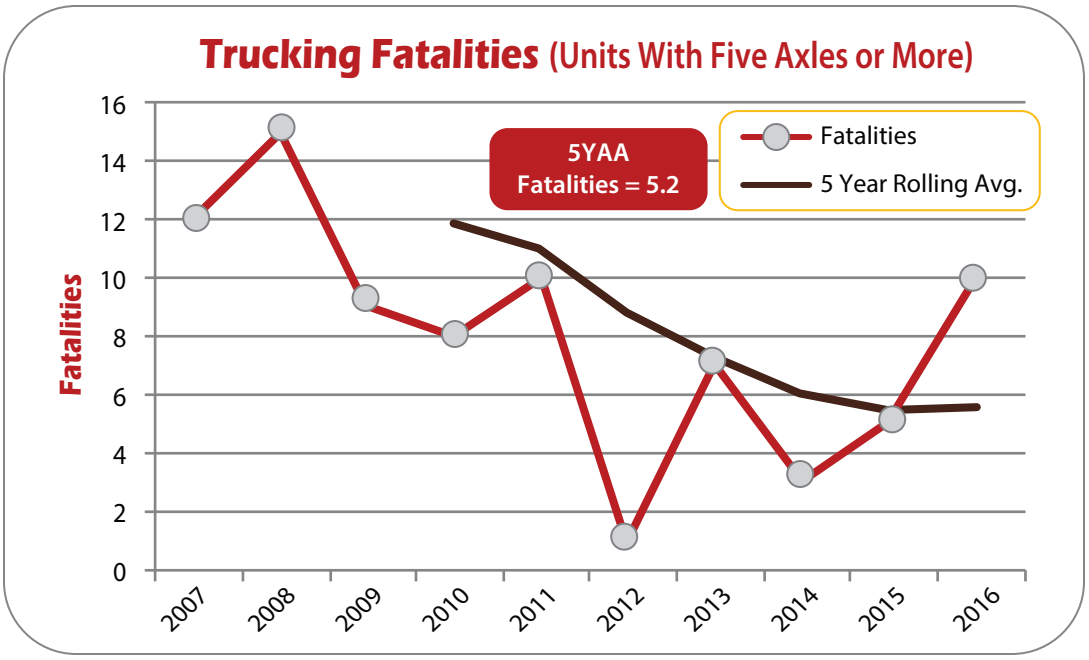
- **Reasoning**: Provides higher signal visibility in sun-glare and nighttime conditions, and stabilizes signals in heavy winds.
- **Lead**: **MaineDOT**
- **Timing**: Ongoing

Provide flashing beacons at selected stop signs.

- **Reasoning**: Provides added visibility to stop signs, especially at locations where traffic control devices may have changed.
- **Lead**: **MaineDOT**
- **Timing**: Ongoing




Truck Crashes (Units With Five Axles or More)
Crashes
800
700
600
500
400
300
200
100
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Crashes = 536.8
Crashes
5 Year Rolling Avg.


Trucking Fatalities (Units With Five Axles or More)
Fatalities
16
14
12
10
8
6
4
2
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Fatalities = 5.2
Fatalities
5 Year Rolling Avg.

Commercial Trucks and Buses

Our Challenge

Large trucks are a concern due to the size and load differential between larger trucks and passenger vehicles.

There is also a focus on fatigue related to long haul operations. Overall, truck crash and fatality rates have improved over the years, but the fatality rate has decreased at a slower rate.

Commercial buses are an important segment due to the number of passengers being carried on in-state routes and by out-of-state charters.

Commercial Truck and Bus Strategies

Commercial Trucks

Pursue targeted enforcement efforts that will lead to educational opportunities. Every time enforcement interacts with commercial drivers, there is an opportunity to educate these drivers on the importance of seat belt use, distracted driving, aggressive driving, driver fatigue and overall driver professionalism.

- **Reasoning**: Education through enforcement can lead to improved safety behavior.
- **Lead**: Maine State Police
- **Timing**: Ongoing

Effectively communicate the importance of safety regulatory compliance as a means to increase safety awareness. The Bureau of Motor Vehicles has contact information for all Maine carriers with a DOT number that can be used to send out a reminder of issues they need to consider, such as drug and alcohol requirements, seat belt use, log books, medical cards, Driver Vehicle Inspection Reports (DVIRs), comprehensive safety analysis and the importance of pre- and post-trip inspections.

- **Reasoning**: Regulatory compliance promotes safety awareness.
- **Lead**: Bureau of Motor Vehicles
- **Timing**: Letter can be developed and mailed at any time

Engage agencies to address aggressive driving around commercial vehicles. Many other states have successfully implemented programs to reduce unsafe driving behaviors between drivers of passenger cars and commercial motor vehicles.

- **Reasoning**: Aggressive behaviors near larger vehicles statistically increase the probability of crashes.
- **Lead**: FMCSA, NHTSA, ME State Police, MMTA
- **Timing**: Develop a program with stakeholders and identify potential funding sources.

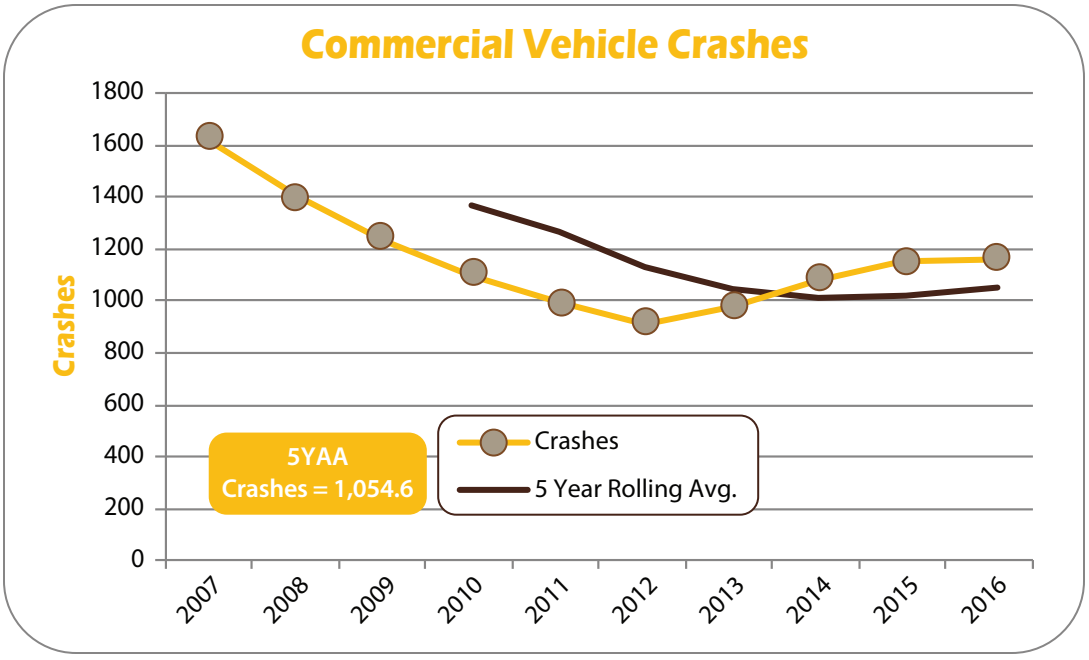
Evaluate heights and widths of existing bridges and overpasses and identify those that are prone to being hit by over-height commercial vehicles. Those structures may need over-height warning devices to warn of the clearance issue ahead and have them bypass the structure. That structure may also need to have its design reviewed and changed at the next replacement cycle.

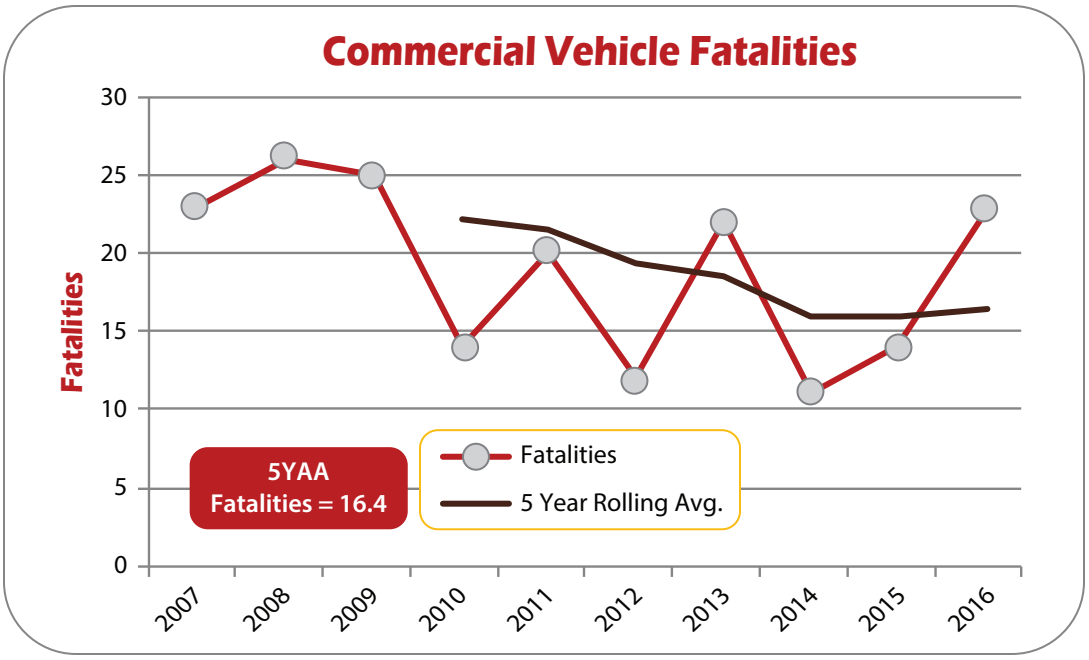
- **Reasoning**: Prevent over-height vehicle crashes with bridges to protect vehicles and the structures themselves, as well as mitigating secondary crashes that may result after.
- **Lead**: MaineDOT
- **Timing**: Ongoing

