FFY 2021 Massachusetts Highway Safety Plan
Office of Grants and Research

Office of Grants and Research
Highway Safety Division
10 Park Plaza, Suite 3720-A
Boston, MA 02116
www.mass.gov/highwaysafety

Charles D. Baker, Governor
Karyn Polito, Lt. Governor
Thomas A. Turco III, Secretary of Public Safety and Security
Terrence Reidy, Undersecretary for Law Enforcement
Kevin J. Stanton, Executive Director, Office of Grants and Research

Contact:
Jeff Larason, Director
Highway Safety Division
jeff.larason@mass.gov
617.725.3308

Cover page image source: Photo by Daniel Lobo on Flickr/Creative Commons

Data Sources used throughout this report:

FARS (Fatality Analysis Reporting System) data located at https://www.nhtsa.gov/research-data/fatality-analysis-reporting-system-fars

MassDOT (Department of Transportation) data at https://apps.impact.dot.state.ma.us/cdp/home

FHWA (Federal Highway Administration) data at https://www.fhwa.dot.gov/policyinformation/statistics.cfm

U.S. Census data at https://www.census.gov/quickfacts/fact/table/US/PST045219

Massachusetts Trial Court data at https://www.mass.gov/court-data-metrics-reports

Merit Rating Board (MRB) provided data related to State and local police violations issued in Massachusetts. There is no online data location, as the data is issued internally.

FARS data were used for all fatality-related data provided in this report. MassDOT was used for serious injury data, and FHWA was primarily for Vehicle Miles Traveled (VMT), vehicle registration, and lane miles data. U.S. Census data was used for population figures.

Table of Contents

List of Graphics Presented in FFY 2021 HSP

Introduction to the FFY 2021 Highway Safety Plan

On behalf of Governor Charles Baker and Lieutenant Governor Karyn Polito of the Commonwealth of Massachusetts, the Executive Office of Public Safety and Security's (EOPSS), Office of Grants and Research (OGR) is pleased to present our Federal Fiscal Year (FFY) 2021 Highway Safety Plan (HSP) for consideration of funding. This document outlines our program priority areas, identifies performance targets, and discusses proposed initiatives. This HSP serves as the framework for the implementation of countermeasures with highway safety partners across the Commonwealth.

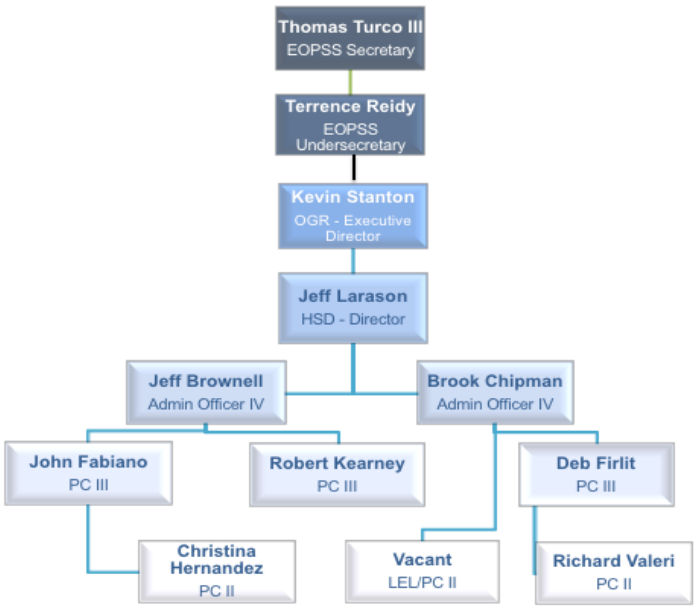
Under the supervision of the Executive Director, OGR's Highway Safety Division (HSD) is responsible for the development, implementation, coordination, and ongoing management of the Massachusetts highway safety program. This responsibility includes identifying traffic safety priorities and working with partners to develop programs and initiatives to address ongoing and shifting highway safety needs.

Current OGR Organization

On behalf of EOPSS, OGR serves as the state administering agency for the National Highway Traffic Safety Administration, Department of Justice, and Federal Emergency Management Agency funds awarded to the Commonwealth. The Office of Grants and Research is divided into five divisions including Highway Safety, Justice and Prevention, Research Policy and Analysis, Homeland Security, and Fiscal. The structure provided below is current page as of June 30, 2020, it reflects EOPSS and OGR leadership, and only highlights the Highway Safety unit within OGR.

There were no changes in staffing throughout FFY 2020. The organization charts below reflect the EOPSS and HSD structure.

Figure 1: EOPSS/OGR Highway Safety Division Organizational Chart



Mission Statement

The mission of the HSD for the OGR, is to secure and disseminate grant funding and to facilitate the development and implementation of policies, programs and partnerships designed to reduce fatalities, injuries, and economic losses resulting from motor vehicle crashes on the roadways of the Commonwealth of Massachusetts.

Highway Safety Program Overview

Within the Commonwealth of Massachusetts, OGR is responsible for planning, implementing, and evaluating highway safety projects with federal and non-federal funds. This agency also coordinates the efforts of federal, state, and local organizations involved with highway safety in Massachusetts.

Highway safety planning process

The OGR HSD team began the planning process for developing the FFY 2021 HSP by gathering all relevant data related to performance targets and doing an in-depth analysis of the data to find trends within one-year, five-year, and (if feasible) ten-year periods. The data was analyzed across different fields, including county, municipality, month, day of the week, time of day, gender, and age. Furthermore, mapping software was used to provide a visual tool to help analyze trends and hot spots throughout Massachusetts. This information helped identify high-risk locations as well as behavioral patterns among roadway users that require attention.

The data sources utilized in this analysis process are listed below:

- Fatality Analysis Reporting System (FARS) – fatalities and fatal crashes
- Massachusetts Crash Data System (CDS) – fatalities and injuries
- Massachusetts Injury Surveillance Program – injuries and hospitalizations
- Massachusetts Citation Data – roadway violations
- Massachusetts Safety Belt Usage Observation Survey – safety belt usage, occupant protection
- FHWA Highway Statistics – Vehicle Miles Traveled (VMT), licensed drivers, and road miles
- U.S. Census Bureau statistics – population, income levels
- FBI Crime Statistics – arrests for driving intoxicated and other vehicle-related crimes

The results of the data were coordinated and shared with the Massachusetts Department of Transportation. This coordination occurred to ensure that performance targets related to fatalities, serious injuries, and fatalities per 100 million VMT are identical to what is in the Massachusetts Highway Safety Improvement Program (HSIP) and the Strategic Highway Safety Plan (SHSP). Other performance targets were determined through trend analysis and ongoing exchanges with critical federal, state, and local partners such as state and local police departments, Massachusetts Department of Public Health, the Governors Highway Safety Association, and the Traffic Records Coordinating Committee.

OGR also relied on input provided by a wide range of statewide and community partners, including state and local police, and non-profit organizations focused on road safety. These stakeholders provided valuable information related to traffic safety issues facing their respective communities and constituencies, along with suggestions about potential solutions to address those issues.

Specifically, staff members are in frequent contact with current and potential grant subrecipients to identify trends and possible adjustments to programs to better address anticipated future needs. Additionally, the Director of Highway Safety Programs conducted numerous presentations to police associations and departments as well as traffic safety organizations. These efforts were augmented with the Director's continuous phone outreach to individuals in law enforcement agencies and non-profit organizations.

Through the combination of data analysis and input, OGR was able to determine where to focus funding for FFY 2021 in order to procure the most significant impact in reducing crashes, injuries, fatalities, and associate economic losses.

Partners in the Planning Process

To help determine problem areas to focus on, the HSD team engaged with many participants during the planning process, including but not limited to:

- Massachusetts Department of Transportation (MassDOT)
- Massachusetts Registry of Motor Vehicles (RMV)
- Massachusetts Department of Public Health
- Massachusetts Department of State Police (MSP)
- Governors Highway Safety Association
- Massachusetts District Attorneys Association (MDAA)
- Massachusetts Executive-Level Traffic Records Coordinating Committee (ETRCC)
- Massachusetts Working-Level Traffic Records Coordinating Committee (WTRCC)
- Municipal Police Training Committee (MPTC)
- Merit Rating Board
- University of Massachusetts Traffic Safety Research Program (UMassSafe)
- Local police departments
- Massachusetts Chiefs of Police Association
- SHSP Executive Leadership Committee
- Boston Emergency Medical Services (EMS)
- Massachusetts Alcoholic Beverages Control Commission (ABCC)
- Massachusetts Executive Office of Health and Human Services (EOHHS)
- Safe Roads Alliance
- Colleges and Universities
- In Control Family Foundation

Overview of Traffic Safety Trends in Massachusetts

The identification of current traffic safety issues for the FFY 2021 HSP was possible through the use of data analysis related to fatalities and fatal crashes over five years (2014 - 2018). The data was gathered from numerous factors including, but not limited to, counties, cities, time-of-day, month, day-of-week, road type, gender, and age. Data from available monthly and year-end reports from FFY 2020 grant-funded programs provided further insight into traffic safety trends. Lastly, input from traffic safety stakeholders added a third layer of analysis to the determination of traffic safety issues in Massachusetts.

All fatality data provided, unless otherwise noted, comes from **FARS** (Fatality Analysis Reporting System).

From 2014 to 2018, 1,792 fatalities resulted from 1,695 crashes along the roadways of Massachusetts. Drivers accounted for nearly two-thirds of all traffic fatalities during those five years.

Figure 2: Massachusetts Fatalities (2014 - 2018)

Massachusetts Fatalities by Type	Number of Fatalities (2014 - 2018)	Percent of Fatalities			
		Driver Fatalities	Passenger Fatalities	Pedestrian Fatalities	Bicycle Fatalities
All Traffic Fatalities	1,792	62.2%	14.0%	21.3%	2.6%
Unrestrained Fatalities	550	79.5%	20.5%	N/A	N/A
Alcohol-Impaired Fatalities	636	70.9%	17.1%	11.0%	0.9%
Distracted Driving Fatalities	223	52.9%	18.8%	26.5%	1.8%
Speed-Related Fatalities	501	71.3%	23.0%	4.8%	1.0%
Driver under 21 involved Fatalities	189	56.1%	29.6%	11.6%	2.6%
Driver 65+ involved Fatalities	323	72.4%	10.8%	14.6%	2.2%
Motorcycle-involved Fatalities	258	95.3%	4.3%	0.0%	0.4%

The Massachusetts population (est. 6,949,503) ranks 15th among the 50 states in the Union. The population per square mile is 890.95, an increase of 10% since 2010 (last Census). Massachusetts drivers tallied 66,772 million Vehicle Miles Traveled (VMT) in 2018, up from 62,660 million VMT in 2017. This number represents a 6.5% increase in just one year. In 2018, interstate travel accounted for 27.4% of it, followed by principal arterials (21%), minor arterials (21%), and local roads (12.9%). Massachusetts is 17th among the 50 States for total VMT and is 15th for total interstate VMT.

From 2014 to 2018, Massachusetts had an increase in VMT for all functional roadway classifications. Massachusetts experienced the fourth largest percent increase in total VMT during these five years, trailing only Georgia, Utah, and Texas.

Figure 3: Top 10 States for VMT Increase (2014 - 2018)

State	VMT Change		State	VMT Change
Georgia	17.9%		Alaska	13.0%
Utah	16.4%		Tennessee	12.4%
Texas	16.0%		North Carolina	12.1%
Massachusetts	16.0%		Nevada	11.9%
South Carolina	13.8%		Wyoming	10.4%

There are six Federal Functional Roadway Classifications:

- **Interstate** – the highest level of mobility for drivers, the lowest level of access to land (i.e., requires exits to reach towns and city areas, and highest posted speed limits (typically 55 to 75 mph). Roadway crosses multiple state lines usually. MassPike (I-90), I-91, and I-95 are examples.
- **Freeway/Highway** – typically state roads that operate similarly to the interstate. Route 24 that runs from Canton to Fall River and Route 128 'inner beltway' that runs from Norwood to Gloucester.
- **Principal Arterial** – these are the main roads that run through major cities and towns, the speed limit can range between 30 to 50 mph and may have a barrier separating the traffic, allows better access to major commercial regions or thoroughfares. Route 60 running through Arlington or Route 9 that runs from Boston to the Berkshire Region are examples.
- **Minor Arterial** – Speeds are slightly lower (25 – 45 mph), connect high volume principal arterials, and have a higher level of access to towns and cities. Route 202 segment that connects Route 9 in Belchertown to downtown Holyoke is an example of a minor arterial.
- **Collector** – these roadways connect principal and minor arterials to local roads. Speeds are typically in the 20 – 40 mph range. Littleton Road in Harvard, which runs from the town center and intersects Route 2 (a principal arterial) is an example of a collector.
- **Local** – these roads have the lowest posted speed limits, limited mobility (no passing or two-lane roads in the same direction), and is the primary way to access residential areas, businesses, and farms.

As Massachusetts' VMT increased substantially, its lane miles (calculated by multiplying road mileage by the number of lanes) have not kept pace, which has contributed to the increased volume of traffic along the roadways in 2018. Since the beginning of the decade, the average one-way commute in Massachusetts has risen from 27 minutes to 29 minutes. High home, apartment, and condominium prices – especially in the Metro Boston region – have pushed workers further away from their place of work. These factors have led to an increase in driving (increased VMT) which consequently led to increased congestion.

Figure 4: Key Massachusetts Roadway and Vehicle Statistics

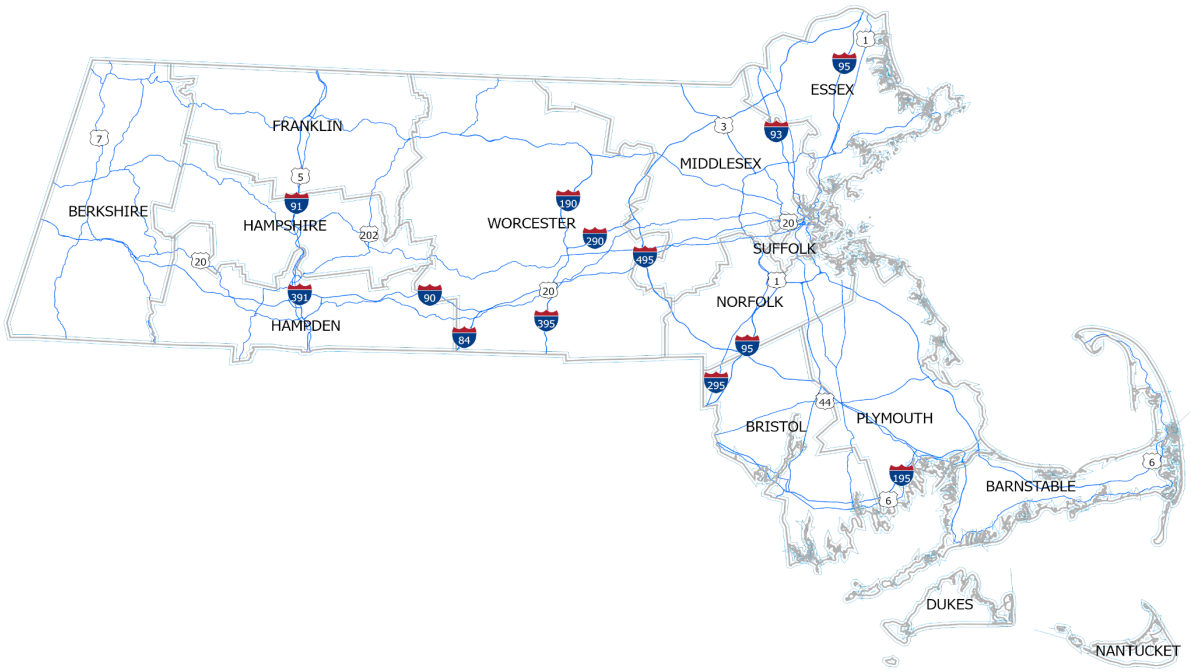
Year	Total VMT (millions)	Lane Miles	Licensed Drivers	Registered Vehicles
2014	57,552	76,873	4,765,586	4,994,439
2018	66,772	77,713	4,944,666	5,061,499
Percent Change	16.0%	1.1%	3.8%	1.3%

The lack of any drastic increase in drivers or vehicles from 2014 to 2018 provides further evidence that Massachusetts residents are traveling longer distances to reach their places of employment.

From 2014 to 2018, Massachusetts reported 1,792 motor vehicle-related fatalities and 11,697 incapacitating injuries along its roadways. This total marks a 0.5% increase in deaths from 1,783 from 2013 to 2017. It is also a drop of 20.5% for disabling injuries in the same period. Massachusetts has consistently had either the lowest or one of the lowest fatality rates in the country based on VMT. In 2018, Massachusetts reported 360 deaths for a fatality/VMT rate of 0.54. The five-year average of fatality/VMT from 2014-2018 was 0.58, down from 0.59 for 2013-2017.

There are fourteen counties across Massachusetts: Barnstable, Berkshire, Bristol, Dukes, Essex, Franklin, Hampden, Hampshire, Middlesex, Nantucket, Norfolk, Plymouth, Suffolk, and Worcester. Over 70% of the population lives in the eastern part of the state in Essex, Middlesex, Suffolk, Norfolk, Bristol, and Plymouth counties. The east region of Massachusetts also encompasses most of the major roadways such as I-495, I-95, I-93, I-195, Rt. 128, Rt. 24, Rt. 9, Rt. 3, and Rt. 2. Boston, the capital, is in Suffolk County and is the largest city in the Commonwealth.

Map 1: Massachusetts Counties and Major Roadways



While the eastern part of the state has more roadways and people than central or western Massachusetts, it also has an extensive public transportation system that helps alleviate the traffic congestion that comes with daily commutes into the Metro Boston area. The Massachusetts Bay Transportation Authority (MBTA) provides subway, bus, and commuter rail options for commuters as well as boat transportation from several coastal communities in locations north and south of Boston. Having public transportation options available has resulted in Suffolk County accounting for only 7.5% of all traffic fatalities from 2014-2018 despite the heavy volume of traffic into and out of Metro Boston every day. Worcester County, which has end terminals for the commuter rail as well as a robust local public bus transportation system, accounted for 15% of all traffic fatalities during the same time. Hampden County, which houses the Springfield metro area, has the interchange of the Mass Pike (I-90) and I-91 within it as well as I-291. From 2014-2018, nearly 10% of traffic fatalities occurred in Hampden.

Figure 5: Fatalities by County (2014 - 2018)

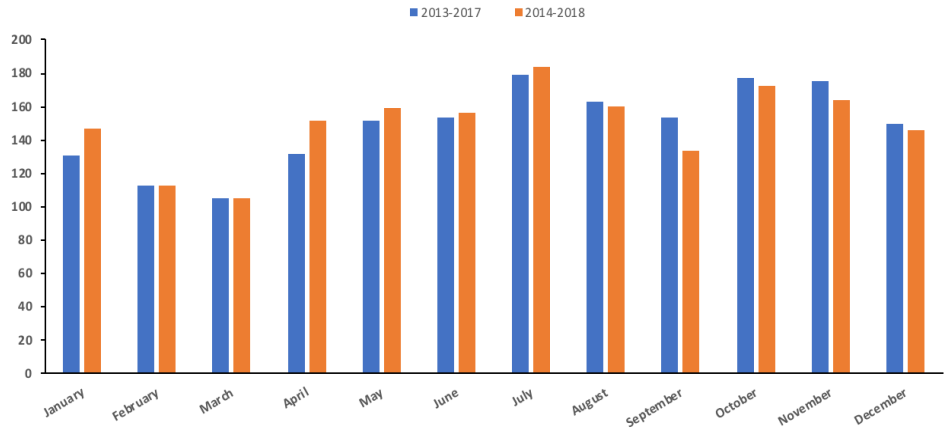
County	2014	2015	2016	2017	2018	Total
Barnstable	16	12	18	14	16	76
Berkshire	9	12	12	11	17	61
Bristol	40	41	51	45	31	208
Dukes	1	1	0	1	2	5
Essex	27	23	33	36	29	148
Franklin	5	11	5	8	11	40
Hampden	34	30	40	35	37	176
Hampshire	10	6	11	6	12	45
Middlesex	45	48	64	34	48	239
Nantucket	0	1	0	0	2	3
Norfolk	41	38	31	32	38	180
Plymouth	50	38	39	45	32	204
Suffolk	26	30	34	25	20	135
Worcester	50	53	49	55	65	272
Total	**354**	**344**	**387**	**347**	**360**	**1,792**

Despite the low percentage of overall deaths in Suffolk County, the surrounding counties of Essex, Middlesex, Norfolk, Bristol, and Plymouth accounted for 55% of all traffic fatalities from 2014-2018, same as it was from 2013-2017. These five counties are where daily commuters into Boston primarily reside, except for some extreme commuters coming from Worcester, Barnstable, and out-of-state.

To get a clearer picture of traffic fatalities in Massachusetts, OGR looked at six key fatality measures in comparison to results from 2013-2017 to provide further data supporting data of where and when traffic fatalities are occurring. These measures are:

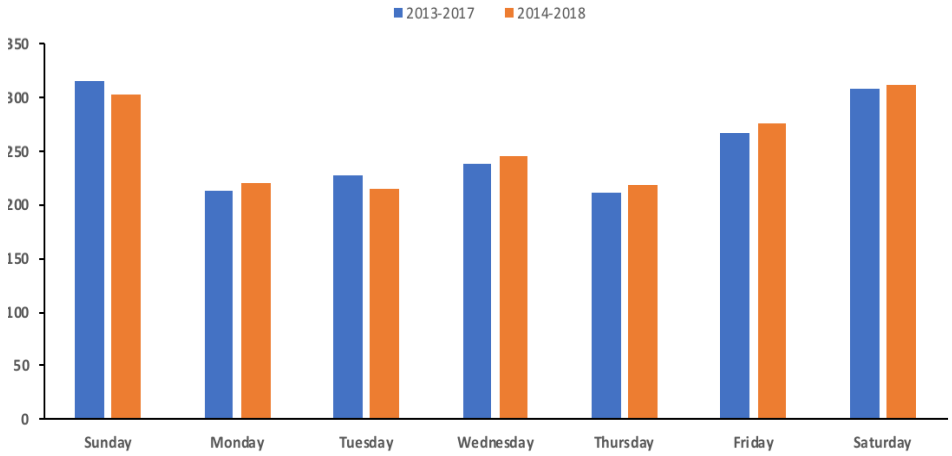
- Fatalities by Month
- Fatalities by Day-of-Week
- Fatalities by Time-of-Day (in three-hour blocks)
- Fatalities by Person Type
- Fatalities by Age Range
- Fatalities by Roadway Type

Figure 6: Fatalities by Month (2013 - 2018)



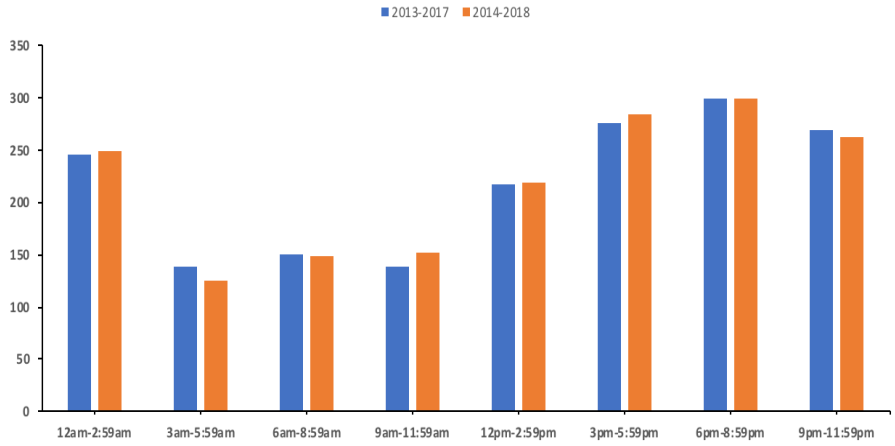
Over the past two five-year periods, July was the deadliest month for traffic fatalities in Massachusetts. The Fourth of July celebration, no school for young drivers, and increased traffic from out-of-state to popular tourist attractions (i.e., Cape Cod) are among the possible factors for this month being so dangerous.

Figure 7: Fatalities by Day-of-Week (2013 - 2018)



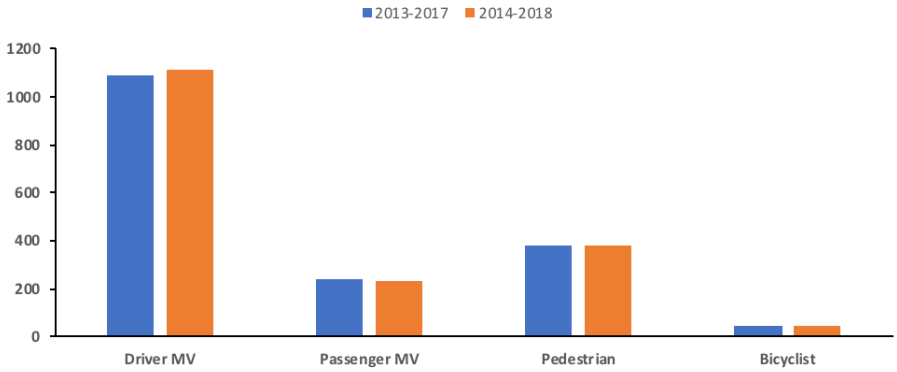
Fatalities have proven to be consistently higher during the weekend days (Saturday, Sunday) when compared to any weekday over the past two five-year periods. During these two days, there is a higher likelihood of impaired driving and speeding being factors in a fatal crash as well as speeding. Furthermore, more people are driving on the weekend than the weekday as those who typically take public transit to work from Monday through Friday are not working.

Figure 8: Fatalities by Time-of-Day (2013 - 2018)



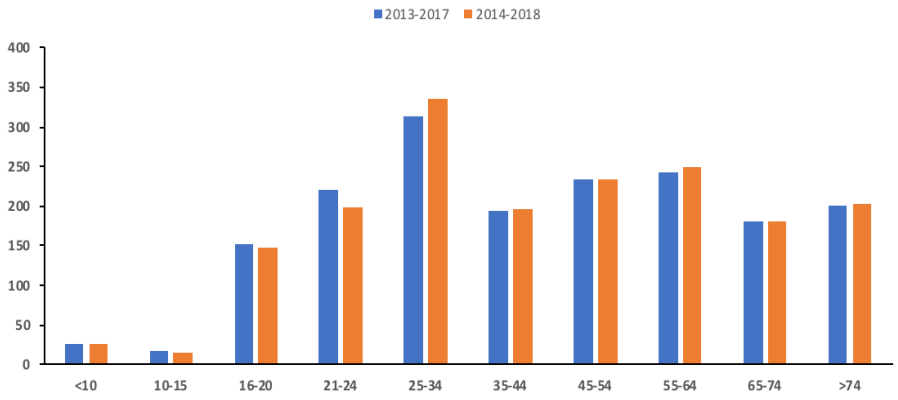
Over the last two five-year periods, casualties have been relatively consistent in regards to time-of-day. The hours between 3 pm and 3 am are the hours when fatal crashes occur with increased frequency. After school activities and sports, the evening rush, nighttime socializing at local establishments, and the late-night/early morning drive back home are all part of these twelve hours.

Figure 9: Fatalities by Person Type (2013 - 2018)



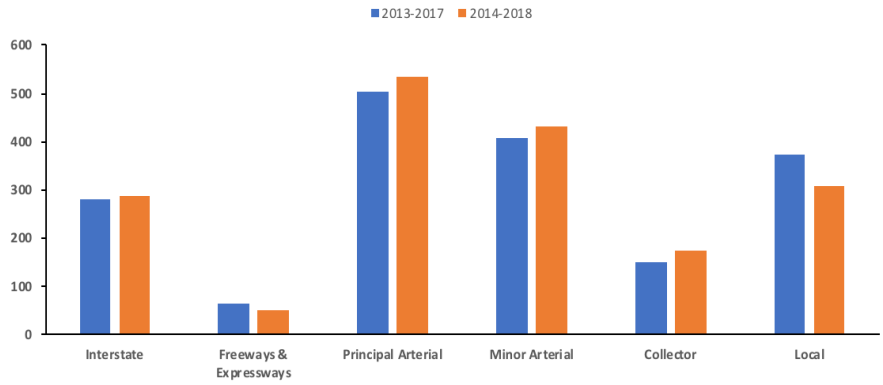
Drivers accounted for over 60% of all traffic fatalities, and the ratio of drivers-to-passenger fatalities is nearly 5 to 1. Pedestrian fatalities were much higher than passenger fatalities, representing over 20% of traffic fatalities compared to 13% for passengers. This drastic difference is likely due to the survival rate of a passenger in a vehicle (seat belt, vehicle body for protection) as opposed to a pedestrian (no means of defense against a one-ton vehicle).

Figure 10: Fatalities by Age Group (2013 - 2018)



Deaths among those aged 25 to 34 accounted for nearly 20% of traffic fatalities, far exceeding any other age group. Massachusetts' child passenger safety law has helped keep the number of deaths among the under 15 age groups remarkably low. Furthermore, the tireless efforts by OGR's partners, including local police departments, State Police barracks, hospitals, and non-profit traffic safety organizations in educating caregivers and families on the importance of properly installing child car seats has contributed to the low mortality rate of passengers under the age of 15 in a crash.

Figure 11: Fatalities by Roadway Type (2013 - 2018)



Concerning deaths by roadway type, over the last two five-year periods, principal and minor arterial roadways accounted for over half of all traffic fatalities in Massachusetts. From 2013-2017 to 2014-2018, both principal arterial and minor arterial roadways jumped over 6%. Given the VMT for principal arterial roads increased 14.5% and minor arterials 36.5% between the two five-year periods, it is not surprising to see a rise in fatal crashes along these roadways. On a more positive note, fatalities along local roads dropped 17.2% from 2013-2017 to 2014-2018. This data may indicate local police enforcement and outreach efforts are making an impact.

What does all this mean in terms of overall traffic fatality trends and frequency in Massachusetts? OGR will consider the following observations to help local and State Police better target enforcement activities in FFY 2021:

- Warmer months (April-September) tend to have more fatalities than colder months (October-November). In terms of specific months to focus on enforcement activities, July, October, and November are among the top three. The shift by NHTSA to move the national Distracted Driving campaign to October 2020 and the CIOT campaign to November 2020 may lead to bringing down fatalities in those months.
- The weekends – Friday, Saturday, and Sunday – are when half of all fatalities take place.
- Over 60% of fatalities tend to occur during the 12 hours between 3 pm, and 3 am.
- Drivers overwhelming account for fatalities, representing nearly 2/3 of all deaths reported.
- Those between the age of 25 and 34 have a higher probability of being in a fatal crash than any other age grouping.

Fatalities by Town Analysis

With data showing that Worcester County had the highest number of deaths from 2014-2018, one could easily conclude Worcester County has numerous towns within its boundary with a high traffic fatality count. Surprisingly, this is not the case. Aside from Worcester with 50 fatalities reported, no other Worcester County town is listed among the top 25 towns for deaths.

Figure 12: Top 25 Communities for Fatalities (2014 - 2018)

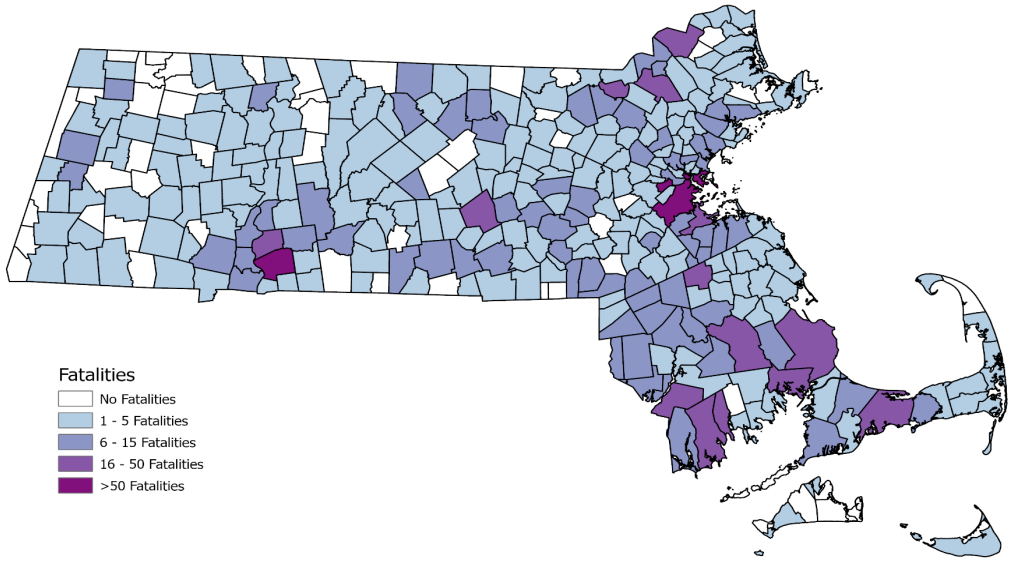
City	Total Fatalities		City	Total Fatalities
Boston	122		Andover	16
Springfield	63		Chicopee	16
Worcester	50		Wareham	16
Brockton	43		Chelmsford	15
New Bedford	31		Framingham	15
Middleborough	29		Mansfield	15
Quincy	28		West Springfield	15
Fall River	26		Westport	15
Dartmouth	20		Haverhill	14
Lowell	19		Holyoke	14
Barnstable	18		Methuen	14
Plymouth	18		Raynham	14
			Weymouth	14

The 25 cities listed – only 7% of 351 Massachusetts towns – accounted for 37% of all traffic fatalities reported from 2014 to 2018. Unsurprisingly, as the state's capital and a major business hub of New England, Boston had the highest number of deaths.

Of note, 12 of the 25 towns listed come from counties south of Boston. Six from Bristol County (Dartmouth, Fall River, Mansfield, New Bedford, Raynham, Westport); four from Plymouth County (Brockton, Middleborough, Plymouth, Wareham); and two from Norfolk (Quincy, Weymouth).

While southeastern Massachusetts may have more towns with a high fatality count, Hampden County has a high concentration of fatalities among its towns listed in the top 25. Chicopee, Holyoke, Springfield, and West Springfield are among the 23 towns in Hampden County. These four towns accounted for 61% of all fatalities in the county from 2014-2018. In comparison, the six towns in Bristol County represented 58% of all fatalities; the four towns in Plymouth, 52% of all fatalities; and the two towns in Norfolk, 23% of all fatalities.

Map 2: Total Fatalities by Town (2014 - 2018)



One key aspect of the number of deaths by town is those with higher numbers have major roadways or interstate within their respective town boundaries. Evidence has shown that most fatalities are likely to occur on either principal or minor arterials roadways typically used heavily by commuters heading to work as well as going home. In 2018, the top 25 towns accounted for 25.9% of total VMT reported on Massachusetts roadways and 95% of all interstate VMT.

The data presented so far provides a basic overview of the state of motor vehicle-related fatalities in Massachusetts. The FFY 2021 HSP will closely investigate deaths involving impaired driving, occupant protection, speeding, distracted driving, motorcyclists, and non-motorists (pedestrians and bicyclists) within each respective program area.

OGR will rely on a multifaceted approach to developing and selecting the projects for FFY 2021. The input used to develop the planned activities came from several sources, including:

- Data – Trends in fatalities, fatal crashes, serious injuries, seat belt usage, and traffic citations

- OGR staff – Provide extensive knowledge on current projects that may be renewed in FFY 2021 as well as critical insight into subrecipient concerns and suggestions
- Partners – State and local government, community groups, and non-profit organizations with a public safety mission.
- Subrecipients – Monthly activity reports and final reports provided excellent information on the impacts of current programs and what could be changed or improved to make the programs more effective. Program Coordinators within the HSD establish spreadsheets for every grant under their purview, covering all aspects including funding, expenditures, and activities (i.e., number of stops, hours of patrol, types of violations issued). Since many projects are the same year-to-year, staff can compare projects across several years to see trends or where changes need to be made to improve the impact of the funds distributed.
- Open meetings – The HSD team conducted webinars in previous years to solicit feedback from partners about a wide range of traffic safety issues and will continue to do so.

By combining all the sources, OGR seeks to institute programs that will have the most significant positive impacts in terms of reducing crashes, fatalities, injuries, and associated economic losses. Grant subrecipients will be selected for funding based on data-backed problem identification and how their proposed activities will address them.

When making funding available, an Availability of Grant Funding (AGF) is posted online through the state Mass.Gov online portal. Additionally, emails are sent out to prior and potential partners, including, but not limited to, MSP, local police, municipalities, state agencies, hospitals, and non-profit organizations to ensure eligible recipients are aware of our funding opportunities. The emails provide a URL to the Mass.Gov portal where the AGFs and associated documents are posted, usually for 4-6 weeks. OGR will continue to utilize a scoring process that results in all applications being rated along with several elements and then ranked from highest to lowest to determine grant awardees. The scoring process will involve convening a Review Team (RT) that will read and rate all submitted applications. Scoring will be based on application completeness, problem identification, description of planned activities, and the potential for positive impacts on a community's traffic safety.

Due to the requirements of disseminating the NHTSA funds and specific eligible recipients, many of our NHTSA grant subrecipients who receive these funds or are expected to receive these funds are not funded via a competitive review process. These subrecipients are sole source funded. A Notice of Intent is posted on the Mass.Gov portal for up to 30 days to inform the public, and to allow for comment. Regardless, if an award is competitive or sole-sourced, all subrecipients will be required to complete an Application Template, which will provide a full description of the program, need, goals/objectives/timeline, and detailed budget breakdown of all costs. All expected awards are vetted by the Executive Director, EOPSS leadership and the Governor's Office for final approval.

List of Sources of Information used in 2021 HSP

- Fatality Analysis Reporting System (FARS)
- MassDOT IMPACT Crash Data System
- Massachusetts Injury Surveillance Program

- Massachusetts Citation and Violation Data
- Massachusetts Statewide Seat Belt Observational Survey
- Federal Highway Administration (FHWA)
- Federal Bureau of Investigation (FBI) Crime Statistics
- United States Census Bureau

Coordination with the Strategic Highway Safety Plan (SHSP)

The SHSP has statewide goals, objectives, and emphasis areas that were developed in consultation with federal, state, local, and private sector safety stakeholders using data-driven, multi-disciplinary approaches involving engineering, education, enforcement, and emergency response.

As a key contributor to the SHSP, OGR has worked with MassDOT (the lead agency) and other key stakeholders such as EOHHS, Department of Public Health, regional transit authorities, insurance companies, WalkBoston, and hospitals to develop a tiered classification of emphasis areas. The emphasis areas are broken into three levels: Strategic, Proactive, and Emerging.

Strategic areas: Impaired Driving, Intersection Crash Prevention, Lane Departures, Occupant Protection, Speeding/Aggressive Driving, Young Drivers, Older Drivers, Pedestrians, and Motorcycle Riders.

Proactive areas: Bicycles, Truck and Bus-Involved Crashes, At-Grade Crossing, and Traffic Incident Management Safety (formerly work zone safety). These areas represent less than 10% of annual fatalities or severe injuries but require attention to minimize potential increases.

Emerging areas: Data Systems, Drowsy Driving, and Driver Inattention (or Distracted Driving). These areas focus on improving the data system used to analyze traffic safety patterns and for safety topics where data is currently inconclusive.

The HSP targets many of the same emphasis areas as the SHSP, including impaired driving, occupant protection, speeding/aggressive driving, young and older drivers, pedestrians, motorcycles, bicycles, distracted and drowsy driving, and data systems (traffic record systems). Intersection Crash Prevention, lane departures, and at-grade crossings are not emphasis areas that are within the purview of the OGR mission. Through grant funding and media messaging, OGR seeks to change driver, passenger, and non-occupant behaviors to reduce fatalities on the roadways of Massachusetts. At the same time, the SHSP looks to limit motor vehicle-related fatalities through infrastructure improvements such as better roadway design, improved crosswalks, and the upgraded installation of traffic lights. The combination of improving the physical roadway and roadway user behaviors between OGR and MassDOT, respectively, provides the best strategy for reducing fatalities.

OGR also works in collaboration with MassDOT to establish yearly targets for three key core performance measures – fatalities, fatalities/VMT, and serious injuries. Per federal law (FAST Act), the State HSP performance targets for fatalities, serious injuries and fatalities/VMT are to be identical to the same targets reported in the HSIP annual report and coordinated through the State SHSP. This collaboration ensures that both agencies are united in the same objectives and will help drive all programs run by both agencies towards the common goals of decreasing fatalities, fatalities/VMT, and serious injuries in the long-term.

The performance targets identified in the following section were established as part of the problem identification process described above. Performance targets were set by reviewing data trends provided by sources such as FARS, MassDOT's Crash Portal, and NHTSA reports.

For FFY 2021, based on available data, OGR and MassDOT have adopted the following goals for calendar base year 2017-2021 for fatalities, serious injuries, and fatalities/VMT.

- Five-year average for **fatalities** will drop 5.3% to 339 by December 31, 2021
- Five-year average for **serious injuries** will decrease 8.3% to 2,580 by December 31, 2021
- Five-year average for **fatalities/VMT** will drop 3.5% to 0.55 by December 31, 2021

Performance Review of FFY 2020 HSP Targets

In the FFY 2020 HSP, OGR provided performance targets for sixteen traffic safety performance measures. Most of the performance targets had an end date of December 31, 2020, so all targets are currently 'in progress.'

Performance Measures for FFY 2020	Progress
C-1) Number of traffic fatalities (FARS)	In Progress
C-2) Number of serious injuries in traffic crashes (State crash data files)	In Progress
C-3) Fatalities/VMT (FARS, FHWA)	In Progress
C-4) Number of unrestrained passenger vehicle occupant fatalities, all seat positions (FARS)	In Progress
C-5) Number of fatalities in crashes involving a driver or motorcycle operator with a BAC of .08 and above (FARS)	In Progress
C-6) Number of speeding-related fatalities (FARS)	In Progress
C-7) Number of motorcyclist fatalities (FARS)	In Progress
C-8) Number of unhelmeted motorcyclist fatalities (FARS)	In Progress
C-9) Number of drivers age 20 or younger involved in fatal crashes (FARS)	In Progress
C-10) Number of pedestrian fatalities (FARS)	In Progress
C-11) Number of bicyclists fatalities (FARS)	In Progress
B-1) Observed seat belt use for passenger vehicles, front seat outboard occupants (survey)	In Progress
Number of distraction-affected fatal crashes	In Progress
Accuracy and completeness of the Registry of Motor Vehicles' Crash Data System	Not Met
Number of ambulance services submitting NEMSIS Version 3 reports	Met
Development of a new MassTRAC	Not Met

C-1: Traffic Fatalities

In the FFY 2020 HSP, the performance target for fatalities was to decrease motor vehicle fatalities by 3% from the five-year average of 358 in 2018 to a five-year average of 347 by December 31, 2020

- One-year change (2018 to 2019): 5.8% decrease in fatalities from 358 to 339
- Five-year average change (2014-2018 to 2015-2019): 0.8% decrease from 358 to 355

This performance target is currently in progress. OGR is cautiously optimistic about the decline in fatalities from 2018 to 2019. Preliminary figures are typically within five to ten of the final numbers. Currently, the preliminary number for 2019 is 339. Based on that estimate, it is likely the five-year average for fatalities will move towards the target of 347.

A factor that may lead to a decline not only in fatalities, but across all performance measures during the calendar year 2020 is the impact of the stay-at-home directive from the Massachusetts governor in response to the Coronavirus pandemic during the first half of 2020. During the January – March period in 2020, there were 65 traffic fatalities reported. For the same period in both 2019 and 2018, the number of fatalities was 77 and 76, respectively.

C-2: Serious Injuries

For FFY 2020, the performance target for serious injuries was to decrease serious injuries by 4% from the five-year average of 2,810 in 2018 to a five-year average of 2,689 by December 31, 2020.

- One-year change (2018 to 2019): 3.1% decrease from 2,575 to 2,475
- Five-year average change (2014-2018 to 2015-2019): 4% drop from 2,814 to 2,703

This performance target is currently in progress. The number of serious injuries reported is preliminary at this time, and it may change once finalized, which occurs after the submission of the FFY 2021 HSP. With a five-year average decline of 4% in the past year and a 20% decline in serious injuries since 2013, Massachusetts is cautiously optimistic about achieving the five-year average goal of 2,689 by December 31, 2020.

C-3: Fatality/VMT

In the FFY 2020 HSP, the performance target for fatalities/VMT was to decrease the fatality/VMT rate by 3.5% from the five-year average of 0.58 in 2018 to a five-year average of 0.56 by December 31, 2020.

- One-year change (2018 to 2019): 7.9% decrease from 0.54 to 0.51
- Five-year average (2014-2018 to 2015-2019): -5.6% decline from 0.58 to 0.56

This performance target is in progress. The fatality/VMT rate is based on preliminary fatality and VMT numbers, which may change once finalized. This change will occur after the FFY 2021 HSP is submitted. The one-year decrease was due to a decrease in motor vehicle fatalities from 387 to 347 from 2016 to

2017. OGR believes the fatality/VMT rate will remain low as the number of fatalities remain steady or declines while VMT continues to rise.

C-4: Unrestrained Motor Vehicle Occupant Fatalities

For FFY 2020, the performance target was to decrease unrestrained passenger vehicle occupant fatalities by 2% from the five-year average of 110 in 2017 to a five-year average of 108 by December 31, 2020.

- One-year change (2017 to 2018): 22.5% decrease from 133 to 103
- Five-year average (2013-2017 to 2014-2018): 0.0% change from 110 to 110

This performance target is in progress. OGR expects the five-year average to decline further in the coming year as the 2019 Seat Belt Usage rate remained at 82% as it was in 2018 showing motor vehicle occupants across the state are proactive in using safety restraints.

C-5: Alcohol-Impaired Driving Fatalities (BAC = .08 or higher)

In the FFY 2020 HSP, the performance target was to decrease alcohol-impaired driving fatalities by 3% from the five-year average of 128 in 2017 to a five-year average of 124 by December 31, 2020.

- One-year change (2017 to 2018): 3.2% decrease from 124 to 120
- Five-year average (2013-2017 to 2014-2018): 0.8% drop from 128 to 127

Progress is being made on this target. The total number of alcohol-impaired fatalities for the five years 2014-2018 was 637, down from 642 for 2013-2017. The rate of alcohol-impaired fatalities per 100 million VMT dropped from 0.20 in 2017 to 0.18 in 2018. OGR is cautiously optimistic that the decline of both alcohol-impaired fatalities and alcohol-impaired fatalities/VMT indicates a positive trend towards lower alcohol-impaired fatalities soon.

C-6: Speed-Related Fatalities

In the FFY 2020 HSP, the performance target was to decrease speed-related fatalities by 5% from the five-year average of 98 in 2017 to a five-year average of 93 by December 31, 2020.

- One-year change (2017 to 2018): 7.7% decrease from 103 to 95
- Five-year average (2013-2017 to 2014-2018): 2% rise from 98 to 100

This performance target is in progress. Oddly, even though speed fatalities declined from 2017 to 2018, the five-year average rose slightly. This is due to the number of speed-related fatalities in 2016, which is likely an outlier as the previous three years (2013-2015) averaged 89 fatalities per year and the two years after averaged 99 per year. OGR is confident speed-related fatalities will continue in a downward trend as it has dropped 25% since 2016, falling from 126 to 103 to 95.

C-7: Motorcyclist Fatalities

In the FFY 2020 HSP, the performance target was to decrease motorcyclist fatalities by 5% from the five-year average of 48 in 2017 to a five-year average of 46 by December 31, 2020.

- One-year change (2017 to 2018): 15.7% increase from 51 to 59
- Five-year average (2013-2017 to 2014-2018): 6.2% rise from 48 to 51

This performance target is currently in progress. It is unfortunate motorcycle fatalities have risen over the last two years. In a renewed effort to combat this issue, OGR in conjunction with the RMV will provide more focused motorcycle awareness training classes as well as targeted media outreach in counties or regions of high motorcycle fatalities, including Worcester, Plymouth, Middlesex, and Bristol. These four counties accounted for 55% of motorcycle fatalities from 2014 to 2018. OGR expects this collaboration to help reduce the number of fatalities in the coming years.

C-8: Unhelmeted Motorcyclist Fatalities

In the FFY 2020 HSP, the performance target was to decrease unhelmeted motorcycle fatalities by 25% from the five-year average of 4 in 2017 to a five-year average of 3 by December 31, 2020.

- One-year change (2017 to 2018): increased from 1 to 6
- Five-year average (2013-2017 to 2014-2018): No change, remains at 4

Despite the increase in unhelmeted motorcycle fatalities from 2017 to 2018, the five-year average held steady at four. With males between the age of 16 and 34making up over 95% of the unhelmeted fatalities from 2014-2018, OGR will target media outreach and motorcycle awareness classes to this age group during FFY 2021 to lower the number of unhelmeted fatalities.

C-9: Number of Drivers age 20 or younger Involved in a Fatal Crash

In the FFY 2020 HSP, the performance target was to decrease the number of young drivers (age 20 or under) involved in fatal crashes by 5% from the five-year average of 36 in 2017 to a five-year average of 35 by December 31, 2020.

- One-year change (2017-2018): 25% decrease from 36 to 27
- Five-year average (2013-2017 to 2014-2018): 5.5% decline from 36 to 34

Although his performance target is in progress, the five-year average for 2018 has met and exceeded the FFY 2020 target goal of 36 to be achieved by December 31, 2020.

C-10: Pedestrian Fatalities

In the FFY 2020 HSP, the performance target was to decrease pedestrian fatalities by 5% from the five-year average of 76 in 2017 to a five-year average of 73 by December 31, 2020.

- One-year change (2017 to 2018): 8.3% increase from 72 to 78
- Five-year average (2013-2017 to 2014-2018): no change, remains at 76

This performance target is in progress. While the number of pedestrian fatalities increased from 2017 to 2018, the five-year average remained unchanged at 76. Of concern for OGR is the jump in pedestrian fatalities taking place at nighttime, with it rising from 55% of fatalities in 2017 to 62% of deaths in 2018. OGR will work with local police that receive FFY 2021 Pedestrian Grant funding to better target pedestrian 'hot spots' in their respective communities to conduct nighttime enforcement activities. OGR is also confident the expansion of its pedestrian safety-related grant program in FFY 2019 and 2020 will have a positive impact on the numbers for those two years.

C-11: Bicyclist Fatalities

In the FFY 2020 HSP, the performance target was to decrease bicyclist fatalities by 5% from the five-year average of 10 in 2017 to a five-year average of 9 by December 31, 2020.

- One-year change (2017 to 2018): 67% decrease from 12 to 4
- Five-year average (2013-2017 to 2014-2018): 10% decline from 10 to 9

This performance target is currently in progress. The recent expansion of the pedestrian safety-related grant program mentioned above involves bicyclist safety as well. Subrecipients have been allowed to purchase bicycle helmets with funding received for the Pedestrian and Bicyclist Enforcement and Equipment Grant. This change to the grant has and will continue to help communities improve bicyclist safety, especially among children age 12 or younger.

B-1: Observed Seat Belt Usage

In the FFY 2020 HSP, the performance target was to increase observed seat belt use rate by 4% from the five-year average of 77% in 2018 to a five-year average of 80% by December 31, 2020.

- One-year change (2018 to 2019): No change, remains at 82%
- Five-year average (2014-2018 to 2015-2019): 1.3% increase from 77% to 78%

This performance target is in progress. It must be noted that the five-year average for 2015-2019 of 78% met the target set for this performance measure in the FFY 2019 HSP. With the seat belt rate remaining above 80%, OGR is confident this will continue and, in fact, rise in the coming years.

NC-1: Distraction-Affected Fatal Crashes

In the FFY 2020 HSP, the performance target was to decrease the five-year average of distraction-affected fatal crashes 5% from 29 in 2017 to 27 by December 31, 2020.

- One-year change (2017 to 2018): 8.6% increase from 35 to 38

- Five-year average (2013-2017 to 2014-2018): 4.8% rise from 42 to 44

(***Note:*** *Performance target for FFY20 was based on data that has since been updated on the FARS system. If the new numbers were to replace the original distraction-affected target, it would read "…5% from 42 in 2017 to 40 by December 31, 2020". The numbers used for the one-year and five-year bullets are using the updated ones from FARS. The original language for the performance target from the FFY 2020 HSP is used.*)

This performance target is in progress. Despite the uptick in the one-year and five-year numbers, OGR is confident the continued funding of distracted driving messaging, such as the recent "Don't be that guy", will help increase driver awareness and lower number of distracted drivers.

TR-1: Improve Accuracy and Completeness of RMV's Crash Data System

For FFY 2020, the target was to decrease the number of crash reports rejected for not meeting the minimum criteria to be accepted into the system from 1,466 between April 1, 2018, and March 31, 2019, to 1,390 or less between April 1, 2019, and March 31, 2020.

This goal was achieved as the number of crash reports rejected for not meeting the minimum criteria decreased from 1,466 as of March 31, 2019, to 1,021 by March 31, 2020.

Note: Through the RMV's 405-c funded Accepted With Warning project (TR-19-05), it has been determined that most reports rejected were not for reasons of accuracy or completeness. Instead, most were either duplicate reports or reports received after the reporting year was closed. These two reasons make up to 90% of the reports. When this measurement was initially chosen as one that needed to be addressed and corrected, it was due to the overwhelming number of rejected reports. It was essential to determine what mistakes needed to be addressed directly at the law enforcement agency. Once analyses of the rejected reports were made through an automated process that pulls out the duplicate and closed year reports, the number decreased significantly to the revised measure of 'true' rejected reports:

A decrease was achieved from 256 "true" rejected reports that did not meet the minimum criteria as of 3/31/19 to 79 rejected reports as of 3/31/20.

