Highway Safety Plan
FY 2020
Maryland

Highway Safety Plan

NATIONAL PRIORITY SAFETY PROGRAM INCENTIVE GRANTS - The State applied for the following incentive grants:

S. 405(b) Occupant Protection: Yes

S. 405(e) Distracted Driving: No

S. 405(c) State Traffic Safety Information System Improvements: Yes

S. 405(f) Motorcyclist Safety Grants: Yes

S. 405(d) Impaired Driving Countermeasures: Yes

S. 405(g) State Graduated Driver Licensing Incentive: No

S. 405(d) Alcohol-Ignition Interlock Law: No

S. 405(h) Nonmotorized Safety: Yes

S. 405(d) 24-7 Sobriety Programs: No

S. 1906 Racial Profiling Data Collection: No

Highway safety planning process

Data Sources and Processes

Target Setting Process

Maryland maintains the Toward Zero Deaths (TZD) approach by developing interim targets to reduce fatalities by at least 50 percent in the next two decades (from 592 in 2008 to 296 in 2030).

Considering the federal guidelines detailed in the Fixing America's Surface Transportation (FAST) Act, Maryland executives collaborated on revisions to the target-setting methodology. The initial TZD goal remains: 296 fatalities or fewer by 2030. The annual targets for each of the SHSP's six emphasis areas are set using an exponential trend line connecting the historical data to the 2030 goal. Five-year averages are used to calculate projections, and the targets for each individual year are taken from the midpoint of the five-year average (e.g., 2017 annual interim target = midpoint of the 2015–2019 average). The same methodology was used for serious injury targets. However, it should be noted that due to significant declines in serious injuries in recent years, the use of historical trends currently puts the State at or below current targets. Finally, this same method was applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries.

All traffic safety documents in the State of Maryland conform to these methodologies, including the Maryland Highway Safety Office's HSP, the Maryland Department of Transportation State Highway Administration's HSIP, and the MDOT SHA's Commercial Vehicle Safety Plan (CVSP). Additionally, all planning documents developed by the MHSO staff and all State-level reporting to the Governor use the SHSP emphasis-area fatality and serious injury target-setting methodology.

Data Sources

Unless otherwise noted, all data are derived from the MDOT SHA's Safety Information Databases (SHA-SID) and Traffic Analysis Network Garage (TANG) based on crash reports submitted to, and processed by, the Maryland State Police Central Records Division (MSP-CRD) utilizing the Enhanced Maryland Automated Accident Reporting System (eMAARS) and the Automated Crash Reporting System (ACRS). Data are subject

to change. Effective January 1, 2015, the MSP mandated all law enforcement agencies submit all crash reports via ACRS.

Data elements in motor vehicle crash analysis can be classified in three general categories: people, vehicles, and roadway.

These categories may be further defined in subgroups and assigned relevant characteristics for ease and consistency of analysis, as shown in the following table:

Data Category	Subgroups	Details
People	Drivers, occupants, pedestrians, etc.	Age, gender, behavioral aspects, blood alcohol level
Vehicles	Passenger cars, trucks, buses, motorcycles, bicycles, etc.	Sedans, SUVs, convertibles, airbags, levels of protection
Roadway	Interstate, primary, secondary	Political subdivisions, lighting conditions, surface conditions

Data subgroups are reviewed to determine statistical over-representations, which can indicate traffic safety problems or potential problems among subgroups. A good example is the high percentage of crashes among teen drivers compared to the lower percentage of crashes among all drivers or other age groups. Further analysis then typically focuses on identifying subgroup characteristics (such as increased frequency or severity) or other factors suggested by the data when asking the traditional "who, what, where, why, and how" questions.

Evidence-Based Strategies

Maryland's evidence-based traffic safety enforcement methodology uses an integrated enforcement approach utilizing checkpoint inspections and saturation patrols, each as outlined in NHTSA's Countermeasures that Work guiding document. The data-driven, HVE methodology includes enforcement of traffic laws pertaining to impairment, speeding, occupant restraint usage, and other safety issues, coupled with enforcement patrols that saturate specific areas, which are well-documented in local media and describe the effort as an impaired-driving or other appropriate campaign.

Such an effort typically includes uniformed law enforcement officers saturating a high-risk crash or incidence area and engaging the driving public by stopping as many violators as possible to serve as a deterrent to improper and dangerous driving. This highly visible approach provides a public perception of risk that driving without following the law can and will result in a traffic stop, resulting in a citation, or an arrest in the case of impaired driving. This comprehensive statistical and partner-based approach, often in concurrence with associated national campaigns and mobilizations, helps Maryland provide continuous Specific and General Deterrence of improper and unsafe driving from the causal factors outlined above.

In-depth, comprehensive enforcement efforts, combined with background and evidence provided on grant applications, guide Maryland's efforts to allocate funds to law enforcement agencies to conduct priority area-specific overtime enforcement services based on specific problem identification and recent statistical results.

The MHSO uses several sources of data to determine funding allocations. The State's 24 jurisdictions are divided into three groups based on average population over the most recent three-year period for which data is available. The most populous jurisdictions make up the top group and the least populated make up the third group. Within each group, crashes (serious injury and fatal) and citations (DUI, speed and unbelted) per vehicle

miles traveled are calculated by jurisdiction.

Average ranks per jurisdiction are computed across crash and citation fields and applied to the previous year's funding allocations to determine revised funding proportions. Crash and enforcement data are used initially to determine the proper percentage of funding to be disbursed to jurisdictions within the groups. Subjective measures such as demographics, enforcement and outreach capacity, geographical considerations, seasonal fluctuations in traffic, and past performance are then used to refine the figures. From that process, each jurisdiction receives a total allocation of funding to be used in the next fiscal year. The MHSO continues to work with its data consultants to ensure that funding allocations are based on the most recent data available and that formulas are accurate, reasonable, and achievable. This methodology ensures that enforcement funding is allocated to the areas in greatest need and to the agencies that are most capable of implementing the appropriate countermeasures.

The MHSO uses both quantitative and qualitative criteria to measure the desired outcomes of the MHSO's law enforcement grant programs that utilize overtime enforcement funds, including those in the aggressive driving, distracted driving, impaired driving, occupant protection, and pedestrian safety program areas. The MHSO employs a monitoring system for law enforcement reporting data that engages law enforcement partners, grant managers and MHSO team members. In addition to the productivity of officers working overtime enforcement grants, an analysis of crashes, crash fatalities, and serious injuries is utilized by the MHSO's staff throughout the grant monitoring process. The MHSO's four Law Enforcement Liasons (LELs) provide more direct contact with individual agencies across the State. By developing relationships with law enforcement managers and traffic supervisors, the LELs closely monitor project success and efficiently provide information, training, and outreach materials.

Through this comprehensive approach, the MHSO and its law enforcement partners continually follow up, evaluate, and adjust enforcement plans accordingly. This approach improves effectiveness, enhances understanding and support of programs, and utilizes highway safety resources as efficiently as possible.

Processes Participants

Partners

Here is a brief outline of Maryland's ongoing partnership circles and the types of contributions and synergies these committed and invaluable partners provide within Maryland's highway safety grants process:

Federal Government – Agencies such as the NHTSA, the FHWA, and the FMCSA play key roles in problem identification, target-setting, development of countermeasures, grants management, development of education and media campaigns, and assistance to the MHSO with administrative oversight of Maryland's traffic safety grants program.

National Organizations – Organizations representing national professional associations such as the Governors Highway Safety Association (GHSA), the International Association of Chiefs of Police (IACP), the National Sheriffs Association (NSA), and the American Automobile Association (AAA) provide forums for idea formulation, discussion, and analysis of highway safety issues across the nation. These organizations also provide best practices and innovative strategies for dealing with certain highway safety issues.

State and Local Governments – All business units of the MDOT take on significant roles in the MHSO

programming model. Each integrates the goals and priorities of the SHSP into business plans, as outlined within each of the SHSP emphasis areas, including coordination of effective media approaches to ensure consistent, effective, and timely messaging. Local government agencies contribute to the highway safety planning process through representation and input within SHSP Emphasis Area Teams (EATs), MHSOaposs annual highway safety summit, metropolitan planning organization, and most important, the effective oversight and implementation of local grants programs. The MHSO also utilizes data provided by the Maryland Department of Health (MDH), the Maryland Institute for Emergency Medical Services Systems (MIEMSS), and the Statewide EMS Advisory Council.

Law Enforcement – Law enforcement agencies at all levels, including professional organizations such as the Maryland Chiefs of Police Association (MCPA) and Maryland Sheriffs' Association (MSA), are crucial to statewide success in achieving the long-term goal of zero traffic fatalities. Clearly, the highly visible enforcement of Maryland's traffic laws and ongoing participation in executing localized enforcement and training grants are crucial to the ultimate success of the State's traffic safety strategies. Maryland also utilizes information gathered from the Maryland Police and Correctional Training Commissions (MPCTC). MHSO management co-chairs the MCPA Traffic Safety Committee.

Colleges, Universities, and Schools – Maryland employs educational campaigns at all levels, from elementary school through higher education, to inform and guide behaviors of students, often beginning years before they can legally drive. Representatives from educational institutions regularly contribute to Maryland's SHSP EATs and grants review process, assisting with problem identification and countermeasures strategies, and coordinating data and educational programs.

Court System – The MHSO funds a Traffic Safety Resource Prosecutor (TSRP) that focuses solely on clarifying and assisting with traffic enforcement issues and prosecutions in ways designed to increase conviction rates of criminal drivers, and to provide partners within the court system for adjudication support. This TSRP provides training to prosecutors and law enforcement officers, and conducts outreach and assistance to judges, all to facilitate services to the Maryland Judiciary and create safer traffic environments on all roadways.

The MHSO cultivates and fully utilizes its traffic safety partnerships to improve every aspect of its HSP and related policy and implementation decisions, engaging partners in strategy selection, problem identification, and the establishment of effective performance metrics for ongoing evaluation and planning needs.

Throughout the grant year, the MHSO coordinates a wide range of activities and interactions with partner agencies, including governmental entities and private, not-for-profit groups. Communications among these partner agencies include regular contact and planning exchanges directly with the MHSO staff through inclusion in traffic safety task forces, SHSP EATs, scheduled planning meetings, conference calls, and individual interactions through correspondence such as email. Ongoing input and feedback from these partners is vital to establishing a clear direction for statewide strategies and complementary efforts throughout Maryland. In some cases, agencies serve as direct grantees to the MHSO, with closely planned and monitored activities coordinated by those entities. For example, not-for-profit partners such as Mothers Against Drunk Driving (MADD) and the Washington Regional Alcohol Program (WRAP) have established programs to coordinate a variety of statewide impaired driving prevention activities through MHSO grants. As a matter of course, these

entities are often consulted on impaired driving initiatives, and they regularly provide valuable testimony on legislation or other matters of importance to safety efforts.

Similarly, organizations such as MDH offer a variety of expertise and input on child passenger safety issues. Smaller partners are engaged in localized projects throughout the State, including such efforts as young driver education activities planned and implemented through programs like prom projects and other local outreach. These partners are frequently engaged by the MHSO's staff, and such partners are instrumental in the success of local outreach efforts that complement statewide traffic safety programming.

The MHSO also frequently works with partner entities that are not grantees, and input from these partners proves to be vital to the success of the MHSO's efforts. These partners include AAA Mid-Atlantic, National Safety Council, Maryland Shock Trauma, numerous community hospitals, faith-based organizations, service organizations such as Kiwanis Clubs, Metropolitan Planning Organizations, Maryland's public and private school system, ABATE of Maryland, private businesses such as Baltimore Gas and Electric, and representatives of the restaurant industry all serve as knowledge bases that help shape the MHSO's traffic safety messaging and outreach.

In addition, non-grantee partners prove to be valuable conduits through which the MHSO's messaging can be disseminated, and the MHSO works diligently to keep lines of communication open with all potential partners. Again, regular contact is maintained through a variety of methods including task forces, Partners Summits, and regular meetings and contacts, through all aspects of planning and implementation of the HSP.

Description of Highway Safety Problems

In 2017, 558 people were killed—the highest number since 2008—in 115,266 police-reported traffic crashes in Maryland, while 51,337 people were injured, and 80,120 crashes involved property damage only. In total, 347 drivers (268 vehicle drivers and 79 motorcycle operators), 130 non-motorists, and 81 passengers were killed on Maryland roads. On average, one person was killed every 17 hours, 139 people were injured each day (6 injuries every hour), and 329 police-reported traffic crashes occurred every day.

Each year, the same contributing factors account for crashes on Maryland roads -- lack of seat belt use, impaired driving and speed.

The five-year fatality rate trend for Maryland decreased from 0.91 in 2015 to 0.89 in 2016 then increased to 0.93 in 2017. The overall fatality rate has consistently been lower than the national fatality rate every year since 1992.

Crashes in the Baltimore and Washington metropolitan regions accounted for more than 80 percent of the State's annual crashes. More than 19,800 crashes occurred in the City of Baltimore alone in 2017 accounting for approximately 17 percent of those reported statewide. Prince George's County accounted for the greatest number of fatal crashes in Maryland, but ranked third to Baltimore City and Baltimore County in the number of overall crashes.

Crashes occur consistently through the year on Maryland's roadways, spread relatively evenly through the calendar year, but, on average, slightly fewer crashes occur in January and February. Crashes tend to occur most frequently on Fridays and during afternoon or early evening hours in Maryland. Approximately one in every six crashes (16 percent) occurred on a Friday, and close to 50 percent happened between 12 noon and 7 p.m. Young adult drivers, ages 21 to 29, represented one in every five drivers (20 percent) involved in Maryland

crashes. These young adults also comprised a large share of injuries (23 percent) and deaths (24 percent) because of crashes on Maryland roadways.

Female drivers were involved in one-third of the State's overall crashes, but accounted for half of the drivers injured. Male drivers were involved in close to 50 percent of crashes yet accounted for nearly 80 percent of fatally injured drivers. Driver gender was unknown in approximately 18 percent of all crashes.

The following table outlines general crash factors, reflecting statistical over-representation in the various categories listed on crash reports for all of Maryland's traffic crashes. Over-representation is defined as more crashes, injuries, or fatalities occurring among a sub-population than would be expected based on its proportion of the total State population. For example, if 50 percent of the driving population consists of men and 75 percent of impaired drivers in crashes are men, they are statistically over-represented among impaired driving crashes. The MHSO uses such data and information to target informational, educational, and other media efforts by age and gender, while helping State and local officials focus enforcement efforts to areas of high crash frequency by month, day of week, time of day, road type, and county area.

General Crash Factors (2013-2017 Averages)	Factor	Variable
Percentage	Age (drivers)	21–34
29% of involved34% of injured33% of killed29% of involved34% of injured33% of killed29% of involved34% of injured33% of killed	Sex (drivers)	Male
48% of involved49% of injured79% of killed48% of involved49% of injured79% of killed48% of involved49% of injured79% of killed	Month	October–December (total crashes) May–July (injury crashes)May–July (fatal crashes)
Oct.–Dec., total crashes – 27%May–July, injury crashes – 27%May–July, fatal crashes – 26%Oct.–Dec., total crashes – 27%May–July, injury crashes – 27%May–July, fatal crashes – 26%	Day of Week	Friday (total and injury crashes) Saturday (fatal crashes)
Fri. total crashes – 16%Fri. injury crashes – 16%Sat. fatal crashes – 18%	Time of Day	2 p.m.–6 p.m. (total and injury crashes)9 p.m.–2 a.m. (fatal crashes)
Total crashes – 27%Injury crashes – 29%Fatal crashes – 25%	Road Type	State and County roads

Total crashes – 51%Injury crashes – 58%Fatal crashes – 65%	Jurisdiction	Baltimore City, Baltimore, and Prince George's counties (total and injury crashes)Baltimore and Prince George's counties (fatal crashes)Baltimore City, Baltimore, and Prince George's counties (total and injury crashes)Baltimore and Prince George's counties (fatal crashes)

Source: Based on Maryland State Police crash data provided by the MDOT State Highway Administration, 2012-2016 averages.

Methods for Project Selection

Selection Process

Strategies chosen by the MHSO and its partners are selected based on the anticipated success of the countermeasures outlined and on their proven effectiveness in meeting highway safety goals, which are based on analysis processes previously described. In selecting strategies, countermeasures, and projects to best meet safety goals, the MHSO consistently utilizes the HSP and the SHSP, both of which are guided by in-depth data analysis.The MHSO uses proven resources to help select evidence-based countermeasures, including NHTSA's Countermeasures that Work: A Highway Safety Countermeasure Guide for State Highway Safety Offices (Ninth Edition, 2017). In some instances, the MHSO utilizes additional countermeasures based on other federal and state research evidence. In each program area, countermeasures and requirements to show and prove their effectiveness are embedded in grant descriptions and project requirements. The solicitation proposals come from news releases, social media, and direct interaction.

Proposed grant applications are first reviewed jointly by MHSO program managers and professional staff with several objectives in mind:

To ensure the application meets required criteria (eligibility, completeness);

To determine whether the traffic safety impact of proposed grant activities is likely to support established goals by ensuring that the identified problem is adequately outlined, that solutions and strategies are reasonable, that evidence-based resources can be expected to address noted problems, and that proposed solutions align with Maryland's SHSP;

To weigh the applicant's merits in terms of current activities and past performance; and

To determine the appropriateness of the potential grantee to perform the activities.

Determination of the application's potential to impact traffic safety goals is based on the applicant's demonstrated:

Ability to implement evidence-based strategies;

Commitment to sustain and consistently contribute to success of strategies;

Establishment of measurable outcomes for strategies;

Past project performance (if applicable); and

Ability to address the greatest demonstrable need or problem identified.

Proposals that target high-risk populations, high-risk behaviors, and high-crash locations receive additional consideration, thus emphasizing the need for and use of measurable outcomes in defining grant application

strategies and approaches.

Proposed strategies must demonstrate one or more of the following attributes:

An evidence-based strategy of countermeasures supported by research;

A demonstration project, with clear evidence of data-driven safety needs identified; or

A strong evaluation plan for the project that allows the grantee to assess the effectiveness of the activity at its conclusion.

After grant applications are received, the MHSO's Grant Review Team (GRT) conducts a comprehensive review of the applications and described projects or programs. GRT members include:

The MHSO's Chief and Deputy Chief;

The MHSO's Finance Section Chief;

The NHTSA's Region III Program Manager; and

MHSO Program Managers, Section Chiefs, and LELs who present the grant applications to the GRT and provide background and assistance as needed.

The GRT conducts technical analysis of all proposed grant applications, based in part on the following criteria:

Has a traffic safety-related problem been adequately identified and appropriately described in the problem statement?;

Does the proposal clearly address a strategy contained within the SHSP?;

Does the proposal clearly show how the project is expected to address the problem along with expected outcomes?;

Did the applicant include a sensible evaluation plan?;

Are action steps clearly organized and well-defined, especially in terms of countermeasures to be used?;

Are timelines reasonable and achievable?;

Are considerations that might affect grantee performance identified and addressed?; and

Past performance and risk assessment.

During an application review, all aspects of the proposal are analyzed by the various GRT members and any portion of the prospective grantee's request for funding may be excluded. If a portion of the grant request is removed from consideration, the corresponding dollar amount is removed from the total request when calculating the award amount.

Responsibility for final approval and allocation of funds to any grantee rests with the MHSO's Chief during grant review. All projects are reviewed to make sure that costs are allowable, allocable, and appropriate within funding limitations.

Following all team reviews of the applications and appropriate recommendations, the entire grant program proposal is presented for final approval to the GR for Maryland. The GR must then review and sign off on all strategies and grants proposed to be incorporated into the HSP. The MHSO's final selection of grant proposals is heavily based upon the ability of proposed grant projects to address federal and State priorities for traffic safety programs or related priorities and needs outlined through the problem identification process. All grants funded are measured against goals set forth in the HSP and the SHSP, and all grants selected for funding are thus assured to be rooted in a strategy from the SHSP.

List of Information and Data Sources

Data Sources

The sources of the MHSO's data include, but are not limited to:

Maryland Department of Transportation State Highway Administration (MDOT SHA) – Crash data are obtained from the MDOT SHA, which maintains a database derived from crash reports submitted to, and processed and approved by, the Maryland State Police (MSP), along with data on average daily traffic counts and vehicle miles traveled (VMT).

NHTSA – Federal Fatality Analysis Reporting System (FARS);

Maryland Department of Transportation Motor Vehicle Administration (MDOT MVA) – Vehicle and driver information, including the State's driver license, vehicle registration, and citation/conviction files;

Maryland Institute for Emergency Medical Services Systems – Emergency Medical Services (EMS) data information network; statewide trauma registry;

Maryland District Court – Citation data;

Maryland Trauma Registry – Trauma registry, injury data, and EMS databases;

Office of the Chief Medical Examiner (OCME) – Medical examiner data; and

National Study Center (NSC) – CODES; observational seat belt use surveys.

Description of Outcomes

Integration of the Maryland SHSP

Under the GR's leadership, the MHSO provides the day-to-day coordination for Maryland's SHSP. The Maryland SHSP is governed by an Executive Council that includes:

The Deputy Secretary of the MDOT;

The MDOT MVA Administrator/GR;

The MDOT SHA Administrator;

The Secretary of the Maryland Department of State Police (Superintendent);

The Executive Director of the Maryland Institute for EMS Systems;

The Chief of Police of the Maryland Transportation Authority; and

The Deputy Secretary of Maryland's Department of Health.

The SHSP Executive Council meets semi-annually and is responsible for the development and implementation of Maryland's SHSP. Members represent the four Es of highway safety– engineering, education, enforcement, and emergency medical services. The SHSP EATs execute the SHSP's six Emphasis Area strategies and action steps. The EATs include private and not-for-profit highway safety partners, including advocacy groups working for occupant protection legislation; working against impaired, distracted and aggressive driving; and working on behalf of bicycle users, pedestrians, motorcyclists, teen drivers, and many others.

The Executive Council's guidance helps promote partnerships, and ensure inter-agency integration of the SHSP to address Maryland's safety needs comprehensively and strategically, and to share and utilize resources effectively. The MHSO, with the SHSP Executive Council, works closely with Maryland stakeholders at federal, state, and local levels to select performance measures, define targets, and use appropriate data to choose and implement evidence-based countermeasures. In short, the Executive Council coordinates with safety

partners throughout the State to achieve Maryland's overarching goals to decrease the number of traffic crashes, save lives, and prevent injuries.

To ensure consistent and appropriate technical support for the SHSP EATs, the MHSO assigns a designated Data Coordinator to each team to help control and ensure the consistency, availability, and accuracy of data resources for the SHSP. Dependable quality data collection and analysis is crucial in assisting EATs to properly identify target groups, to adapt and refine countermeasures, and to evaluate the effectiveness of implemented strategies.

As part of its responsibilities for the management and direction of Maryland's SHSP, the MHSO updates the strategic plan every five years, providing a current and comprehensive framework to help guide all partners in reducing the numbers of deaths and serious injuries on all public roads within the State. Fatality and serious injury target reductions are communicated and coordinated among partners through meetings, conferences, strategy sessions, and regular communication networks by the MHSO to ensure uniformity and consistency with targets stated in the SHSP.

Thus, the SHSP serves as a true "umbrella" plan guiding highway safety for MDOT, identifying Maryland's key safety needs and priorities as it establishes an agenda of approved strategies to reduce or eliminate identified safety problems. For consistency and completeness, the SHSP is integrated with other state transportation plans including the HSP and the MDOT SHA's Highway Safety Improvement Plan (HSIP). Additionally, frequent coordination meetings between the MHSO Chief and the MDOT SHA's Director of the Office of Traffic and Safety help to harmonize enforcement and educational efforts with engineering countermeasures.

Performance report

Progress towards meeting State performance targets from the previous fiscal year's HSP

Sort Order	Performance measure name	Progress
1	C-1) Number of traffic fatalities (FARS)	In Progress
2	C-2) Number of serious injuries in traffic crashes (State)	Met
3	C-3) Fatalities/VMT (FARS, FHWA)	In Progress
4	C-4) Number of unrestrained passenger vehicle occupant fatalities, all seat positions (FARS)	Met
5	C-5) Number of fatalities in crashes involving a driver or motorcycle operator with a BAC of .08 and above (FARS)	In Progress
6	C-6) Number of speeding-related fatalities (FARS)	Met
7	C-7) Number of motorcyclist fatalities (FARS)	In Progress

8	C-8) Number of unhelmeted motorcyclist fatalities (FARS)	In Progress
9	C-9) Number of drivers age 20 or younger involved in fatal crashes (FARS)	Met
10	C-10) Number of pedestrian fatalities (FARS)	In Progress
11	C-11) Number of bicyclist fatalities (FARS)	In Progress
12	B-1) Observed seat belt use for passenger vehicles, front seat outboard occupants (survey)	In Progress
13	Number of pedestrian (on foot) serious injuries on all roads (State)	In Progress
13	Number of young driver involved fatalities on all roads (State)	Met
13	Number of older driver (65-110) involved serious injuries on all roads (State)	In Progress
13	Number of non-motorized fatalities plus serious injuries on all roads (FARS and State)	In Progress
13	Number of motorcycle-involved serious injuries on all roads (State)	In Progress
13	Number of bicyclist fatalities on all roads (State)	In Progress
13	Number of young driver involved serious injuries on all roads (State)	Met
13	Number of traffic-related fatalities on all roads (State)	In Progress
13	Number of distracted driving related fatalities on all roads (State)	Met
13	Number of aggressive driving related serious injuries on all roads (State)	Met
13	Number of impaired driving (alcohol/drugs) related fatalities on all roads (State)	In Progress
13	Number of impaired driving (alcohol/drugs) related serious injuries on all roads (State)	Met
13	Number of unrestrained-occupant motor vehicle fatalities on all roads (State)	Met

13	Number of distracted driving related serious injuries on all roads (State)	Met
13	Number of unrestrained-occupant motor vehicle serious injuries on all roads (State)	Met
13	Number of speed-related fatalities on all roads (State)	Met
13	Number of speed-related serious injuries on all roads (State)	Met
13	Number of motorcycle-involved fatalities on all roads (State)	In Progress
13	Number of aggressive driving related fatalities on all roads (State)	Met
13	Number of pedestrian (on foot) fatalities on all roads (State)	In Progress
13	Number of bicyclist serious injuries on all roads (State)	In Progress
13	Number of older driver (65-110) involved fatalities on all roads (State)	In Progress
13	Annual rate of traffic-related fatalities per 100 million vehicle miles traveled (MVMT) (State)	Not Met
13	Annual rate of traffic-related serious injuries per 100 million vehicle miles traveled (MVMT) (State)	Met

Performance Measure: C-1) Number of traffic fatalities (FARS)

Progress: In Progress

Program-Area-Level Report

Reduce the number of traffic-related fatalities on all roads in Maryland from 499.8 (2013-2017 average, FARS ARF) to 425.7 (2016–2020 average) or fewer by December 31, 2020. Maryland's 2015-2019 fatalities target is 438.2. The actual number of fatalities was 499.8 (2013-2017 average), which is higher than the target; therefore, Maryland is not progressing towards its target.

Performance Measure: C-2) Number of serious injuries in traffic crashes (State)

Progress: Met

Program-Area-Level Report

Reduce the number of traffic-related serious injuries on all roads in Maryland to 3,029.4 (2016–2020 average) or fewer by December 31, 2020.

Maryland's 2015-2019 serious injuries target is 3,153.1. The actual number of serious injuries was 3,022.2

(2013–2017 average), which is lower than the target; therefore, Maryland has met its target.

Performance Measure: C-3) Fatalities/VMT (FARS, FHWA)

Progress: In Progress

Program-Area-Level Report

Reduce the traffic-related fatality rate on all roads in Maryland from 0.856 (2012–2016 average, FARS ARF) to 0.750 (2016–2020 average) or lower by December 31, 2020. Maryland's 2015-2019 fatality rate target is 0.773. NHTSA has not yet released the 2017 rate information in order to determine progress.

Performance Measure: C-4) Number of unrestrained passenger vehicle occupant fatalities, all seat positions (FARS)

Progress: Met

Program-Area-Level Report

Reduce the number of unrestrained fatalities on all roads in Maryland to 109.6 (2016–2020 average, FARS ARF) or fewer by December 31, 2020.

Maryland's 2015-2019 unrestrained fatality target is 112.1. The actual number of unrestrained fatalities was 104.2 (2013-2017 average), which is lower than the target; therefore, Maryland has met its target.

Performance Measure: C-5) Number of fatalities in crashes involving a driver or motorcycle operator with a BAC of .08 and above (FARS)

Progress: In Progress

Program-Area-Level Report

Reduce the number of alcohol-impaired driving fatalities (BAC = .08+) on all roads in Maryland from 150.8 (2013–2017 average, FARS ARF) to 119.8 (2016–2020 average) or fewer by December 31, 2020. Maryland's 2015-2019 alcohol-impaired driving fatality target is 124.4. The actual number of alcohol-impaired driving fatalities was 150.8 (2013-2017 average), which is higher than the target; therefore, Maryland is not progressing towards its target.

Performance Measure: C-6) Number of speeding-related fatalities (FARS)

Progress: Met

Program-Area-Level Report

Reduce the number of speeding-related fatalities on all roads in Maryland to 135.5 (2016–2020 average, FARS ARF) or fewer by December 31, 2020.

Maryland's FFY 2019 HSP speeding-related fatality target was 140.2 (2015–2019 average). The actual number of speeding-related driving fatalities was 139.6 (2013-2017 average), which is lower than the target; therefore, Maryland has met its target.

Performance Measure: C-7) Number of motorcyclist fatalities (FARS)

Progress: In Progress

Program-Area-Level Report

Reduce the number of motorcyclist fatalities on all roads in Maryland from 73.6 (2013–2017 average, FARS

ARF) to 64.1 (2016–2020 average) or fewer by December 31, 2020. Maryland's 2015-2019 motorcyclist fatality target is 65.8. The actual number of motorcyclist fatalities was 73.6 (2013-2017 average), which is higher than the target; therefore, Maryland is not progressing towards its target.

Performance Measure: C-8) Number of unhelmeted motorcyclist fatalities (FARS)

Progress: In Progress

Program-Area-Level Report

Reduce the number of unhelmeted motorcyclist fatalities on all roads in Maryland from 8.6 (2013–2017 average, FARS ARF) to 7.4 (2016–2020 average) or fewer by December 31, 2020. Maryland's 2015-2019 unhelmeted motorcyclist fatality target is 7.7. The actual number of unhelmeted motorcyclist fatalities was 8.6 (2013-2017 average), which is higher than the target; therefore, Maryland is not progressing towards its target.

Performance Measure: C-9) Number of drivers age 20 or younger involved in fatal crashes (FARS)

Progress: Met

Program-Area-Level Report

Reduce the number of drivers age 20 or younger-involved fatalities on all roads in Maryland to 52.2 (2016–2020 average, FARS ARF) or fewer by December 31, 2020.

Maryland's 2015-2019 younger-involved fatality target is 54.1. The actual number of younger-involved fatalities was 44.2 (2013-2017 average), which is lower than the target; therefore, Maryland has met its target.

Performance Measure: C-10) Number of pedestrian fatalities (FARS)

Progress: In Progress

Program-Area-Level Report

Reduce the number of pedestrian fatalities on all roads in Maryland from 105.6 (2013–2017 average, FARS ARF) to 85.8 (2016–2020 average) or fewer by December 31, 2020. Maryland's 2015-2019 pedestrian fatality target is 87.7. The actual number of pedestrian fatalities was 105.6 (2013-2017 average), which is higher than the target; therefore, Maryland is not progressing towards its target.

Performance Measure: C-11) Number of bicyclist fatalities (FARS)

Progress: In Progress

Program-Area-Level Report

Reduce the number of bicyclist fatalities on all roads in Maryland from 9.6 (2013–2017 average, FARS ARF) to 5.5 (2016–2020 average) or fewer by December 31, 2020. Maryland's 2015-2019 bicyclist fatality target is 5.7. The actual number of bicyclist fatalities was 9.6 (2013-2017 average), which is higher than the target; therefore, Maryland is not progressing towards its target.

Performance Measure: B-1) Observed seat belt use for passenger vehicles, front seat outboard occupants (survey)

Progress: In Progress

Program-Area-Level Report

To increase statewide observed belt use rate of front seat outboard occupants in passenger vehicles and light trucks from the 2012 calendar base year of 91.1 percent to 96.2 percent by December 31, 2020. The target for 2019 is 95.5. It is unknown at this time whether the target has been met as survey results will not be available until after the HSP is submitted to NHTSA on July 1; however, the 2018 rate of 90.3% indicates the State may not be moving toward its target. (The target submitted in the FFY2018 for 2018 was 94.8.)

Performance Measure: Number of pedestrian (on foot) serious injuries on all roads (State)

Progress: In Progress

Program-Area-Level Report

Reduce the number of pedestrian (on foot) serious injuries on all roads in Maryland from 396.8 (2013–2017 average) to 319.8 (2016–2020 average) or fewer by December 31, 2020. Maryland's FFY 2019 HSP pedestrian (on foot) serious injuries target was 329.5 (2015–2019 average). The actual number of pedestrian (on foot) serious injuries was 396.8 (2013–2017 average), which is higher than the target; therefore Maryland is not progressing towards its target.

Performance Measure: Number of young driver involved fatalities on all roads (State)

Progress: Met

Program-Area-Level Report

Reduce the number of young-driver-involved fatalities on all roads in Maryland to 57.9 (2016–2020 average) or fewer by December 31, 2020.
Maryland's 2015-2019 young-driver-involved fatalities target was 59.9 (2015–2019 average). The actual number of young-driver-involved fatalities was 48.8 (2013–2017 average), which is lower than the target; therefore, Maryland has met its target.

Performance Measure: Number of older driver (65-110) involved serious injuries on all roads (State)

Progress: In Progress

Program-Area-Level Report

Reduce the number of older-driver-involved serious injuries on all roads in Maryland from 474.2 (2013–2017 average) to 442.1 (2016–2020 average) or fewer by December 31, 2020. Maryland's 2015-2019 older-driver-involved serious injuries target was 458.7. The actual number of older-driver-involved serious injuries was 474.2 (2013–2017 average), which is higher than the target; therefore, Maryland has not met its target.

Performance Measure: Number of non-motorized fatalities plus serious injuries on all roads (FARS and State)

Progress: In Progress

Program-Area-Level Report

Reduce the number of traffic-related non-motorized fatalities and serious injuries on all roads in Maryland from

578.2 (2013-2017 average) to 465.8 (2016–2020 average) or fewer by December 31, 2020. Maryland's 2015-2019 non-motorized fatalities and serious injuries target is 479.5. The actual number of traffic-related non-motorized fatalities and serious injuries was 578.2 (2013–2017 average), which is higher than the target; therefore Maryland is not progressing towards its target.

Performance Measure: Number of motorcycle-involved serious injuries on all roads (State)

Progress: In Progress

Program-Area-Level Report

Reduce the number of motorcyclist serious injuries on all roads in Maryland from 283.6 (2013–2017 average) to 248.9 (2016–2020 average) or fewer by December 31, 2020. Maryland's 2015-2019 motorcyclist serious injuries target was 258.3. The actual number of motorcyclist serious injuries was 283.6 (2013–2017 average), which is higher than the target; therefore, Maryland has not met its target.

Performance Measure: Number of bicyclist fatalities on all roads (State)

Progress: In Progress

Program-Area-Level Report

Reduce the number of bicyclist fatalities on all roads in Maryland from 10.0 (2013–2017 average) to 5.9 (2016–2020 average) or fewer by December 31, 2020. Maryland's 2015-2019 bicyclist fatalities target was 6.1. The actual number of bicyclist fatalities was 10.0 (2013–2017 average), which is higher than the target; therefore, Maryland has not met its target.

Performance Measure: Number of young driver involved serious injuries on all roads (State)

Progress: Met

Program-Area-Level Report

Reduce the number of young-driver-involved serious injuries on all roads in Maryland to 528.2 (2016–2020 average) or fewer by December 31, 2020.

Maryland's 2015-2019 young-driver-involved serious injuries target was 553.6. The actual number of young-driver-involved serious injuries was 420.4 (2013–2017 average), which is lower than the target; therefore, Maryland has met its target.

Performance Measure: Number of traffic-related fatalities on all roads (State)

Progress: In Progress

Program-Area-Level Report

Reduce the number of traffic-related fatalities on all roads in Maryland from 501.8 (2013–2017 average, State data) to 426.3 (2016–2020 average) or fewer by December 31, 2020. Maryland's 2015-2019 fatalities target was 438.8. The actual number of fatalities was 501.8 (2013–2017 average, State data), which is higher than the target; therefore, Maryland is not progressing toward its target.

Performance Measure: Number of distracted driving related fatalities on all roads

(State)

Progress: Met

Program-Area-Level Report

Reduce the number of distracted-driving-related fatalities on all roads in Maryland to 178.2 (2016–2020 average) or fewer by December 31, 2020.

Maryland's 2015-2019 distracted-driving-related fatalities target is 185.1. The actual number of distracted-driving-related fatalities was 168.0 (2013–2017 average), which is lower than the target; therefore, Maryland has met its target.

Performance Measure: Number of aggressive driving related serious injuries on all roads (State)

Progress: Met

Program-Area-Level Report

Reduce the number of aggressive-driving-related serious injuries on all roads in Maryland to 266.8 (2016–2020 average) or fewer by December 31, 2020.

Maryland's 2015-2019 aggressive-driving-related serious injuries target is 277.5. The actual number of aggressive-driving-related serious injuries was 211.8 (2013–2017 average), which is lower than the target; therefore, Maryland has met its target.

Performance Measure: Number of impaired driving (alcohol/drugs) related fatalities on all roads (State)

Progress: In Progress

Program-Area-Level Report

Reduce the number of impaired-driving-related (State definition) fatalities on all roads in Maryland from 162.6 (2013–2017 average) to 135.4 (2016–2020 average) or fewer by December 31, 2020. Maryland's FFY 2019 HSP impaired-driving-related fatalities target was 140.4 (2015–2019 average). The actual number of distracted-driving-related fatalities was 162.6 (2013–2017 average), which is higher than the target; therefore, Maryland is not progressing towards its target.

Performance Measure: Number of impaired driving (alcohol/drugs) related serious injuries on all roads (State)

Progress: Met

Program-Area-Level Report

Reduce the number of impaired-driving-related (State definition) serious injuries on all roads in Maryland to 427.7 (2016–2020 average) or fewer by December 31, 2020.

Maryland's 2015-2019 impaired-driving-related serious injuries target is 446.0. The actual number of impaired-driving related serious injuries was 413.6 (2013-2017 average), which is lower than the target; therefore, Maryland has met its target.

Performance Measure: Number of unrestrained-occupant motor vehicle fatalities

on all roads (State)

Progress: Met

Program-Area-Level Report

Reduce the number of unrestrained fatalities on all roads in Maryland to 96.5 (2016–2020 average) or fewer by December 31, 2020.

Maryland's 2015-2019 unrestrained fatalities target is 99.9. The actual number of unrestrained fatalities was 98.6 (2013–2017 average), which is lower than the target; therefore, Maryland has met its target.

Performance Measure: Number of distracted driving related serious injuries on all roads (State)

Progress: Met

Program-Area-Level Report

Reduce the number of distracted-driving-related serious injuries on all roads in Maryland to 1,763.9 (2016–2020 average) or fewer by December 31, 2020.