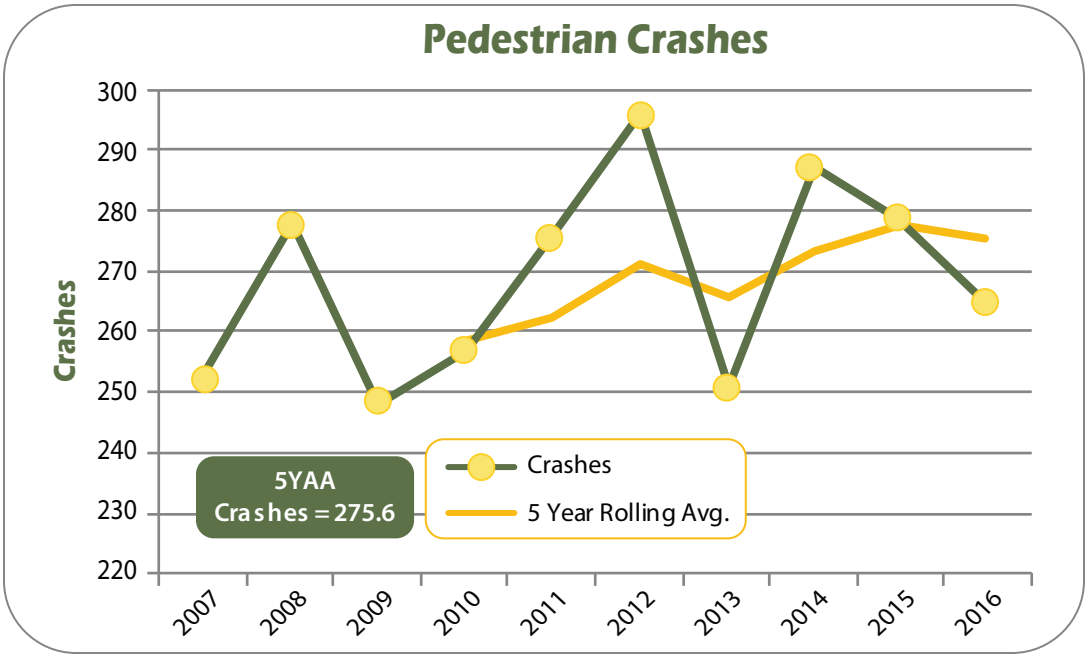
Commercial Buses

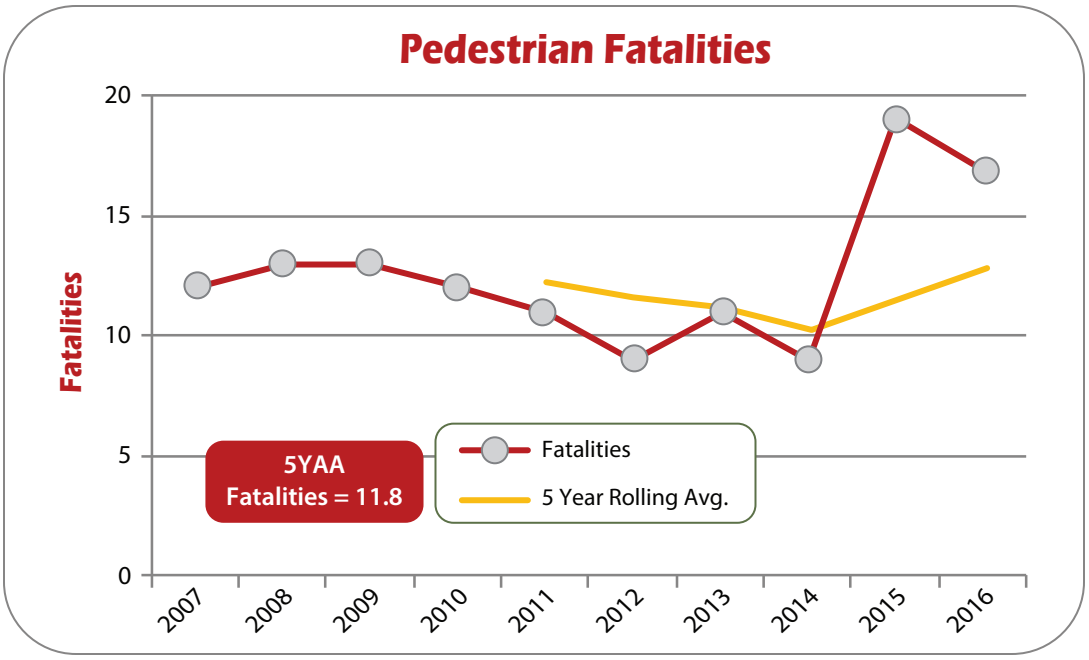
The Maine State Police will continue to conduct educational outreach and focused enforcement efforts on the passenger-carrying industry. This will be done by roadside inspections and company audits. By obtaining compliance, these companies will continue to operate safely.

- **Reasoning**: Maintain safe operations of commercial buses.
- **Lead**: ME State Police
- **Timing**: Ongoing


Commercial Vehicle Crashes
Crashes
1800
1600
1400
1200
1000
800
600
400
200
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Crashes = 1,054.6
Crashes
5 Year Rolling Avg.


Commercial Vehicle Fatalities
Fatalities
30
25
20
15
10
5
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Fatalities = 16.4
Fatalities
5 Year Rolling Avg.


Pedestrian Crashes
Crashes
300
290
280
270
260
250
240
230
220
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Crashes = 275.6
Crashes
5 Year Rolling Avg.


Pedestrian Fatalities
Fatalities
20
15
10
5
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Fatalities = 11.8
Fatalities
5 Year Rolling Avg.

Pedestrians and Bicyclists

Our Challenge

Crashes involving vulnerable road users are a growing concern.

Teenagers, the elderly, people with disabilities, and those with financial limitations often have no means of travel other than walking. Providing a safe place to walk and bike is essential for these and other users of the transportation system. In Maine, on average, a pedestrian is hit by a motor vehicle nearly every day. More than 95% of these reported pedestrian crashes involve injury or death to the pedestrian.

There have been 126 pedestrian and 17 bicycle fatalities over the last 10 years. Pedestrian fatalities have risen sharply and nearly doubled in 2015 and 2016. This has led to increased attention to this safety area.

It is important for the safety of bicyclists and pedestrians that the road system considers sidewalks, shoulders, lighting, and safe crossings where needed and appropriate. It is also essential that bicyclists and pedestrians are educated regarding safe behaviors including the need to dress brightly and to be aware of their surroundings. It is critical that drivers are educated on the importance of reducing speed and giving pedestrians and bicyclists plenty of space. All road users need to be paying full attention to their travel and taking the right precautions to assure the safety of others.

Maine's Pedestrian Safety Findings:

- Maine's pedestrian crashes are concentrated in population centers, as expected. Ten community clusters have been identified that include 21 towns where crash experience and/or exposure was significant. About 65% of the state's pedestrian crashes occur in these selected communities, including 35% of pedestrian fatalities.
- Nearly 80% of the fatalities occurred to pedestrians aged 26 and older. About 28% were 71 years old or older.
- In addition to the 21 focus communities, non-urban settings have pedestrian issues as well. About 57% of pedestrian fatalities occur on rural roads and about 48% of the crash fatalities occur on roads that have posted speed limits of 40 mph or higher.
- Impaired conditions are noted in 27.8% of fatal crashes and reported more often for pedestrians than drivers.
- 66.2% of the fatal crashes occur between dusk and dawn. Visibility and wearing dark clothing is often cited.