TR-2: Number of Ambulance Services Submitting NEMSIS Version 3.0

For FFY 2020, the target was to improve the completeness of MATRIS by increasing the number of ambulance services submitting NEMSIS Version 3 reports to the system from 8 between April 1, 2018, and March 31, 2019, to 220 or more between April 1, 2019, and March 31, 2020.

This goal was not achieved with the number of ambulance services submitting NEMSIS Version 3 reports to MATRIS increasing only from eight as of March 31, 2019, to 213 March 31, 2020.

Note: Because of different reporting methods, MDPH's regular project reporting for MATRIS has this number as 211 as of 3/31/20, not 213, as reported above and is reflected in the Interim Progress report for the FFY 2021 405-c Application for Massachusetts.

TR-3: Developing a business plan for a new MassTRAC

For FFY 2020, the target was to develop a tentative business plan for a new MassTRAC by September 30, 2019.

This goal was not achieved as it was deemed prudent to await further research on the upgrading of MassDOT's Crash Data Portal before proceeding with a business plan.

Grant-funded Activity for FFY 2019

Listed below are selected results from FFY 2019 (October 2018 – September 2019) grant-funded enforcement activities in Massachusetts. While not a requirement, NHTSA has requested the data points for longitudinal reference and to get a sense of how effective enforcement is within Massachusetts.

A-1) Number of seat belt citations issued during grant-funded enforcement activities

Seat belt citations: **5,737**
Fiscal Year: **2019**

A-2) Number of impaired driving arrests made during grant-funded enforcement activities

Impaired driving arrests: **354**
Fiscal Year: **2019**

A-3) Number of speeding citations issued during grant-funded enforcement activities

Speeding citations: **11,317**
Fiscal Year A-3: **2019**

Performance Targets for FFY 2021

The chart below provides the planned target value for a performance measure to achieve by December 31, 2021. Achieving the stated target value for each measure is the overarching goal of OGR.

	Performance Measure (Source of data)	Value Used	Start Value	Projected Change	Target Value
C-1	Number of traffic fatalities (FARS)	5 Year Avg.	358	-5.3%	339
C-2	Number of serious injuries in traffic crashes (State crash data files)	5 Year Avg.	2,814	-8.3%	2,580
C-3	Fatalities/VMT (FARS, FHWA)	5 Year Avg.	0.57	-3.5%	0.55
C-4	Number of unrestrained passenger vehicle occupant fatalities, all seat positions (FARS)	5 Year Avg.	110	-2%	108
C-5	Number of fatalities in crashes involving a driver or motorcycle operator with a BAC of .08 and above (FARS)	5 Year	127	-3%	123
C-6	Number of speed-related fatalities (FARS)	5 Year	100	-5%	95
C-7	Number of motorcyclist fatalities (FARS)	5 Year	51	-3%	49
C-8	Number of unhelmeted motorcyclist fatalities (FARS)	5 Year	4	-25%	3
C-9	Number of drivers age 20 or younger involved in fatal crashes (FARS)	5 Year	34	-5%	32
C-10	Number of pedestrian fatalities (FARS)	5 Year	76	-4%	73
C-11	Number of bicyclists fatalities (FARS)	5 Year	9	-10%	8
B-1	Observed seat belt use for passenger vehicles, front seat outboard occupants (survey)	5 Year	78	+4%	81
NC-1	Number of distraction-affected fatal crashes	5 Year	42	-5%	40

Disclaimer: *The first three performance measures and projected targets listed in this section – Traffic Fatalities, Serious Injuries, and Fatalities/VMT – are required by NHTSA and FHWA to be* ***identical*** *to what MassDOT projects in its annual Highway Safety Improvement Program (HSIP) report.*

Traffic Records-Related Performance Targets for FFY 2021

	Performance Measure (Source of data)	Value Used	Start Value	Projected Change	Target Value
TR-1	Decrease the percent of Massachusetts State Police-submitted crash reports with invalid or incomplete entries in Accepted With Warning (AWW) fields	Percentage of MSP crash reports	3.7%	-0.92	2.78%
TR-2	Exceed the January to October 2020 benchmarks for the RMV FARS Unit	RMV FARS benchmarks		+1%	
TR-3	Install printers for the MACCS in vehicles at law enforcement agencies	Number of printers	0	----	800
TR-4	Decrease Massachusetts crash reports which are Accepted With Warning (AWW)	Number of crash reports	TBD	-3%	----
TR-5	Decrease the number of state and local police-submitted crash reports Accepted With Warning (AWW) for not having complete/valid entries within 2019 AWW fields	Number of police-submitted crash reports	42.2%	-2.2	40%
TR-6	Increase the number of ambulance services submitting NEMSIS Version 3 reports to the Massachusetts Ambulance Trip Record Information System	Number of ambulance services	213	+40%	300
TR-7	Increase Boston Police Department's electronic crash reporting to the RMV's Crash Data System	Number of crash reports submitted	7%	+63.0	70%

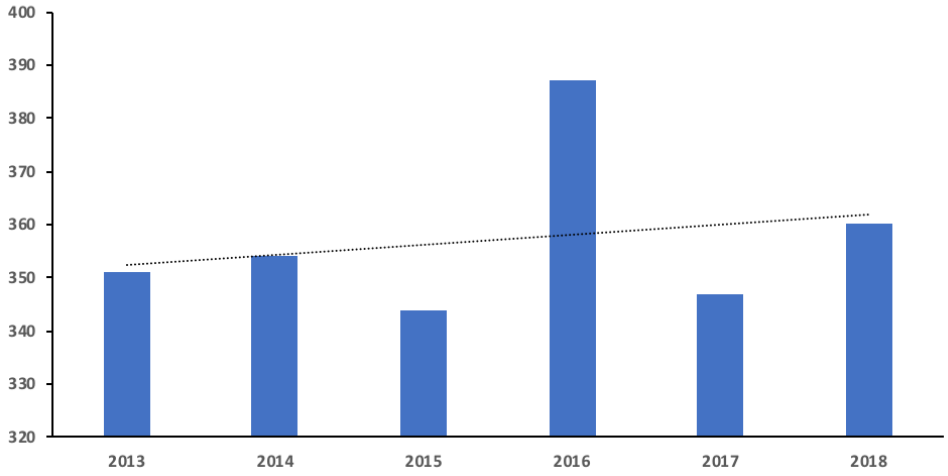
C-1 Traffic Fatalities

FFY 2021 Target: 5.3% drop in the five-year average from 358 in 2018 to 339 by December 31, 2021

Historical data suggests that the 387 deaths reported in 2016 will be an outlier and that data from 2018 and 2019 should show a return to the norm. After a 10% drop from 2016 to 2017, fatalities rose by 3.7% in 2018. There is an indication from RMV that the preliminary number of fatalities will be lower in 2019 (as of April 2020, 339 deaths). Still, the final number will not be known until after submission of the FFY 2021 HSP.

Note: the dotted line in the graph below and each subsequent graph in this section represents the linear trendline for the performance measure

Figure 13: Fatalities (2013 - 2018)



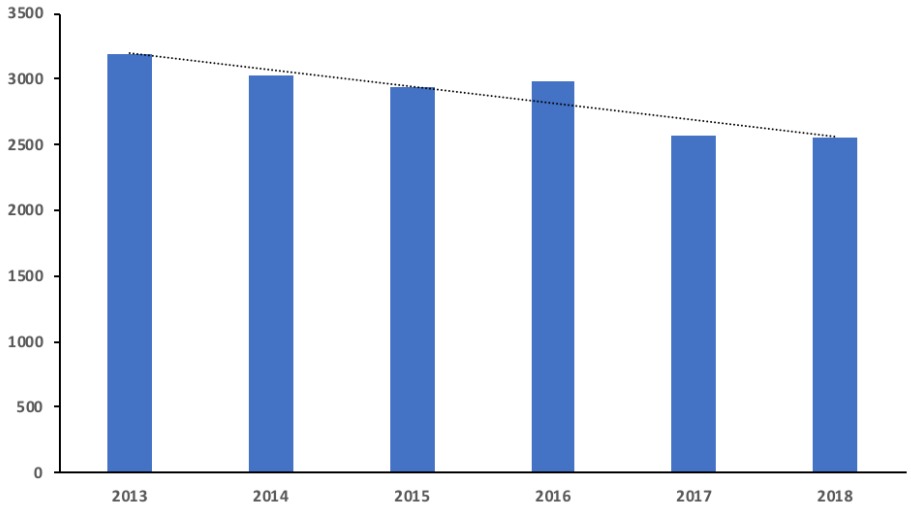
OGR is cautiously optimistic that the spike in fatalities in 2016 will end up being an outlier, and the five-year average will meet the target for December 2021, which will encompass the years of 2017-2021.

OGR is also hopeful that the slate of planned activities for FFY 2021 will help further to reduce traffic fatalities as the integrated approach of enforcement, education, and media outreach positively impacts occupant and non-occupant behaviors on the roadways of Massachusetts.

C-2 Serious Injuries

FFY 2021 Target: 8.3% decrease in the five-year average from 2,814 in 2018 to 2,580 by December 31, 2021

Figure 14: Serious Injuries (2013 - 2018)



Serious injuries have declined nearly 20% since 2013, and OGR is optimistic that it will continue falling as seat belt usage has remained over 80% for two consecutive years. Safety improvements to vehicles such as collision alerts and automatic braking will further increase the safety of users of Massachusetts' roadways. Furthermore, the recent implementation of the Hands-Free Law will make drivers pay more attention to the task of driving instead of their phones and other electronic devices. Driver distraction was cited in nearly 7% of all crashes in Massachusetts from 2014 to 2018, and the new law should help lower distraction-involved crashes in the coming years.

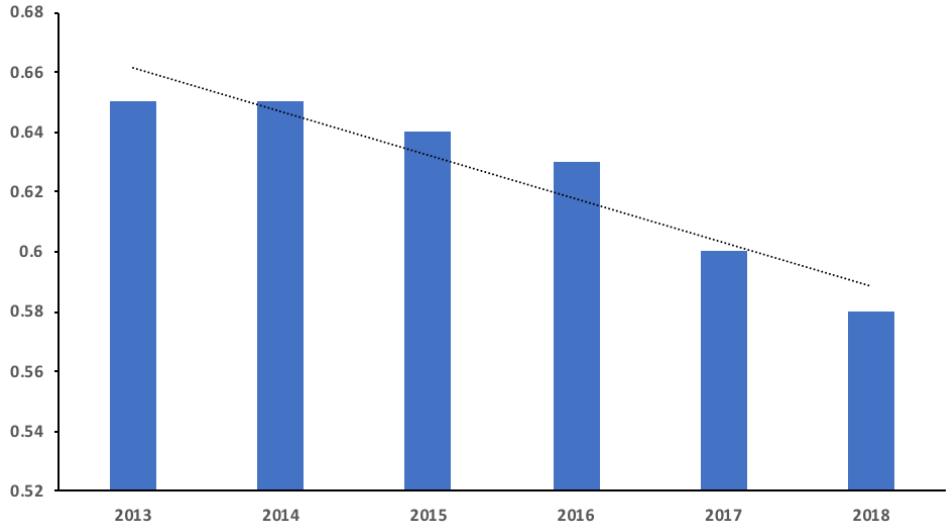
OGR expects its FFY 2021 planned activities to have a positive impact on serious injuries with enforcement, education, and media campaigns aimed at increasing safety awareness, especially wearing seat belts, distractions, impairment, and maintaining legal speeds. Each person that wears a seat belt drives attentively, soberly, and under control increases his/her chances of surviving a crash with minimal or no injuries.

C-3 Fatality/VMT Rate

FFY 2021 Target: 3.5% decline in the five-year average from 0.57 in 2018 to 0.55 by December 31, 2021

In 2018, the number of fatalities rose 3.7% from 2017, yet the five-year average for fatality/VMT declined 2.7% to 0.57. While fatalities have fluctuated since 2014, VMT has increased each year. The growth in miles traveled has offset any rise in fatalities, keeping the fatality/VMT rate low.

Figure 15: Fatality/VMT Rate (2013 - 2018)



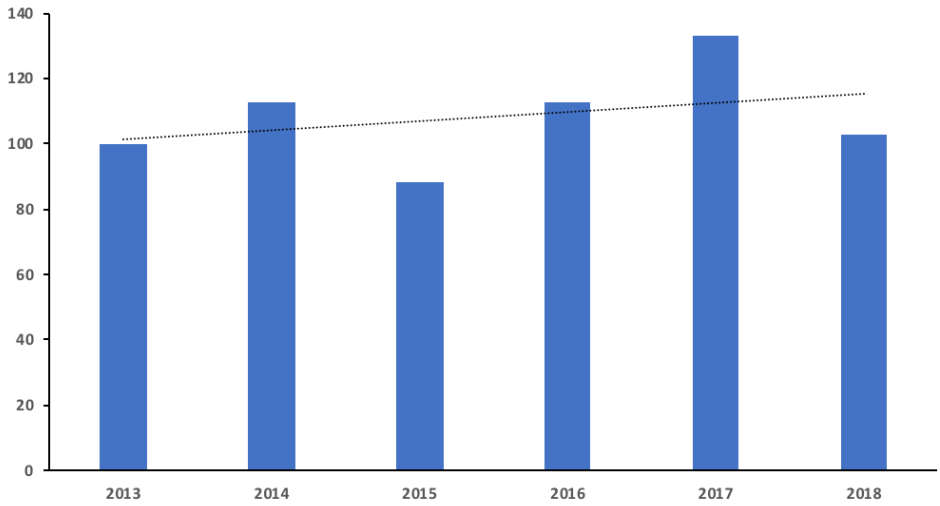
In light of the recent coronavirus pandemic that has impacted Massachusetts as well as the entire country, the Massachusetts Department of Transportation (DOT) has projected the number of vehicle miles traveled to be slightly lower than usual in 2020 and 2021. Coupled with the projected reduction of fatalities from 2019 to 2021, the fatality rate is likely to meet the projected 2021 value of 0.55.

C-4 Unrestrained MV Occupant Fatalities

FFY 2021 Target: 2% decline in the five-year average from 110 in 2018 to 108 by December 31, 2021

Unrestrained fatalities rose substantially during 2016 and 2017 but declined over 20% in 2018. With two straight years (2018, 2019) of above 80% seat belt usage reported in the Statewide Observational Survey, OGR is cautiously optimistic that this is reflective of a more educated and knowledgeable motor vehicle occupant population, which may lead to lower unrestrained fatalities in the coming years.

Figure 16: Unrestrained Fatalities (2013 - 2018)



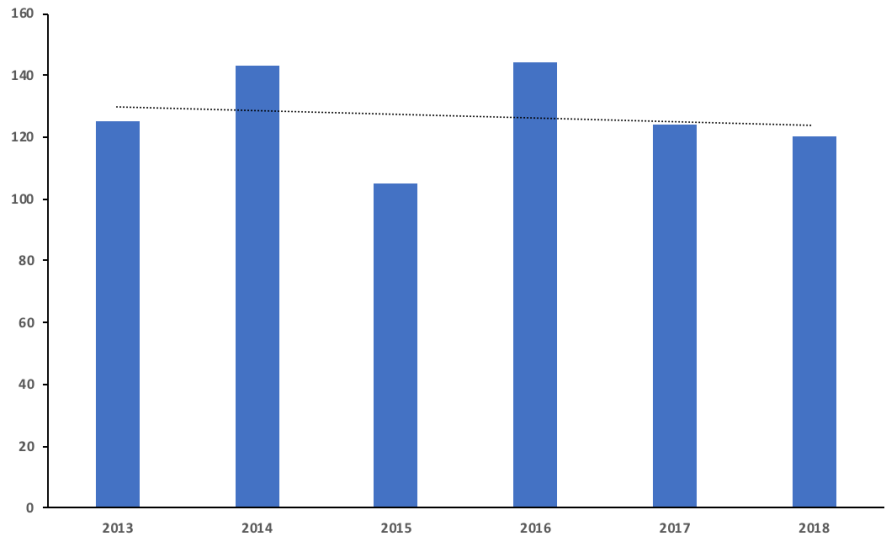
Given the fluctuating highs and lows of unrestrained fatalities since 2013, a 2% decline in the five-year average by December 31, 2020, is expected. As done in FFY 2020, OGR will utilize detailed unrestrained data to focus messaging for seat belt awareness campaigns in key 'hot spots' across Massachusetts. These 'hot spots' include the counties of Bristol, Hampden, Plymouth, and Worcester – which accounted for over half of all unrestrained fatalities from 2014 to 2018. In terms of the age range, the 21-34 group accounted for nearly 40% of all unrestrained fatalities. OGR will tailor messaging to appeal to drivers and passengers in that age bracket in FFY 2021.

C-5 Alcohol-Impaired Driving Fatalities (BAC = 0.08 or higher)

FFY 2021 Target: 3% decline in the five-year average from 127 in 2018 to 123 by December 31, 2021

With alcohol-impaired fatalities declining for two straight years after reaching 144 in 2016, OGR is cautiously optimistic the level of fatalities will continue falling. Trend analysis projects the five-year average for alcohol-impaired fatalities to decrease 4% by 2021 to 122, but the probability of this projection occurring is extremely low (R-squared value = 0.0242). Therefore, a 3% decline is a realistic target for 2021.

Figure 17: Alcohol-Impaired Driving Fatalities (2013 - 2018)



From 2014 to 2018, 71% of all alcohol-impaired fatalities were drivers, 17.2% were passengers, 11% pedestrians, and 1% bicyclists. Over 50% of the fatalities occurred in one of four counties: Bristol, Middlesex, Plymouth, and Worcester. These counties also accounted for nearly 60% of driver fatalities. Of concern, Boston recorded 8 of the 70 (11%) pedestrian fatalities involving an alcohol-impaired driver. In comparison to other cities, Worcester had three, and Springfield none.

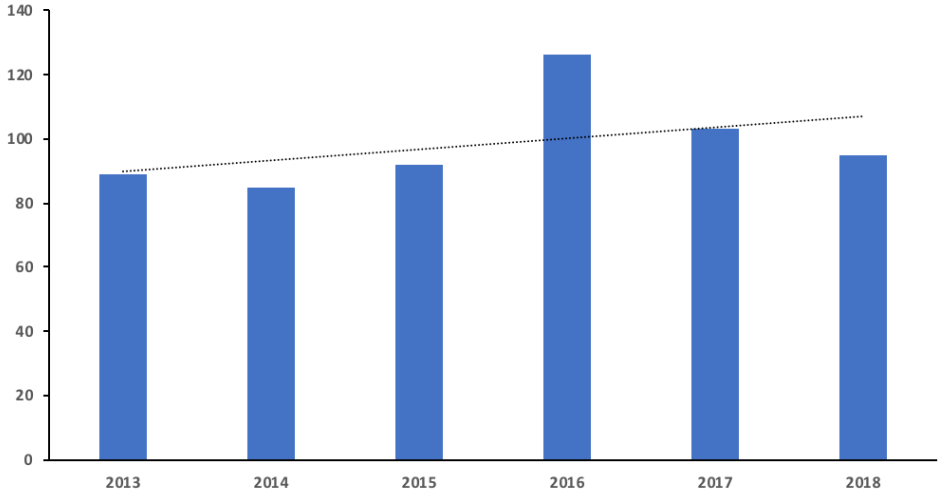
For FFY 2021, coordination between OGR and ABCC to better target areas of high impaired driving rates as described above and expose establishments known for providing last drinks to drivers involved in fatal crashes will continue. Additionally, the MSP Sobriety Checkpoint & Saturation Patrol planned activity would be structured to focus resources on clusters of communities that have high incidences of impaired driving fatalities on local roads. There will be extra emphasis on engaging local police departments to participate in the activities.

C-6 Speed-Related Fatalities

FFY 2021 Target: 5% decline in the five-year average from 100 in 2018 to 95 by December 31, 2021

After an 18% drop in speed-related fatalities from 2016 to 2017, this category of fatalities continued to fall in 2018, declining another 7.8%. OGR considers the 126 fatalities reported in 2016 to be an outlier and foresees speed-related fatalities dropping further in the coming years.

Figure 18: Speed-Related Fatalities (2013 - 2018)



From 2014 to 2018, over two-thirds of all speed-related fatalities took place among the counties of Bristol, Hampden, Middlesex, Plymouth, and Worcester.

With drivers accounting for 71% of all speeding fatalities, analysis has determined over 50% of driver fatalities were between the ages of 21-34. Any media outreach or speed awareness/safety campaign during FFY 2021 will target this key age group.

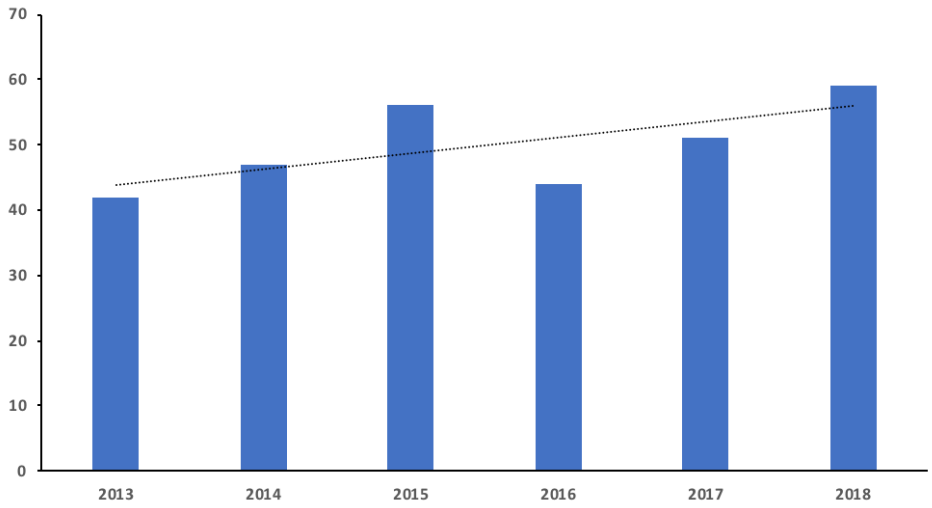
Lastly, based on the data provided above, any planned enforcement patrols by local and State law enforcement aimed at speed reduction should be conducted more frequently during two two-month periods – June/July and October/November. These four months accounted for 43% of all speeding-related fatalities from 2014 to 2018.

C-7 Motorcyclists Fatalities

FFY 2021 Target: 3% decline in the five-year average from 51 in 2018 to 49 by December 31, 2021

Despite best efforts by OGR and its partners in FFY 2020, motorcyclist fatalities rose again in 2018, moving from 51 in 2017 to 59. This number is the highest total for motorcyclist fatalities since 2010 when 61 deaths were reported. With the sudden rise in motorcyclists' fatalities in recent years, the FFY 2021 target has been adjusted to be more conservative in outlook.

Figure 19: Motorcyclists Fatalities (2013 - 2018)



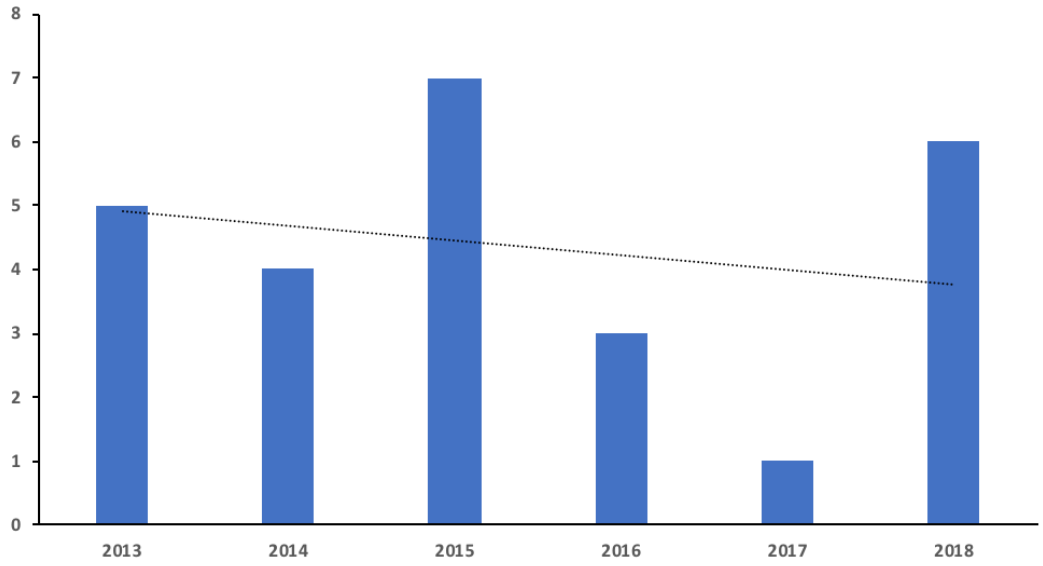
For FFY 2021, OGR plans to increase motorcycle operator awareness through a targeted media outreach campaign about motorcycle safety in collaboration with its media vendor, ThinkArgus. The media campaign will be aimed at 25-34-year-old motorcycle enthusiasts, which accounted for a third of all motorcyclist fatalities from 2014 to 2018; and will be most visible during June, July, and August. These months had over half the motorcyclist fatalities and will be the time of year when more people will be out on motorcycles because of the warm weather.

C-8 Unhelmeted Motorcyclists Fatalities

FFY 2021 Target: 25% decline in the five-year average from 4 in 2018 to 3 by December 31, 2021

After declining in 2016 and 2017, unhelmeted fatalities rose to 6 in 2018. Part of the rise could be attributed to the 20% increase in MC riders (drivers and passengers) involved in a fatal crash from 2017 to 2018. In 2017, there were 56 MC riders involved, but in 2018, the number jumped to 67. More riders mean more chances of an unhelmeted rider being involved in a crash.

Figure 20: Unhelmeted Motorcyclists Fatalities (2013 - 2018)



Despite the increase in unhelmeted fatalities, the five-year average remained steady at 4 from 2017 to 2018. OGR expects unhelmeted fatalities to drop in the coming years, much like the numbers dropped after a spike in 2015.

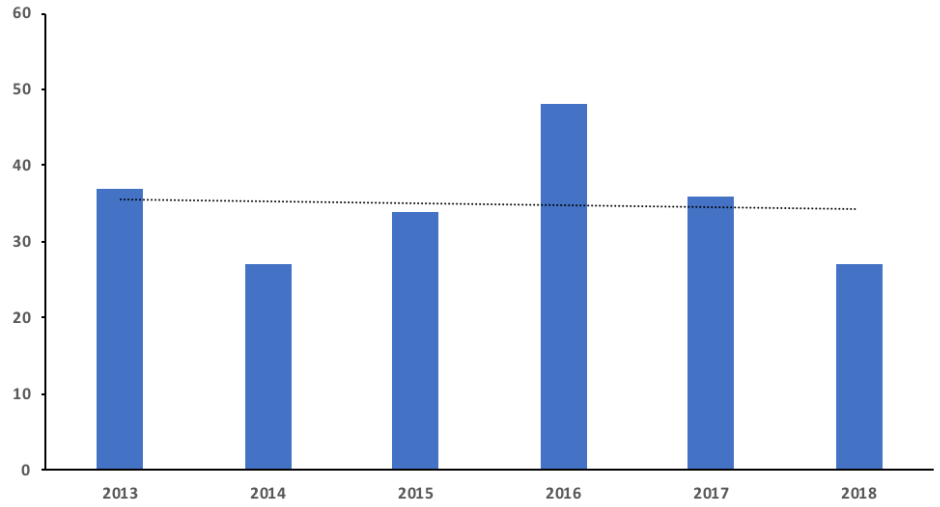
Since 2014, all unhelmeted fatalities have been the operators (not passengers), and over 90% were under 35 years of age. Fatalities age 25-34 accounted for nearly half of the unhelmeted fatalities reported for those under 35. In FFY 2021, OGR will focus effective media messaging about the importance of wearing helmets as well as the legal requirement to do so (Massachusetts has a primary motorcycle helmet law, M.G.L 90§7) towards under 35 motorcycle riders.

C-9 Young Drivers (Age 20 or younger) Involved in a Fatal Crash

FFY 2021 Target: 5% decline in the five-year average from 34 in 2018 to 32 by December 31, 2021

The five-year average for young drivers dropped from 36 in 2017 to 34 in 2018, a 5.5% decline. It is the second consecutive year in which young driver involvement decreased. At the same time, young drivers involved in a fatal crash dropped from 9.6% in 2016 to 5.5% in 2018. This number was the lowest rate in a decade). OGR is confident this trend towards lower young driver involvement in a fatal crash will continue in the coming years.

Figure 21: Drivers Under 21 Involved in a Fatal Crash (2013 - 2018)



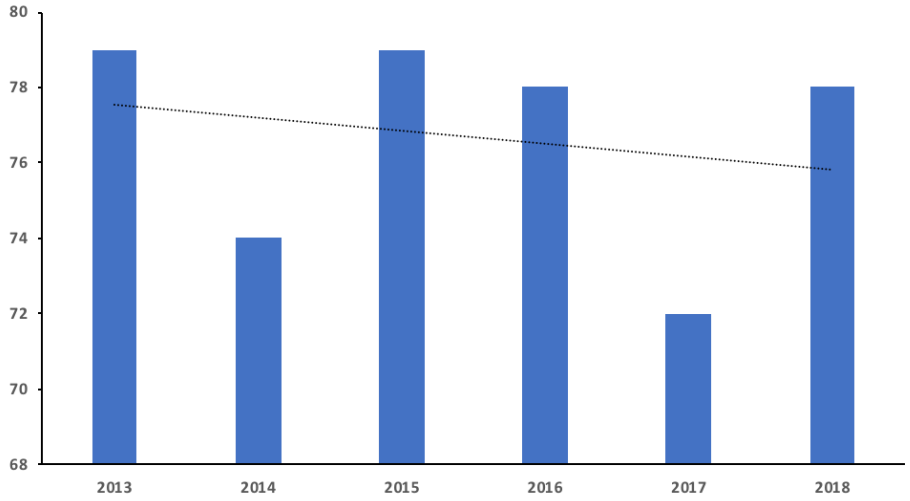
FFY 2021 outreach and messaging to young drivers will focus on critical periods and areas in which young drivers are more likely to be involved in a crash. The months of June, July, and October accounted for 37% of all young drivers involved in a fatal crash from 2014 to 2018. During the same period, the weekend (Saturday and Sunday) had a third of all young drivers involved in a deadly crash, and over 50% of drivers were either on a minor arterial or local road at the time of the crash.

C-10 Pedestrian Fatalities

FFY 2021 Target: 4% decline in the five-year average from 76 in 2017 to 73 by December 31, 2021

After declining in 2017, pedestrian fatalities rose again in 2018. Despite the increase, the five-year average remained the same at 76. A big reason for the rise is the jump in pedestrians age 75 or older, an age group that had been averaging 11 fatalities per year from 2014-2017, had 20 deaths in 2018.

Figure 22: Pedestrian Fatalities (2013 - 2018)



As in FFY 2021, OGR will seek to further expand the pool of potential applicants to both the Pedestrian and Bicyclists Enforcement and Equipment and Community Traffic Safety Projects Grant Programs, especially local police and other organizations within Middlesex, Norfolk, Suffolk and Worcester counties. These four counties accounted for 57% of all pedestrian fatalities from 2014 to 2018. OGR will also continue to allow subrecipients the option of spending an allotted percentage of their awarded funding on pedestrian and/or bicycle safety-related equipment such as crosswalk signs and reflectors.

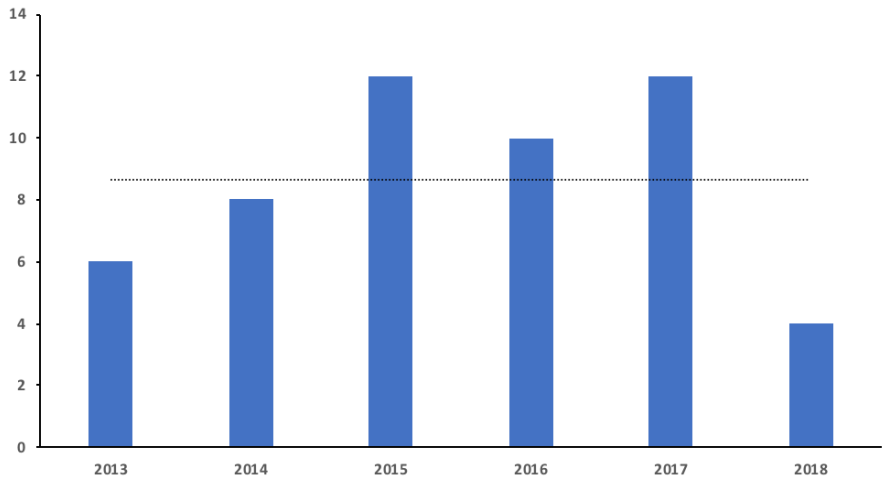
In terms of enforcement focus for Pedestrian and Bicyclists Enforcement and Equipment Grant subrecipients, over 60% of pedestrian fatalities occur between the hours of 3 pm and 11:59 pm. From 2014 to 2018, 226 fatalities were reported during this timeframe. Of the 226 deaths, two-thirds were age 44 or older. OGR will also recommend enforcement to be conducted more often during October, November, December, and January, which accounted for nearly half of all pedestrian fatalities.

C-11 Bicyclist Fatalities

FFY 2021 Target: 10% decline in the five-year average from 9 in 2018 to 8 by December 31, 2021

While the five-year average dropped slightly to 9 in 2018, the one-year change from 2017 declined 68% from 12 to 4, which is the lowest for bicyclist fatalities in Massachusetts in the last 15 years!

Figure 23: Bicyclists Fatalities (2013 - 2018)



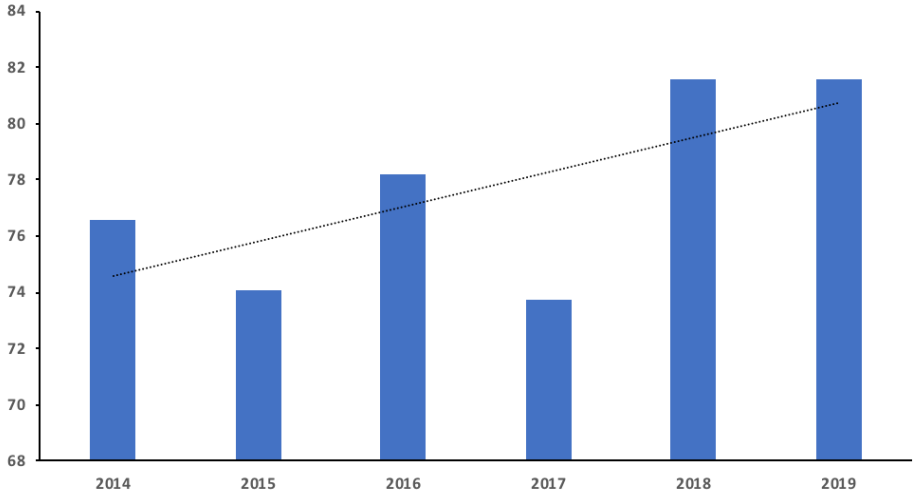
To build on the success of FFY 2020's improvement to both the Pedestrian and Bicyclists Enforcement and Equipment and Community Traffic Safety Grant Programs, OGR will seek to further expand the pool of potential applicants for funding, especially within Middlesex and Suffolk counties. These two counties reported 18 of the 46 fatalities from 2014 to 2018. OGR will recommend enforcement by law enforcement subrecipients to be more often conducted between July and November as two-thirds of bicyclist fatalities occurred during this period.

B-1 Observed Seat Belt Usage Rate

FFY 2021 Target: 4% increase in the five-year average from 78 in 2019 to 81 by December 31, 2021

In 2019, the seat belt usage rate held steady at 82%. The five-year average rose slightly to 78% from 77% in 2018 and 75% in 2017. With unrestrained fatalities dropping from 133 in 2017 to 103 in 2018, Massachusetts motor vehicle occupants are willing to use safety belts more often than in previous years.

Figure 24: Observed Seat Belt Usage Rate (2014 - 2019)



OGR will continue messaging the importance of seat belt usage throughout FFY 2021 as well as keeping seat belt violations among one of the key citations to be reported by law enforcement when conducting grant-funded activities. This information is vital to understanding seat belt usage behavior, particularly in Massachusetts, with its secondary enforcement law.

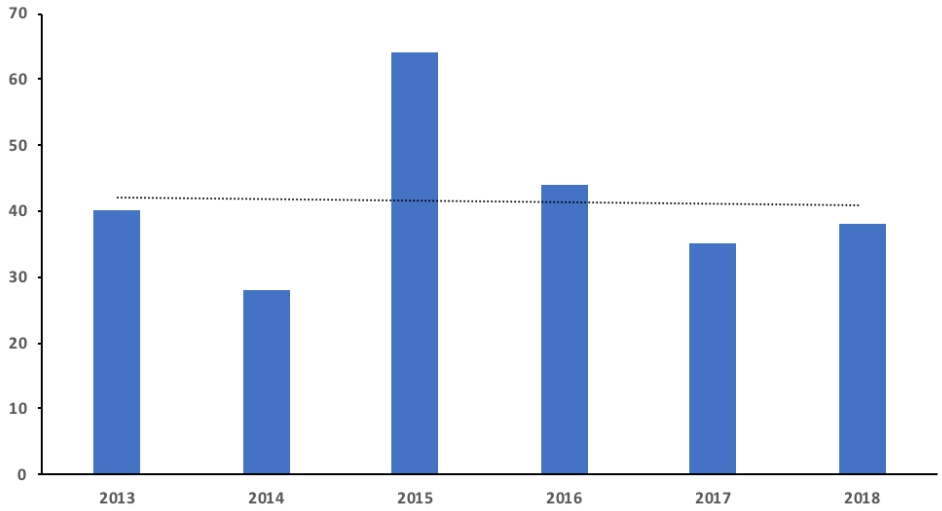
While the 2019 Seat Belt Usage Observational Survey was unchanged from 2018 in the overall rate, there was a slight decline in usage rates by both males and teens. Also, belt usage rates dropped 4% across the counties of Berkshire, Franklin, Hampden, and Hampshire. Worcester County had a 2% decline in usage. OGR will utilize this information to better position media messaging about seat belt usage and safety during FFY 2021.

NC-1 Distraction-Affected Fatal Crashes

FFY 2021 Target: 5% decline in the five-year average from 42 in 2018 to 40 by December 31, 2021

In 2018, the number of distraction-affected fatal crashes rose slightly from 35 to 38, but the five-year average dropped from 42.2 to 41.8. OGR is confident the five-year average will continue to decline in the coming years, especially once the five-year average does not encompass the suspected outlier of 64 in 2015. Even if crashes for 2019 and 2020 were 44, the five-year average for 2016-2020 would be 41 – still lower than the current five-year average of 42.

Figure 25: Distraction-Affected Fatal Crashes (2013 - 2018)



While there is a multitude of possible distractions for drivers, it is hard for police to definitively prove that a distraction, whether internal or external, was a factor in a fatal crash. Lack of eyewitnesses is one issue that hinders police when trying to obtain evidence of distraction. Surviving drivers who don't recall being distracted, are either dishonest or fail to mention having been distracted are challenging issues. Furthermore, the legal and bureaucratic roadblocks to obtaining cell phone records (as well as the time involved) can also discourage law enforcement from pursuing possible driver distraction citations or logging entries into crash reports. In essence, the number of distraction-affected fatal crashes in Massachusetts is likely much higher than what is shown above.

Regardless, OGR will focus distracted driving messaging on drivers under 35, which accounts for 43% of all distracted drivers involved in a fatal crash from 2014 to 2018. Even though the coronavirus pandemic forced NHTSA to move the national Distracted Driving campaign from April 2020 to October 2020, it may turn out to be a benefit for Massachusetts. Data has shown that October has the largest share of distracted drivers involved in a fatal crash, with over 14% of the 218 drivers involved from 2014 to 2018. Having the Distracted Driving campaign moved to October will help lower the number of drivers involved in a crash during that month.

FFY 2021 Traffic Records Performance Targets

Traffic Record Performance Target #1 – Decrease the percentage of Massachusetts State Police-submitted crash reports with invalid or incomplete entries in Accepted with Warning (AWW) fields (utilizing criteria by RMV with Crash Data System data in UMassSafe Data Warehouse) from 3.7% as of 8/31/19 to 2.78% by 12/31/21. Provide mid-project progress toward the target as of 5/31/21.

The continuation of the Accepted with Warning project (TR-21-05) in FFY 2021 will allow RMV's LEL to increase communications and outreach to State Police. As more State Police officers become aware of the need for accurate and complete crash reports, the number of invalid or incomplete entries will decline to the projected 2.78% by December 31, 2021.

Traffic Record Performance Target #2 – Exceed the January to October 2020 benchmarks for the RMV FARS Unit - for the timeliness, completeness, and quality – by 1% for January to October 2021. Provide mid-project progress toward the target as of 5/31/21.

With each passing year, the FARS analyst supported through the NHTSA Cooperative Agreement with RMV continues to improve the quality and accuracy of data submitted to the FARS database and FastFARS. By retaining the same FARS analyst as in CY 2020, an 1% improvement from previous benchmarks is expected as the efficiency and effectiveness of the FARS analyst are expected to increase in CY 2021.

Traffic Record Performance Target #3 – Install approximately 800 printers for the Motor Vehicle Automated Citation and Crash System in vehicles at an estimated 100 local law enforcement agencies by 9/30/21. Provide mid-project progress toward the target as of 5/31/21.

Having mobile printers in police vehicles allows law enforcement personnel to quickly and accurately produce all types of documentation related to day-to-day operations such as warrants, citations, summons, and crash reports. Without printers, police are handicapped in their ability to provide information efficiently and effectively during traffic stops. Based on the level of funding for the MACCS project (TR-21-03) as well as the demand for enhanced policing technology, the installation of at least 800 printers by December 31, 2021, is achievable.

Traffic Record Performance Target #4 – Decrease Massachusetts crash reports which are Accepted With Warning (AWW) by 3% as of December 31, 2021. The development work needed to determine the baseline number has been significantly delayed due to COVID-19, therefore, the estimated time to have the baseline number determined by is January 31, 2021. A report on progress towards the target as of May 31, 2021 will be provided.

During FFY 2021, several planned activities aimed at improving crash reports submissions (TR-21-01, -03, -05, -06, -10) are expected to include local police and/or state police. Having these police agencies involved in FFY 2021 Traffic Records project will help reduce the number of crash reports with warnings to the RMV's Crash Data System. Therefore, a decrease in crash reports with AWW by 3% as December 31, 2021, is achievable.

Traffic Record Performance Target #5 – Reduce the number of MA crash reports from state and local police that have incomplete/invalid data in any of the fields included in the RMV 2018/2019 Accepted With Warning initiative by 5% (2.2 relative percentage points) from 42.2% (10,676/25,295) for the period of 1/1/20 – 3/31/20 to 40% for the period of 7/1/21-9/30/21. Provide mid-project progress towards the target as of 5/31/21.

The continuation of the Accepted With Warning project (TR-21-05) in FFY 2021 will allow the RMV's LEL to increase communications and outreach to local police departments. As more police officers become aware of the need for accurate and completed crash reports, the number of invalid or incomplete entries will decline to the projected 40% by December 31, 2021.

Traffic Record Performance Target #6 - Increase the number of ambulance services submitting NEMSIS Version 3 reports to the Massachusetts Ambulance Trip Record Information System (MATRIS) from 213 as of 3/31/20 to 300 by 3/31/21 (or the number of licensed ambulance services in MA on 3/31/21).

It is expected that the two MATRIS related projects for FFY 2021 (TR-21-07, -08) will increase the number of ambulance services submitting NEMSIS Version 3 reports to the system, increasing the completeness of the data into the system as well as other aspects of its data quality. Another project detailed in the FFY 2021 Massachusetts Strategic Plan for Traffic Records Improvement, the Boston Cyclist, Pedestrian, and Vehicular Incident Information System Enhancement, will assist with reaching this target by also improving the data quality of the Version 3 submissions from Boston EMS to MATRIS.

Traffic Record Performance Target #7 - Increase Boston Police Department's electronic crash reporting to the RMV's Crash Data System from an estimated 7% rate in 7/1/20 to 70% or more by 6/30/21. Provide mid-project progress toward the target as of 5/31/21.

With the approval of BPD's crash reporting project (TR-21-10) for FFY 2021, the implementation of a new and improved crash reporting application for both office and field submissions by Boston Police Department personnel will significantly increase the number of crash reports sent electronically to RMV's Crash Data System and makes the 70% or more performance target feasible by June 30, 2021.

Program Area: Impaired Driving

By law, in Massachusetts and almost all other states, drivers are considered alcohol-impaired when their blood alcohol concentrations (BACs) are .08 grams per deciliter (g/dL) or higher. Any fatal crash that involves a driver with a BAC of .08 or higher is reported as an alcohol-impaired driving crash, and the resulting fatalities are alcohol-impaired driving fatalities. A 'driver' is the operator of a motor vehicle, or motorcycle. The term 'alcohol-impaired' means that an alcohol-impaired driver was involved in the fatal crash.

Eliminating alcohol-impaired driving remains a top priority for the state of Massachusetts. To achieve this, across the Commonwealth, OGR funds projects such as:

- Drive Sober or Get Pulled Over mobilizations with local police
- Educational Outreach to Young Drivers (aimed at high school students)
- Sobriety Checkpoints and Saturation Patrols
- Standardized Field Sobriety Test training
- Advanced Roadside Impaired Driving Enforcement (ARIDE) training
- MSP Sustained Traffic Enforcement Program (STEP)
- Traditional and social media campaigns
- Underage Drinking Compliance Checks at retailers, bars, and restaurants
- Undercover surveillance and educational programs in bars, restaurants, and large event venues to reduce over-serving of alcohol to patrons
- Community-based programs

Reducing alcohol-impaired driving crashes will not only save lives; it will reduce the economic damage that stems from these crashes. According to NHTSA, the estimated financial cost of all alcohol-impaired crashes in the United States is $44 billion, which is 18% of the estimated $242 billion associated with all motor vehicle crashes. Losses include lost wages, medical expenses, property damage, and other factors. By reducing alcohol-impaired driving by Massachusetts drivers, OGR seeks to lower the number of crashes, injuries, lives lost, and financial impact on communities.

From 2014 to 2018, there were 165,556 fatal crashes in the United States, in which 47,777 involved an alcohol-impaired driver, a rate of 28.9%. During the same period, Massachusetts reported 1,695 fatal crashes with an alcohol-impaired driver involved in 586 of the crashes, a rate of 34.6%. Nationally, there were 52,609 fatalities as a result of alcohol-impaired collisions; in Massachusetts, there were 636. Despite the higher alcohol-impaired fatal crash percentage of all crashes compared to the national rate, Massachusetts has a much lower alcohol-impaired fatality rate per VMT than the United States.

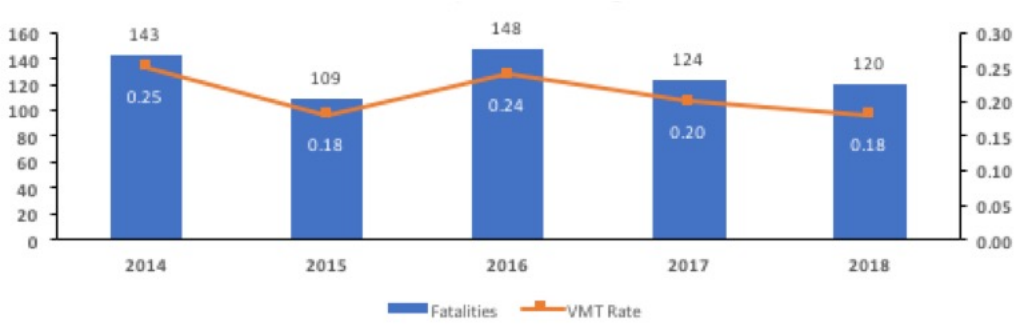
Nationally, from 2014 to 2018, the alcohol-impaired fatality rate per 100 million VMT remained relatively constant, with an average of 0.33 for its fatality rate.

Figure 26: National Alcohol-Related Fatalities

Year	Fatalities	VMT Rate
2014	9,943	0.33
2015	10,280	0.33
2016	10,967	0.35
2017	10,908	0.34
2018	10,511	0.33

During the same period, Massachusetts' alcohol-impaired fatalities and fatality rate fluctuated but saw a decline in both deaths and fatality rates over the past two years. The continued yearly increase in VMT has contributed to Massachusetts' low fatality rate compared to the national rate.

Figure 27: MA Alcohol-Impaired Fatalities and Fatality Rate Per 100 Million VMT

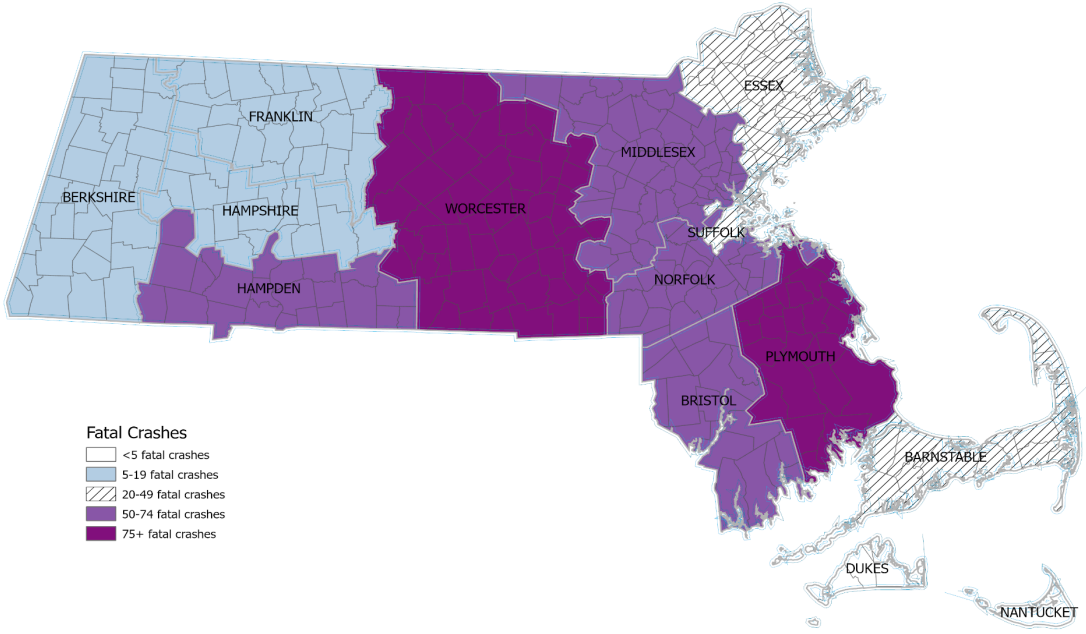


From 2017 to 2018, the number of nationwide alcohol-impaired fatalities decreased by 3.6%, while Massachusetts saw a decline of 3.2% in the same period. For the five years (2014 to 2018), Massachusetts saw its numbers drop 16% from 143 to 120; whereas, nationally, the numbers jumped 5.7% from 9,943 to 10,511.

Alcohol-Impaired Fatal Crashes in Massachusetts

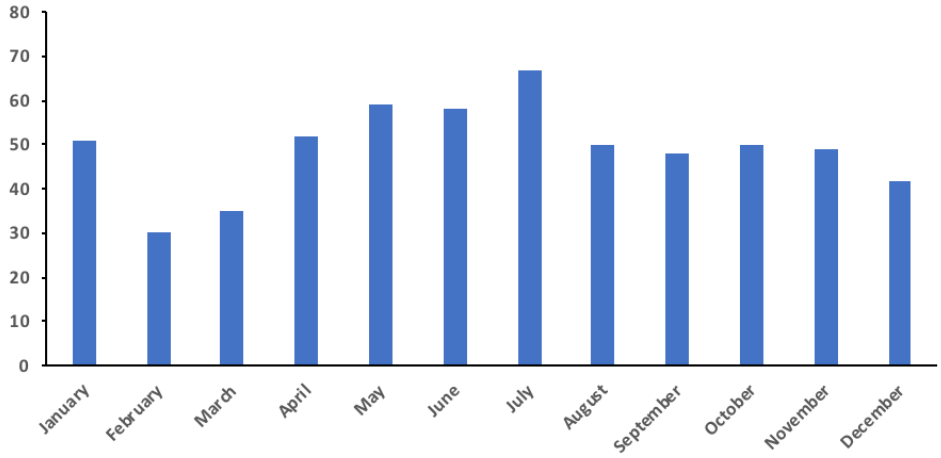
From 2014 to 2018, Worcester County reported the most alcohol-impaired fatal crashes with 100, followed by Plymouth (75), Bristol (72), Middlesex (71), Hampden (68) and Norfolk (60). These six counties accounted for 76% of all alcohol-impaired fatal crashes.

Map 3: Fatal Crashes Involving an Impaired [BAC .08 or higher] Driver (2014 - 2018)



Alcohol-impaired fatal crashes tend to occur with more frequency between April and July when prom, graduation parties, and the national holidays of Memorial Day and Independence Day take place. January appears to be an outlier. The common assumption would be New Year's Day (January 1st) being a source of many fatal crashes, but data for 2014 to 2018 revealed only four of 50 alcohol-impaired driver fatal crashes took place in January on New Year's Day. Other factors such as inclement weather, early evening dusk, icy roads, and driving too fast for conditions could be involved.