Maryland's 2015-2019 distracted-driving-related serious injuries target is 1,845.0. The actual number of distracted-driving-related serious injuries was 1,317.6 (2013–2017 average), which is lower than the target; therefore, Maryland has met its target.

Performance Measure: Number of unrestrained-occupant motor vehicle serious injuries on all roads (State)

Progress: Met

Program-Area-Level Report

Reduce the number of unrestrained serious injuries on all roads in Maryland to 281.4 (2016–2020 average) or fewer by December 31, 2020.

Maryland's 2015-2019 unrestrained fatalities target is 292.6. The actual number of unrestrained fatalities was 285.6 (2013–2017 average), which is lower than the target; therefore, Maryland has met its target.

Performance Measure: Number of speed-related fatalities on all roads (State)

Progress: Met

Program-Area-Level Report

Reduce the number of speed-related fatalities on all roads in Maryland to 104.6 (2016–2020 average) or fewer by December 31, 2020.

Maryland's 2015-2019 speed-related fatalities target was 108.3. The actual number of speed-related fatalities was 91.2 (2013–2017 average), which is lower than the target; therefore, Maryland has met its target.

Performance Measure: Number of speed-related serious injuries on all roads (State)

Progress: Met

Program-Area-Level Report

Reduce the number of speed-related serious injuries on all roads in Maryland from 409.2 (2013–2017 average) to 566.5 (2016–2020 average) or fewer by December 31, 2020. Maryland's 2015-2019 speed-related serious

injuries target was 592.0. The actual number of speed-related serious injuries was 409.2 (2013–2017 average), which is lower than the target; therefore, Maryland has met its target.

Performance Measure: Number of motorcycle-involved fatalities on all roads (State)

Progress: In Progress

Program-Area-Level Report

Reduce the number of motorcyclist fatalities on all roads in Maryland from 71.8 (2013–2017 average) to 60.2 (2016–2020 average) or fewer by December 31, 2020. Maryland's FFY 2019 HSP motorcyclist fatalities target was 62.0 (2015–2019 average). The actual number of motorcyclist fatalities was 71.8 (2013–2017 average), which is higher than the target; therefore, Maryland has not met its target.

Performance Measure: Number of aggressive driving related fatalities on all roads (State)

Progress: Met

Program-Area-Level Report

Reduce the number of aggressive-driving-related fatalities on all roads in Maryland to 40.7 (2016–2020 average) or fewer by December 31, 2020.

Maryland's 2015-2019 aggressive-driving-related fatalities target is 42.2. The actual number of aggressive-driving-related fatalities was 39.4 (2013–2017 average), which is lower than the target; therefore, Maryland has met its target.

Performance Measure: Number of pedestrian (on foot) fatalities on all roads (State)

Progress: In Progress

Program-Area-Level Report

Reduce the number of pedestrian (on foot) fatalities on all roads in Maryland from 107.0 (2013–2017 average) to 86.2 (2016–2020 average) or fewer by December 31, 2020. Maryland's FFY 2019 HSP pedestrian (on foot) fatalities target was 88.4 (2015–2019 average). The actual number of pedestrian (on foot) fatalities was 107.0 (2013–2017 average), which is higher than the target; therefore, Maryland is not progressing towards its target.

Performance Measure: Number of bicyclist serious injuries on all roads (State)

Progress: In Progress

Program-Area-Level Report

Reduce the number of bicyclist serious injuries on all roads in Maryland from 66.2 (2013–2017 average) to 56.7 (2016–2020 average) or fewer by December 31, 2020. Maryland's 2015-2019 bicyclist serious injuries target was 58.4. The actual number of bicyclist serious injuries was 66.2 (2013–2017 average), which is higher than the target; therefore, Maryland has not met its target.

Performance Measure: Number of older driver (65-110) involved fatalities on all roads (State)

Progress: In Progress

Program-Area-Level Report

Reduce the number of older-driver-involved fatalities on all roads in Maryland from 91.2 (2013–2017 average) to 68.1 (2016-2020 average) or fewer by December 31, 2020. Maryland's 2015-2019 older-driver-involved fatalities target was 70.3. The actual number of older-driver-involved fatalities was 91.2 (2013–2017 average), which is higher than the target; therefore, Maryland has not met its target.

Performance Measure: Annual rate of traffic-related fatalities per 100 million vehicle miles traveled (MVMT) (State)

Progress: Not Met

Program-Area-Level Report

Performance Measure: Annual rate of traffic-related serious injuries per 100 million vehicle miles traveled (MVMT) (State)

Progress: Met

Program-Area-Level Report

Reduce the traffic-related serious injury rate on all roads in Maryland to 5.372 (2016–2020 average) or lower by December 31, 2020.

Maryland's 2015-2019 serious injury rate target is 5.591. The actual serious injury rate was 5.225 (2013–2017 average), which is lower than the target; therefore, Maryland has met its target.

Performance Plan

Sort Order	Performance measure name	Target Period	Target Start Year	Target End Year	Target Value
1	C-1) Number of traffic fatalities (FARS)	5 Year	2016	2020	425.7
2	C-2) Number of serious injuries in traffic crashes (State)	5 Year	2016	2020	3029.4
3	C-3) Fatalities/VMT (FARS, FHWA)	5 Year	2016	2020	0.750
4	C-4) Number of unrestrained passenger vehicle occupant fatalities, all seat positions (FARS)	5 Year	2016	2020	109.6

5	C-5) Number of fatalities in crashes involving a driver or motorcycle operator with a BAC of .08 and above (FARS)	5 Year	2016	2020	119.8
6	C-6) Number of speeding-related fatalities (FARS)	5 Year	2016	2020	135.5
7	C-7) Number of motorcyclist fatalities (FARS)	5 Year	2016	2020	64.1
8	C-8) Number of unhelmeted motorcyclist fatalities (FARS)	5 Year	2016	2020	7.40
9	C-9) Number of drivers age 20 or younger involved in fatal crashes (FARS)	5 Year	2016	2020	52.2
10	C-10) Number of pedestrian fatalities (FARS)	5 Year	2016	2020	85.8
11	C-11) Number of bicyclist fatalities (FARS)	5 Year	2016	2020	5.52
12	B-1) Observed seat belt use for passenger vehicles, front seat outboard occupants (survey)	Annual	2020	2020	95.50

13	Number of impaired driving (alcohol/drugs) related fatalities on all roads (State data)	5 Year	2016	2020	135.4
14	Number of impaired driving (alcohol/drugs) related serious injuries on all roads (State data)	5 Year	2016	2020	427.7
15	Number of unrestrained-occupant motor vehicle fatalities on all roads (State data)	5 Year	2016	2020	96.5
16	Number of unrestrained-occupant motor vehicle serious injuries on all roads (State data)	5 Year	2016	2020	281.4
17	Number of distracted driving related fatalities on all roads (State data)	5 Year	2016	2020	178.2
18	Number of distracted driving related serious injuries on all roads (State data)	5 Year	2016	2020	1763.9
19	Number of speed-related fatalities on all roads (State data)	5 Year	2016	2020	104.6

20	Number of speed-related serious injuries on all roads (State data)	5 Year	2016	2020	566.5
21	Number of motorcycle-involved fatalities on all roads (State data)	5 Year	2016	2020	60.2
22	Number of motorcycle-involved serious injuries on all roads (State data)	5 Year	2016	2020	248.9
23	Number of pedestrian (on foot) fatalities on all roads (State data)	5 Year	2016	2020	86.2
24	Number of pedestrian (on foot) serious injuries on all roads (State data)	5 Year	2016	2020	319.8
25	Number of bicyclist fatalities on all roads (State)	5 Year	2016	2020	5.9
26	Number of bicycle serious injuries on all roads (State)	5 Year	2016	2020	56.7
27	Number of young driver involved fatalities on all roads (State roads)	5 Year	2016	2020	57.9
28	Number of young driver involved serious injuries on all roads (State roads)	5 Year	2016	2020	528.2

29	Number of older driver (65-110) involved fatalities on all roads (State data)	5 Year	2016	2020	68.1
30	Number of older driver (65-110) involved serious injuries on all roads (State data)	5 Year	2016	2020	442.1
31	Number of traffic-related fatalities on all roads (State)	5 Year	2016	2020	426.3
32	Annual rate of traffic-related fatalities per 100 million vehicle miles traveled (MVMT) (State data)	5 Year	2016	2020	0.756
33	Annual rate of traffic-related serious injuries per 100 million vehicle miles traveled (MVMT) (State data)	5 Year	2016	2020	5.372
34	Number of non-motorized fatalities plus serious injuries on all roads (FARS and State)	5 Year	2016	2020	465.8
35	Number of aggressive driving related fatalities on all roads (State data)	5 Year	2016	2020	40.7

36	Number of aggressive driving related serious injuries on all roads (State data)	5 Year	2016	2020	266.8

Performance Measure: C-1) Number of traffic fatalities (FARS)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
C-1) Number of traffic fatalities (FARS)-2020	Numeric	425.7	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent, starting with a baseline of 2008 to an end goal in 2030.   Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: C-2) Number of serious injuries in traffic crashes (State)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
C-2) Number of serious injuries in traffic crashes (State crash data files)-2020	Numeric	3029.4	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the

Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: C-3) Fatalities/VMT (FARS, FHWA)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
C-3) Fatalities/VMT (FARS, FHWA)-2020	Numeric	0.750	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: C-4) Number of unrestrained passenger vehicle occupant

fatalities, all seat positions (FARS)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
C-4) Number of unrestrained passenger vehicle occupant fatalities, all seat positions (FARS)-2020	Numeric	109.6	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.) This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets. To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: C-5) Number of fatalities in crashes involving a driver or motorcycle operator with a BAC of .08 and above (FARS)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
C-5) Number of fatalities in crashes involving a driver or motorcycle operator with a BAC of .08 and above (FARS)-2020	Numeric	119.8	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: C-6) Number of speeding-related fatalities (FARS)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
C-6) Number of speeding-related fatalities (FARS)-2020	Numeric	135.5	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however,

due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: C-7) Number of motorcyclist fatalities (FARS)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
C-7) Number of motorcyclist fatalities (FARS)-2020	Numeric	64.1	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: C-8) Number of unhelmeted motorcyclist fatalities (FARS)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
C-8) Number of unhelmeted motorcyclist fatalities (FARS)-2020	Numeric	7.40	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it

should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: C-9) Number of drivers age 20 or younger involved in fatal crashes (FARS)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
C-9) Number of drivers age 20 or younger involved in fatal crashes (FARS)-2020	Numeric	52.2	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: C-10) Number of pedestrian fatalities (FARS)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
C-10) Number of pedestrian fatalities (FARS)-2020	Numeric	85.8	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: C-11) Number of bicyclist fatalities (FARS)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
C-11) Number of bicyclists fatalities (FARS)-2020	Numeric	5.52	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and

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Performance Measure: B-1) Observed seat belt use for passenger vehicles, front seat outboard occupants (survey)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
B-1) Observed seat belt use for passenger vehicles, front seat outboard occupants (survey)-2020	Percentage	95.50	Annual	2020

Performance Target Justification

The target belt use rates estimate a reduction in the number of observed unbelted motor vehicle occupants by at least 25 in each of the observation counties for each successive year. Targets were set based on the 92.1% belt use rate in 2014.

Performance Measure: Number of impaired driving (alcohol/drugs) related fatalities on all roads (State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of impaired driving (alcohol/drugs) related fatalities on all roads (State data)-2020	Numeric	135.4	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or

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Performance Measure: Number of impaired driving (alcohol/drugs) related serious injuries on all roads (State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of impaired driving (alcohol/drugs) related serious injuries on all roads (State data)-2020	Numeric	427.7	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: Number of unrestrained-occupant motor vehicle fatalities on all roads (State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of unrestrained-occupant motor vehicle fatalities on all roads (State data)-2020	Numeric	96.5	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.) This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets. To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: Number of unrestrained-occupant motor vehicle serious injuries on all roads (State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of unrestrained-occupant motor vehicle serious injuries on all roads (State data)-2020	Numeric	281.4	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it

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Performance Measure: Number of distracted driving related fatalities on all roads (State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of distracted driving related fatalities on all roads (State data)-2020	Numeric	178.2	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: Number of distracted driving related serious injuries on all roads (State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of distracted driving related serious injuries on all roads (State data)-2020	Numeric	1763.9	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: Number of speed-related fatalities on all roads (State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of speed-related fatalities on all roads (State data)-2020	Numeric	104.6	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it

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Performance Measure: Number of speed-related serious injuries on all roads (State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of speed-related serious injuries on all roads (State data)-2020	Numeric	566.5	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: Number of motorcycle-involved fatalities on all roads (State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of motorcycle-involved fatalities on all roads (State data)-2020	Numeric	60.2	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: Number of motorcycle-involved serious injuries on all roads (State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of motorcycle-involved serious injuries on all roads (State data)-2020	Numeric	248.9	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g.,

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Performance Measure: Number of pedestrian (on foot) fatalities on all roads (State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of pedestrian (on foot) fatalities on all roads (State data)-2020	Numeric	86.2	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: Number of pedestrian (on foot) serious injuries on all roads

(State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of pedestrian (on foot) serious injuries on all roads (State data)-2020	Numeric	319.8	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: Number of bicyclist fatalities on all roads (State)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of bicycle fatalities on all roads (State data)-2020	Numeric	5.9	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it

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Performance Measure: Number of bicycle serious injuries on all roads (State)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of bicycle serious injuries on all roads (State data)-2020	Numeric	56.7	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: Number of young driver involved fatalities on all roads (State roads)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of young driver involved fatalities on all roads (State roads)-2020	Numeric	57.9	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: Number of young driver involved serious injuries on all roads (State roads)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of young driver involved serious injuries on all roads (State roads)-2020	Numeric	528.2	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the

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Performance Measure: Number of older driver (65-110) involved fatalities on all roads (State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of older driver (65-110) involved fatalities on all roads (State data)-2020	Numeric	68.1	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: Number of older driver (65-110) involved serious injuries on all roads (State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of older driver (65-110) involved serious injuries on all roads (State data)-2020	Numeric	442.1	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: Number of traffic-related fatalities on all roads (State)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of traffic-related fatalities on all roads (State data)-2020	Numeric	426.3	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or

below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: Annual rate of traffic-related fatalities per 100 million vehicle miles traveled (MVMT) (State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Annual rate of traffic-related fatalities per 100 million vehicle miles traveled (MVMT) (State data)-2020	Numeric	0.756	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: Annual rate of traffic-related serious injuries per 100 million vehicle miles traveled (MVMT) (State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Annual rate of traffic-related serious injuries per 100 million vehicle miles traveled (MVMT) (State data)-2020	Numeric	5.372	5 Year	2016

Performance Target Justification

In 2017, 558 people were killed—the highest number since 2008—in 115,353 police-reported traffic crashes in Maryland, while 51,369 people were injured, and 80,185 crashes involved property damage only. In total, 347 drivers (268 vehicle drivers and 79 motorcycle operators), 130 non-motorists, and 81 passengers were killed on Maryland roads. On average, one person was killed every 16 hours, 141 people were injured each day (6 injuries every hour), and 316 police-reported traffic crashes occurred every day.   The five-year fatality rate trend for Maryland decreased from 0.91 in 2015 to 0.89 in 2016 then increased to 0.93 in 2017. The overall fatality rate has consistently been lower than the national fatality rate every year since 1992.   Crashes in the Baltimore and Washington metropolitan regions accounted for more than 80 percent of the State's annual crashes. More than 19,800 crashes occurred in the City of Baltimore alone in 2017 accounting for approximately 17 percent of those reported statewide. Prince George's County accounted for the greatest number of fatal crashes in Maryland, but ranked third to Baltimore City and Baltimore County in the number of overall crashes.   Crashes occur consistently through the year on Maryland's roadways, spread relatively evenly through the calendar year, but, on average, slightly fewer crashes occur in January and February. Crashes tend to occur most frequently on Fridays and during afternoon or early evening hours in Maryland. Approximately one in every six crashes (16 percent) occurred on a Friday, and close to 50 percent happened between 12 noon and 7 p.m.   Young adult drivers, ages 21 to 29, represented one in every five drivers (20 percent) involved in Maryland crashes. These young adults also comprised a large share of injuries (23 percent) or deaths (24 percent) because of crashes on Maryland roadways.   Female drivers were involved in one-third of the State's overall crashes, but accounted for half of the drivers injured. Male drivers were involved in close to 50 percent of crashes yet accounted for nearly 80 percent of fatally injured drivers. Driver gender was unknown in approximately 18% of all crashes.   General Crash Factors (2013-2017 Averages)   Factor Variable Percentage Age (drivers) 21–34 29% of involved; 34% of injured; 33% of killed   Sex (drivers) Male   48% of involved; 49% of injured; 79% of killed   Month   October–December (total crashes); May–July (injury crashes); May–July (fatal crashes)   Oct.–Dec., total crashes – 27%; May–July, injury crashes – 27%; May–July, fatal crashes – 26%   Day of Week   Friday (total and injury crashes); Saturday (fatal crashes)   Fri. total crashes – 16%; Fri. injury crashes – 16%; Sat. fatal crashes – 18%   Time of Day 2 p.m.–6 p.m. (total and injury crashes); 9 p.m.–2 a.m. (fatal crashes)   Total crashes – 27%; Injury crashes – 29%; Fatal crashes – 25%   Road Type   State and County roads   Total crashes – 51%; Injury crashes – 58%; Fatal crashes – 65%   Jurisdiction   Baltimore City, Baltimore, and Prince George's counties (total and injury crashes); Baltimore and Prince George's counties (fatal crashes)   Total crashes – 52%; Injury crashes – 46%; Fatal crashes – 31%

Performance Measure: Number of non-motorized fatalities plus serious injuries on all roads (FARS and State)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of non-motorized fatalities plus serious injuries on all roads (FARS and State data)-2020	Numeric	465.8	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.)   This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets.   To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: Number of aggressive driving related fatalities on all roads (State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of aggressive driving related fatalities on all roads (State data)-2020	Numeric	40.7	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the

Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.) This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets. To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however, due to smaller numbers in the emphasis area categories, no fixed end-point is used.

Performance Measure: Number of aggressive driving related serious injuries on all roads (State data)

Performance Target details

Performance Target	Target Metric Type	Target Value	Target Period	Target Start Year
Number of aggressive driving related serious injuries (State data)-2020	Numeric	266.8	5 Year	2016

Performance Target Justification

Maryland has set highway safety performance targets that are quantifiable and data driven, maintaining the Toward Zero Deaths (TZD) approach by developing interim targets to reduce overall fatalities and serious injuries by at least 50 percent in the next two decades, starting with a baseline of 2008 to an end goal in 2030. Five-year rolling averages are used to calculate five-year-average targets for fatalities and serious injuries, e.g., 2012–2016 actual crash data are used to determine targets for 2015–2019 (five-year average). (However, it should be noted that due to significant declines in serious injuries in recent years, and a recent change in the Maryland crash report definition of injury severity, the use of historical trends currently puts the State at or below current targets for serious injuries.) This method is applied to the five performance measures required by the Federal Highway Administration (FHWA): fatalities, fatality rate, serious injuries, serious injury rate, and non-motorized fatalities and serious injuries with the first three being identical in Maryland's HSP and HSIP. For these five measures, the exponential trend line uses the 2030 TZD goal as a fixed end-point when calculating interim targets. To meet federal guidelines set forth in the Fixing America's Surface Transportation (FAST) Act, annual targets for each of the SHSP's six emphasis areas and HSP program areas are also set using an exponential trend line and five-year rolling averages to calculate future targets; however,

due to smaller numbers in the emphasis area categories, no fixed end-point is used.

 Certification: State HSP performance targets are identical to the State DOT targets for common performance measures (fatality, fatality rate, and serious injuries) reported in the HSIP annual report, as coordinated through the State SHSP.

I certify: Yes

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

Seat belt citations: 2364

Fiscal Year A-1: 2018

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

Impaired driving arrests: 1109

Fiscal Year A-2: 2018

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

Speeding citations: 22226

Fiscal Year A-3: 2018

Program areas

Program Area: Aggressive Driving

Description of Highway Safety Problems

Associated Performance Measures

Fiscal Year	Performance measure name	Target End Year	Target Period	Target Value
2020	Number of aggressive driving related serious injuries on all roads (State data)	2020	5 Year	266.8
2020	Number of aggressive driving related fatalities on all roads (State data)	2020	5 Year	40.7

Countermeasure Strategies in Program Area

Countermeasure Strategy
HVE - Aggressive Driving

Countermeasure Strategy: HVE - Aggressive Driving

Program Area: Aggressive Driving

Project Safety Impacts

Maryland has an aggressive driving law and law enforcement agencies are tasked with coordinating numerous 10-day waves of enforcement each year. The campaign, known as ADAPT (Aggressive Drivers Are Public

Threats), is an HVE campaign that receives law enforcement participation across the State.

High visibility enforcement campaigns have been used to deter speeding and aggressive driving through both specific and general deterrence. In the high visibility enforcement model, law enforcement targets high-crash or high-violation geographical areas using either expanded regular patrols or designated aggressive driving patrols. This model is based on the same principles as high visibility seat belt and alcohol-impaired-driving enforcement: to convince the public that speeding and aggressive driving actions are likely to be detected and that offenders will be arrested and punished.

In the high visibility enforcement model, officers focus on drivers who commit common aggressive driving actions such as speeding, following too closely, and running red lights. Enforcement is publicized widely. Because speeding and aggressive driving are moving violations, officers cannot use checkpoints. Rather, they must observe driving behavior on the road.

Linkage Between Program Area

Aggressive driving prevention is an emphasis area for Maryland, reflected in both this HSP and the State's SHSP. Maryland's HVE campaign conforms to one of the most effective "Countermeasures That Work" in regard to aggressive driving prevention and speeding enforcement.

 The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

This countermeasure is featured in the 9th Edition of Countermeasures That Work.

Aggressive driving and speeding constitute dangerous driving behaviors on Maryland's roads, as supported in the MHSO's data.

 High visibility enforcement campaigns have been used to deter speeding and aggressive driving through both specific and general deterrence. In the high visibility enforcement model, law enforcement targets selected high-crash or high-violation geographical areas using either expanded regular patrols or designated aggressive driving patrols. This model is based on the same principles as high visibility seat belt and alcohol-impaired-driving enforcement: to convince the public that speeding and aggressive driving actions are likely to be detected and that offenders will be arrested and punished.

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-285	MHSO Internal-Aggressive Driving
LE MHSO 2020 Aggressive	HVE - Aggressive

Planned Activity: MHSO Internal-Aggressive Driving

Planned activity number: GN 20-285

Primary Countermeasure Strategy ID: HVE - Aggressive Driving

Planned Activity Description

This activity will consist of media placement and HVE support for the MHSO's aggressive driving prevention campaign.

Maryland is continuing the implementation of its new aggressive driving media and marketing campaign. ADAPT Aggressive Drivers Are Public Threats. ADAPT is a unique public safety initiative. It is a partnership of law enforcement and public safety officials and other experts in Maryland. ADAPT is a coordinated program designed to combat the aggressive driving problem and to find short and long term solutions for it. The Aggressive Driving program manager will work with its marketing company, the SHSP emphasis area team and MHSO's communications manager to continue and evolve this campaign. The campaign will include print media, creative and radio messaging. The aggressive driving manager will assist in development, production and design of this media. The aggressive driving manager will work with Integrated Designs on timelines, production and implementation of the program.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
HVE - Aggressive Driving

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Paid Advertising (FAST)	$220,000.00		$220,000.00

Planned Activity: HVE - Aggressive

Planned activity number: LE MHSO 2020 Aggressive

Primary Countermeasure Strategy ID: HVE - Aggressive Driving

Planned Activity Description

The MHSO will coordinate High Visibility Enforcement consisting of numerous 10-day enforcement waves throughout FFY 2020. Each enforcement wave will be preceded by paid media as directed by the MHSO's Aggressive Driving Prevention Program Manager.

Intended Subrecipients

Aberdeen Police Department	Aggressive Driving	LE 20-155
Allegany County Sheriffaposs Office	Aggressive Driving	LE 20-151

Annapolis Police Department	Aggressive Driving	LE 20-178
Anne Arundel County Police Department	Aggressive Driving	LE 20-034
Baltimore City Police Department	Aggressive Driving	LE 20-169
Baltimore County Police Department	Aggressive Driving	LE 20-112
Bel Air Police Department	Aggressive Driving	LE 20-147
Berlin Police Department	Aggressive Driving	LE 20-056
Calvert County Sheriffaposs Office	Aggressive Driving	LE 20-069
Cambridge Police Department	Aggressive Driving	LE 20-223
Caroline County Sheriffaposs Office	Aggressive Driving	LE 20-012
Carroll County Sheriffaposs Office	Aggressive Driving	LE 20-143
Cecil County Sheriffaposs Office	Aggressive Driving	LE 20-029
Charles County Sheriffaposs Office	Aggressive Driving	LE 20-185
Cheverly Police Department	Aggressive Driving	LE 20-
City of Bowie	Aggressive Driving	LE 20-129
City of Hyattsville Police Department	Aggressive Driving	LE 20-226LE 20-226
Denton Police Department	Aggressive Driving	LE 20-312
Easton Police Department	Aggressive Driving	LE 20-041
Elkton Police Department	Aggressive Driving	LE 20-110
Frederick Police Department	Aggressive Driving	LE 20-004
Fruitland Police Department	Aggressive Driving	LE 20-031
Gaithersburg Police Department	Aggressive Driving	LE 20-127
Garrett County Commissioners	Aggressive Driving	LE 20-039
Greenbelt Police Department	Aggressive Driving	LE 20-102
Hagerstown Police Department	Aggressive Driving	LE 20-303
Hampstead Police Department	Aggressive Driving	LE 20-241
Hancock Police Department	Aggressive Driving	
Harford County Sheriffaposs Office	Aggressive Driving	LE 20-002
Havre de Grace Police Department	Aggressive Driving	LE 20-096
Howard County Department of Police	Aggressive Driving	LE 20-083
Kent County Sheriffaposs Office	Aggressive Driving	

Laurel Police Department	Aggressive Driving	LE 20-160
Maryland State Police - Statewide	Aggressive Driving	LE 20-260
Maryland Transportation Authority Police	Aggressive Driving	LE 20-183
Montgomery County Police Department	Aggressive Driving	LE 20-184
Mount Airy Police Department	Aggressive Driving	
Ocean City Police Department	Aggressive Driving	LE 20-132
Ocean Pines Police Department	Aggressive Driving	LE 20-123
Pocomoke City Police Department	Aggressive Driving	LE 20-015
Prince Georgeaposs County Police Department	Aggressive Driving	LE 20-236
Princess Anne Police Department	Aggressive Driving	LE 20-246
Queen Anneaposs County Sheriffaposs Office	Aggressive Driving	LE 20-068
Riverdale Park Police Department	Aggressive Driving	LE 20-074
Rockville Police Department	Aggressive Driving	LE 20-200
Salisbury Police Department	Aggressive Driving	LE 20-019
Somerset County Sheriffaposs Office	Aggressive Driving	
St. Maryaposs County Sheriffaposs Office	Aggressive Driving	LE 20-057
Sykesville Police Department	Aggressive Driving	LE 20-214
Talbot County Sheriffaposs Office	Aggressive Driving	
Taneytown Police Department	Aggressive Driving	LE 20-117
Town of La Plata Police Department	Aggressive Driving	LE 20-255
University of Baltimore Police Department	Aggressive Driving	LE 20-020
University of Maryland Department of Public Safety	Aggressive Driving	LE 20-106
Washington County Sheriffaposs Office	Aggressive Driving	LE 20-133
Wicomico County Sheriffaposs Office	Aggressive Driving	LE 20-047
Worcester County Sheriffaposs Office	Aggressive Driving	LE 20-060

Countermeasure strategies

Countermeasure Strategy

HVE - Aggressive Driving					

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Speed Enforcement (FAST)	$581,754.63		$581,754.63
2020	NHTSA 402	Speed Enforcement			

Program Area: Distracted Driving

Description of Highway Safety Problems

Distracted driving has long been a significant traffic safety problem, ranging from distractions due to vehicle passengers, food and drink, smoking, and other causes. The problem of distracted driving has become increasingly prevalent during the past decade in Maryland and across the United States due in large part to the explosion in use of handheld communication devices, such as cell phones and other electronic devices.

In Maryland from 2013 through 2017, over 53,000 distracted driving crashes occur on Maryland roads each year. For this latest five-year period, distracted driving was a factor in an annual average of one-half of all traffic crashes (50 percent), approximately 56 percent of injury crashes, and a third of all fatal crashes (34 percent). Distracted driving was a factor in 57 percent of injuries and 33 percent of fatalities. Distracted driving is significantly over-represented statistically in all crashes, and even more so in injury crashes. The significant contribution of identified distracted driving combined with the difficulty in accurately capturing distracted driving as a cause on crash reports would indicate that distracted driving is, potentially, still under-reported and a larger problem than currently indicated, particularly with cell phone use (handheld and texting, both illegal in Maryland). Hence, distracted driving is a major focus for traffic safety professionals in Maryland and across the nation.

In 2017, Maryland law enforcement officers issued 33,741 citations issued for cell phone use and 2,575 citations for texting while driving. The numbers for cell phone use are lower than previous years (34,460 handheld cell phone citations in 2016 and 40,994 in 2015) after an initial increase in focus by law enforcement on this issue, coupled with the cell phone violation law being a primary offense. The number of texting citations issued, however, have increased slightly in recent years (2,342 texting citations in 2016 and 2,552 in 2015).

Associated Performance Measures

Fiscal Year	Performance measure name	Target End Year	Target Period	Target Value
2020	Number of distracted driving related serious injuries on all roads (State data)	2020	5 Year	1763.9

2020	Number of distracted driving related fatalities on all roads (State data)	2020	5 Year	178.2

Countermeasure Strategies in Program Area

Countermeasure Strategy
HVE - Distracted Driving

Countermeasure Strategy: HVE - Distracted Driving

Program Area: Distracted Driving

Project Safety Impacts

Similar to sobriety checkpoints, the objective is to deter cell phone use and texting while driving by increasing the perceived risk of a ticket. The HVE model combines dedicated law enforcement with paid and earned media supporting the enforcement activity. Enforcement officers actively seek out cell phone users through special roving patrols, or through spotter techniques where a stationary officer will radio ahead to another officer when a driver using a cell phone is detected. Officers report that higher vantage points, SUVs, and unmarked vehicles can assist in identifying violators. Both earned and paid media are critical to ensure the general public is aware of the enforcement activity and overall problem, and to create the impression that violators will be caught. Approximately 50 police departments have applied for enforcement grants, and the MHSO will coordinate a statewide media campaign to support distracted driving enforcement.

 This HVE project will also include a grant to a university which will explore automated vehicle technologies to reduce distracted driving.

Linkage Between Program Area

Distracted driving prevention is an emphasis area for Maryland, reflected in both this HSP and the State's SHSP. Maryland's HVE campaign conforms to one of the most effective "Countermeasures That Work" in regard to distracted driving prevention, and also supports NHTSA's national HVE campaign period.

The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

This countermeasure is featured in the 9th Edition of Countermeasures That Work.

Distracted driving constitutes a variety of dangerous driving behaviors on Maryland's roads, as supported in the MHSO's data.

Results from the NHTSA HVE program suggest hand-held cell phone use among drivers dropped 57% in

Hartford, CT and 32% in Syracuse, NY. The percentage of drivers observed manipulating a phone (e.g., texting or dialing) also declined. Public awareness of distracted driving was already high before the program, but surveys suggest awareness of the program and enforcement activity increased in both Hartford and Syracuse. Surveys also showed most motorists supported the enforcement activity. In California and Delaware, similar reductions in cell phone use were observed following the campaign, although decreases were also noted in comparison communities.

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-176	Roadster Pedal Kart for Teen Distracted & Drowsy Driving Education
GN 20-197	Distracted Driving impact on MD Roadway First Responders
GN 20-234	Emergency Nurses
GN 20-265	Trauma Prevention Assemblies and PTA Meetings
GN 20-290	MHSO Internal-Distracted Driving Media Campaign
GN 20-311	Vehicle Technology
LE MHSO 2020 Distracted	HVE - Distracted Driving

Planned Activity: Roadster Pedal Kart for Teen Distracted & Drowsy Driving Education

Planned activity number: GN 20-176

Primary Countermeasure Strategy ID: HVE - Distracted Driving

Planned Activity Description

According to Washington University, (wustl.edu) humans take in more information visually than any other sense, giving us a tremendous capacity to store pictures/actions in long term memory. The majority of teens are visual learners and the young adolescent brain can hold seven items of information, plus or minus two in working memory. An effective strategy that allows teenagers to work with larger and larger amounts of information is to show them how the information fits together. Employing an educational program that is visual, interactive, and explains consequences (If A, than B), will not only resonate with the 16-20 age group, but will provide a stronger retention rate.

Through the purchase of a 4-wheeled pedal cart, we will build an educational and hands-on learning program for young drivers that teaches the dangers of distracted and impaired driving. Due to the cart being non-motorized, participation will not have to be restricted to teens with a permit or provisional license. This will enable us to reach teens prior to starting their GLS as well as teens that are in the GLS process.

Distraction Education Program - Using a figure-eight cone course set-up, the student driver will travel the course with no distraction or impairment and another student participant will time them using a cell phone. That time will be recorded on a large board for all participants to see. This timed drive with no other factors will raise their optimistic bias and they will understand we're not trying to trick them. The driver will then drive the same course while texting the Pledge of Allegiance to another student, again being timed. Because students

have recited this pledge every day since kindergarten, they will have memorized the words. The audience (or all participating students) will be directed to yell every time the driver hits a traffic cone or reduces speed dramatically. Again, this time will be recorded on a large board for all participants to see. Between the driver, the timer and the text receiver 3 teens will be directly involved for each run. The entire audience will be involved with the yelling, keeping them involved and giving the driver immediate feedback. At the end of each run we will discuss and compare the different performances and times with any mistakes re-pointed out to reinforce negative feedback.   Drivers who text and don't crash most of the time feel it's safe - and therefore continue the risky behavior. Overall this cart course will show teens that the distraction free the course is easy (high optimism), then with negative and immediate feedback, demonstrate how distractions impede driving performance.

Through the use of Fatal Vision Alcohol Impairment Simulation Goggles, the same figure-eight course will be used to time a teen through two runs of the course. The first time will be without the goggles and the second time the teen will be using various levels of impairment goggles. Another student will be timing as the driver tries to manipulate the course. Again, at the end of the two timings, we will discuss and compare the different performances, creating an important lesson on how alcohol greatly impairs a person's balance, vision, reaction time and judgment.

Working with the MD Teen Driving Coalition, we will test the program among teens utilizing the teen representatives. This testing will give us the information needed to determine the amount of time needed for each run/class, honest feedback from teens, and the expertise of driving school educators.   We will research and meet with key driving schools that are actively involved in the MD Teen Driving Coalition (ex: Elite) to determine if the course can be implemented during their classes on Driving Risks. Due to the course needing a large indoor area or parking lot free from traffic, we will determine if any class locations are conducive.   The road course will also be offered at public and private high school events that have a safety-focus. This may include but is not limited to high school safety fairs or PTA-run events such as pre-prom educational activities.

The cart will be offered year-round with concentrations during specific peak times:
Throughout April, the cart will be used to compliment Distracted Driving Month
Month leading up to prom season (typically May)
Month leading up to homecoming season (typically October)
Due to the fact that MD young drivers are categorized as 16-20 years of age, the program will also be offered to community colleges throughout MD that have a high concentration of undergrad students. Many of these colleges (Howard, Harford) have a safety-focused day with adequate room for setting up the pedal court course. During the last academic enrollment, Howard Community College registered over 500 students under the age of 18, Harford Community College had just under 500 students, under the age of 18. Finally, we will work with organizations on teen-focused events such as the BGE Teen Safety Day to bring our educational program to their audience.

Intended Subrecipients

Mid-Atlantic Foundation for Safety and Education

Countermeasure strategies

Countermeasure Strategy
HVE - Distracted Driving

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Distracted Driving (FAST)	$1,699.85		$1,699.85

Planned Activity: Distracted Driving impact on MD Roadway First Responders

Planned activity number: GN 20-197

Primary Countermeasure Strategy ID: HVE - Distracted Driving

Planned Activity Description

The grantee has established a working relationship with the visitors' centers in various regions of the state and routinely sets up a booth at the centers and meet with motorists and their families providing them with free information for the driver and family members about the dangers of distracted driving to emergency responders. The grantee will create displays and staff booths in all of Maryland's visitor centers to meet the driving public and will also be at planned special events in MD to further spread the message.

The grantee has engaged a number of the fire departments and will invite more to be involved in reaching the public in their own localities by working with the MD State Firemen's Association and other statewide groups. We will provide outreach to law enforcement, towing and recovery and safety service patrols (CHART) to assist in delivering the message to the public.

The grantee intends to reach Marylanders by creating public service announcements both for radio, TV and social media that will show MD drivers how poor driving habits are viewed from a responder's viewpoint working on the road. The grantee provides these services using 100% volunteers and no paid staff. The membership is about 1200 with 302 of those members living in Maryland.

Intended Subrecipients

Emergency Responder Safety Institute

Countermeasure strategies

Countermeasure Strategy
HVE - Distracted Driving

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Distracted Driving (FAST)	$10,488.50		$10,488.50

Planned Activity: Emergency Nurses

Planned activity number: GN 20-234

Primary Countermeasure Strategy ID: HVE - Distracted Driving

Planned Activity Description

Public service announcements and education that aim to reduce distracted driving are not well-researched. However, for the past 17 years, nurses have been voted the most trusted professionals. Emergency nurses, in particular, come into contact with distracted drivers after the motor vehicle crash when they become patients in need of emergency care. By this time, education on distracted driving is coming too late. Emergency nurses in Maryland want to help educate Maryland drivers on the outcomes of distracted driving before they meet on an emergency department stretcher. To start, Maryland State Council of the Emergency Nurses Association would like to create radio and video public service announcements (PSA) encouraging drivers to focus on the road while behind the wheel. These PSAs will be distributed in hospitals and motor vehicle agencies. Copies will be sent to high schools in Maryland for use in their driving education programs. Physician and dental offices often also have televisions. Nurses have been voted the "most trusted profession" year after year. A PSA created by emergency nurses would be widely supported by multiple members of the community. MDENA will leverage its relationships with organizations such as Maryland Hospital Association (MHA), Maryland Nurse Association (MNA), and Maryland American College of Emergency Physicians (ACEP) to distribute our safety message about distracted driving.   Maryland Emergency Nurses Association (MDENA) is a non-profit, volunteer organization of emergency department nurses and affiliates.

Intended Subrecipients

Maryland State Council of the Emergency Nurses Association

Countermeasure strategies

Countermeasure Strategy
HVE - Distracted Driving

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Distracted Driving (FAST)	$23,000.00		$23,000.00

Planned Activity: Trauma Prevention Assemblies and PTA Meetings

Planned activity number: GN 20-265

Primary Countermeasure Strategy ID: HVE - Distracted Driving

Planned Activity Description

Our proposed solution addresses the issues of distracted driving, impaired driving, and occupant protection in two different ways: Target students expanding an existing Trauma Prevention Assembly program. Target parents/guardians through a new PTA Presentation program.

The first solution is to continue to conduct school assemblies related to distracted driving and/or impaired driving with updated content. The Trauma Prevention Assembly Program, led by the Shock Trauma Center's Trauma Prevention Program, focuses on the dangers of impaired or distracted driving and smart decision making. Each hour long assembly typically opens with a slideshow presentation focused on the dangers of distracted and/or impaired driving. Students then watch one of three videos: Get the Message; Someone Like You; and Two Lives Changed.