Pedestrian Strategies

Conduct focused statewide outreach with an initial concentration within the 21 identified focus communities. In broad terms, activities will tie into ***Engineering/Infrastructure; Enforcement –*** both for drivers and pedestrians; and diverse and strategically-focused ***Safety Education/Outreach*** to reach varied road users. These workshops would engage community leadership and interested stakeholders to define local issues, review the community's pedestrian crash information and data, and identify/prioritize the locations and corridors of primary need. As part of that effort, these activities should occur:

- Orient community stakeholders to the process and coordinate their completion of pedestrian safety reviews within each community to evaluate the most problematic pedestrian crash locations and any other locations of interest.
- Have interested community members, in addition to the members of the Community Pedestrian Safety Forum, complete a SWOT analysis (Strengths / Weaknesses / Opportunities / Threats) of problem areas, contributing factors, and community resources.
- Collaboratively develop with each community a community-specific pedestrian safety mitigation plan (strategy) that incorporates both long-term and short-term alternatives for reducing the number of pedestrian crashes. These strategies should address policy and growth, infrastructure, education, outreach, law enforcement, etc.
- Pedestrian visibility at night is a key safety issue. MaineDOT is working with 3M/Scotchlite and associated manufacturers to make reflective materials easily available to the public. The importance of visibility will be actively promoted.
- **Reasoning**: Educate and involve stakeholders in improving local safety issues.
- **Lead**: **MaineDOT, Bicycle Coalition of Maine, Bureau of Highway Safety and local municipalities/police departments**
- **Timing**: Ongoing

Develop pilot projects within target communities for specifically identified "at-risk vulnerable populations" who have been difficult to engage. These groups include: homeless; English as a second language; and elderly and disabled populations. For these at-risk vulnerable populations, our strategy will be to successfully communicate safety information and strategies in select pilot communities to mitigate behaviors, misconceptions, gaps in knowledge, and resource access issues that contribute to pedestrian crashes. This activity may also identify opportunities to improve pedestrian safety through infrastructure changes/improvements on the roadway. The transferability of the strategies developed within this pilot project will be tested within the other target communities in later phases.

- **Reasoning**: To make sure all pedestrian audiences are reached as part of this safety outreach program.
- **Lead**: **MaineDOT**
- **Timing**: Ongoing

Statewide efforts to help meet and address the pedestrian safety needs in other areas of the state will be implemented in other communities with identified pedestrian safety issues. While pedestrian crashes may not be frequent in rural areas, fatal outcomes are more likely when a crash does occur due to higher vehicle speeds. However, specific locations of concern will be difficult to pinpoint.

- **Reasoning**: To make sure pedestrian safety support is available to all communities, as needed.
- **Lead**: MaineDOT
- **Timing**: Ongoing

Identify opportunities for pedestrian infrastructure improvements, including sidewalks and crossing improvements.

- **Reasoning**: Engineering solutions are vital to improving pedestrian safety and mobility.
- **Lead**: MaineDOT and local municipalities
- **Timing**: Ongoing

Incorporate proposed pedestrian infrastructure improvements within MaineDOT's and local community's planning process to insure that identified pedestrian needs are addressed and included within nearby infrastructure projects.

- **Reasoning**: To successfully incorporate needed improvements within future infrastructure projects, MaineDOT and local municipalities must maintain updated and prioritized lists of projects within their respective roadway environments.
- **Lead**: MaineDOT and local municipalities
- **Timing**: Ongoing

Educate municipalities, planners and advocates on the policies, processes, and funding opportunities available to improve pedestrian safety through road improvements, site visits, education, presentations and media campaigns

Programs including the MaineDOT Local Roads Center training on cross walk practices offered in 2017 can keep municipal staff current on providing a safe pedestrian environment. Such targeted technical assistance opportunities should continue to be identified and provided.

- **Reasoning**: Many pedestrian improvements are locally driven, and education helps foster improved community environments.
- **Lead**: MaineDOT and local municipalities
- **Timing**: Ongoing

Maintain a web page that serves as a comprehensive resource that explains the objectives of the state's pedestrian safety outreach program, and provides safety information, tools and resources so that communities and individuals advocate for safety needs.

- **Reasoning**: Web resources can provide viable and efficient information to a wide audience.
- **Lead**: MaineDOT
- **Timing**: Ongoing

Continue and expand state agency coordination regarding planning processes, policy implementation, outreach efforts and programming. This ensures that relevant state agencies are working towards well-planned communities with safe pedestrian infrastructure. Foster collaboration and partnerships among state and federal agencies, the private sector, and health, safety, and planning professionals. Improve coordination and partnerships with the many groups working on improving conditions for walking.

Examples of this, that are currently underway are in collaboration with MaineDOT and the Maine Bureau of Highway Safety to:

- Develop and produce public education and outreach materials including posters and brochures, that will be distributed to all Maine communities through MaineDOT's Local Roads Program.
- Develop and produce an outreach campaign that will include television, radio, and social media focusing on a limited number of core pedestrian safety messages identified by the Interagency BikePed Safety Education Workgroup.

The Maine Bureau of Highway Safety is looking to support this effort in the following ways:

- Use multiple media venues to promote the Heads Up! Safety is a Two-Way Street campaign. The focus of the media campaign will be to educate the walking and motoring public about pedestrian hazards. These include: cell phone and electronic device use for both pedestrians and motorists, not using marked crosswalks, law compliance, proper reflective clothing, and impairment.
- Other activities could include: distributing printed materials to local businesses; online articles and TV news stories describing the campaign; providing campaign banners for law enforcement agencies in the lead communities; and providing safety message wraps for transit buses in the lead communities.
  - **Reasoning**: Coordination is essential to improve pedestrian safety by ensuring all agencies and groups are delivering consistent messaging and coordinating limited resources and efforts.
  - **Lead**: **MaineDOT with Bureau of Highway Safety**
  - **Timing**: Ongoing

Improve state and local policies and ordinances to ensure that pedestrian connections are made, whenever feasible, as part of all road improvement projects, developments, site plan approvals, and traffic and environmental mitigation efforts.

- **Reasoning**: Policies, ordinances, etc. are crucial to ensure that pedestrian improvements are made at the time of designing and construction of a new building or road.
- **Lead**: **MaineDOT and local municipalities**
- **Timing**: Ongoing

Collaborate with law enforcement (municipal police, sheriff, marine patrol, and state police) to implement a Pedestrian Safety Enforcement Program that supports officers who interact with individuals engaged in behaviors that may put pedestrians at risk. Program supports include technical assistance, education, information, handouts, and safety items to distribute such as reflective and/or light-up items, etc.

- **Reasoning**: Provide positive safety reinforcement to motorists, pedestrians and bicyclists.
- **Lead**: **MaineDOT, law enforcement agencies and Maine Bureau of Highway Safety**
- **Timing**: Ongoing

Continue a pedestrian safety signage and visible crossing program to install crosswalk and safety-related signage in communities and on state roads. These improvements could include:

- High visibility pavement treatments;
- Rectangular rapid flashing beacons;
- Countdown signal upgrades;
- Bicycle and pedestrian safety signage (such as Maine's three-foot law) to communities for installation along roadways with substantial bicycle and pedestrian activity;
- Electronic dynamic signs to advise motorists of pedestrian activity;
- Four-sided raised pavement markers at crosswalks; and
- High visibility pavement treatments at select locations.
  - **Reasoning**: Signage and improved visibility have been shown to be important in raising awareness of pedestrian environments, reducing speeds and improving safety.
  - **Lead**: **MaineDOT**
  - **Timing**: Ongoing

Continue safety awareness campaigns including the Share the Road campaign, law enforcement training, enforcing the Maine statutes pertaining to pedestrian activities, and the Safe Routes to School program.

- **Reasoning**: Education, enforcement, and encouragement efforts have been shown to improve safety behavior.
- **Lead**: **MaineDOT, NHTSA, Maine Bureau of Highway Safety and FHWA**
- **Timing**: Ongoing

Expand the number, type, content, and frequency of safety awareness programming that targets adults.

- **Reasoning**: Education, enforcement, and encouragement efforts have been shown to improve safety behavior.
- **Lead**: **MaineDOT, NHTSA, Maine Bureau of Highway Safety and FHWA**
- **Timing**: Ongoing

Analyze and consider transportation needs of all users (including motorists, transit riders, bicyclists, and pedestrians of all abilities) when developing or designing projects to ensure safe access to the facility where warranted and feasible (Maine Complete Streets policy).

- **Reasoning**: Include pedestrian and bicycle design considerations when warranted on MaineDOT projects.
- **Lead**: **MaineDOT**
- **Timing**: Ongoing

Bicycle Strategies

Coordinate bicycle improvements including paved shoulders, signage and bike lanes. Increase bicycle lane efforts to create defined bike lanes in urban areas to improve bicycle safety and to encourage the public to feel comfortable biking.

- **Reasoning**: Bicycle safety improvements are vital to improving bicyclist safety and mobility.
- **Lead**: **MaineDOT and local municipalities**
- **Timing**: Ongoing

Educate municipalities, planners and advocates on the policies, processes, and opportunities to improve conditions for bicyclists through road improvements, site visits, educational programming, presentations and safety media campaigns.

- **Reasoning**: Many bicycle improvements are locally driven, and education helps enable improved safe bicycling environments.
- **Lead**: **MaineDOT and local municipalities**
- **Timing**: Ongoing

Continue safety awareness campaigns including Share the Road campaigns for bicyclists, bicycle safety education programming in schools, law enforcement training, bicycle commuter programs, and the Safe Routes to School Program.