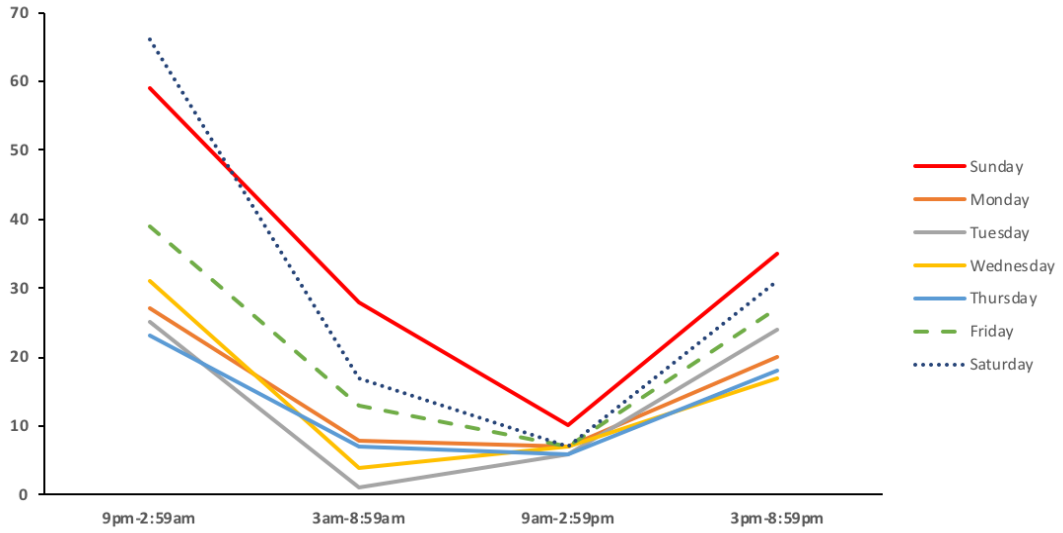
Figure 28: Alcohol-Impaired Fatal Crashes by Month (2014 – 2018)



Alcohol-impaired fatal crashes are far more likely to take place between Friday and Sunday and between the hours of 3 pm to 3 am. Nearly half of fatal crashes occurring between 9 pm and 2:59 am take place

either on Saturday or Sunday. Overall, the three-day period of Friday, Saturday, and Sunday accounted for 60% of all alcohol-impaired driving.

Figure 29: Alcohol-Impaired Fatal Crashes by Time (2014 – 2018)



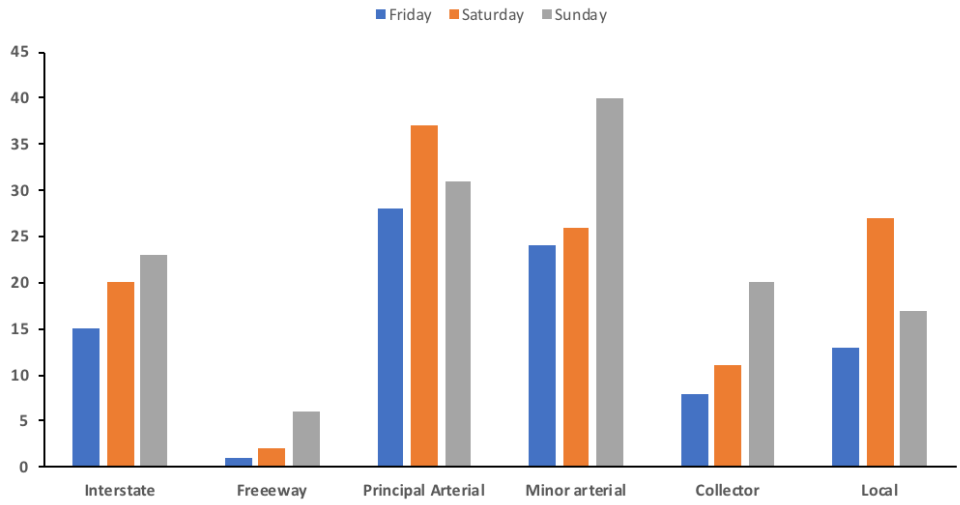
By roadway type, principal and minor arterials represented 52% of all crash locations. Interstate and local roads were nearly identical.

Figure 30: Alcohol-Impaired Fatal Crashes by Roadway Type (2014 – 2018)

Roadway Type	Percent of Alcohol-Impaired Crashes
Interstate	17.1%
Freeeway	2.4%
Principal arterial	26.5%
Minor arterial	26.1%
Collector	11.1%
Local	16.9%

Given that Friday, Saturday, and Sunday make up almost two-thirds of all fatal crashes, a closer look at the distribution of roadway types during these three days is quite interesting. Principal arterial roads are more frequent on Saturday. In contrast, minor arterials spike dramatically on Sunday.

Figure 31: Alcohol-Impaired Fatal Crashes between Friday - Sunday by Roadway Type (2014 – 2018)



At first glance, one may think minor arterials, which are less traveled roads compared to principal arterials, would be in great use as people navigate their way home to residential areas, leading to the jump on Sunday. But a closer look revealed that the spike on Sunday is happening between 6 pm and midnight.

Figure 32: Alcohol-Impaired Fatal Crashes between Friday - Sunday by Time

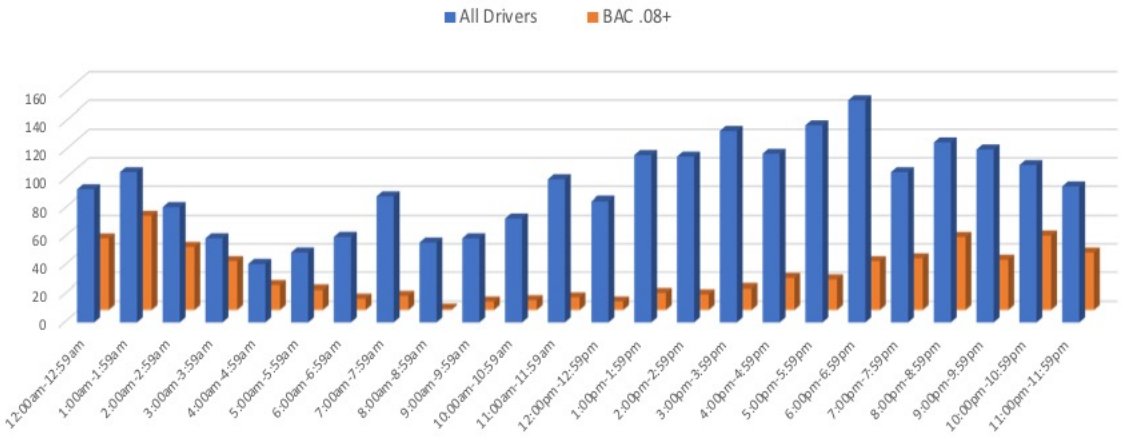
Time Frame	Friday		Saturday		Sunday	
	Principal Arterial	Minor Arterial	Principal Arterial	Minor Arterial	Principal Arterial	Minor Arterial
12am-2:59am	6	5	14	8	9	7
3am-5:59am	3	1	1	3	4	8
6am-8:59am	0	0	2	2	2	0
9am-11:59am	2	0	1	0	2	1
12pm-2:59pm	1	1	0	2	0	3
3pm-5:59pm	2	3	3	1	2	2
6pm-8:59pm	5	4	7	3	6	9
9pm-11:59pm	6	8	8	5	4	9

One plausible explanation for this increase on Sunday evening – a period which is usually much lower for alcohol-impaired fatal crashes – is NFL football. The New England Patriots usually play on Sundays, as well as most NFL teams, which means the rise of minor arterial crashes could be associated with people driving back home from the stadium, a bar or friend's house where they watched the game.

Alcohol-Impaired Drivers in Massachusetts

From 2014 to 2018, there were 615 drivers with a Blood Alcohol Content (BAC) of 0.08 g/dL or higher. At the beginning of the previous section, there is a graph detailing the hours drivers were involved in a fatal crash. The chart on the next page places BAC .08 drivers against all drivers, and it clearly shows how skewed impaired driving is to the hours between 9 pm and 3 am. Over 65% of all impaired drivers are involved in a fatal crash during that six-hour timeframe.

Figure 33: Comparison of All Drivers vs. Impaired Drivers by Time-of-Day (2014 – 2018)



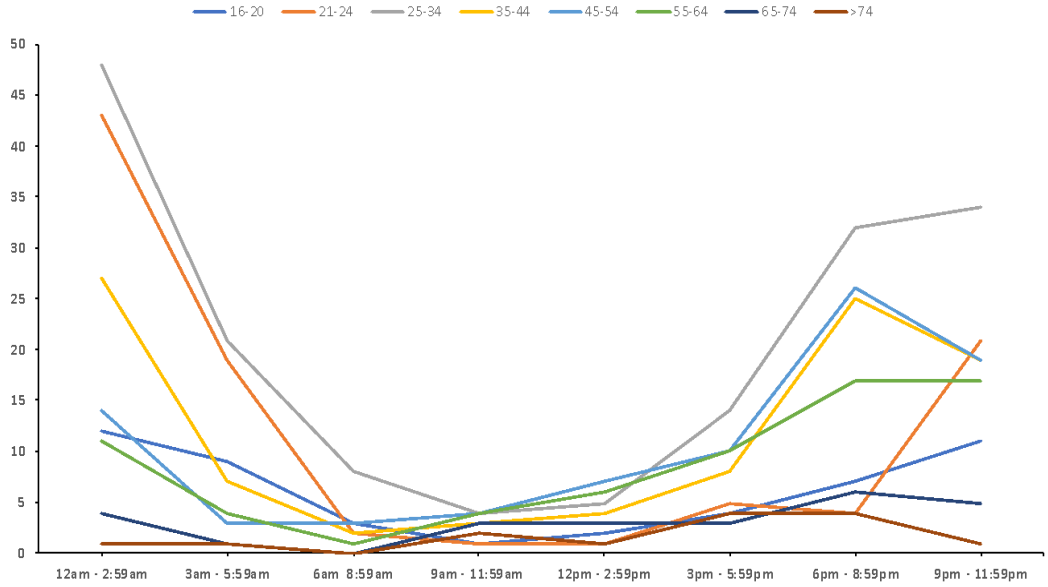
By age group, impaired drivers under 35 years of age accounted for 51.4% of all impaired drivers in a fatal crash. In comparison, this group represented 41.3% of all drivers involved in a deadly crash. This data shows that impaired driving is a behavior that is more likely to occur among drivers under age 35 as factors such as immaturity, peer pressure, and lack of responsibilities (i.e., no children, not married) could be considered.

Figure 34: Impaired Drivers by Age (2014 - 2018)

Age Group	Total	Percent	Male	Female	Unknown	% Male	% Female
16-20	50	8.1%	40	10	0	80.0%	20.0%
21-24	98	15.9%	73	25	0	74.5%	25.5%
25-34	168	27.3%	136	33	0	81.0%	19.6%
35-44	98	15.9%	73	25	0	74.5%	25.5%
45-54	89	14.5%	69	20	0	77.5%	22.5%
55-64	69	11.2%	51	17	0	73.9%	24.6%
65-74	25	4.1%	20	5	0	80.0%	20.0%
>74	13	2.1%	11	3	0	84.6%	23.1%
Unknown	5	0.8%	1	0	5	20.0%	0.0%
Total	**615**		**473**	**137**	**5**	**76.9%**	**22.3%**

At the beginning of this section, a graph compared all drivers to impaired drivers hourly. The graph clearly showed that impaired drivers were more prevalent from 9 pm to 3 am than at any other time. To further expand on the prevalence of impaired drivers in relation to time-of-day, the following line chart breaks down driver involvement by age group in three-hour time periods.

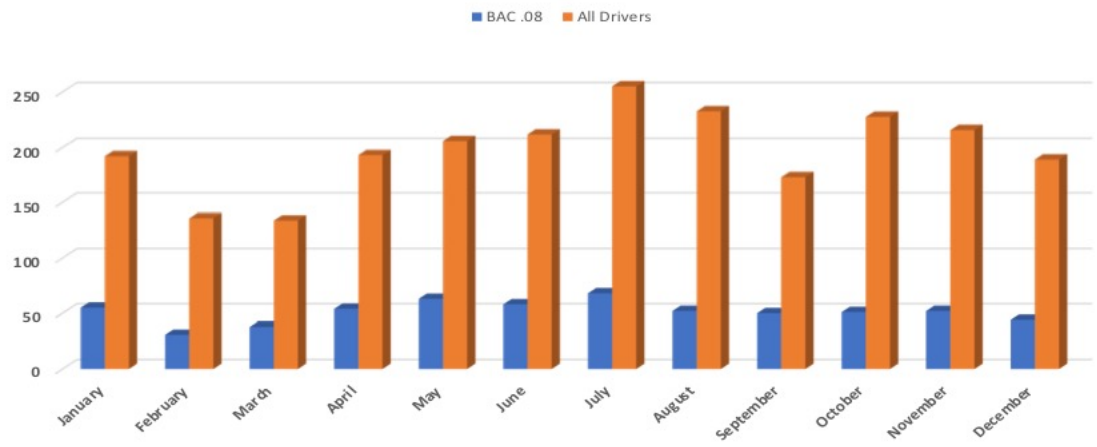
Figure 35: Impaired Drivers (BAC .08+) Involved in Fatal Crashes by Age Group, Time-of-Day (2014 – 2018)



Impaired drivers in a fatal crash are relatively low between 6 am and 3 pm, then rise throughout the late afternoon and evening. More revealing is how those between 21-34 years of age spike dramatically during the 12 am to 2:59 am time frame.

From 2014 to 2018, 31% of drivers (BAC .08+) involved in a fatal crash occurred between May and July. Of the 615 drivers involved, 189 were during these three months.

Figure 36: Comparison of All Drivers vs. Impaired Drivers (BAC .08+) by Month (2014 – 2018)



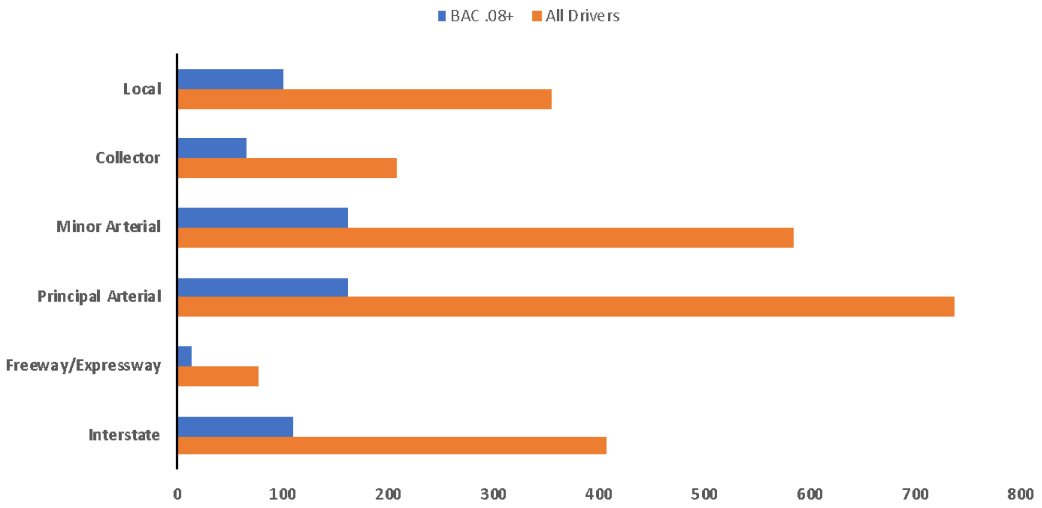
Putting the graph above into numbers and compare the monthly BAC drivers to all drivers during the same month shows May to be the only month with over 30% of its drivers involved in fatal crash to have a BAC of .08 or higher. Overall, BAC .08+ drivers accounted for 26% of all drivers in a fatal crash during the five years of 2014 to 2018.

Figure 37: Percentage of Impaired Drivers by Month (2014 - 2018)

Month	All Drivers	BAC .08	Percent
January	192	55	28.6%
February	136	31	22.8%
March	134	38	28.4%
April	193	54	28.0%
May	206	63	30.6%
June	212	58	27.4%
July	255	68	26.7%
August	233	52	22.3%
September	173	50	28.9%
October	228	51	22.4%
November	216	52	24.1%
December	189	44	23.3%
Total	**2367**	**615**	**26.0%**

What roadway function were BAC .08+ drivers likely to be traveling when involved in a fatal crash? The graph below shows the number of drivers on each roadway function. While principal arterials were the most frequent roadway type for all drivers, it was pretty much even with minor arterial roadways for BAC .08+ drivers. While arterial roads had a higher number count for BAC .08+ drivers, collectors and local roads represented a higher percentage of all drivers involved. Out of 354 drivers on local roads, 101 drivers (28.5%) were BAC .08+, and out of 209 collector roads, 66 drivers (31.6%) were BAC .08+.

Figure 38: Comparison of All Drivers and Impaired Drivers (BAC .08+) by Roadway Type (2014 – 2018)



One key point is that impaired drivers are higher in percentage among roadways of lower volume such as minor arterial, collectors, and local roads. These three roadway functions account for 48% of all drivers in a fatal crash (1,147 of 2,367); yet, for BAC .08+ drivers, those roadways represent 53% of all BAC .08 drivers.

The 25-34 age group is the leading BAC .08+ driver age group for 9 of the 14 counties (shaded cells) in Massachusetts. Worcester leads with the highest number of drivers in six of the eight age groups and also accounts for nearly 17% of all BAC drivers from 2014 to 2018.

Figure 39: Impaired Drivers by County and Age Group (2014 - 2018)

County	16-20	21-24	25-34	35-44	45-54	55-64	65-74	>74	Total
Barnstable	1	4	11	3	7	3	1	1	31
Berkshire	1	4	2	1	6	3	0	0	17
Bristol	9	11	19	18	6	8	5	2	78
Dukes	0	0	0	1	0	0	0	0	1
Essex	4	5	10	9	7	3	1	2	41
Franklin	0	1	4	1	2	1	0	0	9
Hampden	5	11	21	7	13	7	4	1	69
Hampshire	2	1	3	3	1	2	0	0	12
Middlesex	7	13	21	10	8	9	2	2	72
Nantucket	0	0	0	0	0	0	0	0	0
Norfolk	6	11	18	10	7	10	3	2	67
Plymouth	8	14	21	10	12	9	2	1	77
Suffolk	3	4	9	9	6	4	1	1	37
Worcester	5	17	29	16	15	13	6	3	104
Total	**51**	**96**	**168**	**98**	**90**	**72**	**25**	**15**	**615**

One last piece of data related to impaired drivers is the 'first harmful event' (FHE) of the fatal crash compared to all drivers. Interestingly, while a motor vehicle in-transport is the top FHE for impaired drivers, it is only 17% of all drivers. On the other hand, an impaired driver hitting a tree accounted for half of all tree FHE reported.

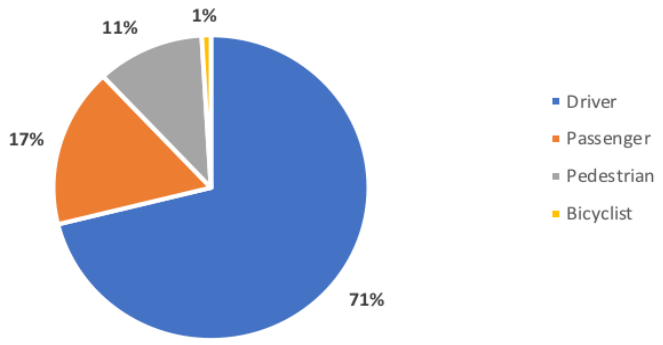
Figure 40: First Harmful Event and Impaired Drivers (2014 – 2018)

First Harmful Event (FHE)	Impaired Drivers	All Drivers	Percent
MV In-Transport	185	1103	16.8%
Tree	94	189	49.7%
Pedestrian	64	368	17.4%
Guardrail	51	121	42.1%
Curb	50	113	44.2%
Utility Pole	33	78	42.3%

Impaired Driving Fatalities in Massachusetts

From 2014 to 2018, there were 636 fatalities reported in a fatal crash involving an impaired driver. Well over two-thirds of deaths were drivers, followed by passengers, pedestrians, and then bicyclists.

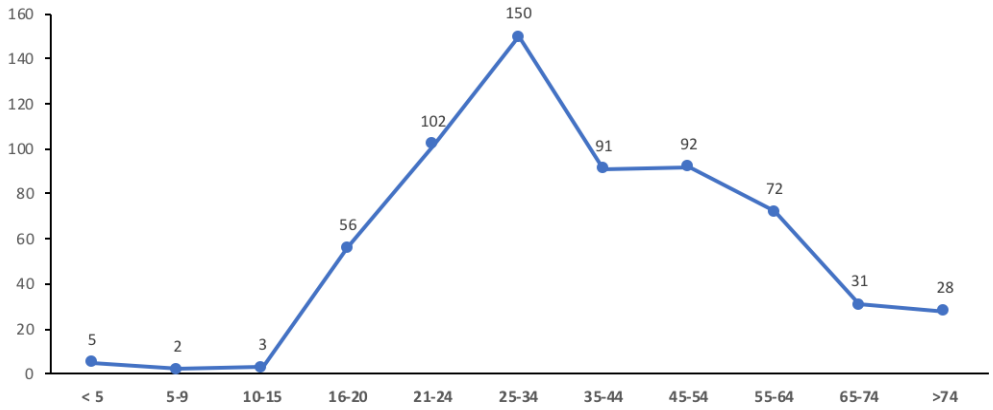
Figure 41: Alcohol-Impaired Driving Fatalities by Person Type (2014 – 2018)



Impaired drivers (BAC .08 or higher) accounted for 385 of the 451 driver fatalities in alcohol-impaired fatal crashes. Of the 451 deaths, 216 drivers were found unrestrained – a rate of 48%. More disturbing, though, is the fact that 91% of the 216 unrestrained drivers were impaired.

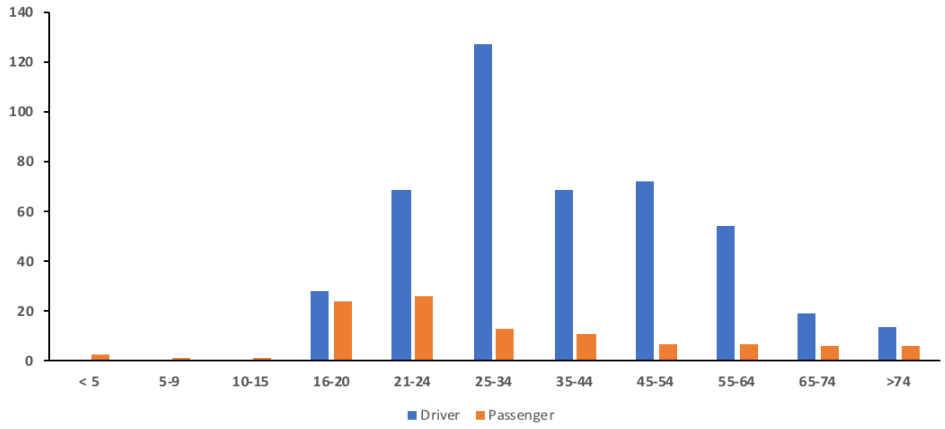
The number of fatalities reported by age group rose through the teen and early adult years, peaking with the 25-34 age group, which accounted for 24% of all fatalities in an impaired driving crash. From the peak, fatalities declined but did not drop below the number of fatalities for 16-20 (56 deaths) until the 65 or older age groups.

Figure 42: Alcohol-Impaired Driving Fatalities by Age Group (2014 – 2018)



When separating the fatalities by occupant and non-motorists, a few interesting trends appear. Among drivers, the 25-34 age group accounts for nearly a third of all driver fatalities. However, for passengers, those between the ages of 16-24 represented 48% of all passenger fatalities. Of the 51 deaths among the 16-24 age passenger, 26 (51%) was not wearing a restraint at the time of the crash. Over half of the passenger fatalities reported in an impaired driving crash did not have a seat belt on when the crash occurred.

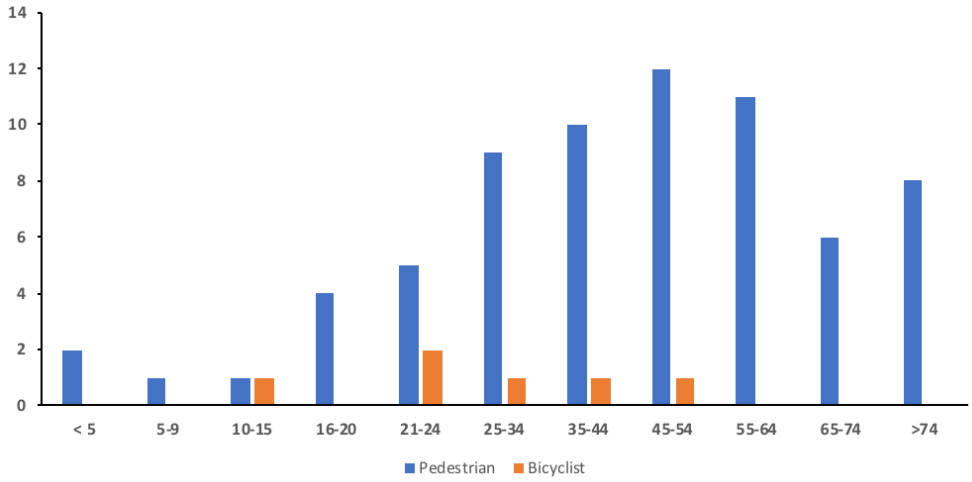
Figure 43: Alcohol-Impaired Driving Fatalities – MV Occupants (2014 - 2018)



For non-motorists (pedestrians and bicyclists), the spread of fatalities is slightly different. Pedestrian fatalities in an impaired driving crash were more prevalent among those between the age of 35 and 64. This age range represented 48% of all pedestrian fatalities.

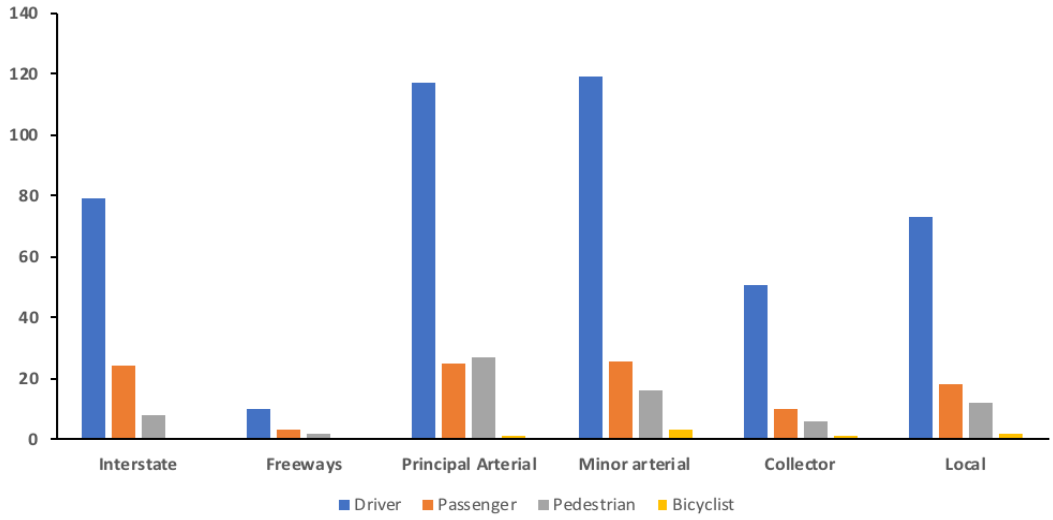
With such a low number of bicyclists fatalities in an impaired driving crash, it is difficult to determine any trends across the age groups. One point though, all but one of the bicyclist fatalities were under 21 years of age.

Figure 44: Alcohol-Impaired Driving Fatalities - Pedestrians and Bicyclists (2014 – 2018)



As for what type of roadway impaired driving fatalities are likely to occur, principal and minor arterials account for over half of the crash locations. Interestingly, pedestrian fatalities were more frequent on principal arterials than local roads. More pedestrian fatalities than passenger fatalities were reported on principal arterials.

Figure 45: Alcohol-Impaired Driving Fatalities by Roadway Type and Person Type (2014 – 2018)



As each roadway type has different levels of legal speed limits that, if surpassed, increases the danger for all using the roadway. Speeding was analyzed to determine if it was a recurring factor in alcohol-impaired fatalities to see what person type would be at the highest risk along with each roadway type.

Passengers were the highest risk group in an impaired driving crash involving speeding, especially on local roads. On local roads, nearly 80% of passenger fatalities involved speeding. For drivers, only 38% of all driver fatalities on local roads involved speeding. Pedestrian fatalities were low across all roadway type, except freeways – but this is deceiving since total pedestrian fatalities along this roadway were two.

Figure 46: Speed in Alcohol-Impaired Driving Fatalities by Person Type, Roadway Type (2014 – 2018)

Person Type	Fatalities Reported in Alcohol-Impaired Driving	Interstate	Freeways	Principal Arterial	Minor arterial	Collector	Local
Driver	Speed Involved	30	4	46	50	19	28
	Total Fatalities	79	10	117	120	51	73
	Percent	*38.0%*	*40.0%*	*39.3%*	*41.7%*	*37.3%*	*38.4%*
Passenger	Speed Involved	12	2	9	15	5	14
	Total Fatalities	23	3	25	25	10	18
	Percent	*52.2%*	*66.7%*	*36.0%*	*60.0%*	*50.0%*	*77.8%*
Pedestrians	Speed Involved	1	1	1	2	1	1
	Total Fatalities	8	2	27	16	6	12
	Percent	*12.5%*	*50.0%*	*3.7%*	*12.5%*	*16.7%*	*8.3%*

For FFY 2021, impaired driving is a significant focus of OGR as it collaborates with traffic safety partners through funding, outreach, training, and enforcement. Key takeaways from the analysis of impaired driving fatal crashes and fatalities that will be considered or implemented:

- Focus efforts on increasing enforcement across principal and minor arterial roads, especially during the 6 pm to 3 am time frame.

- Increase outreach to attract more potential applicants from high impaired driving fatal crash counties such as Worcester, Plymouth, Middlesex, and Bristol.
- ABCC should focus more on inspections on these counties in FFY 2021.
- Media messaging aimed at motor vehicle occupants should be targeted to drivers and passengers less than 35 years of age.
- Friday, Saturday, and Sunday should be the primary focus of enforcement activities by law enforcement
- With regards to Sundays during football season (August – February), law enforcement should target some patrols along minor arterials or local roads between 3 pm and 9 pm.

Drug-Impaired Driving in Massachusetts

While alcohol-impaired driving continues to be a primary concern for OGR, the rise of drug-impaired driving in recent years has increased the need to fund grants to address this public safety hazard. For FFY 2021, OGR will have planned activities aimed at reducing the incidences of drug-impaired drivers on the roadways of the Commonwealth, especially those under the influence of marijuana.

Eliminating drug-impaired driving is a top priority for the state of Massachusetts. Many of the same projects used to combat alcohol-impaired driving also serve to achieve this, including:

- Drive Sober or Get Pulled Over mobilizations with local police
- Educational Outreach to Young Drivers (aimed at high school students)
- Drug Recognition Expert (DRE) training
- Sobriety Checkpoints and Saturation Patrols
- Advanced Roadside Impaired Driving Enforcement (ARIDE) training
- MSP Sustained Traffic Enforcement Program (STEP)
- Traditional and social media campaigns
- Community-based programs

Current statistics on the number of motor vehicle crashes in Massachusetts involving a person under the influence of drugs are lacking due to the discontinuation of drug-related data on FARS because of inconsistencies and the lack of accuracy in testing from state-to-state. Despite the absence of national data, a recent report regarding drug usage while driving helps paint a general picture of current trends among drivers.

A study ("*Prevalence and motives for drugged driving among emerging adults presenting to an emergency department*") that appeared in the March 2018 issue of *Addictive Behavior* found that nearly one quarter (24%) of young adults age 18-25 seeking care in an emergency department reported driving impaired by drugs in the past year. 96% of these cases occurred after the use of marijuana. After cannabis (the most common drug used), prescription opioids, sedatives, and stimulants were used before driving. The study also asked respondents (N=586, ages 18-25) why they needed to drive after using drugs, and the most frequent excuses were:

- Needed to go home (67%)

- Thought drugs wouldn't affect driving ability (44%)
- Didn't have far to drive (33%)
- Didn't feel high (32%)

Another study published by the Centers for Disease Control and Prevention (CDC) in the December 20, 2019 edition of their *Morbidity and Mortality Weekly Report* analyzed driving under the influence among persons age 16 or older. The report found that during 2018, the prevalence of driving under the influence of marijuana (4.7%) exceeded that of driving under the influence of other illicit drugs (0.9%) among persons aged 16 or older. Males were found to use marijuana much more frequently than females (6.2% compared to 3.2%).

Of the 47,570 respondents to the study, the highest prevalence of driving under the influence of marijuana was among drivers age 21-25 years (12.4%). The second highest prevalence (9.2%) was among persons age 16-20 years. Regarding the use of drugs other than marijuana, the two highest age groups were 21-25 years and 26-34 years – both reporting a 1.9% usage rate. Interestingly, the 16-20 age group had only 18 of 8,280 arrests for DUI (0.2%) reported for Massachusetts in the FBI's 2018 Crime Report.

While there is undoubtedly information available detailing the prevalence of drivers mixing drugs and driving, the effects of drugs on driving skills vary widely depending on how the drug impacts the brain. For example, studies have shown that marijuana can slow reaction time, impair the judgment of time and distance, as well as decrease coordination. Cocaine or methamphetamine can make drivers aggressive and reckless, while some prescription medicines (benzodiazepines and opioids) can result in drowsiness, dizziness, and impair cognitive functioning.

In Massachusetts, the recent legalization of recreational marijuana in November 2018 has raised concerns among traffic safety and law enforcement organizations about its impact on the number of motor vehicle crashes involving impaired drivers. According to the Massachusetts Cannabis Control Commission, sales of marijuana from November 2018 to November 2019 are more than $460 million. Besides Massachusetts residents, consumers are coming from across state lines from other New England states as well as New York and New Jersey.

In February 2019, the journal *Addiction* published a report that found, on average, the states of Colorado, Oregon, and Washington (all have legalized recreational marijuana in recent years) had about one additional traffic death per million residents. Neighboring states also reported the same increase, presumably because people are driving across state lines to purchase marijuana. Oddly enough, the study found that rates went back to normal after about a year. One possible reason for this could be the legalization of marijuana initially leads to a rise in inexperience users, who will try to drive under the influence.

Recent data regarding motor vehicle violations and motor vehicle OUI charges in trial courts are inconclusive on the impact of legalized marijuana. Violations issued by State police have risen 6.2% from 2016 to 2019. With the legalization of marijuana in Massachusetts in late 2018, the number of OUI-Drug violations did increase by nearly 20% in 2019 from the previous year.

Figure 47: State Police OUI Drug Violations Issued

	2016	2017	2018	2019
OUI - Drugs Violations	657	456	596	698
Change from prior year		-30.6%	30.7%	17.1%

Digging a bit deeper into the town where MSP issued the violation, the number of OUI Drug violations issued varies quite a bit from town-to-town in the top 25 for total violations from 2018 to 2019. These 25 towns accounted for 88% of all OUI-Drugs violations handed out over those two years.

Figure 48: Top 25 Towns for State Police OUI Drug Violations

County	Municipality	2018	2019	Total
Suffolk	Boston	15	39	54
Barnstable	Barnstable	42	7	49
Hampden	Springfield	14	29	43
Hampden	Chicopee	11	27	38
Barnstable	Bourne	12	22	34
Essex	Andover	21	12	33
Plymouth	Brockton	18	12	30
Bristol	New Bedford	10	20	30
Worcester	Worcester	16	12	28
Plymouth	Wareham	17	10	27
Bristol	Fall River	9	12	21
Suffolk	*Dorchester*	10	10	20
Essex	Saugus	11	8	19
Barnstable	Yarmouth	14	4	18
Suffolk	Revere	7	11	18
Plymouth	Plymouth	6	12	18
Worcester	Auburn	8	10	18
Plymouth	Middleborough	8	9	17
Essex	Peabody	9	8	17
Hampden	Holyoke	4	12	16
Essex	Lynnfield	9	6	15
Bristol	Taunton	9	5	14
Worcester	Sturbridge	6	7	13
Middlesex	Woburn	5	8	13
Norfolk	Quincy	7	3	10
		298	**315**	**613**

One quick note, Dorchester is italicized because it is a neighborhood within Boston. The capital city has several 'neighborhoods' across it (Jamaica Plain, Roxbury), and Dorchester is one of them.

Breaking the top 25 down by its respective county reveals that Suffolk and Hampden Counties experienced the biggest increases in OUI Drug violations from 2018 to 2019. Barnstable, which has the most violations issued for the two years, saw its number drop by half from 2018 to 2019.

Figure 49: Breakdown of Top 25 MSP OUI Drugs Violation Towns by County

County	2018	2019	Total	Change
Barnstable	68	33	101	-51.5%
Suffolk	32	60	92	87.5%
Hampden	29	68	97	134.5%
Essex	50	34	84	-32.0%
Plymouth	49	43	92	-12.2%
Bristol	28	37	65	32.1%
Worcester	30	29	59	-3.3%
Norfolk	7	3	10	-57.1%
Middlesex	5	8	13	60.0%
	298	**315**	**613**	**5.7%**

The reason for the low numbers for both Norfolk and Middlesex County is that each only had one town in the top 25.

Local police across Massachusetts issued 6,223 OUI Drug-related violations from 2016 through March 30, 2020. From 2016 to 2019, OUI Drug violations dropped 7%.

Figure 50: Local Police OUI Drug Violations

	2016	2017	2018	2019	1Q 2020
OUI Drug Violations	1,489	1,577	1,508	1,387	262

The top 20 towns for OUI Drug-related violations by local police accounted for 30% of all OUI Drug violations issued from 2016 through the first quarter of 2020. One-quarter of the top 20 towns hail from Essex County in northeastern Massachusetts – Gloucester, Haverhill, Lynn, Peabody, and Salem. Half of the towns listed are also on the MSP Top 25 table provided on the previous page.

Figure 51: Top 20 Towns for Local Police OUI Violations (2016 – 1Q 2020)

Town	OUI Drug Violations	Town	OUI Drug Violations
New Bedford	191	Worcester	88
Lynn	131	Brockton	84
Weymouth	119	Holyoke	76
Bourne	117	Revere	76
Haverhill	110	Sturbridge	70
Fall River	101	Gloucester	67
Bridgewater	92	Salem	65
Boston	91	Palmer	63
Falmouth	89	Quincy	62
Peabody	88	Lowell	60

The towns are Boston, Bourne, Brockton, Fall River, Holyoke, New Bedford, Peabody, Plymouth, Revere, Quincy, Sturbridge, and Worcester. OGR will work to have MSP and these towns conduct joint efforts aimed at reducing OUI Drug incidents in FFY 2021.

Data provided by the Massachusetts Trial Court on yearly case filings gives another way to see if drugged driving is increasing since the legalization of marijuana. Motor vehicle (MV) case filings declined nearly 3% from 2018 to 2018 as well as Impaired MV filings. OUI-Drugs, on the other hand, rose from 2018 to 2019.

Figure 52: MA Trial Court OUI Filings

	MV Filings	Impaired	Drugs
FY2018	116,526	14,264	1,955
FY2019	113,349	14,148	2,014
Change	-2.7%	-0.8%	3.0%

While the number of drug filings in Trial Courts increased, the percentage of OUI-Drugs case filing of all impaired case filings remained almost the same from 2018 to 2019. In 2018, OUI-Drugs were 1.8% of all Impaired MV filings; in 2019, 1.9% of all Impaired MV filings. Even though the number of cases increased, OUI-Drugs hasn't made up a bigger piece of the Impaired MV filings pie.

A look at the number of OUI-Drugs case filings by county does provide further proof of the increase in drugged driving across Hampden County. From FY2018 to FY2019, Hampden had a rise of nearly 80% in OUI-Drugs case filings. Only Hampshire (a neighboring county to the north) had a higher increase with a 91% jump from FY18 to FY19.

Figure 53: MA Trial Court OUI Drugs Filings by County

County	FY18	FY19	Change
Hampshire	23	44	91.3%
Hampden	85	152	78.8%
Plymouth	172	219	27.3%
Worcester	233	287	23.2%
Middlesex	214	260	21.5%
Suffolk	100	104	4.0%
Barnstable	153	152	-0.7%
Bristol	183	180	-1.6%
Franklin	47	44	-6.4%
Essex	250	233	-6.8%
Norfolk	168	150	-10.7%
Berkshire	32	27	-15.6%

One observation from examining both OUI-Drugs violations and case filings is how low the numbers are in light of the recent legalization of marijuana. Studies cited previously indicated there was a possibility of the incidences of drugged driving would spike within the first 6-12 months of legalization. In Massachusetts, the low numbers may be due to the impact of a State Supreme Court decision issued in 2017.

The decision stemmed from the case of *Commonwealth vs. Gerhardt. In Gerhardt,* a driver was pulled over and determined to be under the influence of marijuana using field sobriety tests (FSTs) and evidence in the car. The State Supreme Court declared that police officers may not use such tests (FSTs, which are inherently subjective) to offer an opinion in court as to whether a driver is under the influence of marijuana unless the officer is a trained Drug Recognition Expert (DRE).

Currently, 145 police officers are certified DREs across Massachusetts. To put it into perspective, Massachusetts has approximately 18,000 police officers on duty, meaning certified DREs make up 0.8% of these officers. Without more certified DREs available to conduct the required FST and testify in court, the number of OUI-Drugs violations and case filings will remain artificially low in the coming years.

For FFY 2021, OGR wants to increase the number of DREs through various grant programs as well as increase the number of police officers more knowledgeable about the effects of drugs on driving. More knowledge and more expertise among law enforcement professionals will result in safer roadways for all users of the roads in Massachusetts.

Performance Measure for Impaired Driving

Number of fatalities in crashes involving a driver or motorcycle operator with a BAC of .08 and above

FFY 2021 Target: 3% decline in the five-year average from 127 in 2018 to 123 by December 31, 2021

Planned Activities for FFY 2021

Impaired Driving Media

ID: AL-21-01

Primary Countermeasure Strategy: Communication Campaign

Description of Planned Activity:

Develop and implement a statewide paid and earned media campaign to support impaired driving efforts during the Drive Sober or Get Pulled Over mobilizations (December 2020 and August 2021). Based on state data, OGR will target communication efforts to drivers less than 34 years of age from the following counties: Worcester, Bristol, Plymouth, Middlesex, Hampden, and Norfolk Counties. OGR will also take into consideration national media buy recommendations when planning paid media. Messaging will focus on alcohol, marijuana, and other drugs. Earned media will augment the paid campaign while incorporating state laws and highlighting the work of state and local law enforcement agencies.

OGR will contract with a marketing and advertising agency to execute these impaired driving media campaigns while running social media in-house for sustained educational outreach.

Internal policies will be followed, noting that all media and communications activities should be in support of data-driven objectives and coordination with other activities and programs, in particular, enforcement.

Crash and citation data will be used not only for planning enforcement activities but also for determining the target audiences and media channels used to reach those audiences. NHTSA's guidelines will be followed for messaging, demographics, best practices, and target groups for each media campaign.

Countermeasure Strategy Justification: *Communication Campaign*

OGR's FFY 2021 media-oriented campaigns are aimed at reducing the frequency of drunk or intoxicated driving on the roadways of Massachusetts. Communication and education outreach campaigns are crucial to ensure the messaging about the dangers of impaired driving is consistent and impactful across the state. As with FFY 2020, messaging will target drivers under age 35, which account for a majority of impaired drivers in alcohol-impaired fatal crashes. The counties of Worcester, Plymouth, Middlesex, Hampden, Norfolk, and Bristol are key areas of the state to target.

AL-21-01 Impaired Driving Media Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405d Impaired Driving Low	405d Low (Paid & Earned Media)	$500,000	$125,000	$0

MSP and Local Police Sobriety Checkpoint & Saturation Patrols

ID: AL-21-02

Primary Countermeasure Strategy: High Visibility Saturation Patrols

Description of Planned Activity:

The MSP will continue with the Local Law Enforcement Pilot Program to help maintain minimum manning numbers for BAT/Sobriety Checkpoints and assistance with saturation patrols. The following 25 communities and six regional clusters were identified as impaired driving hot spots.

#1 Springfield, Southwick, Westfield, Agawam, Holyoke

#2 Worcester, Millbury, Sutton, Douglas

#3 Brockton, Taunton, Norton, West Bridgewater

#4 Boston, Norwood, Canton, Milton

#5 Plymouth, Carver, Kingston

#6 New Bedford, Westport, Dartmouth, Acushnet, Fall River

Using program funds, MSP will contract separately with each of these local departments for overtime patrols and checkpoint assistance. As time allows, the MSP will hold individual and group discussions, conference calls and on-site visits with as many chiefs as possible to enhance and increase the number of partnerships.

The most important goal of the program will be to reduce the number of impaired drivers in the six regional clusters by providing maximum visibility for deterrent purposes and to taking immediate and appropriate action on all motor vehicle offenses observed.

The purpose of the program is to evaluate the effectiveness of reducing impaired driving crashes through jointly conducted enforcement that partners MSP and local police department operations, with support from the two Blood Alcohol Testing (BAT) mobile units whenever operationally possible.

To the greatest extent possible, every event will include local police department participation. The level of local department participation will be part of the evaluation of programmatic effectiveness.

Countermeasure Strategy Justification: *High Visibility Saturation Patrols*

A saturation patrol consists of a large number of law enforcement officers patrolling a specific area looking for possible impaired drivers. These saturation programs are typically publicized to deter drivers from getting behind the wheel after drinking by making it known there is a perceived risk of arrest. For FFY 2021, local departments will be conducting high visibility saturation patrols – which have been extremely successful in previous years – to remove drivers who are impaired off the road as well as warn of the legal, financial, and social costs associated with an OUI arrest.

Saturation patrols are extremely effective when conducted during the same month as local impaired driving mobilizations are occurring. From 2014 to 2018, the month preceding the mobilization month had a much higher number of impaired driving fatal crashes. July and November reported 68 and 52 fatal crashes, respectively. The mobilization months of August and December had 52 and 44 fatal crashes, respectively. The local police enforcement (along with concurrent MSP saturation patrols) in support of DSOGPO has an impact on the number of impaired driving crashes. Furthermore, saturation patrols – when done regularly throughout the year – will drive changes in driver behavior as the continuous existence, rather than only being during a specific time frame like DSOGPO, will be a constant reminder of the inherent dangers in drinking and driving.

AL-21-02 Local Police Impaired Driving Enforcement Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405d Impaired Driving Low	405d Low HVE	$1,300,000	$325,000	$0
2020	405d Impaired Driving Low	405d Low HVE	$700,000	$175,000	$0

MA Trial Court – Judicial Education Program

ID: AL-21-03

Primary Countermeasure Strategy: DWI Courts

Description of Planned Activity:

This program will support judicial educational opportunities for Massachusetts judges such as attendance at the New England Association of Drug Court Professionals (NEADCP) conference and the Massachusetts Judicial Institute sessions at the annual conference, as well as appropriate out-of-state training and conferences. At this time, it is estimated at least five (5) judges will attend the Drug Court Conference.

The MA Trial Court plans to send judges to the National Judicial College in Reno, NV, for training in FFY 2021. While the final number of attendees will be determined once registration fees and travel expenses can be more closely estimated, it is expected that at least five (5) judges will attend the National Judicial College. The Department Chief will decide who will attend all training.

Countermeasure Strategy Justification: *DWI Courts*

DWI Courts are specialized courts dedicated to changing the behavior of DWI (OUI in Massachusetts) offenders through intensive supervision and treatment. A DWI Court's underlying goal is to change offenders' behavior by identifying and treating their alcohol and/or drug problems and holding offenders accountable for their actions. With this training, OGR will help deepen the expertise and legal knowledge available to prosecutors and judges involved with the DWI Courts. This could lead to more effective treatments and/or sentencing that will further reduce the recidivism rate of offenders.

AL-21-03 MA Trial Court Judicial Education Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405d Impaired Driving Low	405d Low	$20,000	$5,000	$0
2020	405d Impaired Driving Low	405d Low	$15,000	$3,750	$0

MSP-Office of Alcohol Testing (OAT) Breath Test Operator (BTO) Training

ID: AL-21-04

Primary Countermeasure Strategy: Breath Test Devices

Description of Planned Activity:

Provide funds to the MSP Office of Alcohol Testing (OAT) to help certify over 600 Breath Test Operators (BTO) through classroom instruction to detect impaired drivers better. Training will take place throughout the year at the MPTC and other facilities. Funds will also be provided for the purchase of related program equipment, including Preliminary Breath Test (PBT) units and OUI Toxicology Kits. Equipment will be distributed to local police officers and MSP troopers, including those who complete a DRE class conducted by the MPTC. OAT will determine how the equipment is divided among agencies based on problem identification and greatest need.

For the past years, OAT has purchased OUI Toxicology Kits instead of PBTs, and before those years, PBTs were bought. OAT will determine, through analysis of current inventory and needs of the state as well as local police, what should be purchased in FFY 2021. Regardless of whether it will be OUI Toxicology Kits, PBTs, or a combination of both, the amount expected to be spent will be no more than $50,000.

Countermeasure Strategy Justification: *Breath Test Devices*

State and local police utilize breath test devices (typically called PBTs or preliminary breath tests) to help establish evidence for a possible DWI arrest. At the current time, Massachusetts, along with 32 other states, use PBTs regularly. Having PBTs allows officers to remove drunk drivers from the road while providing factual evidence of intoxication in the courts that can result in license suspension. In Massachusetts, the first DWI conviction leads to a one-year license suspension; the second DWI, two-year suspensions, and ignition interlock device installed. The combination of the loss of driving privileges as well as the threat of losing those privileges will provide deterrence for drivers.

Having more officers certified to use breath test devices and having access to more PBTs will result in more drivers being pulled off the road for impaired operation. Breath test devices help officers gauge the possible impairment of a driver, and if more impaired drivers are removed from the roadways, the number of impaired driving fatalities should decrease.

AL-21-04 MSP OAT BTO Training Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405d Impaired Driving Low	405d Low Drug and Alcohol Training	$115,000	$28,750	$0
2020	405d Impaired Driving Low	405d Low Drug and Alcohol Training	$35,000	$8,750	$0

MSP Drug Recognition Expert (DRE) Training

ID: AL-21-05

Primary Countermeasure Strategy: DRE Training

Description of Planned Activity:

Funding will be provided to the MSP to expand its Drug Recognition Expert (DRE) program. With the legalization of recreational marijuana and the expansion of the utilization of marijuana for medicinal purposes, state police troopers are seeing a marked increase in people driving under the influence of this drug. There is a perception, on the part of some, that the consumption of marijuana while driving is safe and legal. Other states that have passed similar legislation have experienced an increase in instances of drug-impaired driving. The MSP will expand the DRE training program and train ten additional officers to assist troopers on the roadways. Part of MSP's Traffic Programs Sections' five-year plan is to have DREs permanently assigned to sole DRE functions within a troop. A limited portion of the funds will be used to purchase two DAX video recorders to assist DREs in the identification and documentation of evidence. Additionally, a small portion of the funds will be used to send current DREs to the national IACP Drugs and Impaired Driving (DAID) Conference in the summer of 2021.

Neither the subaward or final budget have been approved. Tentatively, approximately $30,000 has been budgeted for training and travel, $10,200 for the purchase of two DAX recorders, and $3,800 on equipment.

Countermeasure Strategy Justification: *DRE Training*

With the recent legalization of marijuana, there is more need than ever to increase the number of Drug Recognition Experts (DREs) among the officers in State and local police. DREs can help determine whether a suspected impaired driver is under the influence of drugs and, if so, what drug. While the use of DREs has been contested in court, in the field, these officers provide crucial knowledge and support in the quest to remove drunk and drugged drivers off the road. This planned activity will help increase the number of certified DREs in Massachusetts and ensure there are ample qualified DREs in all corners of the state.

Without DREs, it would be much more challenging for officers to determine whether a driver is under the influence of drugs or otherwise. The need for more DREs is even more pressing with the legalization of adult-use marijuana in Massachusetts. Currently, MSP has 18 active DREs on staff (1% of department) and it aiming to add at least 10 more in FFY 2021. MSP's long-term goal is to have 5% of the department certified.

AL-21-05 MSP DRE Training Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405d Impaired Driving Low	405d Low Drug and Alcohol Training	$44,000	$11,000	$0
2020	405d Impaired Driving Low	405d Low Drug and Alcohol Training	$16,000	$4,000	$0

MPTC – Impaired Driver Law Enforcement Specialized Training

ID: AL-21-06

Primary Countermeasure Strategy: Standardized Field Sobriety Training (SFST)

Description of Planned Activity:

This program will provide funds to the MPTC to conduct up to 18 trainings throughout the year focused on SFST. The MPTC will provide training to law enforcement officers to help reduce the number and severity of roadway crashes and pedestrian injuries due to alcohol-and-drug related impaired driving. Classes will include SFST Instructor, SFST Instructor Updates, SFST Refresher, and a three-day SFST course to help law enforcement better detect impaired drivers during OUI checkpoints, traffic stops, and at the scene of motor vehicle crashes. Increased awareness of driver impairment by officers will lead to safer roads. Funding will also be used to fund a part-time SFST Coordinator responsible for implementing and maintaining the SFST training program statewide. Training will take place at various police departments across the Commonwealth.

Countermeasure Strategy Justification: *SFST Training*

Standardized Field Sobriety Training classes help law enforcement better detect impaired drivers during sobriety checkpoints, traffic stops, and at the scene of motor vehicle crashes. Increased awareness of driver impairment by officers will lead to safer roads as drivers are arrested and eventually have their license suspended for anywhere from one year to a lifetime.

Through the MPTC, SFST classes will be offered at various locations across the state throughout FFY 2021. With an emphasis on attracting more officers from counties with high alcohol-involved crashes, MPTC will offer multiple classes in or near Bristol, Plymouth, Middlesex, and Worcester counties. As more officers are trained in SFST, along with those receiving DRE designation, more impaired drivers will be removed from the roads, therefore making the roadways safer and less dangerous.