In all presentations, the presenter also discusses the importance of occupant protection and the need to buckle up every time since seat belts remain the first line of defense in the event of a crash. Get the Message captures the physical, emotional, and mental trauma that is the consequence of a motor vehicle crash resulting from distracted driving. The video is based on a true story to illustrate the fatal impact of a single text message on a young driver and her friends. "Two Lives Changed" tells the story of two young adults involved in alcohol-related crashes who lived to share their emotional stories and injuries. Following the selected video(s), the program is then augmented by a former trauma patient. The survivor shares his/her personal inspirational story in addition to describing the injuries received as a result of the crash.

A new feature of the Assembly Program will give students the opportunity to test their abilities to drive while distracted or while under the influence. Grant support will be used to purchase Vision Impairment Goggles and an Activity Mat/steering wheel combination meant to simulate driving on a windy road. Students will experience, first-hand, how distracted and impaired driving affect their ability to drive. PTA Presentation   The second solution is to offer a program similar to the Assembly Program at parent-teacher association meetings to highlight the dangers of distracted driving or impaired driving and help parents understand how to talk to their children about these dangers. As with the student assemblies, the presentation will begin with the history of the Shock Trauma Center followed by one of the three videos described above.   The nurse presenter will then engage the parents in a discussion about the important role parents play in shaping their children's driving behaviors, including discussing the critical importance of always using a seat belt.

The parents are challenged to examine their own behaviors behind the wheel and self-reflect on what kind of role they are modeling for their children. This program will also include the testimony of a trauma survivor or a parent whose child is a trauma survivor. This credible messenger will share his or her powerful story. At the end of the presentation, the floor is opened and attendees are given the opportunity to voice any questions, comments, or concerns about distracted or impaired driving.   A survey will be disseminated to presentation attendees to collect data on the effectiveness of the presentation and the attendee's intent to have a meaningful discussion with their child about the dangers of distracted driving. Attendees will also be given the opportunity to opt-in to receiving a follow-up survey to be given three separate times: 1) 6 weeks after the presentation; 2) at the end of the school year; and 3) in the summer.

Intended Subrecipients

University of Maryland Medical System Foundation

Countermeasure strategies

Countermeasure Strategy
HVE - Distracted Driving

Planned Activity: MHSO Internal-Distracted Driving Media Campaign

Planned activity number: GN 20-290

Primary Countermeasure Strategy ID: HVE - Distracted Driving

Planned Activity Description

This activity will consist of media placement and HVE support for the MHSO's distracted driving prevention campaign.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
HVE - Distracted Driving

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Paid Advertising (FAST)	$165,000.00		$165,000.00

Planned Activity: Vehicle Technology

Planned activity number: GN 20-311

Primary Countermeasure Strategy ID: HVE - Distracted Driving

Planned Activity Description

Automated or autonomous vehicles have vehicle control capabilities without human interaction. Transfer of control can either happen voluntarily or involuntarily in circumstances in which the vehicle takes over after detecting that the human cannot cope with the situation (Nabo et al., 2013). Many car technologies have been introduced to reduce drivers distractions, most of which allow drivers to use their voices for different actions such as calling, texting, and even changing radio stations in their vehicles. Furthermore, many applications have been developed to restrict cellphone usage in vehicles. Although these technologies and applications are definitely a step in the right direction to tackle driver distraction, they are not enough.

The Safety and Behavioral Analysis (SABA) Center at Morgan State University has a full-scale high-fidelity driving simulator (Figure 1) and an eye-tracking system. The simulator is physically comprised of a cockpit, three surrounding monitors to project front and peripheral views as participants travel through the virtual network, an ignition key, safety seat belt and other components necessary for the operation of the vehicle in the simulated environment: steering wheel, hand brake, throttle, signal-light controllers, emergency blinkers, and brake pedals as well as an automatic gear stick. The software, VR-Design Studio developed by FORUM8 Co., visualizes roads, bridges, ramps, roadside objects, three-dimensional trees and buildings, and so on and provides a fairly realistic environment for drivers. It is capable of creating and editing the entire road network elements

including road alignments, intersection design, traffic signals, cross sections, roadside signs, terrain setup, and traffic generation. It allows researchers to investigate driver behavior under various controlled conditions. The driving simulator is capable of replicating driving tasks on different roadway and pavement types, under various traffic conditions and composition, traffic information (in-vehicle or out-of-vehicle), and weather conditions (rain, fog, snow). It is capable of building road networks with desired features similar to the real world. The subjects are capable of choosing their own routes from the origin to the destination. Data such as lane-changing, acceleration, braking, steering control and speed are recorded in real time by the driving simulator software.

Although the driving simulator had limited capabilities to perform CAV functions, the research team overcame most of the challenges and worked with Forum 8 to make it capable of implementing CAV applications. The eye tracking system developed by Tobii Pro Labs will be used to analyze the eye and head movement of the participants driving the simulator. Tobii Pro Glasses 2 is a wearable, head-mounted eye tracking tool that tracks participant's gaze in real time while the person moves freely around an environment or situational scenario. Since the 1960s, researchers have been utilizing driving simulators to study driver behavior and performance interaction with the vehicle and the road environment. The highest benefit of driving simulator devices is that they can provide an integrally safe environment for driving research, which can be effortlessly and economically configured to examine a variety of human factors research problems. They also make it possible to manage experimental conditions over a wider variety than field-tests and can be easily changed from one condition to another. A driving simulator facilitates the use of various information provision and controlled traffic and environmental scenarios that are not possible with other methods. In addition, different drivers as test subjects are able to experience the same events and conditions. Simulators are linked to computer systems, which can provide online data processing, formatting, and storage and the reduction and compact arrangement of data. Utilizing an eye tracking system with the driving simulator would allow the research team to record eye movement along with speed, lane changing, crashes, and near-crashes.

Intended Subrecipients

Morgan State University

Countermeasure strategies

Countermeasure Strategy
HVE - Distracted Driving

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Distracted Driving (FAST)	$62,911.27		$62,911.27

Planned Activity: HVE - Distracted Driving

Planned activity number: LE MHSO 2020 Distracted

Primary Countermeasure Strategy ID: HVE - Distracted Driving

Planned Activity Description

Maryland has laws preventing cell phone use and texting while driving. Law enforcement agencies are tasked with coordinating specific periods of high visibility enforcement each year.

High visibility enforcement campaigns have been used to deter cell phone use and texting while driving through both specific and general deterrence. In the high visibility enforcement model, law enforcement targets selected high-crash or high-violation geographical areas using either expanded regular patrols or designated patrols. This model is based on the same principles as high visibility seat belt and alcohol-impaired-driving enforcement: to convince the public that using cell phones and texting while driving is likely to be detected and that offenders will be punished.

Intended Subrecipients

Aberdeen Police Department	Distracted Driving	LE 20-156
Allegany County Sheriffaposs Office	Distracted Driving	LE 20-152
Annapolis Police Department	Distracted Driving	LE 20-177
Anne Arundel County Police Department	Distracted Driving	LE 20-036
Baltimore City Police Department	Distracted Driving	LE 20-170
Baltimore County Police Department	Distracted Driving	LE 20-113
Bel Air Police Department	Distracted Driving	LE 20-148
Berlin Police Department	Distracted Driving	LE 20-055
Calvert County Sheriffaposs Office	Distracted Driving	LE 20-070
Carroll County Sheriffaposs Office	Distracted Driving	LE 20-144
Cecil County Sheriffaposs Office	Distracted Driving	LE 20-028
Charles County Sheriffaposs Office	Distracted Driving	LE 20-186
Cheverly Police Department	Distracted Driving	LE 20-319
City of Hyattsville Police Department	Distracted Driving	LE 20-253
Cumberland Police Department	Distracted Driving	LE 20-050
Easton Police Department	Distracted Driving	LE 20-037
Elkton Police Department	Distracted Driving	LE 20-111
Frederick Police Department	Distracted Driving	LE 20-007
Frostburg Police Department	Distracted Driving	LE 20-065
Gaithersburg Police Department	Distracted Driving	LE 20-128
Greenbelt Police Department	Distracted Driving	LE 20-105

Hagerstown Police Department	Distracted Driving	LE 20-304
Hampstead Police Department	Distracted Driving	LE 20-240
Hancock Police Department	Distracted Driving	LE 20-058
Harford County Sheriff's Office	Distracted Driving	LE 20-003
Howard County Department of Police	Distracted Driving	LE 20-087
Laurel Police Department	Distracted Driving	LE 20-161
Maryland State Police - Statewide	Distracted Driving	LE 20-261
Maryland Transportation Authority Police	Distracted Driving	LE 20-281
Montgomery County Police Department	Distracted Driving	LE 20-228
Ocean City Police Department	Distracted Driving	LE 20-131
Prince George's County Police Department	Distracted Driving	LE 20-243
Princess Anne Police Department	Distracted Driving	LE 20-247
Queen Anne's County Sheriff's Office	Distracted Driving	LE 20-067
Riverdale Park Police Department	Distracted Driving	LE 20-075
Rockville Police Department	Distracted Driving	LE 20-201
Salisbury Police Department	Distracted Driving	LE 20-025
St. Mary's County Sheriff's Office	Distracted Driving	LE 20-100
Sykesville Police Department	Distracted Driving	LE 20-215
Talbot County Sheriff's Office	Distracted Driving	LE 20-122
Taneytown Police Department	Distracted Driving	LE 20-118
Town of La Plata Police Department	Distracted Driving	LE 20-256
University of Baltimore Police Department	Distracted Driving	LE 20-021
University of Maryland Department of Public Safety	Distracted Driving	LE 20-107
Washington County Sheriff's Office	Distracted Driving	LE 20-166
Westminster Police Department	Distracted Driving	LE 20-085
Worcester County Sheriff's Office	Distracted Driving	LE 20-063

Countermeasure strategies

Countermeasure Strategy
HVE - Distracted Driving

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Distracted Driving (FAST)	$247,499.94		$247,499.94
2020	NHTSA 402	Distracted Driving			

Program Area: Impaired Driving (Drug and Alcohol)

Description of Highway Safety Problems

Associated Performance Measures

Fiscal Year	Performance measure name	Target End Year	Target Period	Target Value
2020	C-5) Number of fatalities in crashes involving a driver or motorcycle operator with a BAC of .08 and above (FARS)	2020	5 Year	119.8
2020	Number of impaired driving (alcohol/drugs) related fatalities on all roads (State data)	2020	5 Year	135.4
2020	Number of impaired driving (alcohol/drugs) related serious injuries on all roads (State data)	2020	5 Year	427.7

Countermeasure Strategies in Program Area

Countermeasure Strategy
Alcohol Vendor Compliance Checks
Drug Recognition Expert (DRE) Training
DUI Courts
HVE - Impaired
Impaired Driving Prevention Youth Programs
Law Enforcement Training

Countermeasure Strategy: Alcohol Vendor Compliance Checks

Program Area: Impaired Driving (Drug and Alcohol)

Project Safety Impacts

The most recent survey results from the Youth Risk Behavior Survey for Worcester County are from 2014. They showed:

23.8% youth stated they had ridden with a driver who had been drinking alcohol one or more times during the 30 days before the survey.

10.4% youth stated they had driven when drinking alcohol one or more times during the 30 days before the survey.

58.7 youth admitted drinking alcohol on at least 1 day during their life.

34.2% youth currently drank alcohol.

20.0% youth drank 5 or more drinks of alcohol in a row within a couple hours or on at least 1 day during the 30 days before the survey.

Worcester County is home to the Atlantic Coast resort of Ocean City, MD, in which, the sale of alcohol is a major source of revenue for the 300+ alcohol licensees in the County, 200 +/- of those are physically located in the north end of the County, especially Ocean City, MD. Young people who have lived in the County for the major portion of their lives have witnessed a population that generally accepts the social norm that it is a "rite of passage" to drink. As stated by the youth, themselves, in the YRBS survey, 20% of Worcester County school-age youth, sixth grade to twelfth grade, drink 5 or more drinks of alcohol in a row within a couple hours on at least 1 day during the 30 days before the survey. At a Peer Leadership retreat in October 2017, attendees from the 3 public high school, were forthcoming with their desire to "get drunk every time they drank".

Linkage Between Program Area

Impaired driving prevention is an emphasis area for Maryland, reflected in both this HSP and the State's SHSP. The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

This countermeasure is featured in the 9th Edition of Countermeasures That Work.

Several studies document that well-publicized and vigorous compliance checks reduce alcohol sales to youth; for example, a review of 8 high quality studies found that compliance checks reduced sales to underage people by an average of 42%.

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-016	Worcester County Health Department Recognition Breakfast

Planned Activity: Worcester County Health Department Recognition Breakfast

Planned activity number: GN 20-016

Primary Countermeasure Strategy ID: Alcohol Vendor Compliance Checks

Planned Activity Description

Worcester County Health Department proposes to continue to recognize alcohol licensees in the County who have one or more staff persons who recognize the need to follow the law and refuse to sell alcohol to an underage cadet upon an "attempted buy". The Recognition would be implemented through a Recognition Breakfast, rewarding licensees which pass compliance. This particular recognition event has been executed for 18 years. (During FFY 2019 the Recognition was executed in a local library meeting room, and the Breakfast was catered by a licensed County caterer. It is anticipated that this practice will be followed again in FFY 2020.) This Recognition Breakfast also provides an opportunity to showcase the partnerships that have been fostered to not only reduce/prevent impaired driving, but also to heighten awareness of the prevention of underage drinking and binge drinking.

At the Recognition Breakfast certificates will be awarded to the compliant businesses. For those businesses which are not able to be represented at the Recognition Breakfast, certificates will be mailed. In addition, Worcester County Health Department will place advertisements in 2 local newspapers, one that primarily serves the south end of the County and one that primarily serves the north end, that will list the businesses who have passed compliance, with no failures, during the calendar year completed. This is a mechanism to promote to the entire Worcester County community the responsible behavior of the compliant businesses.

Intended Subrecipients

Worcester County Health Department

Countermeasure strategies

Countermeasure Strategy
Alcohol Vendor Compliance Checks

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Impaired Driving Low (FAST)	$2,953.50		

Countermeasure Strategy: Drug Recognition Expert (DRE) Training

Program Area: Impaired Driving (Drug and Alcohol)

Project Safety Impacts

Many law enforcement agencies employ drug recognition experts (DREs) to assist in investigating potential

drug-impaired driving cases. (NHTSA recommends that DREs participate in HVE activities and checkpoints, and respond to serious and fatal crashes.) DREs use a standardized procedure to observe a suspect's appearance, behavior, vital signs, and performance on psychophysical and physiological tests to determine whether and what type of drug or drug category may have been used. If drug intoxication is suspected, a blood or urine sample is collected and submitted to a laboratory for confirmation.

The Maryland DRE program is focused on training police officers to better identify drug impaired drivers. There are currently 38 DRE instructors in the State. Thirty-seven agencies have a total of 156 DREs in the Maryland program. Maryland DREs conducted a total of 676 evaluations during this fiscal year. During those evaluations, 302 blood samples were collected from suspected impaired drivers. A new Maryland DRE web site was created and launched. The new site features a modernized interface as well as a new system for data input from DREs in the field and data collection and reporting. The Maryland DRE program is jointly coordinated by the MHSO and MSP and includes a fully funded DRE coordinator who focuses on Advanced Roadside Impaired Driving Enforcement (ARIDE) training.

Linkage Between Program Area

Impaired driving prevention is an emphasis area for Maryland, reflected in both this HSP and the State's SHSP. Maryland's DRE training program conforms to an effective "Countermeasures That Work" in regard to impaired driving prevention.

The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

DRE training programs are widely supported in the 9th Edition of Countermeasures That Work.

Several studies have shown DRE judgments of drug impairment are corroborated by toxicological analysis in 85% or more of cases (NHTSA, 1996). However, one experimental laboratory study found DREs' ability to distinguish between impaired and non-impaired individuals was moderate to poor for several types of drugs including marijuana, codeine, and amphetamines (Shinar, Schechtman, & Compton, 2000). This study showed DREs tended to rely on just one or two "pivotal" cues to identify specific drug impairment. To date, there have been no studies examining the effectiveness of enforcement in reducing drug-impaired driving or crashes.

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-082	DRE Training

Planned Activity: DRE Training

Planned activity number: GN 20-082

Primary Countermeasure Strategy ID: Police Traffic Services

Planned Activity Description

The DRE coordinator will: Train and certify Drug Recognition Experts and Drug Recognition Expert Instructors   Re-certify existing DRE and DRE instructors every two years   Coordinate Drug Impaired Driving Enforcement Training Classes   Coordinate with the Traffic Safety Resource Prosecutors to conduct prosecutor and judicial training events Be responsible for capturing and reporting all Maryland DRE evaluation data   Improve Maryland DRE data collection and reporting Improve information sharing Breath test maintenance technicians to attend Intoximeter Maintenance and Borkenstein Alcohol Courses to continue education.

Intended Subrecipients

Maryland State Police

Countermeasure strategies

Countermeasure Strategy
Drug Recognition Expert (DRE) Training

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Impaired Driving Low (FAST)	$157,362.84		

Countermeasure Strategy: DUI Courts

Program Area: Impaired Driving (Drug and Alcohol)

Project Safety Impacts

DWI Courts are specialized courts dedicated to changing the behavior of DWI offenders through intensive supervision and treatment. A dedicated DWI Court provides a systematic and coordinated approach to prosecuting, sentencing, monitoring, and treating DWI offenders. Prosecutors and judges in DWI Courts specialize in DWI cases. A DWI Court's underlying goal is to change offenders' behavior by identifying and treating their alcohol problems and by holding offenders accountable for their actions.

A DWI Court can reduce recidivism because judge, prosecutor, probation staff, and treatment staff work together as a team to assure that alcohol treatment and other sentencing requirements are satisfied for offenders on an individual basis. A key feature of a DWI Court is that the team meets regularly, giving all parties an opportunity to discuss the status of a case. Judges can then immediately revise restrictions, if appropriate. DWI Courts can be more efficient and effective than regular courts because judges and prosecutors closely supervise the offenders and are familiar with the complex DWI laws, evidentiary issues, sentencing options, and the offenders. NHTSA (2003a) describes the operation of a DWI Court in Albuquerque, New Mexico. Recognized as "DUI Courts" in Maryland, the MHSO will fund a program in St. Mary's County alone in FFY

2020. In this DUI court, persons with three or more DUI convictions are offered an opportunity to enter a judicially-supervised program to treat the actual substance abuse problem and help the individual live a life without alcohol. The Court has a proven history of success in terms of reducing recidivism among previously convicted drunk drivers.

Linkage Between Program Area

Impaired driving prevention is an emphasis area for Maryland, reflected in both this HSP and the State's SHSP. Maryland's DUI Court programs conform to one of the most effective "Countermeasures That Work" in regard to impaired driving prevention.

 The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

DUI Court efforts are supported in the 9th Edition of Countermeasures That Work. Past performance of the Courts are also a key reason these projects will be funded again.

Participants were monitored for alcohol use through transdermal testing (SCRAM) as they attended weekly case management meetings and received individual treatment for their addictions. Maryland's DUI courts have shown an extremely low level of recidivism among participants.

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-010	Adult DWI/DUI Recovery Program

Planned Activity: Adult DWI/DUI Recovery Program

Planned activity number: GN 20-010

Primary Countermeasure Strategy ID: DUI Courts

Planned Activity Description

The St. Mary's Adult Drug/DWI Court is designed to target repeat DWI/DUI offenders through a coordinated effort employing research based principles proven to have better outcomes than the traditional models used in the criminal justice system. The strategies used include continual judicial involvement, alcohol use monitoring, case management and therapeutic interventions developed for the alcohol abuser. In the calendar year of 2018, program participants were monitored for alcohol use by transdermal testing (SCRAM) over 59,000 times and by breath analysis over 500 times with less than 1% positive. They also averaged 125 drug tests, 16 court appearances. In this same period no participant received a new DWI charge.

The coordinated effort of the State's Attorney's Office and Public Defenders Office has a team of Attorneys that put forth effort towards the project to identify appropriate candidates for the program and then navigate the

case through the judicial process. With a program design that offers on average 12 to 18 months of service, the (repeat DWI offender) is provided the necessary skills to develop an ability to function normally. Once functioning is returned to a sobriety based lifestyle, the operating of motor vehicles under the influence is reduced significantly when compared to repeat DWI/DUI offenders who are processed through the "traditional" models in the criminal justice system. The number of offenders for alcohol, drug and combined varies throughout the year. St. Mary's Circuit Court will provide the percentages of each offender in the quarterly report and will only charge MSHO for the alcohol offenders.

Intended Subrecipients

St. Mary's County Circuit Court

Countermeasure strategies

Countermeasure Strategy
DUI Courts

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Impaired Driving Low (FAST)	$17,625.50		

Countermeasure Strategy: HVE - Impaired

Program Area: Impaired Driving (Drug and Alcohol)

Project Safety Impacts

Maryland's HVE - Impaired Driving program consists of publicized sobriety checkpoints and saturation patrols, along with an extensive internal media campaign which also supports NHTSA's national mobilization effort. This effort consists of police agencies that have applied for MHSO overtime grants, as well as grant funding for a dedicated DUI team and the MHSO's internal media support for that team.

At a sobriety checkpoint, law enforcement officers stop vehicles at a predetermined location to check whether the driver is impaired. They either stop every vehicle or stop vehicles at some regular interval, such as every third or tenth vehicle. The purpose of checkpoints is to deter driving after drinking by increasing the perceived risk of arrest. In recent years, NHTSA has supported a number of efforts to reduce alcohol-impaired driving using publicized sobriety checkpoint programs. Evaluations of statewide campaigns in Connecticut and West Virginia involving sobriety checkpoints and extensive paid media found decreases in alcohol-related fatalities following the program, as well as fewer drivers with positive BACs at roadside surveys.

A saturation patrol (also called a blanket patrol or dedicated DWI patrol) consists of a large number of law enforcement officers patrolling a specific area to look for drivers who may be impaired. These patrols usually take place at times and locations where impaired driving crashes commonly occur. Like publicized sobriety checkpoint programs, the primary purpose of publicized saturation patrol programs is to deter driving after drinking by increasing the perceived risk of arrest.

The MHSO also funds a dedicated DUI Testing vehicle through the Maryland State Police that is used at checkpoints.

Linkage Between Program Area

Impaired driving prevention is an emphasis area for Maryland, reflected in both this HSP and the State's SHSP. Maryland's HVE campaign conforms to one of the most effective "Countermeasures That Work" in regard to impaired driving prevention, and also supports NHTSA's national HVE campaign period.

The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

HVE efforts are widely supported in the 9th Edition of Countermeasures That Work.

CDC's systematic review of 15 high-quality studies found that checkpoints reduce alcohol-related fatal crashes by 9% (Guide to Community Preventive Services, 2012). Similarly, a meta-analysis found that checkpoints reduce alcohol-related crashes by 17%, and all crashes by 10 to 15% (Erke, Goldenbeld, & Vaa, 2009). Publicized sobriety checkpoint programs are proven effective in reducing alcohol-related crashes among high risk populations including males and drivers 21 to 34 (Bergen et al., 2014).

A demonstration program in Michigan, where sobriety checkpoints are prohibited by State law, revealed that saturation patrols can be effective in reducing alcohol-related fatal crashes when accompanied by extensive publicity.

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-262	MHSO Internal-Impaired Driving
GN 20-296	MHSO Internal-SPIDRE DUI Media
LE 20-043	Mobile Alcohol Testing Truck
LE 20-266	MSP - SPIDRE DUI Team
LE MHSO 2020 Impaired	HVE - Impaired

Planned Activity: MHSO Internal-Impaired Driving

Planned activity number: GN 20-262

Primary Countermeasure Strategy ID: HVE - Impaired

Planned Activity Description

This activity will consist of media placement and HVE support for the MHSO's impaired driving prevention campaign.

The impaired driving program will develop and implement the following projects: "Be Legendary" and "Make a

Plan" safe and sober ride media and outreach campaign and the Checkpoint Strike Force media and outreach campaign, as well as the creation, revision, printing and distribution of collateral outreach materials for the campaigns. Collateral and outreach materials for law enforcement include: checkpoint cards, SFST notebooks and the creation, revision, printing and distribution or other collateral materials; collateral and outreach for community partners include; social media kits, wine and beer bags, and the creation, revision, printing and distribution of other collateral materials.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
HVE - Impaired

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Impaired Driving Low (FAST)	$570,000.00		

Planned Activity: MHSO Internal-SPIDRE DUI Media

Planned activity number: GN 20-296

Primary Countermeasure Strategy ID: HVE - Impaired

Planned Activity Description

This activity will consist of media placement and HVE support for the MHSO's impaired driving prevention campaign, specifically to support MSP's SPIDRE DUI team.

Placement and distribution of media, outreach, and enforcement messages, materials, and collateral will be targeted. Target demographics will be males 21- 34 years of age, in the most high risk areas of the state. Data analysis will be used to determine target locations, the need and preparation of a distribution plan for all projects.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
HVE - Impaired

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Impaired Driving Low (FAST)	$70,000.00		

Planned Activity: Mobile Alcohol Testing Truck

Planned activity number: LE 20-043

Primary Countermeasure Strategy ID: HVE - Impaired

Planned Activity Description

The Mobile Breath Alcohol Testing (MBAT) Truck is designed to serve as a support vehicle for any type of high visibility event related to impaired driving enforcement, some of which includes on-scene breath testing at sobriety checkpoints, increased visibility of enforcement of activity with readily accessible breath testing when supporting DUI enforcement patrols. In addition to enforcement activities, the MBAT can be used for public events and to serve as an educational tool when advising the public of the dangers of impaired driving.
The MBAT will enhance MSP's existing breath testing program in Maryland and will provide law enforcement agencies with another resource to combat impaired driving in Maryland.

Intended Subrecipients

Maryland State Police

Countermeasure strategies

Countermeasure Strategy
HVE - Impaired

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Low Alcohol	$37,380.00	$37,380.00	

Planned Activity: MSP - SPIDRE DUI Team

Planned activity number: LE 20-266

Primary Countermeasure Strategy ID: HVE - Impaired

Planned Activity Description

This project is a selective enforcement initiative utilizing impaired driving HVE tactics year-round and in counties with the greatest incidence of impaired driving. The SPIDRE Team consists of seven troopers, however due to MOU with MSP for FY 2020 only two troopers will be reimbursed.

Intended Subrecipients

Maryland State Police

Countermeasure strategies

Countermeasure Strategy
HVE - Impaired

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Impaired Driving Low (FAST)	$296,654.46	$296,654.46	
2020	Other	Other			

Planned Activity: HVE - Impaired

Planned activity number: LE MHSO 2020 Impaired

Primary Countermeasure Strategy ID: HVE - Impaired

Planned Activity Description

The MHSO will coordinate High Visibility Enforcement targeting impaired driving throughout the year.

Significant law enforcement involvement is expected.

Intended Subrecipients

Aberdeen Police Department	Impaired Driving	LE 20-154
Allegany County Sheriffaposs Office	Impaired Driving	LE 20-181
Annapolis Police Department	Impaired Driving	LE 20-180
Anne Arundel County Police Department	Impaired Driving	LE 20-018
Baltimore City Police Department	Impaired Driving	LE 20-171
Baltimore County Police Department	Impaired Driving	LE 20-116
Bel Air Police Department	Impaired Driving	LE 20-149
Berlin Police Department	Impaired Driving	LE 20-054
Calvert County Sheriffaposs Office	Impaired Driving	LE 20-071
Cambridge Police Department	Impaired Driving	LE 20-222
Caroline County Sheriffaposs Office	Impaired Driving	LE 20-011
Carroll County Sheriffaposs Office	Impaired Driving	LE 20-142
Cecil County Sheriffaposs Office	Impaired Driving	LE 20-026

Charles County Sheriffaposs Office	Impaired Driving	LE 20-187
Cheverly Police Department	Impaired Driving	LE 20-320
City of Bowie	Impaired Driving	LE 20-130
City of Hyattsville Police Department	Impaired Driving	LE 20-252
Cumberland Police Department	Impaired Driving	LE 20-051
Denton Police Department	Impaired Driving	LE 20-310
Easton Police Department	Impaired Driving	LE 20-042
Elkton Police Department	Impaired Driving	LE 20-052
Frederick Police Department	Impaired Driving	LE 20-008
Frostburg Police Department	Impaired Driving	LE 20-064
Fruitland Police Department	Impaired Driving	LE 20-027
Gaithersburg Police Department	Impaired Driving	LE 20-125
Garrett County Commissioners	Impaired Driving	LE 20-038
Greenbelt Police Department	Impaired Driving	LE 20-103
Hagerstown Police Department	Impaired Driving	LE 20-308
Hancock Police Department	Impaired Driving	LE 20-059
Hampstead Police Department	Impaired Driving	LE 20-235
Harford County Sheriffaposs Office	Impaired Driving	LE 20-005
Havre de Grace Police Department	Impaired Driving	LE 20-095
Howard County Department of Police	Impaired Driving	LE 20-089
La Plata Police Department	Impaired Driving	LE 20-257
Laurel Police Department	Impaired Driving	LE 20-163
Maryland State Police - Mobile Unit	Impaired Driving	LE 20-043
Maryland State Police - SPIDRE	Impaired Driving	LE 20-266
Maryland State Police - Statewide	Impaired Driving	LE 20-263
Maryland Transportation Authority Police	Impaired Driving	LE 20-283
Montgomery County Police Department	Impaired Driving	LE 20-231
Montgomery County Sheriffaposs Office	Impaired Driving	LE 20-182
Mount Airy Police Department	Impaired Driving	LE 20-194
Ocean City Police Department	Impaired Driving	LE 20-139

Ocean Pines Police Department	Impaired Driving	LE 20-120
Pocomoke City Police Department	Impaired Driving	LE 20-014
Prince Georgeaposs County Police Department	Impaired Driving	LE 20-245
Princess Anne Police Department	Impaired Driving	LE 20-249
Queen Anneaposs County Sheriffaposs Office	Impaired Driving	LE 20-066
Riverdale Park Police Department	Impaired Driving	LE 20-073
Rockville Police Department	Impaired Driving	LE 20-199
Salisbury Police Department	Impaired Driving	LE 20-017
Somerset County Sheriffaposs Office	Impaired Driving	LE 20-024
St. Maryaposs County Sheriffaposs Office	Impaired Driving	LE 20-062
Sykesville Police Department	Impaired Driving	LE 20-216
Talbot County Sheriffaposs Office	Impaired Driving	LE 20-121
Taneytown Police Department	Impaired Driving	LE 20-119
University of Maryland Department of Public Safety	Impaired Driving	LE 20-109
Washington County Sheriffaposs Office	Impaired Driving	LE 20-165
Westminster Police Department	Impaired Driving	LE 20-084
Wicomico County Sheriffaposs Office	Impaired Driving	LE 20-048
Worcester County Sheriff's Office	Impaired Driving	LE 20-061

Countermeasure strategies

Countermeasure Strategy
HVE - Impaired

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Low HVE	$1,697,022.75	$1,697,022.75	

Countermeasure Strategy: Impaired Driving Prevention Youth Programs

Program Area: Impaired Driving (Drug and Alcohol)

Project Safety Impacts

Maryland engages partners to provide outreach and education to high school-aged drivers. Education programs take place in the high schools and have been very effective at reaching thousands of students each year throughout the State. This age group is particularly susceptible to impaired driving due to a lack of experience and youth programs seek to motivate youth not to drink, not to drink and drive, and not to ride with a driver who has been drinking.

The MHSO funds presentations known as Alcohol Awareness for Students at Maryland high schools. Given by staff from WRAP, these presentations provide impaired driving education to students and raise their awareness of alcohol-related impairment issues. More than 4,000 Maryland students heard these presentations during the most recent grant year.

 The MHSO has also funded two other major efforts in local high schools: a variety of "After Prom" projects to minimize the dangers of impaired driving and provide lasting education surrounding those potentially dangerous occasions; and the "Every 15 Minutes" program which includes simulations of crashes and other education activities.

Linkage Between Program Area

Impaired driving prevention is an emphasis area for Maryland, reflected in both this HSP and the State's SHSP. Maryland's youth-based impaired driving prevention efforts conforms to an effective "Countermeasures That Work" in regard to impaired driving prevention.

 The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

Youth programs are supported in the 9th Edition of Countermeasures That Work, receiving two stars.

States and communities have conducted extensive youth drinking-and-driving-prevention programs over the past 25 years. Youth programs of some type are conducted in most, if not all, states. One study has examined the long-term effects of a social norms program on drinking and driving. Breath samples were taken from students at a large public university as they returned home late at night. Following the social norms program, there was a marginally significant decrease in drivers who registered a positive BAC, from 15.3% to 10.8%. Among drivers who had been drinking, self-reported number of drinks consumed and measured BACs decreased, as did the number of drinking-drivers who reported having five or more drinks at one sitting on the night of the survey (Goodwin, 2004)

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-081	Power of Youth
GN 20-092	Life Changing Experience Community Education Project
GN 20-140	After Prom Project
GN 20-146	CAASA Impaired Driving Activities
GN 20-220	Youth Impaired Driving Outreach

Planned Activity: Power of Youth

Planned activity number: GN 20-081

Primary Countermeasure Strategy ID: Impaired Driving Prevention Youth Programs

Planned Activity Description

Through joint efforts with community partners, such as school officials, law enforcement, PTA, Boys and Girls Clubs, and coalitions, this community-based program provides ongoing opportunity to fulfill MADD's mission to end drunk driving, help fight drugged driving, support the victims of these violent crimes, and prevent underage drinking by educating and equipping youth to talk with each other about alcohol with the research-based handbook.

The teen handbook for MADD's Power of You(th) program, targets teenagers. It addresses the way a teen thinks as well as giving teens facts on underage drinking, tips to make the right decisions, and teaches them to learn how to take a stand and make a difference. During the grant year MADD will train facilitators to talk to teens and teach them why it is important to say no to alcohol. They will then provide encouragement for teens to not only make good choices, but take the next step and encourage peers to do the same. We will have 12 fully trained active facilitators after training 45 potential facilitators, as some don't fully complete the full process or chose not to be active.

Intended Subrecipients

Mothers Against Drunk Driving

Countermeasure strategies

Countermeasure Strategy
Impaired Driving Prevention Youth Programs

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Impaired Driving Low (FAST)	$47,128.18		

Planned Activity: Life Changing Experience Community Education Project

Planned activity number: GN 20-092

Primary Countermeasure Strategy ID:

Planned Activity Description

Cinema Drive Description: The Life Changing Experiences Community Education Project offers the most sophisticated traveling 3D interactive programs for schools in the USA. The showcase of the Project is Cinema Drive, an innovative 90-minute scientifically grounded experience that transforms school auditoriums into an interactive and technologically sophisticated cinema to deliver a powerful 3-D narrative, video testimonials, and an audience interactive component through hand-held voting devices. Cinema Drive was developed through the integration of best practice science, which ensures that the program is universally relevant yet scientifically rigorous and sensitive to youth across diverse communities.

This educational experience has been proven to increase students intentions to wear seat belts and decrease intentions of unsafe driving behaviors such texting, speeding, driving under the influence, and more. Teens indicate they will make more positive decisions for themselves and will encourage their peers to do the same. The Cinema Drive program has an established track record of improving young driver awareness of the risks they face on the roads. Overall, 72% of survey respondents indicated they learn new things from participating in the Cinema Drive experience. Post activity field surveys found more than one third of drivers reported having behaved differently since participating in the program. We have shown that 23% of participating students are willing to make behavioral changes and drive safer. That is over 60% of the students, or the students who indicate risky driving behaviors before the experience.

Intended Subrecipients

Children and Parent Resource Group, INC

Countermeasure strategies

Countermeasure Strategy
Impaired Driving Prevention Youth Programs

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Impaired Driving Low (FAST)	$20,000.00		

Planned Activity: After Prom Project

Planned activity number: GN 20-140

Primary Countermeasure Strategy ID: Impaired Driving Prevention Youth Programs

Planned Activity Description

The Baltimore County Bureau of Behavioral Health works in conjunction with local high schools and encourages parents and school staff to host alcohol and drug free events after the prom on prom night. After prom funds will be offered to 24 Baltimore County High Schools to assist them in hosting alcohol and drug-free post prom events. These events provide a safe, secure alternative for high school students on prom night.

Highway Safety funds will be distributed to those schools that accept the terms and conditions which may be less than 24. Expenditures will support food and refreshments for the students at these events.

All schools will be required to incorporate two approved highway safety activities into their event planning, e.g. Shock Trauma's video presentation, social media messages, AAA's Drinking, Driving, Disaster video or other pre-approved activities about the importance of making wise decisions regarding alcohol and other drug use on prom night as well as at other times. Typically, prom night is a time when youth participate in high-risk activities such as driving impaired or riding with an impaired driver.

 Technical assistance will be provided through the application process and, as needed, throughout the planning and reporting process. Reporting forms will be collected within ten days after the alcohol and drug free events are completed, and data will be included in the final report. Agendas will be required of all schools hosting an assembly. After Prom Planning and Event Agendas will also be required.

Intended Subrecipients

Baltimore County Department of Health

Countermeasure strategies

Countermeasure Strategy
Impaired Driving Prevention Youth Programs

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Impaired Driving Low (FAST)	$10,500.00		

Planned Activity: CAASA Impaired Driving Activities

Planned activity number: GN 20-146

Primary Countermeasure Strategy ID: Impaired Driving Prevention Youth Programs

Planned Activity Description

The Calvert Alliance Against Substance Abuse, Inc. (CAASA) has participated in the work of the Calvert County Traffic Safety Council for approximately 18 years. In addition, CAASA has established many partnerships and contacts in the community that allows for the successful implementation of the program strategies. CAASA will conduct a local DUI public awareness effort during 3D month with State and County Law Enforcement Agencies. This effort includes a presentation before the Calvert County Board of County Commissioners with awards and information disseminated to the public about local and state impaired driving crashes and arrests. Media will be present and the event will be televised. A luncheon will be held to recognizes these offices and raise awareness to the issue of impaired driving both statewide and locally. Award plaques will be presented to the law enforcement awardees.

 In addition, CAASA will partner with Calvert County Public Schools, Calvert County Sheriff's Office, Maryland State Police, Barrack "U", and local businesses to provide educational outreach to students regarding

the dangers of underage drinking and impaired driving. Efforts include graduation messaging at the ceremony location, local media ads, awareness information to local businesses on not selling alcohol to minors, encouraging local hotels not to rent to those underage, underage drinking alerts to be distributed at sobriety checkpoints, and provide an underage drinking awareness brochure to parents at the high schools' end of year award programs. Grant funding is being requested to support Project Graduation events held on graduation night. These events provide alcohol-free and drug-free activities for the graduating seniors from the County's four public high schools.

Intended Subrecipients

Calvert Alliance Against Substance Abuse, Inc.