- **Reasoning**: Education, enforcement, and encouragement efforts have been shown to improve safety behavior.
- **Lead**: **MaineDOT, NHTSA, Maine Bureau of Highway Safety and FHWA**
- **Timing**: Ongoing

Continue and expand state agency coordination regarding planning processes, policy implementation, outreach efforts and programming. This will ensure that relevant state agencies are working towards well-planned communities with safe bicycle infrastructure. Foster collaboration and partnerships among state and federal agencies, the private sector, health, safety, and planning professionals - to improve coordination and partnerships with diverse groups working on improving conditions for biking.

- **Reasoning**: Bicycle safety improvements are vital to improving bicyclist safety and mobility.
- **Lead**: **MaineDOT and local municipalities**
- **Timing**: Ongoing

Maintain a web page that provides safety information and the tools and resources available for communities to identify deficiencies and to make improvements in the bicycling infrastructure.

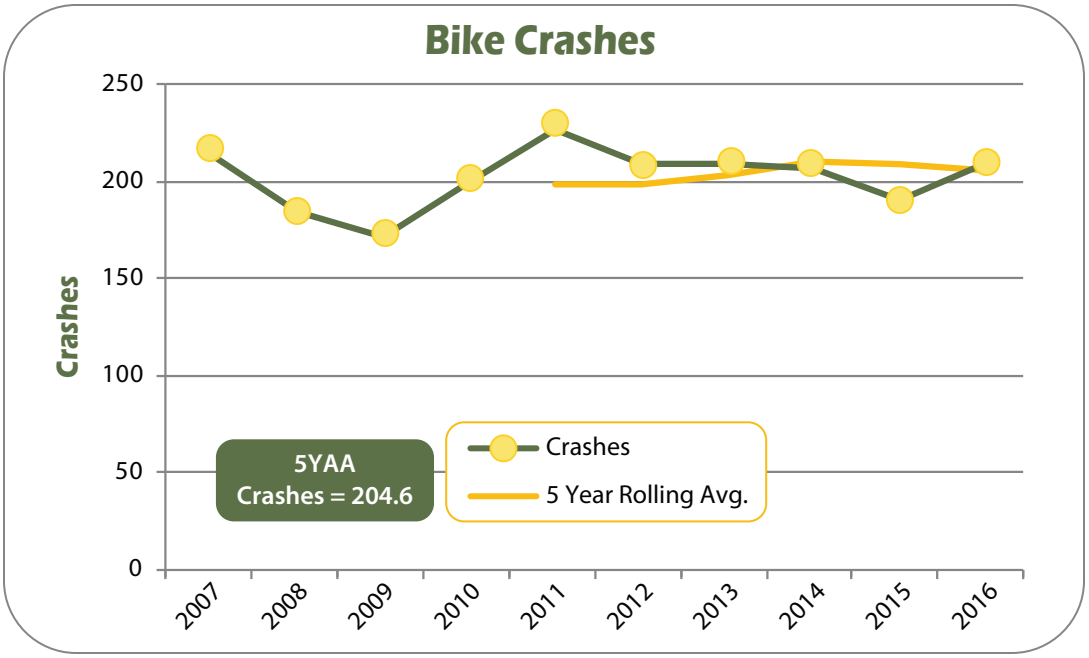
- **Reasoning**: Web resources can provide viable and efficient information.
- **Lead**: MaineDOT
- **Timing**: Ongoing

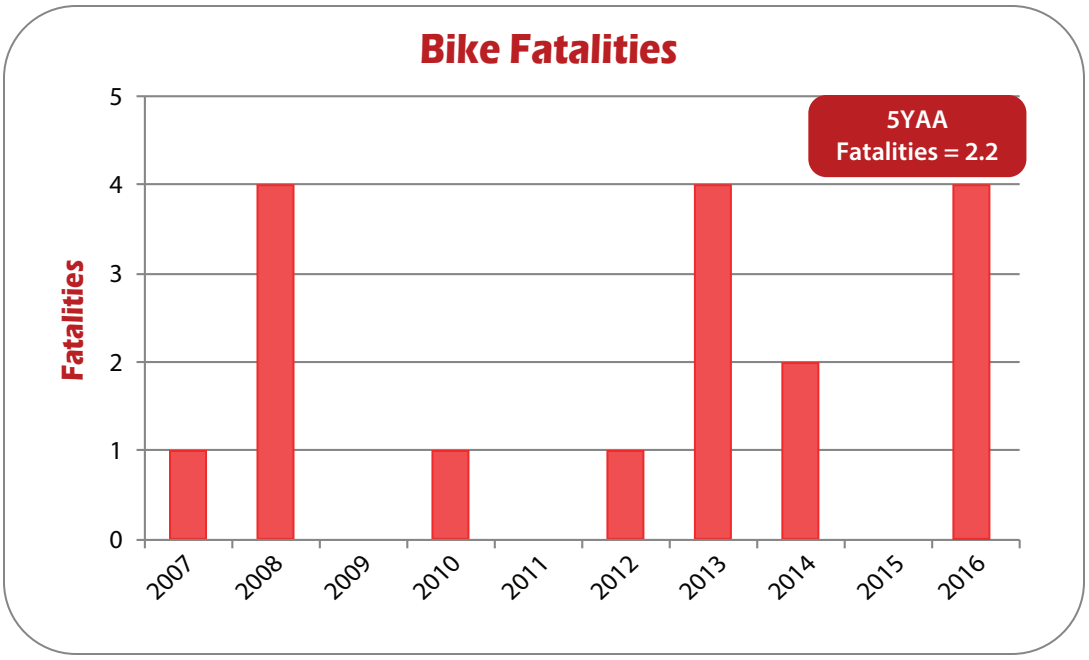
Improve state and local policies and ordinances to ensure that bicycle connections are made, whenever feasible, as part of all road improvement projects, developments, site plan approvals, and traffic and environmental mitigation efforts.

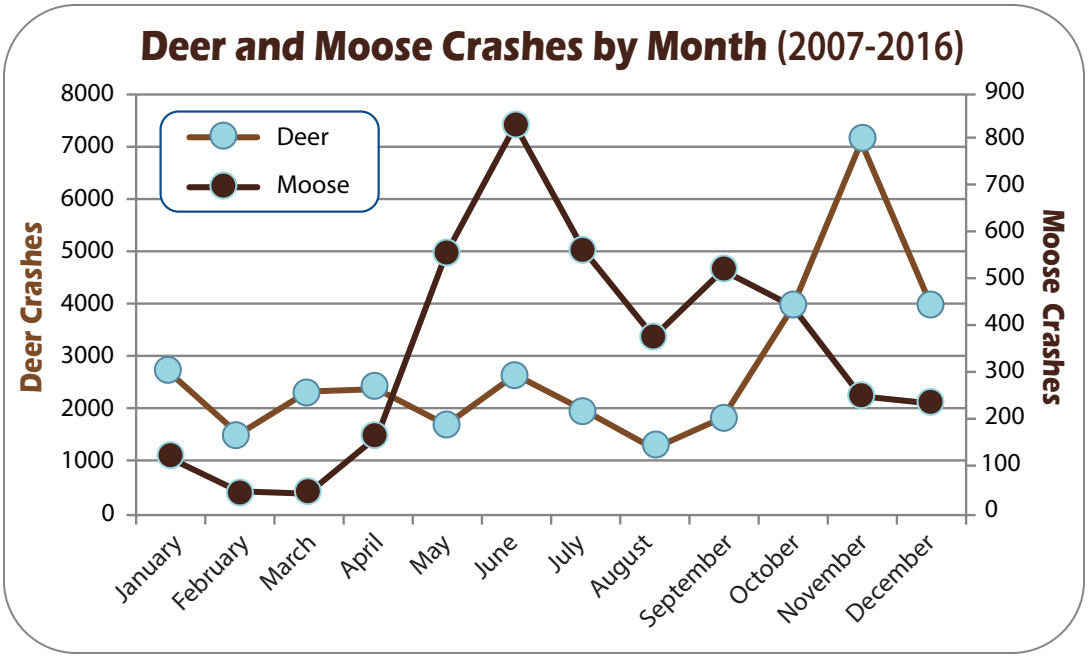
- **Reasoning**: Policies, ordinances, etc. are crucial to ensure that bicycle-related improvements are made at the time of designing and constructing a new building or road where warranted.
- **Lead**: **MaineDOT and local municipalities**
- **Timing**: Ongoing