AL-21-06 MPTC SFST Training Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405d Impaired Driving Low	405d Low Drug and Alcohol Training	$65,000	$16,250	$0
2020	405d Impaired Driving Low	405d Low Drug and Alcohol Training	$35,000	$8,750	$0

MPTC – Drug Evaluation and Classification (DEC) Program

ID: AL-21-07

Primary Countermeasure Strategy: Enforcement of Drug-Impaired Driving

Description of Planned Activity:

This program will provide funds to MPTC to conduct up to 39 training classes throughout the year for police officers. Courses will cover Advanced Roadside Impaired Driving Enforcement (ARIDE) and Drug

Evaluation & Classification (DEC) training. Funding will also support a part-time DRE Coordinator to attend DRE-related conferences and seminars and for out-of-state travel to Maricopa County, Arizona, for hands-on oversight of field evaluations for students seeking DRE certification.

The DRE Coordinator will be required to submit an annual report that details all of the activities of the program. Funding within this program will also be used to develop and maintain a DRE testing database, purchase tablets, and associated software subscriptions for the tablets.

Neither the final subaward or budget have been approved. Tentatively, approximately $180,000 has been earmarked for training, $114,000 for travel (DRE field certification in Arizona), and $50,000 for software (continued use of ITSMR DRE evaluation application).

For any equipment/software over $5000, a request letter will be sent to NHTSA for approval of the purchase.

Countermeasure Strategy Justification: *Enforcement of Drug-Impaired Driving*

The impairing effects of alcohol and the dangers of drinking and driving are well-documented. By contrast, there is very little research available examining the potential risks of drugged driving. Some of the challenges involved in determining a drug's effect on driving include the constantly changing list of drugs, illegal and legal; the ambiguous relationship between blood levels of drugs and driving impairment; and the intrusive nature of measuring drug level compared to the most reliable breath tests for alcohol. To counter the unknown surrounding drugged driving, OGR has four planned activities aimed at increasing awareness as well as expertise among law enforcement when it comes to dealing with a possible drugged driver. By participating in ARIDE and/or DEC training, Massachusetts law enforcement will be better prepared to assess the level of impairment of a suspected drugged driver.

AL-21-07 MPTC DEC Program Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	405d Impaired Driving Low	405d Low Drug and Alcohol Training	$700,000	$175,000	$0

ABCC – Underage Drinking Compliance Checks Program

ID: AL-21-08

Primary Countermeasure Strategy: Alcohol Vendor Compliance Checks

Description of Planned Activity:

This program will provide funds to ABCC to conduct enhanced liquor enforcement compliance checks aimed at reducing underage drinking and impaired driving. ABCC investigators will perform compliance checks in approximately 200 communities. The Compliance Check program is designed to achieve broad geographical coverage throughout the commonwealth to develop a deterrence impact created through broader knowledge among the industry retailers that their establishments could be subject to a compliance

check at any time. Funding requested by ABCC will cover up to 219 compliance checks across Massachusetts in FFY 2021.

The ABCC will also include concert and special event enforcement operations consisting of enforcement at liquor stores surrounding large venues (Xfinity Center, Gillette Stadium, Blue Hills Pavilion, and Fenway Park) and venue parking lots before the event; with on-premises enforcement during the event. The goal of this program is to prevent the sale of alcohol to individuals under 21 years of age and to prevent young drivers from drinking and driving.

Countermeasure Strategy Justification: *Alcohol Vendor Compliance Checks*

To reduce the sale of alcohol to minors, which lowers the chance of underage drivers from navigating the roads under the influence, the ABCC will utilize funding to focus on restricting access to alcohol by minors through compliance checks. This planned activity will involve monitoring local vendors of alcoholic beverages to ensure that a) they aren't selling alcohol to minors by checking identification and b) they aren't providing alcohol to persons that are drunk or inebriated. Fewer minors drinking leads to a reduction of drivers being impaired on the roadways and lower**s** the number of young motor vehicle operators ending up in a fatal crash due to alcohol impairment.

The impact of compliance checks will restrict the ability of minors, especially underage drivers, from obtaining alcoholic drinks and thus preventing them from drinking and driving. The enforcement of intoxicated persons is intended to send a message to establishments (bars, restaurants, pubs) that serving a legally drunk person will result in violations, fines, and possibly criminal charges.

In reducing the number of minors with access to alcohol, compliance checks will help reduce the incidence of alcohol-related fatal crashes across Massachusetts – an important goal of OGR and its traffic safety partners.

AL-21-08 ABCC Underage Drinking Compliance Checks Program Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	405d Impaired Driving Low	405d Low Youth Alcohol	$150,000	$37,500	$0

ABCC – Enforcement Program to Prevent Sale of Alcohol to Intoxicated Persons

ID: AL-21-09

Primary Countermeasure Strategy: Alcohol Vendor Compliance Checks

Description of Planned Activity:

Provide overtime funds to the ABCC for investigators to participate in undercover operations at licensed establishments in communities throughout the Commonwealth to determine if the licensee serves intoxicated individuals. The ABCC will use data analysis to determine municipalities with the highest concentration of establishments that have been identified as the source of last drink for a convicted drunk

driver. The operations will coincide with NHTSA DSOGPO Impaired Driving campaigns, as well as during identifiable times of the year and events where impaired driving is likely to result. Factors such as the number of alcohol-related fatalities and crashes, OUI violations, and sales to minor's violations will be considered.

Large urban municipalities with a high concentration of liquor establishments (Boston, Worcester), as well as communities with residential colleges or universities, will be given priority. The ABCC will focus on the establishments with the largest number of violations. The ABCC will also conduct outreach to local police departments to ask if they can identify specific establishments that should be monitored.

ABCC estimates funding in FFY 2021 will cover up to 2,990 hours of overtime enforcement hours.

Countermeasure Strategy Justification: *Alcohol Vendor Compliance Checks*

To reduce the sale of alcohol to minors, which lowers the chance of underage drivers from driving drunk, the ABCC will utilize funding to focus on restricting access to alcohol by intoxicated individuals. This activity is done by monitoring establishments known to provide the last drink to an impaired driver before being pulled over or involved in a crash. This planned activity will include ensuring targeted bars and restaurants are complying with directives to cut off alcohol to any patron deemed too intoxicated to drive.

By punishing (suspending alcohol license) or even warning establishments for being the place of last drink, ABCC is helping reduce the incidence of impaired driving across Massachusetts. As businesses find themselves under investigation or losing their liquor license, other alcohol-serving establishments will make even an effort to ensure they are in compliance and prevent patrons from becoming too intoxicated while drinking at their respective businesses.

With OGR's support and funding, ABCC's efforts have helped Massachusetts lower the alcohol-impaired fatalities/VMT rate from 0.25 in 2014 to 0.18 in 2018.

AL-21-09 ABCC Enforcement to Prevent Sale of Alcohol to Intoxicated Persons Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405d Impaired Driving Low	405d Low Alcohol	$150,000	$37,500	$0

Stakeholders Conference

ID: AL-21-10

Primary Countermeasure Strategy: Communication and Outreach

Description of Planned Activity:

The primary goal of a stakeholder conference (whether virtual or in-person, depending on the situation with COVID-19 pandemic) will be to fund seminars, meetings, and training for traffic safety stakeholders

in FFY 2021. As in previous years, topics will include alcohol and drug-impaired driving, occupant protection, distracted driving, motorcycle safety, pedestrian and bicyclist safety, traffic records, prosecution and adjudication, and speeding.

Another goal will be to initiate a dialogue with critical local, state, federal, non-profit, and private sector leaders to identify highway safety program priorities, improve traffic safety, and establish focus areas for the FFY 2022 HSP. Locations and dates of conferences are yet to be determined.

Countermeasure Strategy Justification: *Communication and Outreach*

By reaching out to stakeholders in traffic safety, OGR looks to better improve its focus and funding of critical programs that will make the roadways safer for motorists and non-motorists alike.

Funds may be used to contract with venue operators and related costs. Funds may also be awarded to one or more traffic safety partners to conduct complementary activities.

AL-21-10 Stakeholders Conference Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Impaired Driving	$25,000	$6,250	$25,000
2020	NHTSA 402	Impaired Driving	$10,000	$2,500	$10,000

Program Management – Impaired Driving

ID: AL-21-11

Primary Countermeasure Strategy: Highway Safety Office Program Management

Description of Planned Activity:

Provide sufficient staff to manage programming described in this plan as well as cover travel, professional development expenses, conference fees, and postage and office supplies. All funding intended for supporting staff and will not be sub awarded.

Countermeasure Strategy Justification: *Program Management*

The day-to-day operation of OGR requires funding to allow staff to oversee the impaired driving safety program properly. Lack of oversight due to reduced or no funding could lead to increased impaired driving-related fatalities and injuries on the roadways of Massachusetts.

AL-21-11 Program Management – Impaired Driving Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Impaired Driving	$165,000	$41,250	$0

Program Area: Occupant Protection

Occupant protection refers to the use of seat belts, motorcycle helmets, booster seats, and child passenger safety (CPS) seats by motor vehicle operators and occupants. Research has found that lap/shoulder seat belts, when used, reduce the risk of fatal injury to front-seat passenger car occupants by 45 percent and the risk of moderate-to-critical injury by 50 percent.

Despite the known lifesaving and injury-prevention benefits of using seat belts, Massachusetts has yet to implement a *primary enforcement law* that would allow law enforcement officers to stop drivers for not wearing a seat belt. Currently, Massachusetts has a weaker, *secondary enforcement seat belt law* under which police can issue seat-belt citations only if the reason for pulling over the driver was for another offense (i.e., speeding, going through a red light). As a result of this enforcement handicap, Massachusetts has consistently ranked among the worst-performing states year after year in the annual Statewide Observational Seat Belt Survey – a requirement for occupant protection grant funding by NHTSA.

For 2019, Massachusetts' seat belt usage rate held steady at 82%, the same as in 2018. Since drivers and passengers in the state failed to increase their use seat belts, Massachusetts continued to rank in the bottom five states for seat belt usage in the country. The other four states were: Mississippi (80%), South Dakota (79%), Arkansas (78%), and New Hampshire (76%). Except for Arkansas, all other states in the bottom five had a secondary seat belt law or no adult seat belt law (NH). States with a primary law had an average usage rate of 90.6% compared to 86.4% for secondary law states. Hawaii was the highest of all states, with 97.8%.

According to the CDC (https://www.cdc.gov/motorvehiclesafety/calculator/index.html), the implementation of a primary seat belt law would lead to an estimated 1,160 injuries prevented in Massachusetts as well as 12 more lives saved. Economically, approximately $48 million per year would be saved from the reduction in injuries and fatalities.

Having a primary seat belt law is critical as it has a positive effect on the rate of seat belt usage by motor vehicle occupants. The difference between wearing a seat belt and not wearing one can be shown in stark clarity by examining Massachusetts' data for 2014 to 2018 for occupants in a fatal crash.

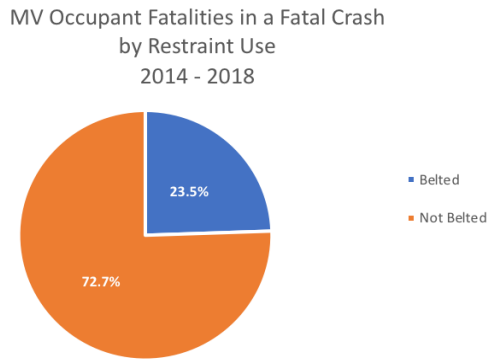
From 2014 to 2018, there were 2,690 occupants (drivers and passengers) involved in a fatal crash. In those crashes, the restraint usage is known for 2,002 occupants – 1,245 were belted, 757 unbelted. Over 75% of belted occupants survived the crash, while only 27% of unrestrained occupants survived.

Figure 54: MV Occupants involved in a Fatal Crash

All Occupants Involved in a Fatal Crash (2014 -2018)		
	Belted	Not Belted
Drivers	857	532
Passengers	388	225
Total	*1245*	*757*

All Occupants - Fatal Injury (2014 - 2018)		
	Belted	Not Belted
Drivers	228	437
Passengers	65	113
Total	*293*	*550*

Percent Fatal Injury by Restraint Use (2014 - 2018)		
	Belted	Not Belted
Drivers	26.6%	82.1%
Passengers	16.8%	50.2%
All Occupants	**23.5%**	**72.7%**



If a driver doesn't wear a seat belt in a fatal crash, death is the likely result of eight of every ten crashes. For unbelted passengers, a fatality in five of every ten crashes. For FFY 2021, as in every year prior, OGR's overarching goal in occupant protection is to get all drivers and passengers to be survivors of crashes rather than a statistic representing a failure to make personal safety a top priority.

Occupant Fatalities in Massachusetts

From 2014 to 2018, there were 1,061 occupant fatalities in Massachusetts. Males accounted for 67%, females, 33%. The breakdown by gender, occupant type, and restraint status of occupant fatalities:

Figure 55: Restraint Status of MV Occupant Fatalities

All Occupants (2014 - 2018)				
	Belted	Not Belted	Unknown	Total
Male	177	378	153	708
Female	115	172	65	352
	292	550	218	1,060
All Drivers (2014 - 2018)				
	Belted	Not Belted	Unknown	Total
Male	149	314	126	589
Female	79	123	45	247
	228	437	171	836
All Passengers (2014 - 2018)				
	Belted	Not Belted	Unknown	Total
Male	28	64	27	119
Female	36	49	20	105
	64	113	47	224

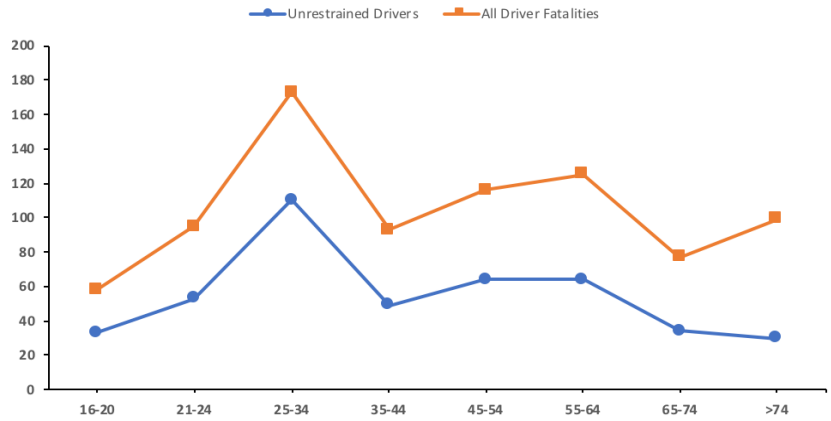
(*Note: There was one belted fatality that was 'unknown' for gender. That is why total for all occupants is 1,060, not 1,061.*)

While males outnumber females in total occupants (drivers and passengers), the genders are comparable when calculating the percentage of not belted out the total for each sex. Unrestrained (not belted) fatalities accounted for 53% (378 of 708) of all male occupant fatalities; unrestrained females were 49% (172 of 352) of all female occupant fatalities. For unrestrained drivers, the percentages were similar – 53% male, 50% females. Same for unrestrained passengers – 54% male, 47% female.

By age group, unrestrained driver fatalities hit its peak (or nadir depending on perspective) in the 25-34 age group. This age group accounted for a quarter of all unrestrained driver fatalities reported from 2014 to 2018 and nearly 65% of all age 25-34 driver fatalities. Interestingly, unrestrained driver fatalities dropped substantially from the 25-34 age group to the 35-44 age group. This decline is likely attributed to the changing priorities between the two groups. The 35-44 age group encompasses more parents of young children, which might make drivers more willing to be responsible and buckle up as an example. Despite this reduction, unrestrained fatalities represented over half the driver fatalities reported for the age group 35-44.

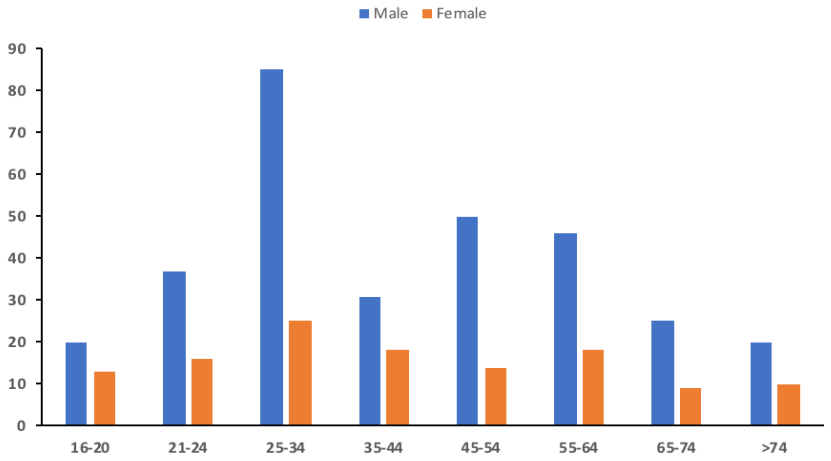
Unrestrained driver fatalities as a percentage of all driver fatalities do not drop below 50% until the two oldest age groups. The age group 65-74 had 44% of all its driver fatalities reported as unrestrained; for those over 74 years of age, the percentage was even lower: 30%.

Figure 56: Unrestrained Driver Fatalities (2014 – 2018)



Breaking down unrestrained driver fatalities by gender, males are far more likely to be the unrestrained driver fatal in a crash, especially within the 25-34 age group. In terms of proportion, the gap between the genders was closest at 16-20 age group (1.5 males for every one female) and 35-44 age group (1.7-to-1). Any media messaging aimed at drivers in these age groups should be neutral (not overtly male-focused).

Figure 57: Unrestrained Driver Fatalities by Gender and Age Group (2014 – 2018)

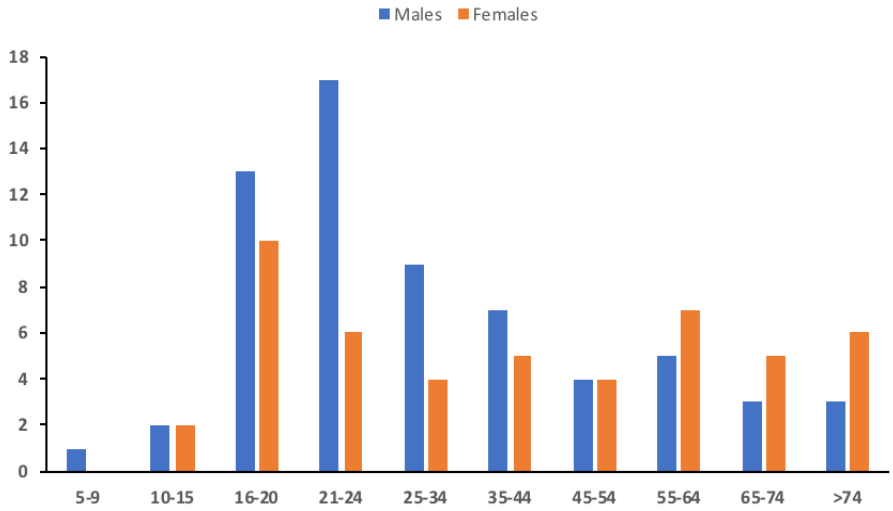


Data for unrestrained passengers by gender are slightly different than drivers. Males have a higher number of unrestrained passenger fatalities between the age of 16 and 44. After equal deaths at age group 45-54, females reported more unrestrained fatalities from age 55 onwards.

Over 40% of all unrestrained passenger fatalities occurred between the ages of 16 and 24. Data regarding unrestrained passenger fatalities found that 58% of all backseat unrestrained passenger fatalities were within the 16-24 age range. From 2014 – 2018, there were 33 unrestrained backseat fatalities, and those between the ages of 16-24 accounted for 19 of the deaths.

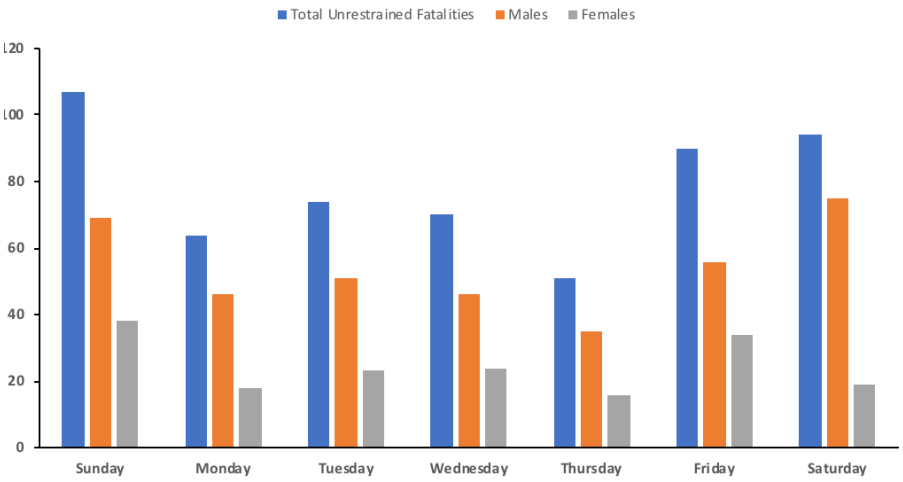
The fatalities reported for 55 or older were 25% of all unrestrained deaths, with females accounting for nearly two-thirds of 29 unrestrained fatalities for this age group of passengers.

Figure 58: Unrestrained Passenger Fatalities by Gender and Age Group (2014 – 2018)



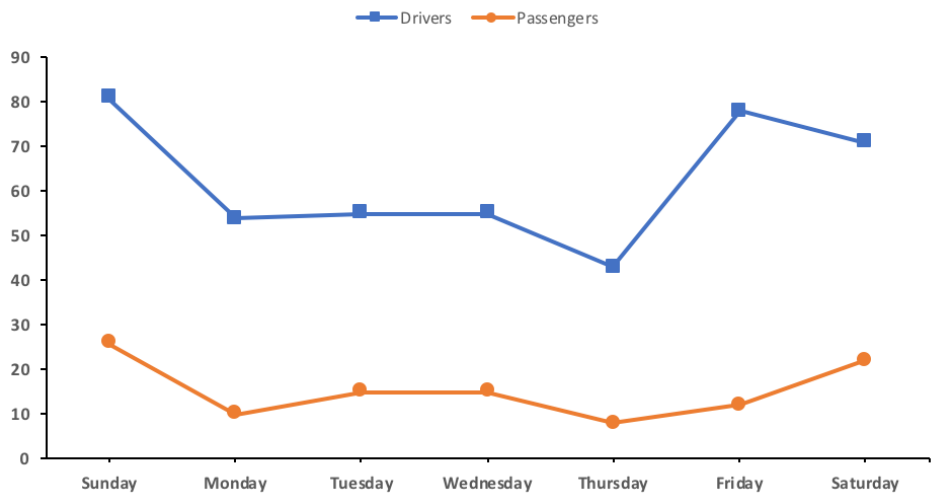
By the day of the week, unrestrained fatalities occurred most often on Friday, Saturday, and Sunday. The three-day period accounted for 53% of all unrestrained deaths. Sunday led all days with 107 fatalities reported, followed by Saturday (94) and Sunday (90). For males, the top days for fatalities were Sunday and Saturday, which accounted for 38% of all male fatalities. The high days for females were Friday and Sunday, representing 42% of all female deaths.

Figure 59: Unrestrained Fatalities by Day-of-Week (2014 -2018)



A look at how driver and passenger unrestrained fatalities fared during the week revealed that unrestrained driver fatalities were far more frequent over the three days of Friday, Saturday, and Sunday. For drivers, 53% of unrestrained fatalities occurred during this period; for passengers, 56%. For both occupant types, Thursday and Monday were the lowest fatality days, representing 22% of all driver fatalities and 17% of total passenger fatalities.

Figure 60: Comparison of Unrestrained Drivers and Passengers by Day-of-Week (2014 – 2018)



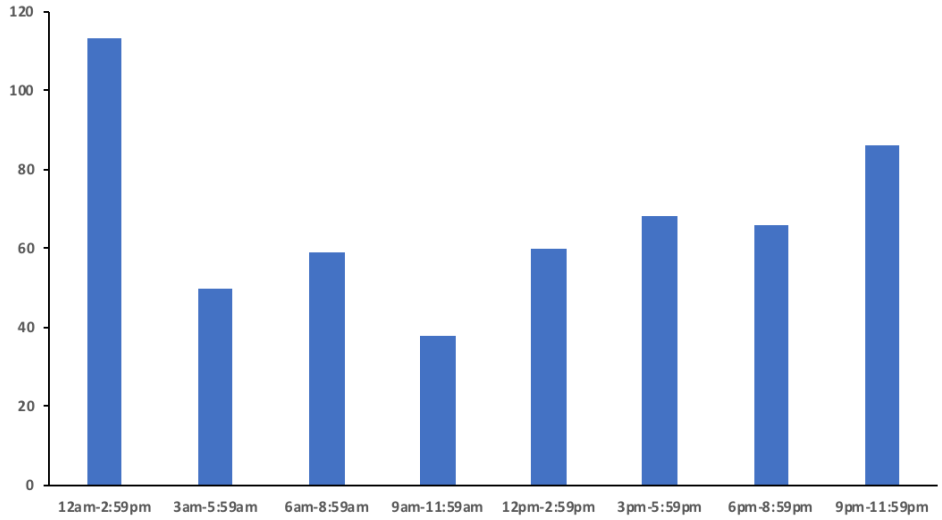
Motor vehicle occupants of age group 25-34 accounted for over a third of all fatalities on both Saturday and Sunday. This age group also had the highest percentage of all unrestrained occupant fatalities on Monday and Tuesday. Over 70% of unrestrained fatalities for the age group 45-54 occurred between Sunday and Wednesday. Two-thirds of age group 55-64 unrestrained fatalities took place over the Friday-Sunday period. In contrast, unrestrained occupant fatalities among those 65 years or older tended to happen more often between Wednesday and Friday, with Wednesday accounting for 54% of all deaths.

Figure 61: Unrestrained Occupant Fatalities by Age Group and Day-of-Week (2014 - 2018)

Drivers	16-20	21-24	25-34	35-44	45-54	55-64	65-74	>74	Total
Sunday	6	14	31	6	9	10	4	1	81
Monday	6	2	15	7	14	3	2	5	54
Tuesday	1	7	12	8	12	8	4	3	55
Wednesday	5	5	6	5	12	7	8	7	55
Thursday	6	5	6	6	6	6	4	4	43
Friday	5	11	13	9	7	17	8	8	78
Saturday	4	9	27	8	4	13	4	2	71
Total	**33**	**53**	**110**	**49**	**64**	**64**	**34**	**30**	**437**
Passengers	**16-20**	**21-24**	**25-34**	**35-44**	**45-54**	**55-64**	**65-74**	**>74**	**Total**
Sunday	3	7	2	4	3	3	3	1	26
Monday	2	3	2	1	0	0	1	1	10
Tuesday	5	1	2	3	1	0	1	2	15
Wednesday	3	3	0	1	1	1	3	3	15
Thursday	2	1	1	1	1	1	0	1	8
Friday	4	2	3	0	0	2	0	1	12
Saturday	4	6	3	2	2	5	0	0	22
Total	**23**	**23**	**13**	**12**	**8**	**12**	**8**	**9**	**108**

By the time of day, 61% of all unrestrained fatalities took place between 3 pm and 2:59 am. The time from 9 am to 11:59 am had the least number of unrestrained fatalities.

Figure 62: Unrestrained Fatalities by Time-of-Day (2014 – 2018)



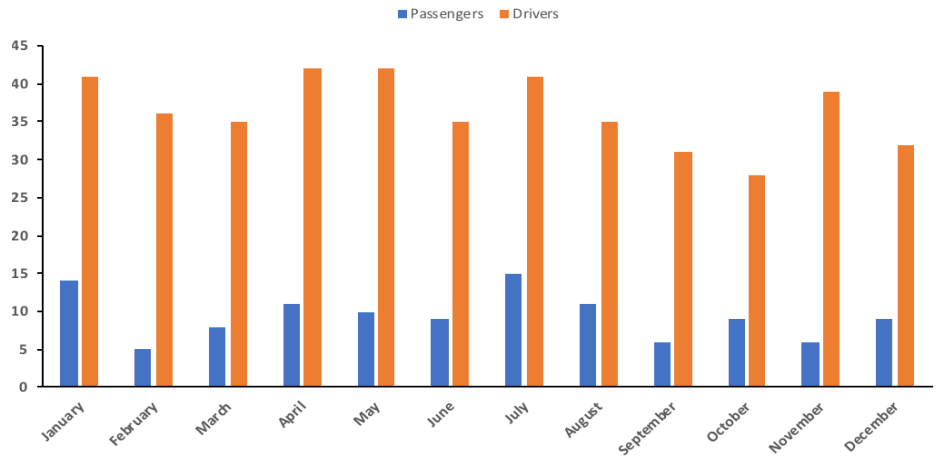
By age group, the time of day does factor into when unrestrained fatalities are more likely to occur within the age groups. In general, unrestrained fatalities among motor vehicle occupants between the ages of 16 and 54 happen with more frequency from the hours of 6 pm to 6 am. For occupants, 55 years or older, unrestrained fatalities tend to occur between 6 am and 6 pm.

Figure 63: Unrestrained Fatalities by Age Group and Time-of-Day (2014 – 2018)

	5-9	10-15	16-20	21-24	25-34	35-44	45-54	55-64	65-74	>74	Total
12am-2:59pm	0	0	16	25	32	14	13	8	4	1	113
3am-5:59am	0	0	6	18	17	2	4	1	1	1	50
6am-8:59am	1	0	4	8	11	9	7	12	3	4	59
9am-11:59am	0	0	1	2	5	2	6	12	2	8	38
12pm-2:59pm	0	1	3	3	7	4	8	11	12	11	60
3pm-5:59pm	0	2	2	5	13	8	5	12	11	10	68
6pm-8:59pm	0	0	13	4	10	11	10	11	4	3	66
9pm-11:59pm	0	1	10	9	25	10	19	8	3	1	86
Unknown Hours	0	0	1	2	3	1	0	1	2	0	10
Total	1	4	56	76	123	61	72	76	42	39	550

By the month, unrestrained fatalities tend to be more prevalent between April and September. The average number of unrestrained fatalities during these six months was 48. October through March had an average of 44.

Figure 64: Unrestrained Fatalities – Drivers and Passengers (2014 – 2018)



January and November seem to be outlier months as the unrestrained fatalities for those months were much higher than the months either preceding or proceeding it. For both these months, holidays (New Year's Day and Thanksgiving) are a factor in the increase in unrestrained fatalities.

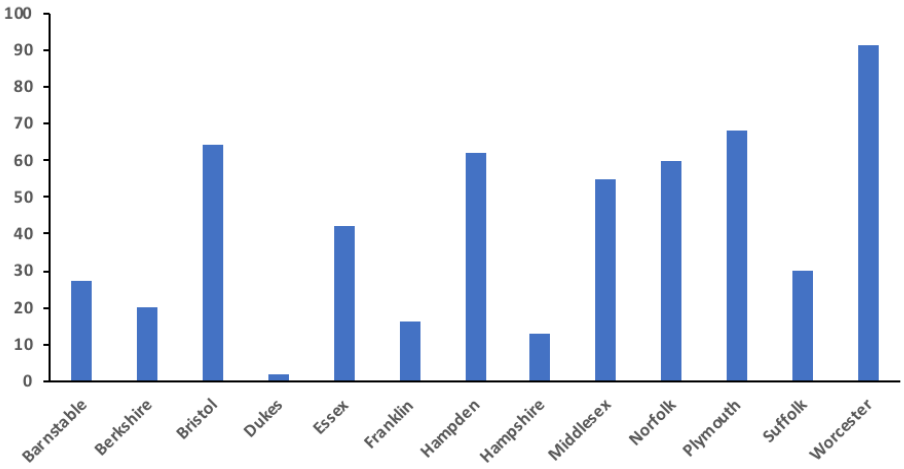
In January, there were seven unrestrained occupant fatalities (2 drivers, 5 passengers) that took place on New Year's Day (early morning). The seven deaths accounted for 13% of all of January's unrestrained fatalities from 2014 to 2018.

November is tougher to quantify as Thanksgiving is not just the holiday but the day before and the days after (Friday – Sunday), which are not only high travel days but also the typical kick-off weekend for Christmas shopping. From 2014 to 2018, there were eight unrestrained driver fatalities during this period, accounting for 17% of all unrestrained deaths reported in November. Unlike January, no unrestrained passenger fatalities were occurring over this holiday period.

Up to this point, unrestrained fatality analysis has been focused on the occupants (age, gender) concerning time and day. The next section is focused on location data associated with unrestrained fatalities. In short, the focus will be on '***where***' the unrestrained fatalities occurring across the Commonwealth.

As stated previously, from 2014 to 2018, there were 550 unrestrained fatalities reported in Massachusetts. Worcester County led all counties in Massachusetts with 91 unrestrained fatalities, which accounted for 16.5% of all unrestrained deaths. Plymouth County and Bristol County rounded out the top three 'worst' for unrestrained fatalities with 68 (12.4%) and 64 (11.6%), respectively. Counties with less density of population, more rural roads, and far less daily traffic – Barnstable, Berkshire, Dukes, Franklin, and Nantucket – together accounted for 12% of all unrestrained fatalities.

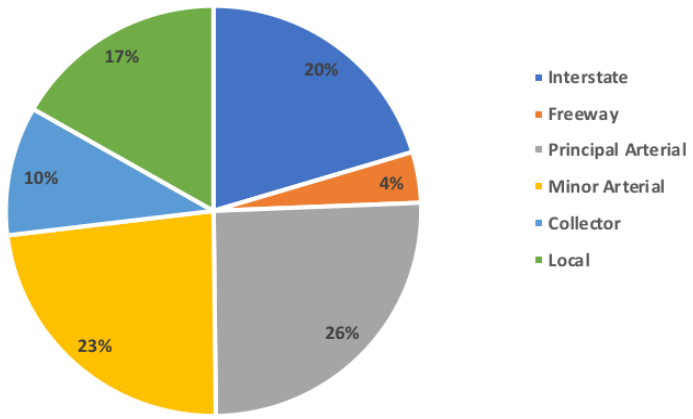
Figure 65: Unrestrained Fatalities by County (2014 – 2018)



Looking at the number of unrestrained fatalities by county does not tell the whole story. Factors such as roadway type, speeding, and alcohol come into play.

By roadway type, nearly half of all unrestrained fatalities took place along either principal or minor arterial roads. This data is not surprising, given that 54% of all traffic fatalities in Massachusetts occurred on principal and minor arterial roadways.

Figure 66: Unrestrained Fatalities by Roadway Type (2014 – 2018)



While unrestrained interstate fatalities account for 20% of all unrestrained deaths, over half those fatalities happened in one of three counties: Bristol, Norfolk, and Worcester. Interstate represented the largest share of unrestrained fatalities within each of these three counties as well. For local roads, 54% of unrestrained fatalities occurred across four counties: Bristol, Hampden, Plymouth, and Worcester.

Both Franklin County and Berkshire County, which have significant sections of rural areas, saw a third of its unrestrained fatalities taking place along local roads. In contrast, Essex County only had 5% of its unrestrained deaths occurring on local roads.

Figure 67: Unrestrained Fatalities by County and Roadway Type (2014 - 2018)

County	Interstate	Freeway	Principal Arterial	Minor Arterial	Collector	Local
Barnstable	0	2	12	5	2	6
Berkshire	0	0	7	3	4	6
Bristol	21	4	15	9	4	11
Dukes	0	0	0	1	0	1
Essex	11	0	17	10	2	2
Franklin	2	0	2	3	4	5
Hampden	11	0	16	12	8	15
Hampshire	1	0	7	3	0	2
Middlesex	9	2	12	17	8	7
Norfolk	17	6	13	11	5	8
Plymouth	10	4	13	21	11	9
Suffolk	6	1	9	9	0	5
Worcester	24	3	17	24	8	15
Total	**112**	**22**	**140**	**128**	**56**	**92**

From 2014 to 2018, speeding was a factor in 33% of all traffic fatalities (590 of 1,792). For unrestrained fatalities, speeding was involved in 38% of all unrestrained deaths (209 of 550). Two-thirds of speed-related unrestrained fatalities took place in five counties: Bristol, Hampden, Middlesex, Plymouth, and Worcester. Hampden led all counties with the highest percentage of its unrestrained fatalities related to speeding with 53% of its 62 deaths. Franklin, with 25% speeding-involved fatalities, had the lowest rate for all counties.

Figure 68: Unrestrained Fatalities with Speeding Involved (2014 – 2018)

County	Unrestrained Fatalities	Speeding Involved	Pct Speeding Involved
Barnstable	27	12	44%
Berkshire	20	8	40%
Bristol	64	26	41%
Dukes	2	1	50%
Essex	42	16	38%
Franklin	16	4	25%
Hampden	62	33	53%
Hampshire	13	4	31%
Middlesex	55	22	40%
Norfolk	60	19	32%
Plymouth	68	23	34%
Suffolk	30	10	33%
Worcester	91	31	34%
Total	**550**	**209**	**38%**

Over the five years of 2014 to 2018, alcohol-impaired fatalities accounted for 35% of all traffic fatalities reported (636 of 1,792). For the same five-year period, unrestrained fatalities involving a driver with BAC .08 or higher accounted for 48% of all unrestrained deaths (263 of 550). The top three counties for alcohol-related unrestrained fatalities – Worcester, Bristol, and Hampden – represented 43% of the 263 deaths.

Barnstable County and Suffolk County both had over 60% of their unrestrained fatalities involving a driver with BAC .08 or higher. Hampshire County had the lowest percentage, with only 23% of its unrestrained deaths involving a drunk driver.

Figure 69: Unrestrained Fatalities with Alcohol-Impaired Drivers Involved (2014 – 2018)

County	Unrestrained Fatalities	Highest Driver BAC = .08+	Pct. BAC .08+
Barnstable	27	17	63%
Berkshire	20	8	40%
Bristol	64	35	55%
Dukes	2	0	0%
Essex	42	11	26%
Franklin	16	5	31%
Hampden	62	33	53%
Hampshire	13	3	23%
Middlesex	55	27	49%
Norfolk	60	31	52%
Plymouth	68	28	41%
Suffolk	30	20	67%
Worcester	91	45	49%
Total	**550**	**263**	**48%**

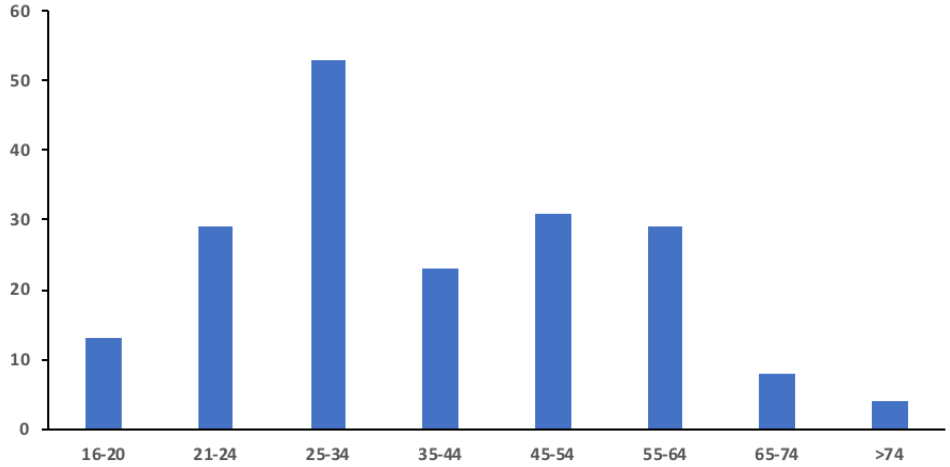
Digging in a bit deeper, the total number of alcohol-impaired drivers (BAC .08 or higher) that were unrestrained at the time of the crash was 224, of which only 35 survived. Unrestrained alcohol-impaired driver fatalities accounted for 34% of all unrestrained fatalities. Barnstable County and Hampden County had the highest percentage of all unrestrained deaths attributed to unrestrained drivers with BAC of .08 or more.

Figure 70: Unrestrained Alcohol-Impaired Driver Fatalities (2014 – 2018)

County	Unrestrained Fatalities	Unrestrained BAC .08+ Driver Fatalities	Pct. BAC .08 Driver Fatalities
Barnstable	27	13	48%
Berkshire	20	6	30%
Bristol	64	25	39%
Dukes	2	0	0%
Essex	42	9	21%
Franklin	16	4	25%
Hampden	62	27	44%
Hampshire	13	1	8%
Middlesex	55	20	36%
Norfolk	60	16	27%
Plymouth	68	20	29%
Suffolk	30	12	40%
Worcester	91	37	41%
Total	**550**	**189**	**34%**

Regarding age group for alcohol-impaired unrestrained drivers, nearly a third of all fatalities were from the age group 25-34. Drivers between age 45 and age 64 also accounted for a third of all deaths.

Figure 71: Unrestrained Alcohol-Impaired Driver Fatalities by Age Group (2014 – 2018)



Across all counties in Massachusetts, over 70% of unrestrained alcohol-impaired driver fatalities were between the ages of 25 and 64. Worcester County had the highest percentage of driver fatalities within this age range, with 26 of 36 driver fatalities (72%).

Figure 72: Unrestrained Alcohol-Impaired Driver Fatalities by County (2014 - 2018)

County	Under 25	25-44	45-64	65+	Total
Barnstable	3	7	4	0	14
Berkshire	1	0	5	0	6
Bristol	6	12	5	2	25
Dukes	0	0	0	0	0
Essex	1	4	3	0	8
Franklin	0	2	2	0	4
Hampden	8	9	8	2	27
Hampshire	0	1	0	0	1
Middlesex	8	8	5	0	21
Norfolk	3	6	5	1	15
Plymouth	4	9	6	1	20
Suffolk	0	7	4	1	12
Worcester	8	12	14	2	36
Total	**42**	**77**	**61**	**9**	**189**

One last aspect of occupant protection to discuss is the type of vehicle unrestrained fatalities were riding in at the time of the crash. Six vehicle body types – coupe, hatchback, minivan, pickup, sedan, SUV, and wagon – accounted for 92% of all unrestrained fatalities from 2014 to 2018. Sedans were the top vehicles for both drivers and passengers, accounting for 249 of the 550 (45%) of total unrestrained fatalities. SUV was second with 18% of unrestrained fatalities.

Figure 73: Unrestrained Occupants by Vehicle Body Type (2014 – 2018)

	Coupe	Hatchback	Pickup	Sedan	SUV	Wagon	Total
Unrestrained Drivers Involved	38	28	50	238	94	43	491
Unrestrained Driver Fatalities	29	23	41	203	76	37	409
Percent Fatalities of Drivers Involved	**76%**	**82%**	**82%**	**85%**	**81%**	**86%**	**83%**
Unrestrained Passengers Involved	18	10	14	87	50	16	195
Unrestrained Passenger Fatalities	8	6	8	46	22	9	99
Percent Fatalities of Passengers Involved	**28%**	**26%**	**20%**	**23%**	**29%**	**24%**	**24%**
All Unrestrained Occupants Involved	56	38	64	325	144	59	686
All Unrestrained Occupant Fatalities	37	29	49	249	98	46	508
Percent Fatalities of Occupants Involved	**66%**	**76%**	**77%**	**77%**	**68%**	**78%**	**74%**

Calculating the percentage of unrestrained fatalities out of the total number of unrestrained occupants involved in a crash is critical in determining the safety benefit a vehicle type can provide to unrestrained occupants. Over three-quarters of unrestrained occupants passed away riding in this vehicle type. Despite having the highest percentage of unrestrained passenger fatalities out of the six-vehicle types, SUVs had the second-lowest fatality rate for unrestrained occupants involved in a crash with 68%. Unrestrained occupants in coupes had the 'best' chance of survival with a 66% fatality rate.

Before concluding this section, an examination of the mortality rate for unrestrained occupants in a crash is needed to determine if the rate of death for unrestrained occupants varies much from county to county. Just because a county has a high number of unrestrained fatalities, it doesn't necessarily mean it is more dangerous for unrestrained occupants compared to a county with low casualties.

For example, with 30 fatalities, Suffolk County represented 5.5% of all unrestrained deaths in Massachusetts. Yet, the county has one of the highest percentages of unrestrained fatalities of all unrestrained occupants in a crash with 81%. Franklin County is another example. Overall, its unrestrained fatalities are 3% of all fatalities; but reported a 94% fatality rate for unrestrained occupants in a crash within the county.

Figure 74: Unrestrained Occupants and Fatalities by County (2014 - 2018)

County	Unrestrained Occupants	Unrestrained Fatalities	Pct. Unrestrained Fatalities
Barnstable	35	27	77%
Berkshire	30	20	67%
Bristol	93	64	69%
Dukes	5	2	40%
Essex	62	42	68%
Franklin	17	16	94%
Hampden	77	62	81%
Hampshire	19	13	68%
Middlesex	73	55	75%
Nantucket	1	0	0%
Norfolk	84	60	71%
Plymouth	100	68	68%
Suffolk	37	30	81%
Worcester	124	91	73%
Total	**757**	**550**	**73%**

Factors such as distance from medical treatment and ease of access for emergency vehicles could be reasons why Franklin and Barnstable have high mortality rates. These are not factoring in Suffolk County – which has a high density of population and world-class hospitals. As data had shown previously, 33% of Suffolk's unrestrained fatalities were in a crash where speeding was involved and that 67% of Suffolk's fatalities were in a collision where the highest BAC of a driver was .08 or higher, which was the highest of all the counties.

In all, the data analysis provided in this section shows that occupant protection remains an issue in Massachusetts despite recent increases in statewide seat belt usage. The counties of Worcester, Hampden, Bristol, and Plymouth and Middlesex are key unrestrained fatality regions for enforcement and messaging. As for the age group, the primary focus of any media outreach should be on the age group 25-34, which accounts for 25% of all unrestrained fatalities. Older drivers – those over 55 years of age – do not have high unrestrained numbers, but female drivers and passengers are more prevalent within this age range compared to the under 55 occupants. Any enforcement efforts shall be prioritized to take place between 3 pm, and 3 am when two-thirds of all unrestrained fatalities occur. The worst period is from 12 am to 2:59 am, accounting for 21% of all unrestrained deaths.

Drivers are far more likely to be an unrestrained fatality in a crash than passengers. Nearly 80% of unrestrained fatalities are drivers and happens with the most frequency on Saturday and Sunday. Passenger unrestrained fatalities are most likely on Friday and Sunday.

One major takeaway from the unrestrained data presented is the relative absence of fatalities for occupants age 15 or younger. From 2014 – 2018, only five of the 550 unrestrained fatalities were within this age range – 0.9% of all unrestrained deaths. OGR is confident its child passenger safety programs and seat distribution efforts have contributed significantly to the low count of under 16 unrestrained fatalities. Furthermore, Massachusetts laws require seat belt (or car seat) usage by any child age 13 or under. Once over 13, occupants fall under the secondary seat belt law.

For FFY 2021, OGR will continue funding important occupant protection programs and activities such as the Annual Statewide Seat Belt Survey, the CIOT mobilization campaign, and media messaging through various mediums such as television, radio, and social media platforms. The overarching message to be conveyed to Massachusetts motor vehicle occupants is the plain and simple fact that failure to wear seat belts will significantly increase one's chances of dying. Restrained occupants have a survival rate of over 75%, while unrestrained occupants in a crash have less than a 25% chance of surviving.

Performance Measure for Occupant Protection

Number of Unrestrained MV Occupant Fatalities

FFY 2021 Target: 2% decline in the five-year average from 110 in 2018 to 108 by December 31, 2021

Observed Seat Belt Usage Rate

FFY 2021 Target: 4% increase in the five-year average from 78 in 2019 to 81 by December 31, 2021

Planned Activities for FFY 2021

Occupant Protection Media

ID: OP-21-01

Primary Countermeasure Strategy: Communication Campaign

Description of Planned Activity:

Develop and implement statewide paid and earned media campaigns to support occupant protection efforts during the Click It or Ticket mobilizations (November 2020 and May 2021). The target audiences for the campaigns will be based on state unrestrained crash data and the lowest use populations identified in the 2019 seat belt observation study: males under 34 years of age, commercial and pickup truck drivers, and Hispanic and African American males. Paid media will skew, where appropriate, the following counties, which either represent the lowest use regions in the survey or have the highest number of unrestrained fatalities: Barnstable, Bristol, Hampden, Middlesex, Norfolk, Plymouth, and Worcester.

OGR will also take into consideration national media buy recommendations when planning paid media. Earned media will augment the paid campaigns while incorporating state laws and highlighting the work of state and local law enforcement agencies. Media funds will also be used to direct messaging to teen drivers and their parents as part of the "100 Deadliest Days" from Memorial Day to Labor Day and parents and caregivers of young children for Child Passenger Safety Week. OGR will contract with a marketing and advertising agency to execute these impaired driving media campaigns while running social media in-house for sustained educational outreach.

Internal policies will be followed, noting that all media and communications activities should be in support of data-driven objectives and coordination with other activities and programs, in particular, enforcement. Crash and citation data will be used not only for planning enforcement activities but also for determining the target audiences and media channels used to reach those audiences. NHTSA's guidelines will be followed for messaging, demographics, best practices, and target groups for each media campaign.

Countermeasure Strategy Justification: *Communication Campaign*

Public outreach, whether by radio, television, outdoor displays, or social media, is necessary to continually remind Massachusetts motor vehicle occupants of the dangers involved in not wearing a seat belt.

For FFY 2021, OGR will develop and implement, through a contract with a marketing and advertising vendor, a statewide paid and earned media campaign to support occupant protection efforts during CIOT mobilizations. The target audience of the paid media campaign will be based on the lowest use populations identified in the annual seat belt observation survey. Earned media funds will promote the paid campaign while incorporating state laws and highlighting the work of State and local law enforcement agencies. Paid and earned media funds will also be used for direct messaging aimed at teen drivers and their parents as part of the "100 Deadliest Days" campaign from Memorial Day to Labor Day as well as to parents and guardians of young children for Child Passenger Safety Week (September 2021).

Occupant media campaigns will help lower the number of unrestrained fatalities by encouraging occupants to be mindful of wearing a seat belt every time in a motor vehicle. Media outreach through various

mediums (social media, television, print, billboards, and radio) will reach a broad audience across all demographics with the limited funds available to OGR.

OP-21-01 Communication Campaign Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	405b Occupant Protection	Occupant Protection	$750,000	$187,500	$0

MSP Occupant Protection CIOT Enforcement

ID: OP-21-02

Primary Countermeasure Strategy: Short-term, High-Visibility Seat Belt Law Enforcement

Description of Planned Activity:

Provide funds to the Massachusetts State Police (MSP) for overtime enforcement to participate in the national Click It or Ticket (CIOT) campaign during May 2021.

Enforcement efforts will focus on increasing compliance with occupant protection laws during the day and night and will take place at times and locations shown to have high incidences of motor vehicle crashes based on the most current state and local crash and citation data. Other violations, such as speeding and texting, may also be secondarily targeted during these mobilizations.

Countermeasure Strategy Justification: *Short-term, High-Visibility Seat Belt Law Enforcement*

The Click It or Ticket (CIOT) mobilization, conducted concurrently with the national campaign, is usually two weeks of intense, highly publicized periods of seat belt enforcement patrols and checkpoints. OGR will also provide communication support for the CIOT mobilization in the form of press releases, online advertising, print, and traditional media (radio, television, electronic billboards).

OGR expects that extensive communications and targeted enforcement during crucial times (Friday through Saturday, 3 pm to 3 am with focus on principal and minor arterial roadways) will lead to higher seat belt usage and lower unrestrained fatalities.

OP-21-02 MSP Occupant Protection CIOT Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405b OP Low	405b Low HVE	$350,000	$87,500	$0

Child Passenger Safety Equipment Grant Program

ID: OP-21-03

Primary Countermeasure Strategy: Child Restraint System Inspection Stations

Description of Planned Activity:

OGR will provide grants, via a competitive process, to municipal departments, state agencies, and non-profit organizations for the purchase of car seats. The goal is to enhance child passenger safety (CPS) outreach efforts to low-income families and the operation of inspection sites. While the primary purpose of this grant will be to provide seats and education to low-income families, seats may also be distributed when technicians encounter an expired, misused, or damaged seat. Subrecipients will also be able to purchase one tablet to enable or enhance their usage of the National Digital Car Seat Check Form (NDCF). The NDCF is beneficial to both subrecipients and OGR because it allows for easier data tracking and better analysis of misuse trends that can bolster educational efforts. Grant subrecipients will be selected based on the quality of their current CPS program, the identification of low-income families in their coverage area, and their plans for reaching those in financial need of a car seat.

Countermeasure Strategy Justification: *Child Restraint System Inspection Stations*

The misuse and incorrect installation of a child restraint seat have been a concern of OGR, medical professionals, and law enforcement for many years. An incorrectly installed car seat or using an outdated child restraint could result in serious or fatal injuries to the child in a motor vehicle crash. Child passenger safety (CPS) inspection stations, also called 'fitting stations,' are locations or events where parents and caregivers can receive instruction from certified CPS technicians on proper installation methods. It's also an opportunity to have current car seats examined for usability and safety. In Massachusetts, all CPS grant subrecipients are required to operate 'fitting stations' and advertise technicians' availability for instruction, inspection, and education regarding car seats.

Through these 'fitting stations,' attendees increase their knowledge on how to restrain young passengers better, so a child's risk of injury in a crash is significantly reduced. Attendance at these 'fitting stations' by parents and caregivers will lead to them passing on this information about car seats to other parents, family, and friends. This additional communication exponentially expands awareness and encourages other parents and caregivers to attend 'fitting stations' near them.

