Traffic Records Strategic Plan 2021–2025

7/8/2024

MARYLAND TRCC

MARYLAND DEPARTMENT OF TRANSPORTATION
MOTOR VEHICLE ADMINISTRATION

Maryland Highway Safety Office

Contents

Traffic Records Coordinating Council Overview

Maryland has a clear mission to prevent deaths and injuries on our streets and highways. Many steps have been taken toward meeting this goal, but many challenges remain. Reaching our goal of zero deaths and injuries will require a diverse group of stakeholders—state and local agency partners, nongovernmental organizations, as well as the public—to work collaboratively on issues of common concern.

The Maryland Traffic Records Coordinating Committee (TRCC) is an interagency effort that is based on a model from the United States Department of Transportation (USDOT). The TRCC is a working group of data owners, managers, and users representing six traffic records system components (crash, roadway, citation/adjudication, driver, vehicle, and injury surveillance) and uses six data quality performance measures (timeliness, completeness, accuracy, accessibility, integration, uniformity) to evaluate progress. For nearly two decades, the Maryland TRCC has served as a central point of coordination for the traffic safety community in achieving the vision of zero traffic-related deaths. The TRCC Charter describes the Vision and Mission Statement, as well as the purpose and duties of the Committee.

VISION

Safe Maryland roads free of traffic fatalities and injuries.

MISSION

To use effective management principles and emerging technologies to improve the quality, timeliness, and availability of traffic records data and systems to enable the Maryland traffic safety community to identify and resolve traffic safety issues thereby achieving Maryland's goal of zero traffic-related deaths.

PURPOSE

The Maryland Traffic Records Coordinating Committee is responsible for reviewing and assessing the status of Maryland's Traffic Safety Information System Improvement Program and its components. The TRCC will:

- oversee the development and update of a strategic plan that serves the public and private sector needs for traffic safety information;
- learn about technologies and other advancements necessary to improve the traffic safety information system;
- promote, support, and assist in the coordination and implementation of needed or desired system improvements; and
- provide a forum for the exchange of information regarding safety data among the traffic safety community.

DUTIES

Maryland's TRCC shall:

- ideally have authority to review any of the State's highway safety data and traffic records system components and any changes to such systems before the changes are implemented;
- consider and coordinate the views of organizations in the State that are involved in the collection, administration, and use of highway safety data and traffic records system components, and represent those views to outside organizations;
- review and evaluate new technologies to keep the highway safety data and traffic records system current; and
- approve annually the membership of the TRCC, any change to the State's multi-year Strategic Plan, and performance measures to be used to demonstrate quantitative progress in the

accuracy, completeness, timeliness, uniformity, accessibility, or integration of a core highway safety database.

The TRCC's vision and strategies comprises the strategic plan. The outlined strategic plan determines the Maryland Traffic Records community's direction over the next five years—where it intends to go, how it is going to get there, and evaluative measures to determine its level of success.

TRCC Structure
The TRCC is an interagency, intergovernmental working group focused solely on Maryland's traffic records system. Maryland's TRCC includes an Executive Council, Technical Council, and special committees that serve on an as-needed basis.

The **Executive Council** is an assembly of agency leaders or senior officials designated by the agency leader from member organizations that are custodians of Maryland's traffic records system components, formally invited by the Governor's Highway Safety Representative. The Executive Council supports the Traffic Records vision, mission, and five-year Traffic Records Strategic Plan (TRSP), assisting in advisory, policy, and/or economic capacities. The identified members meet as designated in the charter twice-annually to direct Maryland's efforts.

Currently, the Administrator of the Maryland Department of Transportation (MDOT) Motor Vehicle Administration (MVA) is designated as Maryland's Governor's Highway Safety Representative and, in that role, also serves as the chairperson of the TRCC. The MDOT MVA Highway Safety Office (MHSO) is responsible for the day-to-day leadership and coordination of the TRCC as designated through the TRCC Charter. MHSO is dedicated to saving lives and preventing injuries by reducing motor vehicle crashes through the implementation of the Strategic Highway Safety Plan (SHSP). Maryland's TRCC fills a critical role in the SHSP by providing the data necessary to create a comprehensive data-driven plan. Maryland is firmly committed to upholding the federal mandate outlined in the Comprehensive Statewide Safety Data Planning Process indicating that "all decisions will be based upon data."

Technical Council members are composed of subject matter experts from the data custodial agencies who are familiar with and have access to their agency's traffic records system database. Technical Council members are appointed by their respective Executive Council member and serve at the discretion of their agency. This group meets bi-monthly throughout the year. This Council also includes other traffic safety stakeholders, such as research organizations, academic institutions, and federal and local partners and data users.

TRCC special committees are identified and formed as necessary to carry out the work of the TRCC. Such committees have included a GIS Subcommittee, a crash data task force, and the Maryland Traffic Records Forum committee.

Additionally, Maryland's Technical Council includes SHSP Data Coordinators who serve as members of each of the SHSP Emphasis Area Teams to ensure that all data needs are appropriately met. They are invited to all Technical Council meetings and encouraged to provide SHSP updates and share information with the Emphasis Area Teams, serving as liaisons and a bridge across the two major traffic safety plans in Maryland, the SHSP and TRSP.

Figure 1: Maryland's TRCC Structure
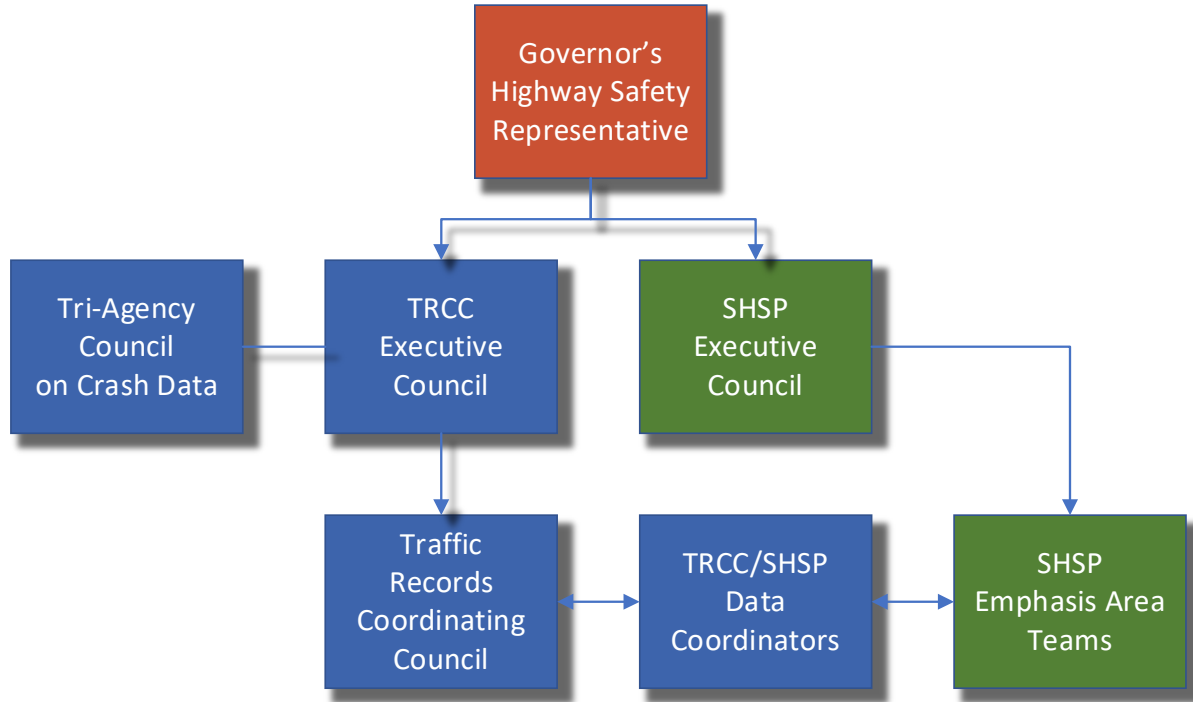
Members of Maryland's TRCC represent the six data systems and subsystems critical to the collection, management, and analysis of traffic safety data. Outlined in Table 1 are the executive partners that oversee and represent Maryland's traffic records system components.

Table 1: Maryland's Traffic Records System and Executive Council Members

Data System	Icon	Agency(ies)
Crash		Maryland State Police MDOT State Highway Administration (SHA)
Citation/Adjudication		Maryland State Police (MSP) Maryland District Court
Driver		MDOT Motor Vehicle Administration (MVA)
Vehicle		MDOT Motor Vehicle Administration (MVA)
Roadway		MDOT State Highway Administration (SHA)
Injury Surveillance System • **pre-hospital emergency medical services (EMS)** • **trauma registry** • **emergency department**		Maryland Institute for Emergency Medical Services Systems (MIEMSS) Maryland Health Services Cost Review Commission (HSCRC) Maryland Department of Health (MDH)

• hospital discharge • mortality data		
Technical Systems (Overall Support)		Maryland Department of Information Technology (DoIT)
Policy and Management (e.g., Data Governance)		Maryland Department of Transportation (MDOT) – The Secretary's Office (TSO)
TRCC Management		MDOT MVA Highway Safety Office (MHSO)

Background

State highway safety programs rely on accurate, accessible, complete, integrated, uniform, and timely traffic records data to guide and support their efforts to reduce highway crashes, injuries, and fatalities. In the Safe, Accountable, Flexible and Efficient Transportation Equity Act (SAFETEA) of 2005, Congress recognized this need and provided grant funding to help states establish and maintain comprehensive safety data improvement programs.

This funding is continued under the Fixing America's Surface Transportation Act of 2015 (FAST Act) in the State Traffic Safety Information System Improvements Grant program (23 CFR § 1300.22). To qualify for funding for traffic records system improvements under the FAST Act, each State's designated highway safety office must submit a Traffic Records Strategic Plan (TRSP) to the United States Department of Transportation, National Highway Traffic Safety Administration (NHTSA).

The MDOT MVA Highway Safety Office manages the state's traffic records program and is coordinator for the statewide Traffic Records Coordinating Committee (TRCC), which oversees the development and implementation of the TRSP.

The 2021–2025 TRSP addresses each of the traffic records system components identified in NHTSA's *Traffic Records Program Assessment Advisory*, and identifies critical actions, performance measures, and resources needed (legislative, organizational, or budgetary) to efficiently and effectively reach the plan's goals. Recommendations for improvements identified in Maryland's 2019 NHTSA Traffic Records Program Assessment are incorporated so that Maryland's traffic records system will meet or exceed national ideals.

This plan builds on the *2011–2015 Traffic Records Strategic Plan* and the *2016–2020 Traffic Records Strategic Plan*.

2011–2015 TRSP

To develop 2011–2015 plan, the State conducted reviews of existing systems and programs. The results of these reviews helped to identify strengths of Maryland's traffic records system as well as to develop priorities for improvements.

In 2010, Maryland completed a Traffic Records Program Assessment in partnership with NHTSA. The Traffic Records Program Assessment is a technical assistance tool offered by NHTSA to state highway safety offices that uses nationally recognized experts to compare the state's traffic records program with a set of performance standards established by NHTSA and the Governors Highway Safety Association (GHSA).

Also in 2010, Maryland completed a Federal Highway Administration (FHWA) Crash Data Improvement Program (CDIP), an intensive evaluation of the crash data system that evaluates methods and technologies for collection, management, sharing, and analysis of crash data. The recommendations from both the Traffic Records Program Assessment and CDIP Reports were used to develop the objectives for the 2011–2015 TRSP.

2016–2020 TRSP

To assess progress toward the State's goals and to prepare for the 2016–2020 TRSP, a follow-up Traffic Records Program Assessment was completed in December 2014. Under federal regulations for traffic records funding (§405(c)), states must include all recommendations from the most recent Traffic Records Program Assessment in the TRSP. The Assessment-generated recommendations are broad and allow states to further refine goals. All recommendations from the 2014 Assessment are included and highlighted in each section below and used as examples in the Appendix.

The 2016–2020 TRSP was developed to align with the new Maryland SHSP (2016–2020). The alignment of the two major traffic safety plans further strengthened the collaboration and coordination between Maryland's traffic records data and traffic safety program communities. The process of developing strategies in both the TRSP and the SHSP were similar, and each SHSP Emphasis Area Team developed strategies with a vision and understanding of the need for data to carry out action steps and evaluate strategies. In parallel, the TRSP strategies were written in consideration of the end users, such as the Emphasis Area Team members, who need traffic safety data to implement and evaluate the success of the implemented strategies.

2021–2025 TRSP
With the adoption of the new plan, the 2016–2020 Plan is concluded. To continue to assess progress toward the State's goals and determine the priorities for the 2021–2025 TRSP, a Traffic Records Program Assessment was completed in September 2019.

Congress has recognized the benefit of independent peer reviews for State traffic records data systems. These assessments help States identify areas of high performance and areas in need of improvement in addition to fostering greater collaboration among data systems. To encourage States to undertake such reviews regularly, the Fixing America's Surface Transportation Act (FAST ACT) legislation requires States to conduct or update an assessment of its highway safety data and traffic records system every five years to qualify for §405(c) grant funding. The State's Governor's Representative for Highway Safety must certify that an appropriate assessment has been completed within five years of the application deadline.

2019 Traffic Records Assessment Results Summary
The Traffic Records Program Assessment is built upon the assessment completed five years ago. Since the 2014 assessment, Maryland has worked diligently in all areas of the traffic records system and was commended by NHTSA for the strides made toward improving traffic data systems and the plans for continued future improvements. Maryland was specifically commended regarding our efforts in data integration. Maryland's Traffic Records Program *meets the Advisory ideal* in this regard and should serve as a model for other States seeking to meet the Advisory ideal in this module.

Out of 328 assessment questions, Maryland met the Advisory ideal for 190 questions (58%), partially met the Advisory ideal for 67 questions (20%) and did not meet the Advisory ideal for 71 questions (22%).

Within each assessment module, Maryland met the ideal outlined in the Traffic Records Program Assessment Advisory 88% of the time for Traffic Records Coordinating Committee Management, 27% of the time for Strategic Planning, 60% of the time for Crash, 56% of the time for Vehicle, 71% of the time for Driver, 50% of the time for Roadway, 34% of the time for Citation and Adjudication, 61% of the time for EMS/Injury Surveillance, and 100% of the time for Data Use and Integration.

TRCC Strategic Planning Process

A Traffic Records Strategic Plan Steering Committee was formed in November 2019 to guide the development of the 2021–2025 TRSP. Members were strategically identified to ensure all components of the Maryland Traffic Safety Information System Improvement Program and data owners were represented in the planning process.

Maryland's plan:
- (i) specifies how existing challenges in the State's highway safety data and traffic records system were identified;
- (ii) prioritizes, based on the identified highway safety data and traffic records system deficiencies, the highway safety data and traffic records system needs and goals of the State;
- (iii) identifies performance-based measures to evaluate progress toward those goals;
- (iv) specifies how the §405(c) grant funds and any other funds of the State will be used to address needs and goals identified in the multiyear plan; and
- (v) includes a current report on the progress in implementing the multiyear plan that documents progress toward the specified goals.

The Traffic Records Strategic Plan Steering Committee used several different processes to develop the 2016–2020 TRSP to ensure the requirements defined by Congress and established by NHTSA were met. During the strategic development sessions, ground rules were established and an overarching review plan established. A formal consensus-building technique (Nominal Group Technique) was used by the steering committee to develop specific procedures for the review of each section of the system components. The technique included:

1. Generating ideas – Silent individual thought and notes.
2. Recording ideas – Round-robin sharing/brainstorming of ideas for recording without discussion or debate.
3. Discussing ideas – Open discussion to express understanding, logic, importance.
4. Voting on ideas – Individual voting of top five: most important ranking five, least important rank one.
5. Finalizing the list – Decide if additional rounds of voting were needed to expand or finalize the recommended list.

A set of constructs for each section of the plan were shared for discussion and consideration, including idealistic objectives, recommendations and considerations from Maryland's 2014 Traffic Records Program Assessment, and a set of objectives that had been included and were part of the most recent strategic plan.

The Steering Committee then shared a set of proposed strategies with the full Traffic Records Coordinating Committee membership. These members then reached consensus using the Delphi Technique where each member prioritized Maryland's strategies and submitted votes for tally. A final prioritized list was generated and the resulting sections were presented to both the Technical and Executive Councils for formal acceptance. The resulting work and formal components of the Traffic Safety Information System are outlined in the included sections: TRCC Management, Data Use and Integration, Crash, Vehicle, Driver, Roadway, Citation and Adjudication, and Injury Surveillance Systems.