Countermeasure strategies

Countermeasure Strategy
Impaired Driving Prevention Youth Programs

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Impaired Driving Low (FAST)	$5,100.00		

Planned Activity: Youth Impaired Driving Outreach

Planned activity number: GN 20-220

Primary Countermeasure Strategy ID: Impaired Driving Prevention Youth Programs

Planned Activity Description

During the time-frame of October 1, 2019 through September 30, 2020, WRAP, through public education and innovative health programs, will fight drunk driving and underage drinking. WRAP's individual programs include youth, parental, and adult outreach as well as law enforcement recognition (Maryland Law Enforcement Awards and WRAP's Law Enforcement Awards), five SoberRide campaigns and the "Maryland Remembers" memorial ceremony. WRAP is an active member of Maryland's SHSP Team. As a technical expert in regard to alternative transportation programs, WRAP's recognized SoberRide program has provided over 75,498 free rides home since 1991, with a record number of 5,178 rides being provided in FY 2018. Additionally, WRAP's President co-chairs the SHSP Impaired Driving Emphasis Area Team.

Intended Subrecipients

Washington Regional Alcohol Program

Countermeasure strategies

Countermeasure Strategy
Impaired Driving Prevention Youth Programs

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Impaired Driving Low (FAST)	$245,630.40		

Countermeasure Strategy: Law Enforcement Training

Program Area: Impaired Driving (Drug and Alcohol)

Project Safety Impacts

Maryland coordinates an extensive law enforcement training program related to impaired driving. Elements of this program include SFST and ARIDE training, as well as a large-scale "DUI Institute." The Institute was developed jointly by the UMD School of Public Health's Department of Behavioral and Community Health, the MHSO, police officers, and national experts on alcohol-impaired driving. The 40-hour, in-service program exposes officers to information on the effectiveness of impaired driving countermeasures (ignition interlocks, DUI courts, sobriety checkpoints, etc.), police traffic management, and the physiology of alcohol and its abuse/addiction.

MCPA is again proud sponsor of the University Of Maryland DUI Institute. The registrations offered by the MCPA allow patrol officers from across the State who excel in DUI enforcement to be trained in all aspects of the issues surrounded DUI enforcement. This training is not designed to teach officers how to find, test and apprehend suspected impaired drivers, but is designed to look at the bigger picture and issues surrounding DUI arrest.

Linkage Between Program Area

Impaired driving prevention is an emphasis area for Maryland, reflected in both this HSP and the State's SHSP. This activity supports a wide range of impaired driving prevention activities.

 The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

This program encompasses training in impaired driving detection and enforcement, and specifically includes the training necessary to carry out enforcement operations that receive extremely high ratings in the 9th Edition of Countermeasures That Work. The training works to increase the effectiveness of HVE saturation patrols and checkpoints.

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-134	DUI Institute - MCPA
GN 20-136	DUI Institute - MSA

Planned Activity: DUI Institute - MCPA

Planned activity number: GN 20-134

Primary Countermeasure Strategy ID: Law Enforcement Training

Planned Activity Description

This grant will be used to provide training for law enforcement officers at the State's DUI Institute.

Intended Subrecipients

Maryland Chiefs of Police Association

Countermeasure strategies

Countermeasure Strategy
Law Enforcement Training

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Impaired Driving Low (FAST)	$135,110.00		

Planned Activity: DUI Institute - MSA

Planned activity number: GN 20-136

Primary Countermeasure Strategy ID: Law Enforcement Training

Planned Activity Description

This grant will be used to provide training for law enforcement officers, who are based within Maryland's Sheriff's offices, at the State's DUI Institute.   The registrations offered by the MSA allow patrol officers from across the State who excel in DUI enforcement to be trained in all aspects of the issues surrounded DUI enforcement. This training is not designed to teach deputies how to find, test and apprehend suspected impaired drivers, but is designed to look at the bigger picture and issues surrounding DUI arrest.

Intended Subrecipients

Maryland Sheriffs' Association, Inc.

Countermeasure strategies

Countermeasure Strategy
Law Enforcement Training

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Impaired Driving Low (FAST)	$17,710.00		

Countermeasure Strategy: Prosecutor Training

Program Area: Impaired Driving (Drug and Alcohol)

Project Safety Impacts

For the past six years, Maryland has funded a Traffic Safety Resource Prosecutor (TSRP) to provide training and education to law enforcement and prosecutors in the State. Based on a curriculum similar to the DUI Institute for law enforcement, this advanced training is provided to prosecutors from across the State. Training includes: MHSO programs; Courtroom testimony; Standardized Field Sobriety Testing; Intoximeter operation; DUI checkpoints; Maryland's Drug Recognition Expert (DRE) program; and Common defenses in a DUI trial. The TSRP has allowed the MHSO to reach hundreds of prosecutors and law enforcement officers each year with vital information and procedures pertaining to effective impaired driving prosecution and enforcement.

Linkage Between Program Area

Impaired driving prevention is an emphasis area for Maryland, reflected in both this HSP and the State's SHSP. Maryland's TSRP program conforms to one of the most effective "Countermeasures That Work" in regard to impaired driving prevention, and also supports a wide variety of impaired driving prevention efforts.
 The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

Traffic Safety Resource Prosectuors (TSRPs) are included with the DWI Courts in the 9th Edition of Countermeasures That Work.
 DWI cases can be highly complex and difficult to prosecute, yet they are often assigned to the least experienced prosecutors. In one survey, about half of prosecutors and judges said the training and education they received prior to assuming their position was inadequate for preparing them to prosecute and preside over DWI cases (Robertson & Simpson, 2002a). TSRPs are current (or former) prosecutors who specialize in the prosecution of traffic crimes, and DWI cases in particular. They provide training, education, and technical support to other prosecutors and law enforcement agencies within their State.

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-023	Maryland State's Attorneys' Association

Planned Activity: Maryland State's Attorneys' Association

Planned activity number: GN 20-023

Primary Countermeasure Strategy ID: Prosecutor Training

Planned Activity Description

This project will fund the Traffic Safety Resource Prosecutor through the Maryland States Attorney's Association. The TSRP is responsible for outreach to prosecutors and judges, as well as providing ongoing support for legal and judicial aspects of the MHSO's impaired driving program.

The TSRP will:

Develop a TSRP Strategic Plan;

Publicize the technical assistance that the TSRP can provide to prosecutors, law enforcement, toxicologists, breath test operators, chemists, victim-witness advocates and other advocates;

Prepare 10 monthly newsletters (or Blogs) for distribution to police, prosecutors and other highway safety advocates on key issues related to traffic enforcement, Fourth Amendment issues, and other topics centered around traffic safety and prosecution;

Serve as a liaison to police and prosecutors on trending legal issues;

Develop and maintain a relationship with the State toxicologist, breath tech operators, Drug Recognition Experts, crash reconstructionists and other specialists in the field;

Serve as a regular participant on the Impaired Driving; Aggressive Driving and Distracted Driving Emphasis Area Team Committees;

Promote awareness by law enforcement officers and prosecutors of victimaposs issues; and

Serve as a regular member of the Maryland Crash Reconstruction and Law Enforcement Traffic Safety Committees.

Intended Subrecipients

Maryland States Attorney's Association

Countermeasure strategies

Countermeasure Strategy
Prosecutor Training

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Low Court Support	$188,269.00		

2020	FAST Act 405d Impaired Driving Low	405d Low Alcohol	$13,995.19		

Program Area: Motorcycle Safety

Description of Highway Safety Problems

Motorcycle riders are unique in that they travel in conditions and at speeds with all other motorized traffic, but are extremely vulnerable road users without structural or other safety protection afforded by other types of motorized vehicles licensed for roadway use. Motorcycle riders also often have distinct subpopulations that exhibit high risk riding behaviors, so it is important to carefully study all aspects of motorcycling to develop effective outreach programs for awareness, education, training, and enforcement.

During the five-year period from 2013 through 2017, motorcycle-involved crashes in Maryland declined by over 6 percent after experiencing increases in previous years. In 2017, 1,451 motorcycle-involved crashes occurred on Maryland roads .

From 2013 through 2017 in Maryland, motorcycles were involved in an average of just over one percent of all traffic crashes, three percent of injury crashes, and 15 percent of fatal crashes. Thus, motorcycles are significantly over-represented in fatal crashes. In addition, motorcycle-involved crashes accounted for 3 percent of crash-related injuries and 14 percent of crash-related fatalities.

While a relatively low 6 percent of motorcycle crashes occurring in 2017 resulted in a fatality, the fact that 15 percent of all statewide fatal crashes involve a motorcycle is cause for concern among traffic safety experts. This significant involvement of motorcycles in fatal crashes and their effects on overall traffic fatalities in Maryland indicate the need for greater motorcycle safety efforts such as awareness, education, training, and enforcement as a major focus for traffic safety professionals.

Helmet-Law Violations in Maryland

Maryland has had a comprehensive mandatory helmet law for decades, but the accurate capturing of helmet use on the crash report may be in question. Crash data for 2017 indicated that 26 percent of motorcycle operators in a crash were not wearing a helmet and 21 percent of operator fatalities were unhelmeted.

Further investigation and verification of rates of helmet usage are required before a distinct correlation can be assumed between the lack of helmet use and fatal injuries. Additional evaluation and investigation is a viable first step in determining the accuracy of observational surveys vs. crash reports and remains vital to the development and implementation of effective strategies to improve motorcycle safety. No funding is used to check for helmet usage or for motorcycle safety checkpoints.

Associated Performance Measures

Fiscal Year	Performance measure name	Target End Year	Target Period	Target Value
2020	Number of motorcycle-involved fatalities on all roads (State data)	2020	5 Year	60.2

2020	C-8) Number of unhelmeted motorcyclist fatalities (FARS)	2020	5 Year	7.40
2020	Number of motorcycle-involved serious injuries on all roads (State data)	2020	5 Year	248.9

Countermeasure Strategies in Program Area

Countermeasure Strategy
Motorcycle Rider Training
Motorcyclist Safety and Awareness

Countermeasure Strategy: Motorcycle Rider Training

Program Area: Motorcycle Safety

Project Safety Impacts

Rider training is essential to the safety of motorcyclists. The training teaches operators how to maneuver their vehicles and to navigate potential threats that are unique to motorcyclists. Maryland will utilize a new program consisting of "mentored rides" that will augment existing rider training.

Linkage Between Program Area

Motorcyclist safety is a key program area for Maryland, reflected in this HSP as well as certain activities related to the State's SHSP. Motorcyclist safety spans impaired driving prevention, aggressive driving prevention, distracted driving prevention, and coordinates closely with numerous national HVE campaign periods.

The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

The NAMS encourages training (NHTSA, 2000a). NHTSA's Motorcycle Safety Program Plan recommends that States conduct frequent and timely education and training at sites that are accessible throughout the State (NHTSA, 2006b). NCHRP (2008, Strategy C2) further recommends that States evaluate crash experience, compare data and crash scenarios with training and licensing practices, and make adjustments as needed to ensure practices are effectively targeting crash problems. This effort requires cooperation on the part of multiple agencies, including those responsible for collecting and analyzing crash data and those responsible for training and licensing.

Planned activities will closely align highly trained, experienced riders with those having less experience.

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-229	Motorcycle Safety Education & Training and Outreach
GN 20-323	Evaluation of the Maryland BikeSafe Program - Phase 2
LE 20-101	Motorcycle - BikeSafe

Planned Activity: Motorcycle Safety Education & Training and Outreach

Planned activity number: GN 20-229

Primary Countermeasure Strategy ID: Motorcycle Rider Training

Planned Activity Description

NHTSA's "Countermeasures that Work" lists four strategies to improve motorcyclist safety: 1) use of Department of Transportation (DOT) compliant helmets; (2) impairment prevention; (3) rider training and education; and (4) communications/outreach. This project will address the identified problem by conducting direct outreach to motorcycle riders to promote formal rider training and the core messages of the Maryland Motorcycle Safety (Education & Training) Program (MCSP), which include; the use of DOT compliant helmets, preferably the full-face/modular, and open-face/3/4, styles, incorporating the philosophy of the use of full riding gear on every ride, a.k.a. All The Gear All The Time (ATGATT), and promoting awareness of the risk of impaired riding with messages encouraging riders to "Ride Straight" and "Sober Riders Ride Longer". The goal is to create a culture of safety regarding motorcycling. The Program will do this though outreach and rider training. For this project rider outreach will be conducted at a minimum of four events. As the riding season progresses the Program adds several single-day events to its calendar throughout the year. Motorist outreach will also be conducted at a minimum of two of these events. Outreach activities will be conducted by trained and experienced Motorcycle Safety Program Event Staff. The Program's Event Staff are individuals with specialized training with an emphasis on providing Premier Customer Service. These individuals use a variety of tools and techniques to engage event participants to promote formal rider training and to promote the core messages of the Program.

The MCSP utilizes a Mobile Classroom to conduct direct outreach at special motorcycle events. The Mobile Classroom is an enclosed 18-foot trailer with a drop-down ramp and a "concession" window on the outboard side. It is wrapped in vinyl promotional graphics featuring a map of the State identifying the Program's training center and other messages promoting the Program's core activities. It serves two primary purposes: it gives the Program a means to transport and secure its equipment and materials at an event; and it serves as a base from which the Program can conduct its outreach activities. It was remodeled early in 2018. One of the Program's SMARTrainers (Safe Motorcyclist Awareness and Recognition Trainer) a scenario-based traffic situation simulator designed to attract attention and to help riders improve their road management skills, is permanently setup inside of the Mobile Classroom. Event participants take a virtual "ride" on the SMARTrainer through one of the 15 traffic scenarios, including city, suburban and touring situations. Each scenario presents the rider with unique and challenging hazards. As the rider navigates the scenario the computer assesses and scores the riders performance. A video feed from the SMARTrainer can be displayed on a large TV that can be seen from the

outside of the trainer through the concession window. At the end of the ride the rider's performance is recapped and the rider receives a printout of their ride. The Program uses this experience to promote formal ride training and life-long learning.

The Program has one of its retired 500cc training bikes which has been wrapped in promotional graphics and accessorized with a windshield, saddlebags and additional lighting. The Program also has a mannequin, affectionately called "Manny" that it has outfitted in full and motorcycle specific riding gear to promote the philosophy of ATGATT to "ride" the Show Bike. Together they are a popular attention-getter to attract riders into conversations about riding gear and rider training. The Mobile Classroom is also equipped with literature displays stocked with flyers about rider training and other promotional information. It also has a pair of Fatal Vision Goggles with some activities to draw attention to the risks of riding under the influence of alcohol, or OTC or Rx drugs. The Program also has an indoor display which it uses at those events where it cannot use the Mobile Classroom. This is a curved display that fits in the typical 10-foot wide space.

The Program was able to get a new display last year. It features a photo graphic panel with a basic Program information and a monitor to show motorcycle safety PSAs and other training videos. The video runs for about 90 minutes then repeats. This allows Program Event staff to freely interact with customers with out being disturbed. The unique videos also cause folks to stop and watch allowing for possible interaction. The unlicensed motorcyclist is still a problem. One thing we discovered during the Program's FAST TRACK Initiative was that many riders could not pass the skill test because they could not execute the maneuvers on their motorcycle.

For this grant cycle the Program is going to again offer the Basic Rider Course 2 (updated); License Waiver classes at three of its training centers in May, July, and September. The class will be free to participants and riders will use their own motorcycles. This will allow riders looking to get licensed the opportunity to practice riding and be coached prior to testing. Statics provided By Cape Fox, who had a contract to rider training courses for the military, show that a rider who takes a training course on their own motorcycle is 60% less likely to be involved in a fatal crash.

Intended Subrecipients

Maryland MVA

Countermeasure strategies

Countermeasure Strategy
Motorcycle Rider Training
Motorcyclist Safety and Awareness

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Motorcycle Safety (FAST)	$4,200.00		$4,200.00

Planned Activity: Evaluation of the Maryland BikeSafe Program - Phase 2

Planned activity number: GN 20-323

Primary Countermeasure Strategy ID: Motorcycle Rider Training

Planned Activity Description

Crash CoRE will design and carry out a pre-/post-program study comparing the BikeSafe Maryland participants' knowledge with that of a control group. The evaluation will also include a pre- and post-program rider skills test for participants. The objectives of the evaluation are: Examine the scope and extent of program implementation to understand if the program was implemented as intended and to support expansion and replication efforts Evaluate the effectiveness of the MD BikeSafe program on improved knowledge and awareness of the core class components of motorcycle safety Evaluate the effectiveness of the MD BikeSafe program on improved riding skills We hypothesize that BikeSafe participants will show improved knowledge and skill. Participants will have a better understanding of the system of motorcycle control, collision causation factors and security. They will have improved rider skills that lead to fewer crashes and near-misses. The results of this project will inform future program expansion and replication. The findings will also support the future evaluation of the program's impact on crash risk once enough riders have been trained to provide a large enough sample size. Methods and findings of the proposed evaluation will be detailed in a report to the Maryland Highway Safety Office.

Intended Subrecipients

Crash Center for Research and Education (CORE)

Countermeasure strategies

Countermeasure Strategy
Motorcycle Rider Training

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Motorcycle Safety (FAST)	$13,970.18		$13,970.18

Planned Activity: Motorcycle - BikeSafe

Planned activity number: LE 20-101

Primary Countermeasure Strategy ID: Motorcyclist Safety and Awareness

Planned Activity Description

The Maryland State Police Motorcycle Unit, partnering with allied Maryland Law Enforcement Agency Motor Officers will expand the "BikeSafe" Program in Maryland to the Washington Metro Region. "BikeSafe" is the partnering of civilian motorcyclists with sworn Law Enforcement Motorcycle Officers in Rider Skills Days that offer assessment on present driving skills and provide advice to help make their experience as a motorcyclist safer and more enjoyable. Motor Officers will cover professional riding techniques and topics to include the system of motorcycle control, collision causation factors and security. The Rider Skills Days are run during the

week and at weekends, by highly qualified police motorcyclists passing on their wealth of knowledge and experience in a friendly and informal manner. Training locations will be held at various locations around the state, the training will include both classroom-based advice and on-road ride-outs. This program is designed for all types of motorcycles ranging from high powered performance machines or a smaller commuter bikes. For the expansion of the BikeSafe program, Motor Officers from allied Agencies will conduct training twice a month between the months of May to September. The goal is to have a minimum of 12 to 16 students in each class, for a total of 240 to 320 students trained during the second year. Instructors will promote motorcycle safety through the display and use of safety equipment throughout the training curriculum. As Motor Officers in uniform conducting this training, they are subject to law enforcement actions and will be able to effectively monitor police radio channels. Advanced rider to rider communication will allow seamless communication from instructor to student during the on-road ride-outs immediately correcting any rider behaviors that need immediate attention. Reflective ANSI vests will be provided for student use during the training to promote the training and enhance rider safety.

Intended Subrecipients

Maryland State Police

Countermeasure strategies

Countermeasure Strategy
Motorcycle Rider Training
Motorcyclist Safety and Awareness

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Motorcycle Safety (FAST)	$112,350.00		$112,350.00

Countermeasure Strategy: Motorcyclist Safety and Awareness

Program Area: Motorcycle Safety

Project Safety Impacts

Funded projects will help address motorcycle safety issues through partnerships among government agencies and stakeholder groups such as motorcycle dealers and motorcycle clubs. These partnerships involve scheduled outreach activities geared toward reducing motorcycle-involved crashes in areas where crash rates are highest. Media campaigns will be coordinated to increase awareness of motorcycle safety issues and will use a variety of communications techniques to reach targeted audiences. In addition to public information and education, adequate rider training and licensure are major components of Maryland's efforts to decrease motorcycle-involved crashes, in addition to improved enforcement of the State's traffic safety laws.

The State's goals are to improve rider skill and to increase awareness levels and "share the road" among motorcyclists and other vehicle drivers.

Linkage Between Program Area

Motorcyclist safety is a key program area for Maryland, reflected in this HSP as well as certain activities related to the State's SHSP. Motorcyclist safety spans impaired driving prevention, aggressive driving prevention, distracted driving prevention, and coordinates closely with numerous national HVE campaign periods.

The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

This strategy is featured in the 9th Edition of Countermeasures That Work.

Many states have conducted communications and outreach campaigns directed at drinking and riding. Rider groups can play critical roles in planning and implementing activities to reduce drinking and riding. Impaired riding is also a key component of Maryland's impaired driving prevention outreach and support for HVE mobilizations. The MHSO funds numerous programs to increase motorcyclist safety through outreach about safe riding, proper riding gear, and skills training.

The other aspect of Maryland's Motorcycle Safety Program is motorist awareness of motorcyclists. This type of outreach effort is covered under Communications and Outreach: Other Driver Awareness of Motorcyclists in "Countermeasures." Although these programs need evaluation, studies show that when motorcycles crash with other vehicles, the other vehicle driver usually violates the motorcyclist's right-of-way (Clarke et al., 2007; Elliott et al., 2007; NCHRP, 2008, Strategy F3; NHTSA, 2000a). Several States have conducted communications and outreach campaigns to increase other drivers' awareness of motorcyclists. Thirty-six of 44 States that responded to a survey question reported that they communicate about ways for drivers to increase their awareness of motorcycles and motorcyclists.

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-229	Motorcycle Safety Education & Training and Outreach
GN 20-292	MHSO MC Awareness and Rider Training
GN 20-293	MHSO Motorcycle Safety - Impaired Riding
LE 20-101	Motorcycle - BikeSafe

Planned Activity: Motorcycle Safety Education & Training and Outreach

Planned activity number: GN 20-229

Primary Countermeasure Strategy ID: Motorcycle Rider Training

Planned Activity Description

NHTSA's "Countermeasures that Work" lists four strategies to improve motorcyclist safety: 1) use of Department of Transportation (DOT) compliant helmets; (2) impairment prevention; (3) rider training and education; and (4) communications/outreach. This project will address the identified problem by conducting direct outreach to motorcycle riders to promote formal rider training and the core messages of the Maryland Motorcycle Safety (Education & Training) Program (MCSP), which include; the use of DOT compliant helmets, preferably the full-face/modular, and open-face/3/4, styles, incorporating the philosophy of the use of full riding gear on every ride, a.k.a. All The Gear All The Time (ATGATT), and promoting awareness of the risk of impaired riding with messages encouraging riders to "Ride Straight" and "Sober Riders Ride Longer". The goal is to create a culture of safety regarding motorcycling. The Program will do this though outreach and rider training. For this project rider outreach will be conducted at a minimum of four events. As the riding season progresses the Program adds several single-day events to its calendar throughout the year. Motorist outreach will also be conducted at a minimum of two of these events. Outreach activities will be conducted by trained and experienced Motorcycle Safety Program Event Staff. The Program's Event Staff are individuals with specialized training with an emphasis on providing Premier Customer Service. These individuals use a variety of tools and techniques to engage event participants to promote formal rider training and to promote the core messages of the Program.

The MCSP utilizes a Mobile Classroom to conduct direct outreach at special motorcycle events. The Mobile Classroom is an enclosed 18-foot trailer with a drop-down ramp and a "concession" window on the outboard side. It is wrapped in vinyl promotional graphics featuring a map of the State identifying the Program's training center and other messages promoting the Program's core activities. It serves two primary purposes: it gives the Program a means to transport and secure its equipment and materials at an event; and it serves as a base from which the Program can conduct its outreach activities. It was remodeled early in 2018. One of the Program's SMARTrainers (Safe Motorcyclist Awareness and Recognition Trainer) a scenario-based traffic situation simulator designed to attract attention and to help riders improve their road management skills, is permanently setup inside of the Mobile Classroom. Event participants take a virtual "ride" on the SMARTrainer through one of the 15 traffic scenarios, including city, suburban and touring situations. Each scenario presents the rider with unique and challenging hazards. As the rider navigates the scenario the computer assesses and scores the riders performance. A video feed from the SMARTrainer can be displayed on a large TV that can be seen from the outside of the trainer through the concession window. At the end of the ride the rider's performance is recapped and the rider receives a printout of their ride. The Program uses this experience to promote formal ride training and life-long learning.

The Program has one of its retired 500cc training bikes which has been wrapped in promotional graphics and accessorized with a windshield, saddlebags and additional lighting. The Program also has a mannequin, affectionately called "Manny" that it has outfitted in full and motorcycle specific riding gear to promote the philosophy of ATGATT to "ride" the Show Bike. Together they are a popular attention-getter to attract riders into conversations about riding gear and rider training. The Mobile Classroom is also equipped with literature displays stocked with flyers about rider training and other promotional information. It also has a pair of Fatal Vision Goggles with some activities to draw attention to the risks of riding under the influence of alcohol, or OTC or Rx drugs. The Program also has an indoor display which it uses at those events where it cannot use the Mobile Classroom. This is a curved display that fits in the typical 10-foot wide space.

The Program was able to get a new display last year. It features a photo graphic panel with a basic Program information and a monitor to show motorcycle safety PSAs and other training videos. The video runs for about 90 minutes then repeats. This allows Program Event staff to freely interact with customers with out being disturbed. The unique videos also cause folks to stop and watch allowing for possible interaction. The unlicensed motorcyclist is still a problem. One thing we discovered during the Program's FAST TRACK Initiative was that many riders could not pass the skill test because they could not execute the maneuvers on their motorcycle.

For this grant cycle the Program is going to again offer the Basic Rider Course 2 (updated); License Waiver classes at three of its training centers in May, July, and September. The class will be free to participants and riders will use their own motorcycles. This will allow riders looking to get licensed the opportunity to practice riding and be coached prior to testing. Statics provided By Cape Fox, who had a contract to rider training courses for the military, show that a rider who takes a training course on their own motorcycle is 60% less likely to be involved in a fatal crash.

Intended Subrecipients

Maryland MVA

Countermeasure strategies

Countermeasure Strategy
Motorcycle Rider Training
Motorcyclist Safety and Awareness

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Motorcycle Safety (FAST)	$4,200.00		$4,200.00

Planned Activity: MHSO MC Awareness and Rider Training

Planned activity number: GN 20-292

Primary Countermeasure Strategy ID: Motorcycle Rider Training

Planned Activity Description

In FY 2020 the MVA's Motorcycle Safety Program will continue the annual motorcycle campaign, incorporating messaging and media for both motorists awareness and rider training. These efforts will include mass media and other outreach and education efforts to increase both rider training and motorist awareness. Collateral materials may be developed as necessary to support these activities The motorcycle safety program manger will work with the MVA Motorcycle Safety Program to develop and implement messaging and components for both rider training and motorist awareness for the motorcycle safety campaign for FY 2020. The campaign will include the development of materials, media resources and other outreach strategies as necessary, as well as placement of paid media

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
Motorcyclist Safety and Awareness

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405f Motorcycle Programs	405f Motorcyclist Awareness (FAST)	$75,000.00		

Planned Activity: MHSO Motorcycle Safety - Impaired Riding

Planned activity number: GN 20-293

Primary Countermeasure Strategy ID: Motorcyclist Safety and Awareness

Planned Activity Description

Statewide data on motorcycle crashes has identified impaired riding as a focus area for the State as well as an effective countermeasure from NHTSA. In FY 2020 the MDOT MVA's Motorcycle Safety Program will continue to integrate impaired riding messaging and media in the annual motorcycle safety campaign. These efforts will include mass media and other outreach and education efforts to increase public awareness. Collateral materials may be developed as needed to support these activities.

The motorcycle safety program manager will work with Integrated Designs and the MDOT MVA's Motorcycle Safety Program to develop and implement an impaired riding public awareness campaign in FY 2020. The campaign will include the development of materials, media resources and other outreach strategies as necessary, as well as the placement of paid media.

The MHSO will also engage a storage company to deliver 10 storage containers at selected bars with a known motorcyclist clientele. Riders will be encouraged to use the storage containers if they are impaired and to call a safe ride. The riders can return the next day to get their motorcycle at no charge.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
Motorcyclist Safety and Awareness

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Impaired Driving Low (FAST)	$145,000.00		

Planned Activity: Motorcycle - BikeSafe

Planned activity number: LE 20-101

Primary Countermeasure Strategy ID: Motorcyclist Safety and Awareness

Planned Activity Description

The Maryland State Police Motorcycle Unit, partnering with allied Maryland Law Enforcement Agency Motor Officers will expand the "BikeSafe" Program in Maryland to the Washington Metro Region. "BikeSafe" is the partnering of civilian motorcyclists with sworn Law Enforcement Motorcycle Officers in Rider Skills Days that offer assessment on present driving skills and provide advice to help make their experience as a motorcyclist safer and more enjoyable. Motor Officers will cover professional riding techniques and topics to include the system of motorcycle control, collision causation factors and security. The Rider Skills Days are run during the week and at weekends, by highly qualified police motorcyclists passing on their wealth of knowledge and experience in a friendly and informal manner. Training locations will be held at various locations around the state, the training will include both classroom-based advice and on-road ride-outs. This program is designed for all types of motorcycles ranging from high powered performance machines or a smaller commuter bikes. For the expansion of the BikeSafe program, Motor Officers from allied Agencies will conduct training twice a month between the months of May to September. The goal is to have a minimum of 12 to 16 students in each class, for a total of 240 to 320 students trained during the second year. Instructors will promote motorcycle safety through the display and use of safety equipment throughout the training curriculum. As Motor Officers in uniform conducting this training, they are subject to law enforcement actions and will be able to effectively monitor police radio channels. Advanced rider to rider communication will allow seamless communication from instructor to student during the on-road ride-outs immediately correcting any rider behaviors that need immediate attention. Reflective ANSI vests will be provided for student use during the training to promote the training and enhance rider safety.

Intended Subrecipients

Maryland State Police

Countermeasure strategies

Countermeasure Strategy
Motorcycle Rider Training
Motorcyclist Safety and Awareness

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit

2020	FAST Act NHTSA 402	Motorcycle Safety (FAST)	$112,350.00		$112,350.00

Program Area: Non-motorized (Pedestrians and Bicyclist)

Description of Highway Safety Problems

Pedestrian-Involved Crashes

Traffic crashes involving pedestrians represent a critical challenge for the traffic safety community because the entire population can be vulnerable as pedestrians, not just drivers or riders. Pedestrian-involved crashes also tend to affect children disproportionately because many walk to and from school, friends' homes, and in or near shopping areas.

Pedestrians have none of the structural protection afforded by vehicles and are most vulnerable along roadways, especially where sidewalks are incomplete or non-existent, or where traffic control devices do not offer adequate protection. Pedestrian safety depends on adherence to traffic and safety laws by motor vehicle drivers as well as pedestrians themselves. Any failure to comply can greatly affect the number, types and severity of crashes and injuries involving pedestrians.

For the five-year period from 2013 through 2017, the incidence of pedestrian-involved crashes in Maryland remained relatively unchanged (not accounting for population changes in the State), with just over 3,400 pedestrian-involved crashes occurring on Maryland roads in 2017 and an average of over 3,100 per year for years 2013-2017.

For the same five-year period in Maryland, pedestrians were involved in an average of 3 percent of all traffic crashes, 8 percent of injury crashes, and more than one in five (23 percent) of fatal crashes. Pedestrians involved in crashes accounted for 6 percent of injuries and 21 percent of all fatalities.

 The risk and correlation are evident: While only 3 percent of pedestrian-involved crashes result in a fatality, pedestrians are involved in 23 percent of fatal crashes and account for 21 percent of all statewide fatalities. These facts alone show cause for concern among safety professionals as pedestrians are significantly over-represented in fatal crashes. The significant and apparent risk to pedestrians involved in Maryland crashes calls for improved pedestrian safety as a major focus for traffic safety professionals across the State.

Bicycle-Involved Crashes

More than 800 bicycle-involved crashes occur on Maryland roadways each year. From 2013 through 2017, bicycles were involved in an average of fewer than one in 100 (0.8 percent) of all statewide traffic crashes, 2 percent of statewide injury crashes, and 2 percent of statewide fatal crashes. Bicycle-involved crashes accounted for 1.5 percent of injuries and 2 percent of fatalities.

Bicycle crashes are a focus point for the traffic safety community because many involve children of age 17 or under (24 percent of total crashes and 26% of injury crashes). However, those children account for somewhat fewer fatal crashes, approximately 18 percent.

By contrast, bicycle riders aged 20 to 24 accounted for 13 percent of all crashes, and 27 percent of all fatal crashes. Riders aged 40 to 54 accounted for 12 percent of all crashes, but 27 percent of fatal crashes.

Bicycle riders, like pedestrians, do not have the structural protection afforded by vehicles, are not as visible as other vehicles, and are not motorized. These factors together put bicycles at a great disadvantage on roadways, especially where motorized vehicles are traveling at much higher rates of speed. For instance, more than half of

all bicycle-involved crashes (61 percent) occur on state, county, and federal roadways, but more than 80 percent of all fatal crashes occur on those same roadways.

Associated Performance Measures

Fiscal Year	Performance measure name	Target End Year	Target Period	Target Value
2020	Number of pedestrian (on foot) serious injuries on all roads (State data)	2020	5 Year	319.8
2020	C-11) Number of bicyclist fatalities (FARS)	2020	5 Year	5.52
2020	Number of bicyclist fatalities on all roads (State)	2020	5 Year	5.9
2020	Number of pedestrian (on foot) fatalities on all roads (State data)	2020	5 Year	86.2
2020	Number of bicycle serious injuries on all roads (State)	2020	5 Year	56.7
2020	C-10) Number of pedestrian fatalities (FARS)	2020	5 Year	85.8

Countermeasure Strategies in Program Area

Countermeasure Strategy
Elementary-age Child Bicyclist Training
HVE - Pedestrian/Bicyclist
Pedestrian Safety Data Enhancement

Countermeasure Strategy: Elementary-age Child Bicyclist Training

Program Area: Non-motorized (Pedestrians and Bicyclist)

Project Safety Impacts

Young children have little experience with which to anticipate and interpret potential traffic hazards, and limited abilities to reason and react. Their brains are still developing and they lack the maturity and judgment needed to negotiate traffic safely and limit risk-taking behaviors. They are also less skilled at riding than older children or adults. Young children should not ride without supervision until they are at least 10 years old and are able to ride in a straight line, swerve to avoid hazards in the roadway, comfortably start and stop their bicycles, and maintain balance at slow speeds. Maryland will distribute bicycle helmets to elementary-aged school children and provide education to that target audience about proper helmet use.

This project will include a demonstration and handout on how to properly fit a bicycle helmet and an emphasis on wearing a helmet every ride.

Linkage Between Program Area

In 2016, 16 bicyclists lost their lives and 65 bicyclists were seriously injured in crashes on Maryland roadways. Bicycle safety training and education may be incorporated into life-long, comprehensive traffic safety education, with components assembled from NHTSA or comparable programs.

Bicycle crashes are a focus point for the traffic safety community because, overall, total and injury crashes (29 percent and 29 percent, respectively) involve children ages 17 and under. But those children account for somewhat fewer fatal crashes, about 16 percent.

Pedestrian/Bicycle safety is an emphasis area for Maryland, reflected in both this HSP and the State's SHSP. Maryland's Pedestrian/Bicyclist HVE campaign confirms to one of the most effective "Countermeasures That Work" and supports NHTSA's national data.

The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

Both short lecture-based programs and more extensive programs with on-bicycle training can increase children's knowledge of laws and safe behaviors. Self-reports from students and parents also suggested that safe riding behaviors and enjoyment of riding improved, more so in the courses taught on road than those taught in a closed course. MIEMSS has been an extremely solid grantee in the past and the expectation is that the agency will be successful in distributing the helmets and educating the target rider audience.

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-093	Bike Safety - Helmet and Education

Planned Activity: Bike Safety - Helmet and Education

Planned activity number: GN 20-093

Primary Countermeasure Strategy ID: Elementary-age Child Bicyclist Training

Planned Activity Description

This project seeks to reduce the incidence of significant head injury and death in Maryland due to bicycle crashes through coordination of the production of new educational materials, frequent social media communications, development of new partnership and reaffirming existing ones, and distribution of bike helmets in 15 locations in Maryland. Helmets are the single most effective safety device known to reduce head injury and death from bicycle crashes. Maryland Highway Safety Office has a long history of working closely

with local communities to ensure that low cost helmets that meet national standards are accessible as children grow and families expand. MIEMSS EMS for Children's department is the lead for the Safe Kids Maryland state coalition and has promoted bike safety for over 26 years in partnership with the Maryland Highway Safety Office, Maryland Trauma Network, Maryland State Fireman's Association Risk Watch program and local Safe Kids coalitions and community partners.

This FFY2020 project proposes to take the bicycle safety education messaging and helmet distribution to high risk areas of the state and to develop local experts through education, resource utilization and helmet distribution. Messaging will continue to include the Helmet Fit Test messages and product developed in FFY2019 as well as the Be Seen and Be Safe message which will be developed in FFY2020. The Be Seen and Be Safe message will highlight safety equipment for biking, including helmets, reflective clothing, reflectors on helmet and bike, and headlight for low-light riding.

Recognizing that Maryland law only requires those under 16 years of age to wear a helmet, this project will strongly encourage all riders use the right sized helmet, fit the correct way, on every ride. It has been documented that a child who rides with companions wearing helmets or adults wearing a helmet is more likely to wear a helmet himself. Role modeling helmet Right Fit will be included in the education train the trainer and messaging in poster and handout development.

Specifically, the third year of this project will continue work to coordinate ongoing activities from FFY2019 and focus on the expanding the Right Fit message to include a Be Seen and Be Safe message and continued social media work in FFY2020:

First to follow up with Safe Kids coalitions and former bike helmet recipients in Maryland to determine the types of helmets needed and the storage capacity for the second half of the bike helmet purchase.

Second to develop additional social media messages highlighting the Be Seen and Be Safe message and formatted and distributed by MIEMSS Educational Support team to Facebook and Twitter.

Third to provide onsite training at least three or more locations to include both the Right Fit and Be Seen and Be Safe messages for Police, Fire, EMS, Safe Kids Coalitions and Community Safety Advocates. Attending trainings will allow these safety advocates access to specific numbers of helmets for distribution. Helmets will also be available for local/regional Safe Kids and community partner members to share best practices on bike safety event planning, conducting and evaluation.

Intended Subrecipients

Maryland Institute for EMS Systems

Countermeasure strategies

Countermeasure Strategy
Elementary-age Child Bicyclist Training

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	Other	Other	$25,821.00		

Countermeasure Strategy: HVE - Pedestrian/Bicyclist

Program Area: Non-motorized (Pedestrians and Bicyclist)

Project Safety Impacts

Maryland's HVE - Pedestrian/Bicyclist program consists of publicized enforcement waves throughout various parts of the State with demonstrated problems related to pedestrian and bicyclist safety. Educational efforts involve outreach to pedestrians and outreach to motorists. This effort consists of police agencies that have applied for MHSO overtime grants, several statewide media campaigns, the MHSO's internal media communications programs, and a grant to coordinate pedestrian-related law enforcement training. In addition, the MHSO is funding a project to publicize and enforce Maryland's "3 Foot" bicycle law and an evaluation project pertaining to existing media and enforcement programs.

Linkage Between Program Area

Pedestrian/Bicyclist safety is an emphasis area for Maryland, reflected in both this HSP and the State's SHSP. Maryland's Pedestrian/Bicyclist HVE campaign conforms to one of the most effective "Countermeasures That Work" and supports NHTSA's national data pertaining to the extent of injury and death experienced by pedestrians.

 The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

HVE campaigns are a generally accepted, highly successful countermeasure. As it relates to pedestrian/bicyclist safety, Maryland focuses on a corridor approach which is a 4-star strategy in the 9th Edition of Countermeasures That Work. The idea is to strive for large decreases in pedestrian crashes and injuries by more effectively targeting resources to problem areas. Specifically, the objective of pedestrian safety zones is to increase cost-effectiveness of interventions by targeting education, enforcement, and engineering measures to geographic areas and audiences where significant portions of the pedestrian crash problem exist.
 Maryland also emphasizes other elements in its campaigns which are featured prominently in "Countermeasures," including Driver Training and Targeted Enforcement.