OP-21-03 Child Passenger Safety Equipment Grant Program Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Occupant Protection	$250,000	$62,500	$250,000
2020	NHTSA 402	Occupant Protection	$75,000	$18,750	$75,000

Child Passenger Safety Training and Administration

ID: OP-21-04

Primary Countermeasure Strategy: Child Restraint System Inspection Stations

Description of Planned Activity:

OGR will provide funding to Baystate Medical Center to recruit, train, and maintain a sufficient number of certified child passenger safety (CPS) technicians and instructors in Massachusetts. Technicians are needed to assist parents and caregivers with the proper installation of their child's car seat to ensure their safety when traveling and to keep unrestrained child fatalities at zero. A minimum of 20 classes will be conducted statewide, including Technician, Renewal, Update, Special Needs, School Bus, and Ambulance. Baystate has developed partnerships with police and fire departments, EMS agencies, hospitals, non-profit organizations, and pupil transport agencies to help facilitate these trainings annually.

Countermeasure Strategy Justification: *Child Restraint System Inspection Stations*

The misuse and/or incorrect installation of a child restraint seat has been a concern of OGR, medical professionals, and law enforcement for many years. An incorrectly installed car seat or using an outdated child restraint could result in serious or fatal injuries to the child in a motor vehicle crash. **Maintaining a sufficient number of technicians will ensure the continued operation of inspection stations.** Child passenger safety (CPS) inspection stations, or 'fitting stations,' are events, where parents and caregivers can receive instruction from certified CPS technicians on proper installation methods as well as have current car seats examined for usability and safety.

As the administrator of the statewide CPS program, Baystate Medical will offer CPS-related training classes for state and local first responders across the Commonwealth. Attendees will not only learn how to install and inspect car seats properly but also learn about various aspects of child passenger safety that can also be passed on to caregivers and parents alike. Having better-educated caregivers and parents as well as properly installed car seats will lead to lower unrestrained child fatalities.

OP-21-04 Child Passenger Safety Training and Administration of Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405b Occupant Protection Low	405b Low	$150,000	$37,500	$0
2020	405b Occupant Protection Low	Occupant Protection	$150,000	$37,500	$0

Department of Children and Families Child Passenger Safety

ID: OP-21-05

Primary Countermeasure Strategy: Child Restraint System Inspection Stations

Description of Planned Activity:

OGR will provide funding to Baystate Medical Center to conduct a CPS Technician class and monthly half-day CPS training exclusively for staff from the Massachusetts Department of Children and Families. OGR and Baystate Medical Center began working with DCF in 2017 following feedback from a local CPS instructor with ties to DCF that their staff routinely transport children in state custody in their personal vehicles yet have no CPS training. Since then, we have worked with DCF to gradually prioritize and integrate child passenger safety into their training program.

Beginning in January 2018, Baystate began conducting **a** monthly half-day CPS training that was optional for all DCF social worker staff. Recently, DCF made this training a requirement for all new social workers to attend within their first 6-9 months on the job. The first class was held in February 2020, with 45 social workers attending. Baystate had also planned a CPS Technician class for May 2020 with one staff member from each of DCF's 30 area offices signed-up. COVID19 has caused DCF to hold off all CPS training until the Governor amends his mandate on gatherings.

Baystate and DCF are currently working on the creation of a CPS e-learning module, which is expected to go live this summer. The module will be a pre-requisite for attending the required half-day course and will cover most of the CPS curriculum so that more classroom time can be spent on hands-on demonstrations.

The short-term goal for this program is to certify at least one staff member from each of the DCF's 30 area offices as a CPS technician, to work with DCF to create an e-learning module, and to host monthly half-day training for all new social workers. It is our long-term goal that this serves as a Train-the-Trainer type model where DCF technicians eventually take the lead on instructing the new social worker training, and the program becomes self-sufficient for DCF.

Countermeasure Strategy Justification: *Child Restraint System Inspection Stations*

The misuse and incorrect installation of a child restraint seat have been a concern of OGR, medical professionals, and law enforcement for many years. An incorrectly installed car seat or using an outdated child restraint could result in serious or fatal injuries to the child in a motor vehicle crash. Child passenger safety (CPS) inspection stations, or 'fitting stations,' are events, where parents and caregivers can receive instruction from certified CPS technicians on proper installation methods as well as have current car seats examined for usability and safety.

As the administrator of the statewide CPS program, Baystate Medical will work with DCF to help increase the number of certified CPS staff. By growing certified members, DCF staff will be more knowledgeable about how to install and inspect car seats properly. With its primary mission to help and protect young children, DCF will further that mission through its collaboration with Baystate Medical as well as aid OGR in the battle to reduce unrestrained fatalities.

OP-21-05 Department of Children and Families CPS Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405b Occupant Protection Low	405b Low	$20,000	$5,000	$0
2020	405b Occupant Protection Low	405b Low	$20,000	$5,000	$0

Statewide Seat Belt Observation Survey

ID: OP-21-06

Primary Countermeasure Strategy: Data Collection

Description of Planned Activity:

Provide funding for a competitively selected vendor to conduct the statewide seat belt observation survey utilizing NHTSA methodology. This survey is required of all states by NHTSA and will take place following the May Click It or Ticket (CIOT) Mobilization. This survey will capture demographic data to assist in measuring performance and targeting future occupant protection programs. A final report will be submitted to OGR for review and dissemination.

Countermeasure Strategy Justification: *Data Collection*

Taking place after the May CIOT mobilization, the statewide seat belt survey is, in a way, a measure of the impact of OGR's media messaging and enforcement grant activity by state and local police. In 2019, the seat belt usage rate remained at 82%, the same as in 2018. This data shows the efforts by OGR and its partners are making a positive influence on occupant behavior, leading to an increase in seat belt usage. There was no survey conducted in 2020 due to the impact of the COVID-19 pandemic. For FFY 2021, the survey will again be a sounding board on occupant protection messaging and targeted enforcement areas. The results will help drive media messaging and enforcement focus for future occupant protection programs and activities.

OP-21-06 Statewide Seat Belt Observation Survey Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405b Occupant Protection Low	405b Low	$150,000	$37,500	$0
2020	405b Occupant Protection Low	405b Low	$50,000	$12,500	$0

Occupant Protection State Programs Assessment

ID: OP-21-07

Primary Countermeasure Strategy: Occupant Protection Assessment (NHTSA facilitated)

Description of Planned Activity:

In coordination with NTHSA, this assessment will help Massachusetts identify gaps, needs, and strengths of its current Occupant Protection Program. By finding weaknesses, Massachusetts will be able to make improvements leading to more effective and robust occupant protection programs. Due to the COVID-19 pandemic, this assessment – scheduled for February 2021 – will be conducted virtually for safety reasons.

Countermeasure Strategy Justification: *Occupant Protection Assessment*

Massachusetts has seen its Statewide Safety Belt Usage rate rise into the low 80s over the past couple of years. Despite this positive development, Massachusetts is driven to push the usage rate higher, and the results of the assessment will guide improvements in the Occupant Protection Program, which will lead to higher safety belt usage as well as lower unrestrained fatalities on the roadways

OP-21-07 Occupant Protection State Programs Assessment

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405b FAST Act	Occupant Protection	$25,000	$6,250	$0

Program Management – Occupant Protection

ID: OP-21-08

Primary Countermeasure Strategy: Highway Safety Office Program Management

Description of Planned Activity:

Provide sufficient staff to manage programming described in this plan as well as cover travel, professional development expenses, conference fees, and postage and office supplies. All funding intended for supporting staff and will not be sub awarded.

Countermeasure Strategy Justification: *Program Management*

The day-to-day operation of OGR requires funding to allow staff to oversee the occupant protection safety program properly. Lack of oversight due to reduced or no funding could lead to increased unrestrained fatalities and injuries on the roadways of Massachusetts.

OP-21-08 Program Management – Occupant Protection Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Occupant Protection	$185,000	$46,250	$0

Program Area: Speed Management

Speeding increases the chances of a vehicle driver (or motorcycle operator) to cause a crash that involves a serious or fatal injury. According to FARS, speeding involves one of three behaviors: (1) driving too fast for conditions; (2) operating over the posted speed limit; and (3) racing in the street. When engaging in these types of behaviors behind the wheel, drivers run the risk of:

- Losing control of the vehicle, especially during inclement weather (snow, sleet, rain)
- Reducing the effectiveness of the vehicle's occupant protection features (for example, airbags are considered most effective at preventing injuries or death at 25 mph or lower)
- Increasing the amount of distance needed to safely stop the vehicle (for a car traveling 60 mph, 240 feet is required to stop; at 80 mph, 400 feet)
- Reducing the driver's ability to react quickly to sudden changes on the road
- Increasing the severity of a crash as well as the resulting damage and injuries

Why do drivers engage in speeding? Reasons vary from driver to driver. Some of the most common reasons are running late, being distracted, thrill-seeking, alcohol or drug impairment, and the driver's age, as younger drivers tend to be more prone to speeding.

From 2014 to 2018, there were 48,622 speeding fatalities in the United States. Speed-related deaths accounted for 27% of the 180,067 traffic fatalities reported. In Massachusetts, there were 501 speed-related fatalities, which represented 28% of the 1,792 fatalities across the Commonwealth at the same time. In 2018, speeding fatalities declined nationwide 5.7% from 9,947 to 9,378. Massachusetts experienced an 8% drop in speeding fatalities from 2017 to 2018.

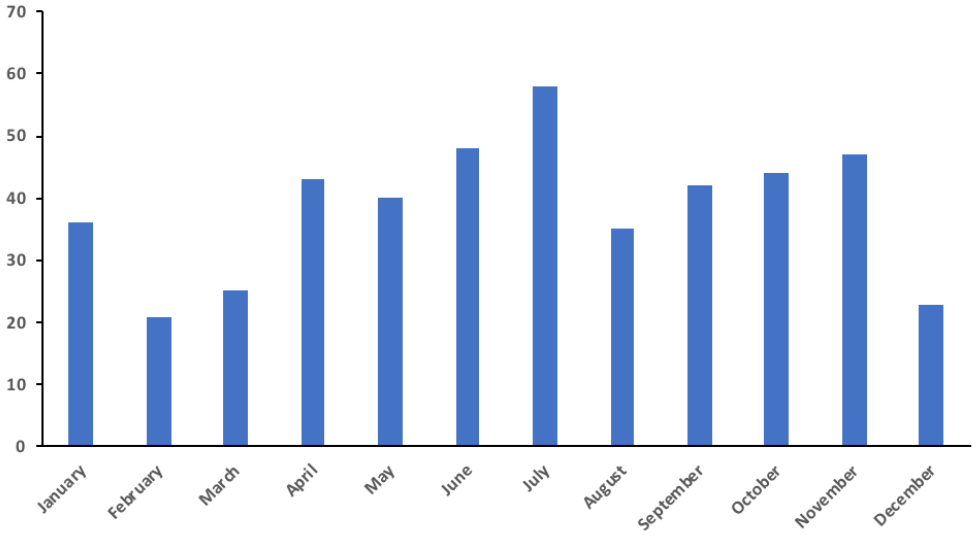
Figure 75: National and Massachusetts Speed-Related Fatalities (2014 - 2018)

Year	Nationwide Speed Fatalities	Percent of All Nationwide Fatalities	Massachusetts Speed Fatalities	Percent of All Massachusetts Fatalities
2014	9,283	28%	85	24%
2015	9,723	27%	92	27%
2016	10,291	27%	126	33%
2017	9,947	27%	103	30%
2018	9,378	26%	95	26%

Fatal Crashes in Massachusetts

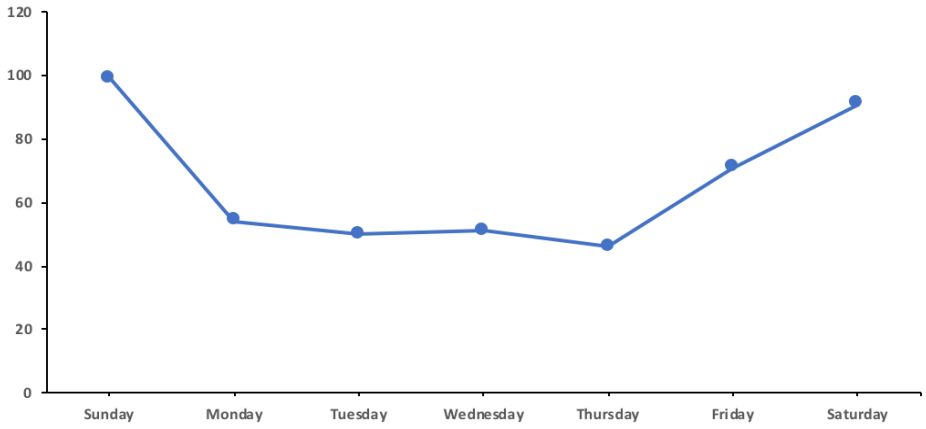
During the five years from 2014 to 2018, Massachusetts reported 462 fatal crashes involving speeding. There were 655 drivers involved, which lead to 501 fatalities. By month, fatal crashes involving speeding were most prominent between April and July (189, 41% of all crashes). Except for May, fatal crashes rose from February to July, dropping in August and then rising each month after through November.

Figure 76: Speed-Related Fatal Crashes by Month (2014 – 2018)



By the day of the week, over 40% of speed-related fatal crashes took place over the weekend. Saturday and Sunday accounted for 190 of the 462 collisions reported. If Friday is included in the calculus, the three-day period represented 56% of all speed-related crashes. The average number of wrecks for Monday through Thursday was 50 compared to 87 for Friday through Sunday.

Figure 77: Speed-Related Fatal Crashes by Day-of-Week (2014 – 2018)



While the data shows Friday, Saturday, and Sunday to be the clear leaders for speed-related fatal crashes, analyzing times of day better exposes the critical periods on those days to focus overtime enforcement patrols aimed at reducing speeding or overly aggressive driving. Sixty-eight percent of crashes took place between 6 pm, and 6 am.

Figure 78: Speed-Related Fatal Crashes by Day and Time (2014 - 2018)

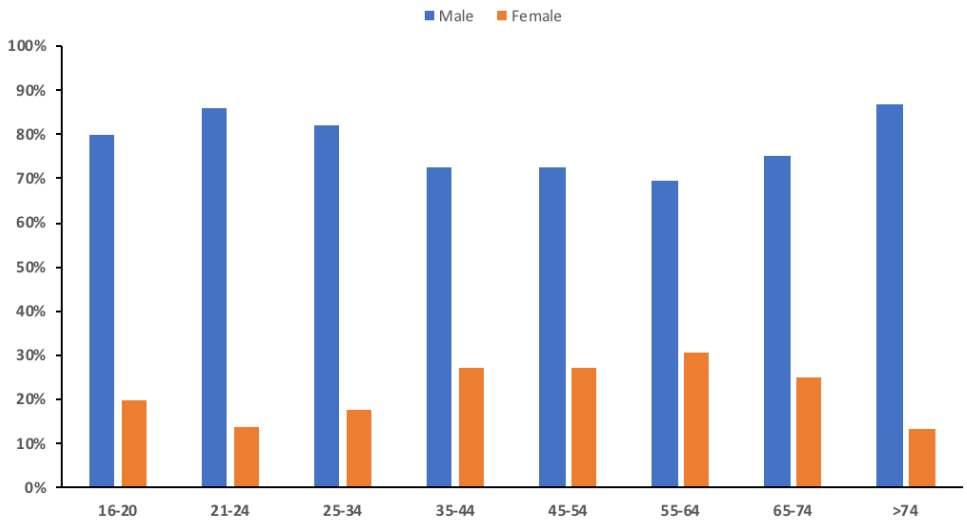
	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
12am - 5:59am	35	13	5	13	10	20	38	134
6am - 11:59am	7	10	4	10	7	7	7	52
12pm - 5:59pm	17	10	18	7	9	12	16	89
6pm - 11:59pm	39	20	22	20	17	30	30	178

Friday through Sunday accounted for 69% of all crashes from 12 am-5:59 am and 56% of crashes from 6 pm-11:59 pm. The six-hours from 6 am-11:59 am had the least number of collisions with 52 of 462 (11%) fatal crashes.

Drivers in a Speed-Related Fatal Crash

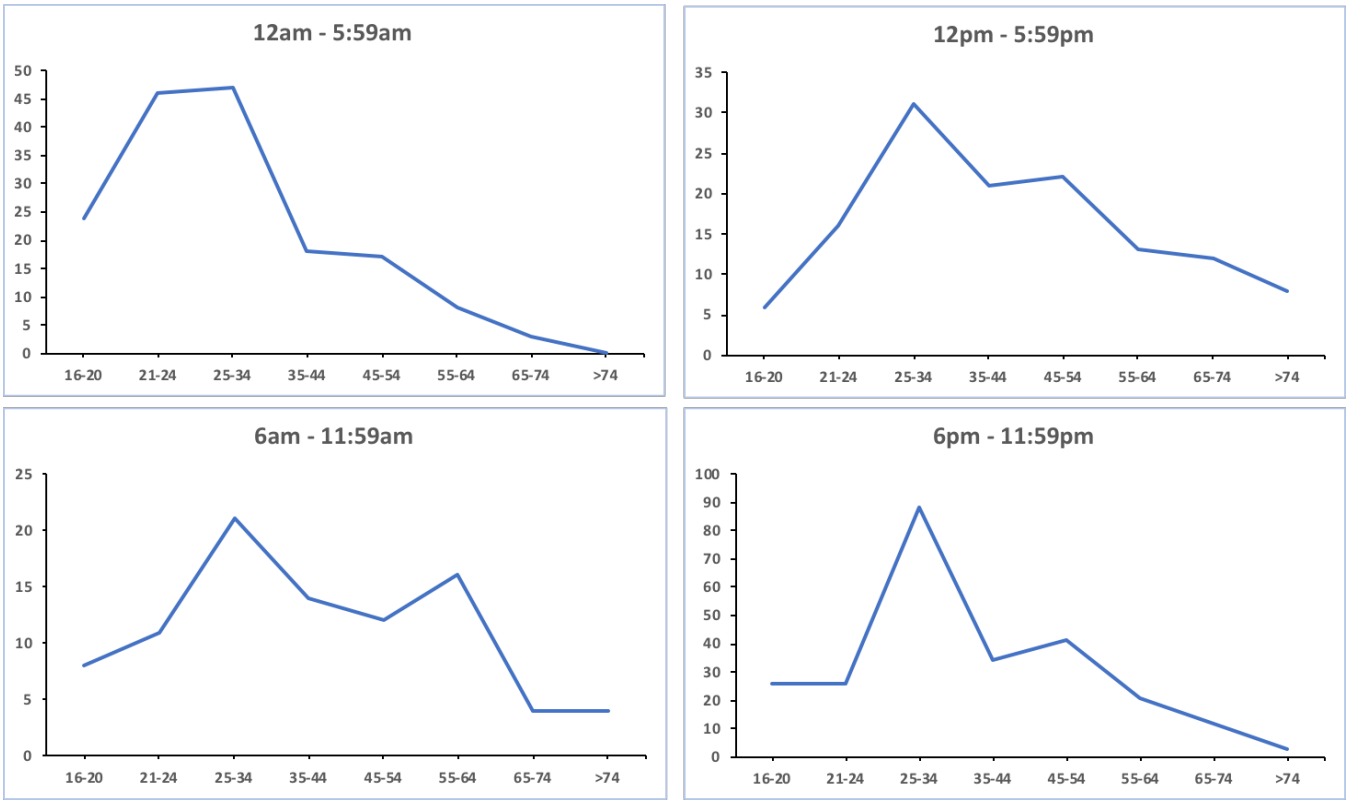
Males accounted for 78% of all drivers involved in a speed-related fatal crash. Female drivers are more frequently involved between the ages of 35 and 74. Nearly a third of all speeding drivers were from the age group of 25-34. Over half of all drivers were under 45 years of age.

Figure 79: Percent of Speeding Drivers in Fatal Crashes by Gender and Age Group (2014 – 2018)



The difference in age grouping in terms of frequency of drivers in a fatal crash becomes pretty apparent when examining the time of the crash. When broken into four different time periods (each six-hours), the 25-34 age group is clearly the most often driver age involved in a speed-related fatal crash during the each of the four time frames. While older age groups (55 and up) are not quite active in the early morning hours (12 am – 5:59 am), the number of drivers 55 or older increases throughout the day rising from 24 (6 am-11:59 am) to 33 to 36 (6 pm-11:59 pm).

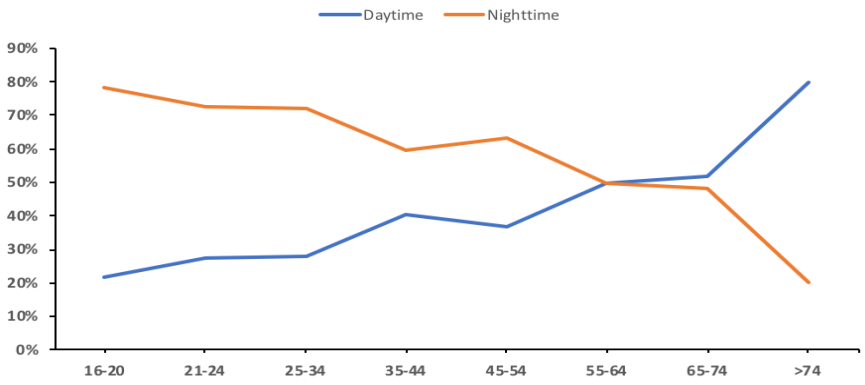
Figure 80: Speeding Drivers in Fatal Crash by Age Group and Time (2014 - 2018)



	16-20	21-24	25-34	35-44	45-54	55-64	65-74	>74
12am - 5:59am	24	46	47	18	17	8	3	0
6am - 11:59am	8	11	21	14	12	16	4	4
12pm - 5:59pm	6	16	31	21	22	13	12	8
6pm - 11:59pm	26	26	88	34	41	21	12	3
Total	64	99	187	87	92	58	31	15

Calculating the percentage of each age group's daytime (6 am – 5:59 pm) and nighttime (6 pm – 5:59 am) driver involvement respective age group provides a fascinating and visual representation of how the percentage of daytime versus nighttime changes as the age groups get older.

Figure 81: Daytime vs Nighttime Speeding – Percentage of All Drivers by Age Group (2014 – 2018)



Fatalities in a Speed-Related Crash

Drivers accounted for 71% of all fatalities in a speed-related crash and 77% of all occupant fatalities in those crashes. Non-motorists accounted for 6% of speed-related fatalities. The age group 25-34 had the highest percentage of deaths, with 28% of all fatalities. This age group also has the highest rate of driver fatalities, with 33% of 357 driver deaths. Passengers between the ages of 16 – 24 accounted for nearly half of all passenger fatalities.

Figure 82: Fatalities in a Speed-Related Crash by Person Type (2014 - 2018)

Age Group	Driver	Passenger	Pedestrian	Bicyclist	Total
<5	0	0	1	0	1
5-9	0	1	0	1	2
10-15	1	2	2	0	5
16-20	42	26	1	1	70
21-24	60	30	0	0	90
25-34	118	19	3	1	141
35-44	41	14	5	0	60
45-54	47	6	5	0	58
55-64	20	7	2	1	30
65-74	19	4	2	1	26
>74	9	5	3	0	17
Unknown	0	1	0	0	1
Total	**357**	**115**	**24**	**5**	**501**

Male drivers accounted for 84% of all drivers in speed-related fatal crashes. Passenger fatalities were made up of a higher percentage of females (38%) than males (16%). Nearly two-thirds of deaths took place in five counties: Bristol, Hampden, Middlesex, Plymouth, and Worcester.

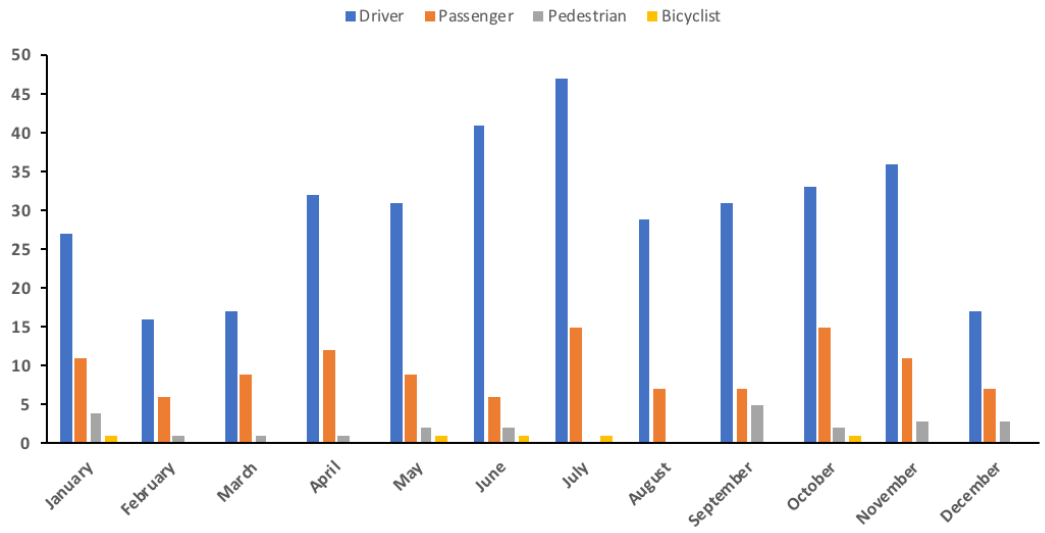
Figure 83: Speed-Related Fatalities by County and Gender (2014 - 2018)

County	Male Fatalities					Female Fatalities				
	Driver	Passenger	Pedestrian	Bicyclist	Total	Driver	Passenger	Pedestrian	Bicyclist	Total
Barnstable	15	2	0	0	17	0	2	0	1	3
Berkshire	5	5	1	0	12	2	0	0	0	2
Bristol	35	6	2	0	43	8	3	1	0	12
Dukes	1	0	0	0	1	0	1	0	0	1
Essex	27	3	2	0	36	4	3	2	0	9
Franklin	7	0	0	1	8	3	1	0	0	4
Hampden	36	12	1	1	50	6	8	0	0	14
Hampshire	10	2	1	0	13	0	1	0	0	1
Middlesex	34	7	1	0	43	8	3	1	0	13
Norfolk	30	6	2	0	38	5	5	1	0	11
Plymouth	34	9	0	0	43	7	5	0	0	12
Suffolk	17	3	3	1	24	2	3	2	1	8
Worcester	49	9	3	0	63	12	7	1	0	20
Total	**300**	**64**	**16**	**3**	**391**	**57**	**42**	**8**	**2**	**110**

While drivers led fatality counts by person type for each month of the calendar year, June and July is a particularly deadly two-month stretch. From 2014 to 2018, nearly a quarter of drivers died during these two months. In contrast, the two-month period of February and March had the lowest driver fatalities, with 9% of all driver fatalities. For passengers, the two months of October and November were the most dangerous months for them, with 23% of all passenger fatalities in a speed-related fatal crash occurring. August and September were the least hazardous months for passengers, with 12% of passenger fatalities

taken place during this period. Pedestrians were most likely to be involved in a speed-related crash between September and January, in which 71% of pedestrian fatalities happened.

Figure 84: Speed-Related Fatalities by Person Type and Month (2014 – 2018)



Another aspect of speed-related fatalities for examination is the number of fatalities by person type related to roadway type and time of day. For drivers, most deaths occur along interstate, principal, and minor arterials between 6 pm and 5:59 am. Driver fatalities are more frequent from 12 pm to 11:59 pm on collector and local roads. For passengers, 12 am – 5:59 am is the most dangerous time on interstate highways. Over half of passenger fatalities take place along minor arterial and local roads between 6 pm – 5:59 am. With only one fatality on the interstate, pedestrian fatalities in a speed-related crash are most frequent on principal and minor arterial roads (62% of all pedestrian fatalities). As for time, over half of all pedestrian fatalities took place between 6 pm – 11:59 pm.

Figure 85: Speed-Related Fatalities by Roadway Type, Person Type, and Time (2014 – 2018)

Roadway Type	Drivers				Passengers			
	12am-5:59am	6am-11:59am	12pm-5:59pm	6pm-11:59pm	12am-5:59am	6am-11:59am	12pm-5:59pm	6pm-11:59pm
Interstate	28	8	14	17	14	2	2	3
Principal Arterial	28	12	14	34	7	2	4	5
Minor Arterial	23	8	17	39	9	1	6	10
Collector	9	3	5	18	2	0	4	2
Local	9	9	13	28	12	2	4	11

Roadway Type	Pedestrians				Bicyclists			
	12am-5:59am	6am-11:59am	12pm-5:59pm	6pm-11:59pm	12am-5:59am	6am-11:59am	12pm-5:59pm	6pm-11:59pm
Interstate	0	0	0	1	0	0	0	0
Principal Arterial	0	1	1	6	0	0	0	0
Minor Arterial	1	2	0	2	0	0	0	1
Collector	1	0	0	2	0	0	1	0
Local	1	1	2	0	0	0	0	2

One final data point on speed-related fatalities is the number of unrestrained occupant fatalities at the time of impact and how many were ejected from the vehicle. Studies have shown that being unrestrained

dramatically increases the possibility of ejection in a rollover compared to a non-rollover crash. From 2014 to 2018, there were 209 unrestrained occupant fatalities in speed-related crashes. Of the 209 deaths, 150 were drivers, and 59 were passengers.

- 58 of 150 drivers were in a rollover, 36 ejected = 62% ejection rate in rollover
- 26 of 59 passengers were in a rollover, 18 ejected = 69% ejection rate in rollover

In non-rollover crashes, unrestrained drivers and passengers were ejected 26% and 24%, respectively.

Of all unrestrained occupants involved in a rollover that was ejected, nearly 65% were age 34 or younger. For unrestrained occupant fatalities in a non-rollover, 62% were age 34 or younger.

Figure 86: Speed-Related Fatalities involving Rollovers and Occupant Ejections (2014 - 2018)

	Age Group	Unrestrained Driver			Unrestrained Passenger			All Unrestrained Occupants		
		Not Ejected	Ejected	Total	Not Ejected	Ejected	Total	Not Ejected	Ejected	Total
Rollover	16-20	3	4	7	2	4	6	5	8	13
	21-24	2	6	8	3	7	10	5	13	18
	25-34	10	16	26	0	1	1	10	17	27
	35-44	1	3	4	0	5	5	1	8	9
	45-54	4	1	5	0	0	0	4	1	5
	55-64	1	2	3	2	1	3	3	3	6
	65-74	1	4	5	1	0	1	2	4	6
	Total	**22**	**36**	**58**	**8**	**18**	**26**	**30**	**54**	**84**
No Rollover	10-15	0	0	0	1	1	2	1	1	2
	16-20	9	4	13	8	1	9	17	5	22
	21-24	8	4	12	4	3	7	12	7	19
	25-34	21	7	28	5	1	6	26	8	34
	35-44	11	3	14	3	0	3	14	3	17
	45-54	8	4	12	1	1	2	9	5	14
	55-64	7	1	8	2	1	3	9	2	11
	65-74	3	1	4	0	0	0	3	1	4
	>74	1	0	1	1	0	1	2	0	2
	Total	**68**	**24**	**92**	**25**	**8**	**33**	**93**	**32**	**125**

In this Speed Management section, speed-related fatal crashes, drivers involved in the collisions, and fatalities resulting from crashes were covered. The key takeaways from the data analysis:

- Speed-related fatal crashes and deaths were most frequent between April and July.
- High levels of crashes occurred over two different two-month periods: June/July and October/November, with 42% of all speed-related fatal crashes.
- Males were far more likely to be the driver in a speed-related fatal crash.
- Female passengers accounted for a larger percentage of fatalities than males in speeding crashes.
- Friday, Saturday and Sunday accounted for 56% of all crashes
- Fatal crashes and fatalities were most frequent between 6 pm – 5:59 am
- Drivers of age group 25-34 had the greatest number of drivers involved in a speed-related fatal crash as well as the most driver fatalities
- Older drivers (age 55 or higher) were more likely to be involved in a speed-related crash between 6 am – 6 pm
- Nearly half of all passenger fatalities were age 16 to 24.

- Five counties – Bristol, Hampden, Middlesex, Plymouth, and Worcester – accounted for nearly two-thirds of all speeding fatalities
- Over half of passenger fatalities took place along minor arterial and local roads between the hours of 6 pm and 6 am.
- Principal and minor arterial roads accounted for half of all roadway locations for speed-related crashes

Any enforcement efforts to lower the speed-related crashes and fatalities should take place between 6 pm, and 6 am on Friday through Sunday. Roadway focus should be mainly along principal arterial, minor arterial, and local roads. Any interstate patrols should be done between 12 am, and 3 am as drivers are more likely to be speeding on the highways when very little traffic is present.

Media messaging should be focused on drivers between the ages of 25-34 with some type of masculine/male-centric angle. If messaging is aimed at passengers only, especially for ages 16-21, then both genders should be targeted in the media output.

Performance Measure for Speed Management

Number of Speed-Related Fatalities

FFY 2021 Target: 5% decline in the five-year average from 100 in 2018 to 95 by December 31, 2021

Planned Activities for FFY 2021

Speed and Aggressive Driving Media

ID: SC-21-01

Primary Countermeasure Strategy: Communication Campaign

Description of Planned Activity:

Develop and implement a statewide paid and earned media campaign to support the summer 2021 speed mobilization. Based on state data, OGR will target communication efforts to male drivers under 35 years of age in the following counties: Bristol, Hampden, Middlesex, Plymouth, and Worcester. Earned media will augment the paid campaign while incorporating state laws and highlighting the work of state and local law enforcement agencies.

Messaging will target a key demographic: drivers under age 35, who account for nearly a third of all drivers in speed-related fatal crashes. The focus will be on metro areas surrounding Boston, Worcester, and Springfield, as well as Southeastern Massachusetts (Plymouth and Bristol County).

Internal policies will be followed, noting that all media and communications activities should be in support of data-driven objectives and coordination with other activities and programs, in particular, enforcement. Crash and citation data will be used not only for planning enforcement activities but also for determining

the target audiences and media channels used to reach those audiences. NHTSA's guidelines will be followed for messaging, demographics, best practices, and target groups for each media campaign.

Countermeasure Strategy Justification: *Communication Campaign*

Speed safety media campaigns will support the speed and traffic enforcement mobilizations conducted by both State and local police during FFY 2021. Stopping drivers exceeding the posted speed limit or driving too fast for current conditions is a part of the overall objectives for high-visibility Speed safety media campaigns will support the speed and traffic enforcement mobilizations conducted by both State and local police during FFY 2021. Stopping drivers exceeding the posted speed limit or driving too fast for current conditions is a part of the overall objectives for high visibility as well as sustained enforcement activities. Messaging will target a key demographic: occupants under age 34, which accounted for 62% of fatalities in a speed-related crash. The focus will be on metro areas surrounding Boston, Worcester, and Springfield, as well as Southeastern Massachusetts (Plymouth and Bristol County).

SC-21-01 Speed and Aggressive Driving Media Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Speed and Aggressive Driving (Paid Advertising)	$150,000	$37,500	$0
2020	NHTSA 402	Speed and Aggressive Driving (Paid Advertising)	$175,000	$43,750	$0

MSP Speed Enforcement

ID: SC-21-02

Primary Countermeasure Strategy: High-Visibility Enforcement

Description of Planned Activity:

Funds will be provided to the MSP to conduct speed-related enforcement activities aimed at decreasing the incidence of speeding violations and reducing the rate of speed-related motor vehicle crashes along the Commonwealth's major highways.

MSP will use internal data to determine the appropriate patrol schedule and deploy both marked and unmarked cruisers dedicated to addressing speed and aggressive driving violations as well as enforcing all other traffic safety laws. A speed enforcement mobilization is planned for June 2021 and will run concurrently with speed enforcement efforts conducted by local police departments participating in the

Municipal Road Safety grant program. A supporting media campaign is planned to augment these enforcement efforts. Also, a portion of this program will provide funds for the MSP to conduct speed hot spot HVE patrols throughout the year.

Neither the subaward or final budget have been approved. Tentatively, approximately $40,000 will be budgeted equipment purchases that may include approximately 25 Radar and/or LIDAR speed measuring units that serve to enhance enforcement efforts towards the overall performance of the program.

Countermeasure Strategy Justification: *High-Visibility Enforcement*

High-visibility enforcement campaigns have been shown in the past to be effective in helping deter speeding and aggressive driving. Based on data analysis, OGR will work with selected subrecipients to target high incidence periods of speeding and aggressive driving in Massachusetts. For example, enforcement patrols should be more frequent during the 6 pm to 6 am period, which accounted for nearly 70% of all speed fatal crashes from 2014-2018 and should be conducted over Friday, Saturday, and Sunday. This three-day period had almost two-thirds of all fatalities. Through this data-driven targeted approach, high-visibility enforcement will lead to lower speeding and aggressive driving behavior in 2021 and beyond.

SC-21-02 Speed Enforcement Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	NHTSA 402	Speed Enforcement	$600,000	$150,000	$0

Program Management – Speed Management

ID: SC-21-03

Primary Countermeasure Strategy: Highway Safety Office Program Management

Description of Planned Activity:

Provide enough staff to manage programming described in this plan as well as cover travel, professional development expenses, conference fees, and postage and office supplies. All funding intended for supporting staff and will not be sub awarded.

Countermeasure Strategy Justification: *Program Management*

The day-to-day operation of OGR requires funding to allow staff to oversee the speed management safety program properly. Lack of oversight due to reduced or no funding could lead to increased speed-related fatalities and injuries on the roadways of Massachusetts.

SC-21-03 Program Management – Speed Management Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Speed Management	$115,000	$28,750	$0

Program Area: Motorcyclist Safety

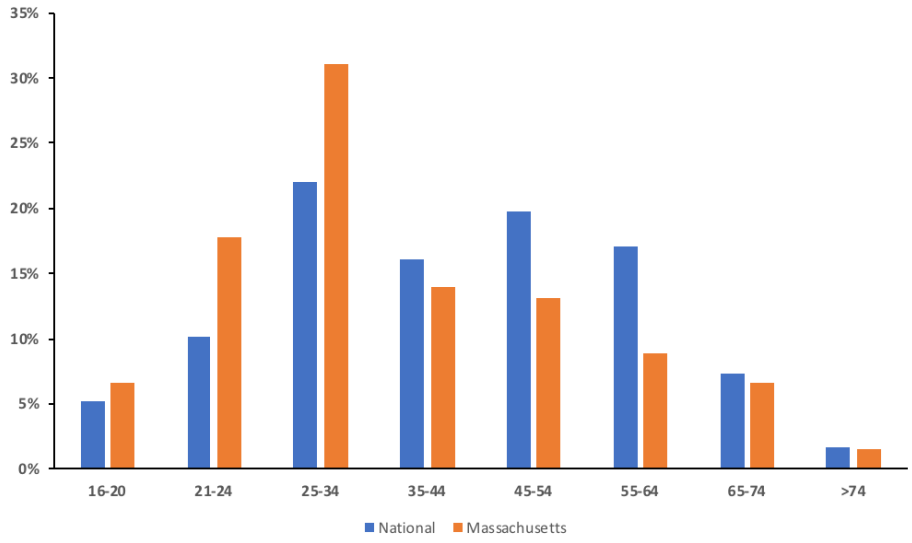
From 2014-2018, motorcyclists' fatalities accounted for 14% of all traffic fatalities reported in the Commonwealth, equal to the national rate for the same period. In 2018, 59 deaths were reported on the roadways, up from 51 in 2017. While Massachusetts motorcyclist deaths rose 16% in just one year, nationally, the fatalities went down 5% from 5,314 in 2017 to 5,080 in 2018.

The significant 2018 rise in motorcyclist fatalities in Massachusetts comes as the number of motorcycle registrations, as reported by the FHWA, rose only 2.3% from 165,148 in 2017 to 168,931. Fatalities per 100,000 registered motorcycles was 34.92 in 2018, much lower than the national rate of 58.67.

From 2014 to 2018, the United States reported 24,786 fatal crashes involving a motorcycle. The first harmful event (FHE) in 53% of these crashes was an impact with another motor vehicle. Rollovers (15%) and curbs (6%) rounded out the top three. Together, these three FHEs accounted for nearly three-fourths of all motorcycle crashes. In Massachusetts, the FHE responsible for 75% of all crashes was slightly more varied. Collision with another motor vehicle was reported in 49% of motorcycle-involved fatal crashes, followed by curbs (8.7%), guardrail (6.3%), trees (5.6%), and utility poles (5.6%).

Nationally, the fatalities were more frequent among the ages of 25 to 64, which accounted for 75% of deaths. In Massachusetts, three-fourths of fatalities were between the ages of 21 years and 54 years. This age group accounted for over 30% of the fatalities.

Figure 87: Motorcyclists Fatalities as Percentage of all Fatalities by Age Group (2014 – 2018)



During 2017, NHTSA estimates the use of helmets saved the lives of 1,872 motorcyclists in the US. (Note: NHTSA has not released 2018 estimates at this time.) If all motorcyclists had worn helmets, an additional 749 lives could have been saved. Helmets are estimated to be 37 percent effective in preventing fatal injuries to motorcycle operators and 41 percent for passengers. In other words, for every 100 motorcycle riders killed in crashes while not wearing helmets, 37 of them could have been saved had they worn one. Nearly $3.5 billion in economic costs and $21 billion in total costs were saved in 2017 using motorcycle

helmets. If all motorcyclists had worn helmets in 2017, an additional $1.5 billion in economic costs and $8.9 billion in total costs could have been saved.

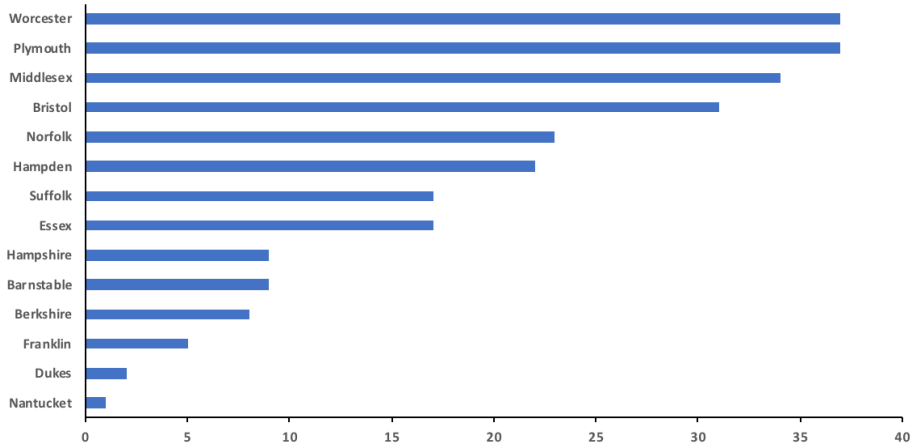
From 2014 to 2018, unhelmeted fatalities in Massachusetts accounted for 8.2% of all motorcycle deaths. In comparison, the United States reported 37% of all motorcycle fatalities involved an unhelmeted rider.

According to results from the 2018 National Occupant Protection Use Survey (NOPUS), the overall rate of DOT-compliant motorcycle helmet use in the United States was 71 percent. Helmet use was significantly higher in States that required all motorcyclists to be helmeted than states that did not. Massachusetts does require that motorcyclists (operators and riders) be helmeted. Of the 59 reported motorcycle fatalities in 2018, only six were determined to be not wearing a helmet at the time of the crash.

Motorcycle Fatal Crashes in Massachusetts

There were 252 fatal crashes involving motorcycles from 2014 to 2018. Over half of the crashes took place in these four counties: Bristol, Middlesex, Plymouth, and Worcester.

Figure 88: Fatal Motorcyclist Crashes by County (2014 – 2018)



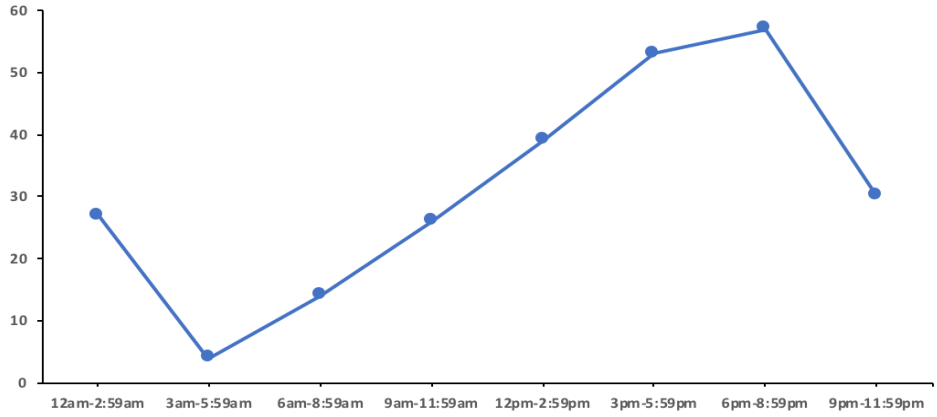
As mentioned at the beginning of this program area section, 53% of fatal motorcycle crashes involved an impact with another motor vehicle. Among the top counties for motorcycle crashes, Bristol had the highest percentage of crashes involving another motor vehicle, while Middlesex had the lowest.

Figure 89: Motorcyclists Fatal Crashes with MV In-Transport (2014 - 2018)

	Barnstable	Berkshire	Bristol	Essex	Franklin	Hampden	Hampshire	Middlesex	Norfolk	Plymouth	Suffolk	Worcester
MV In-Transport	6	6	16	7	2	14	3	12	16	17	9	15
Pct of All MC Crashes in County	66.7%	75.0%	51.6%	41.2%	40.0%	63.6%	33.3%	35.3%	69.6%	45.9%	52.9%	40.5%

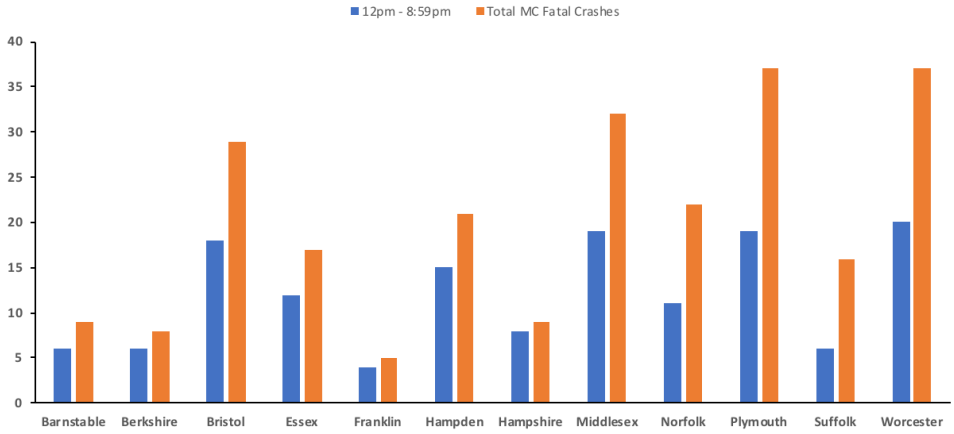
By time-of-day, fatal motorcycle crashes were most frequent between 6 pm and 8:59 pm – 23% of all deadly crashes. Starting at 6 am, fatal crashes consistently increased throughout the day and early evening until the numbers declined after 9 pm, then bottoming out between 3 am, and 5:59 am.

Figure 90: Motorcyclist Fatal Crashes by Time-of-Day (2014 – 2018)



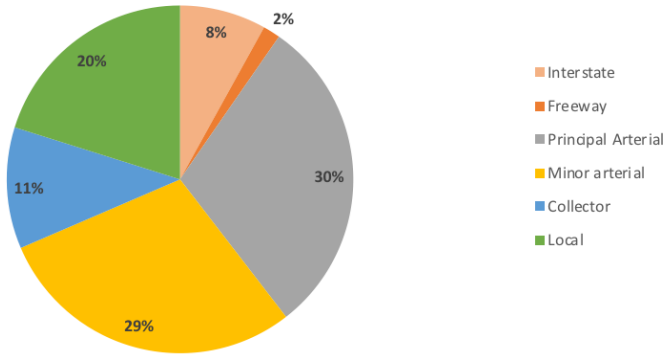
From 12 pm to 8:59 pm, nearly 60% of all crashes occurred (149 of 252). Except for Suffolk County (and excluding Dukes and Nantucket due to zero or very low crashes), all other counties in Massachusetts had over 50% of fatal crashes during this time. Of the top four counties for fatal motorcycle crashes, Bristol and Middlesex both had 60% or more crashes reported between 12 pm and 8:59 pm.

Figure 91: Motorcycle Fatal Crashes between 12pm-8:59pm by County (2014 – 2018)



Nearly 60% of motorcycle fatal crashes from 2014 to 2018 took place along either principal or minor arterial roads. Higher speed roadways (interstate and freeways) only accounted for 10% of fatal crashes.

Figure 92: Motorcyclist Fatal Crashes by Roadway Type (2014 - 2018)



Motorcycle Drivers involved in a Fatal Crash

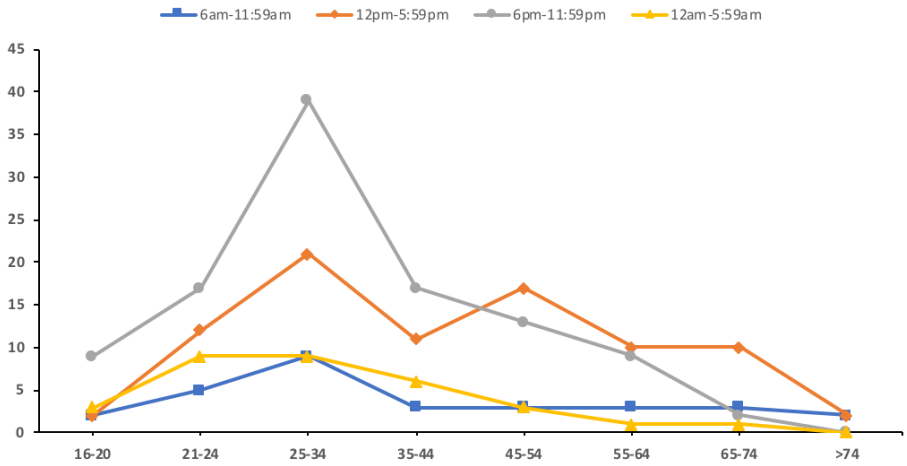
From 2014 to 2018, there were 261 motorcycle drivers involved in a fatal crash, 97% were male. Thirty percent of those drivers were between the age of 25 years and 34 years. The next closest age group was 21- to 24-year old drivers, which accounted for 16.5% of all motorcycle drivers.

Figure 93: Motorcycle Drivers in Fatal Crashes by Age Group (2014 - 2018)

16-20	21-24	25-34	35-44	45-54	55-64	65-74	>74
16	43	78	37	36	23	16	4

Time-of-day breakdown (using six-hour periods) reveals that from 12 am to 11:59 am, drivers between age 21 and age 34 represented the majority of drivers involved in fatal crashes. Older motorcycle drivers (age 45 or older) spiked between 12 pm and 5:59 pm.

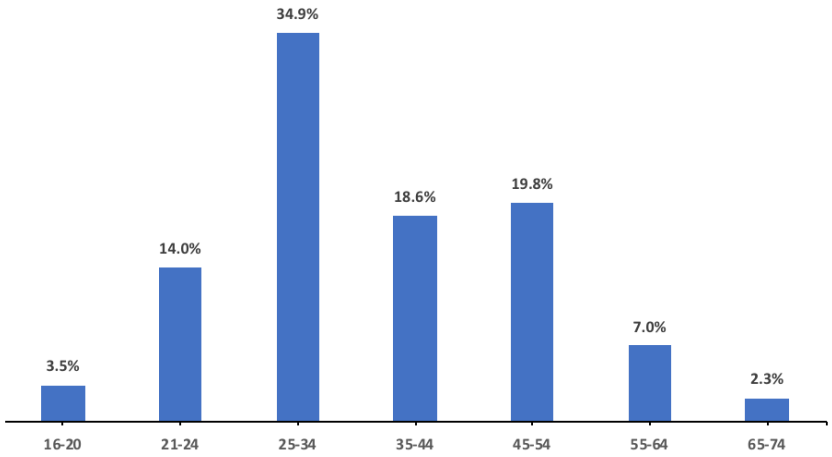
Figure 94: Motorcycle Drivers in Fatal Crashes by Time-of-Day and Age Group (2014 – 2018)



Motorcycle drivers being involved in fatal crashes is far more likely to occur in the afternoon and evening than in the morning, especially older drivers. The 25-34 age group lead each timeframe except for 12 am to 5:59 pm in which drivers age 21-24 reported the same number of crashes.

From 2014 to 2018, alcohol-impaired motorcycle drivers (BAC .08 or higher) accounted for 33% of the 261 motorcycle drivers involved in a fatal crash. Of the 86 impaired drivers, 6 (all male drivers) were unhelmeted. Drivers age 25-34 were responsible for 35% of the 86 impaired drivers reported in a fatal crash.

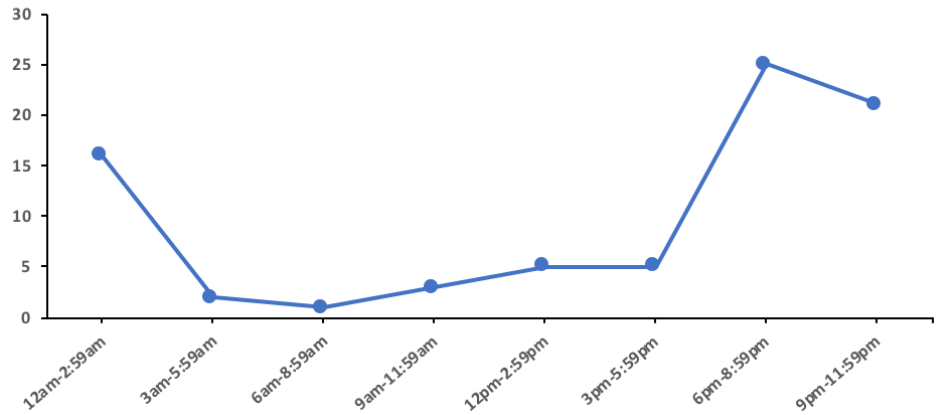
Figure 95: Percentage of Impaired Drivers (BAC .08+) of All Motorcycle Drivers Involved in a Fatal Crash by Age Group (2014 – 2018)



(*Note: there were no drivers 75 or older impaired while driving a motorcycle*)

When are these impaired driving crashes occurring? Over 70% of the fatal crashes involving an impaired motorcycle driver took place between 6 pm, and 3 am. The most significant spike in drivers is from 6 pm to 8:59 pm.