TRSP Organization

Each section of the TRSP includes a description of the area, target audience, and a list of strategies prioritized by the members of Maryland's Traffic Records community.

The TRCC is responsible for implementing the plan and tracking progress toward these goals. The TRCC will:
- Prioritize traffic records improvement projects with TRCC members annually.
- Identify and leverage an annual minimum of one federal fund/assistance program.
- Identify and incorporate two strategies annually that address the timeliness, accuracy, completeness, uniformity, integration, or accessibility of the six core data systems.
- Prioritize the use of all funds to address efforts identified in the strategic plan to enhance state traffic records data improvement systems.
- Ensure federally allocated funds are spent in an efficient and effective manner.
- Develop a process to examine data and data systems to identify and document challenges.
- Identify, prioritize, and implement at least one annual training effort to improve the State traffic records data system and provide technical assistance as needed to partners.
- Identify and prioritize performance-based measures and corresponding metrics for the six core data systems annually.
- Identify and integrate state and local needs and assets through an annual survey.
- Identify and prioritize technological advancements to improve the State traffic records data systems.

Traffic Records Program Assessment—NHTSA Recommendations
To continue to assess progress toward the State's goals and determine the priorities for the 2021–2025 TRSP, a follow-up Traffic Records Program Assessment was completed in September 2019. Under federal regulations for traffic records funding (405(c)), states must include all recommendations from the most recent Traffic Records Program Assessment in the TRSP.

The Maryland 2021–2025 TRSP incorporates recommendations and considerations from the 2019 NHTSA Assessment, from FHWA's Maryland State Roadway Safety Data Capability Assessment Action Plan (January 2019), and from the TRCC Technical and Executive Councils, and the 2021-2025 TRSP must be ratified for submission to NHTSA by July 1, 2020.

TRCC Recommendation
➢ None.
Strategic Planning Recommendation
➢ None.
Crash Recommendations
➢ Improve the data quality control program for the Crash data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.
➢ Improve the interfaces with the Crash data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.
Vehicle Recommendations
➢ Improve the data quality control program for the Vehicle data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.
➢ Improve the interfaces with the Vehicle data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.
Driver Recommendations

- ➢ Improve the data quality control program for the Driver data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.
- ➢ Improve the interfaces with the Driver data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.

Roadway Recommendations
- ➢ Improve the applicable guidelines for the Roadway data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.
- ➢ Improve the data quality control program for the Roadway data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.

Citation /Adjudication Recommendations
- ➢ Improve the data quality control program for the Citation and Adjudication systems to reflect best practices identified in the Traffic Records Program Assessment Advisory.
- ➢ Improve the interfaces with the Citation and Adjudication systems to reflect best practices identified in the Traffic Records Program Assessment Advisory.

EMS/Injury Surveillance Recommendations
- ➢ Improve the data quality control program for the Injury Surveillance systems to reflect best practices identified in the Traffic Records Program Assessment Advisory.

Federal Inclusion Criteria

Throughout the five-year plan, the TRCC Program Manager is expected to provide NHTSA with regular updates on the progress of the State's plan. NHTSA Regional Program Managers are to be included during the planning and implementation processes to satisfy their interest in assuring that States are collecting the best data possible that in turn allows them to make appropriately informed decisions at the federal level.

Additionally, paramount to Maryland's Traffic Records Strategic Plan during the five-year cycle is the consideration, support, and guidance from other federal partners (e.g., legislative, organizational, budgetary, or other) in improving the state safety data initiatives. The Appendix has additional detail on ways the State has and may continue to pursue the possibility of receiving federal safety program funds.

Monitoring and Updating the Strategic Plan

The Traffic Records Strategic Plan is developed with a five-year vision and goal-setting process. The plan will remain in place for five years before undergoing a complete re-evaluation and revision. However, progress for each strategy and Assessment recommendation will be monitored by the TRCC Technical Committee on a quarterly basis and evaluated on an annual basis to identify issues or note success. Once a strategy is complete, it will remain in the plan but effort and resources will be focused to another project in the plan as determined by the TRCC.

Traffic Records System Components and Strategies

The Advisory identifies three major sections of a state traffic records system:

1) Traffic Records System Management
   a) Traffic Records Coordinating Committee (TRCC)
   b) Strategic Planning

2) Data Use and Integration

3) Traffic Records System Components
   a) Crash Data
   b) Vehicle Data
   c) Driver Data
   d) Roadway Data
   e) Citation and Adjudication
   f) Injury Surveillance
      i) Pre-hospital (EMS)
      ii) Trauma Registry
      iii) Emergency Department
      iv) Hospital Inpatient
      v) Vital Records

Traffic Records System Management (TRCC and Strategic Planning)
Description
The Traffic Records Coordinating Committee coordinates all traffic records system components (crash, roadway, citation/adjudication, driver, vehicle, injury surveillance) using data quality performance measures (timeliness, completeness, accuracy, accessibility, integration, uniformity) to advance the Maryland traffic safety community in achieving the vision of no traffic-related deaths.

Target Customers
TRCC Council Chairs and Facilitator

Prioritized Strategies
1. Conduct and publish a complete traffic records system inventory with data definitions, flow diagrams for each component system, a brief description of each data system and set, to include who owns the data and contact information, any limitation on the use of the data, and for what the data system is best used.
2. Prioritize strategic plan responsibilities using annual timelines.
3. Catalog and publish data release policies and/or data sharing agreements from all partners with traffic records data, specifically identifying rules that allow intra- and inter-agency access, and public access.
4. Review and prioritize federal data element requirements—Model Minimum Uniform Crash Criteria Guideline (MMUCC), National Emergency Medical Services (EMS) Information System (NEMSIS), and Model Inventory of Roadway Elements (MIRE)—to enhance State traffic records data improvement systems.
5. Institutionalize the evaluation of TRCC responsibilities:
   a. Monitor annual progress of the TRCC strategic plan.

      b.   Track agency policy decisions that impact the State's traffic records system.

      c.   Document progress through Council Meeting agendas/minutes.

6. Improve performance measure monitoring and oversight at the TRCC. Assign responsibility to performance measure owners for reporting to the membership at each meeting.
7. Establish regular quality control reporting and enhance the review of technical and training needs of traffic records system end users, expanding to a wider range of stakeholders and end-user needs.
8. Ensure the annual addenda to the five-year plan are robust and detailed enough to meet the federal grant reporting requirements and provide the State with the necessary oversight and monitoring of its traffic records system progress.
9. Improve performance measures contained within the Strategic Plan by adding meaningful goals and baselines in addition to establishing quarterly monitoring at the TRCC.

Data Use and Integration
Description
Data integration refers to the establishment of connections between the six major traffic records system components (crash, vehicle, driver, roadway, citation and adjudication, and injury surveillance). Integrated datasets enable users to:

- conduct analyses and generate insights impossible to achieve if based solely on the contents of any singular data system;
- add detail to the understanding of each crash event, the roadway environment, and the people and vehicles involved; and
- efficiently expand the information available to decision-makers while avoiding the expense, delay, and redundancy associated with collecting the same information separately.

Benefits of Integrated Data
1. Lower costs to achieve a desired level of data content and availability.
2. Support for multiple perspectives in data analysis and decision-making.
3. Expanded opportunities for data quality validation and error correction.
4. Additional options for exposure data to form rates and ratio-based comparisons.
5. Enhanced accuracy and completeness of data describing crash events, the roadway environment, and the involved people and vehicles.
6. Increased relevance of information available for legislative and policy analysis.
7. Increased support for advanced methods of problem identification, countermeasure selection, and evaluation of program effectiveness.

Target Customers
Data analysts (end users), policymakers, and general public

Prioritized Strategies
1. Implement data governance guidelines for data release and availability.
2. Provide ongoing access to traffic records data and analytic resources for problem identification, priority setting, and program evaluation with analytical partner support.
3. Integrate data from traffic records system components to satisfy specific analytical inquiries.
4. Provide timely access to data analyses and interpretation upon request.
5. Make outputs from state data linkage systems available to state and local decision-makers to influence data-driven policy and reform.
6. Make outputs from state data linkage systems available to the general public.

7. Make integrated data outputs from data linkage systems available for research abiding by data security agreements.
8. Provide training sessions, presentations, webinars, and technical support to partners on all products and services provided by analysis resources (e.g., grant-funded university- or college-based analysts) in addition to GIS techniques and processes for traffic safety related datasets.

Crash Data
Description
The crash data system is the keystone of a state's traffic records system. The crash data not only hold the basic information critical to developing and deploying effective traffic safety countermeasures, but they also serve as the hub through which other systems are connected.

The crash file documents the characteristics of a motor vehicle crash and provides the following details about each incident:
- <u>Who</u>: Information about the drivers, occupants, and non-motorists involved in a crash (e.g., license status, age, sex).
- <u>What</u>: Information about the type of vehicle involved in a crash (e.g., make, model, body type, vehicle registration).
- <u>When</u>: Information detailing the time a crash occurred (e.g., time of day, day of week).
- <u>Where</u>: Information about the crash location (e.g., location name, lat/long coordinates, type, attributes).
- <u>How</u>: Information describing the sequence of events and circumstances related to a crash from the first harmful event through the end of a crash and its consequences (e.g., damage, injury).
- <u>Why</u>: Information about the interaction of various systems that may have contributed to the crash occurrence (e.g., weather, light conditions, driver actions, non-motorist actions) and/or the crash severity.

Through data linkages, the crash data assist in the identification of types of roadways, vehicles, and individuals involved in a crash. Crash data are also used to guide engineering and constructions projects, prioritize law enforcement activity, select/evaluate safety countermeasures, and to analyze emergency response and how to maximize the level of care, survivability, and analysis of related injuries.

Target Customers
Data users, owners, executives in traffic records-related agencies

Prioritized Strategies
1. Provide a narrative description of the process by which the Model Minimum Uniform Crash Criteria Guideline (MMUCC) was used to identify what crash data elements and attributes are included in the crash database and police crash report.
2. Develop and release documentation on changes made to the Automated Crash Reporting System (ACRS) and related databases based on the latest MMUCC recommendations, and MSP and TRCC input.
3. Convert reporting systems and reports to account for changes in fields, codes, and definitions in ACRS.
4. Develop and maintain a data dictionary that includes American National Standards Institute (ANSI) D-16 and ANSI D-20 definitions, which include rules of use, rules exceptions, and identify those data elements that are populated through linkages to other traffic records system components.

5. Develop and maintain a comprehensive data quality management protocol to monitor collection, submission, processing, posting, and maintenance of crash data.
6. Define and provide a list of data elements for property-damage-only (PDO) crash submission criteria for the statewide crash system and implement a short-form crash report for minor PDO crashes
7. Define and provide a list of data elements that are populated in the crash system through linkages to other traffic records system components (e.g., the driver file, the vehicle file, the roadway inventory, or Statewide mapping system). (MMUCC mapping).
8. Develop crash data system performance measures and monitor at least annually.
9. Provide feedback to law enforcement agencies regarding incomplete and inaccurate data submitted through ACRS.
10. Develop a comprehensive crash data reporting training program with an emphasis on crash data completeness and accuracy.
11. Improve the interface between the crash and roadway data systems, ensuring MSP and law enforcement agencies have the most up-to-date roadway files from MDOT SHA.
12. Establish policy and procedures for the timely submission of crash reports from local law enforcement agencies to MSP through the ACRS system.
13. Incorporate federal agency crash reports into the state system (e.g., National Park Police).
14. Link crash data with EMS records to help integrate crash with Trauma Registry, Hospital, and Vital Records.
15. Develop improved data visualization tools used to access the crash data.

Driver and Vehicle Data
Description
Driver: The driver data system ensures that each person licensed to drive has one identity, one license to drive, and one record. The driver file maintains information on all out-of-state or unlicensed drivers convicted of traffic violations within state boundaries.

Vehicle: The vehicle data system is an inventory of titling and registration data for each vehicle under the State's jurisdiction. The inventory ensures that a descriptive record is maintained and made accessible for each vehicle and vehicle owner operating on public roadways.

Target Customers
Law enforcement, driver and vehicle data managers/collectors, driver safety program managers and researchers, Commercial Driver License (CDL) employers, federal agencies, judicial system

Prioritized Strategies
1. Implement MDOT MVA Customer Connect system modernization to unify core MDOT MVA business systems to enable premier customer service, enhanced safety and security and improve driver and vehicle data quality.
   o Implement real-time National Motor Vehicle Title Information System (NMVTIS) checks for all vehicle titling transactions.
   o Capture novice drivers' training histories, drivers' traffic violations, driver improvement training histories, and original dates of issuance for all permits, licenses, and endorsements in the driver system.
2. Continue participation in the Performance and Registration Information Systems Management (PRISM) program.

3. Continue participation in the State-to-State verification service in all driver license transactions and develop performance measures to monitor system performance and compliance with program standards.
4. Evaluate the feasibility of including Blood Alcohol Concentration (BAC) information on the driving record either by interface with external data systems or by manual process, including resources required to implement this action in a reasonable timeframe.
5. Develop quality management systems that list performance measures for timeliness, accuracy, completeness, uniformity, accessibility, and integration.
6. Maintain an updated data dictionary for the driver and vehicle systems and provide updates to Maryland's traffic records inventory.
7. Develop performance measures to ensure that critical and essential administrative actions are being added to driving records accurately and within expected timeframes.
8. Maintain updated data processing flow diagrams for critical driver and vehicle transactions that detail data inputs, validation steps, interfaces with external data systems, and time necessary to complete each element of the transaction.
9. Enhance interfaces between the driver and vehicle systems with other components of the traffic records system.
10. Develop performance measures for vehicle systems and report regularly to the TRCC.
11. Develop and adopt a comprehensive data management program for the driver system that includes the development of performance standards for data accuracy, completeness, uniformity, accessibility, and integration.
12. Increase capability to monitor impaired driving offenders through driver system interfaces and integration with other data systems to ensure that offenders are properly identified and that subsequent license sanctions, conviction information, and follow-up activities are completed and recorded on the driver history.
13. Develop and provide driver and vehicle system data quality management reports to the TRCC for regular review and ensure driver and vehicle system managers participate in TRCC meetings.

Roadway Data
Description
The State's roadway data system comprises data collected by the State, such as State-maintained roadways and some local roadways, as well as data from local sources, such as county and municipal public works agencies and Metropolitan Planning Organizations (MPOs).

Target Customers
Traffic engineers, MDOT SHA – OHD (Office of Highway Design) (Highway Safety Manual - HSM) and DSED (Data Services Engineering Division), data users (reporting systems needing GPS info – MSP crash)

Prioritized Strategies
1. Maintain process flow diagrams and written narrative details that outline data submission, returning and resubmission requirements and local agency procedures, in the traffic records inventory.
2. Improve the data quality control program for the roadway data system to reflect best practices identified in the Traffic Records Program Assessment Advisory and the Roadway Safety Data Capability Assessment (RSDC).

- Assist the roadway system custodian with developing quality management systems that list performance measures for timeliness, accuracy, completeness, uniformity, accessibility, and integration.
- Reduce the frequency of missing or blank data fields on State-maintained roadways in the inventory to less than 5%.
- Pursue high level of detail on all segments as well as either intersections or curves on State-maintained roadways.
3. Maintain a data dictionary for the roadway system, incorporating the Model Inventory of Roadway Elements (MIRE) elements and include this detail as part of the traffic records inventory.
4. Improve the State roadway system to meet federal guidelines itemized in All Roads Network of Linear-Referenced Data (ARNOLD).
    - Capture all public roadways using a compatible uniform location referencing system in the roadway system by collaborating with county partners) to eliminate redundancy.
    - Maintain an enterprise roadway information system.
    - Maintain interfaces between roadway information systems.
    - Expand the Model Inventory of Roadway Elements (MIRE) data elements collected to improve analyses to develop and track potential countermeasures and identification of safety problems.
5. Develop and maintain interfaces between the roadway information systems and the other components of the traffic records system.
6. Incorporate specific, quantifiable, and measurable improvements for the collection of MIRE fundamental data elements (FDE) to ensure access to a complete collection of the MIRE FDEs of all public roads by September 30, 2026.
    - Evaluate the status of MIRE FDE collection efforts, including fundamental data elements currently maintained or not maintained in the roadway inventory as well as the public roads for which the FDEs are collected.
    - Document the appropriate data collection methodology.
    - Coordinate with other Maryland agencies at the state and local level.
    - Develop prioritization criteria for collecting MIRE FDEs on all public roads.