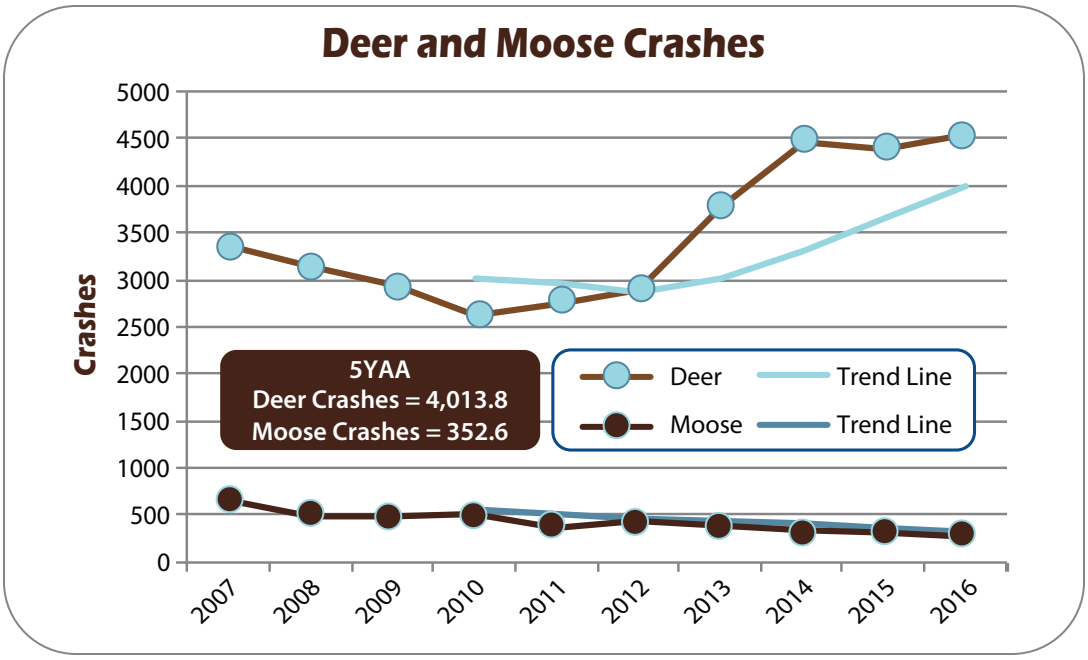
Identify key locations where the following engineering improvements could be made:

- Colored and other high visibility pavement markings to identify bike lanes.
- Separated bike lanes, bikeways, and cycle tracks.
- Bike detection technologies at traffic signals and other select locations.
- Continue to pave shoulders during maintenance paving if the shoulders may be a hazard to bicyclists.
  - **Reasoning**: Improve travel and visibility of bicyclists.
  - **Lead**: **MaineDOT**
  - **Timing**: Ongoing


Bike Crashes
Crashes
250
200
150
100
50
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Crashes = 204.6
Crashes
5 Year Rolling Avg.


Bike Fatalities
Fatalities
5
4
3
2
1
0
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016
5YAA
Fatalities = 2.2


Deer and Moose Crashes by Month (2007-2016)
Deer Crashes
Moose Crashes
Deer
Moose
8000
7000
6000
5000
4000
3000
2000
1000
0
900
800
700
600
500
400
300
200
100
0
January
February
March
April
May
June
July
August
September
October
November
December


Deer and Moose Crashes
Crashes
5000
4500
4000
3500
3000
2500
2000
1500
1000
500
0
5YAA
Deer Crashes = 4,013.8
Moose Crashes = 352.6
Deer
Trend Line
Moose
Trend Line
2007
2008
2009
2010
2011
2012
2013
2014
2015
2016

Large Animals (Deer and Moose)

Our Challenge

Maine is known for its terrific scenery and the accompanying wildlife – moose, deer, turkeys and other creatures that may find their way onto any road, anywhere, any time.

Moose and deer have much higher crash activity from dusk to dawn.

Maine does have a multiagency task force to address related safety issues.

Moose do not represent the most frequent Maine animal crash type, but they are highlighted due to their sheer size. Impact with these animals can be devastating, with countless stories about these tall, heavy animals entering the passenger compartment upon impact, causing serious injury and death.

Deer crashes are more frequent and, although the animal is smaller, injuries and even fatalities do sometimes result.

MaineDOT works with the Maine Department of Inland Fisheries and Wildlife (IF&W) and other agencies on road and wildlife management actions to update strategic activities.

Large Animal (Deer and Moose) Strategies

Identify high crash locations.

- **Reasoning**: Repeated crashes in one location or corridor indicate a high use by large animals. MaineDOT assesses the information by reviewing reported crash locations in concert with IF&W. Population, moose/deer harvest data and moose observation information provided by hunters are also considered.
- **Lead**: **MaineDOT with Maine IF&W**
- **Timing**: Ongoing

Identify possible animal/vehicle crash reduction solutions.

- **Reasoning**: IF&W reviews moose and deer populations with a goal of wildlife management. In some management districts, moose permits have increased to control the population of moose where they have become a hazard or a problem. Similar strategies are used for deer in more southern wildlife management districts. Controlling populations is part of the strategy, and increasing the drivers' ability to detect hazards is another. MaineDOT will install ground signage, clear vegetation and use other strategies in northern and western Maine to increase the drivers' safety. They will work with other state and provincial agencies to innovate strategies. MaineDOT also will build upon the on-site knowledge that regional biologists and game wardens have to properly identify strategies.
- **Lead**: **MaineDOT and Maine IF&W**
- **Timing**: Ongoing

Continue public outreach activities.

- **Reasoning**: The message that the probability of a crash is real is needed to remind the public to be careful, and to educate drivers that these hazards are on the roads.
- **Lead**: **MaineDOT, Department of Public Safety, Bureau of Highway Safety, and Maine IF&W**
- **Timing**: Seasonal, when animal movement is most frequent/ongoing.

Address special mitigation needs in seasonal crash areas. Specific key deer wintering areas need to be identified.

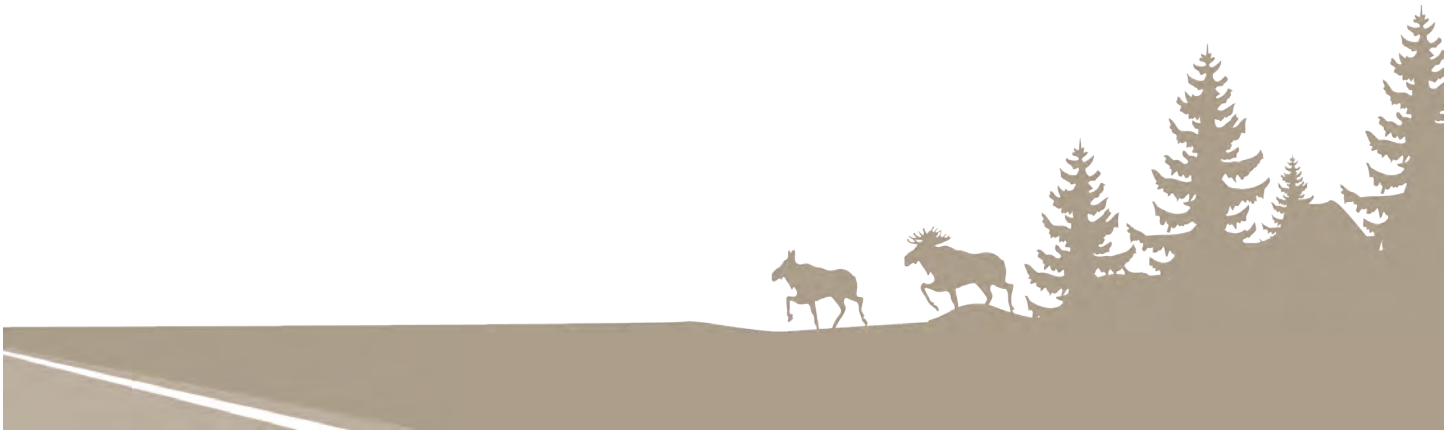
- **Reasoning**: Larger groups of deer winter together and then move back into the forests once the conditions allow for free movement. This can create concentrated deer crash potentials. Special short-term signing is being used when deer gathering areas are breaking up in the spring. Bald eagles remain in Maine over the winter and change foraging habits to include road-killed species. Close communication between MaineDOT and IF&W is needed to accomplish timely sign posting and sign closure after the eagles return to foraging in waterways or when deer movements slow down.
- **Lead**: **MaineDOT with Maine IF&W**
- **Timing**: Each spring

Use the following engineering solutions to mitigate animal-vehicle collisions at select locations:

- Changeable message signs alerting motorists.
- High visibility signs that are only posted seasonally, such as when deer yards are dispersing in the spring.
- LED lighting at select locations to help motorists' spot wildlife at night.
- Roadside delineators to indicate a break in reflectivity when animals cross between them.
- Use of oversized and retroreflective signs in heavily populated habitats.
  - **Reasoning**: Assist in alerting motorists to the presence of wildlife.
  - **Lead**: MaineDOT
  - **Timing**: Ongoing

Work with local interests on special large animal safety concerns. For example, Mount Desert Island is an area where deer populations and vehicle crashes have been increasing.