Figure 96: Impaired (BAC .08+) Motorcycle Drivers in a Fatal Crash (2014 – 2018)



The top three counties for impaired motorcycle drivers were: Worcester (21 drivers), Plymouth (16), and Middlesex (12). Within these three counties, 78% of motorcycle drivers were involved in a crash between 6 pm, and 2:59 am.

In fatal motorcycle crashes, speeding was a factor in 43% of the incidents.

Motorcycle Fatalities in Massachusetts

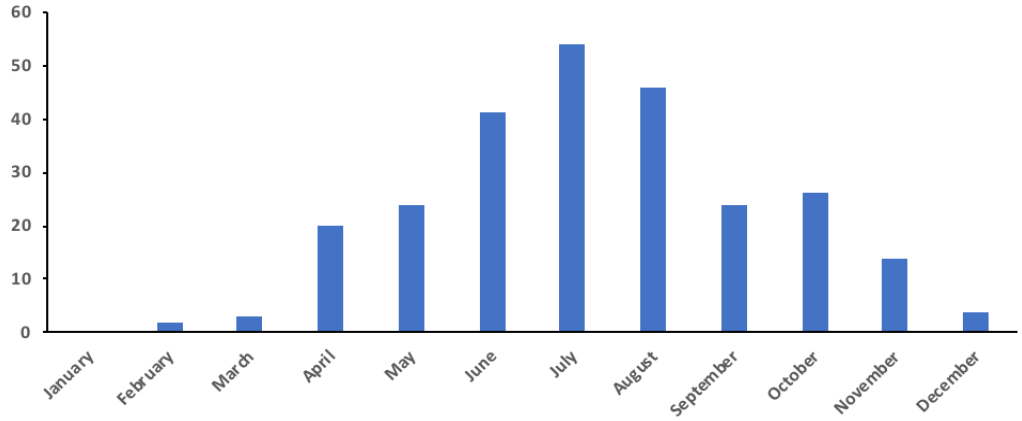
From 2014 to 2018, there were 258 fatalities reported in the 252 fatal crashes involving a motorcycle. Unsurprisingly, the age group of 25-34 accounted for a third of all fatalities.

Figure 97: Motorcyclists Fatalities by Age Group (2014 - 2018)

Age Group	Fatalities
< 16	1
16-20	17
21-24	46
25-34	80
35-44	36
45-54	34
55-64	23
65-74	17
>74	4
Total	**258**

Eight out of every ten motorcycle fatalities took place between April and September. With warmer weather, motorcyclists are more frequently on the road, which results in a higher number of crashes and fatalities.

Figure 98: Motorcyclists Fatalities by Month (2014 – 2018)

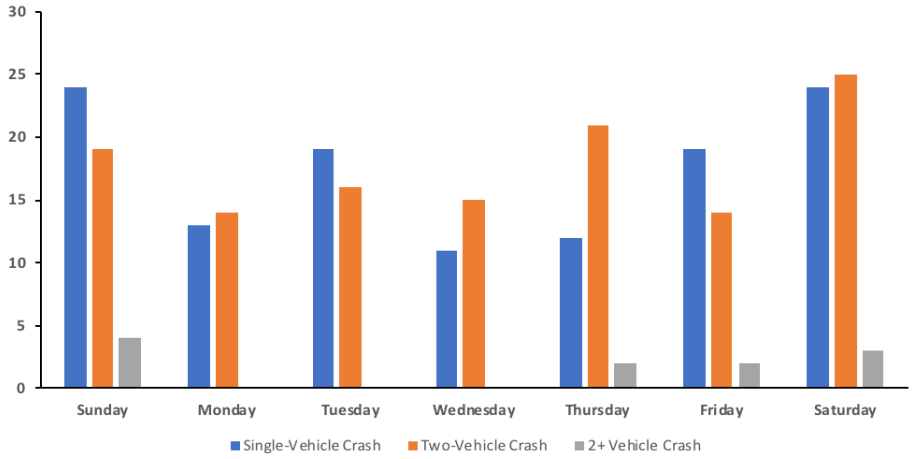


Speeding was a factor in 37% of the fatalities, slightly lower than the 43% reported in alcohol-impaired motorcycle driver fatal crashes.

Unhelmeted fatalities accounted for 8% of deaths for riders under the age 35. They make up 19 of the 21 unhelmeted fatalities reported from 2014 to 2018.

In terms of day-of-week, motorcyclists' fatalities occurred more often between Thursday and Sunday. These four days – Thursday, Friday, Saturday, and Sunday – accounted for 65% of all motorcycle fatalities.

Figure 99: Motorcyclists Fatalities by Crash Type and Day-of-Week (2014 – 2018)



Fatalities in single-vehicle crashes happened more often on Sunday, Tuesday, and Friday, while deaths from multi-vehicle crashes were more frequent on Wednesday, Thursday, and Saturday. Overall, half of the motorcyclists' fatalities stemmed from a collision with another motor vehicle. The top ten 'first harmful event' (FHE) in motorcycle fatalities accounted for 88% of the 258 deaths reported.

Figure 100: Motorcyclists Fatalities by First Harmful Event (2014 - 2018)

FHE	Percent of All MC Fatalities
MV In-Transport	49.2%
Curb	8.9%
Guardrail	6.6%
Utility Pole	5.8%
Tree	5.4%
Rollover	4.7%
Boulder	2.3%
Parked MV	1.9%
Non-Collision	1.6%
Traffic Barrier	1.6%

For FFY 2021, OGR plans to focus on funding and enforcement activity based upon key takeaways regarding motorcycle fatal crashes and fatalities.

- For unhelmeted outreach and messaging, the under 35 crowd is the target demographic.
- Bristol, Middlesex, Plymouth, and Worcester are top fatal crash and fatality counties.

- Hampden has a large percentage (64%) of its fatal crashes involving another motor vehicle.
- Fatal crashes more likely between Thursday and Sunday.
- Fatal crashes occur far more often between 12 pm, and 12 am.
- Impaired drivers of motorcycles tend to drive impaired between 6 pm and 12 am.
- April through September is the period in which motorcycle driving is most popular. Summer months (June – August) are the busiest in terms of motorcycle crashes.
- Males between 25-34 years of age would be a key demographic to target for motorcycle driving awareness.

Performance Measures for Motorcyclists

Number of Motorcyclists Fatalities

FFY 2021 Target: 3% decline in the five-year average from 51 in 2018 to 49 by December 31, 2021

Unhelmeted Motorcyclist Fatalities

FFY 2021 Target: 25% decline in the five-year average from 4 in 2018 to 3 by December 31, 2021

Planned Activities for FFY 2021

Motorcycle Media

ID: MC-21-01

Primary Countermeasure Strategy: Communication Campaign

Description of Planned Activity:

Develop and implement a media campaign in conjunction with the RMV's Motorcycle Rider Education Program (MREP) to educate motorcyclists about the importance of rider safety and the dangers of speeding and impaired riding. The campaign will target, at minimum, male riders between ages 25-34 and will be implemented from June-August, when 55% of all motorcyclist fatalities occurred from 2014-2018. OGR will contract with a marketing and advertising agency to execute this media campaign while running social media in-house for sustained educational outreach.

Internal policies will be followed, noting that all media and communications activities should be in support of data-driven objectives and in coordination with other activities and programs, in particular, enforcement. Crash and citation data will be used not only for planning enforcement activities but also for determining the target audiences and media channels used to reach those audiences. NHTSA's guidelines will be followed for messaging, demographics, best practices, and target groups for each media campaign.

Countermeasure Strategy Justification: *Communication Campaign*

In 2018, motorcycle fatalities accounted for 14% of all motor vehicle-related deaths in Massachusetts, the same as in 2017. OGR will work with its media vendor as well as RMV to develop and promote an awareness campaign about motorcycle safety. The media for the campaign – online, radio, television, and/or outdoor billboards and electronic signs, will take place during the warmer months (April to September) to take advantage of the peak riding season in Massachusetts. It is this period of the year when over 80% of motorcyclist fatalities occur.

Not only will the media campaign be in full force during warmer months when motorcyclists are more likely to be on the roads, but any associated media also buy(s) will target the counties of Bristol, Hampden, Middlesex, Plymouth, and Worcester. These counties represent 65% of the motorcycle crashes involving another motor vehicle from 2014 to 2018. Media targeting motor vehicle driver awareness of motorcycles on the roadway should be heavily invested in Hampden, which has the highest percentage of fatal motorcycle crashes involving another motor vehicle in the state.

Emphasis on younger motorcyclists (under 35 years of age) and speeding will also be incorporated into the media messaging. Those under 35 accounted for 56% (144 of 258) of motorcyclist fatalities from 2014-2018. More concerning is the fact that speeding was a factor in nearly 40% of those deaths. Furthermore, 19 of 21 unhelmeted fatalities from 2014 to 2018 were under 35 years of age.

By targeting these counties and demographics, OGR hopes to meet its stated FFY 2021 HSP motorcycle performance targets by December 31, 2021.

MC-21-01 Motorcycle Media Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Motorcycle Safety (Paid Advertising)	$100,000	$25,000	$0
2020	NHTSA 402	Motorcycle Safety (Paid Advertising)	$50,000	$12,500	$0

Motorcycle Safety Program Enhancements

ID: MC-21-02

Primary Countermeasure Strategy: Communication Campaign

Description of Planned Activity:

Develop and implement a media campaign in conjunction with the RMV's Motorcycle Rider Education Program (MREP) to enhance driver awareness of motorcyclists and educate motor vehicle operators about the need to share the road. This campaign will run from June-August when 55% of all motorcyclist fatalities occurred from 2014 to 2018. State and local crash and fatality data will be examined to determine

the target audience. OGR will contract with a marketing and advertising agency to execute these impaired driving media campaigns while running social media in-house for sustained educational outreach.

Internal policies will be followed, noting that all media and communications activities should be in support of data-driven objectives and coordination with other activities and programs, in particular, enforcement. Crash and citation data will be used not only for planning enforcement activities but also for determining the target audiences and media channels used to reach those audiences. NHTSA's guidelines will be followed for messaging, demographics, best practices, and target groups for each media campaign. We are planning to do media around impaired motorcycle operators using 402 funding only. 405f-funded media will be limited to "share the road messaging".

Countermeasure Strategy Justification: *Communication Campaign*

In FFY 2021, OGR will work with the RMV to help spread the message of the importance of motorcycle safety while driving a motorcycle.

Fifty-six percent of all motorcyclist fatalities in the last five years (2014-2018) have been among motorcycle riders under the age of 35, and OGR will work with RMV to target this age demographic to decrease the incidence of fatalities among this age group.

This will lead to lower incidences of crashes involving motorcycles and help OGR meet the motorcycle performance measures to be met by December 31, 2021.

MC-21-02 Motorcycle Safety Program Enhancements Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405f Motorcycle Safety	Motorcycle Safety	$87,000	$21,750	$0
2020	NHTSA 402	Motorcycle Safety (Paid Advertising)	$138,000	$34,500	$0
2016	405f MAP-21	Motorcycle Safety	$20,000	$5,000	$0

Program Management – Motorcycle Safety

ID: MC-21-03

Primary Countermeasure Strategy: Highway Safety Office Program Management

Description of Planned Activity:

Provide sufficient staff to manage programming described in this plan as well as cover travel, professional development expenses, conference fees, and postage and office supplies. All funding intended for supporting staff and will not be sub-awarded.

Countermeasure Strategy Justification: *Program Management*

The day-to-day operation of OGR requires funding to allow staff to oversee the motorcycle safety program properly. Lack of oversight due to reduced or no funding could lead to increased motorcycle-related fatalities and injuries on the roadways of Massachusetts.

MC-21-03 Program Management – Motorcycle Safety Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Motorcycle Safety	$133,000	$33,250	$0

Program Area: Non-Motorists (Pedestrians and Bicyclists)

In the United States, non-motorists' fatalities accounted for 20% of all traffic fatalities in 2018, up from the 18% reported in 2017. Since 2014, pedestrian and bicyclist deaths have jumped 27%, compared to a 12% increase in overall traffic fatalities.

While the factors surrounding the cause of a non-motorist death can be myriad, the current road transportation system was designed primarily for motor vehicle traffic, not pedestrians and bicyclists. Efficiency has been the guiding principle of transportation design for many years – to allow motor vehicles to travel between points as quickly as possible. A look at total Federal funding for transportation programs in FY2018 reveals $36.4 billion was distributed to the states with only $915 million dedicated to improvements related to non-motorists' safety. Although non-motorist fatalities accounted for up 20% of all traffic fatalities in 2018, only 2.5% of all federal transportation funding was set aside to reduce those deaths.

Despite the limited funding provided for non-motorist safety activities, OGR will utilize all available funding in FFY 2021 to help improve the safety and well-being of pedestrians and bicyclists that use the roadways of the Commonwealth.

Pedestrian Safety in Massachusetts

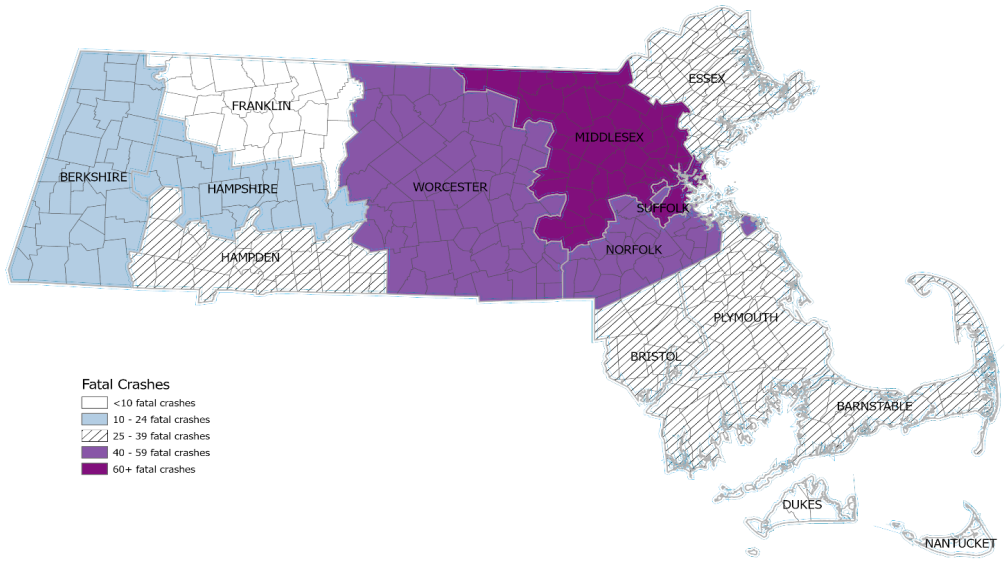
Pedestrian safety is a national issue as more cars and people share the roadways of the country, especially in fast-growing urban regions. According to NHTSA, the number of U.S. pedestrian fatalities rose nearly 30% from 2014 to 2018, nearly triple the 11% rise in total deaths during the same timeframe. Pedestrian fatalities accounted for 15% of all fatalities in 2014. By 2018, the percentage was 17%. During the same period, Massachusetts fared better than national averages and saw pedestrian fatalities rise by 5.4%, and its rate of all traffic fatalities slightly increased from 21% to 22%.

Figure 101: National and State Pedestrian Fatalities

Year	National		Massachusetts	
	Ped Fatalities	Percent All Fatalities	Ped Fatalities	Percent All Fatalities
2014	4,910	15%	74	21%
2015	5,494	15%	79	23%
2016	6,080	16%	78	20%
2017	6,075	16%	72	21%
2018	6,283	17%	78	22%

There were 381 pedestrian fatalities reported in 379 crashes involving 401 drivers across Massachusetts from 2014 to 2018. Nearly half of all pedestrian crashes took place in one of three counties: Middlesex, Suffolk, and Worcester.

Map 4: Fatal Crashes Involving a Pedestrian (2014 - 2018)



Examining the percentage of pedestrian fatalities of the total fatal crashes reported in a county shows how dangerous it can be as a pedestrian in Suffolk County. Boston, the capital city, accounted for 51 of the 62 (over 82%) of fatal pedestrian crashes from 2014 to 2018.

Figure 102: Pedestrian Fatal Crashes by County (2014 -2018)

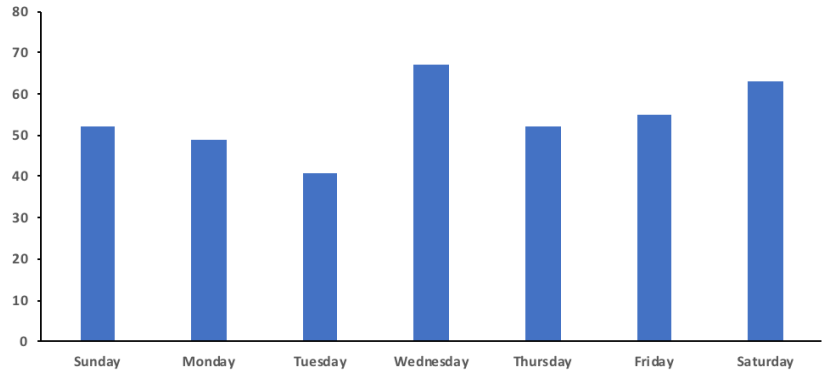
County	Total Fatal Crashes	Pedestrian Crashes	Percent of Total Crashes
Barnstable	71	13	18.3%
Berkshire	59	11	18.6%
Bristol	198	30	15.2%
Dukes	5	1	20.0%
Essex	142	30	21.1%
Franklin	39	3	7.7%
Hampden	163	35	21.5%
Hampshire	43	11	25.6%
Middlesex	230	64	27.8%
Nantucket	3	1	33.3%
Norfolk	168	44	26.2%
Plymouth	189	29	15.3%
Suffolk	127	61	48.0%
Worcester	258	46	17.8%

For Middlesex County, which had three more pedestrian crashes than Suffolk County, the crashes made up 28% of all its fatal crashes. This number is far below Suffolk County's percentage of deadly crashes, but still represents a very tragic and significant number of deaths.

Interestingly, Middlesex experienced 52% of its pedestrian crashes between Monday and Wednesday, whereas, Suffolk had half of its crashes on Wednesday and Saturday. The only other county with a concentration of pedestrian crashes on a particular day or days was Bristol. Eleven of its 30 fatal crashes

took place on Saturday (37%). Overall, for Massachusetts, fatal crashes were most frequent on Wednesdays, accounting for 18% of all crashes, followed by Saturday (17%) and Friday (15%).

Figure 103: Pedestrian Fatal Crashes by Day-of-Week (2014 – 2018)



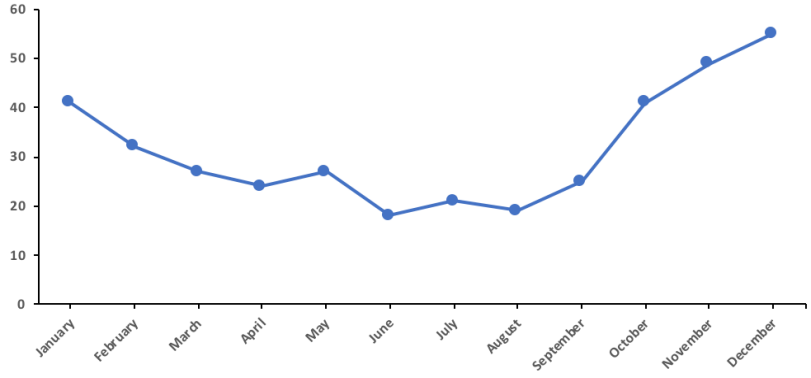
Speeding was found not to be much of a factor in the 379 fatal crashes involving a pedestrian. Speed was reported in only 6% of the crashes. Nearly half of the collisions with speed involved took place on Saturday or Sunday.

Figure 104: Pedestrian Fatal Crashes Involving Speeding by Day-of-Week (2014 - 2018)

	Yes	No	Total
Sunday	5	47	52
Monday	4	45	49
Tuesday	0	41	41
Wednesday	4	63	67
Thursday	3	49	52
Friday	2	53	55
Saturday	6	57	63
Total	**24**	**355**	**379**

While it may seem counterintuitive, fatal crashes involving pedestrians were much more frequent during colder months. Nearly half of all pedestrian crashes took place over these four months when people are less likely to be walking about outside. Surprisingly, the three lowest months were June – August when there was likely an abundance of pedestrians on the roadways taking advantage of the warm weather.

Figure 105: Pedestrian Fatal Crashes by Month (2014 – 2018)



Data showed that the light condition (daylight or nighttime) plays a huge factor in the number of crashes by month. Pedestrian fatal crashes occurring at night were nearly two-thirds of all the crashes reported. Regarding colder months, the amount of sunlight is far less than in warmer months, with daylight fading as early as 4 pm at one point.

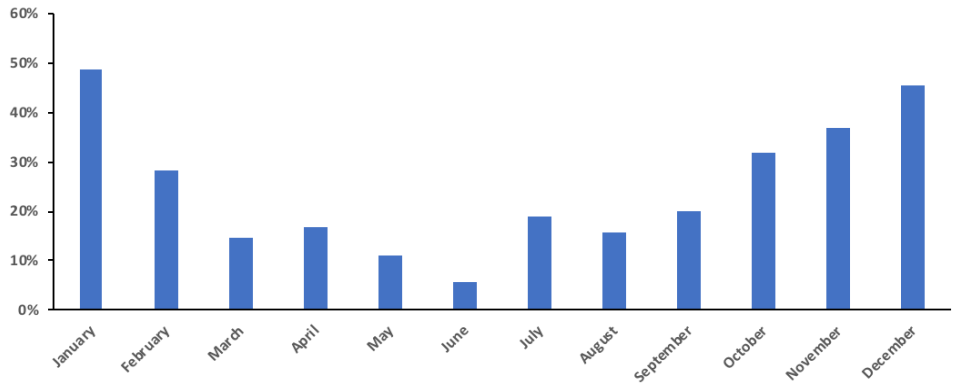
Figure 106: Pedestrian Fatal Crashes by Light Condition (2014 - 2018)

Light Condition	Pedestrian Crashes	Percent of All Crashes
Dawn	4	1.1%
Daylight	124	32.7%
Dusk	11	2.9%
Dark	240	63.3%
Total	**379**	

With the fading light of day happening around the time of the evening commute home, it becomes exponentially more dangerous for pedestrians between October and January. On October 1, 2019, the sunset was at 6:26 pm. By December 1, 2019, it had fallen at 4:13 pm. The summer began with a sunset at 8:13 pm (June 1st) and concluded with sunset at 7:19 pm (August 31st).

The evening rush hours are typically between 4 pm and 8 pm. From 2014 to 2018, there were 109 fatal crashes involving a pedestrian reported during this four-hour period, which accounted for 29% of all crashes. October, November, December, and January had double-digit fatal crashes, while the rest of the calendar months had single-digit crashes. As a percentage of all crashes for the month, pedestrian crashes made up 30% or higher of all crashes from October through January. Any future pedestrian safety enforcement should take a more aggressive approach to conduct patrols from 4 pm to 8 pm during the colder months of the calendar year.

Figure 107: Percent of Pedestrian Fatal Crashes Between 4pm - 7:59pm by Month



In Massachusetts, 93% of all fatal pedestrian crashes were single-vehicle crashes. Two-vehicle crashes and multi-vehicle (over two) crashes accounted for 5% and 2% of all crashes, respectively. Pedestrian crashes from 2014 to 2018 involved 410 vehicles, of which 46% were passenger cars. Light trucks (pickup, utility, wagon, van) accounted for 43% of vehicles. Breaking the vehicle type down by the body class, the top four (75% of all vehicles) are:

Figure 108: Pedestrian Fatal Crashes by Vehicle Body Class and Initial Impact (2014 -2018)

Vehicle Body Class	
Passenger Car - Sedan	140
Light truck - SUV	71
Light truck - Pickup	47
Light truck - Wagon	44

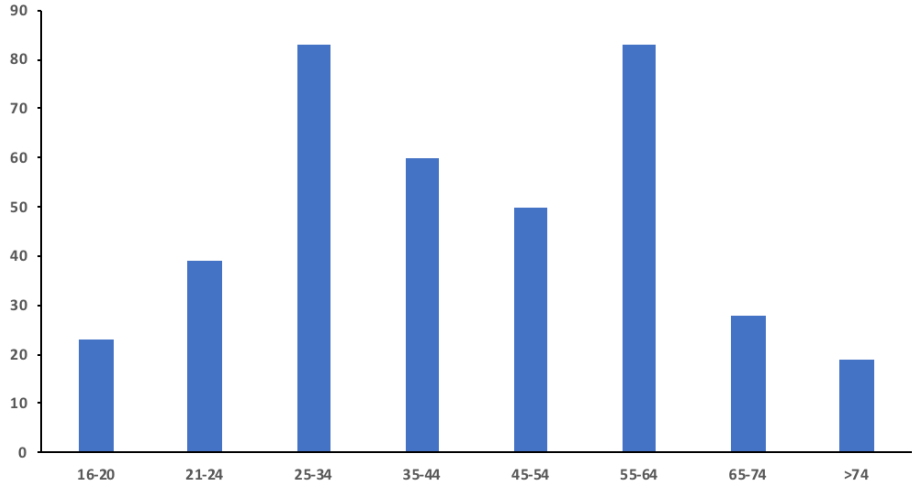
Vehicle Body Class	Front	Rear	Right-Side	Left-Side
Passenger Car - Sedan	93	4	20	6
Light truck - SUV	43	2	10	4
Light truck - Pickup	26	4	7	4
Light truck - Wagon	25	2	5	4

What's interesting about the data is how right-side impact crashes are higher than rear or left-side crashes for each vehicle body class. Despite having a larger body compared to a sedan, which could increase the blind spot size for drivers, SUVs did not have a higher percentage of its crashes involving a right-side or rear impact than sedans. The higher number of right-side impact crashes compared to either rear or left-side crashes raises questions that would need further investigation.

Drivers involved in a Pedestrian Fatal Crash

From 2014 to 2018, there were 401 drivers involved in a fatal crash with a pedestrian. Over 70% of the drivers were between the ages of 25 – 64. The age groups of 25-34 and 54-64 were equal, each with 83 drivers involved. The youngest and oldest age groups have the lowest total number of drivers involved with 23 and 19, respectively.

Figure 109: Driver Involved in Pedestrian Fatal Crash by Age Group (2014 – 2018)



Both leading age groups (25-34, 55-64) represented the highest percentage of drivers for their respective age groups in both Middlesex County and Suffolk County. Middlesex also had the highest rate of total drivers for age groups of 16-20, 45-54, and greater than 74.

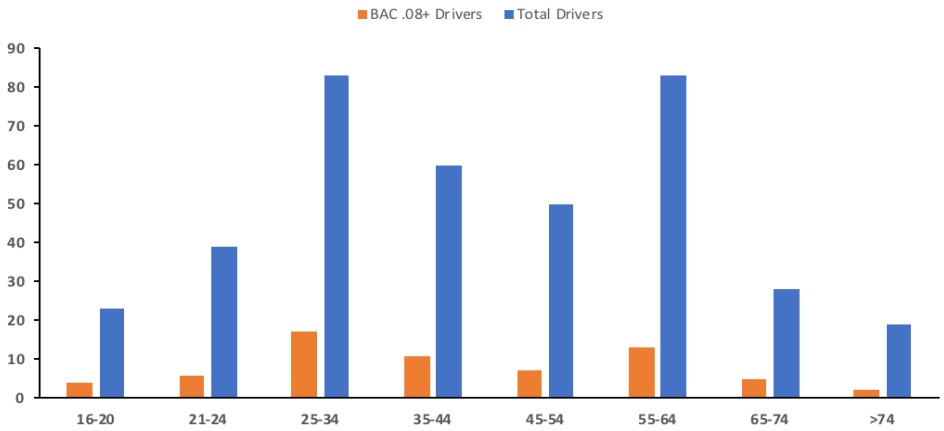
Figure 110: Percent All Drivers by Age Group and County Involved in a Fatal Pedestrian Crash (2014 - 2018)

Age Group	Barnstable	Berkshire	Bristol	Essex	Franklin	Hampden	Hampshire	Middlesex	Norfolk	Plymouth	Suffolk	Worcester	Total Drivers
16-20	0.0%	4.3%	13.0%	13.0%	0.0%	0.0%	4.3%	**21.7%**	13.0%	8.7%	13.0%	8.7%	23
21-24	7.7%	0.0%	5.1%	10.3%	0.0%	**15.4%**	0.0%	12.8%	2.6%	**15.4%**	12.8%	**15.4%**	39
25-34	4.8%	4.8%	3.6%	12.0%	1.2%	12.0%	1.2%	**15.7%**	12.0%	6.0%	**15.7%**	10.8%	83
35-44	0.0%	3.3%	13.3%	3.3%	1.7%	5.0%	3.3%	8.3%	15.0%	8.3%	18.3%	**20.0%**	60
45-54	0.0%	2.0%	8.0%	4.0%	2.0%	12.0%	2.0%	**22.0%**	18.0%	8.0%	12.0%	10.0%	50
55-64	4.8%	2.4%	10.8%	8.4%	0.0%	6.0%	2.4%	18.1%	9.6%	6.0%	**19.3%**	12.0%	83
65-74	3.6%	3.6%	7.1%	3.6%	0.0%	**21.4%**	7.1%	10.7%	14.3%	3.6%	7.1%	14.3%	28
>74	5.3%	0.0%	0.0%	10.5%	0.0%	0.0%	0.0%	**31.6%**	10.5%	10.5%	21.1%	10.5%	19

The counties in southeastern Massachusetts (Barnstable, Bristol, and Plymouth) accounted for nearly a third of all drivers in the 21-24 age group. At the other end of the age spectrum, Hampden and Hampshire Counties combined for almost a third of all drivers in the 65-74 age group.

Impaired (BAC .08 or higher) drivers accounted for 67 of 401 drivers (17%) involved in a fatal pedestrian crash. Sixty percent of impaired drivers (41 of 67) were from one of three age groups: 25-34, 35-44, and 55-64.

Figure 111: Impaired Drivers (BAC .08+) Involved in a Pedestrian Fatal Crash (2014 – 2018)



Impaired drivers were twice as likely to be involved in a fatal pedestrian crash in the afternoon and evening than morning. Forty-seven of the 67 impaired drivers crashed between 12 pm and 11:59 pm. Drivers in the age group 24-34 accounted for 11 of the 47 drivers (23%) involved during these twelve hours. Data about impaired pedestrians are covered later in this section.

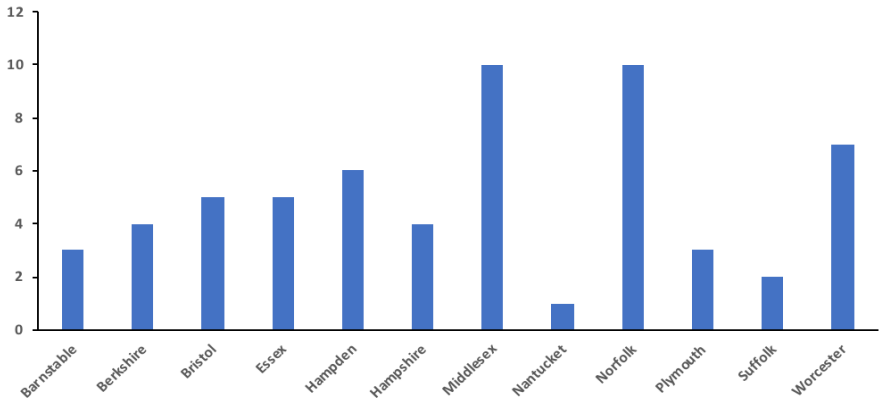
Figure 112: Impaired Drivers (BAC .08+) in a Pedestrian Fatal Crash by Time-of-Day and Age Group (2014 – 2018)

Age Group	Driver with BAC .08+		Total BAC .08 Drivers	Total All Drivers	Pct. BAC .08 of All Drivers
	12am-11:59am	12pm-11:59pm			
16-20	1	4	5	23	21.7%
21-24	2	4	6	39	15.4%
25-34	5	11	16	83	19.3%
35-44	3	7	10	60	16.7%
45-54	2	5	7	50	14.0%
55-64	3	9	12	83	14.5%
65-74	2	3	5	28	17.9%
>74	0	2	2	19	10.5%
Unknown	2	2	4	16	25.0%
Total	**20**	**47**	**67**	**401**	

Overall, more than half of alcohol-impaired drivers in a pedestrian crash were under 45 years of age. Within this age range, the focus should be intently on drivers between the ages of 25-34 as nearly 20% of drivers in this age group were impaired at the time of the fatal crash with a pedestrian.

Another cause of drivers being involved in collisions with pedestrians is distracted driving. From 2014 to 2018, there were 58 crashes involving a pedestrian that was a result of a distracted driver. Sixty drivers were cited for distracted driving in the crash, which is 15% of the 401 drivers involved in a fatal pedestrian crash.

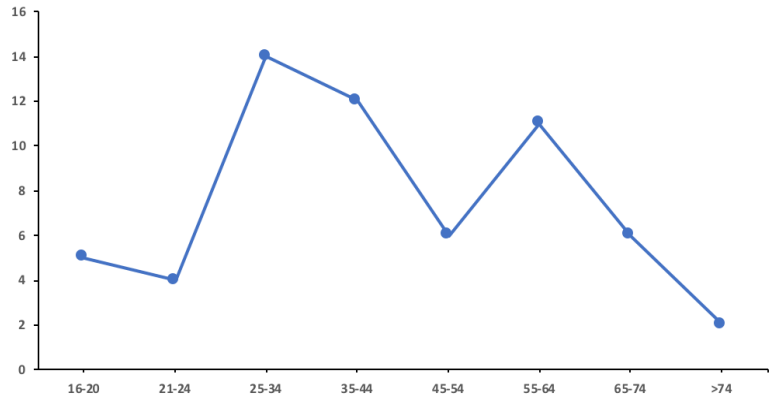
Figure 113: Pedestrian Fatal Crashes involving a Distracted Driver (2014 – 2018)



By county, Middlesex, and Norfolk accounted for over a third of all distracted drivers in a fatal pedestrian crash. Interestingly, Suffolk County only had two distracted drivers reportedly in a pedestrian crash despite having one of the highest pedestrian fatal crash amounts from 2014 to 2018. It is likely the constant 'stop and go' traffic flow typical for the county may reduce the chances of drivers going too fast to react to pedestrians or to cause fatal damage to a pedestrian in a crash.

By age, drivers in the 25-34, 35-44 and 55-64 age groups represent 62% of all distracted drivers in a fatal pedestrian crash. As shown in the Distracted Driving program area, the 25-34 age group accounted for 23% of all distracted drivers (218 drivers), so it is not surprising to find the age group involved heavily in pedestrian crashes with a distracted driver.

Figure 114: Number of Distracted Drivers by Age Group involved in Pedestrian Fatal Crash (2014 – 2018)



By vehicle class type, passenger cars were prominently involved with utility vehicle reporting the second-highest amount. What's intriguing about vehicle class type is how nearly 70% of 'light truck – utility' distracted drivers were over 34 years of age. This is likely a function of having the financial means to afford an SUV as older drivers typically have higher income levels than younger drivers.

Figure 115: Pedestrian Fatal Crashes with Distracted Drivers by Vehicle Body Type (2014 - 2018)

Age Group	Passenger Car	Light Truck - Pickup	Light Truck - Utility	Light Truck - Van	Light Truck - Other	Large Truck	Bus	Other/Unknown	Total
16-20	2	1	2	0	0	0	0	0	5
21-24	2	0	1	1	0	0	0	0	4
25-34	10	2	1	0	0	1	0	0	14
35-44	7	2	2	0	0	1	0	0	12
45-54	0	1	1	1	0	3	0	0	6
55-64	3	0	3	2	1	1	0	1	11
65-74	3	0	2	0	0	0	1	0	6
>74	1	0	1	0	0	0	0	0	2
Total	**28**	**6**	**13**	**4**	**1**	**6**	**1**	**1**	**60**

For FFY 2021, any media outreach or messaging should be firmly focused on drivers within the age group of 25-34 as they are most involved among all drivers as well as among impaired and distracted drivers involved in a fatal pedestrian crash.

Pedestrian Fatalities

From 2014 to 2018, there were 381 pedestrian fatalities (231 males, 150 females) reported in motor vehicle crashes across Massachusetts. This number represented 21% of the 1,792 traffic fatalities tallied during the same period. As with fatal pedestrian crashes, the top four counties for pedestrian fatalities were Middlesex, Suffolk, Worcester, and Norfolk, respectively. These four counties accounted for 57% of all pedestrian fatalities from 2014 to 2018.

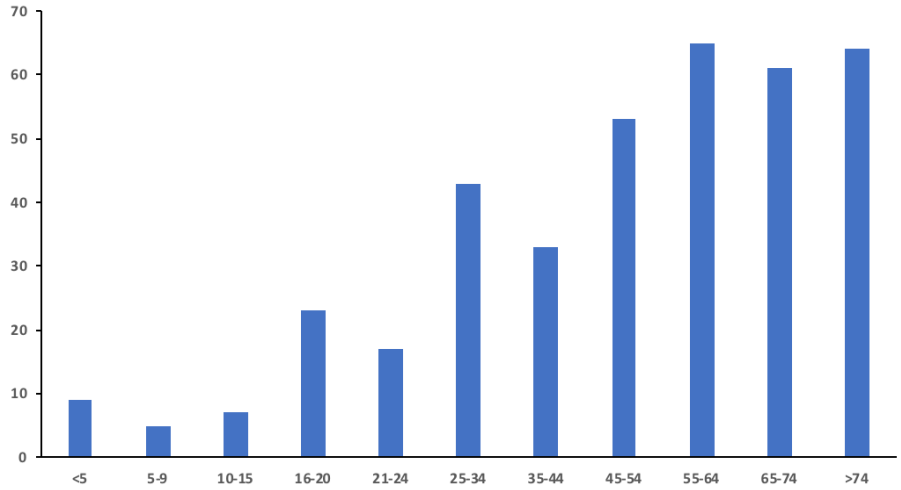
Figure 116: Pedestrian Fatalities by County (2014 - 2018)

County	2014	2015	2016	2017	2018	Total	Percent of Total Fatalities
Barnstable	2	2	4	4	2	14	3.7%
Berkshire	1	2	3	1	4	11	2.9%
Bristol	8	7	2	8	5	30	7.9%
Dukes	0	0	0	1	0	1	0.3%
Essex	5	7	4	6	7	29	7.6%
Franklin	0	0	0	0	3	3	0.8%
Hampden	6	9	4	9	7	35	9.2%
Hampshire	1	1	4	2	3	11	2.9%
Middlesex	11	11	20	9	13	64	16.8%
Nantucket	0	1	0	0	0	1	0.3%
Norfolk	6	9	8	9	12	44	11.5%
Plymouth	11	7	4	4	3	29	7.6%
Suffolk	12	9	17	11	13	62	16.3%
Worcester	11	14	8	8	6	47	12.3%
Total	**74**	**79**	**78**	**72**	**78**	**381**	

After declining to 72 in 2017, pedestrian fatalities rose to 78 in 2018. Franklin, which had not reported a pedestrian fatality in the prior four years, had three in 2018. Berkshire had one pedestrian fatal in 2017 and four in 2018. Norfolk pedestrian fatalities doubled in only five years, from six in 2014 to 12 in 2018. On the bright side, Worcester became safer for pedestrians and reported six deaths in 2018 – far less than the 11 and 14 reported in 2014 and 2015, respectively.

By age group, pedestrians 45 years or older accounted for 64% of all pedestrian fatalities from 2014 to 2018. Those aged 15 or younger represented 5.5% of pedestrian fatalities. In Massachusetts, it looks like pedestrian fatalities are skewed toward older adult users of the roadway.

Figure 117: Pedestrian Fatalities by Age Group (2014 – 2018)



On what roadways are pedestrians occurring most frequently? From 2014 – 2018, principal arterial and minor arterial roads accounted for nearly two-thirds of all pedestrian fatality locations. Research has found speeding, lack of proper sidewalks or roadway buffers/shoulders, and too few crosswalks along busy arterials are all factors contributing to pedestrian fatalities. Furthermore, principal arterials and minor arterials tend to have many environmental distractions such as flashing lights/signs, storefront displays, and stoplights that can distract a driver's attention from upcoming crosswalks or people crossing the road.

By age group, younger pedestrians (under 35 years of age) are the majority in fatalities along interstates and freeways. Principal arterials, minor arterials, collectors, and local roads are dominated by those aged 45 or older. Along these roadways, fatalities reported are over 60% - sometimes over 70% - for pedestrians over 45. Older adults, in general, tend to move slower than younger pedestrians, and this may be a factor when one is traversing a crosswalk. Recent research has suggested the length of time a crosswalk sign is in effect may be contributing to pedestrian fatalities among older adults. The shorter the duration, the less likely an older adult – especially if using a cane or walker – will be able to cross before traffic can move again.

Figure 118: Pedestrian Fatalities by Roadway Type and Age Group (2014 - 2018)

Age Group	Interstate	Freeway	Principal Arterial	Minor Arterial	Collector	Local	Total Fatalities
<5	0	0	4	0	2	3	9
5-9	0	0	2	0	2	1	5
10-15	1	0	2	3	1	0	7
16-20	4	1	7	3	3	5	23
21-24	3	0	6	2	0	6	17
25-34	10	3	13	8	0	9	43
35-44	9	2	13	6	2	1	33
45-54	2	0	23	16	4	8	53
55-64	2	0	28	17	5	13	65
65-74	1	1	28	13	7	11	61
>74	1	0	29	16	4	14	64
Unknown	0	0	1	0	0	0	1
Total	**33**	**7**	**156**	**84**	**30**	**71**	**381**

When are pedestrian fatalities most likely to occur? By the time of day, pedestrian fatalities are much more likely to take place in the afternoon or evening. Of the 364 pedestrian fatalities with a known crash hour, 71% occurred between 12 pm and 11:59 pm.

Figure 119: Pedestrian Fatalities by Time and Age Group (2014 - 2018)

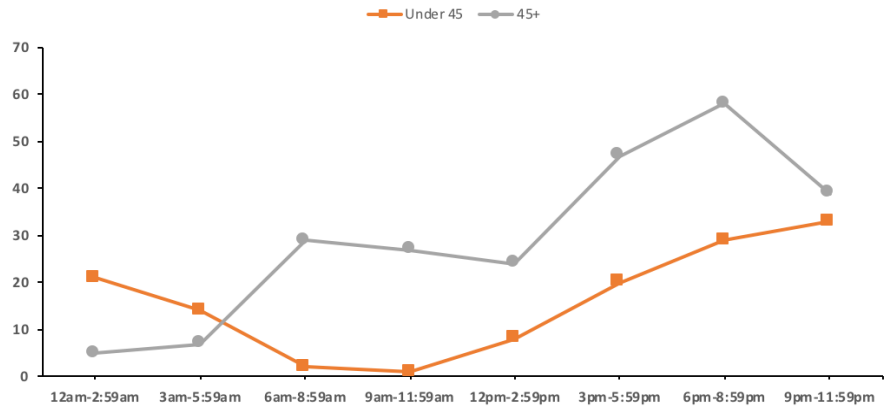
Age Group	12am-2:59am	3am-5:59am	6am-8:59am	9am-11:59am	Total
<5	0	0	0	0	0
5-9	0	0	0	0	0
10-15	0	0	0	0	0
16-20	6	1	0	1	8
21-24	4	2	1	0	7
25-34	7	6	0	0	13
35-44	4	5	1	0	10
45-54	2	2	4	6	14
55-64	2	2	5	6	15
65-74	0	1	10	6	17
>74	1	2	10	9	22
Total	**26**	**21**	**31**	**28**	**106**

Age Group	12pm-2:59pm	3pm-5:59pm	6pm-8:59pm	9pm-11:59pm	Total
<5	2	4	1	2	9
5-9	1	3	0	1	5
10-15	0	2	4	1	7
16-20	2	3	3	5	13
21-24	1	2	4	2	9
25-34	2	4	8	13	27
35-44	0	2	9	9	20
45-54	0	6	16	17	39
55-64	7	16	17	9	49
65-74	9	13	16	4	42
>74	8	12	9	9	38
Total	**32**	**67**	**87**	**72**	**258**

From 12 am to 5:59 am, pedestrians between the age of 25 and 44 accounted for nearly three-fourths of all fatalities reported. The opposite takes place between 6 am and 11:59 pm when pedestrians age 45 or older accounted for 95% of the deaths.

Looking at age grouping by comparing those 45 or older against those under 45 reveals an interesting pattern. The early morning hours (12 am to 5:59 am) are largely populated by pedestrians aged 44 or younger. Once 6 am rolls around, pedestrians aged 45 or older dominate through 8:59 pm and then decline almost equal to the under 45 crowd – which has been rising steadily throughout the afternoon and early evening.

Figure 120: Pedestrian Fatalities by Time for 45+ and Under 45 years of age (2014 -2018)



One last aspect of pedestrian fatalities needs to be examined – the level of alcohol-impairment in a fatal crash of a pedestrian. While driver behavior and decision-making have a huge impact on pedestrian crashes, actions of pedestrians also play a part. Alcohol consumption has been shown to decrease awareness of one's surroundings, slow reaction time to an external stimulus, and lead to spontaneous behaviors without thinking through the consequences of the action. From 2014 – 2018, there were 84 impaired pedestrians in a fatal crash – 22% of all pedestrian fatalities. Sixty-one males and 23 females were found impaired at the time of death.

Figure 121: Pedestrian Fatalities with BAC .08 or higher (2014 – 2018)

Gender	16-20	21-24	25-34	35-44	45-54	55-64	65-74	>74	Unknown	Total
Male	4	2	8	13	11	13	6	3	1	61
Female	0	2	0	4	4	6	4	1	2	23
Total	**4**	**4**	**8**	**17**	**15**	**19**	**10**	**4**	**3**	**84**

Alcohol-impaired pedestrians between the ages of 35 and 64 accounted for 61% of all impaired pedestrian fatalities. Given the many institutions of higher learning across the Commonwealth, the number of pedestrian fatalities among the college-age population (16-24) was surprisingly low, with 9.5% of all deaths.

Put into the context of total pedestrian fatalities by age group, it reveals that over half of the pedestrian fatalities for the 35-44 age group involved an impaired pedestrian. For pedestrians under age 35, only 19% (16 of 83) were found to be impaired at the time of the crash.

Figure 122: Impaired Pedestrian Fatalities by Age Group (2014 - 2018)

Age Group	BAC .08 Fatalities	Total Pedestrian Fatalities	Percent BAC .08+
16-20	4	23	17.4%
21-24	4	17	23.5%
25-34	8	43	18.6%
35-44	17	33	51.5%
45-54	15	53	28.3%
55-64	19	65	29.2%
65-74	10	61	16.4%
>74	4	64	6.3%

Pedestrian safety is a critical element of traffic safety as the roadways of the Commonwealth are not solely for the use of motor vehicles and drivers. In this section on pedestrian safety, it was established through data evidence that there is a need to focus programming and media messaging across four key counties – Middlesex, Norfolk, Suffolk, and Worcester. Suffolk County, with nearly half of its traffic fatalities attributed to pedestrians, will be a priority for OGR in FFY 2021.

Within the key counties, enforcement efforts by law enforcement will be advised to stagger patrols over the day to target specific age groups. Older pedestrians are more likely to be out and about between 6 am – 8:59 pm, while younger pedestrians (under 45) tend to be more active from 3 pm to 3 am. In the past, more focus had been on younger pedestrians. Recent data is showing a shift in fatalities to those 45 years of age or older.

Principal arterials, minor arterials, and local roads will continue to be targeted through overtime enforcement and media messaging as more than 82% of pedestrian fatalities occur along these roadways.

If weather permits, enforcement will be done more frequently during October, November, December, and January with a particular focus between 4 pm and 8 pm. Pedestrian fatal crashes accounted for a more significant percentage of all deadly crashes over these four months.

With this plan of action based on the quantitative measure, OGR seeks to lower the number of fatalities in the coming years.

Bicyclist Safety in Massachusetts

Nationally, bicyclists' fatalities have risen 18% from 2014 to 2018. During that period, bicyclist fatalities accounted for only 2% of all deaths each year. In Massachusetts, the situation is quite unpredictable. From 2014 to 2018, bicyclist fatalities went from single-digits to double-digits and back to single-digits. All the while, the percentage of bicyclist fatalities of the state's total traffic fatalities fluctuated between 1% and 4%, which is consistently higher than the national averages.

Figure 123: National and State Bicyclist Fatalities

Year	National			Massachusetts	
	Bicyclists Fatalities	Percent All Fatalities		Bicyclists Fatalities	Percent All Fatalities
2014	729	2%		8	2%
2015	829	2%		12	4%
2016	852	2%		10	3%
2017	783	2%		12	4%
2018	857	2%		4	1%

With the drop in fatalities from 12 to 4 in 2018, the five-year average of bicyclists fatalities declined to 9.2 from 9.6 in 2017. OGR has worked hand-in-hand with subrecipients of the Pedestrian and Bicyclist Safety Enforcement and Equipment Grant to make the roadways safer for bicyclists in Massachusetts. One of the critical improvements to the grant program in recent years has been the additional ability of subrecipients to purchase bicycle helmets for distribution within their respective communities. While only one piece of the puzzle to improve bicyclist's safety, the delivery of bicycle helmets to young riders (15 or younger) may have helped reduce fatalities to one fatality of a person less than 16 years of age since 2017.

Despite this success in nearly zero fatalities for those under 16 years of age in recent years, bicyclists fatalities in Massachusetts has been slowly shifting away from younger riders to older ones over the last decade or so. From 2004 to 2008, the average age of a bicyclist fatality was 36.4 years of age; from 2014 to 2018, the average age jumped 45.2 years of age. To better position itself to improve bicyclists safety in the Commonwealth, OGR will work with subrecipients to expand outreach and messaging to influence older bicyclists in FFY 2021 and beyond.

Fatal Crashes involving a Bicyclist

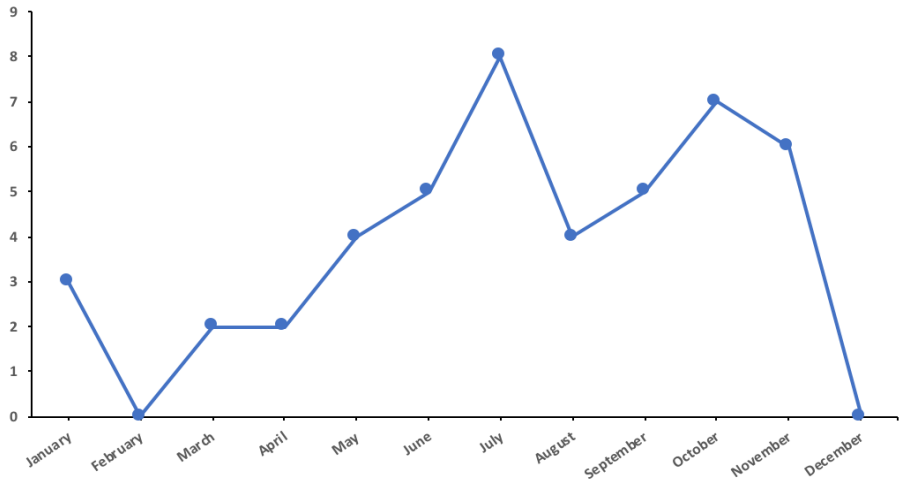
From 2014 to 2018, there were 46 fatal crashes in Massachusetts involving a bicyclist representing 2.7% of the 1,695 traffic fatalities reported. Since 2014, each county except Dukes reported at least one fatal crash involving a bicyclist. Barnstable County hasn't had one since 2015. Despite Middlesex having the highest amount of deadly crashes, ten of its eleven crashes took place before 2017. From 2017 to 2018, Bristol has the most bicyclist fatalities with three.

Figure 124: Fatal Crashes Involving a Bicyclist by County (2014 - 2018)

County	2014	2015	2016	2017	2018	Total
Barnstable	1	2	0	0	0	3
Berkshire	0	0	0	1	0	1
Bristol	0	2	1	2	1	6
Essex	0	0	1	1	0	2
Franklin	0	2	0	0	1	3
Hampden	1	0	1	1	0	3
Hampshire	0	0	0	1	0	1
Middlesex	2	3	5	0	1	11
Nantucket	0	0	0	0	1	1
Norfolk	1	0	0	1	0	2
Plymouth	1	0	2	1	0	4
Suffolk	2	3	0	2	0	7
Worcester	0	0	0	2	0	2
Total	**8**	**12**	**10**	**12**	**4**	**46**

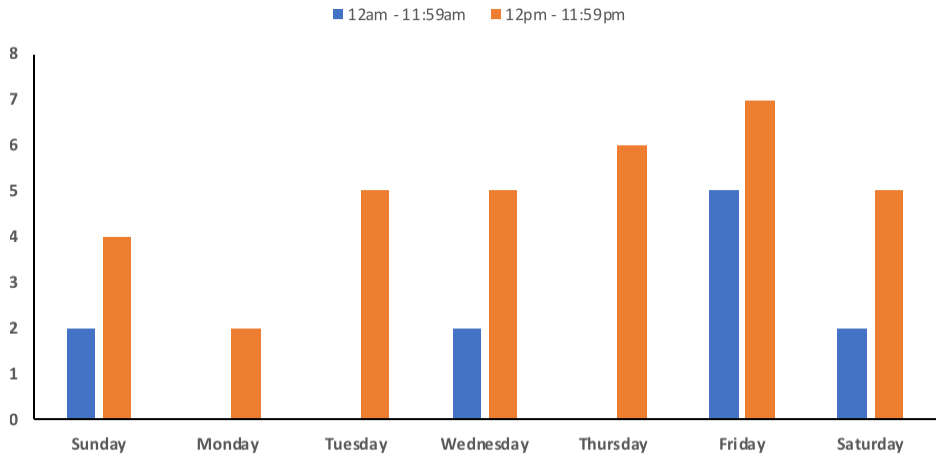
By the month of the year, fatal crashes involving a bicyclist are more frequent from May through November. Over 80% of fatal bicyclist crashes occurred during this period. July is the high point for fatal crashes, followed by October and November. These three months accounted for 46% of all deadly crashes.