Additional Strategies Based on Recommendations from FHWA's RSDC Assessment:

1. Continue with the One Maryland One Centerline (OMOC) project that facilitates the complete inventory for all roadway elements.
2. Continue with the ESRI Roads and Highways implementation.
3. Continue data collection efforts for the safety data items—Bicycle/Pedestrian, Lighting, Work Zone, Structural Maintenance Zone Classification, and Guard Rails.
4. Develop a standardized set of performance measures that are reported more frequently for data managers, collectors, and data users.
5. Reduce the amount of time required for submission of as-built plans and/or for updating the database to achieve a goal of 1-3 months from completion of the roadway change. Roadway segment, traffic volume, intersection, interchange, ramp data are all on annual cycles with a typical time lapse of one year.
6. Continue the development of the change management model to help with tracking changes to the State roadway file.
7. Continue the OMOC project to move closer to 100% accuracy in the inventory. The State currently maintains a high level of accuracy (upwards 90%).

8. Provide feedback to law enforcement agencies on crash reporting to allow the State to identify fields that require better validation edits which will help collect better data on input.
9. Adopt more reliable methods for network screening. Traditional methods are prone to error and require similar levels of data as the more reliable methods. The level of analytic capabilities required to adopt more reliable methods is higher than for traditional methods, but the payoff in improved validity leads to the identification of sites with more potential for safety improvement.
10. Attempt to obtain crash data from federal parks and military installations.
11. Continue to develop asset inventories of interest.
12. Ensure the data are accessible to all potential users (not siloed), from an asset management perspective.
13. Develop and implement Agile Assets or another similar inventory tool would be useful to support this need for all public roads.
14. Develop a complete inventory and safety-project tracking mechanism for all public roads.
15. Ensure that the needs of new/infrequent users are addressed by agency policies and procedures. The State iMap address most needs for data accessibility. However, there is an opportunity to allow for electronic exchanges to provide data to users on a regular interval.
16. Continue the development of data documentation with the OMOC project. The State does have data dictionaries available. This could be expanded to guidance on data quality (where applicable).
17. Incorporate user satisfaction surveys as a potential measure of accessibility.
18. Draft policies that address the challenges in the data management policy.
19. Empanel a data governance group (e.g., asset management committee) charged with developing data governance processes.
20. Develop a Data Business Plan for managing core data programs in each agency/division.
21. Publish a Data Governance manual/handbook.
22. Establish formal policies for approval of all new data management initiatives.
23. Review policies, standards, goals, and targets periodically to ensure that user' needs are addressed sufficiently and that the state's standards evolve in response to changing needs.
24. Identify new opportunities to integrate datasets, e.g., obtain the bicycle and scooter crash data from local agencies and continue to encourage use of integrated data in safety analysis.
25. Continue with the development of the OMOC project to move towards a fully integrated statewide enterprise system for safety analysis of all public roads.
26. Continue improvements to the automated assignment of crash data locations, e.g., consider making manual adjustments to crashes beyond fatal crash reports.
27. Continue to develop and complete initiatives to identify and address essential safety data gaps and periodically assess and refine data quality improvement processes.
28. Enhance coordination efforts for safety performance with MPOs and other stakeholders within the State by:
    o Apply the evidence-based approach across multiple planning cycles. Conduct periodic reviews and refine the process and targets as needed.
    o Develop practices to strengthen performance-based planning and programming decisions.
29. Continue to expand capabilities to predict the impact of planned and programmed Highway Safety Improvement (HSIP) projects on future safety performance.
30. Develop scenario analysis capability that supports testing of various project mixes and assumptions.

31. Expand the capability to access and review pertinent data on external factors likely to impact future safety performance, including but not limited to socioeconomic data (population, demographics, jobs, etc.), vehicle miles traveled (VMT), revenues.
32. Refine the capability to predict the impact of planned and all programmed TIP and/or TIP projects (other than those in the HSIP) on future safety performance.
33. Develop the advanced scenario analysis capability with the ability to estimate future safety performance for different sets of projects, program elements, and varying assumptions about external factors.

Citation and Adjudication Data
Description
For traffic records purposes, the goal of the citation and adjudication data systems is to collect all information relevant to traffic-related citations in a central, statewide repository (and linked to appropriate federal data systems) so the information can be analyzed by authorized users to improve and promote traffic safety.

Target Customers
Law enforcement, driver licensing system, Court system to include Drug and DUI Courts, MDOT SHA

Prioritized Strategies
1. Implement a citation tracking system (from issuance to disposition).
    o Include violations issued to commercial drivers/vehicles in the tracking system and make that information available to administrative stakeholders.
    o Support Federal Motor Carrier Safety Administration (FMCSA) requirements for recording, reporting and adjudicating of CDL violations and licensing status, to include medical certification and appropriate endorsements
    o Support the interfaces to connect needed data from the court system, driver licensing, crash, and large trucks/commercial vehicles with the other components of the traffic records system.
    o Include BAC results on the driver history.
2. Maintain and improve the data dictionaries for the Citation and Adjudication systems to reflect best practices identified in the Traffic Records Program Assessment Advisory.
3. Maintain the abilities to track DUI citations, administrative driver penalties and sanctions, juvenile offenders, court payments and appearances, deferral and dismissal of citations, record purging, and data governance.
4. Develop quality management systems that list performance measures for timeliness, accuracy, completeness, uniformity, accessibility, and integration.
5. Establish an effective process to ensure paper citations are submitted to the District Court accurately and within expected timeframes by law enforcement.
6. Expand the use of the State's e-citation system to all eligible state law enforcement agencies and officers and to federal partners.
7. Maintain process flow diagrams and written narrative details that outline data submission, returning and resubmission requirements for the citation/adjudication system, including all levels of courts, and include in traffic records inventory.
8. Expand the deployment and functionality of electronic citation capabilities as the standard for the State.

9. Improve the accuracy and collection of vehicle make, model, and violation location on traffic citations.
10. Expand the functionality of Delta Plus through the development of additional modules for collection and analysis of the data by members of the traffic records community.
11. Increase automation of updates to driver records from court adjudication data.
12. Enhance interfaces between Court, Citation, Crash, Vehicle and Driver data systems.

Injury Surveillance Data
Description
The injury surveillance data system tracks the frequency, severity, and nature of injuries sustained in motor vehicle crashes; enables the integration of injury data with the crash data; and makes this information available for analysis that supports research, prevention, problem identification, policy-level decision-making, efficient resource allocation, and program evaluation.

This section incorporates:
- pre-hospital emergency medical services (EMS);
- trauma registry;
- emergency department;
- hospital discharge; and
- mortality data (e.g., death certificates, medical examiner reports).

Target Customers
Traffic records community, Injury Surveillance System managers, Emergency Medical Services community

Prioritized Strategies
1. Maintain process flow diagrams, written narrative details that outline data submission, returning and resubmission requirements for each of the core injury surveillance systems (EMS, Emergency Department, Hospital Discharge, Trauma Registry, Vital Records), and data dictionaries, and include these items in the traffic records inventory.
2. Ensure injury surveillance system data are available for analytical purposes.
3. Assist each of the injury surveillance system components with developing quality management systems that list performance measures for timeliness, accuracy, completeness, uniformity, accessibility, and integration.
4. Develop training, data collection manuals, and validation rules addressing high frequency errors in each injury surveillance data system component.
5. Document and ensure quality control processes are in place to assess completeness, accuracy, timeliness, integration, accessibility, and uniformity for each of the core injury surveillance systems (EMS, Emergency Department, Hospital Discharge, Trauma Registry, and Vital Records). Update records at least once every three years.
6. Track documented findings from quality control methods and lists regarding completeness, accuracy, timeliness, integration, accessibility, and uniformity.
7. Develop corresponding training, data collection manuals, and validation rules addressing high frequency errors for each performance area.
8. Assist partnering agencies with implementation of quality assurance and improvement procedures for collecting, editing, error checking, and submitting reports.

Benchmarking and Goal Setting

To follow Maryland's Traffic Records logic model, outputs (short-term and intermediate outcomes) for the six traffic records attributes (accessibility, accuracy, completeness, integration, uniformity, timeliness) will be established and tracked annually. These measures serve as benchmarks against which Maryland can track performance and current status of each system component.

Maryland strives to identify performance measures and performance attributes for each traffic records system component. Included measures will be assessed on a yearly basis using accepted best practice standards. A yearly summary of progress will be included as an addendum to this plan.

Prioritization Process

Projects overseen by the TRCC, especially those receiving federal grant funding, will be prioritized using a points system and Four Box Analysis process.

Points for each project are to be assigned using the following questions:
1. How difficult is the project in terms of infrastructure, territorial, and policy issues?
2. How significant will the project impact the traffic record system if successful?
3. How expensive will the project be? (a weighted cost x reliability of estimate maybe appropriate)
4. Are improvements to one system necessary in order to better another?

Table 2: Four Box Analysis

High Payoff – Low Risk or Cost Good Opportunity High Priority	High Payoff – High Risk or Cost Moderate Opportunity Middle Priority
Low Payoff – Low Risk or Cost Moderate Opportunity Middle Priority	Low Payoff – High Risk or Cost Poor Opportunity Low Priority

Projects will be monitored throughout the year and tracked accordingly.

Implementation Process

Strategies in the TRSP will be monitored during TRCC Technical Council meetings, TRCC Executive Committee Meetings, and annually in a progress performance report. Appropriate action steps and related projects will be tracked annually and reported in the Highway Safety Plan. Performance measures will be developed and tracked annually by the TRCC and included in the Highway Safety Plan.

Appendices

Appendix 1: Maryland Traffic Records Strategic Planning Steering Committee
Appendix 2: Federal Partners: Supporting Resources
Appendix 3: Update to 2014 Traffic Records Assessment Recommendations
Appendix 4: Update to 2019 Traffic Records Assessment Recommendations
Appendix 5: Performance Measures
Appendix 6: MIRE FDE
Appendix 7: Maryland's Traffic Safety Information System Improvement Program (FFY2025)
Appendix 8: Performance Measures Progress Calculations
Appendix 9: Emergency Medical Systems (EMS) and Trauma Registry Performance Measures
Appendix 10: Funding Sources

Appendix 1: Maryland Traffic Records Strategic Planning Steering Committee
A special thanks to the dedicated members of Maryland's Traffic Records Strategic Planning Steering Committee. With their commitment to the Maryland Traffic Records System, we are pleased to present the Maryland Strategic Plan.

David Balthis, Maryland Institute for Emergency Medical Services Systems
Brian Browne, District Court of Maryland
Jason Cantera, Maryland Institute for Emergency Medical Services Systems
First Sergeant Christopher Corea, Maryland State Police
Oscar Ibarra, Maryland Health Services Cost Review Commission
Dr. Timothy Kerns, MDOT MVA Highway Safety Office
Georgette Lavetsky, MHS, Maryland Department of Health (MDH)
Sean Lynn, Washington College GIS Program
Freemont Magee, Maryland Institute for Emergency Medical Services Systems
Carole Mays, Maryland Institute for Emergency Medical Services Systems
Peter Moe, MDOT Motor Vehicle Administration
John New, Maryland Institute for Emergency Medical Services Systems
Michel Sheffer, MDOT State Highway Administration
Monique Wilson, MDH Vital Statistics Administration

Steering Committee Facilitator
Kimberly Auman, University of Maryland Baltimore, National Study Center for Trauma & EMS

State Traffic Records Coordinator
Douglas Mowbray, MDOT MVA Highway Safety Office

Appendix 2: Federal Partners: Supporting Resources

Type of Assessment or Analysis	Responsible Federal Partner	Description	Date Last Completed
		Federal Partners: Supporting Resources	
Traffic Records Assessment	National Highway Traffic Safety Administration	Peer evaluations of state traffic records system capabilities. A report out includes ratings, recommendations, and considerations that the state may consider in working to improve their traffic records system.	September 2019; *In Progress (June-September 2024)*
Drivers Education Assessment	National Highway Traffic Safety Administration	Serves to guide all novice teen driver education and training programs in states striving to provide quality, consistent driver education and training.	August 2010
Impaired Driving Program Assessment	National Highway Traffic Safety Administration	A mechanism to assess the impaired-driving problem in the state, document the existing system, recommend improvements, and garner both political and public support to fund and implement improvements.	TIRF, Spring 2021; Spring/Summer 2023
Occupant Protection Program Assessment	National Highway Traffic Safety Administration	This assessment is to help states in a review of the occupant protection programs and to offer suggestions for improvement.	January 2020
Crash Data Improvement Program (CDIP)	Federal Highway Administration	CDIP is intended to provide states with a means to measure the quality of the information within their crash database. Originally, CDIP was established to help familiarize the collectors, processors, maintainers, and users with the concepts of data quality and how quality data helps to improve safety decisions.	July 2010
Roadway Data Improvement Program (RDIP)	Federal Highway Administration	RDIP is to help transportation agencies improve the quality of their roadway data to support safety initiatives. It provides traffic safety professionals a tool to assist them in identifying, defining, measuring, and ultimately improving the quality of the data within their roadway databases.	N/A
Roadway Safety Data Capability Assessment (RSDP)	Federal Highway Administration	RSDP is a collaborative effort between FHWA and states to develop robust, data-driven safety capabilities. RSDP includes a variety of projects aimed at improving the collection, analysis, management, and expansion of roadway data for use in safety programs and decision-making. FHWA uses information gathered from the states to identify common themes and	April 2012; January 2019

		critical gaps to develop a national gap analysis and action plan.	
Motor Carrier Safety Assistance Program	Federal Motor Carrier Safety Administration	Grants to improve the crash and inspection upload accuracy for Commercial Motor Vehicle Crashes in the State of Maryland in support of the Compliance Safety and Accountability (CSA) safety rating.	Ongoing (Consultant on staff with SHA Motor Carrier Division)
Highway Performance Monitoring System/All Roads Network of Linear Reference Data	Federal Highway Administration	Each state shall establish a safety data system covering all public roads, including non-State-owned public roads and roads on tribal land in the state in a geospatial manner. In other words, state highway agencies will have a geospatially enabled public roadway network or base map.	N/A
Go Teams	National Highway Traffic Safety Administration	Traffic Records GO Teams provide resources and assistance to state traffic records professionals as they work to better their traffic records data collection, management, and analysis capabilities. GO Teams are small groups of one to three subject matter experts designed to help states address traffic records issues.	Crash Data System Assistance, March-June 2021
Pedestrian and Bicycle Safety Program Assessment	National Highway Traffic Safety Administration	Examines significant components of a State's pedestrian safety program. Each State, in cooperation with its political subdivisions, should have a comprehensive pedestrian and bicycle program that educates and motivates its citizens to follow safe pedestrian and bicycle practices. A combination of legislation, regulations policy, enforcement, public information, education, incentives, and engineering is necessary to achieve significant, lasting improvements in pedestrian and bicycle crash rates, and to reduce resulting deaths and injuries.	April/May 2022

Appendix 3: Update to 2014 Traffic Records Assessment Recommendations

Note: Included for historical purposes. All recommendation updates will be based on the 2019 Assessment.

	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 TRCC's abilities for strategic planning that reflect best practices identified in the Traffic Records Program Assessment Advisory.				✔			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.				✔			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.				✔			Informal discussions have happened to develop a crash and EMS interface, 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.				✔			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, 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.			✔				The MDOT MVA Customer Connect system modernization, set to deploy in 2020, incorporates many systems improvements related to vehicle transactions.

REC LABEL	RECOMMENDATION	Not Addressed	No Progress	Pending Action	Some Progress	Significant Progress	Complete	Notes
Vehicle2	Improve the data quality control program for the Vehicle data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.			✔				MDOT MVA has established an Office of Data Management to support initiatives to implement a comprehensive vehicle data quality monitoring system.
Driver1	Improve the description and contents of the Driver data system that reflect best practices identified in the Traffic Records Program Assessment Advisory.			✔				As a part of the driver data system element of the Customer Connect system modernization, new system documentation is being developed consistent with best practices.
Driver2	Improve the data quality control program for the Driver data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.			✔				MDOT MVA has established an Office of Data Management to support initiatives to implement a comprehensive driver data quality monitoring system.
Roadway1	Improve the procedures/process flows for the Roadway data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.					✔		As the Maryland Centerline project is finalized, documentation of the procedures and processes are being developed. Maryland completed a Roadway Safety Data Capability 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.					✔		Through the Maryland Centerline project, quality control mechanisms are being implemented for all roadway data.