- **Reasoning**: Wildlife populations do not increase uniformly, and historical wildlife practices vary from region to region. Specific localized needs, assessments and action plans may need to be coordinated with local authorities including town, state and federal park systems, etc.
- **Lead**: **MaineDOT with Maine IF&W**
- **Timing**: Ongoing



Operating After Suspension (OAS)

Our Challenge

Suspended drivers are still driving. OAS fatality percentages compared with crash percentages indicate that crashes involving an OAS driver have higher severity than average.

Suspensions are often initiated due to a history of unsafe driving practices. Young drivers are more susceptible to license suspension due to provisions in the state's graduated driver's license.

Suspensions can also be initiated due to other violations such as failure to pay child support. This diversity in suspension causes makes it difficult to link the suspension types to crash outcomes. However, the number of Maine license suspensions, and the related crashes and fatalities are significant.

Our Challenge:

- **Reduce OAS fatalities**
- **Increase public awareness of the dangers caused by suspended drivers**
- **Improve the process of notifying drivers when their license is under suspension**
- **Increase consistent prosecution for drivers found to be operating after suspension**

Crashes Involving Drivers with Suspended Licenses

Year	All Crashes	Suspended Crashes	% of Suspended Crashes	All Fatalities	Suspended Fatalities	% of Suspended Fatalities
2003	35208	795	2.26%	207	9	4.35%
2004	35012	854	2.44%	194	20	10.31%
2005	35046	707	2.02%	169	17	10.06%
2006	32065	679	2.12%	188	18	9.57%
2007	33385	789	2.36%	183	16	8.74%
2008	31778	584	1.84%	155	4	2.58%
2009	28980	613	2.12%	159	14	8.81%
2010	27891	581	2.08%	161	8	4.97%
2011	28653	577	2.01%	136	11	8.09%
2012	28523	662	2.32%	164	16	9.76%
2013	30506	630	2.07%	145	19	13.10%
2014	31873	667	2.09%	131	14	10.69%
2015	32882	678	2.06%	156	15	9.62%
2016	33289	752	2.26%	160	15	9.38%
5 Year Annual Average		642.8	2.11%		15	9.91%

Emergency Services/Incident Management

Our Challenge

Maine has nearly 6,000 responders who are associated with the 285 EMS services. In 2016, Maine EMS providers responded to 281,022 calls. Of these, 178,940 were emergency (9 -1-1) calls, including over 11,000 car crashes. Timely notification to EMS activates a system of care that includes emergency medical dispatchers, pre-hospital providers, and hospital resources.

Maine has both a statewide trauma system that involves every hospital and statewide EMS treatment protocols which help to provide quality care and the most appropriate destination for trauma patients. Based upon historical data,

Maine emergency vehicles experience an average of 60 crashes a year.

Further study needs to be done in order to evaluate the data and develop an appropriate plan. Workers experience about 12.7 fatalities per 100,000 workers. This is about the same as police departments and fire departments and 250% higher than average workers. Transportation risks are 500% higher than average. In terms of work-related injuries, EMS is at 34.6/100, which is higher than fire and police departments, and seven times higher than the average worker. For air medical crew, there have been 113 deaths per 100,000 employees, which is more than Alaska fisherman (111/100,000) and police ((21/100,000).

Forty-one percent of the ground ambulance crashes happen while responding to an emergency; 17% during routine driving, and about 12% each for transporting a patient in an emergency setting or non-emergency setting. Fifty-eight percent happen during clear and dry weather conditions. Fatigue is a big concern because many EMS and fire departments still work 24-hour shifts. A study published in Pre-Hospital Emergency Care concluded that after 21 hours awake, individual performance is equivalent to a blood alcohol content of .08 in terms of concentration and response.

In addition, other emergency responders quickly arrive at the crash scene, where injuries need to be addressed, investigations need to be conducted, and the site needs to be managed. Notification to approaching traffic needs to be made, crash site needs to be cleared and normal traffic flow needs to be restored as soon as reasonable. Many stakeholder organizations are working together to make sure incident management protocols are in place.

Emergency Services/Incident Management Strategies

Data: Maine has had a mandatory EMS data system since 1982. It was converted to a computer-based patient care reporting system in 2006 and the transition was completed in 2009. Maine Emergency Medical Services manages the system within the department. Maine EMS does not have the ability to objectively assess data quality. In the past, empirical evaluations have indicated issues with accuracy, completeness, and timely submissions. In 2017, Maine EMS expects to complete a conversion to the NEMSIS 3 dataset, which should help in these areas.

Regarding linkage with other data sources, Maine EMS drafted legislation that was passed in 2011 that will allow MEMS to provide confidential data to agencies (such as the Maine Center for Disease Control and Prevention and the Office of the Chief Medical Examiner) and for research projects. EMS is continuing to work with the Maine CODES project for opportunities to provide data. Regarding data quality assessment, EMS will be working with MeBHS to identify resources for assessing both EMS and BHS data as recommended in a recent traffic records assessment. EMS is also developing standardized report cards that will be sent to each provider summarizing their performance in key areas and comparing their results with other providers within the EMS region and in the state.

- **Lead**: Maine EMS
- **Timing**: Ongoing

Quality Improvement: In 2015, Maine EMS conducted a quality improvement study of situations where patients either refused transport and/or did not warrant transport. The No Transport study identified that EMS providers do not always comply with established Maine EMS protocols. The results of this study led to Maine EMS creating additional fields in the forthcoming MEFIRS system. In 2016, Maine EMS studied statewide cardiac arrest survival rates. Data suggests that a patient found in a ventricular rhythm upon arrival of EMS had a 21% survival rate. About 10% of all cardiac arrests survived to hospital discharge. This survival rate is consistent with national studies. In 2017, Maine EMS expects to continue to study the effectiveness of the cervical spine immobilization protocol.

- **Lead**: Maine EMS
- **Timing**: Ongoing

Education: Maine EMS has adopted the national education standards for all license levels and has made rule changes to transition other license levels to the appropriate national standard. Current educational activities include updating continuing education requirements to reflect concurrent skills/knowledge expectations.

- **Lead**: Maine EMS
- **Timing**: Ongoing

Emergency Medical Dispatch Determinant Codes: Maine EMS made regulatory changes that allow EMS services to modify their response based upon dispatch determinant codes. Maine EMS has specific requirements for the development and implementation of these codes, and works with interested services on this project.

National data suggests that use of Emergency Medical Dispatch determinant codes results in better utilization of resources.

- **Lead**: **Maine EMS**
- **Timing**: Complete

EMS data collection: Maine EMS requires all EMS services to submit an electronic patient care report (ePCR) within one business day of a call. The Maine ePCR system utilizes the National EMS Information System data definitions and will transition to NEMSIS 3.0 during 2017.

NEMSIS 3.0 will also contribute significantly to the goal of integrating Maine EMS data with the Maine Health Information Network (InfoNet).

- **Lead**: **Maine EMS**
- **Timing**: NEMSIS 3.0 compliance in the second half of 2017, with integration to Maine Health InfoNet in the second half of 2017.

Promote a culture of safety: The problems of EMS safety are well-documented and have been discussed nationally for many years. In spite of these discussions, the rate of job-related injuries and crashes remains high.

Maine has required basic ambulance vehicle operator training for several years and continues efforts to educate providers about the importance of safe operations. Some services have installed vehicle telematics that provide data on vehicle location and some vehicle operation data such as speed, braking, sudden turns, etc. However, the overwhelming majority of services are skeptical about the benefits to such a monitoring system. Vehicle design has made only modest improvements in providing a safe environment for patients and providers during transport. This continues to be an area of considerable attention around the country because of both the paucity of data and the potential added expenses for vehicles.

While we work through vehicle design and operating issues, there are some areas where we are able to focus:

Emergency Medical Dispatch (EMD): Maine has a statewide EMD requirement and one of the goals of EMD is to decrease the frequency of lights and sirens ("code 3") responses. An essential step in implementing response codes is quality assurance within the dispatch centers. In June, the Board of EMS adopted mandatory QA reporting requirements and the EMS office is working with services who are interested in developing response codes. Efforts to expand the use of response codes will be discussed and developed based upon lessons learned from these initial pilot services.

Transporting Children Safely in Ambulances: With funding assistance from MeBHS, Maine EMS has conducted several train-the-trainer sessions to teach EMS providers about the proper way to secure children in an ambulance. This program is now part of many initial training programs. A goal is to have it become part of all initial training programs.

- **Lead**: Maine EMS
- **Timing**: TBD

EMS: Public Information, Education, and Relations (PIER) has been an area of limited involvement with EMS services. While some have done impressive outreach programs for cardiac care, playground safety, etc., the majority of services are unsure about how to implement such a program. In response, the contract that MEMS has with the regional EMS offices includes improving PIER during the coming fiscal year. The Trauma Advisory Committee (TAC) offers Technical Assistance Team (TAT) visits to hospitals upon request. TAT visits are offered to all non-trauma center hospitals with a primary focus on hospitals categorized as Critical Access Hospitals, the smallest and most rural in the state. This resource is funded by a grant from the Maine Office of Rural Health, Hospital FLEX grant program.