Figure 125: Fatal Crashes Involving a Bicyclist by Month (2014 - 2018)



By the day of the week and time, fatal bicyclist crashes increased towards the latter part of the week. Wednesday through Friday accounted for over half the crashes reported. Despite the weekend allowing for more daylight and time to engage in bike riding (no school or work for some), Saturdays and Sundays had a total of nine fatal crashes (20% of all crashes).

Figure 126: Fatal Crashes Involving Bicyclists by Time and Day (2014 - 2018)

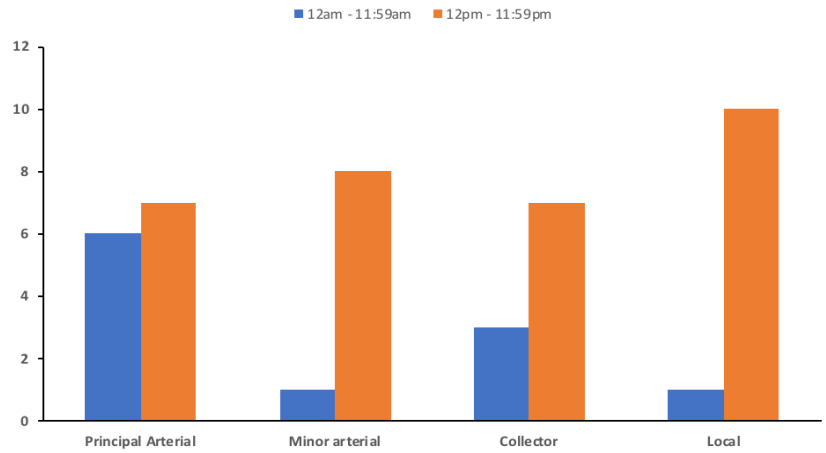


Fatal crashes involving bicyclists were far more likely to take place between 12 pm and 11:59 pm, with 74% of crashes happening during these hours. From 2014 to 2018, the hours from 12 pm to 5:59 pm were the deadliest, with 22 of 46 crashes taking place.

Unlike pedestrians, who saw far more nighttime crashes, fatal bicyclist crashes were more frequent in daylight. Twenty-nine of 46 fatal crashes took place in daylight compared to 17 of 46 for nighttime.

By roadway type, fatal bicyclist crashes were rare on interstates and freeways. Two fatal crashes from 2014 to 2018 took place on these roadways. Unlike pedestrian crashes, which had principal arterials accounting for 42% of all deadly crash locations, fatal bicyclist crashes are nearly equal between principal arterials and local roads. The most significant difference between the two roadway types is that all but one collision on local roads takes place during hours of 12 pm to 11:59 pm; whereas, crashes on principal arterials are split between morning hours and afternoon/evening hours. Except for principal arterials, fatal bicyclist crashes mostly occurred during P.M. hours for minor arterials, collectors, and local roads.

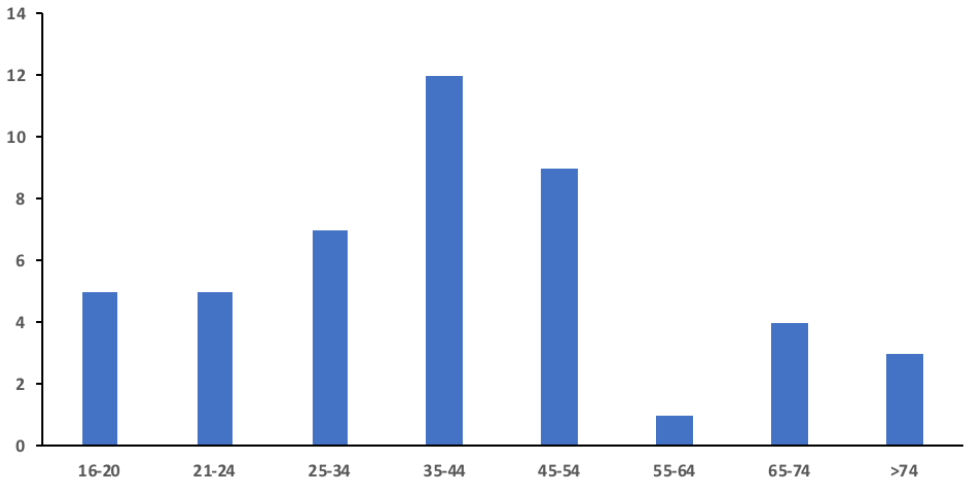
Figure 127: Fatal Crashes Involving Bicyclists by Roadway Type and Time (2014 - 2018)



Drivers in Fatal Crashes with a Bicyclist

From 2014 to 2018, there were 48 drivers (38 males, 9 females) involved in a bicyclist fatal crash resulting in 46 bicyclist fatalities. Many of the drivers involved were between 25 years and 54 years, accounting for 58% of all drivers.

Figure 128: Age of Driver Involved in Fatal Bicyclists Crash (2014 - 2018)



Breaking down the age groups by time (6-hour shifts) shows that drivers between 25 years and 54 years of age are more likely to be involved in a bicyclist fatal crash during morning hours. Drivers under 25 years of age had nine of its ten drivers in an afternoon or evening crash. A majority of older driver (55+) fatal crashes took place between 12 pm and 5:59 pm.

Figure 129: Drivers Involved in Fatal Bicyclist Crash by Time and Age Group (2014 - 2018)

	16-20	21-24	25-34	35-44	45-54	55-64	65-74	>74	Unknown	Total
12am-5:59am	0	0	1	1	1	0	0	0	1	4
6am-11:59am	1	0	1	2	2	0	0	1	0	7
12pm-5:59pm	2	3	2	6	4	1	4	1	0	23
6pm-11:59pm	2	2	3	2	2	0	0	1	1	13
Total	**5**	**5**	**7**	**11**	**9**	**1**	**4**	**3**	**2**	**47**

Overall, the time from 12 pm to 5:59 pm accounted for nearly half of the drives involved in a fatal bicyclist crash, while the 12 am to 5:59 am hours had only 8% of drivers in crashes. The initial impact of the front of a driver's vehicle with bicyclists occurred in a third of all bicyclist fatality crashes, followed by the right side (19%) and left side (15%). Rear-end impact of a bicyclist only took place for two of the 48 vehicles involved in a fatal crash.

Sedans, trucks, pickups, SUVs, and wagons were the top vehicle class types involved in fatal bicyclist crashes. These five vehicle class types accounted for 75% of all vehicles involved in deadly bicyclists crashes. The type of vehicle may have had an impact on the kind of collision with a bicyclist. For sedans, the front impact was the most common, whereas, for trucks, it was a left-side impact. This data indicates drivers of trucks may be less prone to see a bicyclist coming up along the drivers' side than any other direction.

Figure 130: Vehicle Class Type and Initial Impact with Bicyclist in Fatal Crash (2014 - 2018)

Vehicle Class Type	Total Vehicles	Initial Vehicle Impact with Bicyclist		
		Front	Right-Side	Left-Side
Sedan	12	10	0	1
Truck	9	0	3	5
Pickup	6	2	0	2
SUV	5	1	3	1
Wagon	4	1	0	2

Speeding was a factor in six of the 48 vehicles involved in a bicyclist fatal crash. Of those six, drivers of sedans were responsible for three of them.

Seven of the 48 drivers involved in a fatal crash were found to have a BAC of .08 or higher. Three of the seven drivers were under age 35, and all but one was under age 55. Speeding was involved in two of the seven impaired driver crashes. Five of the seven drivers were driving between 6 pm and 11:59 pm. All but one of the impaired drivers involved were male.

Bicyclists Fatalities

From 2014 to 2018, there were 46 bicyclist fatalities across the Commonwealth. The average age of the deceased was 45.2 years, a substantially older than the average of 36.4 reported in 2008. This rise in average age is likely due to the confluence of two factors: the decline of bicyclist fatalities for younger riders (under 25 years of age) and more urban dwellers choosing to use bicycles to travel to and from work in the city.

Figure 131: Bicyclist Fatalities by Gender and Age Group (2014 - 2018)

Age Group	Male	Female	Total
5-9	1	1	2
10-15	2	0	2
16-20	4	0	4
21-24	2	0	2
25-34	5	1	6
35-44	2	1	3
45-54	7	1	8
55-64	8	2	10
65-74	3	1	4
>74	4	0	4
Unknown	1	0	1
Total	**39**	**7**	**46**

The decline in younger bicyclist deaths is likely attributed to the increase in helmet usage, especially riders under 16 years of age. For example, in the last couple of years, the bicycle helmets purchased by OGR subrecipients have been distributed to bicyclists between age 5 and 15 years of age. From 2004 to 2008, there were 11 bicyclists fatalities under the age of 16; for 2014 to 2018, it was 4.

While younger rider fatalities are declining, older bicyclists' deaths are fast increasing. From 2004 to 2008, there were 17 fatalities over the age of 44; for 2014 to 2018, the number of deaths was 26. The highest

number of deaths from 2014 to 2018 were bicyclists between the ages of 55 and 64 with ten; a decade ago, the same age group had only six deaths.

By the time of day, bicyclist fatalities were more frequent in the afternoon/evening than in the morning. Thirty-four of 45 deaths (*note: one death did not have an hour provided*) were between 12 pm and 11:59 pm. Nearly half of bicyclist fatalities took place during the six hours from noon to 5:59 pm.

Figure 132: Bicyclist Fatalities by Age Group and Time (2014 - 2018)

Age Group	12am-5:59am	6am-11:59am	12pm-5:59pm	6pm-11:59pm	Total
5-9	0	0	1	1	2
10-15	0	0	1	1	2
16-20	0	0	1	2	3
21-24	0	1	0	1	2
25-34	3	0	2	1	6
35-44	0	1	1	1	3
45-54	1	1	3	3	8
55-64	0	2	6	2	10
65-74	0	1	3	0	4
>74	0	1	3	0	4
Unknown	0	0	1	0	1
Total	**4**	**7**	**22**	**12**	**45**

Fatalities among bicyclists over 34 years of age were more likely to occur between 6 am and 11:59 pm, accounting for six of the seven fatalities reported.

One last element of bicyclist fatalities, impaired bicyclists – those with a BAC .08 or higher – were found in seven of the 46 bicyclist deaths (15%). The average age was 51 years (36, 51, 51, 52, 53, 56, and 58). The seven bicyclist fatalities were in six different counties, so there is no cluster or 'hot spot' of drunken bicyclists in a particular county.

Even though bicyclist fatalities are a small percentage of all traffic fatalities in Massachusetts, it is an exercise option that has grown in popularity in recent years, especially among adults 25 or older. Unlike fatal pedestrian crashes, fatal crashes involving bicyclists are more common during warmer months with July having the highest total for the five years of 2014-2018. Bicyclist crashes were far more prevalent during afternoon and evening hours, especially between 12 pm and 5:59 pm. For reasons unknown, fatal bicyclist crashes seemed to increase as the workweek went on. Wednesday through Friday accounted for 54% of all crashes.

Drivers involved in fatal bicyclist crashes tended to be in the age range of 25 to 54 and most likely hit a bicyclist with the front of their vehicle. Alcohol-impairment was a factor for drivers in 15% of fatal bicyclist crashes, with a majority of collisions occurring between 6 pm and 11:59 pm.

Bicyclist fatalities are dominated by males, accounting for 85% of all deaths. The trend towards older bicyclists fatalities continues as those 45 years or older made up 56% of all fatalities from 2014 to 2018.

For FFY 2021, OGR will work with law enforcement to ensure any bicycle-focused overtime patrols will occur more often between 12 pm and 5:59 pm from May to November while targeting well-traveled principal arterials and local roads in their respective communities.

Any media messaging or outreach will target male bicyclists over 25 years of age, with a focus on the counties of Middlesex and Suffolk. Radio or billboard messaging should be in heavy rotation between Wednesday and Friday.

Performance Measures for Pedestrian and Bicyclist Safety

Number of Pedestrian Fatalities

FFY 2021 Target: 4% decline in the five-year average from 76 in 2017 to 73 by December 31, 2021

Number of Bicyclist Fatalities

FFY 2021 Target: 10% decline in the five-year average from 9 in 2018 to 8 by December 31, 2021

Planned Activities for FFY 2021

Pedestrian and Bicyclist Safety Media

ID: PS-21-01

Primary Countermeasure Strategy: Communication Campaign

Description of Planned Activity:

Develop and implement a pedestrian and bicyclist safety paid and earned media campaign in conjunction with the Massachusetts Department of Transportation's Traffic Safety Division. The plan will encourage all road users to share the road safely, educate the public on related traffic laws, and promote the enforcement efforts of local police departments. OGR will analyze local and national crash and fatality data to identify the timing and the target audience. OGR will contract with a marketing and advertising agency to execute these impaired driving media campaigns while running social media in-house for sustained educational outreach.

Internal policies will be followed, noting that all media and communications activities should be in support of data-driven objectives and in coordination with other activities and programs, in particular, enforcement. Crash and citation data will be used not only for planning enforcement activities but also for determining the target audiences and media channels used to reach those audiences. NHTSA's guidelines will be followed for messaging, demographics, best practices, and target groups for each media campaign.

Countermeasure Strategy Justification: *Communication Campaign*

Public outreach, whether by radio, television, outdoor displays, or social media, is necessary to spread the message of paying attention to the road ahead while behind the wheel. OGR sees media campaigns for pedestrian and bicyclist safety as having a two-fold impact. First, to support messaging during both Pedestrian Safety month (August) and Bicycle Safety month (May). And second to continue reminding Massachusetts drivers of the importance of being aware of your surroundings as pedestrians and bicyclists can appear suddenly without warning.

Media outreach through various mediums (social media, television, print, billboards, and radio) will reach a broad audience across all demographics with the limited funds available to OGR.

In 2018, pedestrian fatalities increased from 74 in 2017 to 78. To prevent any further rise in pedestrian fatalities, OGR plans to launch a paid and earned media campaign during FFY 2021 to raise awareness among drivers, pedestrians, and bicyclists of the need to share the roadways responsibly. Pedestrian and bicyclist safety media campaigns will help lower both the number of pedestrian and bicyclist fatalities in Massachusetts.

The planned campaign will use both online and offline (radio, television, electronic signs) media to spread the message and will be done concurrently with local police overtime enforcement activity. OGR will suggest focusing any overtime enforcement patrols on the hours between 12 pm and 9 pm, which is when a high percentage of non-motorist fatalities occur.

PS-21-01 Pedestrian and Bicycle Safety Media Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Non-Motorist Safety (Paid Advertising)	$75,000	$18,750	$0
2020	NHTSA 402	Non-Motorist Safety (Paid Advertising)	$75,000	$18,750	$0

Local Police Pedestrian and Bicyclist Safety Program

ID: PS-21-02

Primary Countermeasure Strategy: Pedestrian Safety Zones

Description of Planned Activity:

Award grants to municipal police departments to conduct enforcement and other activities such as community outreach and education, media campaigns, participation and coordination of events such as bike rodeos, and working with schools and school resource officers to implement programs aimed at reducing the incidence of pedestrian and bicyclist injuries and fatalities. All 349 municipal police departments in Massachusetts will be eligible to apply with expectations of awarding funds to up to at least 120 applicants.

Enforcement patrols will take place throughout the year, with departments utilizing crash data and trends to select timing and locations of enforcement activities. The purchase of safety items and educational materials will be allowed, pending problem identification, and a plan for public distribution. Safety items will include bicycle helmets, lights, reflectors, and other items to enhance pedestrian and bicyclist conspicuity at night.

Countermeasure Strategy Justification: *Pedestrian Safety Zones*

Pedestrian safety zones concept is aimed at more effectively targeting resources to problem areas by focusing on enforcement, education, and interventions on key geographic areas of a community. For example, data analysis of crash locations involving pedestrians in a town might find a cluster within the range of a public school. To counter the problem, the local police department would target the area by making presentations at the school, conducting enforcement patrols on the main streets near or by the school, and displaying public safety messaging (billboards, banners, and electronic signs) in the same area. Studies have shown this approach leads to decreased fatalities, especially among pedestrians and bicyclists.

The planned activity, Local Pedestrian and Bicyclist Enforcement, will utilize this approach with subrecipients to target regions or areas of high incidences involving motor vehicles, pedestrians, and/or bicyclists. Particular focus will be on Suffolk County (Boston primarily), as nearly half of all fatalities within this county from 2014 to 2018 are non-motorists.

PS-21-02 Local Police Pedestrian and Bicycle Safety Program Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405h Non-Motorist	Pedestrian & Bicyclist Safety	$405,000	$101,250	$0
2020	405h Non-Motorist	Pedestrian & Bicyclist Safety	$695,000	$173,750	$0
2021	NHTSA 402	Pedestrian & Bicyclist Safety	$50,000	$12,500	$50,000
2020	NHTSA 402	Pedestrian & Bicyclist Safety	$50,000	$12,500	$50,000

Program Management – Pedestrian and Bicyclist Safety

ID: PS-21-03

Primary Countermeasure Strategy: Highway Safety Office Program Management

Description of Planned Activity:

Provide sufficient staff to manage programming described in this plan as well as cover travel, professional development expenses, conference fees, and postage and office supplies. All funding intended for supporting staff and will not be sub awarded.

Countermeasure Strategy Justification: *Program Management*

The day-to-day operation of OGR requires funding to allow staff to oversee the pedestrian and bicyclist safety program properly. Lack of oversight due to reduced or no funding could lead to increased pedestrian and bicyclist fatalities and injuries on the roadways of Massachusetts.

PS-21-03 Program Management – Pedestrian and Bicyclists Safety Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Non-Motorist Safety	$120,000	$30,000	$0

Program Area: Distracted Driving

Distracted motor vehicle operation occurs when a driver fails to pay full attention to the task of driving or operating a motorcycle and instead diverts his/her attention from the roadway. The use of hand-held and built-in electronic devices such as phones, tablets, infotainment systems, laptop computers, and GPS continues to be a significant risk to the safety and health of all road users. Compounding this problem is the continued exponential growth and use of Smartphone apps.

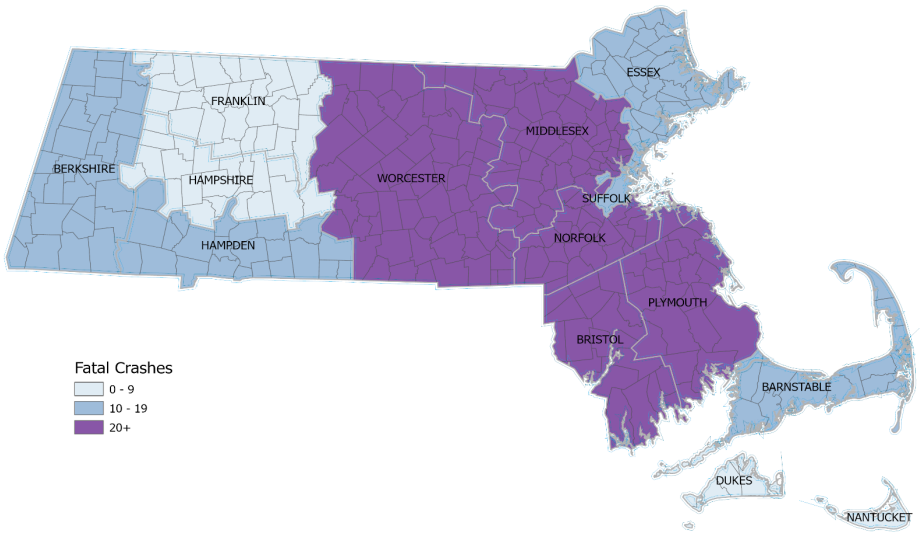
An additional issue related to distracted driving is that crash data may reflect an underreporting of the problem. Unless a driver, passenger, or witness to the crash confirms the distracted behavior, law enforcement must get access to cell phone records to verify usage at the point of impact or before a collision occurred, and that does not always happen. The actual number of distracted drivers involved in a fatal crash may never be known, and the information is likely substantially underreported.

From 2014 to 2018, there were 15,042 fatal crashes involving a distracted driver out of 165,556 total fatal crashes across all fifty states in the Union. The percentage of distracted driver fatal crashes was 9.1%. With 209 crashes, Massachusetts ranked 27th out of 50 states for fatal crashes involving a distracted driver. In terms of percentage of total crashes, Massachusetts was 11th in the nation with 12.3% (209 of 1,695) of its fatal crashes involving a distracted driver.

Figure 133: Distraction-Affected Fatal Crashes

	2014	2015	2016	2017	2018	Total
Distraction-Affected Fatal Crashes	28	64	44	35	38	209

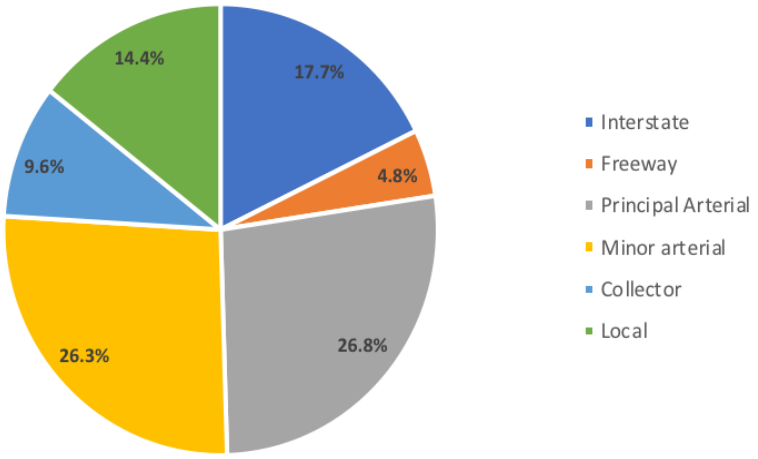
Map 5: Distraction-Affected Fatal Crashes by County (2014 - 2018)



Over 60% of the 209 distraction-affected fatal crashes in Massachusetts took place in one of five of the state's fourteen counties: Bristol (28 crashes), Middlesex (24), Norfolk (27), Plymouth (25) and Worcester (27). For Norfolk, Plymouth, and Worcester counties, principal and minor arterials were over 50% of crash locations. Bristol reported 46% among minor arterials and local roadways, while Middlesex had

over 40% of crashes occurring on interstates. Overall, Massachusetts had 53% of distraction-affected fatal crashes taking place along either principal or minor arterials.

Figure 134: Distraction-Affected Fatal Crashes by Roadway Type (2014 - 2018)



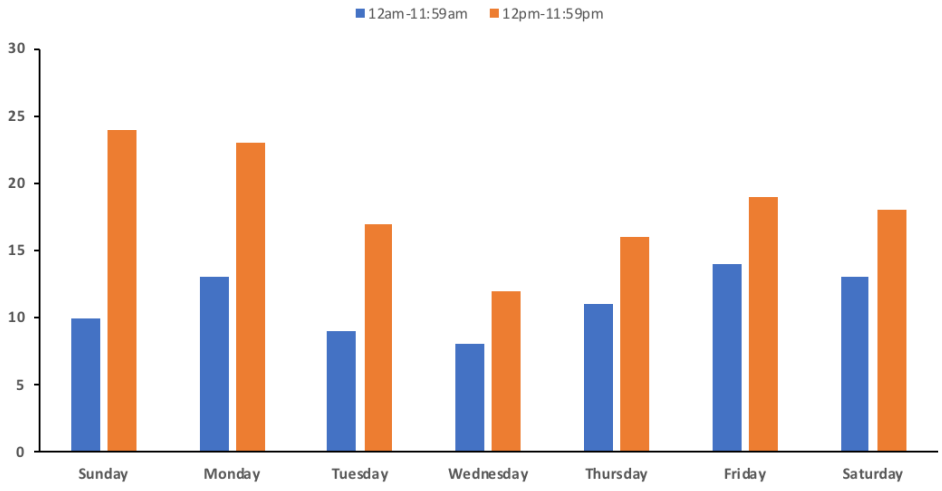
Overall, distraction-affected fatal crashes skewed more towards the beginning and end of the week. The combination of Sunday/Monday and Friday/Saturday accounted for 65% of crashes.

Figure 135: Distraction-Affected Fatal Crashes by Day-of-Week (2014 - 2018)

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Total
Crashes	34	37	26	20	28	33	31	209
Percent	16.3%	17.7%	12.4%	9.6%	13.4%	15.8%	14.8%	

There is a higher likelihood of distracted-affected fatal crashes occurring on weekdays, between Friday and Monday. Fatal crashes are also more likely to occur between 12 pm and 11:59 pm. This time accounts for more than half of all distraction-affected fatal crashes.

Figure 136: Distraction-Affected Fatal Crashes by Time and Day-of-Week (2014 – 2018)



Nearly two-thirds of fatal crashes involving a distracted driver occurred between noon and midnight. From 2014 to 2018, 108 of 129 (84%) crashes reported between 12 pm and 12 am took place between the hours of noon and 9 pm. In comparison, there were 78 crashes from midnight to 11:59 am. Of which, the time between 9 am and 11:59 am had 39% (30) of all crashes reported.

There were 218 distracted drivers involved in the 209 distraction-affected fatal crashes reported from 2014 to 2018. Young drivers, those under 21 years of age, accounted for 21% of all drivers involved. Drivers age 25-34 led all age groups, with 23% of distracted drivers involved in a fatal crash.

Figure 137: Age Group of Distracted Driver in Fatal Crash (2014 - 2018)

Age Group	9pm-2:59am	3am-8:59am	9am-2:59pm	3pm-8:59pm	Unknown	Total
16-20	8	3	9	6	1	27
21-24	7	2	6	3	1	19
25-34	12	8	13	16	0	49
35-44	5	1	3	16	0	25
45-54	3	5	12	12	0	32
55-64	4	4	9	9	1	27
65-74	1	5	8	7	1	22
>74	0	2	12	3	0	17
Total	**40**	**30**	**72**	**72**	**4**	**218**

Broken down by six-hour timeframes, the 25-34 age group were tops in each of the four time periods with 3 pm-8:59 pm being its 'worst' (most drivers) time segment. Drivers under the age of 35 dominated the 9 pm-2:59 am shift with 27 of 40 drivers (68%). Older drivers (age 65 and up) accounted for 18% of all distracted drivers and had half of its 39 drivers involved in a fatal crash between 9 am-2:59 pm.

Of the 218 distracted drivers, 97 died in the collision primarily because of their poor driving behavior, not wholly focusing on the task of driving. Drivers 65 years or older had a much higher rate of fatality than younger age groups. Total driver fatalities for those 65 or older were 26, a 67% rate of mortality.

Figure 138: Distracted Driver Fatalities by Age Group (2014 - 2018)

As noted previously, there were 209 distraction-affected fatal crashes from 2014 to 2018. In these crashes, a total of 522 persons involved in deadly crashes. In all, 223 people died as a result of a driver being

distracted. Males accounted for 320 of the 522 persons involved. It should be noted that of the 118 driver fatalities, 97 were reported as the distracted driver in the fatal crash – a rate of 82%.

Figure 139: Distraction-Affected Fatalities by Person Type (2014 - 2018)

Person Type	Persons Involved	Persons Killed	Percent
Driver	312	118	37.8%
Passenger	140	42	30.0%
Pedestrian	66	59	89.4%
Bicyclist	4	4	100.0%
	522	223	42.7%

One reason for the high mortality rate among distracted drivers is the fact that a majority of the fatal crashes involving a distracted driver were single-vehicle only crashes. Of the 209 fatal distracted driver crashes reported, 122 were single-vehicle (58%), 71 were two-vehicle crashes (34%), and 16 involved more than two motor vehicles.

The top "first harmful events" (FHEs) or the first point of impact in a crash for these single-vehicle fatal crashes were:

- Pedestrians (53 crashes)
- Trees (14)
- Guardrail (11)

Surprisingly, speeding was not a significant factor reported in single-vehicle crashes with pedestrians. Only two of the 53 fatal crashes reported speeding as a factor.

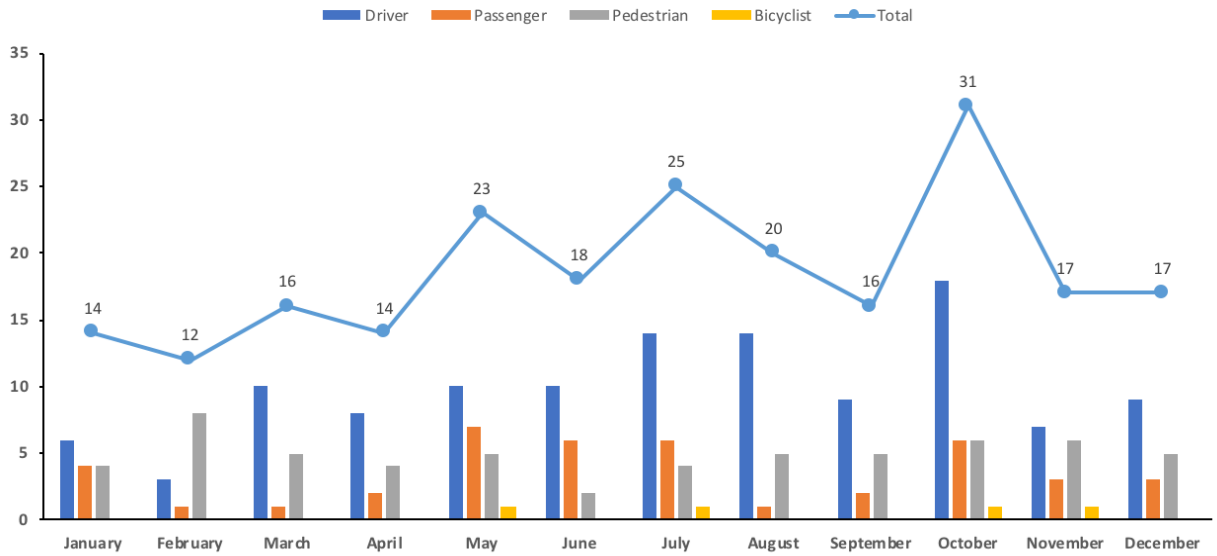
Taking a closer look at the persons killed in a fatal crash involving a distracted driver by age group, one thing that stands out is the high number of pedestrian fatalities among older adults. Of the 59 pedestrian deaths reported, 51% were 65 years of age or older.

Figure 140: Persons Killed in Crash Involving a Distracted Driver (2014 - 2018)

Age Group	Driver	Passenger	Pedestrian	Bicyclist	Total
Under 5	0	2	0	0	2
5-9	0	0	1	1	2
10-15	1	0	3	0	4
16-20	12	8	4	0	24
21-24	9	5	5	0	19
25-34	23	4	4	0	31
35-44	12	2	2	0	16
45-54	16	5	5	0	26
55-64	13	5	5	1	24
65-74	17	3	11	2	33
>74	15	8	19	0	42
Total	**118**	**42**	**59**	**4**	**223**

A look at fatalities by month provides some notable trends. Three months stand out – May, July, and October. May is puzzling as it is the month following the annual nationwide Distracted Driving Awareness Month of April. Although the communications and heightened enforcement campaigns seem to work well during April, the effects appear to diminish by May.

Figure 141: Persons Killed in Distracted Driving Crashes by Month and Person Type (2014 - 2018)



October is slightly deceiving. The spike to 31 fatalities was mainly due to 11 deaths reported in October of 2016. For 2017 and 2018, October reported a total of 6 deaths. 2016 is likely an outlier for the month. In general, distracted driving fatalities are typically higher during the warmer months of May, June, July, and August. This data correlates with the prom and graduation season as well as the end of the school year for young drivers and parents of school-age children.

While distraction-affected fatal crashes have fluctuated in recent years, they have dropped 41% since a high of 64 in 2015. In 2018, there were 38 distracted driver fatal crashes in Massachusetts, up slightly from the 35 crashes reported in 2017. Fatalities reported in 2018 were 39, up from 38 in 2017. Despite the rise in crashes in 2018, the five-year trend dropped 0.9% from 2013-2017 to 2014-2018.

OGR is hopeful the Hands-Free Law that was instituted in early 2020 will help reduce the number of distracted driving crashes, fatalities, and injuries.

Determining if a driver was distracted at the time of the crash is extremely difficult for law enforcement investigators. Without eyewitnesses, a driver could easily lie about what he/she was doing before the crash to avoid any fines or penalties. A driver may honestly not recall what he/she was doing due to shock or a head injury. In general, the reported number of crashes involving distraction-affected drivers should be higher than it is.

Even though accurate reporting regarding distracted driving is complicated at this time, the trends revealed through the data analysis section will help guide OGR's focus of resources towards addressing these areas of concern. Critical takeaways for distraction-affected fatal crashes:

- High incidence of single-vehicle crashes, especially involving a pedestrian
- High mortality rate of pedestrians aged 65 or older in a distracted driving crash
- High number of drivers under 35 involved in crashes between 9 pm – 2:59 am
- Warm months tend to have more distracted driving fatalities. October is an outlier – but NHTSA's plan to conduct a Distracted Driving national campaign in October 2020 may help.
- Principal and minor arterial roads are the most frequent road types involved in a fatal crash
- The period from Friday through Monday is when distracted driving crashes are more likely to occur
- Focus on getting more municipalities and non-profit organizations from high crash counties of Bristol, Middlesex, Norfolk, Plymouth, and Worcester to apply for OGR grants related to road safety.

Performance Measure for Distracted Driving

Number of Distraction-Affected Fatal Crashes

FFY 2021 Target: 5% decline in the five-year average from 42 in 2018 to 40 by December 31, 2021

Planned Activities for FFY 2021

Distracted Driving Media

ID: DD-21-01

Primary Countermeasure Strategy: Communication Campaign

Description of Planned Activity:

Develop and implement a statewide paid and earned media campaign to support attentive driving efforts during the April 2021 Distracted Driving mobilization. OGR will continue its partnership with the Massachusetts Registry of Motor Vehicles to promote the recently enacted "Hands-Free Law" while also messaging to the dangers of distracted driving. State and national data will be analyzed to identify the target audience.

OGR will take into consideration national media buy recommendations when planning paid media. Earned media will augment the paid campaigns while incorporating state laws and highlighting the work of state and local law enforcement agencies. Media funds will also be used to direct messaging to teen drivers and their parents as part of the "100 Deadliest Days" from Memorial Day to Labor Day. OGR will contract with a marketing and advertising agency to execute these impaired driving media campaigns while running social media in-house for sustained educational outreach.

Internal policies will be followed, noting that all media and communications activities should be in support of data-driven objectives and in coordination with other activities and programs, in particular,

enforcement. Crash and citation data will be used not only for planning enforcement activities but also for determining the target audiences and media channels used to reach those audiences. NHTSA's guidelines will be followed for messaging, demographics, best practices, and target groups for each media campaign.

Countermeasure Strategy Justification: *Communication Campaign*

Public outreach, whether by radio, television, outdoor displays, or social media, is necessary to spread the message of paying attention to the road ahead while behind the wheel. Media campaigns for distracted driving having a two-fold impact. First, they support and enhance the importance of attentive driving during the planned distracted driving enforcement mobilization periods. Second, they remind drivers of the dangers and illegality of using cell phones while behind the wheel.

Distracted driving media campaigns can help lower the number of distraction-affected fatal crashes by encouraging drivers to be more aware of the dangers of taking their focus off the road in front of them. Media outreach through various mediums (social media, television, print, billboards, and radio) will reach a broad audience across all demographics with the limited funds available to OGR.

DD-21-01 Communication Campaign Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Distracted Driving (Paid Advertising)	$250,000	$62,500	$0
2020	NHTSA 402	Distracted Driving (Paid Advertising)	$250,000	$62,500	$0

MSP Distracted Driving Enforcement

ID: DD-21-02

Primary Countermeasure Strategy: High Visibility Cell phone/Text Messaging Enforcement

Description of Planned Activity:

The Massachusetts State Police (MSP) will conduct distracted driving law enforcement during April 2021, using internal RAMS data to determine the appropriate days, times, and locations. The preliminary timeline for this project will be based on data and guidance from NHTSA, as well as other distracted driving events. The April campaign will coincide with the distracted driving mobilization period conducted by local police departments participating in the Municipal Road Safety Grant Program.

MSP employs several high-visibility strategies such as spotter techniques, roving marked and unmarked cruisers, and SUVs, as well as stationary vehicles. Not only does distracted driving come in many forms, but the direct result of that distraction may cause other offenses such as operating at inappropriate speeds,

slow reaction time, and failure to maintain a vehicle within its proper lane. Therefore, these reckless and violating behaviors will receive special attention during the enforcement period.

Neither the subaward or final budget have been approved. Tentatively, additional tools that may be funded are two Berla iVe Toolkits. Even when the use of smartphones can be conclusively ruled out, the collection of data is invaluable to further the understanding of distracted driving. The technology can assist in determining which devices were connected and other valuable crash-related information from the vehicle's on-board systems.

Countermeasure Strategy Justification: High Visibility Cell phone/Text Messaging Enforcement

The objective of this countermeasure is to deter electronics use by increasing the perceived risk of a ticket. The high visibility approach combines law enforcement with paid and earned media campaigns supporting the enforcement activity. Enforcement officers will seek out drivers actively using, or looking at their phones while driving, either through assigned patrols or having a 'spotter' reporting usage to an officer at a location further up the road. During FFY 2021, State Police will participate in a coordinated effort to make the general public aware of the dangers of distracted driving as well as increasing the awareness of the risk of receiving a ticket for violating the law regarding electronic device usage while driving.

High visibility enforcement activities are an effective countermeasure to increase awareness among drivers and passengers. OGR sees the combination of enforcement and education through a targeted media campaign as the best use of funding to impact a high percentage of the driving population in Massachusetts.

DD-21-02 MSP Distracted Driving Enforcement Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Distracted Driving	$250,000	$62,500	$0
2020	NHTSA 402	Distracted Driving	$200,000	$50,000	$0

Program Management – Distracted Driving

ID: DD-21-03

Primary Countermeasure Strategy:
Highway Safety Office Program Management

Description of Planned Activity:

Provide sufficient staff to manage programming described in this plan as well as cover travel, professional development expenses, conference fees, and postage and office supplies. All funding intended for supporting staff and will not be sub awarded.

Countermeasure Strategy Justification: *Program Management*

The day-to-day operation of OGR requires funding to allow staff to oversee the distracted driving safety program properly. Lack of oversight due to reduced or no funding could lead to increased distracted driving-related fatalities and injuries on the roadways of Massachusetts.

DD-21-05 Program Management – Distracted Driving Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Distracted Driving	$120,000	$30,000	$0

Program Area: Traffic Records

Traffic records data are vital to the analysis necessary for successful highway safety planning and programming. Our agency, in coordination with our partners, collects and uses traffic records data to identify problem areas, develop and implement appropriate programs, and evaluate the effectiveness of these programs.

Massachusetts operates a complete set of systems to receive, store, and manage traffic records information. These systems are managed by the following agencies:

MassDOT/RMV

- Crash
- Driver history
- Vehicle registration systems

Merit Rating Board

- Operator driving history records consisting of at-fault crash claim records, comprehensive claim records, out-of-state incidents as well as civil and criminal traffic citation information

Administrative Office of the Trial Court

- Adjudication information.

MassDOT Office of Transportation Planning

- Road inventory file

Massachusetts Department of Public Health and the Center for Health Information and Analysis

- Emergency medical/injury surveillance-related information systems.

As required by NHTSA's Section 405c grant program, Massachusetts has an active two-tiered Traffic Records Coordinating Committee (TRCC), which is supported by a Traffic Records Program Coordinator located within the Office of Grants and Research's Highway Safety Division. The Executive-level TRCC, chaired by the EOPSS Undersecretary of Forensic Science and Technology, was established through the coordinated efforts of its member organizations. The ETRCC is comprised of agency heads or senior personnel who set the vision and mission for a Working-level TRCC. The Working-level TRCC is the primary means by which communication is facilitated and perpetuated between the various users and collectors of data, and owners and custodians of the data systems that make up the Commonwealth's traffic records systems. These TRCCs foster understanding among stakeholders and promote the use of safety data in identifying problems and developing effective countermeasures to improve highway safety. Both committees seek to improve the accessibility, accuracy, completeness, uniformity, integration, and timeliness of the six traffic records systems in Massachusetts: citation/adjudication, crash, driver, EMS/injury surveillance, roadway, and vehicle. One way this is accomplished is by having the TRCCs

ensure that all Section 405-c funds received by Massachusetts are used for eligible, prioritized projects that will enhance these systems.

The FFY 2021 Section 405c application and FFY 2021 Strategic Plan for Traffic Records Improvements contain details on the current capabilities and challenges of the Massachusetts traffic records systems. These also describe the progress made to date on projects. The FFY 2021 Strategic Plan for Traffic Records was submitted in June 2020.

Although Traffic Records' performance targets are not among the core performance measures required by NHTSA, these targets (shown below) allow the TRCC to monitor progress made as well as provide key statistics for inclusion in the yearly Strategic Plan.

Performance Measures for Program Area

Performance Target #1 – Decrease the number of Massachusetts State Police-submitted crash reports with invalid or incomplete entries in Accepted with Warning (AWW) fields (utilizing criteria by RMV with Crash Data System data in UMassSafe Data Warehouse) from 3.7% as of 8/31/19 to 2.78% by 12/31/21. Provide mid-project progress toward the target as of 5/31/21.

Performance Target #2 – Exceed the January to October 2020 benchmarks for the RMV FARS Unit - for timeliness, for completeness, and quality – by 1% for January to October 2021. Provide mid-project progress toward the target as of 5/31/21.

Performance Target #3 – Install approximately 800 printers for the Motor Vehicle Automated Citation and Crash System in vehicles at an estimated 100 local law enforcement agencies by 9/30/21. Provide mid-project progress toward the target as of 5/31/21.

Traffic Record Performance Target #4 – Decrease Massachusetts crash reports which are Accepted With Warning (AWW) by 3% as of December 31, 2021. The development work needed to determine the baseline number has been significantly delayed due to COVID-19, therefore, the estimated time to have the baseline number determined by is January 31, 2021. A report on progress towards the target as of May 31, 2021 will be provided.

Traffic Record Performance Target #5 – Reduce the number of MA crash reports from state and local police that have incomplete/invalid data in any of the fields included in the RMV 2018/2019 Accepted With Warning initiative by 5% (2.2 relative percentage points) from 42.2% (10,676/25,295) for the period of 1/1/20 – 3/31/20 to 40% for the period of 7/1/21-9/30/21. Provide mid-project progress towards the target as of 5/31/21.

Performance Target #6 - Increase the number of ambulance services submitting NEMSIS Version 3 reports to the Massachusetts Ambulance Trip Record Information System (MATRIS) from 213 as of 3/31/20 to 300 by 3/31/21 (or the number of licensed ambulance services in MA on 3/31/21).

Performance Target #7 - Increase Boston Police Department's electronic crash reporting to the RMV's Crash Data System from an estimated 7% rate in 7/1/20 to 70% or more by 6/30/21. Provide mid-project progress toward the target as of 5/31/21.

Countermeasure Strategies to be Implemented

Traffic records-related planned activities are aimed at making core highway safety data accessible, accurate, timely, integrated, uniform, and complete. The countermeasures in NHTSA's *Countermeasures That Work, 9th Edition* do not apply to traffic records projects. Each planned activity provided below has an overarching goal of improving the quality of data that will be accessible by traffic safety agencies and stakeholders in Massachusetts and help improve resource management and fund allocation by accurately highlighting 'hot spots' and areas of concern in a timely manner.

These are the six 'countermeasure' strategies that apply to traffic records projects for FFY 2021:

1. Improves timeliness of a core highway safety database
2. Improves integration between one or more core highway safety databases
3. Improves completeness of a core highway safety database
4. Improves accuracy of a core highway safety database
5. Improves accessibility of a core highway safety database
6. Improves uniformity of a core highway safety database

Each strategy is straight-forward and self-explanatory. The TRCC will not approve any project that does not have the goal of improving the traffic records system in one of these ways.

Planned Activities for FFY 2021

MSP Crash Report Training

ID: TR-21-01

Countermeasure Strategy: Improves completeness of a core highway safety database

Description of Planned Activity:

This project will improve crash report training for Massachusetts State Police (MSP) recruits at the training academy and for current troopers through in-service training. MSP will be assisted in this project by the University of Massachusetts' traffic safety research program, UMassSafe. The project will begin with a review of current MSP crash report training and that done by other states, prior research available through the MA Crash E-Manual, and interviews with state crash data stakeholders. New curriculum development will follow, leading to a version for use at the academy with recruits, and one for in-service training with current troopers that will have an online option. The project will enhance the accuracy, completeness, timeliness, and uniformity attributes of the crash data system of Massachusetts. This project will improve the data quality control program for the crash data system as called for in the 2019 Massachusetts Traffic Records Self-Assessment.

This task will support performance target 1. Funds are expected to cover personnel services and related costs (fringe, indirect, travel, supplies) through a subcontract that will assist the Massachusetts State Police to develop better crash reporting curriculum for their employees. This subcontractor, the University of Massachusetts, will further subcontract for related web development services to deliver this enhanced curriculum.

TR-21-01 MSP Crash Report Training Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	405c Data Program	Traffic Records Improvement	$164,811	$41,203	$0

Fatality Analysis Reporting System (FARS)

ID: TR-21-02

Countermeasure Strategy: Improves completeness of a core highway safety database

Description of Planned Activity:

NHTSA will be provided, through a dedicated RMV position, with the fatal crash data for FARS and FastFARS required in the NHTSA-EOPSS/OGR cooperative agreement. The FARS Analyst will collect and process data concerning motor vehicle-related fatalities, utilizing all available resources to develop a database sufficient to meet federal requirements. This project will improve the data quality control program for the crash data system, as recommended in the 2019 Traffic Records Assessment.

This task supports performance target 1.

$82K funding from NHTSA Cooperative Agreement.

TR-21-02 FARS Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA Cooperative Agreement	FARS	$82,000	$20,500	$0

Motor Vehicle Automated Citation and Crash System (MACCS)

ID: TR-21-03

Countermeasure Strategy: Improves completeness of a core highway safety database

Description of Planned Activity:

MACCS is a browser-based application available statewide to collect, reconcile, and to exchange motor vehicle incident information, including electronic citation reporting, crash reporting, and traffic stop data collection. The MACCS project is the result of a partnership between EOPSS, local and state law enforcement, and MassDOT. The project has been funded with a combination of capital funds and grants from NHTSA. This project will increase the data quality of the crash and citation systems as called for in the 2019 Traffic Records Assessment.

The goals of the MACCS project are to ensure greater officer and citizen safety by making the reporting process more efficient at the roadside, improve data quality by implementing checks at the point of entry and upon submittal, and eliminate redundant data entry processes for agencies across Massachusetts.

The MACCS pilot commenced in July 2013 to field test the application and in-vehicle hardware (i.e. scanners, printers), identify deficiencies and potential improvements, and support proactive planning in the possible future roll-out of the MACCS system statewide. The MACCS application first went live with Billerica Police Department in April 2017.

Since October 2019, the Department of Criminal Justice Information Services (DCJIS) manages the MACCS project. In the past year, grant funding assisted with procurement and installation of in-vehicle printers, mounts, and paper, associated training, and MACCS software updates (such as those required to enable issuance of new citations relating to hand-frees use of electronic devices in motor vehicles). As of spring 2020, there are 67 local police departments and the Massachusetts State Police using MACCS.

Next Steps:

• Continue to support 90% of the costs of a full-time position at DCJIS to handle the day-to-day administration of the MACCS project. This will ensure further promotion of MACCS and the installation of associated printers and training for additional law enforcement users. This position will also assist DCJIS management in securing further system enhancements.

• Approximately 800 additional printers and associated hardware will be provided to an estimated 100 local law enforcement agencies, along with necessary training and follow-up support.

• Further system enhancements will be made by a contractor to MACCS to enable the system to meet the yet to be identified needs of its law enforcement users.

This task will support traffic records performance target 3.

TR-21-03 MACCS Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Traffic Records Systems	$490,161	$122,540	$490,161

2020	1906 Prohibit Racial Profiling	Collecting and Maintaining Data	$750,000	$187,500	$0

Traffic Records Projects

ID: TR-21-04

Countermeasure Strategy: Improves completeness of a core highway safety database

Description of Planned Activity:

An Availability of Grant Funding (AGF) will be issued to provide FFY 2021 Section 405-c funding on a competitive basis to measurable projects to improve the accessibility, accuracy, completeness, integration, timeliness, and/or uniformity of one or more of the following six core traffic records systems: crash, roadway inventory, vehicle registration/title, driver history, citation/adjudication, and EMS/injury surveillance system. Improving these systems will, in turn, enhance the ability to identify priorities for local, state, and federal traffic safety programs. Permissible projects could also evaluate the effectiveness of efforts to improve these six systems; link these systems with other appropriate state or federal data systems; improve compatibility and interoperability of state data systems with national systems and those in other states; and enhance the ability of highway safety stakeholders to observe and analyze local, state, and national trends in crash occurrences, rates, outcomes, and circumstances. Only units of state and local government or not-for-profit organizations with a public purpose would be eligible to apply for funding.

All funded projects must work to meet at least one unmet recommendation(s) from the Commonwealth's 2019 Traffic Records Assessment. Preference will be given to projects that have a minimum of one benchmark and performance measure that will demonstrate at least one quantitative improvement to a performance attribute of a minimum of one of the state's six core systems. This quantitative improvement must be demonstrated with supporting information covering a 12-month performance period, starting anytime between April 1 and July 1, 2020, and comparable to a prior, contiguous benchmark period of one year. AGF responses would be reviewed by the Massachusetts Traffic Records Coordinating Committees. Those approved by the committees would then be submitted to EOPSS and then NHTSA for review and approval. Each resulting project will support one or more performance targets.

TR-21-04 Traffic Records Projects Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405c Data Program	405c Data Program	$734,000	$183,500	$0
2020	405c Data Program	405c Data Program	$766,000	$191,500	$0

RMV – Accepted With Warnings (AWW) Project, Part II

ID: TR-21-05

Countermeasure Strategy: Improves accuracy of a core highway safety database

Description of Planned Activity:

This project will build on the work to improve crash data quality begun through the Registry of Motor Vehicles (RMV) first Section 405-c funded Accepted With Warning (AWW) Project. Providing full-time administrative support for the RMV's Law Enforcement Liaison (LEL) will enable this position to spend more time with state and local law enforcement agencies to address crash data reporting challenges identified through their AWW reports. Using AWW analysis from the University of Massachusetts' traffic safety research program UMassSafe, the LEL will be able to prioritize the agencies to work with and the topics to address. All these efforts will reduce the number of crash reports submitted with incomplete or invalid data and increase the number of AWW reports being corrected and resubmitted (and tracked through a new system). The project will enhance the accuracy, completeness, timeliness, and uniformity attributes of the crash data system of Massachusetts. This project will improve the data quality control program for the crash data system as called for in the 2019 Massachusetts Traffic Records Self-Assessment.

It is planned to fund RMV Administrative Support at $58,500 and contract with UMassSAFE for $133,889. This will support personnel services and related costs (fringe, indirect, travel, supplies), first through a sub-contract for an administrative position to support a state funded Crash Data System Law Enforcement Liaison related to this project, but also a subcontract with University of Massachusetts to provide technical services to the Registry of Motor Vehicles for the project.

This task will support traffic records performance target 4.

TR-21-05 RMV AWW Part II Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	405c Data Program	405c Data Program	$192,389	$48,097	$0

UMass Crash E-Manual Project Phase II

ID: TR-21-06

Countermeasure Strategy: Improves accuracy of a core highway safety database

Description of Planned Activity:

This project will enhance the Massachusetts Law Enforcement Crash Report E-Manual's content and functionality as well as further promote its use. This online tool is available at masscrashreportmanual.com. This project will start by soliciting feedback from state and local law enforcement to determine the current content relevancy and usability of the tool. Google Analytics will be utilized to analyze site usage and promotional needs. The tool will then be updated and expanded, including an interactive overlay of the Massachusetts crash report form. Further promotion of the site will follow to encourage greater use by law enforcement and other traffic records stakeholders. The project will enhance the accuracy, completeness, timeliness, and uniformity attributes of the crash data system of Massachusetts. This project will improve the data quality control program for the crash data system as called for in the 2019 Massachusetts Traffic Records Self-Assessment.

This task will support performance target 5. Funds are expected to cover personnel services and related costs (fringe, indirect, travel, supplies) to enhance the content of a website by the University of Massachusetts that assists law enforcement to have better crash reporting. The university will further subcontract for related web development services to deliver this enhanced curriculum.