REC LABEL	RECOMMENDATION	Not Addressed	No Progress	Pending Action	Some Progress	Significant Progress	Complete	Notes
Citation1	Improve the data dictionary for the Citation and Adjudication systems that reflects best practices identified in the Traffic Records Program Assessment Advisory.				✔			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.
Citation2	Improve the interfaces with the Citation and Adjudication systems that reflect best practices identified in the Traffic Records Program Assessment Advisory.				✔			The court system is in the final phases of a comprehensive upgrade MDEC to bring all levels of court onto the same data platform.
ISS1	Improve the interfaces with the Injury Surveillance systems that reflect best practices identified in the Traffic Records Program Assessment Advisory.					✔		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.					✔		All 24 jurisdictions in Maryland are on the electronic Maryland EMS Data System (eMEDS)platform so all EMS data undergo the same quality control program within that software.

2014 Assessment Recommendations

	Number	%
Not addressed	0	0%
No progress	0	0%
Pending Action	4	29%
Some Progress	6	43%
Significant Progress	4	29%
Complete	0	0%
Total	14	100%

June 5, 2019 status

Appendix 4: Update to 2019 Traffic Records Assessment Recommendations (FFY2025 HSP Annual Application Submission)

REC LABEL	RECOMMENDATION	Not Addressed	No Progress	Pending Action	Some Progress	Significant Progress	Complete	Notes
	MARYLAND TRAFFIC RECORDS ASSESSMENT RECOMMENDATIONS September 2019							
Crash1	Improve the data quality control program for the Crash data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.					✔		MDSP Central Records Division (CRD) continues to provide feedback to local law enforcement agencies on issues with reporting elements such as off-road and missing BAC. MDSP upgraded ACRS to a new 2.0 version with recommendations from the TRCC and MMUCC 5 and launched to all law enforcement on January 1, 2024. Significant changes to fields and attributes will benefit the quality of the data. The relaunch of the Fatal Crash Dashboard presented more opportunities for examining the quality of the crash data and developing recommendations for improvements. The inclusion of United States Park Police fatal crash records in the MSP Data Warehouse has been a significant QC-focused effort.
Crash2	Improve the interfaces with the Crash data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.					✔		MDSP and SHA updated ACRS with the most recent roadway inventory information which has improved location information and the ability to integrate other roadway attributes into the crash database. MHSO and MDSP worked on an application and submitted to NHTSA for the SEDC grant, identifying several opportunities to improve the data with integrations from other traffic records systems in the MDSP data warehouse.

Vehicle1	Improve the data quality control program for the Vehicle data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.					✔		MDOT MVA continually looks for ways to improve data quality to best report on vehicle information from its enterprise data system, Customer Connect. In FY2024, the Office of Data Management (ODM) hired a Data Quality Manager that will lead the effort to introduce a formal Data Quality program at the MVA. The goal of the program is to identify opportunities to enhance data quality and develop performance measures to help target specific areas for improvement. In addition, the ODM is partnering with Maryland Department of Information Technology (DoIT) to initiate quarterly address reviews to maintain reliable vehicle ownership address data. Additionally, to facilitate the implementation of newly enacted vehicle registration legislation, MVA updated roughly 7 million vehicle records. In this period, MVA transitioned to the PowerBI business intelligence platform to identify opportunities to improve the timeliness and accuracy vehicle-related transactions, and to track the accessibility of vehicle transactions for customers through alternative services, such as on the MyMVA internet interface or by standalone kiosks. Performance measures are reviewed monthly by Administration leadership to continue to drive continuous improvement.
Vehicle2	Improve the interfaces with the Vehicle data system to reflect best					✔		MDOT MVA continues to refine and improve its unified enterprise system for driver and vehicle records, Customer

REC LABEL	RECOMMENDATION	Not Addressed	No Progress	Pending Action	Some Progress	Significant Progress	Complete	Notes
	practices identified in the Traffic Records Program Assessment Advisory.							Connect, including interface data exchanges with external partners through web services, with licensed dealers and other businesses via specific web portals, and with public customers through enhancements to the MyMVA internet interface. MDOT MVA implemented a platform update, Core21, to facilitate further interface improvements. Core21 enhanced the 360-degree view of customer account data, including both driver and vehicle information. Weekly change bulletins are distributed to all staff highlighting enhancements and corrections to internal and external vehicle system interfaces.
Driver1	Improve the data quality control program for the Driver data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.					✔		In FY2024, the Office of Data Management (ODM) hired a Data Quality Manager that will lead the effort to introduce a formal Data Quality program at the MVA. The goal of the program is to identify opportunities to enhance data quality and develop performance measures to help target specific areas for improvement. MDOT MVA monitors data quality through AAMVA CDLIS and SPEX data quality reporting with specific performance standards for timeliness and accuracy. MDOT MVA also transitioned to the PowerBI business intelligence platform to measure and improve the timeliness and accuracy driver-related transactions, and to track

								the accessibility of driver transactions for customers through alternative services, such as on the MyMVA internet interface or by standalone kiosks. Performance measures are reviewed monthly by Administration leadership to continue to drive continuous improvement. Updates on these performance measures are also discussed during quarterly meetings of the TRCC Technical Council.
Driver2	Improve the interfaces with the Driver data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.					✔		MDOT MVA continues to refine and improve its unified enterprise system for driver and vehicle records, Customer Connect, including interface data exchanges related to driver records with external partners through web services, with businesses and medical professionals via specific web portals, and with public customers through enhancements to the MyMVA internet interface. MDOT MVA implemented a platform update, Core21, to facilitate further interface improvements. Core21 enhanced the 360-degree view of the customer account data, including both driver and vehicle information. Weekly change bulletins are distributed to all staff highlighting enhancements and corrections to internal and external driver system interfaces.
Roadway1	Improve the applicable guidelines for the Roadway data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.					✔		MDOT SHA continues to support an ArcGIS Hub Portal for distribution of roadway datasets, and is accessible here: https://data-maryland.opendata.arcgis.com/pages/mdot

REC LABEL	RECOMMENDATION	Not Addressed	No Progress	Pending Action	Some Progress	Significant Progress	Complete	Notes
Roadway2	Improve the data quality control program for the Roadway data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.					✔		MDOT SHA continues to improve QC processes and is working to ensure the roadway files are accessible and useful. SHA are doing quarterly centerline conflations with county NG911 data and adding MIRE attribution. With Esri Roads and Highways OMOC their data model is fairly robust and accurate.
Citation1	Improve the data quality control program for the Citation and Adjudication systems to reflect best practices identified in the Traffic Records Program Assessment Advisory.				✔			The District Court is working with MSP and local law enforcement agencies have developed processes to reduce errors entering the system. The Court is continuing to streamline the process. The goal is to reach 99% error free. MSP implemented a checkbox when there is no license which reduced the number of issues with assumed missing data.
Citation2	Improve the interfaces with the Citation and Adjudication systems that reflect best practices identified in the Traffic Records Program Assessment Advisory.					✔		The Maryland Judiciary completed their transition to the new MDEC system, onboarding Baltimore City as the final jurisdiction to convert to the electronic system. In 2014 the Maryland District Court System began a multi-year migration of the citation and adjudication data from a mainframe to a digital system, known as the Maryland Electronic Courts (MDEC) Conversion. MDEC provides self-represented litigants and attorneys greater access to courts with the ability to eFile and eServe court documents 24 hours a day, 7 days a week, from anywhere with an Internet connection. The goal of MDEC is to create a cost-effective, judiciary-wide

								integrated case management system that will enable courts at all levels to collect, store, process, and access records electronically.
ISS2	Improve the data quality control program for the Injury Surveillance systems that reflects best practices identified in the Traffic Records Program Assessment Advisory.					✓		For the Injury Surveillance System components, Emergency Medical Services and Trauma Registry, each have been assigned all six Advisory data quality control measurements (including goals, baselines, and measurements). These were developed in conjunction with respective user groups and address Motor Vehicle Crash related patients directly or indirectly. Appendix 9 illustrates the many improvements and steady progress for the data derived from NEMSIS-compliant patient run records.

2019 Assessment Recommendations

	Number	%
Not addressed		0%
No progress		0%
Pending Action		0%
Some Progress	1	9%
Significant Progress	10	91%
Complete		0%
Total	11	100%

Updated as of June 2024

Appendix 5: Performance Measures

System			
EMS	**Performance Measure Statement**	**Measure (Baseline/Goal)**	**Outcome**
Accessibility	Ensure that all data access requests for electronic Maryland EMS Data System® (eMEDS® -- the State's patient care reporting system) data/information are reviewed for appropriateness (non-confidentiality adherence) and facilitated within 30 days of request.	Number of Data Access Committee (DAC) related approved EMS data requests completed within 30 days over the total number of Data Access Committee related approved EMS data requests. Baseline is 95%. Goal is to maintain 95% or greater during the SFY 2021.	See Appendix 9.
Accuracy	Reduce the % Potential Motor Vehicle Crash (MVC) Transports with "Blank" Cause of Injury responses: Statewide CY 2017 Baseline – 18%	Number of MVC dispatch code records with a "Blank" Cause of Injury" over the total number MVC dispatch code records (by Emergency Medical Services Operational Program {EMSOP}). Baseline is 18% statewide average. Goal is to maintain an individual EMSOP average of 10% or less for all EMSOPS.	Accuracy: MVC Cause of Injury Blanks: **.4 increase in blanks (no improvement)**
Completeness	Increase the number of eMEDS® records that employ the use of the Computer-Aided Dispatch (CAD) data interface downloads. Increase the % match of patient account number in the Shock Trauma Center Toxicology database to the HSCRC Hospital and ED database. Increase the completeness percentage of MVC Cause on Injury data in eMEDS.	Number of eMEDS® records with CAD downloads over the total number of records. Baseline is 96%. Goal is to maintain 96% or greater during the SFY 2021. Increase from 87%-88% in 2015-2016 (the most recent years for which we have available data) to 95% by the year 2025. Increase the completeness percentage of MVC Cause on Injury data in eMEDS from 92% in 2017 to 99% in 2025.	See Appendix 9.

Integration	Increase the percent of eMEDS that match existing records within Chesapeake Regional Information System for Patients (CRISP, the State's health information exchange).	Number of eMEDS records provided to CRISP resulted in a match of a record within CRISP. Baseline is 81%. Goal is to maintain 81% or greater during the SFY 2021.	See Appendix 9.
Timeliness	Reduce the amount of time from unit dispatch until an eMEDS® record is properly marked completed by the clinician.	The statewide goal is to have an eMEDS® report properly marked completed within 24 hours or less of a unit's dispatch. A per jurisdiction baseline will be established and measured monthly with a jurisdictional goal of 95% of all calls being properly marked complete within 24 hours or less.	See Appendix 9.
Uniformity	Ensure compliance with the National Emergency Medical Services Information System (NEMSIS) standard data elements and responses through successful periodic submission to NEMSIS.	Number of eMEDS® records successfully submitted to NEMSIS over the total number of records submitted first time. Baseline is 100%. Goal is to maintain 100% during the SFY 2021.	See Appendix 9.
Trauma Registry	**Performance Measure Statement**	**Measure (Baseline/Goal)**	**Outcome**
Accessibility	Ensure that all data access requests for Maryland Trauma Registry (MTR) data/information are reviewed for appropriateness (non-confidentiality adherence) and facilitated within 30 days of agreement of request.	Number of Data Access Committee (DAC) related approved MTR data requests completed within 30 days of agreement over the total number of Data Access Committee related approved MTR data requests. Baseline is 95%. Goal is to maintain 95% or greater during the SFY 2021.	See Appendix 9.
Accuracy	Code of Maryland Regulations (COMAR) 30.08.05.21.I - Inter-Rater Reliability (IRR) monitoring of the trauma data entered	COMAR 30.08.05.21.I - The Trauma Registry shall have a plan to ensure IRR of the data entered into the MTR at individual trauma centers. Ongoing	See Appendix 9.

	into the MTR to ensure the quality, reliability, and validity.	review and evaluation shall ensure the quality, reliability, and validity of the institution's MTR registry data. A State baseline for IRR (15-20 trauma center records monthly) will be determined over SFY 2021; the minimum goal is 95% and a 99% stretch, to assess accuracy gaps at the data abstraction level.	
Completeness	Reduce the percentage of missing/unknown values in data elements (Patient Age-years, Glasgow Coma Score, Systolic Blood Pressure, Injury Severity Score) used for the calculation of Trauma Injury Severity Scores (TRISS).	Utilize the report, "Percent Date Completeness for Specific Data Elements" to identify qualifying records which TRISS elements are below a baseline of 86%. The goal is 95% for all elements, during the SFY 2021.	See Appendix 9.
Integration	Maryland trauma center submissions to the National Trauma Data Bank (NTDB) are included in the overall NTDB data repository.	Yearly comparisons of Maryland trauma centers with the rest of NTDB submittals nationwide. The baseline was Calendar Years 2010-2015 and comparing years thereafter to baseline and current year. Any differences that MIEMSS deems necessary will be investigated further.	See Appendix 9.
Timeliness	Verification of trauma records no later than 6 weeks after the end of each quarter.	All trauma patient records shall be submitted both quarterly and annually. Verification of counts and data element completeness shall be within six weeks after the end of each quarter. The goal is 100%.	See Appendix 9.

Uniformity	Ensure Maryland Trauma Registry (MTR) compliance with the National Trauma Data Bank (NTDB) standard data elements and responses through successful periodic submission to NTDB.	Each trauma center submits directly to the NTDB. MIEMSS currently does not receive feedback about the number of records successfully submitted on the first round. We are exploring a way to obtain this data over SFY 2021. The goal is 95%.	See Appendix 9.
ED/Inpatient Records	**Performance Measure Statement**	**Measure (Baseline/Goal)**	**Outcome**
Accessibility	Increase the number of users that report successfully accessing emergency department or inpatient discharge data for research purposes.	Increase the percent of data users to 85% from approx. 85 requests/year by 2021. Note: working with CRISP and other partners on this task- the outcome would be potentially more research done using hospital discharge data.	No reported updates.
Accuracy	Minimize the number of resubmissions for error corrections each quarter.	Reduce the error threshold from 10 % to 5 % for final quarterly submissions by 2022 (to be effective January 2021).	No reported updates.
Completeness	Reduce the percentage of missing/unknown values in data elements that do not have a state-level validation rule.	Reduce the percent of errors for important variables by 2-3% from an average of 6%.	No reported updates.

Integration	Increase the percentage of records with a traffic crash E-code and MAIS>1 that link to crash reports. Increase the percentage of records with an EMS transport that link to the EMS file.		No reported updates.
Timeliness	Reduce the number of days from the end of the quarter to when the file is ready for research/dissemination.	Reduce data processing time by 5 days by streamlining processing programs and edit checks July 2020, October 2020 and January 2021 - Data can be shared with external users sooner.	No reported updates.
Uniformity	Increase compliance with the most recent Uniform Billing Standard.		No reported updates.
Roadway	**Performance Measure Statement**	**Measure (Baseline/Goal)**	**Outcome**
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 40% to 100% by December 31, 2025.	No reported updates.
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 75% to 100% by December 31, 2025.	Data freely available and published here annually: https://data-maryland.opendata.arcgis.com/pages/mdot Data cleanup complete and any errors identified are promptly corrected.
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 70% to 100% by December 31, 2025.	County and City data from DoIT for NG911 purposes if conflated to OMOC quarterly. Near 100% completeness.

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 50% to 85% by December 31, 2025.	Working with MDSP to provide data replacement for ACRS. This should raise accuracy to goal or higher.
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 fewer than 90 days by December 31, 2025.	DoIT NG911 data is conflated quarterly, and we add state roadway project data before road open using drone derived imagery.
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 the percentage of MIRE Compliant FDEs in the state file from 80% to 100% by December 31, 2025.	Local roadway data will remain the issue with completeness as the local jurisdictions do not capture and MDOT SHA is not funded to capture. HSIP dollars may help fill gap and provide incentive for all parties
Crash	**Performance Measure Statement**	**Measure (Baseline/Goal)**	**Outcome**
Accessibility	Increase the number of users that report successfully accessing crash report data from RAVEN/Washington College/National Study Center.

Increase the number of users of Crash CORE's POTIF application.

Increase the number of users of the Fatal Crash Dashboard. | Increase the percentage of customers (data users) who report satisfaction in the timeliness of the data analysis request fulfillment, and the comfortability level in the use of the data.

Increase the number of registered users of POTIF from a baseline of 0 in FFY2022 to 100 by the end of FFY2024.