- **Lead**: Maine EMS
- **Timing**: Ongoing

Incident Management Task Force activities will continue bringing together many at-the-scene stakeholders to plan for emergency events and for emergency site coordination. Activities being reviewed include:

- Screening of the crash scene to minimize traffic rubber-necking;
- Improving traffic notification changeable message signs and other means; and
- Improving signage for key detours when traffic needs to be diverted.
  - **Reasoning**: Keep the emergency site safe for those involved, eliminate secondary crashes and restore traffic operations.
  - **Lead**: MaineDOT with many other agencies
  - **Timing**: Ongoing


FIRE
DEPT


STOP

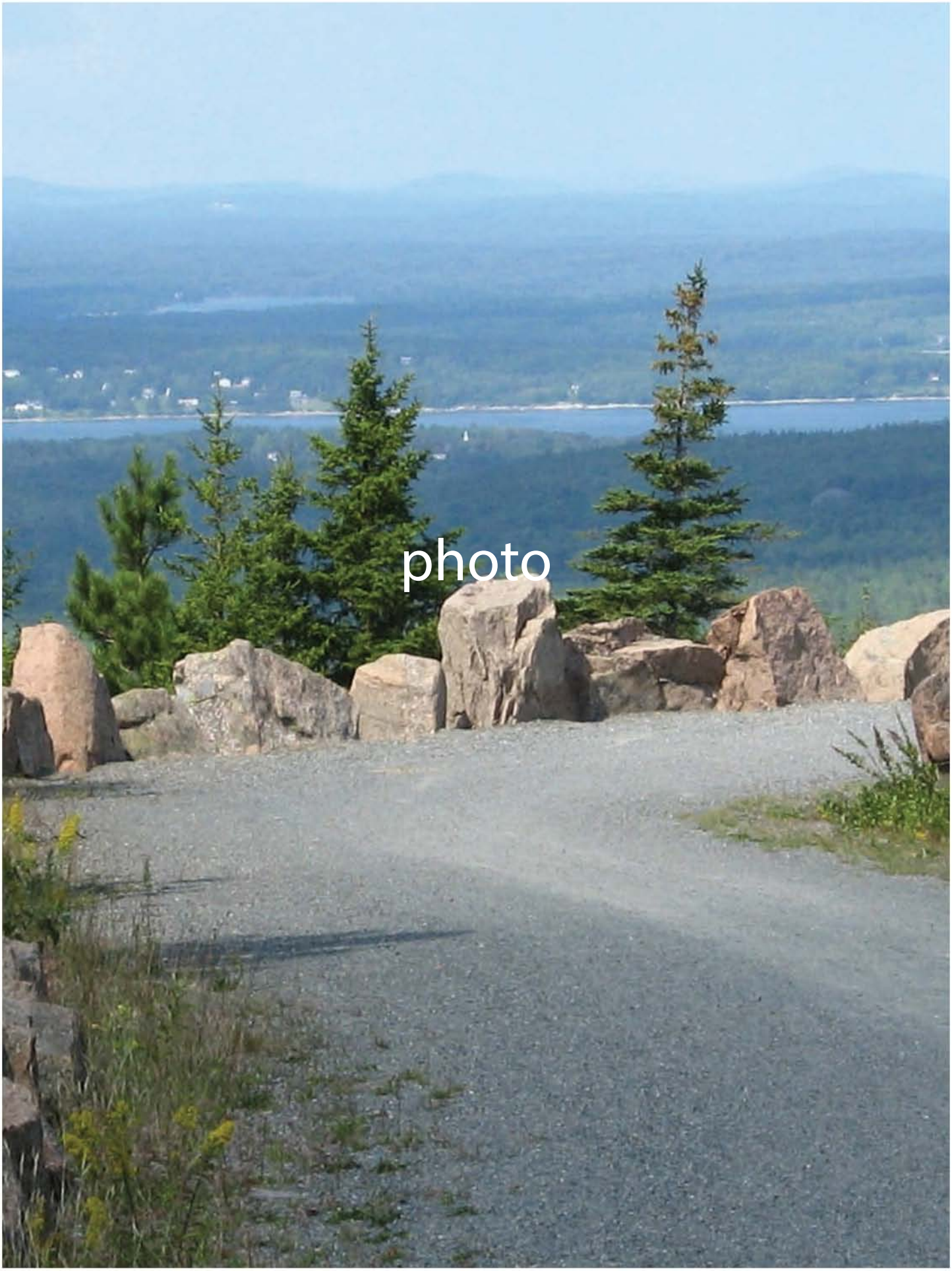
High Risk Rural Roads

Our Challenge

High risk rural roads are of safety interest and present opportunities for safety improvements.

These roads have the Federal Functional Classification of Rural Major and Minor Collectors, and Rural Local roads that have significant safety risks. A "significant safety risk" may be identified as a section of road or intersection with one or more of the following characteristics:

- Has a crash, fatality and/or serious injury rate that is at least 10% higher than roadways of similar functional classifications in Maine.
- Meets the definition of Maine's High Crash Location criteria.
- Has significant crash clusters of head-on or went-off-road crashes.
- Is identified as a high risk location through engineering/safety field reviews, safety assessments, road safety audits, and local town/law enforcement knowledge. Using observations in the field can help identify high risk locations that may not be identified through data analysis.
- Shows increases in traffic volumes that are likely to create a crash rate for fatalities and incapacitating injuries that exceed the statewide average at those locations.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Safety Planning Beyond Statewide Efforts:
Metropolitan Planning Organizations, Regional Planning Organizations and Tribal Groups

Our Challenge

MPOs/RPOs: The concern for safety extends to roads and modes of all types and settings in Maine.

While the four Maine Metropolitan Planning Organizations (MPOs) have a more local focus in the denser parts of the state, Maine Regional Planning Organizations (RPOs) provide transportation planning services for the rest of the mostly rural state. While the urban areas benefit from lower speed limits, they also see increased safety vulnerabilities with higher bicycle and pedestrian activity.

Overall, two thirds of Maine's roads are locally maintained.

The MPOs and RPOs are an important part of the safety and State Highway Safety Plan conversation. Maine's MPOs and RPOs have a variety of efforts under way to integrate safety into their planning. For further details about their plans, go to the individual MPO/RPO website. The items below provide a sampling of activities being conducted by some of Maine's MPOs/RPOs and coordinated activities with tribal groups.

Maine's MPOs

- Androscoggin Transportation Resource Center (ATRC).
- Portland Area Comprehensive Transportation System (PACTS)
- Bangor Area Comprehensive Transportation System (BACTS)
- Kittery Area Comprehensive Transportation System (KACTS)

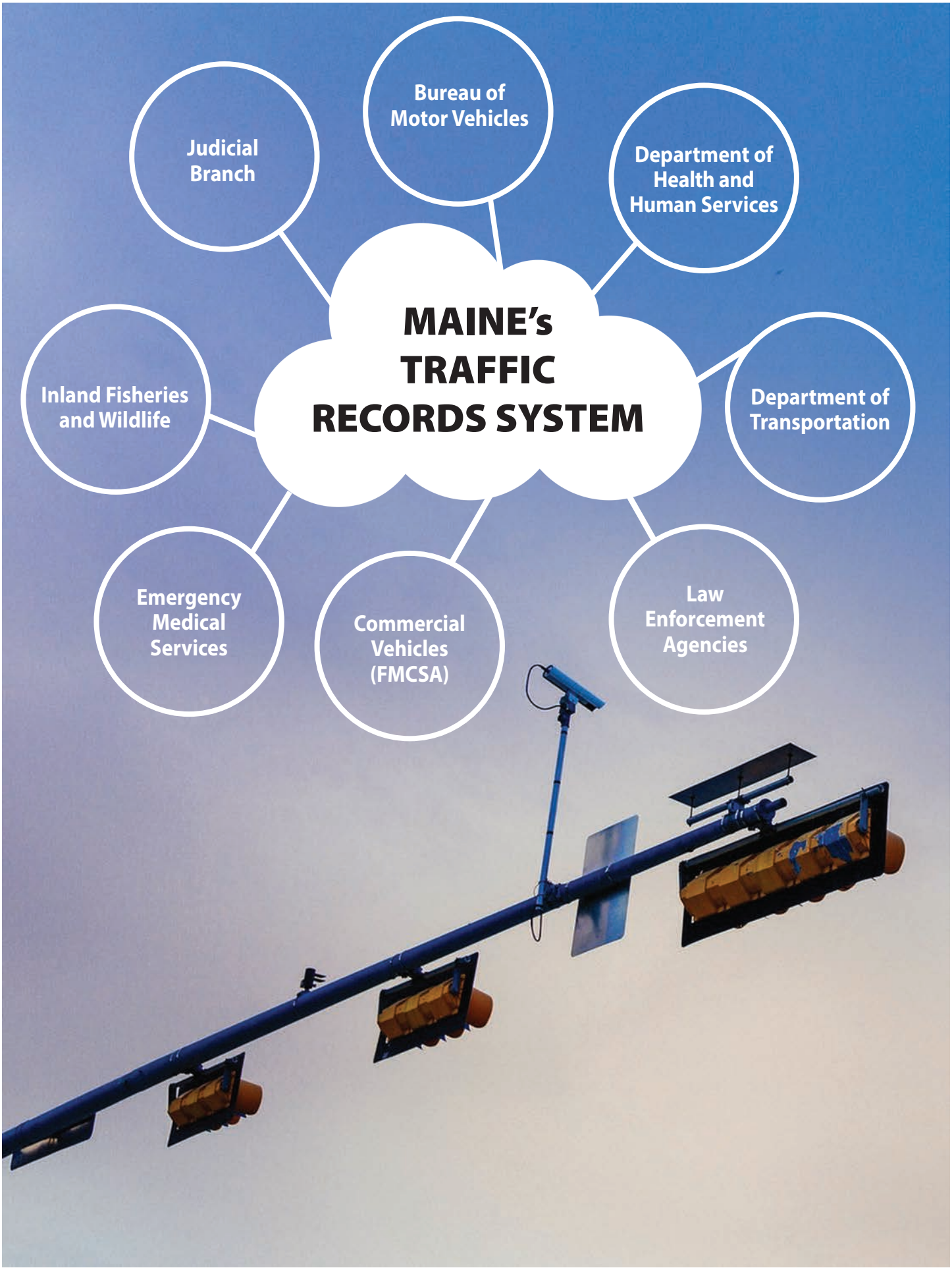
Each MPO is required to establish its own set of safety performance targets starting in 2018 that are in line with statewide efforts. While MPOs share many of the same safety challenges, these more densely populated areas will have higher concentrations of pedestrians and bicyclists. As a result, there is more focus on these two safety areas.