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-046	Street Smart Ped/Bike Safety Program
GN 20-079	Baltimore Region Pedestrian Safety Projects
GN 20-189	Scaling & Replicating Behavioral Change for Pedestrian/Bicyclist Safety

GN 20-233	Pedestrian Fatality Review
GN 20-298	MHSO Internal-Ped/Bicycle Safety Program
GN 20-322	Street Smart Virtual Reality Campaign
LE - MHSO 2020 Pedestrian	HVE - Ped/Bike

Planned Activity: Street Smart Ped/Bike Safety Program

Planned activity number: GN 20-046

Primary Countermeasure Strategy ID: HVE - Pedestrian/Bicyclist

Planned Activity Description

Street Smart is a mass media education campaign, that aims to raise awareness of safer behaviors, change pedestrian, motorist, and bicyclist behavior, and ultimately reduce pedestrian and bicyclist fatalities and injuries.   It consists of two one-moth waves of advertising and public relations, one in the Fall and one in the Spring, along with voluntary law enforcement by our partner agencies.   Street Smart does not fund any enforcement.

Street Smart engages law enforcement partners through "enforcement activations", whereby the press is encouraged to cover scheduled pedestrian enforcement at various locations throughout the region, and through a regional workshop on best practices in pedestrian enforcement. We ask law enforcement agencies to report relevant citations and warnings issued during the campaign waves. Street Smart also uses direct outreach events, such as "Street Teams" carrying billboards and safety flyers, who engage and educate the public.

In 2019 Street Smart introduced Virtual Reality training events.   These events typically use an eye-catching vehicle and a virtual reality headset to teach participants where to watch for pedestrians.   Such events are usually held at shopping malls, street fairs, and other locations where people with time on their hands can be found.   These events are more costly than the street teams, but participation and engagement is typically much higher.   Street Smart is not a comprehensive pedestrian and bicyclist safety campaign. Rather, it provides advertising and public relations support and other tools to our member jurisdictions and agencies, who carry out the necessary engineering and enforcement elements. Where partner jurisdictions have been active, we've seen improvements in behavior, and reductions in fatalities and serious injuries.

An advisory group consisting of representatives of the major funding agencies, including Maryland Highway Safety Office, DDOT, Virginia Highway Safety Office, and WMATA, guides the campaign, reviews and approves any materials developed, as well as the media plans. Transportation Planning Board member jurisdictions are invited to participate in the advisory group and a number of them, notably Montgomery County DOT, do so regularly.   The advisory group approves the media plan and costs.   Timing, content, and placement of the ads are data-driven.

Our highest crash months are October-January, so we run the bulk of our advertising in the Fall campaign wave, and emphasize visibility issues. Our pedestrian ads are placed on buses, and the bus routes correlate well with pedestrian crash locations. Street team events and enforcement activations are targeted at pedestrian crash hot spots.   Internet ads aimed at drivers target 18-34 aged males, who are more likely to strike pedestrians than other demographics. All materials are available in English and Spanish, and we place ads on Spanish-language media.

As with any advertising campaign, the primary measure of success is whether the audience is hearing and

remembering the messages. We measure campaign success by campaign awareness as measured by a post-campaign survey of 300 demographically and geographically represented residents, to be held in Spring 2018. The survey is our principal evaluation tool. It tells us whether the target audience is hearing and remembering the messages, and also how they heard the messages. This guides the media-buy, by showing which media are most cost-effective. It also lets us see which audiences we are not reaching, and adjust our media buy accordingly.

By using same creative and messaging over multiple years, we are able to track audience awareness over time. The Spring 2018 survey established a base, or "pre" survey against which subsequent survey results will be measured.   The survey also asks respondents where they heard the message, so that we can measure the relative effectiveness of the various media.   For example, in Spring 2017, 71% of respondents said they saw at least one of the three advertising executions, up from 62% of respondents in the Spring 2016 survey, 55% in the Spring 2015 Survey and 50% in the Spring 2014 survey. Pro bono ads were critical, worth 4-5X the paid media budget.

Intended Subrecipients

Metropolitan Washington Council of Governments

Countermeasure strategies

Countermeasure Strategy
HVE - Pedestrian/Bicyclist

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405h Nonmotorized Safety	405h Public Education	$250,000.00		

Planned Activity: Baltimore Region Pedestrian Safety Projects

Planned activity number: GN 20-079

Primary Countermeasure Strategy ID: HVE - Pedestrian/Bicyclist

Planned Activity Description

1 - Baltimore Regional Pedestrian-Bicycle Safety Education Campaign

The Baltimore Metropolitan Council (BMC) will continue the implementation of the Baltimore Regional Pedestrian-Bicycle Safety Education Campaign developed during FY2019. The "LOOK ALIVE" campaign featuring "Signal Woman" aims to provide educational outreach for pedestrians, bicyclists, and drivers to raise awareness of the rules that protect the most vulnerable road users. The "LOOK ALIVE" campaign was created specifically for the Baltimore Region for the very first time with the help of a steering committee that included key safety stakeholders from the region and focus groups that helped craft a message/campaign that would resonate with both city and county audiences. The Baltimore Regional Safety Subcommittee also played a role in providing input into the campaign and will assist with the continuing efforts in FY2020. The FY2019

consultant, Sherry Matthews, Inc., will provide a strategic plan and final report at the conclusion of that project which will be used to best target efforts in FY2020. The final report will include a thorough evaluation following the implementation of the FY2019 creative campaign in the form of surveys aimed at the target audience to determine the level of awareness and effectiveness of the campaign and any associated behavioral change. Additional evaluation may include media-related metrics such as impressions, hits, and webpage click-throughs. The FY2019 strategic plan and final report, in conjunction with crash and citation data, will be used in the continued development of creative materials throughout FY2020 to identify any additional messaging or target populations. The primary focus of this FY2020 project is to implement the Look Alive creative in the Baltimore media market, so minor creative revisions are possible will not constitute a majority of the effort. The BMC consultant contract states 'The Council reserves the right to renew this Agreement for two (2) one-year extensions beginning in 2019 and 2020, on the same terms and conditions set forth herein' on page 2 of the attached file. Through this contractual agreement, the BMC contractor will be responsible for conducting the media planning and buys in FY2020; the contractor has proven connections and experience in the Baltimore media market (see attached). Page 7, Section 3 of the attached RFP, clearly authorizes Sherry Matthews to implement Media Plans under the contract: The contract may be extended for no more than two, 1-year extensions, if funding is available. Contract extensions may include media plan implementation and any related activities. There will be two independent campaigns in FY2020, one in the Spring and one in the Fall, that will each last six weeks and locations and target populations will be determined using the FY2019 strategic plan. The BMC contractor will design and implement the media campaign to include TV, radio, billboard, and other types of traditional media along with online and social media. A 30-second video was produced during the FY2019 project and this effort will use the Signal Woman material to develop at least one follow-up 30-second video to supplement the campaign.

The Steering Committee formed in FY2019 to help develop the "LOOK ALIVE" campaign will stay in place and, with support from the Regional Safety Subcommittee, continue to guide the implementation and evaluation of the FY2020 campaign.

The education and outreach efforts will be accompanied by increased enforcement of pedestrian and driver safety laws through the second part of this proposal. The campaign will cover the entire Baltimore Metropolitan Region and be made available to state partners.

2 - Law Enforcement Training for Pedestrian-Bicycle Traffic Laws

BMC will work with the MHSO, State, and local police agencies to evaluate, revise, and implement the traffic enforcement training program for pedestrian safety that was developed in FY2019. The training program was first initiated in the Baltimore region and will be followed by other locations in Maryland in FY2020 where interest is expressed. A planning committee was formed in FY2019 and will continue to collaborate on next phases and revisions.

Training will be conducted with a series of modules on enforcement actions. Each training will be customized for the sponsoring agency holding the training. At the conclusion of the training, a field exercise will be conducted to increase the level-of-comfort with conducting enforcement actions.

There will be one workshop held in the Baltimore region in the fall of 2019 and two in the spring of 2020 prior to the launch of the spring 2020 Look Alive campaign. Two more training workshops will be conducted in the summer months to prepare for fall 2020, including one on the Eastern Shore. This grant would provide any

necessary training materials will be provided for lunch through other means for each of the five workshop sessions throughout the year and the state.

3 - Responder Safety Committee and Statewide Conference

In FY2019, a Responder and Motorist Safety at Incident Scenes Working Group was established in coordination with TIMBR and P-BEAT, as well as other EMS and safety partners. This project will work to support training and collaborative efforts related to Traffic Incident Management (TIM) and responder safety in the Baltimore region and statewide by supporting that Working Group. This task includes three tasks.

 i) The Working Group will hold a statewide conference in the Baltimore region focused on best practices, legislative updates, and training efforts related to TIM.

The TIMBR Committee has held about six TIM conferences in the last 20 years. These events were funded by various sources, including federal (Intelligent Transportation Systems (ITS) earmark, State Transportation Innovation Council (STIC), other funds), state (CHART funds), and a small portion from regional (BMC) funds. There is no established line item for TIM conference funding; these events are planned as funding is identified. The last TIM conferences were held in April 2016 and December 2017 (agendas for these events are attached); funds for these events were from STIC. Evaluation forms from attendees of these events consistently reported that the events were informative and useful to responders. In addition to providing valuable presentations to attendees, there is value in bringing responders together from different agencies to meet each other in a low-stress environment and learn more about the roles and responsibilities of others agencies.

Based on interest in similar conferences in years past, this statewide conference will bring together at least 100 attendees from all roadside responder disciplines as well as subject matter experts for a one-day conference that will include lunch. General agenda topics will include: how to stay safe at incident scenes, recent data trends, best practices, new technologies, and coordination with the state SHSP and development of the local SHSPs; in addition, networking opportunities will be provided. This conference may also incorporate the 4-hour National Traffic Incident Management Responder Training Program developed under the Strategic Highway Research Program 2 (SHRP2) and implemented by the Federal Highway Administration. A planning committee will be convened to develop the details of the conference.

 ii) The Working Group will pursue the development and dissemination of educational materials related to responder safety including the Move Over Law; the materials will be distributed to traffic incident responders as well as the public. Materials for responders will focus on what they can do to keep themselves safe, such as wearing safety vests, not turning their backs to traffic, and best practices for staying safe at incident scenes. Materials for the public will focus on the Move Over Law and other actions they can take to increase safety for responders and themselves. This task will include reviewing existing educational materials for responders and the public and identifying ones to use and/or revise and developing new materials as needed. Educational materials could include law cards, gas dispenser toppers, flyers, PSAs, social media messages, etc. The Working Group will include review of educational materials developed by ERSI.

Intended Subrecipients

Baltimore Metropolitan Council

Countermeasure strategies

Countermeasure Strategy
HVE - Pedestrian/Bicyclist

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405h Nonmotorized Safety	405h Public Education	$352,000.00		

Planned Activity: Scaling & Replicating Behavioral Change for Pedestrian/Bicyclist Safety

Planned activity number: GN 20-189

Primary Countermeasure Strategy ID: HVE - Pedestrian/Bicyclist

Planned Activity Description

MICA's proposed project to support Maryland's highway safety goals and objectives will build on the research, ideation, prototype development and testing completed in Phase I of the project (July 2018 - June 2019). Phase II of the project (July 2019-June 2020) aims to:

further develop, test and evaluate low- and high-fidelity prototypes of intervention ideas;

replicate intervention ideas in additional, adjacent Baltimore neighborhoods;

document and share lessons learned from Phases I ampamp;

and outline ideas for scaling the interventions across the city (and to other potential geographies in Maryland).

Neighborhood Expansion Phase II of the project (July 2019 - June 2020) focuses on further developing design intervention ideas that evolved in Phase I of the project in the existing geography of Bolton Hill while also extending this to include two additional neighborhoods: Reservoir Hill and Station North/Greenmount West. These two additional neighborhoods were selected for scaling the project using several key criteria.

The MICA Center for Social Design has strong community relationships and partners already working in both additional neighborhoods. Graham Coreil-Allen (OSI Baltimore Community Fellow) and Jasper Barnes (Director of BYKE Collective) are both already involved as Community Partners in Phase I of the project in Bolton Hill and have proven to be invaluable advisors and neighborhood collaborators. Both have ongoing activities and deep relationships in both Station North/Greenmount West and Reservoir Hill. We also have identified an additional candidate Kim Schulke, a 2018 graduate of the MICA MA in Social Design and former Community Design Fellow with the Neighborhood Design Center in Baltimore, who is already engaged in a project with the community in Greenmount West to reimagine and redesign the public space.

The MICA Center for Social Design also has a strong, extended network of relationships, collaborators and potential partners with current activities and deep connections to draw upon for the project in each of the three neighborhoods. Among these existing partners and relationships are Mt. Royal, Bolton Hill Community Association, BYKE, B-360, Bikemore, Baltimore Office of Promotion & The Arts (BOPA), Baltimore DOT, MTA, Neighborhood Design Center, Baltimore Policy Department and Baltimore Bicycleworks.

Additional potential future partners include: Baltimore Design School, Greenmount West Community Association, Greenmount West Community Center; and Dorothy I. Height Elementary School.

Phase II: Human-Centered Design Process

The MICA Center for Social Design proposes the following process to further develop, expand, implement and evaluate design interventions in these three Baltimore neighborhoods of Bolton Hill, Reservoir Hill and Station North/Greenmount West from July 1, 2019 through June 30, 2020. During the summer (July-August 2019), the MICA team will focus on finalizing the grant agreement, and on reviewing and organizing all documents, data, research, ideas and prototypes from Phase I of the project associated with pedestrian and bicycle safety in the current neighborhood of Bolton Hill. Together with the MDOT team, we will complete a project brief outlining the objectives, plan, roles and timeline for Phase II of the project.

In July/August, the team will also complete position descriptions and recruit the additional members of the team, including the part-time Social Design Associate(s) and Community Partners. The part-time Associate position will be undertaken by either one person or two depending upon candidate interest, availability and expertise. Candidates will be recruited from among recent graduates of the MA in Social Design (MASD) team that participated in Phase I of the project; and/or from recent alumni of the program who also possess the qualifications in human-centered design process required for the position. We have already identified potential candidates for the three neighborhood Community Partners as mentioned earlier.

In July-August, the project team will collect and assemble key MDOT data and research related to pedestrian and bicycle behavior in the two new target neighborhoods of Station North/Greenmount West and Reservoir Hill. We will also organize and facilitate a project kick-off meeting with the MICA and MDOT teams along with Community Partners and other potential collaborators to reflect on outcomes from Phase I, to better understand the data collected for new neighborhoods, and receive feedback on project objectives, plans, roles and timeline.

The team will also draft and renew the MICA IRB proposal required to continue human-centered research engaging community members in the current and new neighborhoods. The project team will develop a research protocol articulating research methods and create interview questionnaires and other tools needed to undertake initial research in the new neighborhoods. The team will initially undertake continued secondary research (reviewing documents and completing interviews) to continue to assess existing city, state and federal pedestrian and bicycle safety programs. complete an initial community mapping of neighborhood stakeholders and key potential collaborators in the two new neighborhood areas: Reservoir Hill and Station North/Greenmount West, including people who live, work, and study in the areas, as well as police/campus safety representatives, traffic engineers, and other city and state partner. The Social Design Associate(s) and Community Partners will undertake observations and interviews in key neighborhood areas to collect qualitative data about pedestrian, biker and driver behavior to complement quantitative data provided by MDOT; they will attend key community meetings and meet with key neighborhood stakeholder organizations.

The project team will then synthesize and theme the research data and from these develop suggestions for potential modifications and/or further evolution of the design interventions. The team will update the Personas/archetypes of key stakeholders developed in Phase I as needed to reflect new insights from research in the two additional neighborhoods; and also update the design principles created in Phase I as necessary.

This phase will manifest in a research shareback session in the Center for Social Design in October 2019 with

the MICA and MDOT teams, Community Partners, and key community stakeholders from the three neighborhoods of Bolton Hill, Reservoir Hill, and Station North/Greenmount West. Results of the shareback workshop will be documented, further synthesized, and integrated into plans for modifying/evolving the design interventions.

Parallel to this process, the project team will create a plan for sharing the project process and prototypes at Artscape. Artscape is the country's largest free arts festival, attracting 350,000+ attendees over three days to Baltimore. The event, hosted around and near the MICA campus each year in July, is a perfect venue to raise awareness about the project, get community input and feedback on the prototypes, and engage community members in seeing and experiencing the prototypes in real time. The team will create an initial concept in October 2019 for showcasing the project present at Artscape 2020 (July 2020).

The team will then focus on creating and testing the prototypes in each of the three neighborhoods. This will include installations of a prototype of each intervention within each neighborhood in a form that allows for community members to see and interact with the prototype in context. Testing of each prototype may take the form of a public, community event and will involve immersive observations and interviews with community participants by the MICA team and Community Partners in order to gather feedback.

Following each prototyping test and event, the team will assemble and synthesize community feedback and assess the prototype against the Evaluation Protocol established at the start of the process. These assessments will be used by the team to articulate final design modifications that should be made to each prototype (and/or to determine that some prototypes should be eliminated or replaced).   This phase will manifest in a prototype shareback session in the Center for Social Design in February 2020 with the MICA and MDOT teams, Community Partners, and key community stakeholders from the three neighborhoods in order to develop plans for testing the prototypes in each neighborhood.   The team will then articulate a plan for the full-scale, high-fidelity, implementation of each design intervention for Spring 2020.

The final stage of Phase II of the project will involve further development, implementation and evaluation of high-fidelity versions of each design intervention in the three neighborhoods of Bolton Hill, Reservoir Hill, and Station North/Greenmount West. The team will update the Evaluation Protocol based on feedback regarding the low-fi prototypes; and compile and synthesize evaluation data gathered from completing prototypes of the high-fidelity prototypes.

This phase will manifest in a final project shareback at the Center for Social Design in June 2020 with the MICA and MDOT teams, and stakeholders and partners from the three neighborhoods to share what we've learned and discuss possible next steps scaling the work city-wide. The team will then compile and design a final document, documenting the entire process (Phases I & II), lessons learning, outcomes, and recommendations for city-wide replication.

Intended Subrecipients

Maryland Institute College of Art

Countermeasure strategies

Countermeasure Strategy
HVE - Pedestrian/Bicyclist

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	Other	Other	$108,749.90		

Planned Activity: Pedestrian Fatality Review

Planned activity number: GN 20-233

Primary Countermeasure Strategy ID: Pedestrian Safety Data Enhancement

Planned Activity Description

The review team (Team) will consist of members representing the following agencies/organizations who will volunteer their time and expertise to review data and make recommendations to prevent pedestrian fatalities:

Maryland State Police/local police agencies

Maryland Highway Safety Office

Office of Chief Medical Examiner (as needed)

Maryland Department of Health

Maryland Department of Transportation - State Highway Administration and local administrations

Medical Doctor (as needed)

Child Fatality Review Board Member (attend when review involves a child that CFR is reviewing or has reviewed)

Epidemiologist

Injury and crash causation experts

The Team will:

meet and review pedestrian fatalities from 2016. This will allow time for the case to go through litigation and adjudication and for the case files be released by the involved agencies. The Team will be responsible for monitoring, reviewing, and evaluating pedestrian fatalities that have occurred on Maryland Roads. Emphasis will be placed on reviewing contributing risk factors and defining respective countermeasures ;

determine the cause of each pedestrian fatality and the related contributing factors;

work with local agencies to review safety protocols and precautions that are in place to protect pedestrian traffic, including initiatives and pedestrian education.

The NSC staff will:

prepare written summaries for each review session and send the summary to the Team members present. The report will include a brief summary of the case, a list of contributing factors and circumstances, and recommendations to prevent pedestrian fatalities; NSC will conduct 10 review meetings with total of up to 70 cases.

present verbal summaries at the P-BEAT meetings throughout the year;

prepare a formal presentation and written report that will be completed in September 2019;

maintain a database that includes: case identifying information, demographics, factors (contributing, human, engineering, environments, vehicular), and recommendations

Records needed for review include:

ACRS reports and DCIR reports (including photos and videos) from Law enforcement

OCME findings and report

EMS reports (when deemed appropriate -- we have the support of Dr. Timothy Chizmar, State Medical Director from MIEMSS for obtaining these reports)

Media article related to incident (if/when available).

Steps to facilitating an effective Pedestrian Fatality Review:

Share, question and clarify all case information

Summarize and discuss the investigation

Identify risk factors

Recommend systems improvements

Identify implementable prevention recommendations.

Intended Subrecipients

University of Maryland Baltimore, NSC

Countermeasure strategies

Countermeasure Strategy
HVE - Pedestrian/Bicyclist

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	Other	Other	$73,793.98		

Planned Activity: MHSO Internal-Ped/Bicycle Safety Program

Planned activity number: GN 20-298

Primary Countermeasure Strategy ID: HVE - Pedestrian/Bicyclist

Planned Activity Description

This activity will consist of media placement and HVE support for the MHSO's pedestrian and bicycle campaign.

The MHSO Pedestrian and Bicycle Safety Program will implement media campaigns, outreach educational activities, and other projects statewide to change behaviors of drivers, pedestrians and bicyclists and reduce the number of traffic collisions involving pedestrians and bicyclists.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
HVE - Pedestrian/Bicyclist

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	Other	405h Public Education	$308,000.00		
2020	Other	Other	$57,970.90		

Planned Activity: Street Smart Virtual Reality Campaign

Planned activity number: GN 20-322

Primary Countermeasure Strategy ID: HVE - Pedestrian/Bicyclist

Planned Activity Description

Montgomery County proposes to provide effectual education and outreach targeting dangerous roadway behavior by partnering with Street Smart's Virtual Reality Challenge. The challenge brings new awareness of dangers posed to various roadway users through its cutting edge technology and effective outreach program. In addition to addressing the strategies listed in the Problem Statement, this program also touches on the Strategic Highway Safety Plan's 3.6.2 Emphasis Area Strategy for pedestrians and bicyclists by promoting safe behaviors of all road users through education initiatives. This has already been chronicled in other jurisdictions by having feedback from users about the viewpoint the challenge gave them for different mode users and the awareness it raised about overall roadway safety. The Street Smart Virtual Reality Challenge is an innovative program that teaches all users, drivers, pedestrians, and bicyclists, about the dangers of operating within the roadway (regardless of whether driving, biking, or walking) inherent in our transportation and infrastructure system. SHA and MCDOT have partnered with Street Smart to bring this challenge to different places throughout Maryland as it has been a proven approach to educate the public about safe practices. This program is an integral part of the education efforts the State and Montgomery County are eager to move forward with, and will provide us with tangible implementation of many of the emphasis area strategies from the Maryland Highway Safety Plan.

Intended Subrecipients

Montgomery County Department of Transportation

Countermeasure strategies

Countermeasure Strategy
HVE - Pedestrian/Bicyclist

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405h Nonmotorized Safety	405h Public Education	$20,000.00		

Planned Activity: HVE - Ped/Bike

Planned activity number: LE - MHSO 2020 Pedestrian

Primary Countermeasure Strategy ID: HVE - Pedestrian/Bicyclist

Planned Activity Description

Maryland has numerous pedestrian and bicyclist safety enforcement actions each year.

High visibility enforcement campaigns have been used to promote pedestrian and bicyclist safety through both specific and general deterrence. In the high visibility enforcement model, law enforcement targets selected high-crash or high-violation geographical areas using either expanded regular patrols or designated pedestrian safety patrols. This model is based on the same principles as high visibility seat belt and alcohol-impaired-driving enforcement: to convince the public that actions detrimental to the safety of pedestrians and bicyclists are likely to be detected and that offenders will be punished.

In the high visibility enforcement model, officers focus on drivers who commit common actions that endanger pedestrians and bicyclists. Enforcement is publicized widely.

MHSO is expending State funds for HVE, therefore no Federal funding sources are listed.

Intended Subrecipients

Aberdeen Police Department	Pedestrian/Bicycle	LE 20-158
Anne Arundel County Police Department	Pedestrian/Bicycle	LE 20-325
Baltimore City Police Department	Pedestrian/Bicycle	LE 20-173
Baltimore County Police Department	Pedestrian/Bicycle	LE 20-115
Bel Air Police Department	Pedestrian/Bicycle	LE 20-150
Carroll County Sheriff's Office	Pedestrian/Bicycle	LE 20-327
Cecil County Sheriffaposs Office	Pedestrian/Bicycle	LE 20-268
Charles County Sheriffaposs Office	Pedestrian/Bicycle	LE 20-329
City of Bowie	Pedestrian/Bicycle	LE 20-332
City of Hyattsville Police Department	Pedestrian/Bicycle	LE 20-328
Cumberland Police Department	Pedestrian/Bicycle	LE 20-334
Greenbelt Police Department	Pedestrian/Bicycle	LE 20-326
Hagerstown Police Department	Pedestrian/Bicycle	LE 20-331
Havre De Grace Police Department	Pedestrian/Bicycle	LE 20-097
Maryland State Police - Statewide	Pedestrian/Bicycle	LE 20-335
Ocean City Police Department	Pedestrian/Bicycle	LE 20-141

Prince Georgeaposs County Police Department	Pedestrian/Bicycle	LE 20-330
Princess Anne Police Department	Pedestrian/Bicycle	LE 20-258
Riverdale Park Police Department	Pedestrian/Bicycle	LE 20-077
Salisbury University Police Department	Pedestrian/Bicycle	LE 20-049
University of Baltimore Police Department	Pedestrian/Bicycle	LE 20-033
University of Maryland Police Department	Pedestrian/Bicycle	LE 20-333

Countermeasure strategies

Countermeasure Strategy
HVE - Pedestrian/Bicyclist

Funding sources

Countermeasure Strategy: Pedestrian Safety Data Enhancement

Program Area: Non-motorized (Pedestrians and Bicyclist)

Project Safety Impacts

This effort consists of a large scale review of Maryland's pedestrian-involved crashes by a multidisciplinary panel. The objective is to identify characteristics and conditions of those crashes and to provide outreach that mitigates conditions leading to pedestrian-involved crashes. The effort is also designed to increase the effectiveness of reporting of these crashes.

Linkage Between Program Area

Pedestrian/Bicyclist safety is an emphasis area for Maryland, reflected in both this HSP and the State's SHSP. Maryland's Pedestrian/Bicyclist HVE campaign conforms to one of the most effective "Countermeasures That Work" and supports NHTSA's national data pertaining to the extent of injury and death experienced by pedestrians.

The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

The idea is to strive for large decreases in pedestrian crashes and injuries by more effectively targeting resources to problem areas. Specifically, the objective of reviewing pedestrian crash data is to provide for more effective interventions by targeting education, enforcement, and engineering measures to geographic areas and

audiences where significant portions of the pedestrian crash problem exist.

Maryland also emphasizes other elements in its campaigns which are featured prominently in "Countermeasures," including Driver Training and Targeted Enforcement.

Planned activities in countermeasure strategy

Program Area: Occupant Protection (Adult and Child Passenger Safety)

Description of Highway Safety Problems

Associated Performance Measures

Fiscal Year	Performance measure name	Target End Year	Target Period	Target Value
2020	Number of unrestrained-occupant motor vehicle fatalities on all roads (State data)	2020	5 Year	96.5
2020	Number of unrestrained-occupant motor vehicle serious injuries on all roads (State data)	2020	5 Year	281.4
2020	B-1) Observed seat belt use for passenger vehicles, front seat outboard occupants (survey)	2020	Annual	95.50
2020	C-4) Number of unrestrained passenger vehicle occupant fatalities, all seat positions (FARS)	2020	5 Year	109.6

Countermeasure Strategies in Program Area

Countermeasure Strategy
Child Restraint System Inspection Station(s)
Communication Campaign
HVE - Seat Belt

Countermeasure Strategy: Child Restraint System Inspection Station(s)

Program Area: Occupant Protection (Adult and Child Passenger Safety)

Project Safety Impacts

Maryland will fund three agencies with respect to child passenger safety in FFY 2020 - Maryland Kids in Safety Seats (KISS), the Maryland Institute for Emergency Medical Services Systems (MIEMSS), and the Maryland

State Police (MSP).

KISS provides consistently effective outreach , with more than 26,000 pieces of CPS educational materials distributed to caregivers this past year. KISS annually provides or assists with training 100 CPS technicians and distributes roughly 500 car seats via a low-cost purchase program and a short-term special needs loaner program to families statewide. One of the main functions of KISS is the recruitment and retention of CPS technicians of which Maryland has approximately 500 total. During CPS activities, KISS staff also promotes adult seat belt use and assists the MHSO in adult seat belt use efforts.

MIEMSS conducts activities to reduce injuries and deaths due to vehicle crashes by promoting proper use of car seats, seat belt use among older kids and adults, and other occupant protection measures among EMS and healthcare providers. MIEMSS staff provides trainings to hospitals and assists with neonatal re-certification site visits, meeting with key maternal and child health administrators to discuss CPS policies and services.

MSP will fund the certification or recertification of troopers as child passenger safety technicians.

Linkage Between Program Area

Occupant protection, including child passenger safety, is an emphasis area for Maryland, reflected in both this HSP and the State's SHSP.

The misuse of child restraints has been a concern for many years. A number of programs have been implemented to provide parents and other caregivers with "hands-on" assistance with the installation and use of child restraints in an effort to combat widespread misuse. Child passenger safety (CPS) inspection stations, sometimes called "fitting stations" are places or events where parents and caregivers can receive this assistance from certified CPS technicians. Child restraint inspection stations have become common components of State and local child passenger safety programs.

 The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are data-driven and provide guidance in identifying jurisdictions that are most capable of reducing the State's number of serious and fatal crashes.

Rationale

Child restraint inspection stations are supported in the 9th Edition of Countermeasures That Work.

One study found that Safe Kids child restraint inspection events held at car dealerships, hospitals, retail outlets and other community locations positively changed parents' behavior and increased their knowledge over a 6-week follow-up period: children arriving at the second event were restrained more safely and more appropriately than they were at the first.

Research shows that use of child safety seats reduce the risk of death by 71% for infants and 54% for toddlers in passenger cars[1], and booster seats used with lap and shoulder belts reduce the risk of injury by 45% among children 4-8 years old when compared to seat belt usage alone. Unfortunately, according to the 2016 Maryland Crash Outcome Data Evaluation System (CODES) data provided by the National Study Center, 1,284 children

Birth-4 were reported as injured in crashes, with 1,252 children having known restraint use or non-use of a restraint. Of those children, 978 (78%) were using a child restraint, 202 (16%) were reported as using a type of restraint but not in a child safety seat (car seat or booster seat), and 47 (3.7%) of them reported as unrestrained at the time of the crash. ("Unknown" numbers are not included). For the 5-9 year old range, 1,203 children were reported injured. In this age group, restraint use or non-use is known for 1,153 children. Of those children, 367 (31.8%) were in a child restraint, 716 (62%) were using a type of restraint other than a child restraint and 70 children (6%) were reported as not using a restraint. ("Unknown" numbers are not included). Among children ages 10-15 injured in a crash, 27 (2%) were in a child restraint, 1,082 (87.1%) were in a type of restraint other than a child restraint, and 133 (10.7%) were injured while not using a restraint of any kind. Additionally in 2016, five children from Birth-9 years old were killed in a crash while restrained in a child restraint, and three additional children were killed when restrained but not by a child restraint and one child in the 10-15 age range was killed while restrained but not in a car seat and one child killed while unrestrained. ("Unknown" numbers are not included).

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-013	Maryland Kids In Safety Seats
GN 20-091	Maryland CPS and OP Health Care Project
GN 20-254	SAFE KIDS Frederick County
GN 20-313	Car Seats

Planned Activity: Maryland Kids In Safety Seats

Planned activity number: GN 20-013

Primary Countermeasure Strategy ID: Child Restraint System Inspection Station(s)

Planned Activity Description

To address the plethora needs across the State, the program proposes a multi-prong approach to ensure the program works as effectively and efficiently as possible, including:

Providing current best practice CPS information to the public through a comprehensive educational program, including dedicated a Helpline, email and website, Skype video chat, and providing educational handouts through mailings, email, health or safety fairs, car seat checkup events and public education presentations;

Maintaining the number of Nationally Certified Technicians at a minimum of 450 Technicians throughout the State by working with volunteer CPS Instructors to implement training/or assisting with training throughout the State;

Supporting county-wide CPS Teams, upon request, in establishing standardized car seat checkup events, including the recruitment, development, and mentoring of Volunteer Quality Assurance Technicians (QAT) and CPS Instructors;

Supporting MDaposs CPS Technicians with their re-certification requirements/needs via email updates, supervision and providing mentoring at check-up events in the field, providing in-person CEU opportunities and instructor re-certification sign-offs to ensure Maryland maintains a state re-certification average in line with the National re-certification average;

Supporting and overseeing a current network of current Car Seat Assistance Programs (CSAP)/Special Needs Car Seat Loaner Programs with supplemental car seats, training and technical/educational supplies and materials;

Developing a training tool for a law enforcement audience pertaining to the explanation of Marylandaposs CPS law language and providing suggestions regarding how to determine a ticketable offense to increase their knowledge and confidence in upholding the child passenger safety law;

Promoting National CPS Awareness Week through the distribution of a press release and social media outlets, as well as responding to media inquiries in a timely fashion throughout the year;

Maintaining knowledge of current best practice and technical information by having staff attend the annual LifeSavers Highway Safety Conference, and sharing learned information with statewide instructors and technicians via emails and/or in-person training;

Co-developing and implementing a two-day Technical Training Event (Day 1 for Statewide CPS Technicians, Quality Assurance Technicians (QAT) and Instructors, Day 2 for Special Needs Trained individuals) in partnership with the Maryland Institute for Medical Services System (MIEMSS);

Maintaining a scholarship program for volunteer CPS Instructors, Quality Assurance Technicians and CPS Technicians who donate their time to the State Program;

Completing obligations related to participating in a Digital Car Seat Inspection Form Pilot Project conducted by the National Safety Council; and

 Leading the CPS Advisory Board through statewide-related CPS issues, as they arise, through meetings and projects.

Intended Subrecipients

Maryland Department of Health

Countermeasure strategies

Countermeasure Strategy
Child Restraint System Inspection Station(s)

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405b OP High	405b High Occupant Protection (FAST)	$260,619.00		

Planned Activity: Maryland CPS and OP Health Care Project

Planned activity number: GN 20-091

Primary Countermeasure Strategy ID: Child Restraint System Inspection Station(s)

Planned Activity Description

This project seeks to reduce the incidence of injuries and deaths in Maryland due to vehicle crashes through a variety of occupant protection (OP) interventions.   According to NHTSA, correct restraint use significantly

reduces the risk of fatal injuries: seat belt use results in a 45% reduction to front seat occupants, and safety seats have a 54-71% reduction of risk.   A study of new parents at an Oregon hospital showed that those who worked with a CPS technician prior to the baby's discharge were significantly less likely to make errors. (Hoffman, J Peds, 2015).

This project will promote proper and consistent use of car safety seats among children, seat belt use among youth and caregivers, and occupant protection measures taken by healthcare and EMS Fire and Rescue personnel to keep themselves and their patients as safe as possible. Data and research on OP will inform the planning of interventions, and evaluation will refine the process. The primary strategy will be dissemination of up-to-date and culturally-relevant OP and child passenger safety (CPS) information, but this project will also support enforcement of OP laws, the collection of relevant data on OP, and education on enhanced OP legislation or regulations.   Best practice recommendations in ambulance transport is evolving but current NHTSA and NASEMSO documents will inform our educational interventions for the Maryland EMS providers and hospital transport teams on the ideal way to transport ill or injured children. This grant's project director remains active on the NASEMSO Safe Transport of Children in Ambulances Ad Hoc Committee.

This project will use specific strategies such as hands-on training, website resources, interactive educational displays at EMS and emergency department conferences, the provision of CPS equipment (e.g. special needs & demonstration car seats), webinars to train safety advocates remotely, and continuing education units or free registrations offered to hospital/EMS providers as incentives to take the CPS certification class and then work on CPS in their community. Many Maryland hospitals cast children and send them home; MIEMSS lends special needs seats to hospitals that don't have their own special needs seats, or whose seats are all in use.

The project coordinator will work in close collaboration with Maryland Kids in Safety Seats and Safe Kids Maryland to efficiently use state and local resources and to target our interventions and materials. She also will continue to assist with MIEMSS; re-certification visits to Maryland NICUs, which provides her the opportunity to meet with key hospital official and discuss their CPS policies and services. A special effort will be made to reach parts of the state with the fewest OP resources. This project has been effective over its 18 years of funding, but there are new parents and healthcare providers every day, and gaps remain in who receives our information and skill training. Additionally, technology and products change so we need to continually update Maryland citizens as well as hospitals, primary care, and out-of-hospital providers. MIEMSS's EMS-C seeks to continue to host the CPS & OP Healthcare Project as we feel it is an effective way to provide OP education to EMS/fire as well as healthcare professionals across the state. MIEMSS is the lead agency for the Safe Kids Maryland Coalition and we interact closely with the MD Academy of Pediatrics, MD Department of Health, MD Emergency Nurses Association, Maryland Trauma Network (11 trauma centers) and Safe Kids Worldwide/local coalitions and chapters on policies, planning, interventions, promotions and evaluation. We also benefit from the technological assistance of MIEMSS; Educational Support Services, the resources of a project director with pediatric emergency department expertise, liaisons in all Maryland hospital emergency departments, the consultation of Dr. Carla Bailey who regulates hospital neonatal units, EMS professionals and medical directors in the state's 26 jurisdictions, base station coordinators in 50 hospitals in urban/suburban/ rural areas that reach into jurisdictions with no hospitals, and a partnership with the Maryland State Fireman's Association and their 365 member companies in more than 750 actual fire/EMS/rescue stations.

The project coordinator is a certified health educator, a CPS instructor with Special Needs CPS training, and has

more than 20 years of experience in injury prevention including work at MD KISS and the Johns Hopkins Center for Injury Research & Policy.

Intended Subrecipients

Maryland Institute for EMS Systems

Countermeasure strategies

Countermeasure Strategy
Child Restraint System Inspection Station(s)

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405b OP High	405b High Occupant Protection (FAST)	$70,722.00		

Planned Activity: SAFE KIDS Frederick County

Planned activity number: GN 20-254

Primary Countermeasure Strategy ID: Child Restraint System Inspection Station(s)

Planned Activity Description

Car Passenger Safety According to the CDC, motor vehicle serious and fatal injuries can be prevented up to 80 percent by buckling children in age- and size-appropriate car seats, booster seats, and seat belts. Frederick County will hold inspection stations every other month and partner with organizations to hold inspection stations at different sites. We will use this opportunity to buy infant seats, for which we cannot currently purchase, as well as other child restraints that will be available at each inspection station site for techs to use during their inspection stations. We will need enough materials and storage for each inspection station for the techs to use. All the child restraints will be available to purchase at a low cost/no cost (depending on the situation). We will also target low-income and minority populations that are within the ALICE (Asset Limited, Income Restrained, Employed) guidelines. In order for the Safe Kids van to be up-to-date, we will purchase all the required materials so that the van will be ready for each event.

In 2018, Safe Kids Frederick County educated over 850 students on pedestrian safety during the International Walk to School day at Centerville Elementary, which is a nationally known program developed by National Center for Safe Routes to School to empower communities and elected officials to promote safe walking and bicycling to school while eliminating fatal and serious crashes with students.   Prevention of bicycle and pedestrian injury materials include, flashlights, reflective clothing or reflectors for bags and bicycles, safe routes to school, buddy systems, helmets, and ensuring that every school has a crossing guard on their intersections. We will conduct at least one walk to school event at a Title I school, where we will distribute these prevention materials.