Increase the number of page visits to the Fatal Crash Dashboard ZeroDeathsMD.gov website from _____ to _____ by April 1, 2025. | Washington College conducts an annual survey of RAVEN users and GIS analysis customers. Closing out the FFY2022, 52 customers responded to a survey regarding their access and understanding of the data provided and 94.57% reported overall satisfaction, up from 92.09% in FFY2021.

For FFY2023 reporting, there were 69 (up from 52 in 2022) total customers who completed the survey in 2023. |

| | Increase the number of users of the MHSO Zero Deaths Crash Data Resources web page.

Increase the number of downloads of the Maryland State Police Data Warehouse ACRS data. | Increase the number of page visits to the Fatal Crash Dashboard ZeroDeathsMD.gov website from _____ to _____ by April 1, 2025.

Increase the number of downloads of crash data from the public Tableau data download (2019-2023) application from _____ to _____ by June 1, 2025.

Increase the number of downloads of crash data from the public Tableau data dashboard (2024 -) application from _____ to _____ by June 1, 2025. | • 90%+ of customers said they would recommend the Washington College GIS Program.
• The Program received a success rating of 95%+ or higher on each of the customer experience questions.

The NSC instituted a customer satisfaction survey, but minimal responses were collected despite multiple reminders. Even so, there were no negative comments received and most of the responses answered positively to "I understood the data that was provided to me," which is a good indicator that analyses are meeting the needs of partners. Overall satisfaction was 4.5 on a 5-point scale.

The Crash Core team continued to demonstrated the use of the POTIF tool to the Emphasis Area Teams, the TRCC, and other Maryland safety stakeholders, including representatives from local transportation and planning departments, particularly jurisdictions with local SHSPs and local Vision Zero plans, expanding the number of users to 95 (up from 47 in FFY2022 and 33 in FFY2021), with additional plans solidified at the end of the grant year to expand the user base by inviting advocates.

Fatal Crash Dashboard ZeroDeathsMD baseline: March 2023 to March 2024 Page Visits (1,205 AVG per month). |

			Crash Data Resources ZeroDeathsMD baseline: March 2023 to March 2024 Page Visits (2,165 AVG per month). Tableau data download baseline: (Note: Tableau only keeps 6 months of logs. Will develop performance measures under SEDC program.) • 1.0 Page Hits: 11/23/2023 through 4/24/24: 5,942 • 2.0 Page Hits: 4/23/2024 through 5/21/24: 492
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). Maintain a "good" rating in accuracy for commercial vehicle crashes uploaded to the FMCSA SAFETYNET database.	Increase the citation issued flag response rate in the Crash file from 91% in 2018 to 99% by 2025. Increase the valid driver date of birth captured in the Crash file from 82% complete in 2018 to 95% complete by 2025. Decrease the proportion of cases with an invalid vehicle year in the crash-related Vehicle file from 6% in 2018 to 1% by 2025. Decrease the number of crash reports marked as "off road" from 19.75% in 2018 to less than 5% by 2025.	FFY2024: The number of crash reports marked as "off-road" continue to improve with the most recent measure showing a .18% decrease compared to the previous time period. FFY2025: The queues to review off-road have not yet been established for the new ACRS 2.0 2024 crash data, therefore Maryland has no progress to report on these measures. FFY2025: 0.3% increase in GPS locations within the boundaries of Maryland. 0.4% average increase in GPS locations within the boundaries of Maryland's 24 jurisdictions.

Completeness	Reduce the percentage of missing/unknown values on crash reports that should have a citation number (as identified in the citation file). Maintain a "good" rating in completeness for commercial vehicle crashes uploaded to the FMCSA SAFETYNET database.	Missing/invalid driver DOB, age, sex, drivers license number	No progress reported.
Integration	Increase the percentage of injury (KABCO 2-5) crash records that link to an EMS record.		No progress reported.
Timeliness	Reduce the number of days from the end of the quarter to when the data is posted on the Open Data Portal. Achieve and maintain a "good" rating in timeliness for commercial vehicle crashes uploaded to the FMCSA SAFETYNET database.	See the Commercial Vehicle Safety Plan.	No progress reported.
Uniformity	Increase compliance with the Model Minimum Uniform Crash Criteria and ANSI D.16.		No progress reported.
Citation/Adjudication	**Performance Measure Statement**	**Measure (Baseline/Goal)**	**Outcome**
Accessibility	Determine through a survey the usefulness and timeliness of appropriate users accessing and using JPORTAL data.		No updates reported.

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).	Decrease the proportion of invalid case license numbers in the Citation file from 3% in 2018 (approximately 15,000 records) to 1% by 2025.	No updates reported.
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. Percent cases in the Citation database with missing gender. Percent cases in the Citation database with missing DOB (Age).	Reduce the number of missing x/y coordinates on citations issued to motorists. Decrease the proportion of invalid case license numbers in the Citation file from 3% in 2018 (approximately 15,000 records) to 1% by 2025. Decrease the percent of missing genders in the citation /adjudication database. Decrease the percent of missing age (DOB) in the citation /adjudication database.	Completeness, Stops Within Maryland Boundary: **4.89% increase**
Integration	Increase the percentage of citations given to Maryland drivers that may be linked to the correct driver record.		No updates reported.

Timeliness	Reduce the amount of time between the violation being issued and inclusion in the court file (and available to judges).		No updates reported.
Uniformity	Improve the uniformity of coding traffic violation information in citations database.	Increase the correct coding of citations issued for alcohol and/or drug use in the Citation file from 30% in 2018 to 75% by 2025. Increase the uniformity of missing license data. The current percentage will be determined using the 2018 data and a goal will be set.	No updates reported.
Driver	**Performance Measure Statement**	**Measure (Baseline/Goal)**	**Outcome**
Accessibility	Increase the number of users that report successfully accessing driver record data electronically, including law enforcement, courts, employers and individuals.		No progress reported.
Accuracy	Reduce the rate of validation errors for critical driver record transactions.		CDLIS Measures. See table in Appendix 8. % of conviction messages returned in error by the CDLIS Central Site: decreased by 21.26% % of withdrawal messages returned in error by the CDLIS Central Site: decreased by 100% Number of Duplicates Resolved outside the 10-day federal time limit: decreased by 90%

			Number of history errors returned by the CDLIS Common Validation Processor: decreased by 38%
			% of messages sent to update MPR PII returned in error: decreased by 46.19%
			% of messages sent to update MPR SOR and ST/DLN returned in error: decreased by 22.1%
			% of Negate messages returned in error: decreased by 25.9%
Completeness	Reduce the percentage of missing/unknown values in critical driver records, including actions for commercial driver licenses/commercial vehicle-related offenses.		No progress reported.
Integration	Increase the number of systems that are integrated to produce real-time transactions/record updates.		No progress reported.
Timeliness	Increase the percentage of error records that are corrected and resubmitted within 24 hours.		% of convictions sent successfully within the 10-day federal time limit: increased by 8.7%
			% of withdrawals sent successfully within the 10-day federal time limit: increased by 15.0%
			Number of Transfers Resolved outside the 10-day federal time limit: decreased by 10%

Uniformity	Increase the number of vehicle data elements that are entered automatically after validation and improve consistency among driver-related fields in that are entered into the vehicle data system manually.		No progress reported.
Vehicle	**Performance Measure Statement**	**Measure (Baseline/Goal)**	**Outcome**
Accessibility	Increase the number of users that report successfully accessing vehicle registration data electronically, including law enforcement, courts, employers and individuals.		No progress reported.
Accuracy	Increase the percentage of records with values that are compliant with system standards for critical elements in the vehicle file (e.g., vehicle body type and fuel type).		No progress reported.
Completeness	Reduce the percentage of missing/unknown/mismatched values in the vehicle file (e.g., vehicle body type and fuel type).		No progress reported.
Integration	Increase the percentage of vehicle records that successfully link to external data systems.		No progress reported.
Timeliness	Increase the percentage of vehicle transactions posting to the state file within 30 days of the sale of vehicle.		No progress reported.

Uniformity	Increase the number of vehicle data elements that are entered automatically after validation and improve consistency among vehicle-related fields in that are entered into the vehicle data system manually.		No progress reported.

Appendix 6: MIRE FDE

Project Evaluation: 49. MIRE fundamental data elements
Describe actions the State will take moving forward to meet the requirement to have complete access to the MIRE fundamental data elements on all public roads by September 30, 2026.

- MDOT SHA has implemented Esri's Roads and Highways (R&H) software to manage our GIS roadway and LRS data for HPMS submission. This year MDOT SHA used Roads and Highways for their HPMS submission. With the Intersection Manager tool, our ability to better manager intersection data, and data gaps, we will be able to be 100 percent compliant by 2026.
- In conjunction with the Esri R&H implementation, we also began the One Maryland, One Centerline (OMOC) program where MDOT SHA has met with all 23 counties, and Baltimore City, to discuss the sharing of data between jurisdictions via one common geometry, maintained by the appropriate authority. We have begun a pilot conflation process between MDOT SHA and two county jurisdictions to test process and develop the protocols that will be used for the integration of the remaining counties of Maryland. This geometry will be the base of the R&H data model. This data sharing and cooperation between the local and state jurisdictions will better allow us to identify and fill data gaps, with the appropriate, authoritative information.
- FHWA has authorized several pilots to investigate developing methodologies to more accurately calculate local AADTs for lower functionally classified roadways. MIRE FDEs require this type of data, while the local jurisdictions do not have the wherewithal nor need to completely capture and maintain this type of data. Therefore, the need to develop better proxies or models to better estimate these AADTs for local roads is an ongoing FHWA investigation.

MIRE NAME (MIRE NO.)	NON-LOCAL PAVED ROADS - SEGMENT		NON-LOCAL PAVED ROADS - INTERSECTION		NON-LOCAL PAVED ROADS - RAMPS		LOCAL ROADS PAVED		UNPAVED ROADS	
	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
ROADWAY SEGMENT										
Segment Identifier (12)	100	100					100	100	100	100
Route Number (8)	100	100								

MIRE NAME (MIRE NO.)	NON-LOCAL PAVED ROADS - SEGMENT		NON-LOCAL PAVED ROADS - INTERSECTION		NON-LOCAL PAVED ROADS - RAMPS		LOCAL ROADS PAVED		UNPAVED ROADS	
	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
Route/Street Name (9)	100	100								
Federal Aid/Route Type (21)	100	100								
Rural/Urban Designation (20)	100	100					100	100		
Surface Type (23)	100	100					100	100		
Begin Point Segment Descriptor (10)	100	100					100	100	100	100
End Point Segment Descriptor (11)	100	100					100	100	100	100
Segment Length (13)	100	100								
Direction of Inventory (18)	100	100								
Functional Class (19)	100	100					100	100	100	100
Median Type (54)	100	100								
Access Control (22)	100	100								
One/Two Way Operations (91)	100	100								

MIRE NAME (MIRE NO.)	NON-LOCAL PAVED ROADS - SEGMENT		NON-LOCAL PAVED ROADS - INTERSECTION		NON-LOCAL PAVED ROADS - RAMPS		LOCAL PAVED ROADS		UNPAVED ROADS	
	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
Number of Through Lanes (31)	100	90					100	90		
Average Annual Daily Traffic (79)	100	98					50	0		
AADT Year (80)	100	100								
Type of Governmental Ownership (4)	100	100					100	100	100	100
INTERSECTION										
Unique Junction Identifier (120)			100	100						
Location Identifier for Road 1 Crossing Point (122)			100	100						
Location Identifier for Road 2 Crossing Point (123)			100	100						
Intersection/Junction Geometry (126)			85	85						
Intersection/Junction Traffic Control (131)			50	50						
AADT for Each Intersecting Road (79)			25	25						

MIRE NAME (MIRE NO.)	NON-LOCAL PAVED ROADS - SEGMENT		NON-LOCAL PAVED ROADS - INTERSECTION		NON-LOCAL PAVED ROADS - RAMPS		LOCAL ROADS PAVED		UNPAVED ROADS	
	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
AADT Year (80)			25	25						
Unique Approach Identifier (139)			75	75						
INTERCHANGE/RAMP										
Unique Interchange Identifier (178)					100	100				
Location Identifier for Roadway at Beginning of Ramp Terminal (197)					100	100				
Location Identifier for Roadway at Ending Ramp Terminal (201)					100	100				
Ramp Length (187)					100	100				
Roadway Type at Beginning of Ramp Terminal (195)					100	100				
Roadway Type at End Ramp Terminal (199)					100	100				
Interchange Type (182)					100	100				
Ramp AADT (191)					100	100				

MIRE NAME (MIRE NO.)	NON-LOCAL PAVED ROADS - SEGMENT		NON-LOCAL PAVED ROADS - INTERSECTION		NON-LOCAL PAVED ROADS - RAMPS		LOCAL ROADS PAVED		UNPAVED ROADS	
	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE	STATE	NON-STATE
Year of Ramp AADT (192)					100	100				
Functional Class (19)					100	100				
Type of Governmental Ownership (4)					100	100				
Totals (Average Percent Complete):	**100.00**	**100.00**	**72.5**	**72.5**	**100.00**	**100.00**	**89.44**	**87.78**	**100.00**	**100.00**

Appendix 7: Maryland's Traffic Safety Information System Improvement Program (FFY2025)

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 MHSO's Traffic Records Program Manager coordinates updates to TRSP and leads the implementation of recommendations provided in the 2019 NHTSA Traffic Records Assessment, including the development of performance measures for all six systems in the traffic records system. The current TRSP (2021–2025) is aligned with the 2021–2025 Maryland Strategic Highway Safety Plan (SHSP), and members from both the Executive and Technical Councils frequently discuss related topics and meet twice a year in back-to-back meetings. The Traffic Records Program Manager serves as a Data Strategy Lead and/or Action Step Lead for all SHSP Emphasis Area Teams (EATs). Maryland will participate in an Assessment between June and September 2024, and begin to update this TRSP in 2025 toward a new 2026-2030 plan.

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 National Study Center for Trauma and EMS (NSC) called the Maryland Center for Traffic Safety Analysis (MCTSA), a more comprehensive, expert staff-based approach to provide services based on the Crash Outcome Data Evaluation System (CODES) and other traffic records data and to meet the wide and varied needs of the MHSO and its partners.

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 drive 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 2024 are listed below, each referencing the TRSP strategy and the NHTSA Traffic Records Program Assessment recommendation addressed:

Proposed Projects

Project Agency: Maryland Highway Safety Office (Staffing: Traffic Records Program Manager)
Program Area: Traffic Records **Project Funds / Type:** 405C
Countermeasures: Support for safety program areas that cite NHTSA Countermeasures That Work (2023, 11th Edition) in the Annual Grant Application.
SHSP Strategies: - Use the collection, analysis and evaluation of data on all roads in Maryland to identify distracted driving safety issues, target audiences and locations of concern, as well as support the improvement of the data quality (timeliness, accuracy, completeness, uniformity, accessibility, integration).   - Use the collection, analysis and evaluation of data on all roads in Maryland to identify impaired by alcohol and drugged driving emphasis area safety issues, target audiences and locations of

concern, as well as support the improvement of data quality (timeliness, accuracy, completeness, uniformity, accessibility, integration) of impaired driving related data.

- Use the collection, analysis and evaluation of data on all roads in Maryland to identify occupant protection (OP) safety issues, target audiences and locations of concern, as well as support the improvement of the data quality (timeliness, accuracy, completeness, uniformity, accessibility, and integration).
- Use the collection, analysis and evaluation of data on all roads in Maryland to identify pedestrian and bicycle safety issues, target audiences and locations of concern, as well as support the improvement of the data quality (timeliness, accuracy, completeness, uniformity, accessibility, and integration).
- Use the collection, analysis and evaluation of data on all roads in Maryland to identify speed and aggressive driving related issues, target audiences and locations of concern, as well as support the improvement of the data quality (timeliness, accuracy, completeness, uniformity, accessibility, integration).

TRSP Strategies:
- Prioritize strategic plan responsibilities using annual timelines.
- Catalog and publish data release policies and/or data sharing agreements from all partners with traffic records data, specifically identifying rules that allow intra- and inter-agency access, and public access.
- Review and prioritize federal data element requirements—Model Minimum Uniform Crash Criteria Guideline (MMUCC), National Emergency Medical Services (EMS) Information System (NEMSIS), and Model Inventory of Roadway Elements (MIRE)—to enhance State traffic records data improvement systems.
- Institutionalize the evaluation of TRCC responsibilities:
    - Monitor annual progress of the TRCC strategic plan.
    - Track agency policy decisions that impact the State's traffic records system.
    - Document progress through Council Meeting agendas/minutes.
- Improve performance measure monitoring and oversight at the TRCC. Assign responsibility to performance measure owners for reporting to the membership at each meeting.
- Establish regular quality control reporting and enhance the review of technical and training needs of traffic records system end users, expanding to a wider range of stakeholders and end-user needs.
- Ensure the annual addenda to the five-year plan are robust and detailed enough to meet the federal grant reporting requirements and provide the State with the necessary oversight and monitoring of its traffic records systems progress.
- Improve performance measures contained within the Strategic Plan by adding meaningful goals and baselines in addition to establishing quarterly monitoring at the TRCC.