RPOs

Maine also has Regional Planning Organizations that provide transportation planning assistance to Maine's rural communities. The nature and breadth of safety planning efforts can differ by region, depending upon local/regional issues and opportunities for improvement.

Tribal Groups

Tribal groups are also responsible for transportation safety planning. MaineDOT is actively keeping these groups informed about the SHSP and is seeking ways to coordinate transportation safety planning by discussing tribal transportation safety plans, identifying specific safety project opportunities and participating in road safety audits.


MAINE's
TRAFFIC
RECORDS SYSTEM
Judicial Branch
Bureau of Motor Vehicles
Department of Health and Human Services
Inland Fisheries and Wildlife
Department of Transportation
Emergency Medical Services
Commercial Vehicles (FMCSA)
Law Enforcement Agencies

Traffic Records

Our Challenge

Maine's Strategic Highway Safety Plan is data driven.

Maine enjoys having very good traffic records data systems. This quality data has enabled us to define the what and whys of safety needs. Maine has published crash results in key performance areas during recent years.

It is important that Maine continuually evaluates how to more effectively and efficiently gather, evaluate and report crash results.

A good understanding of the safety issues that data analysis provides will help lead to the best strategies to improve safety and save lives.

The goal of Maine's Traffic Records Coordinating Committee (TRCC) is to continue to develop a comprehensive traffic records system so Maine can address the highest priority highway safety issues. Maine's TRCC partners have made significant progress in improving the state's traffic records systems.

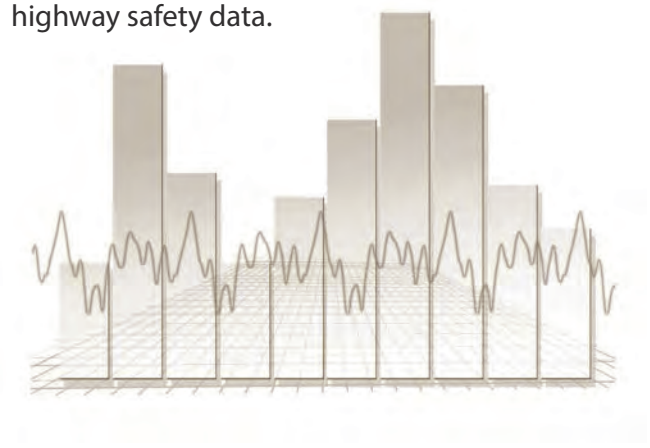
Maine's TRCC has identified, selected and prioritized projects to resolve the deficiencies identified in the Traffic Records Strategic Plan through a recent Traffic Records Assessment. The TRCC agreed on the prioritization based on the ability to: improve data quality in the core traffic records data systems; bring existing efforts currently underway to completion; and make measurable progress. The end goals of the TRCC are to improve the performance areas (timeliness, consistency, completeness, accuracy, accessibility, and integration), and increase MMUCC and NEMSIS compliance.

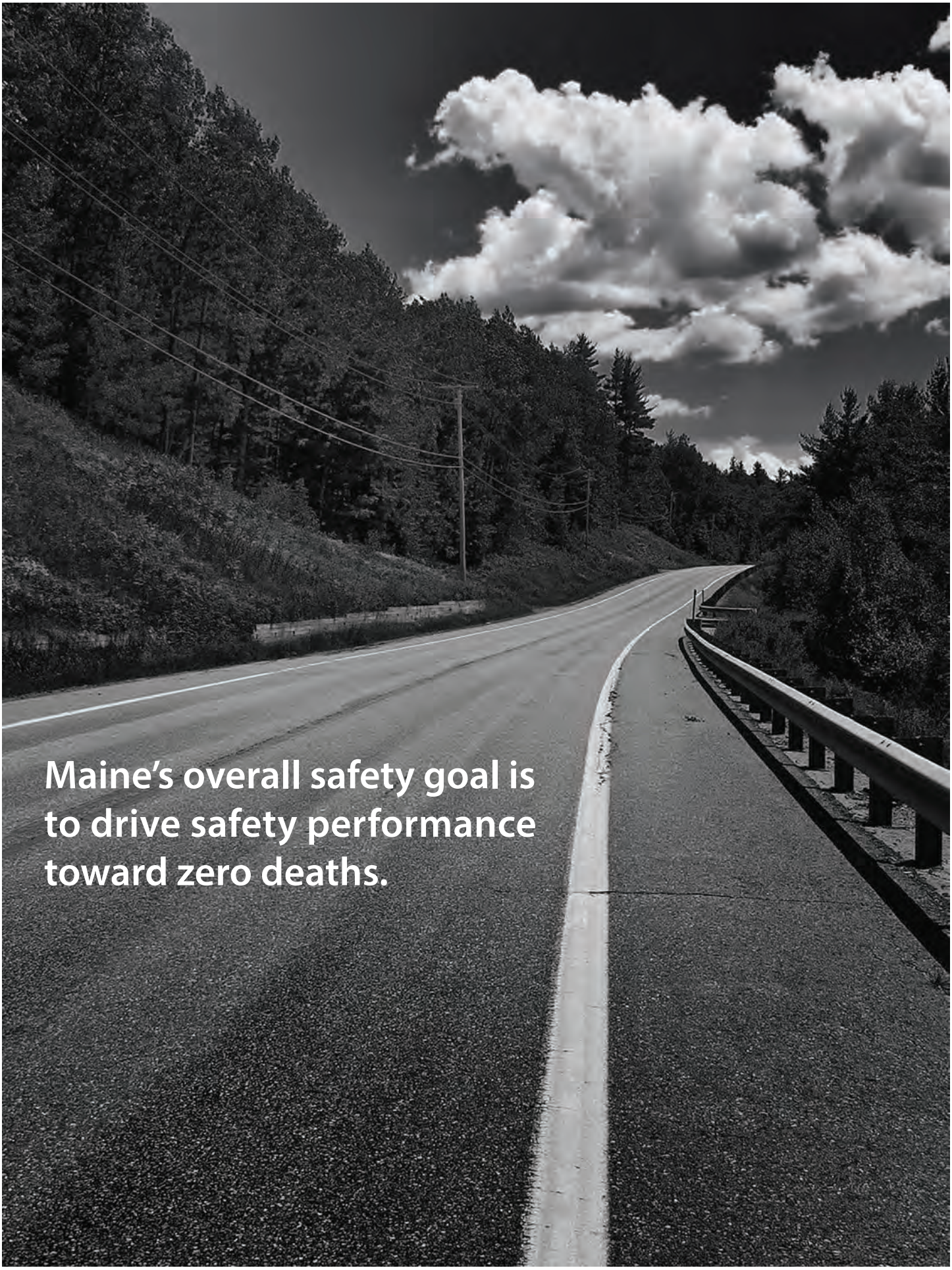
Traffic Records Strategies

Maine does have a Traffic Records Coordinating Committee that has multiagency representation, meets on a quarterly basis and identifies areas of future data system enhancements. **The types of records that are evaluated in this process are:**

- **Crash Data System**
- **Citation and Adjudication**
- **Injury Surveillance System**
- **Vehicle Data System**
- **Driver Data System**
- **Roadway Data System**

Upcoming TRCC projects include: Maine Crash Reporting System upgrades; E-Citation; enhancements to Maine's new Public Access Crash Reporting Data tool; and electronic collection of highway safety data.




Maine's overall safety goal is
to drive safety performance
toward zero deaths.

12/2017– 50/50