Safe Kids Frederick County, in partnership with all our coalition member, will host Bike Education Classes, Bike Safety Training, and Walk & Bike to School Day events at local Title I schools that targets all school-

aged children. We will hold helmet-fitting educational sessions, give away bike helmets to students who are unable to afford them, and hold an assembly that will present important stakeholders within our community. Within these presentations, we will communicate safety measures that will encourage and educate students to prevent bicycle and pedestrian injuries. Last year, the Frederick Bicycle Coalition gave away over 180 bike helmets at Hillcrest and Waverly Elementary School that have 82% and 63% of students that qualify for free or reduced price meals, respectively. This year, we hope to reach more schools and more students to increase the knowledge of the children of Frederick County.

Shayne Boucher, a League Certified Instructor (LCI) and lead bike instructor, will work with the Safe Kids Frederick County coordinator, who will be trained as a LCI during this grant period, to ensure that students are aware of the rules of the road, watching for distracted drivers, practice safe riding skills in a Bike Safety Education Week, register their bikes, and participate in a group ride to school with support from the local police force on Walk & Bike to School Days. Shayne will also be the lead instructor the for bike education week programs in the 3rd quarter.

By implementing these solutions, it will help address and maintain low burden of injury for vulnerable user groups in underrepresented population areas of Frederick County. This education initiative will promote safe behaviors of not only bicycle riders and walkers, but make road users more aware of safely sharing the road with bicyclists and pedestrians.

Full-time employees will be trained as Licensed Certified Instructor (LCI) in order to teach bicycle safety to schools, rodeos, and other events. Staffing Coordinator will attend LCI training. The coordinator will go through Instructor Candidacy ($85 one time application fee) for Car Passenger Safety to become an Instructor and pay a re-certification fee of $55. Partnering with us from the Frederick Bicycle Coalition, Shayne Boucher, will be needed at events and cost $50 per session for a total of 20 sessions.

Intended Subrecipients

Frederick County Health Department

Countermeasure strategies

Countermeasure Strategy
Child Restraint System Inspection Station(s)

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Occupant Protection (FAST)	$59,189.84		$59,189.84

Planned Activity: Car Seats

Planned activity number: GN 20-313

Primary Countermeasure Strategy ID: Child Restraint System Inspection Station(s)

Planned Activity Description

With support of a $5,000 Highway Safety grant, we will increase the reach of our car seat safety efforts in Prince George's County. This grant will augment our child passenger safety related efforts by accomplishing the following goals for 2019-2020:

RESPOND TO COMMUNITY NEED - This grant will leverage our extensive expertise, allowing PGCRC to respond to higher numbers of pregnant mother who are in need of safety seats through our programs and the significant number of families on our waiting list for infant safety seats. We will continue to encourage safety to our families as their children ride in cars but also helmet safety as they ride on bicycles.

STRENGTHEN PARTNERSHIP APPROACH - Through this grant, we will strengthen pre-existing community partnerships and possibly develop new ones as well. Our advisory board, comprised of other organizations, both private and public, serving Prince Georgeaposs County, will continue to spread the word about our child safety seats distribution program.

INCREASE CAPACITY - We will be able to focus on any re-certification or training to maintain the certification for our Child Passenger Safety Technician having secured funding for car seats. We will continue our outreach efforts through PGCRCaposs network. PGCRC collaborates with an extensive network of partners. For example, we hold a quarterly advisory board attended by more than 25 public and private organizations serving our target population, and know that they will eagerly advertise our safety program. PGCRC will continue to conduct outreach at community events/health fairs, at which we reach more than 100 individuals or families each year. PGCRC will recruit through communication in our newsletter and website.

Intended Subrecipients

Prince George's Child Resource Center, Inc.

Countermeasure strategies

Countermeasure Strategy
Child Restraint System Inspection Station(s)

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405b OP High	405b High Child Restraint (FAST)	$4,520.00		

Countermeasure Strategy: Communication Campaign

Program Area: Occupant Protection (Adult and Child Passenger Safety)

Project Safety Impacts

Linkage Between Program Area

Seat belt use is an emphasis area for Maryland, reflected in both this HSP and the State's SHSP. Maryland's

HVE campaign conforms to one of the most effective "Countermeasures That Work" in regard to increasing seat belt use, and also supports NHTSA's national HVE campaign period.

The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

HVE efforts are widely supported in the 9th Edition of Countermeasures That Work and this effort supports the NHTSA's national Click it or Ticket campaign. This project is intended to increase enforcement of Maryland's seat belt laws through a communications campaign targeting police officers.

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-205	Innovative Messaging for Law Enforcement to Increase Seat Belt Usage in Maryland

Planned Activity: Innovative Messaging for Law Enforcement to Increase Seat Belt Usage in Maryland

Planned activity number: GN 20-205

Primary Countermeasure Strategy ID: HVE - Seat Belt

Planned Activity Description

The Crash CoRE team proposes a pilot study to develop and deliver messaging to law enforcement that will motivate officers to fully appreciate and enforce Maryland seat belt laws, while in turn, cause an increase of seat belt use in our state.

The study will develop and deliver messaging to Maryland law enforcement officers intended to provide a new perspective on the significance (an insightful understanding and appreciation) of the seat belt, the physics of crashes that require it, and the crucial role of law enforcement in influencing Marylanders to buckle up. This pilot study will 1) Identify and Develop the most effective message to law enforcement to promote an increase in safety culture and buy-in for a mindset of zero tolerance for unrestrained occupants 2) Deliver the message to two intervention jurisdictions via an in-person presentation and an online format presentation, respectively, utilizing our already existing relationships with law enforcement leadership 3) Survey intervention participants (before and after intervention) and control (no intervention) participants to assess knowledge, attitude and beliefs about the significance of seat belts and issuing citations 4) Evaluate the effect of the law enforcement messaging on changes in the number of seat belt citations issued and seat belt use rates in Maryland.

While we recognize that enforcement is most effective when coupled with public awareness, our intention is to

only influence and evaluate changes in enforcement at this time. This project is in line with the strategies and goals of Maryland's SHSP, incorporating enforcement and education.

NHTSA's publication How States Achieve High Seat Belt Use Rates states, Law enforcement is key: officers must believe that seat belt use is important [1] and the most effective strategy for achieving and maintaining restraint use at acceptable levels is well publicized high-visibility enforcement of strong occupant restraint use laws [5]. Crash CoRE understands that not enforcing or under enforcing restraint use law obstructs efforts to increase and sustain seat belt use. Instituted in 1988, the Maryland Chiefs Challenge encourages all Maryland jurisdictions to enforce the seat belt laws to drive up seat belt use. Almost 30 years later Crash CoRE proposes this pilot project, a similar effort, for zero tolerance with a unique approach to messaging. For this study, we will deliver the message of the significance of seat belts, elicit support from law enforcement leadership and measure the impact on a select number of jurisdictions.

Intended Subrecipients

Crash Center for Research and Education

Countermeasure strategies

Countermeasure Strategy
Communication Campaign

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Occupant Protection (FAST)	$79,893.89		$79,893.89

Countermeasure Strategy: HVE - Seat Belt

Program Area: Occupant Protection (Adult and Child Passenger Safety)

Project Safety Impacts

Short-term HVE efforts have proven effective at focusing law enforcement efforts and raising public awareness of seat belt use. Activities being funded in this project include overtime enforcement for 30 police agencies and the MHSO's statewide media campaign to support Click it or Ticket mobilizations.

In 2018, Maryland's seat belt use rate dropped from 92.1 percent to 90.3 percent. The 2018 seat belt survey included data collected on drivers and front-seat passengers at 130 selected sites in 13 jurisdictions of the State. The MHSO will work specifically with its law enforcement partners to increase the enforcement of Maryland' seat belt laws.

Maryland participated in the Click It or Ticket campaigns for November 2017 and May 2018, providing media for cable television, radio, social/digital media, billboards, and gas pump toppers. The MHSO will use this funding to also distribute educational materials and posters, as well as digital tool kits, to key groups throughout the State.

Linkage Between Program Area

Seat belt use is an emphasis area for Maryland, reflected in both this HSP and the State's SHSP. Maryland's HVE campaign conforms to one of the most effective "Countermeasures That Work" in regard to increasing seat belt use, and also supports NHTSA's national HVE campaign period.

The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

HVE efforts are widely supported in the 9th Edition of Countermeasures That Work and this effort supports the NHTSA's national Click it or Ticket campaign.

CDC's systematic review of 15 high-quality studies (Dinh-Zarr et al., 2001; Shults et al., 2004) found that short-term, high visibility enforcement programs increased belt use by about 16 percentage points, with greater gains when pre-program belt use was lower. Because many of the studies were conducted when belt use rates were considerably lower than at present, new programs likely will not have as large an effect. Following the enforcement program, belt use often dropped by about 6 percentage points demonstrating the ratchet effect typical of these programs (belt use increases during and immediately after the program and then decreases somewhat, but remains at a level higher than the pre-program belt use).

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-237	Seat Belt Observation Project
GN 20-297	MHSO Internal-OP
LE MHSO 2020 Seat Belts	HVE - Seat Belts

Planned Activity: Seat Belt Observation Project

Planned activity number: GN 20-237

Primary Countermeasure Strategy ID: HVE - Seat Belt

Planned Activity Description

The NSC will compile and analyze seat belt observational survey data to report seat belt use by drivers and front seat outboard passengers traveling in passenger vehicles. Maryland is composed of 23 counties and Baltimore City; 13 of these jurisdictions account for more than 85% of the passenger vehicle crash-related fatalities according to Fatality Analysis Reporting System (FARS) data averages for the period 2012-2014. Seat belt usage rates will be observed using a standard methodology across the 13 jurisdictions. New site locations were chosen in 2017 using the same methodological process outlined by NHTSA. The locations of the 2017 data collection sites will also be used this year. The MHSO has contracted with a firm to administer the survey. The NSC will be responsible for training the survey team, assisting with quality control and compiling,

analyzing and interpreting the observational seat belt survey data, and submitting a final report. NSC staff will also assist the MHSO in its preparations for the upcoming Occupant Protection Program Assessment, as mandated by NHTSA. In this role, the NSC will help in responding to questions regarding the effectiveness of the State's program and will coordinate efforts with partners, briefing books and the assessment panel decisions as required.   NSC is positioned to support this project by having a team of multi-disciplinary experts on hand to meet objectives. The NSC has handled the various components of the front seat project since 2011.

These sites are to be used as the basis for the MHSO's HVE seat belt campaign and enforcement model.

Intended Subrecipients

University of Maryland Baltimore, NSC

Countermeasure strategies

Countermeasure Strategy
HVE - Seat Belt

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405b OP High	405b OP High (FAST)	$88,548.97		

Planned Activity: MHSO Internal-OP

Planned activity number: GN 20-297

Primary Countermeasure Strategy ID: HVE - Seat Belt

Planned Activity Description

This activity will consist of media placement and HVE support for the MHSO's seat belt use (Click it or Ticket) campaign.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
HVE - Seat Belt

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	NHTSA 402	Occupant Protection	$340,000.00		$340,000.00

Planned Activity: HVE - Seat Belts

Planned activity number: LE MHSO 2020 Seat Belts

Primary Countermeasure Strategy ID: HVE - Seat Belt

Planned Activity Description

Maryland will coordinate a HVE campaign themed around the national Click it or Ticket campaign model for seat belt use.

High visibility enforcement campaigns have been used to promote seat belt use through both specific and general deterrence. In the high visibility enforcement model, law enforcement targets selected high-crash or high-violation geographical areas using either expanded regular patrols or designated seat belt patrols. This model is based on the same principles as high visibility distracted driving prevention and alcohol-impaired-driving enforcement: to convince the public that not using seat belts is likely to be detected and that offenders will be punished.

Enforcement is publicized widely.

Thirty three law enforcement agencies have applied for seat belt enforcement grants. The MHSO will coordinate a statewide media campaign to support that enforcement.

Intended Subrecipients

Aberdeen Police Department	Occupant Protection	LE 20-157
Allegany County Sheriff's Office	Occupant Protection	LE 20-153
Annapolis Police Department	Occupant Protection	LE 20-179
Anne Arundel County Police Department	Occupant Protection	LE 20-035
Baltimore City Police Department	Occupant Protection	LE 20-172
Baltimore County Police Department	Occupant Protection	LE 20-114
Calvert County Sheriffaposs Office	Occupant Protection	LE 20-072
Carroll County Sheriffaposs Office	Occupant Protection	LE 20-145
Cecil County Sheriffaposs Office	Occupant Protection	LE 20-030
Charles County Sheriffaposs Office	Occupant Protection	LE 20-188
Easton Police Department	Occupant Protection	LE 20-044
Elkton Police Department	Occupant Protection	LE 20-053
Frederick Police Department	Occupant Protection	LE 20-001
Garrett County Commission	Occupant Protection	LE 20-040
Greenbelt Police Department	Occupant Protection	LE 20-104
Hagerstown Police Department	Occupant Protection	LE 20-307

Harford County Sheriffaposs Office	Occupant Protection	LE 20-006
Howard County Police Department	Occupant Protection	LE 20-088
Laurel Police Department	Occupant Protection	LE 20-162
Maryland State Police - Statewide	Occupant Protection	LE 20-264
Maryland Transportation Authority Police	Occupant Protection	LE 20-282
Montgomery County Police Department	Occupant Protection	LE 20-230
Ocean City Police Department	Occupant Protection	LE 20-138
Ocean Pines Police Department	Occupant Protection	LE 20-124
Prince Georgeaposs County Police Department	Occupant Protection	LE 20-244
Princess Anne Police Department	Occupant Protection	LE 20-248
Riverdale Park Police Department	Occupant Protection	LE 20-076
Rockville Police Department	Occupant Protection	LE 20-202
St. Maryaposs County Sheriffaposs Office	Occupant Protection	LE 20-099
University of Baltimore Police Department	Occupant Protection	LE 20-022
University of Maryland Department of Public Safety	Occupant Protection	LE 20-108
Washington County Sheriff's Office	Occupant Protection	LE 20-167
Westminster Police Department	Occupant Protection	LE 20-086

Countermeasure strategies

Countermeasure Strategy
HVE - Seat Belt

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Occupant Protection (FAST)	$162,350.00		$162,350.00

Program Area: Older Drivers

Description of Highway Safety Problems

As the statewide population ages, older drivers (ages 65–110) will become more prevalent on roadways and can

present unique challenges that must be considered in safety planning and education. Older drivers may have slower reaction times and shorter sight distances, which factor into awareness, education, and enforcement efforts.

For the five-year period from 2013 through 2017, the incidence of older-driver involved crashes increased by 35 percent. There were 15,004 crashes involving older drivers on Maryland roads in 2017.

From 2013 through 2017, older drivers were involved in an average of more than one in eight (12 percent) of all traffic crashes, 16 percent of injury crashes, and 18 percent of fatal crashes annually. Older drivers were involved in crashes that accounted for one in six injuries (17 percent) and 18 percent of fatalities.

Drivers 65 and older represent 8 percent of all drivers involved in crashes and are over-represented in the proportion of crashes that account for injuries and fatalities. Thus, older driver safety has become a focus for traffic safety professionals.

Associated Performance Measures

Fiscal Year	Performance measure name	Target End Year	Target Period	Target Value
2020	Number of older driver (65-110) involved serious injuries on all roads (State data)	2020	5 Year	442.1
2020	Number of older driver (65-110) involved fatalities on all roads (State data)	2020	5 Year	68.1

Countermeasure Strategies in Program Area

Countermeasure Strategy
Planning and Administration

Countermeasure Strategy: Planning and Administration

Program Area: Older Drivers

Project Safety Impacts

Planning and Administration projects enable the payment of MHSO staff salaries as well as numerous other critical projects.

Linkage Between Program Area

Allocation of P&A funds is strictly related to projects that fulfill critical MHSO mission needs.

Rationale

These projects enable staffing, meeting support, and critical endeavors such as the forecasting predictive modeling project.

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-078	Local SHSP Development in Baltimore Region
GN 20-221	MHSO Meetings Support
GN 20-239	Predictive Modeling
GN 20-267	MHSO Staffing Grant 1
GN 20-278	MHSO Staffing Grant 2
GN 20-279	MHSO Staffing Grant 3
GN 20-288	MHSO Communications
GN 20-291	MHSO GPS Grant System
GN 20-301	MHSO Planning and Administration

Planned Activity: Local SHSP Development in Baltimore Region

Planned activity number: GN 20-078

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

The Baltimore region includes the cities of Annapolis and Baltimore and the counties of Anne Arundel, Baltimore, Carroll, Harford, Howard, and Queen Anne's. The coordinator began working in FY2019 to develop plans in each of the jurisdictions and, at the time of this submission, has one in implementation phase, two in committee plan development, and the remaining four recruiting local partners. It is anticipated that two of those remaining four will have established a steering committee and had a kickoff meeting by the beginning of FY2020, while the two in development will move into the implementation phase and the last one will be undergoing evaluation.

Local SHSP coordinator will:

Collaborate with the MHSO Partnerships, Resources, and Outreach (PRO) Section, and lead jurisdictional outreach meetings and efforts to facilitate the development of local SHSPs. This may include making presentations to interested groups as necessary.

Review and coordinate with plans such as the Long-Range Statewide Transportation Plan and Metropolitan Transportation Plan. Where relevant, this coordination should include, at a minimum, high-level goals, objectives, and strategies that are consistent with those in the State's SHSP.

Coordinate with subject matter experts (SME) regarding updates to the local SHSPs and the MHSO Highway Safety Plan (HSP). Support SMEs with ensuring consistency in performance measures and targets in the state reports that include traffic safety measures, e.g., Tangible Results, Managing for Results, and the MDOT Attainment Report.

Attend State Emphasis Area Team meetings (Aggressive, Distracted, Impaired, Pedestrian/Bicyclist, Occupant Protection, Highway Infrastructure).

Facilitate local Implementation/Steering Committee meetings as needed. This may include assisting in developing an agenda, providing materials, administering web/phone conferences, taking meeting minutes, and recording attendance when needed.

Collaborate with BMC and MHSO staff to prepare the program and provide logistical support for the annual SHSP Summit and local SHSP workshops.

Maintain local team membership database and manage communication to local SHSP partners.

Review current organizational relationships among the local SHSP partners and stakeholders and identify opportunities to strengthen these relationships.

Support the retention and recruitment of local and state SHSP Emphasis Area Team (EAT) members, ensuring appropriate and comprehensive representation from the 4Es.

Draft local SHSP plans, including implementation and evaluation plans, for each of the represented jurisdictions and write final version of each plan with assistance from key partners and stakeholders.

Provide evaluation tracking and progress reports at regular intervals to local partners.

Participate in training opportunities related to strategic planning, performance measures, and evaluation.

Other duties as assigned.

Intended Subrecipients

Baltimore Metropolitan Council

Countermeasure strategies

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	Other	Other	$150,714.06		

Planned Activity: MHSO Meetings Support

Planned activity number: GN 20-221

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

Pay and place, if need be, for requested catering needs. Work with MHSO staff on conference logistics.

Intended Subrecipients

Washington Regional Alcohol Program

Countermeasure strategies

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit

| 2020 | FAST Act NHTSA 402 | Planning and Administration (FAST) | $34,261.20 | | $34,261.20 |

Planned Activity: Predictive Modeling

Planned activity number: GN 20-239

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

This is a continuation of the FFY 2019 project designed to forecast serious and fatal crash injuries in the State of Maryland based on certain factors such as vehicle miles traveled, environmental changes, demographics, economics, behavioral, and policy factors. During the first phase of the project, an initial model was trained using 2010 through 2017 crash and contributing factor data. To improve the models and allow an analysis of the first phase models in predicting 2018 counts, we will update crash and explanatory variables from 2018 data. Additional surrogates representing congestion, distraction and speeding will be identified and compiled by crash year, crash month and county to the extent possible. Impact Research and NSC staff will work collaboratively to identify data sources and compile training data for parameters already in use and for those expected to improve overall model fit. An alternative injury outcome that is clinically-based would enhance the proposed models. While the police reported KABCO system is traditionally used as an injury severity surrogate, this police assessment is subjective. The injury data coded in the corresponding hospital visit record would improve the proposed models with a more valid measure of injury severity. Based on past work by NSC staff, police report crash cases will be linked with hospital discharge records to more accurately code injury severity and outcome for victims treated at a Maryland hospital. Injury data based on ICD-9/10-CM or AIS codes will be available for subsequent analysis. Once new model covariates and improved outcome measures are in place, we will refit and tune models. Regression modeling will be used to test and validate theories about the relationship between changes in traffic-related serious and fatal injuries with the compiled factors described above. We will apply Generalized Linear Mixed Modeling techniques to accommodate repeated measures and measured factors at two levels (jurisdiction and time). We will build five separate enhanced models: occupant, pedestrian, motorcycle, older and younger driver. The models will be used to develop forecasts of future roadway traffic casualty trends in Maryland possible given changes in key factors. To validate model performance, the research team will predict 2018 crash counts by county and month and compare predictions with actual data. Predictive accuracy will be measured based on the difference between the observed and predicted values for time periods not used for model training. We will create a technical report documenting data sources, methods, findings, and instructions for use of the online interface. We will provide an in-person briefing to review study methods, findings, and use of the user interface application. The 'application' itself will be a web-based product that can be used on any remote computer. Minimal maintenance will be required for its functionality and no additional funds are expected to be necessary.

Intended Subrecipients

University of Maryland Baltimore, NSC

Countermeasure strategies

Countermeasure Strategy

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Traffic Records (FAST)	$100,613.25		$100,613.25

Planned Activity: MHSO Staffing Grant 1

Planned activity number: GN 20-267

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

This grant provides the mechanism needed to allow MDOT MVA to pay the salaries and benefits of the MHSO staff and be reimbursed by NHTSA for federal expenditures.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	Other	Other	$406,800.53		
2020	Other	Other	$81,669.99		

Planned Activity: MHSO Staffing Grant 2

Planned activity number: GN 20-278

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

This grant provides the mechanism needed to allow MDOT MVA to pay the salaries and benefits of the MHSO staff and be reimbursed by the NHTSA for federal expenditures.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405b OP High	405b High Occupant Protection (FAST)	$74,173.52		
2020	FAST Act 405c Data Program	405c Data Program (FAST)	$122,684.98		
2020	FAST Act NHTSA 402	Planning and Administration (FAST)	$879,752.05		$879,752.05

Planned Activity: MHSO Staffing Grant 3

Planned activity number: GN 20-279

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

This grant provides the mechanism needed to allow the MDOT MVA to pay the salaries and benefits of the MHSO staff and be reimbursed by the NHTSA for federal expenditures.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Impaired Driving Low (FAST)	$233,716.33		
2020	FAST Act 405h Nonmotorized Safety	405h Public Education	$122,881.09		
2020	FAST Act NHTSA 402	Planning and Administration (FAST)	$156,148.69		$156,148.69

Planned Activity: MHSO Communications

Planned activity number: GN 20-288

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

The Maryland Highway Safety Office requires media contract services to develop, implement, and support ongoing and new campaigns and materials. Program areas include Distracted and Aggressive driving, Occupant Protection, Pedestrian and Bicycle safety, and Motorcycle safety. This grant will support and facilitate projects within the Maryland Highway Safety Office's Communications Section to support new and on-going campaigns, new media development, and press conferences. Support also extends to the PRO (Partnerships, Resources, and Outreach) section and other administrative tasks completed by the contractor.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Paid Advertising (FAST)	$316,000.00		$0.00

Planned Activity: MHSO GPS Grant System

Planned activity number: GN 20-291

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

This grant will allow the Maryland Highway Safety office to track payments on the contract with INFOJINI for the system analyst and application developers to continue to work on building the grants management system. This includes design, programming, testing, implementation, and troubleshooting.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit

| 2020 | FAST Act 405d Impaired Driving Low | 405d Impaired Driving Low (FAST) | $200,000.00 | | |
| 2020 | FAST Act NHTSA 402 | Planning and Administration (FAST) | $200,000.00 | | $200,000.00 |

Planned Activity: MHSO Planning and Administration

Planned activity number: GN 20-301

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

This grant provides a mechanism to track payments for everyday Planning and Administration costs such as travel, printing and supplies. By tracking these expenses in this grant, these funds are captured for MHSO reporting purposes wit our other federal funds.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Planning and Administration (FAST)	$76,430.00		$76,430.00

Program Area: Planning & Administration

Description of Highway Safety Problems

Planning and Administration grants fall within the general highway safety data analysis and span a variety of the MHSO's programs. The problem statement is as follows:

In 2018, 513 people were killed—the highest number since 2009—in 120,120 police-reported traffic crashes in Maryland, while 50,865 people were injured and 84,955 crashes involved property damage only. In total, 315 drivers (250 vehicle drivers and 65 motorcycle operators), 127 non-motorists, and 80 passengers were killed on Maryland roads. On average, one person was killed every 17 hours, 139 people were injured each day (6 injuries every hour), and 329 police-reported traffic crashes occurred every day.

In addition, the MHSO has one internal communications grant that spans multiple program areas. As such, it is listed here but is used to support a variety of outreach and communications efforts.

Associated Performance Measures

Planned Activities

Planned Activities in Program Area

Unique Identifier	Planned Activity Name	Primary Countermeasure Strategy ID
GN 20-078	Local SHSP Development in Baltimore Region	Planning and Administration
GN 20-288	MHSO Communications	Planning and Administration
GN 20-291	MHSO GPS Grant System	Planning and Administration
GN 20-221	MHSO Meetings Support	Planning and Administration
GN 20-301	MHSO Planning and Administration	Planning and Administration
GN 20-267	MHSO Staffing Grant 1	Planning and Administration
GN 20-278	MHSO Staffing Grant 2	Planning and Administration
GN 20-279	MHSO Staffing Grant 3	Planning and Administration
GN 20-239	Predictive Modeling	Planning and Administration

Planned Activity: Local SHSP Development in Baltimore Region

Planned activity number: GN 20-078

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

The Baltimore region includes the cities of Annapolis and Baltimore and the counties of Anne Arundel, Baltimore, Carroll, Harford, Howard, and Queen Anne's. The coordinator began working in FY2019 to develop plans in each of the jurisdictions and, at the time of this submission, has one in implementation phase, two in committee plan development, and the remaining four recruiting local partners. It is anticipated that two of those remaining four will have established a steering committee and had a kickoff meeting by the beginning of FY2020, while the two in development will move into the implementation phase and the last one will be undergoing evaluation.

Local SHSP coordinator will:

Collaborate with the MHSO Partnerships, Resources, and Outreach (PRO) Section, and lead jurisdictional outreach meetings and efforts to facilitate the development of local SHSPs. This may include making presentations to interested groups as necessary.

Review and coordinate with plans such as the Long-Range Statewide Transportation Plan and Metropolitan Transportation Plan. Where relevant, this coordination should include, at a minimum, high-level goals, objectives, and strategies that are consistent with those in the State's SHSP.

Coordinate with subject matter experts (SME) regarding updates to the local SHSPs and the MHSO Highway Safety Plan (HSP). Support SMEs with ensuring consistency in performance measures and targets in the state reports that include traffic safety measures, e.g., Tangible Results, Managing for Results, and the MDOT Attainment Report.

Attend State Emphasis Area Team meetings (Aggressive, Distracted, Impaired, Pedestrian/Bicyclist, Occupant Protection, Highway Infrastructure).

Facilitate local Implementation/Steering Committee meetings as needed. This may include assisting in developing an agenda, providing materials, administering web/phone conferences, taking meeting minutes, and recording attendance when needed.

Collaborate with BMC and MHSO staff to prepare the program and provide logistical support for the annual SHSP Summit and local SHSP workshops.

Maintain local team membership database and manage communication to local SHSP partners.

Review current organizational relationships among the local SHSP partners and stakeholders and identify opportunities to strengthen these relationships.

Support the retention and recruitment of local and state SHSP Emphasis Area Team (EAT) members, ensuring appropriate and comprehensive representation from the 4Es.

Draft local SHSP plans, including implementation and evaluation plans, for each of the represented jurisdictions and write final version of each plan with assistance from key partners and stakeholders.

Provide evaluation tracking and progress reports at regular intervals to local partners.

Participate in training opportunities related to strategic planning, performance measures, and evaluation.

Other duties as assigned.

Intended Subrecipients

Baltimore Metropolitan Council

Countermeasure strategies

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	Other	Other	$150,714.06		

Planned Activity: MHSO Communications

Planned activity number: GN 20-288

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

The Maryland Highway Safety Office requires media contract services to develop, implement, and support ongoing and new campaigns and materials. Program areas include Distracted and Aggressive driving, Occupant Protection, Pedestrian and Bicycle safety, and Motorcycle safety. This grant will support and facilitate projects within the Maryland Highway Safety Office's Communications Section to support new and on-going campaigns, new media development, and press conferences. Support also extends to the PRO (Partnerships, Resources, and Outreach) section and other administrative tasks completed by the contractor.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Paid Advertising (FAST)	$316,000.00		$0.00

Planned Activity: MHSO GPS Grant System

Planned activity number: GN 20-291

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

This grant will allow the Maryland Highway Safety office to track payments on the contract with INFOJINI for the system analyst and application developers to continue to work on building the grants management system. This includes design, programming, testing, implementation, and troubleshooting.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Impaired Driving Low (FAST)	$200,000.00		
2020	FAST Act NHTSA 402	Planning and Administration (FAST)	$200,000.00		$200,000.00

Planned Activity: MHSO Meetings Support

Planned activity number: GN 20-221

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

Pay and place, if need be, for requested catering needs. Work with MHSO staff on conference logistics.

Intended Subrecipients

Washington Regional Alcohol Program

Countermeasure strategies

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Planning and Administration (FAST)	$34,261.20		$34,261.20

Planned Activity: MHSO Planning and Administration

Planned activity number: GN 20-301

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

This grant provides a mechanism to track payments for everyday Planning and Administration costs such as travel, printing and supplies. By tracking these expenses in this grant, these funds are captured for MHSO reporting purposes wit our other federal funds.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Planning and Administration (FAST)	$76,430.00		$76,430.00

Planned Activity: MHSO Staffing Grant 1

Planned activity number: GN 20-267

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

This grant provides the mechanism needed to allow MDOT MVA to pay the salaries and benefits of the MHSO staff and be reimbursed by NHTSA for federal expenditures.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	Other	Other	$406,800.53		
2020	Other	Other	$81,669.99		

Planned Activity: MHSO Staffing Grant 2

Planned activity number: GN 20-278

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

This grant provides the mechanism needed to allow MDOT MVA to pay the salaries and benefits of the MHSO staff and be reimbursed by the NHTSA for federal expenditures.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405b OP High	405b High Occupant Protection (FAST)	$74,173.52		
2020	FAST Act 405c Data Program	405c Data Program (FAST)	$122,684.98		
2020	FAST Act NHTSA 402	Planning and Administration (FAST)	$879,752.05		$879,752.05

Planned Activity: MHSO Staffing Grant 3

Planned activity number: GN 20-279

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

This grant provides the mechanism needed to allow the MDOT MVA to pay the salaries and benefits of the

MHSO staff and be reimbursed by the NHTSA for federal expenditures.

Intended Subrecipients

Maryland Highway Safety Office

Countermeasure strategies

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405d Impaired Driving Low	405d Impaired Driving Low (FAST)	$233,716.33		
2020	FAST Act 405h Nonmotorized Safety	405h Public Education	$122,881.09		
2020	FAST Act NHTSA 402	Planning and Administration (FAST)	$156,148.69		$156,148.69

Planned Activity: Predictive Modeling

Planned activity number: GN 20-239

Primary Countermeasure Strategy ID: Planning and Administration

Planned Activity Description

This is a continuation of the FFY 2019 project designed to forecast serious and fatal crash injuries in the State of Maryland based on certain factors such as vehicle miles traveled, environmental changes, demographics, economics, behavioral, and policy factors. During the first phase of the project, an initial model was trained using 2010 through 2017 crash and contributing factor data. To improve the models and allow an analysis of the first phase models in predicting 2018 counts, we will update crash and explanatory variables from 2018 data. Additional surrogates representing congestion, distraction and speeding will be identified and compiled by crash year, crash month and county to the extent possible. Impact Research and NSC staff will work collaboratively to identify data sources and compile training data for parameters already in use and for those expected to improve overall model fit. An alternative injury outcome that is clinically-based would enhance the proposed models. While the police reported KABCO system is traditionally used as an injury severity surrogate, this police assessment is subjective. The injury data coded in the corresponding hospital visit record would improve the proposed models with a more valid measure of injury severity. Based on past work by NSC staff, police report crash cases will be linked with hospital discharge records to more accurately code injury severity and outcome for victims treated at a Maryland hospital. Injury data based on ICD-9/10-CM or AIS codes will be available for subsequent analysis. Once new model covariates and improved outcome measures are in place, we will refit and tune models. Regression modeling will be used to test and validate theories about the relationship

between changes in traffic-related serious and fatal injuries with the compiled factors described above. We will apply Generalized Linear Mixed Modeling techniques to accommodate repeated measures and measured factors at two levels (jurisdiction and time). We will build five separate enhanced models: occupant, pedestrian, motorcycle, older and younger driver. The models will be used to develop forecasts of future roadway traffic casualty trends in Maryland possible given changes in key factors. To validate model performance, the research team will predict 2018 crash counts by county and month and compare predictions with actual data. Predictive accuracy will be measured based on the difference between the observed and predicted values for time periods not used for model training. We will create a technical report documenting data sources, methods, findings, and instructions for use of the online interface. We will provide an in-person briefing to review study methods, findings, and use of the user interface application. The 'application' itself will be a web-based product that can be used on any remote computer. Minimal maintenance will be required for its functionality and no additional funds are expected to be necessary.

Intended Subrecipients

University of Maryland Baltimore, NSC

Countermeasure strategies

Countermeasure Strategy
Planning and Administration

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Traffic Records (FAST)	$100,613.25		$100,613.25

Program Area: Police Traffic Services

Description of Highway Safety Problems

To develop successful and effective solutions that address traffic issues on the roadways themselves, law enforcement agencies need staff personnel that are highly motivated, educated, and trained to enforce traffic safety laws. They must be adept at identifying, analyzing, and solving problems that help preserve local resources or tend to benefit public or private agencies in their solution.

Traffic safety in Maryland remains a primary public safety issue given the demands that confront law enforcement agencies, but, too often, traffic safety programs are not given a high priority by all public safety executives. Many local jurisdictions experience traffic safety problems that would benefit from local analysis and data-driven solutions. Likewise, as the need for more complete and accurate data continues to grow, there is a comparable need for training officers in the highly technical field of crash reconstruction.

The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most

money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Associated Performance Measures

Fiscal Year	Performance measure name	Target End Year	Target Period	Target Value
2020	C-2) Number of serious injuries in traffic crashes (State)	2020	5 Year	3029.4
2020	C-1) Number of traffic fatalities (FARS)	2020	5 Year	425.7

Countermeasure Strategies in Program Area

Countermeasure Strategy
Police Traffic Services

Countermeasure Strategy: Police Traffic Services

Program Area: Police Traffic Services

Project Safety Impacts

New techniques and tools are emerging every day, and law enforcement needs State support for a more effective way to embrace these resources. The economies of scale make this kind of training invaluable to Maryland law enforcement professionals. Partner organizations such as the MSA and the MCPA recognize the training needs for law enforcement members that are not adequately met by State and local governments. Traffic safety is often neglected or diminished in importance, compared to what may seem more pressing law enforcement training issues experienced by individual agencies. Additionally, as noted in the Congressional Conference Report accompanying the FAST Act legislation, there is a growing concern for the dangers posed by unsecured loads on non-commercial vehicles. By developing projects combining a comprehensive public education campaign coupled with an HVE component, the MHSO hopes to address this concern.

 Consistent support for law enforcement efforts by the MHSO, in addition to training, will enable Maryland to ensure adequate enforcement of existing traffic safety laws.

Linkage Between Program Area

Maryland is required by the FAST ACT to report on several key enforcement-based measures. Over the past several years, there has been a decline in overall enforcement output regarding certain categories such as seat belt citations and impaired driving arrests. The MHSO utilizes its Police Traffic Services Section and LELs to continue to educate enforcement partners on the impact of enforcement to overall traffic safety efforts.

 The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting

regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. To further this effort, the MHSO was provided the frequencies and proportions of each sub-category by law enforcement agency within each jurisdiction so that once total funding for each jurisdiction is determined, further stratification may be completed by agency. Thus, the funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

Throughout FFY 2019, the MHSO will support law enforcement training to emphasize the importance of highway safety, crash investigations, and accurate crash reporting through grants and will collaborate with the MCPA, MSA, and the Maryland Police and Correctional Training Commission on training and officer recognition. The MHSO coordinates a TSS certification for law enforcement officers, and the program will continue to be expanded throughout the coming year.

By continuing to implement its Leading Effective Traffic Enforcement Program (LETEP), the MHSO helps to systematically address many traffic safety and other public safety issues through a recognized training curriculum that makes traffic management a priority.

The MSP, MDTA Police, and many local law enforcement agencies will receive funds for overtime enforcement to address the most pressing traffic safety challenges, using a data-driven approach.

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-090	Police Traffic Services - Statewide Crash Recon Training
GN 20-135	Police Traffic Services - Chiefs Conference
GN 20-209	MML PEA Annual Conference Training
GN 20-218	Chesapeake Region Safety Council
GN 20-270	Police Traffic Services - IACP HSC, Commanders Summit
LE 20-284	Police Traffic Services - Unsecured loads

Planned Activity: Police Traffic Services - Statewide Crash Recon Training

Planned activity number: GN 20-090

Primary Countermeasure Strategy ID: Police Traffic Services

Planned Activity Description

This project supports training to Maryland's Crash Reconstructionist personnel throughout the State by Maryland's Crash Reconstruction Committee.

Intended Subrecipients

Baltimore County Police Dept. - Crash Recon

Countermeasure strategies

Countermeasure Strategy
Police Traffic Services

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Police Traffic Services (FAST)	$35,105.00		$35,105.00

Planned Activity: Police Traffic Services - Chiefs Conference

Planned activity number: GN 20-135

Primary Countermeasure Strategy ID: Police Traffic Services

Planned Activity Description

The Maryland Chiefs of Police Annual Training Conference held in September is the start of bridging the gap of these training needs. The top level executives are offered a verity of educational sessions. MCPA has partnered with MHSO to promote the states goal of Zero Deaths. Two ninety minute plenary training session are planned to help educate the executives on traffic safety issues, new and emerging trends, countermeasures and the goals of the SHSP. Leading Effective Traffic Enforcement Programs (LETEP) training is also scheduled to take place two times in 2020. This program which MCPA provides scholarships to, targets supervisors who are assigned with traffic safety and enforcement responsibilities.

This training allows the student access to tested practices that will allow for their development as a traffic safety leader within his or her department. Traffic Safety Specialist Program - Will host an annual awards luncheon for officers obtaining TSS status. Each officer will receive a uniform pin and certificate for recognition of TSS status. Annual Governor's Highway Safety Association Conference in Pittsburgh, Pennsylvania August 29-September 2, 2020. Four executive officers from Maryland agencies will attend.   DRE Conference to be held in Ocean City, Maryland February 2020. Highway Safety Training for the Patrol Supervisor to be held in Ocean City, Maryland in March 2020. Annual DUI Conference held in Ocean City, Maryland during the month of October 2019.