Assessment Recommendation:
- Strengthen the TRCC's abilities for strategic planning that reflect best practices identified in the Traffic Records Program Assessment Advisory.

Project Description: Funds are used to staff one full-time position at the Maryland Highway Safety Office to be the Statewide Traffic Records Coordinator.

Project Agency: Crash Center for Research and Education (CORE)
Program Area: Traffic Records **Project Funds / Type:** 405C

Countermeasures: Support for safety program areas that cite NHTSA Countermeasures That Work (2023, 11th Edition) in the Annual Grant Application.

SHSP Strategies:
- Use the collection, analysis and evaluation of data on all roads in Maryland to identify distracted driving safety issues, target audiences and locations of concern, as well as support the improvement of the data quality (timeliness, accuracy, completeness, uniformity, accessibility, integration).
- Use the collection, analysis and evaluation of data on all roads in Maryland to identify impaired by alcohol and drugged driving emphasis area safety issues, target audiences and locations of concern, as well as support the improvement of data quality (timeliness, accuracy, completeness, uniformity, accessibility, integration) of impaired driving related data.
- Use the collection, analysis and evaluation of data on all roads in Maryland to identify occupant protection (OP) safety issues, target audiences and locations of concern, as well as support the improvement of the data quality (timeliness, accuracy, completeness, uniformity, accessibility, and integration).
- Use the collection, analysis and evaluation of data on all roads in Maryland to identify pedestrian and bicycle safety issues, target audiences and locations of concern, as well as support the improvement of the data quality (timeliness, accuracy, completeness, uniformity, accessibility, and integration).
- Use the collection, analysis and evaluation of data on all roads in Maryland to identify speed and aggressive driving related issues, target audiences and locations of concern, as well as support the improvement of the data quality (timeliness, accuracy, completeness, uniformity, accessibility, integration).

TRSP Strategies:
- Prioritize strategic plan responsibilities using annual timelines.
- Catalog and publish data release policies and/or data sharing agreements from all partners with traffic records data, specifically identifying rules that allow intra- and inter-agency access, and public access.
- Review and prioritize federal data element requirements—Model Minimum Uniform Crash Criteria Guideline (MMUCC), National Emergency Medical Services (EMS) Information System (NEMSIS), and Model Inventory of Roadway Elements (MIRE)—to enhance State traffic records data improvement systems.
- Improve performance measure monitoring and oversight at the TRCC. Assign responsibility to performance measure owners for reporting to the membership at each meeting.
- Establish regular quality control reporting and enhance the review of technical and training needs of traffic records system end users, expanding to a wider range of stakeholders and end-user needs.
- Ensure the annual addenda to the five-year plan are robust and detailed enough to meet the federal grant reporting requirements and provide the State with the necessary oversight and monitoring of its traffic records systems progress.
- Improve performance measures contained within the Strategic Plan by adding meaningful goals and baselines in addition to establishing quarterly monitoring at the TRCC.

Assessment Recommendation:
- Strengthen the TRCC's abilities for strategic planning that reflect best practices identified in the Traffic Records Program Assessment Advisory.

Project Description: Development of the 2026-2030 Traffic Records Strategic Plan.

Project Agency: University of Maryland Baltimore, NSC
Program Area: Traffic Records **Project Funds / Type:** 405C
Countermeasures: Support for safety program areas that cite NHTSA Countermeasures That Work (2023, 11th Edition) in the Annual Grant Application.
SHSP Strategy: • Use the collection, analysis, and evaluation of data on all roads in Maryland to identify distracted driving safety issues, target audiences and locations of concern, as well as support the improvement of the data quality (timeliness, accuracy, completeness, uniformity, accessibility, integration). • Use the collection, analysis, and evaluation of data on all roads in Maryland to identify impaired by alcohol and drugged driving emphasis area safety issues, target audiences and locations of concern, as well as support the improvement of data quality (timeliness, accuracy, completeness, uniformity, accessibility, integration) of impaired driving related data. • Use the collection, analysis, and evaluation of data on all roads in Maryland to identify occupant protection (OP) safety issues, target audiences and locations of concern, as well as support the improvement of the data quality (timeliness, accuracy, completeness, uniformity, accessibility, and integration). • Use the collection, analysis, and evaluation of data on all roads in Maryland to identify pedestrian and bicycle safety issues, target audiences and locations of concern, as well as support the improvement of the data quality (timeliness, accuracy, completeness, uniformity, accessibility, and integration). • Use the collection, analysis, and evaluation of data on all roads in Maryland to identify speed and aggressive driving related issues, target audiences and locations of concern, as well as support the improvement of the data quality (timeliness, accuracy, completeness, uniformity, accessibility, integration).
TRSP Strategies: • Catalog and publish data release policies and/or data sharing agreements from all partners with traffic records data, specifically identifying rules that allow intra- and inter-agency access, and public access. • Review and prioritize federal data element requirements—Model Minimum Uniform Crash Criteria Guideline (MMUCC), National Emergency Medical Services (EMS) Information System (NEMSIS), and Model Inventory of Roadway Elements (MIRE)—to enhance State traffic records data improvement systems. • Improve performance measures contained within the Strategic Plan by adding meaningful goals and baselines in addition to establishing quarterly monitoring at the TRCC. • Provide ongoing access to traffic records data and analytic resources for problem identification, priority setting, and program evaluation with analytical partner support. • Provide training sessions, presentations, webinars, and technical support to partners on all products and services provided by analysis resources (e.g., grant-funded university- or college-based analysts) in addition to GIS techniques and processes for traffic safety related datasets.
Assessment Recommendations: • Improve the data quality control program for the Crash data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.

• Improve the data quality control program for the Injury Surveillance systems that reflects best practices identified in the Traffic Records Program Assessment Advisory.
Project Description: This project supports data analysis to the MHSO and statewide and partners, and administrative support for MHSO's Traffic Records Program.

Project Agency: Washington College GIS Program
Program Area: Traffic Records **Project Funds / Type:** 405C
Countermeasures: Support for safety program areas that cite NHTSA Countermeasures That Work (2023, 11th Edition) in the Annual Grant Application.
SHSP Strategy: • Use the collection, analysis, and evaluation of data on all roads in Maryland to identify distracted driving safety issues, target audiences and locations of concern, as well as support the improvement of the data quality (timeliness, accuracy, completeness, uniformity, accessibility, integration). • Use the collection, analysis, and evaluation of data on all roads in Maryland to identify impaired by alcohol and drugged driving emphasis area safety issues, target audiences and locations of concern, as well as support the improvement of data quality (timeliness, accuracy, completeness, uniformity, accessibility, integration) of impaired driving related data. • Use the collection, analysis, and evaluation of data on all roads in Maryland to identify occupant protection (OP) safety issues, target audiences and locations of concern, as well as support the improvement of the data quality (timeliness, accuracy, completeness, uniformity, accessibility, and integration). • Use the collection, analysis, and evaluation of data on all roads in Maryland to identify pedestrian and bicycle safety issues, target audiences and locations of concern, as well as support the improvement of the data quality (timeliness, accuracy, completeness, uniformity, accessibility, and integration). • Use the collection, analysis, and evaluation of data on all roads in Maryland to identify speed and aggressive driving related issues, target audiences and locations of concern, as well as support the improvement of the data quality (timeliness, accuracy, completeness, uniformity, accessibility, integration).
TRSP Strategies: • Provide ongoing access to traffic records data and analytic resources for problem identification, priority setting, and program evaluation with analytical partner support. • Integrate data from traffic records component systems to satisfy specific analytical inquires. • Provide timely access to data analyses and interpretation upon request. • Make outputs from state data linkage systems available to state and local decision-makers to influence data-driven policy and reform. • Make outputs from state data linkage systems available to the general public. • Make integrated data outputs from data linkage systems available for research abiding by data security agreements. • Provide training sessions, presentations, webinars, and technical support to partners on all products and services provided by analysis resources (e.g., grant-funded university- or college-based analysts) in addition to GIS techniques and processes for traffic safety related datasets. • Develop improved data visualization tools used to access the crash data.

Assessment Recommendations:

1. Improve the data quality control program for the Crash data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.
2. Improve the data quality control program for the Citation and Adjudication systems to reflect best practices identified in the Traffic Records Program Assessment Advisory.
3. Improve the interfaces with the Citation and Adjudication systems that reflect best practices identified in the Traffic Records Program Assessment Advisory.

Project Description: This project will focus on strategies that will improve the ability to use data-driven analysis to reduce crashes and deaths on Maryland roads. This project also includes attendance at conferences to promote highway safety projects and practices in Maryland, and provides 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.

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.

Appendix 8: Performance Measures Annual Progress Calculations (FFY2025)

1. Crash Data: Accuracy: The percentage of crash locations within the state of Maryland and within the jurisdictions.

This is a measure of the GPS Coordinates assigned by law enforcement in the Automated Crash Reporting System (ACRS). A review of points withing the boundaries of the state of Maryland and within the jurisdictions where the crash occurred was calculated using the public download tool provided by the Maryland State Police and run by the Washington College GIS Program.

Improvement Calculated: 0.3% increase in GPS locations within the boundaries of Maryland.

April 1, 2022 to March 31st, 2023				April 1, 2023 to March 31st, 2024		
	Count	Percent			Count	Percent
Total Crashes	109,227	100%		Total Crashes	109,765	100%
Within Maryland Boundry (+Bridges/Tunnels)	108,748	99.56%		Within Maryland Boundry (+Bridges/Tunnels)	109,608	99.86%
Outside Of Maryland Boundry	315	0.29%		Outside Of Maryland Boundry	123	0.11%
Within Maryland Waterways	162	0.15%		Within Maryland Waterways	34	0.03%

Improvement Calculated: 0.4% average increase in GPS locations within the boundaries of Maryland's twenty-four (24) jurisdictions.

2. Citation Data:
    a. Completeness, Stops Within Maryland Boundary: **4.89% increase**

Citations

April 1, 2022 to March 31st, 2023				April 1, 2023 to March 31st, 2024		
	Count	Percent			Count	Percent
Total Citations	618,145	100.00%		Total Citations	529,309	100.00%
Within Maryland Boundary (+Bridges/Tunnels)	282,869	45.76%		Within Maryland Boundary (+Bridges/Tunnels)	268,092	50.65%
Outside Of Maryland Boundary	248	0.04%		Outside Of Maryland Boundary	374	0.07%
Within Maryland Waterways	3	0.00%		Within Maryland Waterways	2	0.00%
No XYs	335,025	54.20%		No XYs	260,841	49.28%

Stops

April 1, 2022 to March 31st, 2023				April 1, 2023 to March 31st, 2024		
	Count	Percent			Count	Percent
Total Stops	282,213	100.00%		Total Stops	256,025	100.00%
Within Maryland Boundary (+Bridges/Tunnels)	139,492	49.43%		Within Maryland Boundary (+Bridges/Tunnels)	128,950	50.37%
Outside Of Maryland Boundary	88	0.03%		Outside Of Maryland Boundary	180	0.07%
Within Maryland Waterways	3	0.00%		Within Maryland Waterways	2	0.00%
No XYs	142,630	50.54%		No XYs	126,893	49.56%

3. EMS Data:
    1. Accuracy: MVC Cause of Injury Blanks: **.4 increase in blanks (no improvement).**

eMEDS records related to Motor Vehicle Crash (MVC) transports represent roughly 30% on average annually all injury transports. This category for EMS transport is second only to falls (45.6%). 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®).

Maryland EMS Operational Programs (EMSOP)	April 1, 2019 to March 30, 2020		April 1, 2020 to March 30, 2021		April 1, 2021 to March 30, 2022		April 1, 2022 to March 30, 2023		April 1, 2023 to March 30, 2024	
	Total Potential MVC Transports	% Potential MVC Transports with "Blank" Cause of Injury	Total Potential MVC Transports	% Potential MVC Transports with "Blank" Cause of Injury	Total Potential MVC Transports	% Potential MVC Transports with "Blank" Cause of Injury	Total Potential MVC Transports	% Potential MVC Transports with "Blank" Cause of Injury	Total Potential MVC Transports	% Potential MVC Transports with "Blank" Cause of Injury
B	400	6.0%	337	7.4%	368	1.9%	389	2.1%	394	2.0%
BA	5,122	32.5%	3,074	31.3%	3,907	31.7%	4,568	31.9%	4,848	28.4%
BB	1,459	13.8%	1,102	14.4%	1,178	9.8%	1,495	6.8%	1,470	8.6%
BC	6,494	46.2%	4,357	43.3%	4,566	44.5%	4,756	42.3%	5,325	42.3%
D	904	6.2%	655	13.1%	772	3.1%	756	4.0%	870	4.7%
E	236	8.1%	201	8.5%	163	3.7%	241	1.2%	252	1.6%
F	638	11.1%	501	11.4%	452	11.3%	517	6.8%	534	7.5%
G	1,300	10.8%	800	13.4%	875	6.3%	1,153	8.3%	1,105	7.1%
I	1,149	11.3%	844	13.2%	924	9.2%	1,155	6.1%	1,186	7.5%
J	948	10.0%	691	11.9%	710	8.0%	843	9.1%	809	9.9%
K	5,808	15.5%	4,495	16.0%	4,982	11.2%	5,297	9.3%	5,303	11.2%
L	205	3.4%	177	5.1%	161	3.1%	180	2.8%	194	1.0%
M	994	13.2%	779	13.5%	831	13.5%	928	8.2%	1,000	7.9%
N	189	12.7%	154	9.1%	95	6.3%	170	4.1%	176	1.1%
O	438	7.5%	313	9.6%	349	4.0%	383	3.7%	389	3.3%
Q	819	2.4%	806	4.8%	595	0.3%	757	0.4%	843	0.2%
R	650	11.2%	412	16.3%	475	6.5%	636	5.5%	664	5.3%
S	271	12.9%	187	9.1%	269	3.3%	272	3.7%	335	5.1%
T	114	8.8%	75	13.3%	78	6.4%	74	1.4%	113	6.2%
U	437	26.5%	328	16.8%	174	17.2%	310	11.9%	334	6.3%
V	251	9.6%	207	12.6%	224	5.4%	248	3.2%	267	4.1%
W	907	9.9%	723	10.1%	613	2.4%	536	2.6%	671	3.1%
X	5,400	17.1%	4,409	18.7%	4,193	15.3%	4,427	11.7%	4,350	12.6%
Y	3,251	14.3%	2,241	16.9%	2,318	12.9%	2,631	10.6%	2,909	11.4%
Z	93	8.6%	78	20.5%	68	2.9%	79	3.8%	76	6.6%
Grand Total	38,477	21.5%	27,946	21.0%	29,340	18.4%	32,801	16.4%	34,417	16.8%

4. MVA Driver Records: Submission to CDLIS

During the performance period (April 1, 2022 – March 31, 2023, compared to April 1, 2023 – March 31, 2024), MDOT MVA reports improvement in ten out of eleven AAMVA CDLIS data quality measures for which complete data are available.