TR-21-06 UMass E-Manual Phase II Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	405c Data Program	405c Data Program	$184,899	$46,225	$0

MATRIS and Trauma Registry Enhancements

ID: TR-21-07

Countermeasure Strategy: Improves accuracy of a core highway safety database

Description of Planned Activity:

Using unspent funds from its FFY 2020 grant, this project will continue to enhance the accuracy, completeness, integration, timeliness, and/or uniformity of the Massachusetts Ambulance Trip Record Information System (MATRIS) and the Trauma Registry (TR). Key MATRIS deliverables would be complete migration of MATRIS data providers to NEMSIS Version 3, necessary updates to this software, and exploration of better hosting options for MATRIS V3. Major TR deliverables would be the advancement of the procurement process for a commercial-off-the-shelf system for a new TR application, related configuration/testing, as well as better data quality reporting and linkage efforts for the TR. This project, approved by the Massachusetts Traffic Records Coordinating Committees, will help to improve the data quality program for the EMS/Injury Surveillance System.

This task will support traffic records performance target 6. Funds are expected to cover personnel services through subcontracts with software vendors that will assist the Massachusetts Department of Public Health to improve their EMS runs and trauma injury-related data bases, associated reporting, and linkage between

these and other databases. Any work deemed to be an equipment/software expense will be pre-approved through the submission of an equipment/software request letter to Region I.

TR-21-07 MATRIS & Trauma Registry Enhancements Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	405c Data Program	405c Data Program	$175,000	$43,750	$0

MATRIS & Trauma Registry: Access, Uniformity, and Data Quality

ID: TR-21-08

Countermeasure Strategy: Improves completeness of a core highway safety database

Description of Planned Activity:

This project of the Massachusetts Department of Public Health (MDPH) will enhance the accessibility, accuracy, completeness, and uniformity of the Massachusetts Ambulance Trip Record Information System (MATRIS) and the Trauma Registry (TR). Key MATRIS deliverables would be complete migration of MATRIS data providers to NEMSIS Version 3 standards and submission process as well as MATRIS data access through MDPH's web-based Population Health Information Tool (PHIT) available to local and state stakeholders. Major TR deliverables would be better quality assurance and quality control (QA/QC) reporting functionality to submitting facilities. Data linkage between the two systems would result from the project. This project will improve the data quality control program for the Injury Surveillance/EMS data system as called for in the 2019 Massachusetts Traffic Records Self-Assessment.

This task will support traffic records performance target 6. Funds are expected to cover personnel services through subcontracts with software vendors that will assist the Massachusetts Department of Public Health to improve their EMS runs and trauma injury-related data bases, associated reporting, and linkage in particular between these two databases. Any work deemed to be an equipment/software expense will be pre-approved through the submission of an equipment/software request letter to Region I.

TR-21-08 MATRIS & Trauma Registry Data Quality Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	405c Data Program	405c Data Program	$226,800	$56,700	$0

Boston Cyclist, Pedestrian and Vehicular Incident Information System

ID: TR-21-09

Countermeasure Strategy: Improves completeness of a core highway safety database

Description of Planned Activity:

In the latest phase of this on-going project, Boston EMS will use funds unspent from its FFY 2020 grant due to COVID 19 response to continue to promptly vet and validate roadway incidents involving bicyclists and pedestrians, enhance documentation of relevant data points, build upon just-in-time and canned reporting capabilities, and disseminate findings to inform injury prevention efforts. This project will continue to collaborate between Boston EMS, Boston Police Department, and the Boston Department of Innovation Technology to enhance integration and reporting of related data. All these efforts will enhance the city's on-going efforts to improve public awareness of and infrastructure improvements for greater bicyclist and pedestrian safety. An annual report on roadway incidents involving bicyclists and pedestrians documented by Boston EMS through this project will continue. This project, approved by the Massachusetts Traffic Records Coordinating Committees, will improve the data quality control program for the EMS/injury Surveillance system, as recommended in the 2019 Traffic Records Assessment.

This project will address traffic records performance target 6. Funds are expected to cover personnel services and related costs (fringe and indirect) for a contract position at Boston EMS to assist EMS and police crash data analysis and reporting efforts. Also, small professional development and IT related costs for this position and the database being used.

TR-21-09 Boston Cyclist, Pedestrian and Vehicular Incident System Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	405c Data Program	405c Data Program	$91,981	$22,995	$0

Boston Police Department (BPD) Crash Reporting Improvement

ID: TR-21-10

Countermeasure Strategy: Improves completeness of a core highway safety database

Description of Planned Activity:

This project will improve electronic crash reporting by the Boston Police Department (BPD) by providing an application to officers to more easily submit crash data from field or office locations to BPD's records management vendor, and then on to the Registry of Motor Vehicles' crash data system. This project will also enhance BPD's ability to analyze crash data and to improve traffic safety and enforcement efforts. BPD will utilize city-funding to conduct officer training and other roll-out efforts for this project. The

project will enhance the accuracy, completeness, timeliness, and uniformity attributes of the crash data system of Massachusetts. This project will improve the data quality control program for the crash data system as called for in the 2019 Massachusetts Traffic Records Self-Assessment.

This project will address traffic records performance target 7. Funds are expected to cover personnel services and equipment/software through a subcontract with a software vendor to assist the Boston Police Department to improve its crash reporting. It is anticipated that the equipment/software work done by the vendor will necessitate the submission of an equipment/software request letter to Region I.

TR-21-10 BPD Crash Reporting Improvement Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	405c Data Program	405c Data Program	$330,000	$82,500	$0

Program Management – Traffic Records

ID: TR-21-11

Primary Countermeasure Strategy: Highway Safety Office Program Management

Description of Planned Activity:

Provides enough staff to manage programming described in this plan as well as cover travel, professional development expenses, conference fees, and postage and office supplies. All funding is intended for supporting staff and will not be sub-awarded.

Countermeasure Strategy Justification: *Program Management*

The day-to-day operation of OGR requires funding to allow staff to oversee the traffic records program properly. Lack of oversight due to reduced or no funding could lead to increased speed-related fatalities and injuries on the roadways of Massachusetts.

TR-21-11 Program Management – Traffic Records Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Traffic Records Management	$160,000	$40,000	$0

Program Area: Police Traffic Services

The overarching goal of Police Traffic Services is to help reduce traffic fatalities across the state through specialized training, enforcement, education, and awareness programs. Better educated law enforcement members, prosecutors, and judiciary personnel will improve approaches to traffic safety. It will also help address legal issues such as the integration of testimony of Drug Recognition Experts into courtrooms and pulling over suspected OUI alcohol or drug-impaired drivers.

The FFY 2021 Planned Activities for Police Traffic Services encompass a well-rounded approach to reducing crashes. This plan includes specialized police training, supporting the activities of a Law Enforcement Liaison and a Traffic Safety Resource Prosecutor, training for prosecutors and judges, and local and state police High Visibility Enforcement.

Through these planned activities, OGR aims to lower traffic fatalities across the Commonwealth.

Performance Measure for Police Training Services

Number of Traffic Fatalities

FFY 2021 Target: 5.3% drop in the five-year average from 358 in 2018 to 339 by December 31, 2021

Planned Activities for FFY 2021

MPTC – Municipal Police Training

ID: PT-21-01

Primary Countermeasure Strategy: Police Training Supporting Enforcement

Description of Planned Activity:

Provide funding to MPTC to conduct up to 35 classes for municipal police departments to improve enforcement of laws pertaining to current traffic safety issues such as speeding, pedestrian and bicyclist safety, and distracted driving. Topics will include Traffic Crash Investigation, Advanced Traffic Crash Investigation, Crash Reconstruction Investigation, Speed Measurement, Radar Operator, and LiDAR training. MPTC will offer training with the newly released Speed Measurement Training Manuals from NHTSA. Training courses will take place at various police departments across the Commonwealth throughout the year.

Countermeasure Strategy Justification: *Police Training Supporting Enforcement*

Funding for MPTC will allow the agency to offer numerous training classes for municipal police departments to attend related to speeding, pedestrian and bicyclist safety, and distracted driving. Topics include, but are not limited to, Advanced Crash Investigation and Speed Measurement. Increased

knowledge by law enforcement on these key topics will lead to improved and more focused policing by officers, whether on patrol or assisting with a traffic checkpoint.

PT-21-01 Municipal Police Training Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Police Traffic Services	$105,000	$26,250	$105,000
2020	NHTSA 402	Police Traffic Services	$145,000	$36,250	$145,000

LEL – Law Enforcement Liaison

ID: PT-21-02

Primary Countermeasure Strategy: Police Training Supporting Enforcement

Description of Planned Activity:

Provide funding to support an LEL and associated activities, including expenses for travel to attend meetings, training, and conferences in support of traffic safety issues including but not limited to impaired and distracted driving, and occupant protection. National conferences may include the International Association of Chiefs of Police Conference and the Lifesavers Conference. Funding will also be used to cover the cost of local travel as needed to meet with local law enforcement and other traffic safety stakeholders. Countermeasure Strategy Justification: Police Training Supporting Enforcement Funding for the LEL position will help OGR better communicate with local police departments and other traffic safety stakeholders. By improving communication channels, all agencies with traffic safety concerns will be on the same page regarding shared goals. Furthermore, OGR will be better positioned to assist local and MSP with traffic fatality data to help drive enforcement patrols and messaging in their respective communities.

Countermeasure Strategy Justification: *Police Training Supporting Enforcement*

Funding for the LEL position will help OGR better communicate with local police departments and other traffic safety stakeholders. By improving communication channels, all agencies with traffic safety concerns will be on the same page regarding shared goals. Furthermore, OGR will be better positioned to assist local and MSP with traffic fatality data to help drive enforcement patrols and messaging in their respective communities.

PT-21-02 Law Enforcement Liaison Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Police Traffic Services	$60,000	$15,000	$60,000
2020	NHTSA 402	Police Traffic Services	$40,000	$10,000	$40,000

MDAA TSRP

ID: PT-21-03

Primary Countermeasure Strategy: Prosecutor/Law Enforcement Training

Description of Planned Activity:

Funds will be used to support the activities of the Massachusetts District Attorneys Association's (MDAA) Traffic Safety Resource Prosecutor (TSRP). These activities include conducting training and conferences, providing technical assistance, and creating and maintaining vehicular crime resources for prosecutors and law enforcement.

The vehicular crime database/resource is for prosecutors and law enforcement to utilize in the court of law. Providing a database of vehicular crimes will assist prosecutors in handling cases, especially those involving impaired driving.

The main objectives of this program are to:

1. Support the activities of a staff attorney dedicated to training, educating, and offering technical support to prosecutors throughout the state.

2. Strengthen and expand training for the prosecution regarding the investigation and prosecution of distracted or impaired driving and vehicular fatality cases.

3. Develop and update distracted or impaired driving training programs and resources.

Some of the planned training that the TSRP will provide:

- Standardized Field Sobriety Legal Section – Winter/Fall 2021
- Collaborative work with outside agencies – 2020-2021
- Drugged Driving for Law Enforcement and Prosecutors – Fall 2021
- OUI Trial Advocacy for Prosecutors – Spring 2021
- The Basics of Crash Reconstruction – Spring 2021

- Advanced OUI Crash Reconstruction – Summer 2021
- Identifying Marijuana Impairment – Spring/Fall 2021
- Motor Vehicle Training Webinars – 2020-2021
- Sum and Substance Training Series – Winter 2021

Additional responsibilities dealing with impaired driving and motor vehicle-related issues include:

Train the Commonwealth's prosecutors and, subject to resources, other professionals in the criminal justice field including law enforcement officers and the judiciary

Electronically alert prosecutors, law enforcement and other criminal justice professionals to changes in statutory and case law regarding motor vehicle crimes

Maintain a database of vehicular crimes-related expert witness transcripts

Create and maintain the vehicular crimes pages and resources on MDAA's Mass.gov public website and its secure intranet site, MDAA.net

Continue to update the Massachusetts Prosecutors OUI Manual

Monitor legislation in conjunction with MDAA's Special Counsel

Provide technical assistance to prosecutors and, subject to resources, law enforcement officers, the judiciary, and other state and local agencies

Act as a liaison between prosecutors and other stakeholder entities including the Executive Office of Public Safety and Security, Mothers Against Drunk Driving, the Massachusetts Judicial Institute, the MPTC, and the Administrative Office of the Trial Court

Countermeasure Strategy Justification: *Prosecutor/Law Enforcement Training*

Although there is not a specific countermeasure strategy for a TSRPs defined in the "Countermeasures That Work, Ninth Edition, 2017 (CTW)" publication, NHTSA recognized the value of these positions and developed a manual to assist new TSRPs (NHTSA, 2007b). This publication is referenced in the CWT.

A TSRP conducts training and provides technical assistance to prosecutors and law enforcement personnel to utilize in the court of law. The TSRP helps increase the knowledge of stakeholders in the adjudication of impaired driving cases, whether at a roadside stop or in court.

PT-21-03 MDAA TSRP Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405d Impaired Driving	Police Traffic Services	$150,000	$37,500	$0
2021	NHTSA 402	Police Traffic Services	$72,547	$18,137	$72,547
2020	NHTSA 402	Police Traffic Services	$27,453	$6,863	$27,453

MSP Law Enforcement Liaison (LEL)

ID: PT-21-04

Primary Countermeasure Strategy: Police Training Support Enforcement

Description of Planned Activity:

Provide funds to MSP for training and travel-related expenses for the LEL to attend meetings, training, and national conferences in support of major traffic safety issues including but not limited to impaired and distracted driving, occupant protection, and drug recognition expert training.

National conferences will include the International Association of Chiefs of Police Conference in the Fall 2020 and the Lifesavers Conference in Spring 2021. Funding will also be used to cover the cost of local travel for the LEL to attend meetings and training with local law enforcement and other traffic safety stakeholders.

Countermeasure Strategy Justification: *Police Training Support Enforcement*

Funding for the MSP LEL position will help OGR better communicate with MSP and develop a shared vision of improving traffic safety. Furthermore, the MSP LEL will mitigate the flow of information between the six MSP Troops and OGR, which will lead to a more detailed understanding of the traffic safety issues occurring on the state highways and roads of the Commonwealth.

PT-21-04 MSP LEL Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Police Traffic Services	$8,000	$2,000	$0
2020	NHTSA 402	Police Traffic Services	$7,000	$1,750	$0

MA Trial Court – Enhance State Judicial Training and Awareness

ID: PT-21-05

Primary Countermeasure Strategy: DWI Courts

Description of Planned Activity:

Funding will be provided to the Massachusetts Executive Office of the Trial Court – Judicial Institute and/or the Massachusetts Bar Association. This activity is intended to enhance coordinated educational services, skills training, and professional development for judicial and non-judicial personnel that will specifically focus on the adjudication of impaired driving cases.

Funded activities may include awareness training about, and potentially pilot testing a DWI court. These specialty courts are dedicated to changing the behavior of offenders through intensive supervision and treatment. According to a National Center for DWI Courts (NCDC) fact sheet, DWI court participants are 19 times less likely to re-offend. Other research shows that DWI courts can reduce recidivism by 66%.

Additionally, an increasing number of law enforcement officers in Massachusetts are being trained and certified in using enhanced techniques in detecting alcohol and drug use in drivers. These certifications for Drug Recognition Experts (DRE) and Advanced Roadside Impaired Driving Evaluation (ARIDE) result in a cadre of subject matter experts that can provide invaluable expert testimony in impaired driving cases. These additional funds will provide judges and court personnel with other opportunities to become more familiar with these proven evaluation techniques and learn how they can improve communication, performance, service, and the administration of justice in the court system.

In addition to alcohol-related cases, Massachusetts judges also must preside over drug-related traffic cases as well. This is important given the state's recent legalization of retail sales of marijuana for both medical and adult recreational use, and the ongoing deadly consequences of opioid-impaired drivers. This funding will help ensure that Massachusetts judges have up-to-date information about the impacts that alcohol and drugs have on drivers, motorcyclists, bicyclists, and pedestrians.

Currently, MA Trial Court has not yet determined how many trainings or the number of expected attendees at these trainings. Once this information is provided, the details will be forwarded to NHTSA.

Countermeasure Strategy Justification: *DWI Courts*

DWI Courts are specialized courts dedicated to changing the behavior of DWI (OUI in Massachusetts) offenders through intensive supervision and treatment. A DWI Court's underlying goal is to change offenders' behavior by identifying and treating their alcohol or drug problems and holding offenders accountable for their actions. With this training, OGR will help deepen the expertise and legal knowledge available to prosecutors and judges involved with the DWI Courts. This activity could lead to more effective treatments and sentencing that will further reduce the recidivism rate of offenders.

PT-21-05 MA Trial Court Judicial Training Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405d Impaired Driving	Police Traffic Services	$150,000	$37,500	$0
2020	405d Impaired Driving	Police Traffic Services	$50,000	$12,500	$0

MSP Young Drivers Education

ID: PT-21-06

Primary Countermeasure Strategy: School Programs

Description of Planned Activity:

Funds will be provided to the MSP for educating young drivers, as well as the general public, on the importance of wearing a seat belt and the dangers of impaired driving. MSP will conduct up to 20 demonstrations of the Rollover Simulator and SIDNE vehicle (Simulated Impaired Driving Experience) at high schools, on weekends, and at highly populated events in Massachusetts. Accompanying the rollover vehicle demonstrations and when feasible, the MSP will provide a hands-on interactive display that will highlight the dangers of impaired driving.

A portion of the funds will provide for the purchase of interactive education materials and allow MSP to conduct an audit of the National Safety Council's State Courts Against Road Rage (SCARR) program. It will also let officers give safe driving presentations at mandated driver education classes.

Countermeasure Strategy Justification: *School Programs*

Conducting information/education sessions at schools has been shown to increase seat belt use as well as an overall understanding of the importance of restraints while driving or riding in a vehicle. For FFY 2021, funding is being provided to MSP to travel to various high schools across the state to conduct vehicle simulations to educate the public, or more specifically, young drivers (those under 20 years of age) on the necessity of wearing a seat belt anytime one is in a moving vehicle.

PT-21-06 MSP Young Drivers Education Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Police Traffic Services	$32,000	$8,000	$32,000
2020	NHTSA 402	Police Traffic Services	$43,000	$10,750	$43,000

Municipal Road Safety (MRS)

ID: PT-21-07

Primary Countermeasure Strategy: High-Visibility Enforcement

Description of Planned Activity:

Competitive grant awards will enable local police departments to participate in up to three traffic safety elements that all aim to reduce fatalities, injuries, and economic losses from motor vehicle crashes on local roads in Massachusetts. This program replaces the Traffic Enforcement (TE), and the Local Police Sustained Traffic Enforcement Program (STEP) from prior years. All grant applications will be rated along various criteria and awards will be based upon the highest average score across all reviewers of each application. An amendment will be submitted to NHTSA with specifics on selected subrecipients and respective award amounts once competitive grant process is completed.

Similar to the TE and STEP grants, the Municipal Road Safety grant will continue to provide for High Visibility Enforcement (HVE), an essential component in highway safety efforts. It additionally provides for optional flexibility to allow departments to address specific road safety needs within individual communities, expanding the ability to use resources to interact with the community in positive ways. The MRS grant represents the necessity to adapt and enhance traditional traffic safety programs to fit the expanding and evolving roles of local law enforcement departments that require a comprehensive approach to keeping roads safe. This program is also designed to enhance the knowledge, skills, and abilities of the officers to ensure changing traffic safety trends are recognized, and new approaches are incorporated into road safety strategies.

The **three** program elements are:

(1) High Visibility Enforcement

Conduct overtime HVE patrols during the following mobilizations: Impaired Driving - Drive Sober or Get Pulled Over (DSOGPO): December and August; Occupant Protection - Click It Or Ticket (CIOT): May; Distracted Driving/Speeding & Aggressive Driving: Spring/Early Summer.

Enforcement efforts during each mobilization will focus primarily on traffic violations relating to the campaign theme, resulting in contacts with motorists who are impaired, speeding, driving aggressively, distracted, or in violation of the seat belt or Child Passenger Safety laws. Patrols will be conducted during high-risk days, times, and locations based on the latest available state and local data.

(2) Speed Equipment Purchase

Funds may be used to purchase selected speed-related equipment such as radar, LIDar, data recorders, and message signs designed to support enforcement activities as well as promote public awareness.

(3) Non-Enforcement Traffic Safety Activities

Funds may be used for activities including, but not limited to, hosting and participating in community educational events (i.e., school seat belt programs), working with local and regional traffic safety coalitions, education, outreach (presentations at school assemblies and community meetings), planning,

training (i.e., ARIDE), and professional development such as attending appropriate conferences (i.e., Lifesavers and GHSA).

All 349 municipal police departments in Massachusetts will be eligible to apply. HSD expects to award funds to up to 200 applicants. Planned outreach to raise awareness of the fund opportunity includes publication on the OGR website, direct notification to every police chief through a partnership with the MA Chiefs of Police Association, direct email to all previous subrecipients and posting on the state's procurement system COMMBUYS.

Countermeasure Strategy Justification: *High-Visibility Enforcement*

High-visibility enforcement campaigns have been shown in the past to be effective in helping deter dangerous driving behaviors such as impaired driving, distracted driving, speeding, and not wearing seat belts while riding in a motor vehicle. Using the latest data, OGR will work with selected subrecipients to target high incidence periods of fatal crashes involving these dangerous driving behaviors in Massachusetts. Through this data-driven targeted approach, high-visibility enforcement will lead to lower speeding and aggressive driving behavior in 2021 and beyond.

PT-21-07 Municipal Road Safety Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Police Traffic Services	$300,000	$75,000	$300,000
2020	NHTSA 402	Police Traffic Services	$4,200,000	$1,050,000	$4,200,000

Local Traffic Safety Officers

ID: PT-21-08

Primary Countermeasure Strategy: Police Training Supporting Enforcement

Description of Planned Activity:

Funds will be provided on a competitive basis to eligible local police departments. Funds may be used to support the enforcement activities of the Traffic Safety Officers, provide safety-related traffic equipment, training, and travel. Travel expenses may include costs to conduct outreach and education within the community, attend relevant meetings, as well as traffic safety-related professional growth events such as the annual Lifesavers Conference, Governors Highway Safety Association (GHSA) annual meeting, International Association of Chiefs of Police (IACP) annual meeting, or related training.

All grant applications will be rated along various criteria and awards will be based upon the highest average score across all reviewers of each application. An amendment will be submitted to NHTSA with specifics on selected subrecipients and respective award amounts once competitive grant process is completed.

Planned outreach to raise awareness of the fund opportunity includes publication on the OGR website, direct notification to every police chief through a partnership with the MA Chiefs of Police Association, direct email to all previous subrecipients and posting on the state's procurement system COMMBUYS.

Subawardees will be given wide latitude in the allowable types of equipment. All equipment will be required to implement the program and may include enforcement items such as radar, AV equipment for public outreach and educational programs, technology and software for traffic safety analysis, speed data collection, message signs, etc. NHTSA approval will be requested for items valued over $5,000.

Dedicated Traffic Safety Officers can provide valuable benefits to a local police department and the entire community. Fatalities, injuries, and economic losses associated with crashes involving motor vehicles, motorcyclists, pedestrians, and pedal cyclists represent some of, if not the most significant and frequent public safety problems in every community.

Countermeasure Strategy Justification: *Police Training Supporting Enforcement*

Funding will allow local police departments to provide further training opportunities, either via classes, conferences, or seminars, for officers to build upon current traffic safety procedures and processes. By increasing and expanding the level of traffic safety knowledge by law enforcement professionals will lead to improved and more focused policing by officers, whether on patrol or assisting with a traffic checkpoint.

PT-21-08 Local Traffic Safety Officers Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Police Traffic Services	$300,000	$75,000	$300,000
2020	NHTSA 402	Police Traffic Services	$200,000	$50,000	$200,000

MSP Sustained Traffic Enforcement Program (STEP)

ID: PT-21-09

Primary Countermeasure Strategy: Sustained Enforcement

Description of Planned Activity:

In support of impaired driving and occupant protection laws, this task will provide funds to the MSP to deploy sustained and selective "zero tolerance" traffic enforcement overtime patrols. The activity will occur on day/time/location identified using MSP RAMS data. Whenever reasonably possible, this activity will be conducted to augment local police department efforts within the same general location. MSP STEP enforcement patrols, along with local police departments, will provide maximum visibility for deterrent purposes and saturate target areas taking immediate and appropriate action on all motor vehicle violations. There will be a focus on impaired driving, seat belt usage, child passenger safety infractions, speed and, aggressive and dangerous driving.

Countermeasure Strategy Justification: *Sustained Enforcement*

Impaired drivers are detected and arrested through regular traffic enforcement and crash investigations as well as through special impaired driving checkpoints and saturation patrols. A third possibility is to integrate impaired driving enforcement into special enforcement activities focused on other offenses such as speeding or lack of seat belt usage. This activity is especially important as impaired drivers tend to have a high rate of involvement in speed-related crashes and are less likely to wear a seat belt. In Massachusetts, the Sustained Traffic Enforcement Program (STEP) provides MSP with the funding to take this integrated enforcement approach to traffic safety. Not only do MSP troopers patrol for impaired drivers but also those speeding or driving aggressively, those not wearing a seat belt or have a young child not buckled into a safety restraint seat, and those failing to keep their eyes on the road because of a distraction, especially using or looking at a cell phone. The funding for the MSP STEP allows for increased enforcement throughout the year instead of merely during mobilization periods. This funding will help MSP tackle high crash and fatality rates for both motorists and non-motorists across the Commonwealth.

The funding for MSP STEP participants allows for increased enforcement throughout the year instead of only during mobilization periods. This funding will help MSP to conduct overtime enforcement to improve traffic safety for both motorists and non-motorists along the roadways of Massachusetts.

With MSP conducting increased enforcement throughout FFY 2021, not only will the number of impaired driving fatalities drop but also the number of unrestrained fatalities and speed-related fatalities. Data has shown that impaired drivers and passengers are most likely not to wear a seat belt and be involved in a speed-related fatal crash.

PT-21-09 MSP STEP Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	405d Impaired Driving	Police Training Services	$100,000	$25,000	$0
2021	NHTSA 402	Police Training Services	$75,000	$18,750	$75,000
2020	NHTSA 402	Police Training Services	$75,000	$18,750	$75,000

Program Management – Police Training Services

ID: PT-21-10

Primary Countermeasure Strategy: Highway Safety Office Program Management

Description of Planned Activity:

Provide sufficient staff to manage programming described in this plan as well as cover travel, professional development expenses, conference fees, and postage and office supplies. All funding intended for supporting staff and will not be subawarded.

Countermeasure Strategy Justification: *Program Management*

The day-to-day operation of OGR requires funding to allow staff to oversee the police training services program properly. Lack of oversight due to reduced or no funding could lead to increased fatalities and injuries on the roadways of Massachusetts.

PT-21-10 Program Management – Police Training Services Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Police Training Services	$300,000	$75,000	$0

Program Area: Community Traffic Safety Projects

The overarching goal of Community Traffic Safety Projects is to help reduce traffic fatalities across the state through education and awareness programs launched by selected subrecipients. Competitive grant awards will support non-profit organizations and local governmental agencies in implementing community-based traffic safety programs tailored to the geographical area and the high-risk demographics of their respective town, community, or region.

By empowering communities to craft customized, data-driven, educational and awareness efforts, OGR sees an opportunity to introduce new and more effective behavioral changes to road users. These changes may lead to a reduction in crashes, fatalities, and injuries in Massachusetts.

Performance Measure for Community Traffic Safety Projects

Number of Traffic Fatalities

FFY 2021 Target: 5.3% drop in the five-year average from 358 in 2018 to 339 by December 31, 2021

Planned Activities for FFY 2021

Community Traffic Safety Projects

ID: CP-21-01

Primary Countermeasure Strategy: Communication Campaign

Description of Planned Activity:

Competitive grant awards will be provided to one or more organizations such as Girl Scouts, Boy Scouts, Parent Teacher Organizations, schools, faith-based and advocacy groups, etc., that will implement community-based programs. The eligible applicants may include both non-profit 501(c)(3) and governmental agencies.

All grant applications will be rated along various criteria and awards will be based upon the highest average score across all reviewers of each application. An amendment will be submitted to NHTSA with specifics on selected subrecipients and respective award amounts once competitive grant process is completed.

This planned activity will consist of one or more data-driven competitive grant programs that will be focused on geographical areas and high-risk populations. These areas will have demonstrated needs for impaired driving, occupant protection, distracted driving, and pedestrian and bicyclist safety programs.

The programs will generally be focused on raising awareness of road safety, training, and changing social attitudes and behaviors to reduce vehicle crashes and their associated fatalities, serious injuries, and economic losses on the state's roadways.

This program will not be focused on traffic enforcement, but OGR will encourage applicants to develop new or enhance existing partnerships with law enforcement agencies to achieve project goals.

Selected grant subrecipients will develop and implement traffic safety improvement educational and awareness programs that address issues in their targeted communities. Programs that focus on high-risk groups or behaviors will be prioritized. Organizations will be encouraged to build partnerships that incorporate a whole-community, data-driven approach to identifying and addressing road safety problems. The formation of community-wide road safety coalitions that bring together a broad constituency to focus on aspects of road safety will also be encouraged.

Projects that will develop and implement an educational curriculum that aims to install a life-long road safety culture in the Commonwealth's citizenry will also be prioritized. Projects may also incorporate social or traditional media strategies to change risky behavior on the state's roadways.

The competitive grant solicitation may guide potential applicants to various informational resources such as:

- National Highway Traffic Safety Administration
- Centers for Disease Control and Prevention
- Governors Highway Safety Association
- Insurance Institute for Highway Safety
- National Safety Council
- American Automobile Association
- The Vision Zero Network
- Mothers Against Drunk Driving
- Students Against Destructive Decisions.

Countermeasure Strategy Justification: *Communication Campaign*

This planned activity will fund one or more local community organizations to develop and implement awareness and education initiatives. The goal is to not only lower traffic fatalities across the Commonwealth, but also support OGR's impaired driving, occupant protection, and non-motorist safety goals. The overarching objective of this planned activity is to help local communities reduce its most frequent traffic fatality type, whether it involves impaired drivers, unrestrained occupants, pedestrians, or bicyclists.

CP-21-01 Community-Based Traffic Safety Program Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Community Traffic Safety Projects	$125,000	$31,250	$125,000
2020	NHTSA 402	Community Traffic Safety Projects	$100,000	$25,000	$100,000

Program Management – Community Traffic Safety Projects

ID: CP-21-02

Primary Countermeasure Strategy: Highway Safety Office Program Management

Description of Planned Activity:

Provide sufficient staff to manage programming described in this plan as well as cover travel, professional development expenses, conference fees, and postage and office supplies. All funding intended for supporting staff and will not be subawarded.

Countermeasure Strategy Justification: *Program Management*

The day-to-day operation of OGR requires funding to allow staff to oversee the community traffic safety program properly. Lack of oversight due to reduced or no funding could lead to increased fatalities and injuries on the roadways of Massachusetts.

CP-21-02 Program Management – Community Traffic Safety Projects Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Community Traffic Safety Projects	$120,000	$30,000	$0

Program Area: Planning & Administration

This section covers the Planning and Administrative programming required to faithfully execute the planned activities detailed in the FFY 2021 Highway Safety Plan. Funding is needed to support OGR staff for day-to-day operations and to comply with all Federal and State regulations.

Administration of Statewide Traffic Safety Programs

ID: PA-21-01

Primary Countermeasure Strategy: Highway Safety Office Program Management

Description of Planned Activity:

Funding to plan, implement, monitor, and evaluate programs and projects detailed in the FFY 2021 Highway Safety Plan (HSP), produce the FFY 2020 Annual Report (AR) as well as produce the FFY 2022 HSP. Provide required staff salaries, professional development, travel, office space, equipment, materials, and fiscal support. Funds will support SHSO staff and will not be subawarded.

It must be noted that the significant increase in P&A costs from the previous fiscal year are due to increased personnel. During the most recent NHTSA program management review, it was recommended that OGR hire additional fiscal staff in order to dedicate more administrative support for NHTSA-funded awards. OGR has acted on this recommendation, creating several new positions within fiscal over the last twelve months. In doing so, these positions also will share in the overall agency costs. By increasing the P&A for FFY 2021, it will ensure the newly added fiscal staff is charged appropriately for the percentage of time being spent on each grant funded award.

Project staff: Jeff Larason, Kevin Stanton, Corine Pryme, Diane Perrier, Rita Taylor, Denise Brown, Susan Burgess-Chin, Annette Powell, and Maria Soto-Santa

PA-21-01 Administration of Traffic Safety Programs Planned Funding

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2021	NHTSA 402	Planning and Administration	$715,000	$715,000	$0
2020	NHTSA 402	Planning and Administration	$690,000	$690,000	$0

Appendix A: Financial Summary of Planned Activities

Project #	Planned Activity	2021 HSP Budget	HSP Budget 2021 funds	Funding Source 2021 funds	HSP Budget 2020 & older funds funds	Funding Source 2020 & older funds	Total Local Benefit	Match for 2021 funds	Match for 2020 and older funds	Total Match
AL-21-01	Impaired Driving Media	$ 500,000	$ 500,000	405d	$ -	405d	$ -	$ 125,000	$ -	$ 125,000
AL-21-02	MSP Sobriety Checkpoint & Saturation Patrols	$ 2,000,000	$ 1,300,000	405d	$ 700,000	405d	$ -	$ 325,000	$ 175,000	$ 500,000
AL-21-03	MA Trial Court- Judicial Education Program	$ 35,000	$ 20,000	405d	$ 15,000	405d	$ -	$ 5,000	$ 3,750	$ 8,750
AL-21-04	MSP/Office of Alcohol Testing BTO Training	$ 150,000	$ 115,000	405d	$ 35,000	405d	$ -	$ 28,750	$ 8,750	$ 37,500
AL-21-05	MSP Drug Recognition Expert (DRE) Training	$ 60,000	$ 44,000	405d	$ 16,000	405d	$ -	$ 11,000	$ 4,000	$ 15,000
AL-21-06	MPTC- Law Enforcement SFST Training Program	$ 100,000	$ 65,000	405d	$ 35,000	405d	$ -	$ 16,250	$ 8,750	$ 25,000
AL-21-07	MPTC - Drug Evaluation and Classification Program (DEC)	$ 700,000		405d	$ 700,000	405d	$ -	$ -	$ 175,000	$ 175,000
AL-21-08	ABCC - Underage Drinking Compliance Checks Program	$ 150,000		405d	$ 150,000	405d	$ -	$ -	$ 37,500	$ 37,500
AL-21-09	ABCC - Enforcement Program to Prevent the Sale of Alcohol to Intoxicated Persons	$ 150,000	$ 150,000	405d	$ -	405d	$ -	$ 37,500	$ -	$ 37,500
AL-21-10	Stakeholders Conferences	$ 35,000	$ 25,000	402	$ 10,000	402	$ 35,000	$ 6,250	$ 2,500	$ 8,750
AL-21-11	Program Management- Impaired Driving	$ 165,000	$ 165,000	402	$ -	402	$ -	$ 41,250	$ -	$ 41,250
CP-21-01	Community Traffic Safety Projects	$ 225,000	$ 125,000	402	$ 100,000	402	$ 225,000	$ 31,250	$ 25,000	$ 56,250
CP-21-02	Program Management- Community Traffic Safety Projects	$ 120,000	$ 120,000	402	$ -	402	$ -	$ 30,000	$ -	$ 30,000
DD-21-01	Distracted Driving Media	$ 500,000	$ 250,000	402	$ 250,000	402	$ -	$ 62,500	$ 62,500	$ 125,000
DD-21-02	MSP Distracted Driving Enforcement	$ 450,000	$ 250,000	402	$ 200,000	402	$ -	$ 62,500	$ 50,000	$ 112,500
DD-21-03	Program Management- Distracted Driving	$ 120,000	$ 120,000	402	$ -	402	$ -	$ 30,000	$ -	$ 30,000
MC-21-01	Motorcycle Safety Media	$ 150,000	$ 100,000	402	$ 50,000	402	$ -	$ 25,000	$ 12,500	$ 37,500
MC-21-02	RMV- Motorcycle Safety Program Enhancements	$ 225,000	$ 87,000	405f	$ 138,000	402	$ -	$ 21,750	$ 34,500	$ 56,250
MC-21-02	RMV- Motorcycle Safety Program Enhancements	$ 20,000			$ 20,000	405f-MAP21-2016	$ -		$ 5,000	$ 5,000
MC-21-03	Program Management- Motorcycle Safety	$ 133,000	$ 133,000	402	$ -	402	$ -	$ 33,250	$ -	$ 33,250
OP-21-01	Occupant Protection Media	$ 750,000			$ 750,000	405b	$ -	$ -	$ 187,500	$ 187,500
OP-21-02	MSP Occupant Protection CIOT Enforcement Campaign	$ 350,000	$ 350,000	405b	$ -		$ -	$ 87,500	$ -	$ 87,500
OP-21-03	Child Passenger Safety Equipment Grant Program	$ 325,000	$ 250,000	402	$ 75,000	402	$ 325,000	$ 62,500	$ 18,750	$ 81,250
OP-21-04	Child Passenger Safety Administration and Training	$ 200,000	$ 150,000	405b	$ 50,000	405b	$ -	$ 37,500	$ 12,500	$ 50,000
OP-21-05	DCF- CPS	$ 40,000	$ 20,000	405b	$ 20,000	405b	$ -	$ 5,000	$ 5,000	$ 10,000
OP-21-06	Statewide Seat Belt Observation Survey	$ 200,000	$ 150,000	405b	$ 50,000	405b	$ -	$ 37,500	$ 12,500	$ 50,000
OP-21-07	OP State Programs Assessment	$ 25,000	$ 25,000	405b	$ -	405b	$ -	$ 6,250	$ -	$ 6,250
OP-21-08	Program Management- Occupant Protection	$ 185,000	$ 185,000	402	$ -	402	$ -	$ 46,250	$ -	$ 46,250
PA-21-01	Administration of Statewide Traffic Safety Program	$ 1,405,000	$ 715,000	402	$ 690,000	402	$ -	$ 715,000	$ 690,000	$ 1,405,000
PS-20-01	Pedestrian and Bicyclist Safety Media	$ 150,000	$ 75,000	402	$ 75,000	402	$ -	$ 18,750	$ 18,750	$ 37,500
PS-21-02	Local Police Pedestrian and Bicyclist Safety Program	$ 1,100,000	$ 405,000	405h	$ 695,000	405h	$ -	$ 101,250	$ 173,750	$ 275,000
PS-21-02	Local Police Pedestrian and Bicyclist Safety Program	$ 100,000	$ 50,000	402	$ 50,000	402	$ 100,000	$ 12,500	$ 12,500	$ 25,000
PS-21-03	Program Management- Pedestrian & Bicyclist Safety Program	$ 120,000	$ 120,000	402	$ -	402	$ -	$ 30,000	$ -	$ 30,000
PT-21-01	MPTC- Municipal Police Training	$ 250,000	$ 105,000	402	$ 145,000	402	$ 250,000	$ 26,250	$ 36,250	$ 62,500
PT-21-02	Law Enforcement Liaison (LEL)	$ 100,000	$ 60,000	402	$ 40,000	402	$ 100,000	$ 15,000	$ 10,000	$ 25,000
PT-21-03	MDAA/TSRP	$ 150,000	$ 150,000	405d	$ -	405d	$ -	$ 37,500	$ -	$ 37,500
PT-21-03	MDAA/TSRP	$ 100,000	$ 72,547	402	$ 27,453	402	$ 100,000	$ 18,137	$ 6,863	$ 25,000
PT-21-04	MSP- LEL	$ 15,000	$ 8,000	402	$ 7,000	402	$ -	$ 2,000	$ 1,750	$ 3,750
PT-20-05	MA Trial Court- Enhance State Judicial Training and Awareness	$ 200,000	$ 150,000	405d	$ 50,000	405d	$ -	$ 37,500	$ 12,500	$ 50,000
PT-21-06	MSP Young Drivers Education Program	$ 75,000	$ 32,000	402	$ 43,000	402	$ 75,000	$ 8,000	$ 10,750	$ 18,750
PT-21-07	Municipal Road Safety (MRS) Program	$ 4,500,000	$ 300,000	402	$ 4,200,000	402	$ 4,500,000	$ 75,000	$ 1,050,000	$ 1,125,000
PT-21-08	Local Traffic Safety Officers	$ 500,000	$ 300,000	402	$ 200,000	402	$ 500,000	$ 75,000	$ 50,000	$ 125,000
PT-21-09	MSP Sustained Traffic Enforcement Program (STEP)	$ 100,000	$ 100,000	405d	$ -	405d	$ -	$ 25,000	$ -	$ 25,000
PT-21-09	MSP Sustained Traffic Enforcement Program (STEP)	$ 150,000	$ 75,000	402	$ 75,000	402	$ 150,000	$ 18,750	$ 18,750	$ 37,500
PT-21-10	Program Management- Police Traffic Services	$ 300,000	$ 300,000	402	$ -	402	$ -	$ 75,000	$ -	$ 75,000
SC-21-01	Speed Media	$ 325,000	$ 150,000	402	$ 175,000	402	$ -	$ 37,500	$ 43,750	$ 81,250
SC-21-02	MSP Speed Enforcement	$ 600,000	$ -	402	$ 600,000	402	$ -	$ -	$ 150,000	$ 150,000
SC-21-03	Program Management- Speeding and Aggressive Driving	$ 115,000	$ 115,000	402	$ -	402	$ -	$ 28,750	$ -	$ 28,750
TR-21-01	MSP Crash Report Training Curriculum	$ 164,811		405c	$ 164,811		$ -	$ -	$ 41,203	$ 41,203
TR-21-02	Fatality Analysis Reporting System (FARS)	$ 82,000	$ 82,000	FARS-2018	$ -		$ -	$ 20,500	$ -	$ 20,500
TR-21-03	Motor Vehicle Automated Citation and Crash System (MACCS)	$ 490,161	$ 490,161	402	$ 0	402	$ 490,161	$ 122,540	$ 0	$ 122,540
TR-21-03	Motor Vehicle Automated Citation and Crash System (MACCS)	$ 750,000			$ 750,000	1906	$ -	$ -	$ 187,500	$ 187,500
TR-21-04	TR 2021 projects TBD by AGF	$ 1,500,000	$ 734,000	405c	$ 766,000	405c	$ -	$ 183,500	$ 191,500	$ 375,000
TR-21-05	RMV, Accepted With Warning Part II	$ 192,389		405c	$ 192,389		$ -	$ -	$ 48,097	$ 48,097
TR-21-06	UMASS, Crash E-Manual Phase II	$ 184,899		405c	$ 184,899		$ -	$ -	$ 46,225	$ 46,225
TR-21-07	MATRIS and Trauma Registry Enhancements	$ 175,000		405c	$ 175,000		$ -	$ -	$ 43,750	$ 43,750
TR-21-08	MATRIS and Trauma Registry National Standard Uniformity and Data Quality Project	$ 226,800		405c	$ 226,800		$ -	$ -	$ 56,700	$ 56,700
TR-21-09	Boston Cyclist, Pedestrian and Vehicular Incident Information System Enhancement	$ 91,981		405c	$ 91,981	405c	$ -	$ -	$ 22,995	$ 22,995
TR-21-10	BPD's Crash Reporting Improvement	$ 330,000		405c	$ 330,000	405c	$ -	$ -	$ 82,500	$ 82,500
TR-21-11	Program Management- Traffic Records	$ 160,000	$ 160,000	402	$ -	402		$ 40,000	$ -	$ 40,000
		$ 22,766,041	**$ 9,447,708**		**$ 13,318,333**		**$ 6,850,161**	**$ 2,898,177**	**$ 3,847,083**	**$ 6,745,260**

Appendix B: TSEP & HVE Strategies

Evidence-based Traffic Safety Enforcement Program (TSEP)

Listed below are planned activities for FFY 2021 that, based on data analysis of fatal crashes, fatalities, and injuries from 2014 to 2018, constitute the TSEP for Massachusetts. Each planned activity involves enforcement of varying degrees by local and state police agencies with the overarching goal of making the roadways safer for all road users, whether a driver, passenger, motorcyclist, pedestrian, or bicyclist.

Unique Identifier	Planned Activity Name
AL-21-02	MSP & Local Police Sobriety Checkpoints and Saturation Patrols
DD-21-02	MSP Distracted Driving Enforcement
OP-21-02	MSP CIOT Enforcement
PS-21-02	Local Police Pedestrian & Bicyclist Safety
PT-21-07	Municipal Road Safety
PT-21-09	MSP Sustained Traffic Enforcement Program (STEP)
SC-21-02	MSP Speed Enforcement

The identification of traffic safety issues for the FFY 2021 HSP was made using data analysis of numerous traffic safety data elements including, but not limited to, causes, counties, time-of-day, month, day-of-week, road type, gender and age group. Each of the planned enforcement activities for FFY 2021 will aim to reduce fatal crashes and fatalities for all traffic safety performance measures for Massachusetts.

From 2014 to 2018, Massachusetts reported 1,792 motor vehicle-related fatalities and 11,697 incapacitating injuries along its roadways. This total marks a 0.5% increase in deaths from 1,783 from 2013 to 2017 and a drop of 20.5% in disabling injuries as well. In terms of fatalities per VMT, Massachusetts has consistently had one of the lowest fatality rates in the country. In 2018, Massachusetts reported 360 deaths for a fatality/VMT rate of 0.54. The five-year average of fatality/VMT from 2014-2018 was 0.58, down from 0.59 for 2013-2017.

Fatalities, Fatal Crashes, and Serious Injuries by County (2014 -2018)						
County	Fatalities	Fatal Crashes	Serious Injuries	% All Fatalities	% All Fatal Crashes	% All Serious Injuries
Worcester	272	258	1,455	15%	15%	12%
Middlesex	239	230	2,268	13%	14%	19%
Bristol	208	198	1,342	12%	12%	11%
Plymouth	204	189	1,305	11%	11%	11%
Norfolk	180	168	1,185	10%	10%	10%
Hampden	176	163	1,153	10%	10%	10%
Essex	148	142	1,413	8%	8%	12%
Suffolk	135	127	716	8%	7%	6%
Barnstable	76	71	555	4%	4%	5%
Berkshire	61	59	225	3%	3%	2%
Hampshire	45	43	219	3%	3%	2%
Franklin	40	39	145	2%	2%	1%
Dukes	5	5	38	0%	0%	0%
Nantucket	3	3	17	0%	0%	0%
Total	**1,792**	**1,695**	**12,036**			

Of the 14 counties in Massachusetts, eight accounted for over 85% of all fatalities, fatal crashes, and serious injuries reported during the five years of 2014 – 2018. These counties – Worcester, Middlesex, Bristol, Plymouth, Norfolk, Hampden, Essex, and Suffolk, will be a focus for OGR for FFY 2021.

To increase the impact of enforcement, OGR will recommend subrecipients consider the following general observations from the analysis of crash data from 2014 to 2018:

- Warmer months (April-September) tend to have more fatalities than colder months (October-January).
- July is the top month for fatal crashes and fatalities, followed by October and November.
- In terms of consecutive two-month fatality counts, July/August had the most with 344 fatalities. June/July had 340 and October/November with 336 to round out the top three two-month periods. Having enforcement activity more often during these months will help lower the incidence of fatal crashes and fatalities.
- By day, the three-day period of Friday, Saturday, and Sunday accounted for over half of all fatalities from 2014 to 2018. Wednesday was the fourth-highest day for deaths.
- Enforcement patrols, in general, should be conducted during the 12 hours of 3 pm to 3 am. Over 60% of all fatalities occur within these 12 hours.
- A majority of fatal crashes took place along principal and minor arterial roads, followed by local and interstate.
- Two-thirds of traffic fatalities were drivers, followed by pedestrians (20%), passengers (13%), and bicyclists (2%). Enforcement activity should involve locations where there would be a high level of driver-pedestrian interaction, such as busy intersections along main streets in the community.
- While fatalities involving the age group 25-34 accounted for nearly 20% of all fatalities, the percentage of all fatalities under age 35 was 40%. Fatalities 35 years of age or older made up 60% of deaths.
- Half of all pedestrian fatalities were age 55 or older, and a third of all passenger fatalities were between ages 16 – 24.

For the most part, these general trends in fatalities and fatal crashes can be used to help law enforcement plan patrols. But for specific (i.e., impaired, pedestrian, etc.) enforcement activities, there are some slight differences in target periods. Planned enforcement activities (PT-21-07, PT-21-10) will benefit from applying these trends to overtime patrols.

For impaired driving focused planned activities (AL-21-02), enforcement patrols should be most frequent on principal and minor arterial roads between the hours of 6 pm and 3 am on Friday, Saturday, and Sunday. The target age group for impaired drivers is drivers age 34 or younger. This age group accounted for 50% of all impaired drivers involved in a fatal crash.

One other observation for impaired driving – the number of impaired driving fatalities tend to spike on Sundays between 3 pm and 9 pm during football season (late August through early February).

For distracted driving-focused enforcement (DD-21-02), law enforcement should target locations where a high density of residents is age 55 or older as over half of distracted driving fatalities were pedestrians

age 55 or older. Targeting intersections or crosswalks in the proximity of 55+ residential developments within their respective community may be beneficial.

Two-thirds of distracted driving crashes take place between 9 am and 9 pm and most frequently from Friday through Monday. This four-day period accounted for 65% of all distracted driving-related crashes reported. Monday had the highest crash total, with 36 of 207 distracted driving fatal crashes. Enforcement conducted for DD-21-02 should include patrols between 9 am and 9 pm on Mondays to target this high incidence day of the week.

For pedestrian-focused enforcement (PS-21-02), the critical months for enforcement patrols aren't warmer ones but rather colder months. Nearly 50% of pedestrian fatalities occurred during October, November, December, and January. With the rise in older pedestrian fatalities (55+), local police should increase enforcement patrols between the hours of 6 am and 3 pm. For younger pedestrians, patrols should shift to the hours between 3 pm and 3 am.

For unrestrained enforcement (OP-21-02), drivers accounted for 80% of all unrestrained fatalities, and over half of those fatalities took place on Friday, Saturday, and Sunday. The peak times for enforcement of unrestrained drivers for subrecipients would be between 6 pm, and 3 am, with particular emphasis on 12 am to 3 am. During this three-hour time frame, 21% of all unrestrained fatalities occurred.

Lastly, speed enforcement (SC-21-02) should be conducted most often during two, two-month periods: June-July and October-November. Over 40% of speed-related fatalities happened during these two periods of consecutive months. Fifty-eight percent of all speed-related crashes took place between 6 pm, and 3 am with Saturday and Sunday being the two highest days for collisions. It should be pointed out that a third of speed-related crashes during this time frame involved a driver with a BAC of .08 or higher. Enforcement patrols during the late evening and early morning hours over the weekend should be aware of a higher possibility of pulling over a speeding driver that is also alcohol impaired.

These general and Planned Activity-specific suggestions for scheduling enforcement patrols will help subrecipients better target driver behaviors. OGR is confident that when local police apply such guidelines to plan enforcement activity, it will have a net positive effect on the safety of all roadway users.

Deployment of Resources

When determining key areas to fund for FFY 2021, OGR utilizes data and stakeholder feedback not only to ascertain the types and severity of the problems but also to identify where the most significant impacts in terms of reducing crashes, injuries, and fatalities can be made. With numerous charts, graphs, and tables provided in the FFY 2021 HSP, all Planned Activities are supported by data and justify the need for funding to reduce traffic crashes, fatalities, injuries, and economic loss across the Commonwealth.

Subrecipients are mostly selected based on competitive grant applications that are data-driven and evidence-based. Each applicant is encouraged to provide data on the level of crashes and fatalities within their respective community or region.

The Commonwealth of Massachusetts evidence-based traffic safety enforcement methodology will also include enforcement of traffic laws on impaired driving, seat belt usage, and pedestrian safety, coupled with numerous sobriety checkpoints held throughout the state. The combined efforts among local and state law enforcement agencies, along with non-profit organizations, will help promote traffic safety and increase public awareness of pedestrians on the roads and of the risk involved with impaired driving and failure to wear a seat belt.

Based on the data contained in this section, OGR will make recommendations to local police departments and MSP so they can make more informed decisions about where and when to deploy resources.

Effectiveness Monitoring

To ensure projects remain focused on their respective objectives – namely, decreasing traffic safety-related crashes, fatalities, and injuries, a two-pronged approach to oversight will be employed. First, OGR will conduct ongoing post-award assessments of each grant-funded agency. The assessments will ensure all grant requirements are met, and fund expenditures are accounted for properly.

OGR will make site visits to keep enforcement agencies from lagging in their efforts as well as to ensure subrecipients are making efforts to reach the desired objectives of their grant-funded project. These visits will not only be to ensure subrecipients are adhering to the requirement of the grants, but also identify towns or cities that experience increases in crash fatalities to see what the subrecipient is (or is not doing) to address the problem.

During FFY 2021, program coordinators plan to conduct over 50 site visits across the Commonwealth. All visits will be documented through a standard reporting form and copies of the completed reports placed in the grant files.

Furthermore, all grant-funded agencies will be required to regularly report covering activities, hours of enforcement, and expenditures. Data collected from these monthly reports are aggregated by HSD to detect any trends, whether positive or negative. If necessary, changes to the program may be made.

HSD reserves the right, based upon the reporting data collected from grant-funded agencies, to reduce or stop funding if a subrecipient has shown a failure to adhere to the requirements of the grant.

High-visibility enforcement (HVE) strategies

As required by NHTSA, Massachusetts is providing information regarding planned High-Visibility Enforcement activities for FFY 2021.

Planned HVE strategies to support national mobilizations:

Countermeasure Strategy
High Visibility Enforcement
Short-term, High Visibility Seat Belt Law Enforcement

HVE planned activities that demonstrate the State's support and participation in the National HVE mobilizations to reduce alcohol-impaired and/or drug-impaired operation of motor vehicles, distracted driving, and increase the use of seat belts by occupants of motor vehicles:

Unique Identifier	Planned Activity Name
AL-21-02	MSP and Local Police Sobriety Checkpoints & Saturation Patrols
DD-21-02	MSP Distracted Driving Enforcement
PT-21-07	Municipal Road Safety (MRS)
SC-21-02	MSP Speed Enforcement
OP-21-02	MSP Occupant Protection CIOT Enforcement