Intended Subrecipients

Maryland Chiefs of Police Association

Countermeasure strategies

Countermeasure Strategy
Police Traffic Services

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Police Traffic Services (FAST)	$92,200.00		$92,200.00

Planned Activity: MML PEA Annual Conference Training

Planned activity number: GN 20-209

Primary Countermeasure Strategy ID: Police Traffic Services

Planned Activity Description

The Maryland Municipal League Police Executive Association Training Conference held in April offers top level executives a variety of educational sessions. Plenary training, along with a speaker, is planned to help educate executives on new and emerging traffic safety issues, countermeasures, and Maryland's traffic safety goals.

Intended Subrecipients

Maryland Municipal League

Countermeasure strategies

Countermeasure Strategy
Police Traffic Services

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Police Traffic Services (FAST)	$4,500.00		$4,500.00

Planned Activity: Chesapeake Region Safety Council

Planned activity number: GN 20-218

Primary Countermeasure Strategy ID: Police Traffic Services

Planned Activity Description

This project will support the Maryland Highway Safety Office's Law Enforcement Services Section. The section coordinates directly with office's largest group of grantee's--law enforcement. The law enforcement community across Maryland is a critical component of the state's strategy regarding highway safety. This project will support the hiring of four Law Enforcement Liaisons (LEL). The LEL's will ensure active engagement and collaboration between the MHSO and the local law enforcement community. They will oversee the MHSO's law enforcement grants (approx 90 grants) and projects, promote and coordinate participation in the MHSO's high visibility enforcement waves, recruit, coordinate and deliver training. It will also be the LEL's responsibilities to ensure alignment of law enforcement priorities within Maryland's Strategic Highway Safety Plan.

Intended Subrecipients

Chesapeake Region Safety Council

Countermeasure strategies

Countermeasure Strategy

Police Traffic Services

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Police Traffic Services (FAST)	$231,264.00		$231,264.00
2020	FAST Act NHTSA 402	Police Traffic Services (FAST)			

Planned Activity: Police Traffic Services - IACP HSC, Commanders Summit

Planned activity number: GN 20-270

Primary Countermeasure Strategy ID: Police Traffic Services

Planned Activity Description

The FOB Grant Coordinator will attend either the Lifesavers or DRE Conference. Notify all barrack commanders throughout the state that there is a mandated training summit. A portion of the summit will provide training that promotes highway safety. Commanders will return to their barracks with additional knowledge and best practices in the support of highway safety initiatives.

Intended Subrecipients

Maryland State Police

Countermeasure strategies

Countermeasure Strategy
Police Traffic Services

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Police Traffic Services (FAST)	$2,500.00		$2,500.00

Planned Activity: Police Traffic Services - Unsecured loads

Planned activity number: LE 20-284

Primary Countermeasure Strategy ID: Police Traffic Services

Planned Activity Description

This project will assist Maryland law enforcement in their vigilance of unsecured-load violations while also educating the public of the hazards associated with improperly secured loads and trailers. MDTA Police will identify and target unsecured-load safety issues, populations, and locations of concern through the collection, analysis and evaluation of data and information. In addition this project will serve to promote safe behaviors of

all road users appropriate for the environment through education and enforcement initiatives.

Intended Subrecipients

Maryland Transportation Authority Police Department

Countermeasure strategies

Countermeasure Strategy
Police Traffic Services

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Police Traffic Services (FAST)	$20,000.00		$20,000.00

Program Area: Traffic Records

Description of Highway Safety Problems

Problem Identification

Hardware, software, personnel, and procedures that capture, store, transmit, analyze, and interpret traffic safety data are critical components to Maryland's traffic records system. The datasets managed by this system include crash, driver licensing and history, vehicle registration and titling, commercial motor vehicle, roadway, injury control, citation/adjudication, and EMS/trauma registry data.

Maryland employs a two-tiered Traffic Records Coordinating Committee (TRCC), with both General (or technical) and Executive Councils, comprised of data owners, data managers, and data users with oversight and interest in the datasets listed above. MHSO staff serves on the TRCC General Council and subcommittees, and advises the TRCC Executive Council, which oversees and approves the Maryland Traffic Records Strategic Plan (TRSP).

The TRSP is a five-year plan that runs concurrent with the Maryland SHSP. Both the TRSP and SHSP went into effect January 2016 and will cover the years 2016 through 2020. The TRCC worked with the NHTSA on its most recent Traffic Records Assessment. Maryland accepted the final report in early December 2014, and the TRCC formed a Traffic Records Strategic Plan Steering Committee to oversee development of the next five-year plan for traffic records. After a year of development, the TRCC Executive Council accepted the plan in January 2016.

Recommendations from the 2014 assessment include Maryland's need to improve:

·   TRCC's strategic planning abilities;

·   Procedures, process flows, and interfaces for the crash data system;

·   Data quality control programs for the crash, vehicle, driver, roadway, and injury surveillance data systems;

·   Procedures and process flows for the roadway data system;

·   Interfaces with the citation and adjudication systems; and

· Interfaces with the injury surveillance systems.

Objectives in the TRSP are based on the 2010 and 2014 assessments, along with the Crash Data Improvement Program findings, and other needs determined by members of the TRCC, including the various partners in the process. The prioritization and selection process for projects requesting funds includes an evaluation of each project's ability to meet the priority objectives in the TRSP, considering the strategies in the SHSP and the five-year needs of the SHSP Emphasis Areas. Priority objectives are reviewed and determined annually by the TRCC Executive Council.

Solution

The accurate collection and timely dissemination of traffic records information are crucial to ensuring positive results from projects and strategies within the five-year plan. Data elements form the informational backbone for all the MHSO's programs and the SHSP itself. All activities, from enforcement to education, rely on good data, and the MHSO's focus is to provide effective data support and analysis for programs that can help the State meet traffic safety goals in reducing crashes and resulting injuries and fatalities.

Maryland's Traffic Records Executive Council's leadership goal is to develop a comprehensive statewide traffic records system that provides traffic safety professionals with reliable, accurate, and timely data to inform decisions and actions for implementing proven countermeasures and managing and evaluating safety activities to resolve traffic safety problems. The traffic records system encompasses the hardware, software, personnel, and procedures that capture, store, transmit, analyze, and interpret traffic safety data. This system is used to manage basic crash data from all law enforcement agencies, along with information on driver licensing and history, vehicle registration and titling, commercial motor vehicles, roadways, injury control efforts, citation and adjudication activities, and the EMS/trauma registry.

Maryland's Traffic Records Executive Council provides policy leadership to the TRCC and its efforts to continually review and assess the status of Maryland's traffic safety information system and its components. The TRCC oversees the development and update of the Traffic Records Strategic Plan to serve public- and private-sector needs for traffic safety information, to identify technologies and other advancements necessary to improve the system, and to support the coordination and implementation of system improvements.

The MHSO participates on all levels of the TRCC through its own staff and through a grant-funded project at the NSC called the MCTSA, a more comprehensive, expert staff-based approach to provide services based on the CODES and other traffic records data and to meet the wide and varied needs of the MHSO and its partners. The MHSO is a member of the Crash Data Tri-Agency Council—consisting of the MSP, the MDOT SHA, and the MDOT MVA—which oversees policies and projects related to the crash data system. The MHSO is also represented on the ACRS Task Force, working with technical and policy experts named by the Tri-Agency Council to oversee continuing improvements of Maryland's newest electronic data system. The Tri-Agency Council and the ACRS Task Force act as subcommittees of the TRCC and share goals to meet the priority objectives set forth in the TRSP.

MHSO staff members work with subject matter experts from the MCTSA project to help manage the TRSP, and the MHSO continues the CODES program. These are some of the ways in which the MHSO relies on its many partner agencies to make data accessible for highway safety planning, as it employs various systems and programs, with the help of State agencies and grantees, to collect, maintain and analyze internal data information.

The mission to provide data and analytical support to traffic safety professionals at the local, State, regional, and national levels drives the direction of the Traffic Records Program. Projects to be considered for funding by the Traffic Safety Information System Improvement Program must adhere to goals and objectives within the TRSP and provide support for the data needs of the traffic records community.

 The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. Once total funding for each jurisdiction is determined, the MHSO reviews the frequencies and proportions of crash sub-categories (i.e. impaired, distracted, motorcycle, etc.) and compares these frequencies and proportions by law enforcement agency within each jurisdiction. Funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Associated Performance Measures

Fiscal Year	Performance measure name	Target End Year	Target Period	Target Value
2020	C-2) Number of serious injuries in traffic crashes (State)	2020	5 Year	3029.4
2020	C-1) Number of traffic fatalities (FARS)	2020	5 Year	425.7

Countermeasure Strategies in Program Area

Countermeasure Strategy
Improves accessibility of a core highway safety database

Countermeasure Strategy: Improves accessibility of a core highway safety database

Program Area: Traffic Records

Project Safety Impacts

The accurate collection and timely dissemination of traffic records information are crucial to ensuring positive results from projects and strategies within the five-year plan. Data elements form the informational backbone for all the MHSO's programs and the SHSP itself. All activities, from enforcement to education, rely on good data, and the MHSO's focus is to provide effective data support and analysis for programs that can help the State meet traffic safety goals in reducing crashes and resulting injuries and fatalities.

Maryland's Traffic Records Executive Council's leadership goal is to develop a comprehensive statewide traffic records system that provides traffic safety professionals with reliable, accurate, and timely data to inform decisions and actions for implementing proven countermeasures and managing and evaluating safety activities to resolve traffic safety problems. The traffic records system encompasses the hardware, software, personnel, and procedures that capture, store, transmit, analyze, and interpret traffic safety data. This system is used to manage basic crash data from all law enforcement agencies, along with information on driver licensing and history, vehicle registration and titling, commercial motor vehicles, roadways, injury control efforts, citation

and adjudication activities, and the EMS/trauma registry.

Maryland's Traffic Records Executive Council provides policy leadership to the TRCC and its efforts to continually review and assess the status of Maryland's traffic safety information system and its components. The TRCC oversees the development and update of the Traffic Records Strategic Plan to serve public- and private-sector needs for traffic safety information, to identify technologies and other advancements necessary to improve the system, and to support the coordination and implementation of system improvements.

The MHSO participates on all levels of the TRCC through its own staff and through a grant-funded project at the NSC called the MCTSA, a more comprehensive, expert staff-based approach to provide services based on the CODES and other traffic records data and to meet the wide and varied needs of the MHSO and its partners. The MHSO is a member of the Crash Data Tri-Agency Council—consisting of the MSP, the MDOT SHA, and the MDOT MVA—which oversees policies and projects related to the crash data system. The MHSO is also represented on the ACRS Task Force, working with technical and policy experts named by the Tri-Agency Council to oversee continuing improvements of Maryland's newest electronic data system. The Tri-Agency Council and the ACRS Task Force act as subcommittees of the TRCC and share goals to meet the priority objectives set forth in the TRSP.

Linkage Between Program Area

Goals are prioritized for appropriate components of the traffic records information system, with objectives developed based on the periodic assessments, ongoing TRCC evaluation and input, and other state agency-identified needs. The TRCC sets performance measures for priority objectives identified in the TRSP, which are reviewed regularly throughout each year. Systems are evaluated for quantitative progress, such as improved timeliness and completeness, with reports submitted to NHTSA at least annually. Additionally, MHSO grants are evaluated during and after implementation through grantee reporting using proven process evaluation measures.

The MHSO's implemented allocation methodology incorporates several safety program areas that have been identified as the most prevalent factors related to motor vehicle crashes in Maryland. By applying a weighting regimen, the MHSO's allocation formula provides a guide for highway safety funding that will apply the most money to areas with the most problems. To further this effort, the MHSO was provided the frequencies and proportions of each sub-category by law enforcement agency within each jurisdiction so that once total funding for each jurisdiction is determined, further stratification may be completed by agency. Thus, the funding decisions are truly data-driven and provide guidance for the identification of jurisdictions that are most capable of reducing the State's total number of serious and fatal crashes.

Rationale

Quality data is the cornerstone to any effective traffic safety program. The MHSO funds numerous projects, as outlined in the selection criteria above, to improve traffic records systems throughout the State and to effectively deliver quality data products to partners.

Planned activities in countermeasure strategy

Unique Identifier	Planned Activity Name
GN 20-045	Traffic Records Data Improvement and Accessibility

GN 20-137	MSA Training & Conferences
GN 20-232	Traffic Records - MCTSA

Planned Activity: Traffic Records Data Improvement and Accessibility

Planned activity number: GN 20-045

Primary Countermeasure Strategy ID: Improves accessibility of a core highway safety database

Planned Activity Description

This project will focus on specific strategies that will improve the ability to use data driven analysis to reduce crashes and deaths on Maryland roads as follows:

1. Collect traffic safety related datasets, and perform data correction, analysis, quality control and assurance checks, management, mining, storage, and visualization

• Data Collection, Correction, Management, Mining & Storage: The data to be collected includes crashes, citations, transportation data such as road centerlines and AADT, census data, liquor license locations, and crime data as needed. Crashes will encompass MDOT SHA statewide crash dataset, MSP ACRS open portal crash data, and crash data from Baltimore City DOT. Citations include Databak ETIX, and JPortal ETIX. We will continue to collect and update statewide liquor license data; and will confirm and verify contacts, establish consistent updates and relationships, establish a plan for how to use this data in RAVEN and other products, how to display and analyze this data, and determine our attribution. We will also obtain specific datasets collected from various agencies to be included in RAVEN and other products as requested. Once this data is collected, it will be processed and reviewed for accuracy. If data needs correction, we will follow our established procedures to correct the data, and store it properly for use in RAVEN and mapping and analysis projects. Our goal is to always increase the accuracy threshold, return corrected data to collection agencies if the mechanism exists, and use improved data for our RAVEN application. Once we correct this data, we plan to consider ways to share this updated data back to individual agencies through a secure FTP or other methods if possible.

• Data Quality Control & Assurance Checks: After data is collected, the first step is to perform an in-depth data quality control and assurance check on the dataset. This would include a spatial check of location accuracy and mapped vs. un-mapped locations, and a check on accuracy and consistency of attribution. One example is to create a data comparison and accuracy report for 2016 vs. 2017 Baltimore City crash data. We will also provide accuracy reports for MDOT SHA vs. MSP open portal crash data, which will be sent to both agencies upon completion. In addition to the quarterly ETIX maps, we will provide accuracy and geocoding reports to all agencies receiving map products with feedback on specific areas of improvement for data collection, particularly with locations.

• Data Analysis: Once the data is collected and checked for quality and accuracy, the team will use a wide range of statistical software and spatial analysis tools in ArcGIS to create reports and analyses. Any findings will be communicated to our customers in an effective way, and analysis processes will be documented. The datasets will be compared to identify trends or problems that could affect the quality of our products. In past products, we have provided summary statistics in the form of charts and graphs, and will continue to provide these, but will also apply operational research and statistical techniques to improve the overall use in identifying trends, areas of statistical interest, correlation between datasets, etc.

• Data Visualization: Once the data is analyzed, the next step is to display it in a visually appealing and easy to understand format. This would include continual updates to map formats to make them easy to understand and gather the most important data quickly. New tools for displaying the data in a spatially appealing format to be researched and tested for future analysis. In addition to the evolving map component of our products, other data visualization products will be implemented to provide a quality analysis. Linear infographics will continue to provide to show a non-spatial way to display a linear route with a breakdown of crashes and ETIX citations along that roadway. Intersection infographics have been created to display and breakdown intersections of major routes that can provide information on the direction of crashes and the liquor establishments near that intersection. Temporal topologies incorporate a high-level data visualization technique that can easily display important information about the day and time that crashes/citations are occurring. Alongside these physical data visualization products, an online component has been created in the form of an interactive web mapping application, RAVEN, to display a variety of datasets to law enforcement for a quick analysis. The testing and implementation of the linear risk terrain model will be under way, and will be adapted to additional focus areas beyond impaired driving. The efforts will continue to allow products to be easily understood, displaying the most important data and analysis firsthand, while remaining visually appealing.

2. Utilize GIS Spatial Analysis and Mapping techniques to develop products for MHSO and LEA's

Washington College will support DUI teams and other LEA's that partner with MHSO with dedicated GIS analysts, supported by student interns, to provide timely analysis of data needed to determine appropriate areas for patrols, DUI interdiction, and checkpoints. Monthly reports and analysis with GIS mapping products will be provided, in addition to specific products created for LEA's by request. The mapping and analysis provided can be generally broken down into these three main areas:

• Crash Data Mapping & Analysis – Crash data provides a wealth of information, including but not limited to, severity, driver behaviors, roadway characteristics, and temporal data. Crash data is used for a variety of products and focus areas, and can be as simple as statewide or county overviews of crash points/hotspots, or more complex like DDACTS (Data Driven Approaches to Crime & Traffic Safety). As access to crash data becomes timelier, we can update our maps and analysis to see if trends are shifting or confirm that problem areas remain consistent over time.

• ETIX Citation Mapping & Analysis – ETIX citations are downloaded from the Maryland Judiciary and District Courts Web Portal on a regular basis. ETIX data can be queried by fields such as date, county, or type of citation, depending on the analysis being performed. The ETIX citation data includes the geographic coordinates, at which a given citation was issued, allowing these citations to be displayed on a map in ArcGIS. ETIX data is used in multiple MHSO products to accomplish a variety of goals; the Quarterly Analysis Reports provide information regarding alcohol-related stops occurring within a given county over a certain time-period, while the Holiday Analysis Reports utilize ETIX data to predict where future DUI incidents are most likely to occur. ETIX citations are also used in our general traffic related analyses such as Aggressive Driving Reports and Infographics.

• SHSP Focus Area Mapping & Analysis – Washington College will provide support to all six of the Emphasis Area (EA) teams focused on the each of the first strategies. The first strategy in each of the EA teams focuses efforts on clean and accurate data to analyze. For example, products were developed for the Aggressive Driving EA team to be used in conjunction with the Aggressive Driving Are a Public Threat (ADAPT) HVE waves.

Producing a standardized product will allow the program to be analyzed to determine if the data and the enforcement are decreasing aggressive driving in those pre-determined areas. Another example is the educational research that was completed for the DUI EA team. This analysis cross tabulated multiple datasets to analyze and find a target audience to educate those living in Langley Park. Most of our existing assistance was focused on statewide analyses, however, we have most recently analyzed data for the SHSP on a county level for Howard, Washington, Frederick, and Prince George's counties.

3. Attend conferences, and provide training sessions, presentations, webinars, and technical support to MHSO staff, LEA partners, EA teams, etc. on all products/services provided by Washington College, in addition to GIS techniques and processes for traffic safety related datasets.

For our partners and users to take advantage of improved accessibility to all traffic safety related datasets, they will require training to understand how to utilize the data they will be receiving. Staff will attend conferences as approved by MHSO to highlight the work done by Washington College that is related to traffic safety. Washington College will also host training sessions, webinars, and presentations on how GIS can be used in the traffic safety/impaired community. We will also provide training on how to use the RAVEN web mapping application. In addition to a data dictionary and user's manual, a video tutorial and series of webinars will be created to reach the widest audience. Technical support for MHSO staff and LEA partners on the use of RAVEN and other GIS processes will be given. We can also provide online introductory, intermediate, and advanced ArcGIS courses, as well as provide training for other tools and statistical software packages used by LEA's. Webinars and trainings can be expanded to how to use ArcGIS Spatial Analyst and Network Analyst extensions specifically for traffic safety related datasets. Training can also be given to partners that have the need to complete a specific process. For example, we can provide training to Baltimore City DOT on the process of increasing accuracy for spatial location of crashes, and even work with them to develop a SOP or presentation that details the process. Other resources can be created such as how-to guide's and hands-on training for how to bring Excel spread sheets into ArcGIS, how to create temporal topologies, how to download and use Open Portal crash data, how to transform spatial data into infographics, and how to write custom scripts for automated processing. Analysts from other agencies can utilize our resources by working in our lab, or through site visits to show analysts how to use GIS and other tools for mapping traffic related data. We plan to host three training events throughout the year at our facilities on topics related to mapping and analysis for traffic safety professionals. Each training session can host 16 attendees, for a total of 48 attendees.

4. Maintain, update, expand, and promote RAVEN web mapping application

We will continue to maintain and update RAVEN with current data, and add requested layers to the application. All data will be stored on an ArcGIS web service capable of providing a secure password protected web application accessible online by users. Access is intended for TRCC members, MHSO partners, and SHSP partners as needed. We plan to promote RAVEN by attending conferences, meetings, webinars, online & in-person training, and providing technical support and resources, in addition to producing marketing materials and advertisements. The banner and calendar features of RAVEN will be a place to highlight application updates, and any future training information. A newsletter will also be utilized to feature updates and coming features to the RAVEN application.

5. Engage in analysis and development related to traffic safety

Washington College will engage in analysis and development to improve our processes, and to gain a better

understanding of traffic safety data. Some tasks include normalizing citations and crashes by AADT, etc. to be used for analysis purposes, developing a plan for collecting additional datasets such as non-ETIX citations, additional crash data not reported in ACRS/SHA (Federal crash data, and crash data from surrounding states), and analyzing MSP/ACRS open portal crash data at a more in-depth level. The grantee will also evaluate models and methods for predicting crashes, which will be used in the development and testing of risk terrain models.

6. Administrative support

Washington College will continue to utilize resources to document all project related tasks, time spent on grant activities, and to prepare quarterly reports for MHSO. In addition to general administrative grant support, Washington College will also administer a customer satisfaction survey, general satisfaction with products and services and specific product feedback from customers to help us tailor products to needs. The team will also provide data, images, maps, etc. for MHSO reports and presentations by request.

Intended Subrecipients

Washington College

Countermeasure strategies

Countermeasure Strategy
Improves accessibility of a core highway safety database

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act 405c Data Program	405c Data Program (FAST)	$561,403.95		

Planned Activity: MSA Training & Conferences

Planned activity number: GN 20-137

Primary Countermeasure Strategy ID: Improves accessibility of a core highway safety database

Planned Activity Description

The Maryland Sheriffs; Association will hold an annual training meeting at Rocky Gap Conference Center to educate executive law enforcement leaders on traffic safety initials and engagement.   Provide traffic records training for law enforcement officers to enhance enforcement efforts by attending the TRCC Conference in August 2020.

Intended Subrecipients

Maryland Sheriffs' Association, Inc.

Countermeasure strategies

Countermeasure Strategy
Improves accessibility of a core highway safety database

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit
2020	FAST Act NHTSA 402	Traffic Records (FAST)	$7,700.00		$7,700.00

Planned Activity: Traffic Records - MCTSA

Planned activity number: GN 20-232

Primary Countermeasure Strategy ID: Improves accessibility of a core highway safety database

Planned Activity Description

As a grantee for the Highway Safety Office, the NSC functions as an epidemiological resource and data warehouse that makes use of datasets related to highway safety that are provided by several different state agencies. The NSC provides the state with a data sharing network and integrated system that avoids unnecessary duplication of costs and personnel administration. The Federal Highway Administration's (FHWA) preliminary guidelines published in October 2005, Strategic Highway Safety Plans: A Champions' Guide to Saving Lives (Interim Guidance to Supplement SAFETEA-LU Requirements)', clearly states that data are critical in the development of an effective Strategic Highway Safety Plan (SHSP). The strength of the SHSP is in the State's ability to identify, analyze, prioritize, and evaluate reliable data.

The Crash Outcome Data Evaluation System (CODES) data warehouse is positioned as the premiere program to support this function for Maryland.   Nationally the CODES program has generated over 100 years of integrated data using the CODES2000 software to link databases collected during the period 1995-2015. Areas of interest generated by the use of CODES data and identified as priority areas at both the state and federal levels include: (1) description of total pre-hospital, emergency department, inpatient, rehabilitation and other health care charges by payer source (private, workers' compensation, Medicare, Medicaid, etc.); (2) crash injury patterns by type and severity; and (3) hospital charges by factors such as safety equipment use, vehicle type, geographical location, and others. CODES findings allow agencies to appropriately implement a public health approach to address both state and national traffic safety concerns and to develop comprehensive evaluation measures.   CODES data may be used to provide outputs on all levels of the public health problem-solving paradigm: 1) identify, define, and measure the traffic safety problem;   2) identify risk, protective and other key factors that can help define the community profile;   3) develop and implement appropriate traffic safety countermeasures; and   4) evaluate population-based changes/interventions meant to improve the health of the population at-large.

In addition to the warehousing and analysis capabilities, the NSC will assist the Traffic Records Coordinating Committee, serving as a facilitator to the administration of the program. The Maryland TRCC is a three-tier statewide taskforce with Executive, Technical, and Sub-committee task force Councils. The TRCC follows set rules, provides leadership to maximize data quality, accessibility and improvements, and addresses strategies outlined in Maryland's Strategic Highway Safety Plan. Committees meet regularly and have recorded meeting agendas and minutes. The NSC will work closely with stakeholders from the TRCC infrastructure to: (a) follow

best practice methods to enhance the overall structure of the TRCC, (b) improve efficiency on data management by ensuring appropriate data usage and (d) develop proper evaluation methods to assess Maryland's TRCC. The NSC will also work with the MHSO to investigate the development of an 'evaluation' database to be used collaboratively by the MHSO's data partners. By compiling the contributions of other data partners (e.g., SHA, Washington College), an enhanced data set can be created to serve as a valuable resource for planning and evaluation. Ultimately, this data set would be created for inclusion in the MSP's data warehouse. As the MHSO prepares for the upcoming Traffic Records Assessment in 2019, the NSC will also assist with preparations and coordinate partners for the assessment.

The NSC proposes to collect quarterly survey data to identify and evaluate the knowledge, attitudes, beliefs, and behaviors of Maryland drivers. Four surveys will be created to coincide with MHSO events and campaigns that address the six emphasis areas as described in the SHSP: (1) Distracted driving, (2) Impaired driving, (3) Pedestrians/Bicycles, (4) Occupant protection, (5) Aggressive driving, and (6) Highway Infrastructure. Initially, chosen survey questions will be based on the emphasis area items that were originally included among the thirty-three questions contained in the 2014-15 MADS.

Final development of survey questions will be made in collaboration with MHSO staff within the first couple of months of the grant year. For ease of response and allowance for a quick turn-around in analysis, it is expected that each survey will contain 3 to 6 questions, in addition to several demographic items. Following creation of the four surveys, survey tools will be distributed by an independent contractor at local MVA offices, or other large convenient traffic safety-related events. Distribution of each survey will commence approximately six months prior to the corresponding campaign, with collection of the data taking place over the following two-month period.

Another two-month period will be required for data entry, analysis of survey questions, and creation of the final written summary and presentation. The ultimate goal of the survey distribution will be to deliver and present results of each program area survey approximately two months prior to the corresponding campaign or event. To compensate for the limitations of convenience sampling, proportions in the sample will be adjusted, based on the Maryland demographic profile obtained in the most recent census. The adjustments will yield weighted survey findings that are more representative of the demographic population of the state and its jurisdictions. Analyses will be made available for possible presentation at conferences or Emphasis Area Team meetings as requested by MHSO.

Intended Subrecipients

University of Maryland, NSC

Countermeasure strategies

Countermeasure Strategy
Improves accessibility of a core highway safety database

Funding sources

Source Fiscal Year	Funding Source ID	Eligible Use of Funds	Estimated Funding Amount	Match Amount	Local Benefit

2020	FAST Act 405c Data Program	405c Data Program (FAST)	$261,138.01		

Evidence-based traffic safety enforcement program (TSEP)

Planned activities that collectively constitute an evidence-based traffic safety enforcement program (TSEP):

Unique Identifier	Planned Activity Name
LE MHSO 2020 Aggressive	HVE - Aggressive
LE MHSO 2020 Distracted	HVE - Distracted Driving
LE MHSO 2020 Impaired	HVE - Impaired
LE MHSO 2020 Seat Belts	HVE - Seat Belts
LE 20-266	MSP - SPIDRE DUI Team

Analysis of crashes, crash fatalities, and injuries in areas of highest risk.

Crash Analysis

The statewide problem identification process used in the development of the HSP was described in the previous section entitled "Problem Identification." Data analyses are designed to identify driver characteristics of those over-involved or over-represented in crashes, along with information revealing when, where, and why crashes are occurring. Key results summarizing the problems identified are presented in the statewide and individual program area sections of the HSP. These results are analyzed to determine typical driver demographics, along with the most frequent locations, day/month of most frequent crashes, and most frequent times of day for each problem area. Thus, the most effective program outlines for any problem area will provide current information for typical driver behavior, along with the time of day, day of week and month of year of greatest frequency, along with most frequent locations of total, serious injury, and fatal crashes in each category. These causal factors provide quantitative evidence to shape awareness, education, and enforcement strategies, and to make overtime enforcement efforts and communications efforts as effective as possible in subsequent years.

As an example, for impaired driving crash prevention and enforcement efforts combined with occupant protection efforts, Maryland crash statistics indicate that awareness, education, and prevention efforts are most effectively targeted to those who drive between 9 p.m. and 4 a.m. from Thursday through Sunday, in the months of April through October. The typical driver involved in impaired crashes, and least likely to be using seat belts, is male, and aged 21 to 49. The most typical locations are noted for impaired and occupant protection efforts in at least nine of Maryland's 24 county/city jurisdictions. These types of information help State traffic safety and law enforcement officials target effective enforcement and education efforts.

The same targeted analytical approach is used to address and qualify all serious traffic safety problems in Maryland. Enforcement agencies receiving MHSO grant funding are required to outline and use a localized, data-driven approach to identify the enforcement issues and locations in their jurisdictions. Data documenting the identified highway safety issues must be included along with proposed strategies in the funding applications submitted to the MHSO for consideration. All law enforcement agencies are required to utilize HVE concepts when utilizing highway safety overtime funds, and various training opportunities at all levels of enforcement are provided to learn and implement these HVE techniques. Additionally, the MHSO provides a variety of statistical maps for law enforcement agencies statewide as a valuable resource in targeting and focusing on

high-risk enforcement and education/awareness locations.

Deployment of Resources

Maryland's evidence-based traffic safety enforcement methodology uses an integrated enforcement approach utilizing checkpoint inspections and saturation patrols, each as outlined in NHTSA's Countermeasures that Work guiding document. The data-driven, HVE methodology includes enforcement of traffic laws pertaining to impairment, speeding, occupant restraint usage, and other safety issues, coupled with enforcement patrols that saturate specific areas, which are well-documented in local media and describe the effort as an impaired-driving or other appropriate campaign. Such an effort typically includes uniformed law enforcement officers saturating a high-risk crash or incidence area and engaging the driving public by stopping as many violators as possible to serve as a deterrent to improper and dangerous driving. This highly visible approach provides a public perception of risk that driving without following the law can and will result in a traffic stop, resulting in a citation, or an arrest in the case of impaired driving. This occurs often in concurrence with associated national crackdowns or campaigns and mobilizations, helps Maryland provide continuous Specific and General Deterrence of improper and unsafe driving from the causal factors outlined above.

In-depth, comprehensive enforcement efforts, combined with background and evidence provided on grant applications, guide Maryland's efforts to allocate funds to law enforcement agencies to conduct priority area-specific overtime enforcement services based on specific problem identification and recent statistical results. The MHSO uses several sources of data to determine funding allocations. The State's 24 jurisdictions are divided into three groups based on average population over the most recent three-year period for which data is available. The most populous jurisdictions make up the top group and the least populated make up the third group. Within each group, crashes (serious injury and fatal) and citations (DUI, speed and unbelted) per vehicle miles traveled are calculated by jurisdiction.

Average ranks per jurisdiction are computed across crash and citation fields and applied to the previous year's funding allocations to determine revised funding proportions. Crash and enforcement data are used initially to determine the proper percentage of funding to be disbursed to jurisdictions within the groups. Subjective measures such as demographics, enforcement and outreach capacity, geographical considerations, seasonal fluctuations in traffic, and past performance are then used to refine the figures. From that process, each jurisdiction receives a total allocation of funding to be used in the next fiscal year. The MHSO continues to work with its data consultants to ensure that funding allocations are based on the most recent data available and that formulas are accurate, reasonable, and achievable. This methodology ensures that enforcement funding is allocated to the areas in greatest need and to the agencies that are most capable of implementing the appropriate countermeasures.

The MHSO uses both quantitative and qualitative criteria to measure the desired outcomes of the MHSO's law enforcement grant programs that utilize overtime enforcement funds, including those in the aggressive driving, distracted driving, impaired driving, occupant protection, and pedestrian safety program areas. The MHSO employs a monitoring system for law enforcement reporting data that engages law enforcement partners, grant managers and MHSO team members. In addition to the productivity of officers working overtime enforcement grants, an analysis of crashes, crash fatalities, and serious injuries is utilized by MHSO staff throughout the grant monitoring process. The MHSO's four LELs provide more direct contact with individual agencies across

the State. By developing relationships with law enforcement managers and traffic supervisors, the LELs closely monitor project success and efficiently provide information, training, and outreach materials.

Through this comprehensive approach, the MHSO and its law enforcement partners continually follow up, evaluate, and adjust enforcement plans accordingly. This approach improves effectiveness, enhances understanding and support of programs, and utilizes highway safety resources as efficiently as possible.

Effectiveness Monitoring

To ensure law enforcement projects remain adaptable to any situation, various tracking mechanisms are utilized to enable MHSO program managers and law enforcement managers throughout Maryland to gain quick insights into the progress of each project. Monthly progress reports are required from each agency receiving grant funding to ensure an understanding of the goals and outcomes measuring outputs of each project. These reports must include data on the activities conducted, such as the times worked, the numbers of vehicle contacts, and the numbers of citations issued. This type of continuous monitoring allows for small or large adjustments as needed within each jurisdiction in sufficient time to provide for the most efficient use of resources.

Constant critique and feedback is maintained throughout the enforcement program between the MHSO and each law enforcement agency. This ensures continuous communication during the planning, implementation, monitoring and evaluation phases of the project. The MHSO achieves this continuity by assigning an LEL to each law enforcement agency as their project manager. The Law Enforcement Services Section Chief, working in conjunction with the MHSO Chief, develops, maintains, and cultivates professional relationships with top law enforcement executives across the State to build the required top-down support for traffic enforcement efforts.

High-visibility enforcement (HVE) strategies

Planned HVE strategies to support national mobilizations:

Countermeasure Strategy
HVE - Distracted Driving
HVE - Impaired
HVE - Seat Belt

HVE planned activities that demonstrate the State's support and participation in the National HVE mobilizations to reduce alcohol-impaired or drug impaired operation of motor vehicles and increase use of seat belts by occupants of motor vehicles:

Unique Identifier	Planned Activity Name
LE MHSO 2020 Distracted	HVE - Distracted Driving
LE MHSO 2020 Impaired	HVE - Impaired
LE MHSO 2020 Seat Belts	HVE - Seat Belts

405(b) Occupant protection grant

Occupant protection plan

State occupant protection program area plan that identifies the safety problems to be addressed, performance measures and targets, and the countermeasure strategies and planned activities the State will implement to

address those problems:

Program Area Name
Occupant Protection (Adult and Child Passenger Safety)

Participation in Click-it-or-Ticket (CIOT) national mobilization

Agencies planning to participate in CIOT:

Agency
33 Statewide Law Enforcement Agencies
Maryland Highway Safety Office

Description of the State's planned participation in the Click-it-or-Ticket national mobilization:

Planned Participation in Click-it-or-Ticket

The national CIOT mobilization serves as a cornerstone for NHTSA's seat belt awareness and education program and coordinated enforcement efforts across Maryland. The primary target market for the CIOT campaign – men aged 18 to 44 – results from research that shows this gender/age demographic is least likely to wear seat belts, among all demographics. Each year during the months of May and November, Maryland law enforcement agencies conduct coordinated HVE efforts at various times, delivering the CIOT, Day and Night message. The mobilization is supported by national and local paid and earned media campaigns. Maryland does not typically pay for daytime seat belt enforcement, given the higher observational survey usage rates reported during daylight hours, but continued enforcement by law enforcement partners is strongly encouraged. Daytime seatbelt demonstration projects are funded in jurisdictions (and on roadways) where survey data indicates a significant number of drivers/occupants are unbelted. Maryland's plan to support CIOT for FFY 2020 is as follows:

Wave Dates	Activity
November 17-28, 2019	Media: Fall CIOT: Paid and Earned
November 24-25, 2019	Enforcement Period: CIOT night-time enforcement around Thanksgiving travel
Nov-December 2019	Campaign Pre-planning: May 2020 efforts
May 11-May, 2020	Media: CIOT; Paid and Earned
May 18-May 31, 2020	Enforcement Period: includes Memorial Day holiday
May 18-20, 2020	Media: CIOT press event; date and speakers TBD
June 1-7, 2020	Survey: Seat Belt Observation Survey
June 2020	Media: Seat belt message included with media for ADAPT
July 2020	Campaign Pre-planning: Fall CIOT campaign
August–September 2020	Media: Press release to announce the State use rate and enforcement data (citations and warnings issued); goal is to achieve broadcast through the Governor's Office and to report data to NHTSA.

August–September 2020	Media: Seat belt messaging included as a component of paid DUI prevention campaigns

List of Task for Participants & Organizations

Child restraint inspection stations

Countermeasure strategies demonstrating an active network of child passenger safety inspection stations and/or inspection events:

Countermeasure Strategy
Child Restraint System Inspection Station(s)

Planned activities demonstrating an active network of child passenger safety inspection stations and/or inspection events:

Unique Identifier	Planned Activity Name
GN 20-013	Maryland Kids In Safety Seats
GN 20-254	SAFE KIDS Frederick County

Total number of planned inspection stations and/or events in the State.

Planned inspection stations and/or events: 22

Total number of planned inspection stations and/or events in the State serving each of the following population categories: urban, rural, and at-risk:

Populations served - urban: 9

Populations served - rural: 14

Populations served - at risk: 9

CERTIFICATION: The inspection stations/events are staffed with at least one current nationally Certified Child Passenger Safety Technician.

Child passenger safety technicians

Countermeasure strategies for recruiting, training and maintaining a sufficient number of child passenger safety technicians:

Countermeasure Strategy
Child Restraint System Inspection Station(s)

Planned activities for recruiting, training and maintaining a sufficient number of child passenger safety technicians:

Unique Identifier	Planned Activity Name
GN 20-013	Maryland Kids In Safety Seats
LE 20-264	MSP - CPS Techs

Estimate of the total number of classes and the estimated total number of technicians to be trained in the upcoming fiscal year to ensure coverage of child passenger safety inspection stations and inspection events by nationally Certified Child Passenger Safety Technicians.

Estimated total number of classes: 8

Estimated total number of technicians: 80

Maintenance of effort

ASSURANCE: The lead State agency responsible for occupant protection programs shall maintain its aggregate expenditures for occupant protection programs at or above the level of such expenditures in fiscal year 2014 and 2015.