- Timeliness: % of convictions sent successfully within the 10-day federal time limit: increased by 8.7%
- Accuracy: % of conviction messages returned in error by the CDLIS Central Site: decreased by 21.26%
- Timeliness: % of withdrawals sent successfully within the 10-day federal time limit: increased by 15.0%
- Accuracy: % of withdrawal messages returned in error by the CDLIS Central Site: decreased by 100%
- Accuracy: Number of Duplicates Resolved outside the 10-day federal time limit: decreased by 90%
- Timeliness: Number of Transfers Resolved outside the 10-day federal time limit: decreased by 10%
- Accuracy: Number of history errors returned by the CDLIS Common Validation Processor: decreased by 38%
- Accuracy: % of messages sent to update MPR PII returned in error: decreased by 46.19%
- Accuracy: % of messages sent to update MPR SOR and ST/DLN returned in error: decreased by 22.1%
- Accuracy: % of Negate messages returned in error: decreased by 25.9%

| Measure	Description of Measure	Baseline Period (4/21-3/22)	Prior Period (4/22-3/23)	% Change from Baseline	Performance Period (4/23-3/24)	% Change from Prior Period	Improved?
Conviction Timeliness	% of Convictions Sent Successfully within the 10-day federal time limit	88.11%	88.39%	0.3%	96.1%	8.7%	Y
Conviction Error Rate	% of conviction messages returned in error by the CDLIS Central Site	0.55%	0.54%	-1.3%	0.42%	-21.26%	Y
Withdrawal Timeliness	% of Withdrawals Sent Successfully within the 10-day federal time limit	50.53%	80.52%	59.3%	92.6%	15.0%	Y
Withdrawal Error Rate	% of withdrawal messages returned in error by the CDLIS Central Site	30.08%	1.05%	-96.5%	0.00%	-100.0%	Y
Duplicate Resolution Timeliness	Number of Duplicates Resolved outside the 10-day federal time limit	4.17	8.00	92.0%	0.83	-90%	Y
Transfer Resolution Timeliness	Number of Transfers Resolved outside the 10-day federal time limit	2.92	3.91	34.0%	3.50	-10%	Y
Data Quality of History	Number of history errors returned by the CDLIS Common Validation Processor	77.8	88.5	13.7%	54.7	-38%	Y
Data Quality of Updates to MPR PII	% of messages sent to update MPR PII that were returned in error	3.90%	1.29%	-66.9%	0.69%	-46.19%	Y
Data Quality of Updates to MPR SOR	% of messages sent to update the MPR SOR and ST/DLN that were returned in error	2.60%	3.57%	37.3%	2.78%	-22.1%	Y
Data Quality of Pointer Deletions	% of Delete Driver messages returned in error	8.00%	0.08%	-99.0%	0.16%	97.96%	N
Data Quality of Negates	% of Negate messages returned in error	6.00%	0.42%	-92.9%	0.31%	-25.9%	Y

Prepared by MDOT MVA Office of Data Management   Data Source: CDLIS Timeliness and Data Accuracy Summary Workbook, Monthly Averages

Appendix 9: Emergency Medical Systems (EMS) and Trauma Registry Performance Measures

EMERGENCY MEDICAL SERVICES (EMS)

ACCESSIBILITY

Performance Measure Statement	Measure (Baseline/Goal)
Ensure that all data access requests for electronic Maryland EMS Data System® (eMEDS® - the State's patient care reporting system) data/information are reviewed for appropriateness (non-confidentiality adherence) and facilitated within 30 days of request.	Number of Data Access Committee (DAC) related approved EMS data requests completed within 30 days over the total number of DAC related approved EMS data requests. **Baseline** is 95%. **Goal** is maintain 95+% during the current state fiscal year (SFY).

Met Performance Measure:

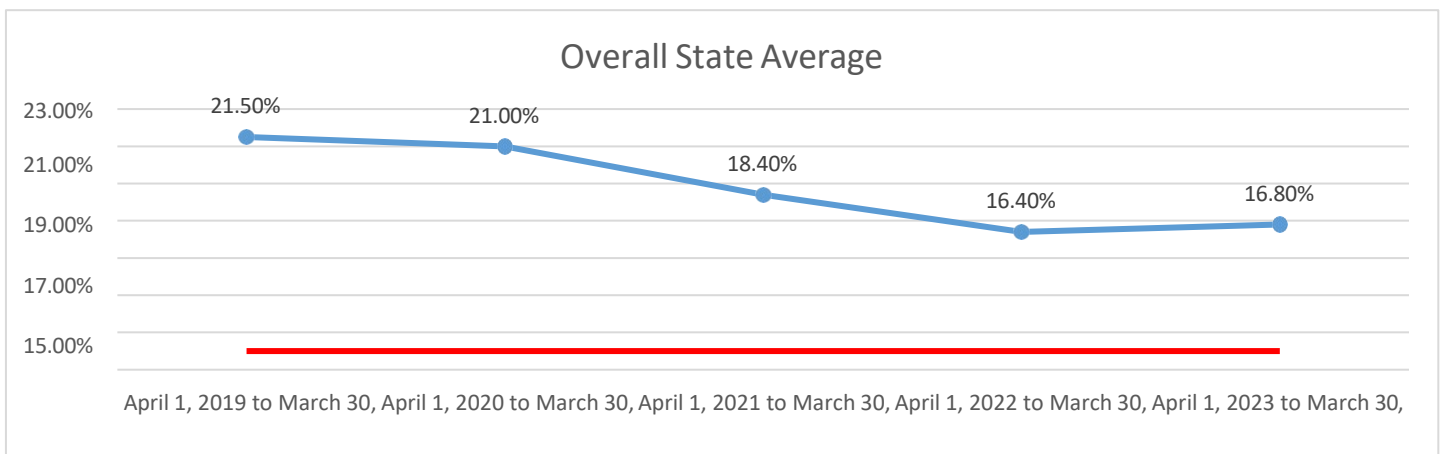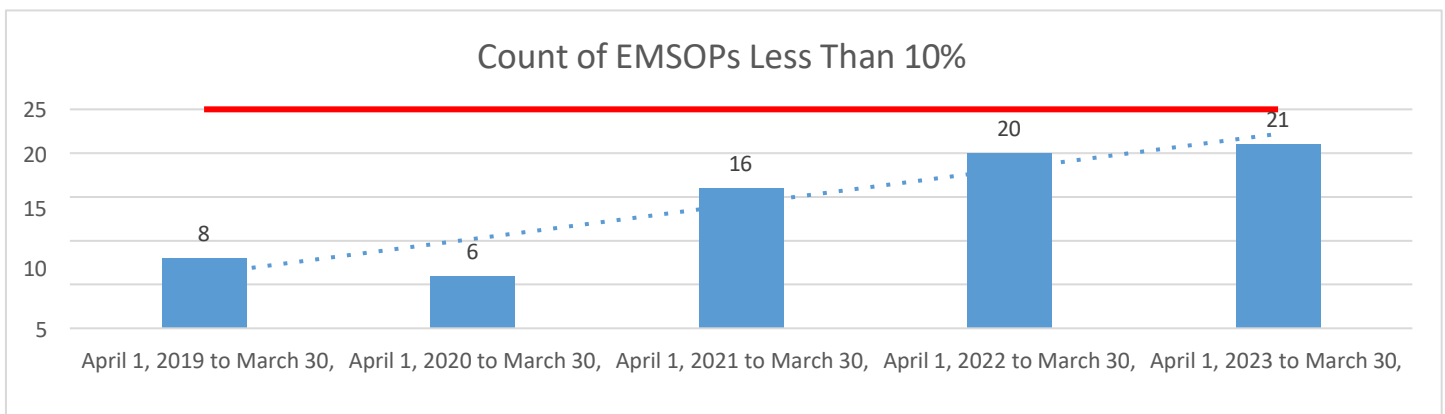**X** Yes _____ Partial _____ No
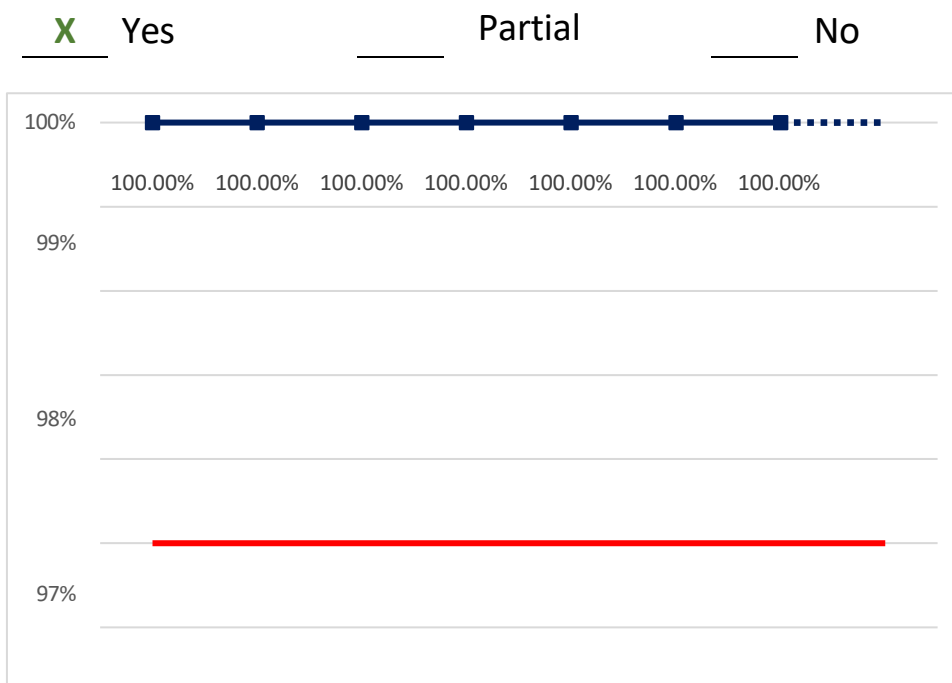
Notes:
- Percentage Compliance Goal is 95+%: Currently 100%
- MIEMSS continues to meet this performance measure. Once a data request is approved, MIEMSS supplies requested data within the 30 days. It was noted, that while MIEMSS works with a data requestor on confirming details of their request (e.g. approved IRBs, payment, signatures on agreements), personnel at MIEMSS then begins working on collecting and packaging the data in anticipation of delivery.

ACCURACY

Performance Measure Statement	Measure (Baseline/Goal)
Reduce the % Potential Motor Vehicle Crash (MVC) Transports with "Blank" Cause of Injury responses: Statewide CY 2017 Baseline – 18%	Number of MVC dispatch code records with a "Blank" Cause of Injury" over the total number MVC dispatch code records by Emergency Medical Services Operational Program (EMSOP). **Baseline** is 18% statewide average. **Goal** is maintain an individual EMSOP average of 10% or less for all EMSOPS.

Met Performance Measure:

——— Yes   ___ Partial   **X** No

Count of EMSOPs Less Than 10%

	April 1, 2019 to March 30,	April 1, 2020 to March 30,	April 1, 2021 to March 30,	April 1, 2022 to March 30,	April 1, 2023 to March 30,
	8	6	16	20	21

Overall State Average

| April 1, 2019 to March 30,	April 1, 2020 to March 30,	April 1, 2021 to March 30,	April 1, 2022 to March 30,	April 1, 2023 to March 30,
21.50%	21.00%	18.40%	16.40%	16.80%

Notes:
- Continues to show improvement over time.

Maryland EMS Operational Programs (EMSOP)	April 1, 2019 to March 30, 2020		April 1, 2020 to March 30, 2021		April 1, 2021 to March 30, 2022		April 1, 2022 to March 30, 2023		April 1, 2023 to March 30, 2024	
	Total Potential MVC Transports	% Potential MVC Transports with "Blank" Cause of Injury	Total Potential MVC Transports	% Potential MVC Transports with "Blank" Cause of Injury	Total Potential MVC Transports	% Potential MVC Transports with "Blank" Cause of Injury	Total Potential MVC Transports	% Potential MVC Transports with "Blank" Cause of Injury	Total Potential MVC Transports	% Potential MVC Transports with "Blank" Cause of Injury
B	400	6.0%	337	7.4%	368	1.9%	389	2.1%	394	2.0%
BA	5,122	32.5%	3,074	31.3%	3,907	31.7%	4,568	31.9%	4,848	28.4%
BB	1,459	13.8%	1,102	14.4%	1,178	9.8%	1,495	6.8%	1,470	8.6%
BC	6,494	46.2%	4,357	43.3%	4,566	44.5%	4,756	42.3%	5,325	42.3%
D	904	6.2%	655	13.1%	772	3.1%	756	4.0%	870	4.7%
E	236	8.1%	201	8.5%	163	3.7%	241	1.2%	252	1.6%
F	638	11.1%	501	11.4%	452	11.3%	517	6.8%	534	7.5%
G	1,300	10.8%	800	13.4%	875	6.3%	1,153	8.3%	1,105	7.1%
I	1,149	11.3%	844	13.2%	924	9.2%	1,155	6.1%	1,186	7.5%
J	948	10.0%	691	11.9%	710	8.0%	843	9.1%	809	9.9%
K	5,808	15.5%	4,495	16.0%	4,982	11.2%	5,297	9.3%	5,303	11.2%
L	205	3.4%	177	5.1%	161	3.1%	180	2.8%	194	1.0%
M	994	13.2%	779	13.5%	831	13.5%	928	8.2%	1,000	7.9%
N	189	12.7%	154	9.1%	95	6.3%	170	4.1%	176	1.1%
O	438	7.5%	313	9.6%	349	4.0%	383	3.7%	389	3.3%
Q	819	2.4%	806	4.8%	595	0.3%	757	0.4%	843	0.2%
R	650	11.2%	412	16.3%	475	6.5%	636	5.5%	664	5.3%
S	271	12.9%	187	9.1%	269	3.3%	272	3.7%	335	5.1%
T	114	8.8%	75	13.3%	78	6.4%	74	1.4%	113	6.2%
U	437	26.5%	328	16.8%	174	17.2%	310	11.9%	334	6.3%
V	251	9.6%	207	12.6%	224	5.4%	248	3.2%	267	4.1%
W	907	9.9%	723	10.1%	613	2.4%	536	2.6%	671	3.1%
X	5,400	17.1%	4,409	18.7%	4,193	15.3%	4,427	11.7%	4,350	12.6%
Y	3,251	14.3%	2,241	16.9%	2,318	12.9%	2,631	10.6%	2,909	11.4%
Z	93	8.6%	78	20.5%	68	2.9%	79	3.8%	76	6.6%
Grand Total	38,477	21.5%	27,946	21.0%	29,340	18.4%	32,801	16.4%	34,417	16.8%

COMPLETENESS

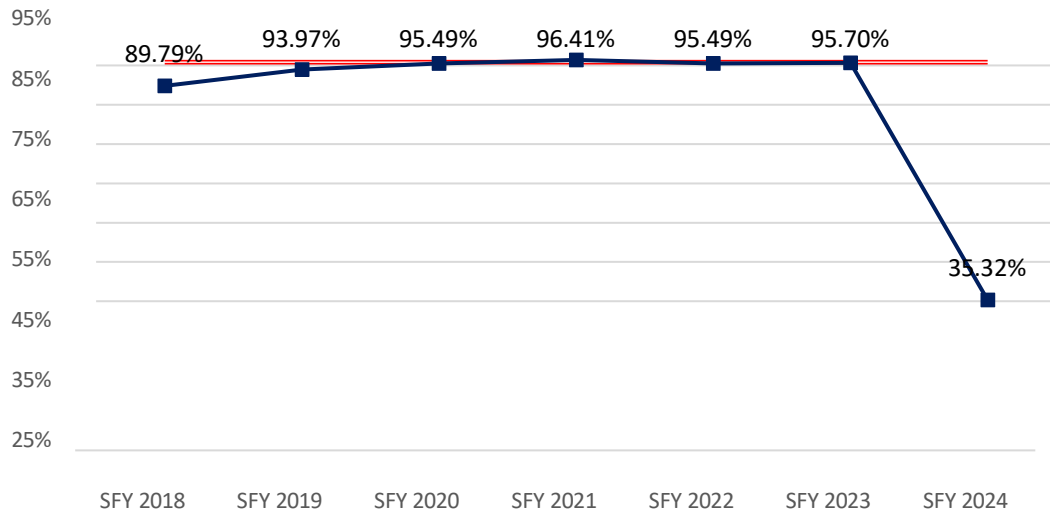| Performance Measure Statement	Measure (Baseline/Goal)
Increase the number of eMEDS® records that employ the use of the Computer-Aided Dispatch (CAD) data interface downloads.	Number of eMEDS® records with CAD downloads over the total number of records. **Baseline** is 96%. **Goal** is maintain 96% or greater.