405(c) State traffic safety information system improvements grant

Traffic records coordinating committee (TRCC)

Meeting dates of the TRCC during the 12 months immediately preceding the application due date:

Meeting Date
8/16/2017
11/8/2017
11/16/2017
1/31/2018
5/2/2018
5/30/2018
8/22/2018
11/7/2018
11/27/2018
3/20/2019
5/15/2019

Name and title of the State's Traffic Records Coordinator:

Name of State's Traffic Records Coordinator: Douglas Mowbray

Title of State's Traffic Records Coordinator: Traffic Records Program Manager

TRCC members by name, title, home organization and the core safety database represented:

List of TRCC members

Last	First	Title	Organization	Core Safety Database
Akundi	Bala	Principal Transportation Engineer	Baltimore Regional Transportation Board (BRTB)/Baltimore Metropolitan Council (BMC)	General
Auman	Kim	Epidemiologist / Project Coordinator	National Study Center for Trauma amp EMS (NSC)	General
Aviles	Alexis	Intern	NSC	General

Balthis	Dave	Chief, Information Technology and Communications	MD Institute for Emergency Medical Services Systems (MIEMSS)	Injury Surveillance Systems
Barnett-Wake	Robin	Project Manager (MSCAN)	MDOT SHA	Crash
Bowman	Summer	Acting State Programs Specialist	Federal Motor Carrier Safety Administration	General
Brinkley	David	Secretary	Department of Budget and Management (DBM)	General
Bristow	Colin	MDOT SHA-MSP Liaison	Maryland State Police (MSP)/MDOT SHAMaryland State Police (MSP)/MDOT SHA	General
Browne	Brian	Senior Technical Specialist	District Court of Maryland	Citation/Adjudication
Burch	Cindy	Local SHSP…	BMC	General
Chandar	Subha	Deputy Director, Environmental Health Bureau	Maryland Department of Health (MDH)	
Chavez	Allie	Research Analyst	NSC	General
Comfort	Paul W.	Administrator	MDOT MTA	General
Corea	Chris	First Sergeant	MSP	Crash; Citation
Coster	Greg	Central Records Division	MSP	Crash
Day	Rose	Executive Director, Operations	District Court of Maryland Headquarters	Citation/Adjudication
Deluca	Kenneth	Sergeant	Baltimore City Police Department	Crash; Citation
Ennis	David	Regional Program Manager	National Highway Traffic Safety Administration (NHTSA)	General
Fisher	Ron	Captain: Commander, Central Records Division	MSP	Crash
Folden	William	Crash Reconstructionist	NSCNSC	General

Foster	Patrick	Engineering Analyst	Traffic Safety Division, Office of Engineering, Prince Georgeaposs County	Crash; Roadway
Fothergill	Leo	GIS Project Manager	MDOT MTA	Crash
Fueston	V. Glenn	Executive Director	Governoraposs Office of Crime Control and Prevention	General
Goldfarb	Bruce	Spokesman	Office of the Chief Medical Examiner	Injury Surveillance Systems
Habtemariam	Hiwut	Crash Analysis	MDOT SHA	
Hackett	Semia	Bicycle and Pedestrian Program Manager	Department of Public Works and Transportation	General
Hancock	Stephanie	Regional Administrator	NHTSA	General
Harkness	Jim	Deputy Director of Engineering	MDOT MDTA	Crash; Roadway
Hurwitz	Gladys	Transportation Planner	MDOT	General
Jebaraj	Jeyan	Senior GIS Analyst	Maryland Department of Information Technology (DOIT)	General
Jeffers	Breck	Transportation Management Engineer	Federal Highway Administration (FHWA)	General
Jeffries	Tom	Director, Police Records	MDOT MDTA Police	Crash
Jolley	Juleesa	Sergeant	Ft. Meade	General
Jones	Jerry	Chief	MDOT MDTA	General
Jones	Mujaihid	Sergeant	MSP	Crash; Citation
Kar	Puskar	Assistant District Engineer, District 7	MDOT SHA	Crash
Kerns	Tim	Director MHSO	MHSO	General
Klein	Gary	Database Administrator	MDOT SHA	Crash
Knopp	Daniel	Data Analyst	NSC	General
Landon	Walter F. quotPetequot	Advisor	Governoraposs Office of Homeland Security	General

Lang	Todd	Director of Transportation Planning	BRTB/BMC	General
Lasker	Andrea	Special Assistant for Policy and Program Development	Office of the Director, Department of Public Works amp Transportation, Prince George's County Government	General
Letnaunchyn	Chris	Traffic Engineer	Carroll County Department of Public Works	Crash; Roadway
Linnehan	Patrick	Director of Grants	Maryland State Police Office of Strategic Planning	General
Liu	Ann	Chief, Center for Environmental amp Occupational Epidemiology	MDH	
Lynn	Sean	GIS Project Manager	Washington College Geographic Information Systems (GIS)	General
Macleod	Bill	Director, TDSD	MDOT SHA	Crash; Roadway
Matheny	Bill	TDS	MDOT SHA	
McAlister	Karyn C.	Bicycle and Pedestrian Program Manager	Department of Public Works and Transportation	General
McMaster	Erica	Project Coordinator	Washington College GIS	General
Moe	Peter	Director, Driver Safety Division	MDOT MVA	Driver/Vehicle
Morrow	Verlon	Captain	MDOT MDTA Police	
Mowbray	Douglas	Traffic Records Program Manager	MHSO	General
Murphy	Frank	Senior Advisor	Baltimore City DOT	General
Naff	Bill	Regional Program Manager	NHTSA	General
Pack	Michael	Director	CATT Laboratory, UMCP	General

Parish	Diedre	Program Manager, Division of Information Technology	MDOT MDTA	General
Patel	Jay	Project Engineer	MDOT SHA	Crash; Roadway
Price	Michelle	Detective (Crash Team)	Baltimore City Police Department	Crash; Citation
Reigrut	Kevin	Secretary	MDOT MDTA	Crash; Roadway
Ricko	Richard	Major	MDOT MDTA Police	
Robinson	Jeanne	Database Consultant	Baltimore City Department of Transportation	Crash
Rock-Foster	Charlene	FARS Analyst	MSP	Crash
Rogers	Deborah	Director, Vehicle Programs	MDOT MVA	Vehicle
Rotz	John	Assistant Chief, Motor Carrier Division	MDOT SHAMDOT SHA	Crash
Russell	James	Captain; Commander, Automative Safety Enforcement Division	Maryland State Police Office of Strategic Planning	Crash
Scarboro	Mark	Director of Research / Interim Director	STAR/NSC	General
Sheffer	Michel	GIS Coordinator/Assistant Division Chief	MDOT SHAMDOT SHA	Roadway
Shin	Hyeonshic	Professor	Morgan State University National Transportation Center	General
Shipley	Alicia	GIS Analyst I	Washington College GIS	General
Sihota	Bineeta		Baltimore City Department of Transportation	General
Simms	Marcia	Regional Program Manager	NHTSA	
Sokol	Matthew		DOIT	General
Thompson	William	Director, Data Management	MIEMSS	Injury Surveillance Systems

Vronch	Lisa		Dept. of Public Safety amp Correctional Services	General
Wellman	Susie	Data Processing and Quality Assurance	MHSO	Crash
Williams	Ida	Director	MSP	Crash
Zielinski	Adam	Sergeant, Traffic Safety Unit	National Park Service	Crash
Zimmerman	Erica	Intern	NSC	General

TRCC Executive Council Full Members				
Oscar	Ibarra	Chief, Information Management and Program Administration	HSCRC	Injury Surveillance System
Michael	Leahy	Secretary	DOIT	IT-General
John	Morrissey	Chief Judge, District Court of Maryland	Maryland Judiciary	Citation/Adjudication
Chrissy	Nizer	Administrator	MDOT MVA	Driver;Vehicle
William	Pallozzi	Colonel; Secretary of State Police (Superintendent)	MSP	Crash; Citation
James F.	Ports, Jr.	Deputy Secretary for Operations	MDOT	Crash; Roadway; Driver; Vehicle
Dennis R.	Schrader	Secretary	MDH	Injury Surveillance System
Gregory	Slater	Administrator	MDOT SHA	Roadway; Crash
Theodore	Delbridge	Executive Director	MIEMSS	Injury Surveillance System
Proxy Members				
Steve	Colby	Deputy CIO	DOIT	IT-General
Tawn	Gregory	Captain; Technology and Information Management	MSP	Crash; Citation
Howard	Haft	Deputy Secretary, Public Health Services	MDH	Injury Surveillance System
W. Lance	Schine	Deputy Secretary	DOIT	IT-General

Traffic Records System Assessment

Appendix 4: Update to Traffic Records Assessment Recommendations

MARYLAND TRAFFIC RECORDS ASSESSMENT RECOMMENDATIONS DECEMBER 2014	REC LABEL	RECOMMENDATION	Not Addressed	No Progress	Pending Action	Some Progress	Significant Progress	Complete
Notes	SP1	Strengthen the TRCCap oss abilities for strategic planning that reflect best practices identified in the Traffic Records Program Assessment Advisory.				ü		

Incorporated TRA recommendations and considerations into TRSP. Some of the action items in the TRSP have been complete or are ongoing, but an inventory has not been complete.	Crash1	Improve the procedures/ process flows for the Crash data system that reflect best practices identified in the Traffic Records Program Assessment Advisory.				ü		
Improvements were made to the ACRS supervisor screen, but the ACRS Task Force has been disbanded. MMUCC 5 was thoroughly reviewed and recommendations and improvements are under consideration by MSP.	Crash2	Improve the interfaces with the Crash data system that reflect best practices identified in the Traffic Records Program Assessment Advisory.				ü		

Informal discussions have happened to link crash + EMS, but logistics have not been finalized. The state roadway file is still being planned for incorporation into the crash data system.	Crash3	Improve the data quality control program for the Crash data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.				ü		
Improvements were made to the ACRS supervisor screen, but the ACRS Task Force has been disbanded. MSP continues to train users on ACRS, but there is no formal program to track and train and improve the crash data.	Vehicle1	Improve the applicable guidelines for the Vehicle data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.			ü			

The MDOT MVA is restructuring the data systems and its associated documentation, so this recommendation is on hold pending those developments.	Vehicle2	Improve the data quality control program for the Vehicle data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.			ü			

The MDOT MVA is restructuring the data systems and its associated documentation, so this recommendation is on hold pending those developments. The MDOT MVA is restructuring the data systems and its associated documentation, so this recommendation is on hold pending those developments.	REC LABEL	RECOMMENDATION	Not Addressed	No Progress	Pending Action	Some Progress	Significant Progress	Complete

Notes	Driver1	Improve the description and contents of the Driver data system that reflect best practices identified in the Traffic Records Program Assessment Advisory.			ü			
The MDOT MVA is restructuring the data systems and its associated documentation, so this recommendation is on hold pending those developments.	Driver2	Improve the data quality control program for the Driver data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.			ü			

The MDOT MVA is restructuring the data systems and its associated documentation, so this recommendation is on hold pending those developments.	Roadway1	Improve the procedures/ process flows for the Roadway data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.					ü	
As the Maryland Centerline project is finalized, documentation of the procedures and processes are being developed. Maryland completed a Roadway Safety Data Capabilities Assessment with high marks.	Roadway2	Improve the data quality control program for the Roadway data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.					ü	

Through the Maryland Centerline project, quality control mechanisms are being implemented for all roadway data.	Citation 1	Improve the data dictionary for the Citation and Adjudication systems that reflects best practices identified in the Traffic Records Program Assessment Advisory.				ü		
The court system is in the final phases of a comprehensive upgrade (Maryland Electronic Courts – MDEC) to bring all levels of court onto the same data platform.	Citation 2	Improve the interfaces with the Citation and Adjudication systems that reflect best practices identified in the Traffic Records Program Assessment Advisory.				ü		

The court system is in the final phases of a comprehensive upgrade (Maryland Electronic Courts – MDEC) to bring all levels of court onto the same data platform.	REC LABEL	RECOMMENDATION	Not Addressed	No Progress	Pending Action	Some Progress	Significant Progress	Complete
Notes	ISS1	Improve the interfaces with the Injury Surveillance systems that reflect best practices identified in the Traffic Records Program Assessment Advisory.					ü	

The EMS and Trauma Registry systems are interfacing using the ImageTrend Field Bridge.	ISS2	Improve the data quality control program for the Injury Surveillance systems that reflects best practices identified in the Traffic Records Program Assessment Advisory.					ü	

June 15, 2019 status	Number	%
Not addressed	0	0%
No progress	0	0%
Pending Action	4	28.57%
Some Progress	6	42.86%
Significant Progress	4	28.57%
Complete	0	0%
Total	14	100%

Traffic Records for Measurable Progress

Appendix 7: Maryland's Traffic Safety Information System Improvement Program (FFY2019)

Problem Identification

Hardware, software, personnel, and procedures that capture, store, transmit, analyze, and interpret traffic safety data are critical components to Maryland's traffic records system. The datasets managed by this system include crash, driver licensing and history, vehicle registration and titling, commercial motor vehicle, roadway, injury control, citation/adjudication, and EMS/trauma registry data.

Maryland employs a two-tiered Traffic Records Coordinating Committee (TRCC), with both General (or technical) and Executive Councils, comprised of data owners, data managers, and data users with oversight and interest in the datasets listed above. MHSO staff serves on the TRCC General Council and subcommittees, and advises the TRCC Executive Council, which oversees and approves the Maryland Traffic Records Strategic Plan (TRSP).

The TRSP is a five-year plan that runs concurrent with the Maryland SHSP. Both the TRSP and SHSP went into effect January 2016 and will cover the years 2016 through 2020. The TRCC worked with the NHTSA on its most recent Traffic Records Assessment. Maryland accepted the final report in early December 2014, and the TRCC formed a Traffic Records Strategic Plan Steering Committee to oversee development of the next five-

year plan for traffic records. After a year of development, the TRCC Executive Council accepted the plan in January 2016.

Recommendations from the 2014 assessment include Maryland's need to improve:

TRCC's strategic planning abilities;

Procedures, process flows, and interfaces for the crash data system;

Data quality control programs for the crash, vehicle, driver, roadway, and injury surveillance data systems;

Procedures and process flows for the roadway data system;

Interfaces with the citation and adjudication systems; and

Interfaces with the injury surveillance systems.

Objectives in the TRSP are based on the 2010 and 2014 assessments, along with the Crash Data Improvement Program findings, and other needs determined by members of the TRCC, including the various partners in the process. The prioritization and selection process for projects requesting funds includes an evaluation of each project's ability to meet the priority objectives in the TRSP, considering the strategies in the SHSP and the five-year needs of the SHSP Emphasis Areas. Priority objectives are reviewed and determined annually by the TRCC Executive Council.

Solution

The accurate collection and timely dissemination of traffic records information are crucial to ensuring positive results from projects and strategies within the five-year plan. Data elements form the informational backbone for all the MHSO's programs and the SHSP itself. All activities, from enforcement to education, rely on good data, and the MHSO's focus is to provide effective data support and analysis for programs that can help the State meet traffic safety goals in reducing crashes and resulting injuries and fatalities.

Maryland's Traffic Records Executive Council's leadership goal is to develop a comprehensive statewide traffic records system that provides traffic safety professionals with reliable, accurate, and timely data to inform decisions and actions for implementing proven countermeasures and managing and evaluate safety activities to resolve traffic safety problems. The traffic records system encompasses the hardware, software, personnel, and procedures that capture, store, transmit, analyze, and interpret traffic safety data. This system is used to manage basic crash data from all law enforcement agencies, along with information on driver licensing and history, vehicle registration and titling, commercial motor vehicles, roadways, injury control efforts, citation and adjudication activities, and the EMS/trauma registry.

Maryland's Traffic Records Executive Council provides policy leadership to the TRCC and its efforts to continually review and assess the status of Maryland's traffic safety information system and its components. The TRCC oversees the development and update of the Traffic Records Strategic Plan to serve public- and private-sector needs for traffic safety information, to identify technologies and other advancements necessary to improve the system, and to support the coordination and implementation of system improvements.

The MHSO participates on all levels of the TRCC through its own staff and through a grant-funded project at the NSC called the MCTSA, a more comprehensive, expert staff-based approach to provide services based on the CODES and other traffic records data and to meet the wide and varied needs of the MHSO and its partners. The MHSO is a member of the Crash Data Tri-Agency Council—consisting of the MSP, the MDOT SHA, and the MDOT MVA—which oversees policies and projects related to the crash data system. The MHSO is also

represented on the ACRS Task Force, working with technical and policy experts named by the Tri-Agency Council to oversee continuing improvements of Maryland's newest electronic data system. The Tri-Agency Council and the ACRS Task Force act as subcommittees of the TRCC and share goals to meet the priority objectives set forth in the TRSP.

MHSO staff members work with subject matter experts from the MCTSA project to help manage the TRSP, and the MHSO continues the CODES program. These are some of the ways in which the MHSO relies on its many partner agencies to make data accessible for highway safety planning, as it employs various systems and programs, with the help of State agencies and grantees, to collect, maintain and analyze internal data information.

The mission to provide data and analytical support to traffic safety professionals at the local, State, regional, and national levels drives the direction of the Traffic Records Program. Projects to be considered for funding by the Traffic Safety Information System Improvement Program must adhere to goals and objectives within the TRSP and provide support for the data needs of the traffic records community.

Action Plan

Traffic safety information system projects funded for FFY 2020 are listed below in bullet form. Each grant is described in the body of the HSP. The grantee agencies are as follows:

Maryland Highway Safety Office

Maryland Sheriff's Association

University of Maryland Baltimore, NSC

Washington College

Evaluation

Goals are prioritized for appropriate components of the traffic records information system, with objectives developed based on the periodic assessments, ongoing TRCC evaluation and input, and other state agency-identified needs. The TRCC sets performance measures for priority objectives identified in the TRSP, which are reviewed regularly throughout each year. Systems are evaluated for quantitative progress, such as improved timeliness and completeness, with reports submitted to NHTSA at least annually. Additionally, MHSO grants are evaluated during and after implementation through grantee reporting using proven process evaluation measures.

Performance Measures

Citation Data: Completeness: 0.67 percent improvement

Percentage of e-citations with no longitude and latitude coordinates (i.e., x/y). We assess the traffic citations issued by law enforcement to ensure there is a location for each. In the period assessed just prior to this FFY 2020 submission, a 0.40 percent decrease in the number of citations without an x/y was found, which is calculated by looking at the total number of citations with no x/y divided by the total number of citations, and then comparing the same a year later, and there were fewer citations with no x/y coordinates as a percent of all citations written.

ETIX Citations Location Analysis April 1st 2017 to March 31st 2018	Citation Data	Location In Maryland	Outside of Marylandaposs Boundaryaposs	No XYS
Total ETIX Citations	Raw Data	0	480,449	454,902
935,351	Raw Data with Updated XYs	480,070	379	454,902
935,351	Raw Data with Updated XYs and No Identical Stops	260,463	164	211,449
472,076				22.61%

ETIX Citations Location Analysis April 1st 2018 to March 31st 2019	Citation Data	Location In Maryland	Outside of Marylandaposs Boundaryaposs	No XYS
Total ETIX Citations	Raw Data	0	447,765	467,472
915,237	Raw Data with Updated XYs	445,183	2,581	467,473
915,237	Raw Data with Updated XYs and No Identical Stops	237,679	1,598	203,273
442,550				22.21%
				-0.40%

2. EMS Data: Completeness: 6.7 (or 1.8) percent improvement

% Potential MVC Transports with "Blank" Cause of Injury: Statewide FY 2017 Baseline – 20.7%. In FY2018, 405c funds were used to improve validations in the EMS system. This set a baseline for measuring in subsequent years the improvements using validation in the EMS Patient Care Reporting System.

A cooperative relationship has been maintained between the Maryland Department of Transportation's Highway Safety Office (MHSO), the TRCC, and the Maryland Institute for Emergency Medical Services Systems (MIEMSS) for the achievement of a mutually important common goal in the reduction of motor vehicle crash related patient morbidity and mortality. Additionally, both agencies value the importance of timely, complete, and accurate data as it pertains to the prehospital patient assessment, care, and outcome. However, data collection for all incident responses has become extensive and multi-faceted for responding personal with the growth of the electronic Maryland Emergency Medical Services Data System (eMEDS®). eMEDS records related to Motor Vehicle Crash (MVC) transports represent 29.3% of all injury transports in FY 2017. This category for EMS transport is second only to falls (45.6%). Within the MVC group, 20.7% of these records were identified as "MVC" based upon the Emergency Medical Dispatch (EMD) code variable "Dispatch Complaint Code" (the reason given by the 911 dispatch operator for this call) was a MPDC 29 code (Traffic/Transportation Accident), but the "Cause of Injury" response was found to be "blank". This distribution varies by EMS jurisdiction across the state (range: 1.45% to 38.71%) This fact may adversely affect the count

or query inclusion of MVC related incidents. Logical checks tailored to specific jurisdictional Dispatch Complaint Codes is the only means that would permit a means of validity checks at the time of record creation and submission.

Comparing the baseline of blank cause of injuries with a period of time when the validation rules came on board with many jurisdictions, there was an improvement in fewer blank causes. Comparing 2017 to 2018, there was still an improvement, though slightly smaller than the select period of time in the middle column.

Potential MVC Transports Submitted in eMEDS®	State Fiscal Year 2017 and 3rd and 4th Quarter FFY 2018		State FY 2017	April 2018 through September 2018	Calendar Year 2018			Query Distribution	Measure 1	Measure 2
Query Distribution	Measure 1	Measure 2	Query Distribution	Measure 1	Measure 2	Maryland EMS Elite Jurisdictional Programs	Elite Implementation DateElite Implementation Date	Total Potential MVC Transports	% Potential MVC Transports with any Known MVC Cause of Injury	% Potential MVC Transports with quotBlankquot Cause of Injury
Total Potential MVC Transports	% Potential MVC Transports with any Known MVC Cause of Injury	% Potential MVC Transports with quotBlankquot Cause of Injury	Total Potential MVC Transports	% Potential MVC Transports with any Known MVC Cause of Injury	% Potential MVC Transports with quotBlankquot Cause of Injury	Allegany County	5/7/2018	479	93.2%	17.1%
212	88.7%	6.2%	333	83.5%	6.3%	Anne Arundel County	5/29/2018	3,665	92.2%	17.1%
1138	91.4%	11.5%	2282	81.0%	11.6%	Baltimore City	10/22/2018			

			426	77.9%	15.0%	Baltimore County	7/24/2018	6,441	92.4%	15.8%
1085	87.7%	11.6%	2974	80.0%	11.7%	Calvert County	8/28/2018	535	87.4%	32.0%
26	84.6%	16.1%	174	64.9%	29.3%	Caroline County	6/11/2018	209	91.7%	19.6%
58	82.8%	10.8%	105	74.3%	8.6%	Carroll County	1/1/2019			
						Cecil County	8/1/2018	958	91.1%	15.6%
156	93.6%	7.1%	403	86.6%	6.2%	Charles County	6/1/2018	851	94.0%	9.5%
324	93.8%	6.9%	577	87.2%	5.4%	Dorchester County	5/21/2018	286	92.7%	23.8%
93	86.0%	5.1%	152	83.6%	4.6%	Frederick County	10/1/2018			
			377	80.6%	11.7%	Garrett County	5/7/2018	205	93.6%	16.6%
68	91.2%	1.4%	116	90.5%	2.6%	Harford County	7/30/2018	1,412	92.3%	17.6%
195	95.4%	6.7%	586	85.7%	7.8%	Howard County	12/1/2018			
			86	77.9%	15.1%	Kent County	6/11/2018	66	83.1%	10.6%
29	93.1%	12.1%	72	88.9%	8.3%	Montgomery County	9/4/2018	5,647	92.8%	23.7%
314	90.8%	35.0%	2022	61.2%	32.2%	Prince Georgeaposs County	10/1/2018			

			1888	56.5%	36.3%	Queen Annea poss County	12/18/2017	360	94.0%	16.1%
154	96.1%	3.1%	317	88.3%	5.0%	Somerset County	7/16/2018	109	85.7%	16.5%
17	88.2%	15.0%	55	78.2%	12.7%	St. Marya poss County	7/16/2018	727	87.6%	23.7%
149	86.6%	8.6%	343	80.8%	8.5%	Talbot County	12/18/2017	294	97.5%	5.8%
166	96.4%	10.8%	340	86.2%	9.7%	Washington County	6/25/2018	994	90.7%	13.3%
291	87.6%	7.9%	563	82.2%	7.5%	Wicomico County	5/14/2018	996	94.6%	10.7%
391	91.3%	6.0%	709	88.0%	5.5%	Worcester County	5/14/2018	462	92.7%	11.3%
238	87.8%	2.1%	322	85.7%	2.8%					
						Grand Total		24,696	91.7%	17.9%

Traffic Records Supporting Non-Implemented Recommendations

See 'Pending Actions'

Appendix 4: Update to Traffic Records Assessment Recommendations

Traffic Records for Model Performance Measures

Appendix 5: Performance Measures

EMS		
Accessibility	Increase the number of users that report successfully accessing EMS data for research purposes.	
Accuracy	Increase the percentage of correct/accurate values in data elements that do not have a state-level validation rule.	

Completeness	Reduce the percentage of missing/unknown values in data elements that do not have a state-level validation rule.	FFY2020 Performance Measure.
Integration	Increase the percentage of Medevac flight records that match to trauma registry records.	
Timeliness	Reduce the amount of time from submission of the patient care report to approval and inclusion in state file.	
Uniformity	Increase the compliance with the NEMSIS standard as the state implements the Elite platform.	
Trauma Registry		
Accessibility	Increase the number of users that report successfully accessing trauma registry data for research purposes.	
Accuracy	Increase the percentage of correct/accurate values in data elements (e.g., compare time of patient arrival to EMS arrival time).	
Completeness	Reduce the percentage of missing/unknown values in data elements that do not have a state-level validation rule.	
Integration	Increase the percentage of trauma registry records that match to EMS patient care reports.	
Timeliness	Reduce the time from discharge/final disposition to inclusion in state file.	
Uniformity	Increase compliance with the National Trauma Data Standard (TQIP for the participating centers).	
ED/Inpatient records		
Accessibility	Increase the number of users that report successfully accessing emergency department or inpatient discharge data for research purposes.	
Accuracy	Minimize the number of resubmissions for error corrections each quarter.	

Completeness	Reduce the percentage of missing/unknown values in data elements that do not have a state-level validation rule.	
Integration	Increase the percentage of records with a traffic crash E-code and MAISgt1 that link to crash reports. Increase the percentage of records with an EMS transport that link to the EMS file.	
Timeliness	Reduce the number of days from the end of the quarter to when the file is ready for research/dissemination.	
Uniformity	Increase compliance with the most recent Uniform Billing Standard.	
Roadway		
Accessibility	Increase the number of local engineering users that report successfully accessing state roadway data for research purposes.	Increase the number of local engineering users that report successfully accessing state roadway data for research purposes from 33% to 100% by December 31, 2021
Accuracy	Increase the percentage of correct/accurate values in data elements that do not have a state-level validation rule.	Increase the percentage of correct/accurate values in data elements that do not have a state-level validation rule from 70% to 100% by December 31, 2021.Increase the percentage of correct/accurate values in data elements that do not have a state-level validation rule from 70% to 100% by December 31, 2021.
Completeness	Increase the percentage of Baltimore City streets and/or alleys captured in the state file.	Increase the percentage of Baltimore City streets and/or alleys captured in the state file from 60% to 100% by December 31, 2020.
Integration	Increase the percentage of crash reports with location information that matches the state roadway file.	Increase the percentage of crash reports with location information that matches the state roadway file from X to 90% by December 31, 2021
Timeliness	Reduce the number of days needed to incorporate roadway changes/additions to the state file.	Reduce the number of days needed to incorporate roadway changes/additions to the state file from 365 to less than 90 days by December 31, 2020.

Uniformity	Increase compliance with the Model Inventory for Roadway Elements guidelines and Fundamental Data Elements.· Number of MIRE Fundamental Data Elements for Non-Local (based on functional classification) Paved Roads.· Number of MIRE Fundamental Data Elements for Local (based on functional classification) Paved Roads· Number of MIRE Fundamental Data Elements for Unpaved Roads.Increase compliance with the Model Inventory for Roadway Elements guidelines and Fundamental Data Elements.· Number of MIRE Fundamental Data Elements for Non-Local (based on functional classification) Paved Roads.· Number of MIRE Fundamental Data Elements for Local (based on functional classification) Paved Roads· Number of MIRE Fundamental Data Elements for Unpaved Roads.Increase compliance with the Model Inventory for Roadway Elements guidelines and Fundamental Data Elements.· Number of MIRE Fundamental Data Elements for Non-Local (based on functional classification) Paved Roads.· Number of MIRE Fundamental Data Elements for Local (based on functional classification) Paved Roads· Number of MIRE Fundamental Data Elements for Unpaved Roads.Increase compliance with the Model Inventory for Roadway Elements guidelines and Fundamental Data Elements.· Number of MIRE Fundamental Data Elements for Non-Local (based on functional classification) Paved Roads.· Number of MIRE Fundamental Data	Increase the percentage of MIRE Compliant FDEs in the state file from 65% to 100% by December 31, 2022.

	Elements for Local (based on functional classification) Paved Roads· Number of MIRE Fundamental Data Elements for Unpaved Roads.	
Crash		
Accessibility	Increase the number of users that report successfully accessing crash report data from the Open Data Portal.	

Accuracy	Increase the percentage of crash reports with a citation number that matches the corresponding record numbers in the citation file (indicate an association with a crash (PD, PI, fatal)).*Decrease the number of crash reports marked as "off road."**Increase the Percentage of crashes with longitude and latitude coordinates (i.e., x/y) with values inside the state of Maryland (where the crashes would have had to occur). Increase the percentage of crash reports with a citation number that matches the corresponding record numbers in the citation file (indicate an association with a crash (PD, PI, fatal)).*Decrease the number of crash reports marked as "off road."**Increase the Percentage of crashes with longitude and latitude coordinates (i.e., x/y) with values inside the state of Maryland (where the crashes would have had to occur). Increase the percentage of crash reports with a citation number that matches the corresponding record numbers in the citation file (indicate an association with a crash (PD, PI, fatal)).*Decrease the number of crash reports marked as "off road."**Increase the Percentage of crashes with longitude and latitude coordinates (i.e., x/y) with values inside the state of Maryland (where the crashes would have had to occur). Increase the percentage of crash reports with a citation number that matches the corresponding record numbers in the citation file (indicate an association with a crash (PD, PI, fatal)).*Decrease the number of crash reports marked as "off road."**Increase the Percentage of crashes with	

	longitude and latitude coordinates (i.e., x/y) with values inside the state of Maryland (where the crashes would have had to occur). Increase the percentage of crash reports with a citation number that matches the corresponding record numbers in the citation file (indicate an association with a crash (PD, PI, fatal)).*Decrease the number of crash reports marked as "off road."**Increase the Percentage of crashes with longitude and latitude coordinates (i.e., x/y) with values inside the state of Maryland (where the crashes would have had to occur).	
Completeness	Reduce the percentage of missing/unknown values on crash reports that should have a citation number (as identified in the citation file).	
Integration	Increase the percentage of injury (KABCO 2-5) crash records that link to an EMS record.	
Timeliness	Reduce the number of days from the end of the quarter to when the data is posted on the Open Data Portal.	
Uniformity	Increase compliance with the Model Minimum Uniform Crash Criteria and ANSI D.16.	
Citation/Adjudication		
Accessibility	UNKNOWN	
Accuracy	Increase the percentage of citations that indicate an association with a crash (PD, PI, fatal) that will match a corresponding crash record (citation number listed on crash report).	

Completeness	Reduce the percentage of missing/unknown values on crash reports that should have a citation number (as identified in the citation file).***Reduce the number of missing x/y coordinates on citations issued to motorists.Reduce the percentage of missing/unknown values on crash reports that should have a citation number (as identified in the citation file).***Reduce the number of missing x/y coordinates on citations issued to motorists.Reduce the percentage of missing/unknown values on crash reports that should have a citation number (as identified in the citation file).***Reduce the number of missing x/y coordinates on citations issued to motorists.	FFY2020 Performance Measure.
Integration	Increase the percentage of citations given to Maryland drivers that may be linked to the correct driver record.	
Timeliness	Reduce the amount of time between the violation being issued and inclusion in the court file (and available to judges).	
Uniformity	UNKNOWN	
Driver		
Accessibility	Increase the number of law enforcement users that report successfully accessing driver history data at the roadside.	
Accuracy	Increase the number of data elements that can be matched between the impaired driving forms for administrative adjudication (DR15, DR15a, and (order of suspension)).	
Completeness	Reduce the percentage of missing/unknown values in Driver Improvement Program (DIP) records that are added to the driver file.	

Integration	Increase the percentage of driver education records that successfully link to a driver record.	
Timeliness	Increase the percentage of error records that are corrected and resubmitted within 24 hours.	
Uniformity	Increase consistency among impaired driving-related fields in the multitude of Ignition Interlock Program files.	
Vehicle		
Accessibility	Increase the number of law enforcement users that report successfully accessing vehicle registration data at the roadside.	
Accuracy	Increase the percentage of records with correct associated values among critical elements in the vehicle file (e.g., vehicle body type and fuel type).	
Completeness	Reduce the percentage of missing/unknown/mismatched values in the vehicle file (e.g., vehicle body type and fuel type).	
Integration	Increase the percentage of vehicle owner records that successfully link to a driver record.	
Timeliness	Increase the percentage of vehicle records posting to the state file within 30 days of the sale of vehicle.	
Uniformity	Increase consistency among vehicle-related fields in the multitude of Ignition Interlock Program files.	

State traffic records strategic plan

Strategic Plan, approved by the TRCC, that— (i) Describes specific, quantifiable and measurable improvements that are anticipated in the State's core safety databases (ii) Includes a list of all recommendations from its most recent highway safety data and traffic records system assessment; (iii) Identifies which recommendations the State intends to address in the fiscal year, the countermeasure strategies and planned activities that implement each recommendation, and the performance measures to be used to demonstrate quantifiable and measurable progress; and (iv) Identifies which recommendations the State does not intend to address in the fiscal year and explains the reason for not implementing the recommendations:

Planned activities that implement recommendations:

Unique Identifier	Planned Activity Name
GN 20-278	MHSO Staffing Grant 2
GN 20-137	MSA Training & Conferences
GN 20-232	Traffic Records - MCTSA
GN 20-045	Traffic Records Data Improvement and Accessibility

Quantitative and Measurable Improvement

Supporting documentation covering a contiguous 12-month performance period starting no earlier than April 1 of the calendar year prior to the application due date, that demonstrates quantitative improvement when compared to the comparable 12-month baseline period.

State Highway Safety Data and Traffic Records System Assessment

Date of the assessment of the State's highway safety data and traffic records system that was conducted or updated within the five years prior to the application due date:

Date of Assessment: 12/3/2014

Requirement for maintenance of effort

ASSURANCE: The lead State agency responsible for State traffic safety information system improvements programs shall maintain its aggregate expenditures for State traffic safety information system improvements programs at or above the average level of such expenditures in fiscal years 2014 and 2015

405(d) Impaired driving countermeasures grant

Impaired driving assurances

Impaired driving qualification: Low-Range State

ASSURANCE: The State shall use the funds awarded under 23 U.S.C. 405(d)(1) only for the implementation and enforcement of programs authorized in 23 C.F.R. 1300.23(j).

ASSURANCE: The lead State agency responsible for impaired driving programs shall maintain its aggregate expenditures for impaired driving programs at or above the average level of such expenditures in fiscal years 2014 and 2015.

405(f) Motorcyclist safety grant

Motorcycle safety information

To qualify for a Motorcyclist Safety Grant in a fiscal year, a State shall submit as part of its HSP documentation demonstrating compliance with at least two of the following criteria:

Motorcycle rider training course: Yes

Motorcyclist awareness program: Yes

Reduction of fatalities and crashes: No

Impaired driving program: No

Reduction of impaired fatalities and accidents: No

Use of fees collected from motorcyclists: No

Motorcycle rider training course

Name and organization of the head of the designated State authority over motorcyclist safety issues:

State authority agency: Marylnd motor Vehicle Administration

State authority name/title: Christine Nizer; Administrator

Introductory rider curricula that has been approved by the designated State authority and adopted by the State:

Approved curricula: (i) Motorcycle Safety Foundation Basic Rider Course

Other approved curricula:

CERTIFICATION: The head of the designated State authority over motorcyclist safety issues has approved and the State has adopted the selected introductory rider curricula.

Counties or political subdivisions in the State where motorcycle rider training courses will be conducted during the fiscal year of the grant and the number of registered motorcycles in each such county or political subdivision according to official State motor vehicle records, provided the State must offer at least one motorcycle rider training course in counties or political subdivisions that collectively account for a majority of the State's registered motorcycles.

County or Political Subdivision	Number of registered motorcycles
Allegany	2,404
Anne Arundel County	13,551
Baltimore City	3,681
Baltimore County	13,962
Carroll	6,914
Cecil County	3,818
Charles County	4,521
Frederick County	8,226
Harford County	7,488
Howard County	4,876
Montgomery County	11,564
Prince George's County	10,359
Washington County	4,921
Wicomico	2,176

Total number of registered motorcycles in State.

Total # of registered motorcycles in State: 118,143

Motorcyclist awareness program

Name and organization of the head of the designated State authority over motorcyclist safety issues.

State authority agency: Maryland Motor Vehicle Administration

State authority name/title: Christine Nizer; Administrator

CERTIFICATION: The State's motorcyclist awareness program was developed by or in coordination with the designated State authority having jurisdiction over motorcyclist safety issues.

Performance measures and corresponding performance targets developed for motorcycle awareness that identifies, using State crash data, the counties or political subdivisions within the State with the highest number of motorcycle crashes involving a motorcycle and another motor vehicle.

Fiscal Year	Performance measure name	Target Period	Target Start Year	Target End Year	Target Value	Sort Order
2020	C-7) Number of motorcyclist fatalities (FARS)	5 Year	2016	2020	64.1	7
2020	C-8) Number of unhelmeted motorcyclist fatalities (FARS)	5 Year	2016	2020	7.40	8
2020	Number of motorcycle-involved fatalities on all roads (State data)	5 Year	2016	2020	60.2	21
2020	Number of motorcycle-involved serious injuries on all roads (State data)	5 Year	2016	2020	248.9	22

Counties or political subdivisions within the State with the highest number of motorcycle crashes (MCC) involving a motorcycle and another motor vehicle.

County or Political Subdivision	# of MCC involving another motor vehicle
Allegany	12
Anne Arundel County	78
Baltimore City	98
Baltimore County	139
Carroll	19
Cecil County	20
Charles County	29
Frederick County	29
Harford County	29
Howard County	21
Montgomery County	79
Prince George's County	112
Washington County	30
Wicomico	25

Total number of motorcycle crashes (MCC) involving a motorcycle and another motor vehicle:

Total # of MCC crashes involving another motor vehicle: 943

Countermeasure strategies and planned activities that demonstrate that the State will implement data-driven programs in a majority of counties or political subdivisions where the incidence of crashes involving a

motorcycle and another motor vehicle is highest.

Countermeasure Strategy
Motorcycle Rider Training
Motorcyclist Safety and Awareness

Unique Identifier	Planned Activity Name
GN 20-292	MHSO MC Awareness and Rider Training
GN 20-293	MHSO Motorcycle Safety - Impaired Riding
LE 20-101	Motorcycle - BikeSafe
GN 20-229	Motorcycle Safety Education & Training and Outreach

405(h) Nonmotorized safety grant

ASSURANCE: The State shall use the funds awarded under 23 U.S.C. 405(h) only for the authorized uses identified in § 1300.27(d).

Certifications, Assurances, and Highway Safety Plan PDFs

Certifications and Assurances for 23 U.S.C. Chapter 4 and Section 1906 grants, signed by the Governor's Representative for Highway Safety, certifying to the HSP application contents and performance conditions and providing assurances that the State will comply with applicable laws, and financial and programmatic requirements.