Met Performance Measure:

X Yes   Partial   No
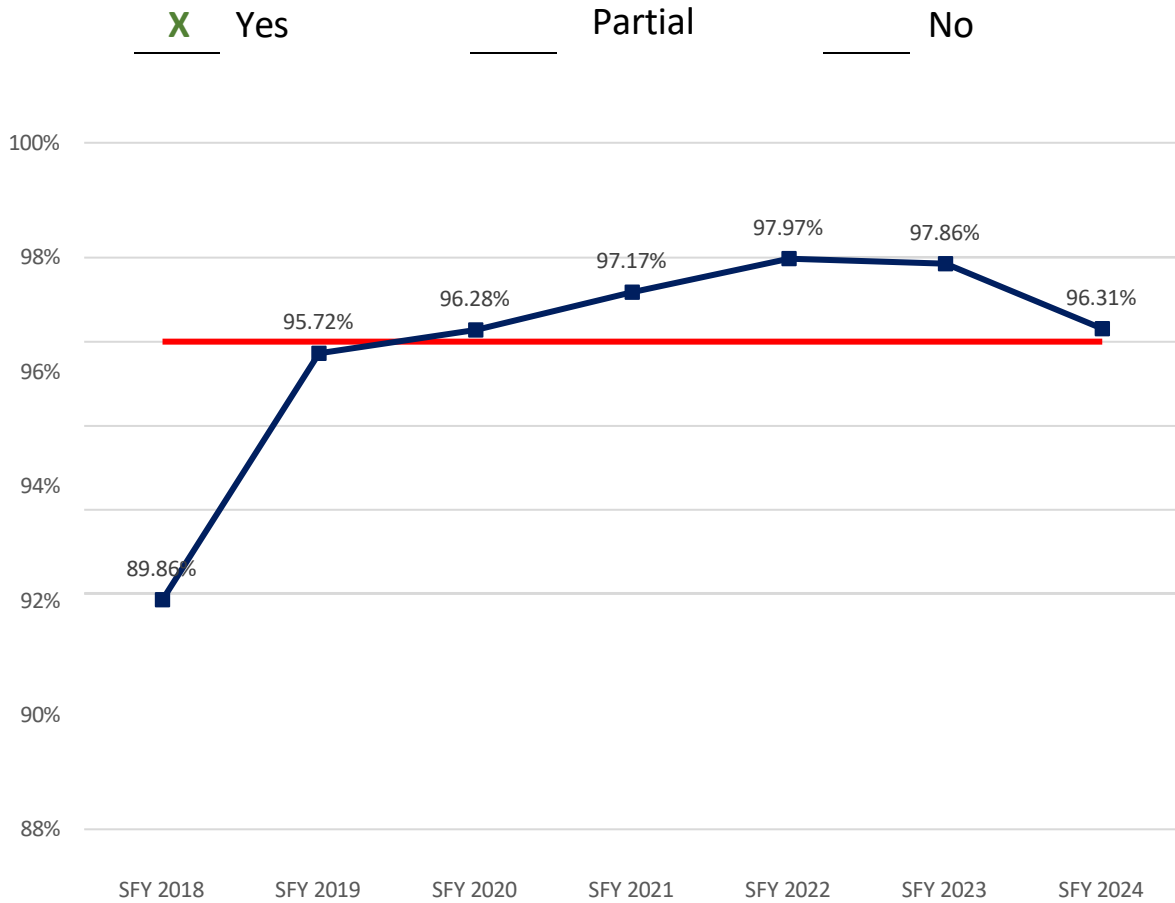
Note: SFY24 is July 1, 2023 to April 30, 2024

Notes:

- Percentage Compliance Goal is >=96%: Currently 96.31%
- One EMS Operational Program (EMSOP) has been working with their dispatch center to transition to a new CAD Vendor. This process has resulted in a significant decline in the use of CAD Download in eMEDS reports. Past average use of the CAD Download feature shown below for a single EMSOP.

	SFY 2018	SFY 2019	SFY 2020	SFY 2021	SFY 2022	SFY 2023	SFY 2024
	89.79%	93.97%	95.49%	96.41%	95.49%	95.70%	35.32%

- MIEMSS developed a custom application At Hospital Ambulances (@HA) to measure ambulance activity at hospitals. Jurisdictions must report specific data points in their CAD feed to ImageTrend in order for that information to be present in @HA in a timely manner. A beneficial outcome has been jurisdictions have modified and/or improved the data in their CAD file which also increases clinicians use of the CAD download as part of completing their PCR.
    - URL: https://aha.miemss.org/dashboard

INTEGRATION

Performance Measure Statement	Measure (Baseline/Goal)
Increase the percent of eMEDS that match existing records within Chesapeake Regional Information System for Patients (CRISP, the State's health information exchange).	Number of eMEDS® records provided to CRISP resulted in a match of a record within CRISP. **Baseline** is 72%. **Goal** is to maintain 72% or greater

Met Performance Measure:

X   Yes   Partial   No
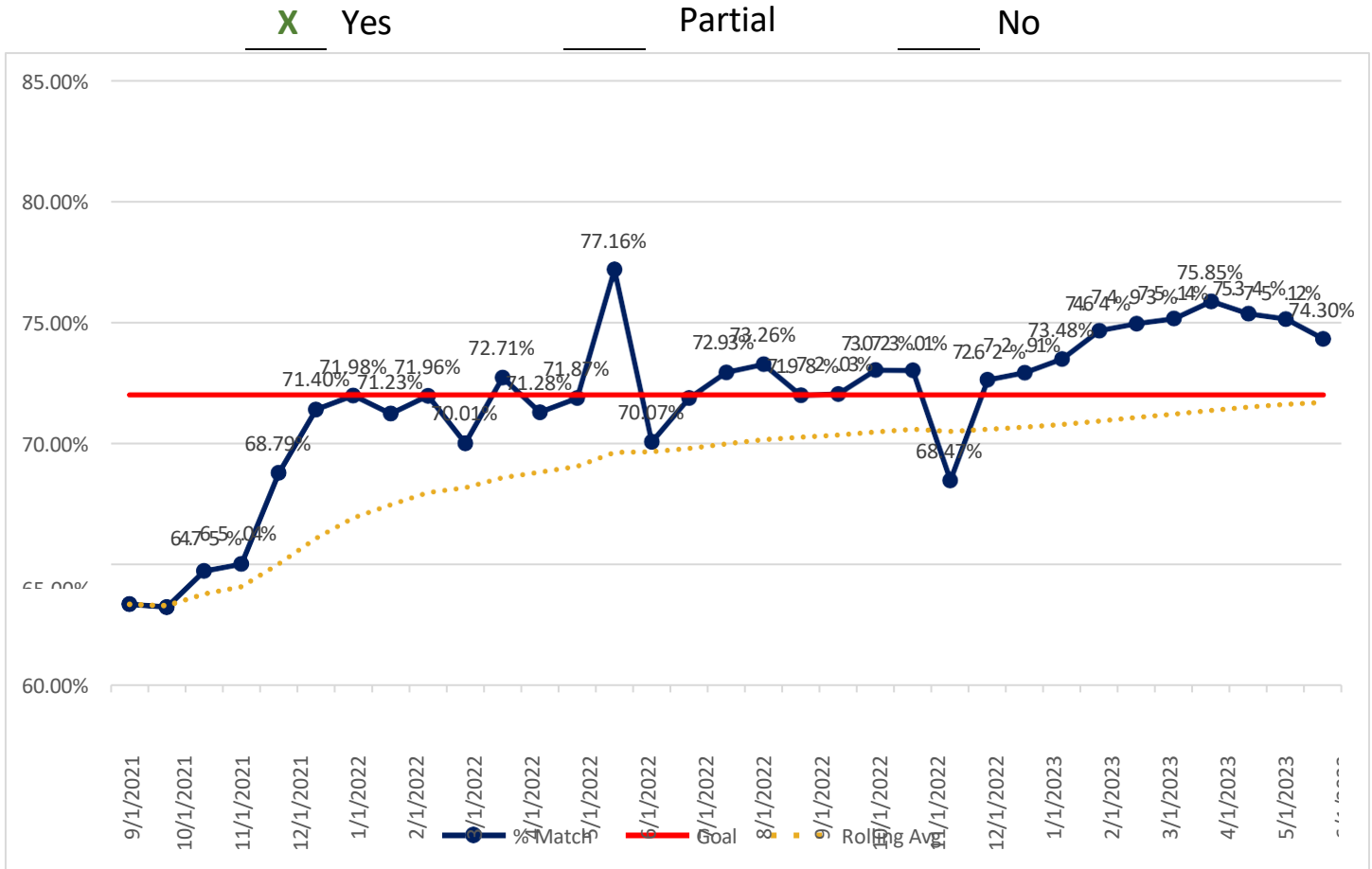
Notes:

- Current match rate for EMS data is 74.30% (increase of 2.27% from last reporting)
- Matching rate will never be 100%. New patients will always be introduced into the CRISP system as patients being treated are never going to be same patients that were previous treated.

TIMELINESS

Performance Measure Statement	Measure (Baseline/Goal)
Reduce the amount of time from unit dispatch until an eMEDS® record is properly marked completed by the clinician.	The statewide goal is to have an eMEDS® report properly marked completed within 24 hours or less of a unit's dispatch. A per jurisdiction baseline will be established and measured monthly with a jurisdictional goal of 95% of all calls being properly marked complete within 24 hours or less.

Met Performance Measure:

_____ **X** Yes   _____ Partial   _____ No

### Percent of Reports Marked Finished within 24hrs of Unit Notified by Dispatch
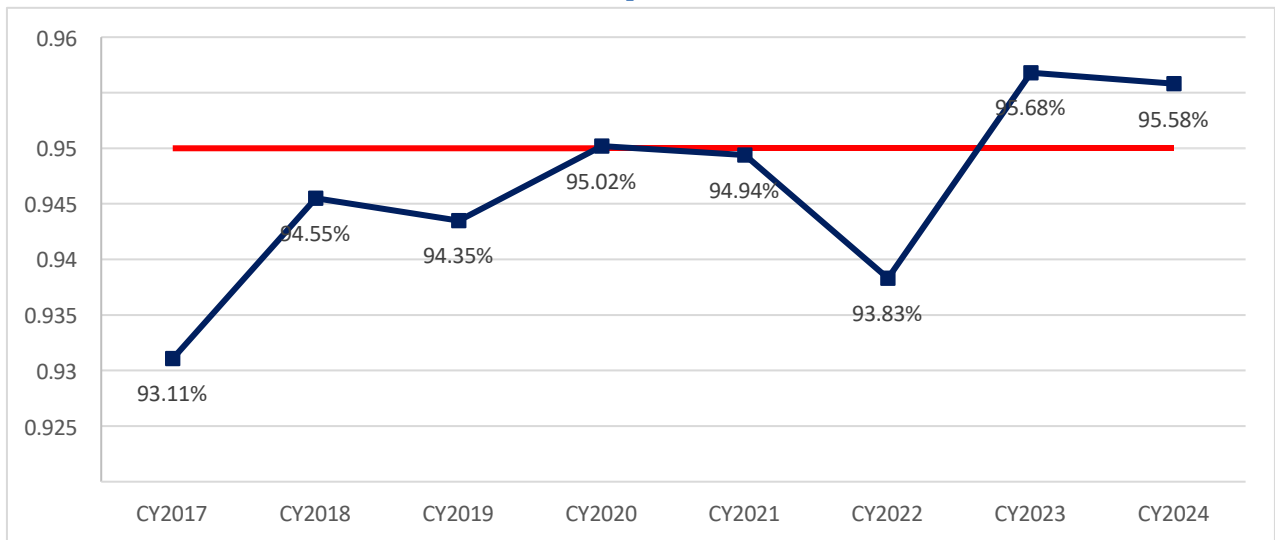
Note: CY24 only reports up to 05/2024.

Notes:

- Percentage Compliance Goal is >=95%: Currently 95.58%
- There is inconsistency across the EMSOPs in marking a report complete (Marked as Finished), which is the status used in evaluating this PM.
- Number of EMSOPs removed from reporting due to "Marked Report Finished" is missing 75% or greater of the time.
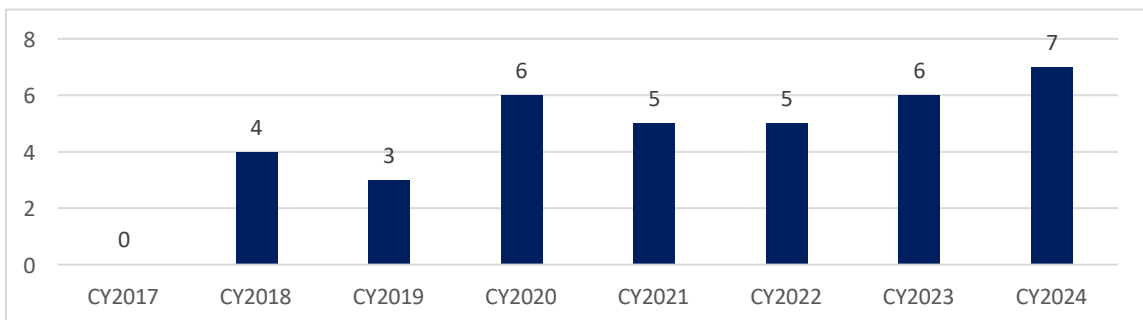
- Intend to reach out to the EMSOPs to get their perspective and see what can be done to improve their utilization of the Marked as Finished status.

UNIFORMITY

Performance Measure Statement	Measure (Baseline/Goal)
Ensure compliance with the National Emergency Medical Services Information System (NEMSIS) standard data elements and responses through successful periodic submission to NEMSIS.	Number of eMEDS® records successfully submitted to NEMSIS over the total number of records submitted first time. **Baseline** is 100%. **Goal** is maintain 100% during the SFY 2024.

Met Performance Measure:

X Yes _____ Partial _____ No

Notes:
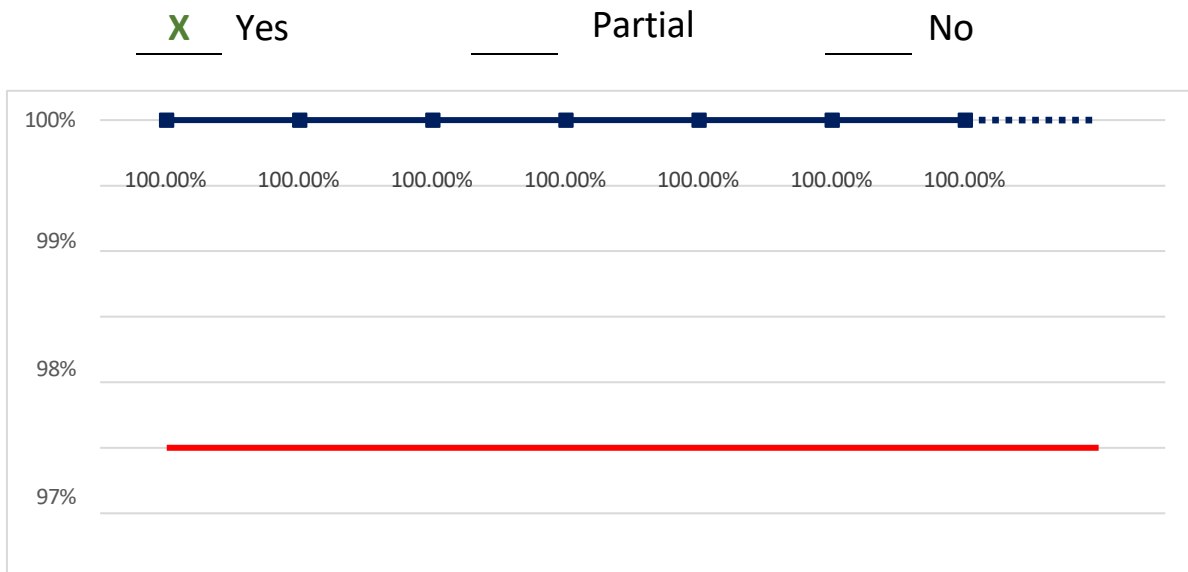- Percentage Compliance Goal is >=100%: Currently 100%
- Records submitted are accepted. If there are issues with our submission NEMSIS would reach out to MIEMSS and would work to correct the issues. Any records previously not submitted, would then be re-uploaded for submission.

TRAUMA REGISTRY

ACCESSIBILITY

Performance Measure Statement	Measure (Baseline/Goal)
Ensure that all data access requests for Maryland Trauma Registry (MTR) data/information are reviewed for appropriateness (non-confidentiality adherence) and facilitated within 30 days of agreement of request.	Number of Data Access Committee (DAC) related approved MTR data requests completed within 30 days of agreement over the total number of Data Access Committee related approved MTR data requests. **Baseline** is 95%. **Goal** is maintain 95+% during the SFY 2024.

Met Performance Measure:

X Yes   _____ Partial   _____ No

Notes:

- Percentage Compliance Goal is >=95%: Currently 96.31%
- MIEMSS continues to meet this performance measure. Once a data request is approved MIEMSS supplies requested data within the 30 days. It was noted, that while MIEMSS works with a data requestor on confirming details of their request (e.g. approved IRBs, payment, signatures on agreements), personnel at MIEMSS then begins working on collecting and packaging the data in anticipation of delivery.

ACCURACY

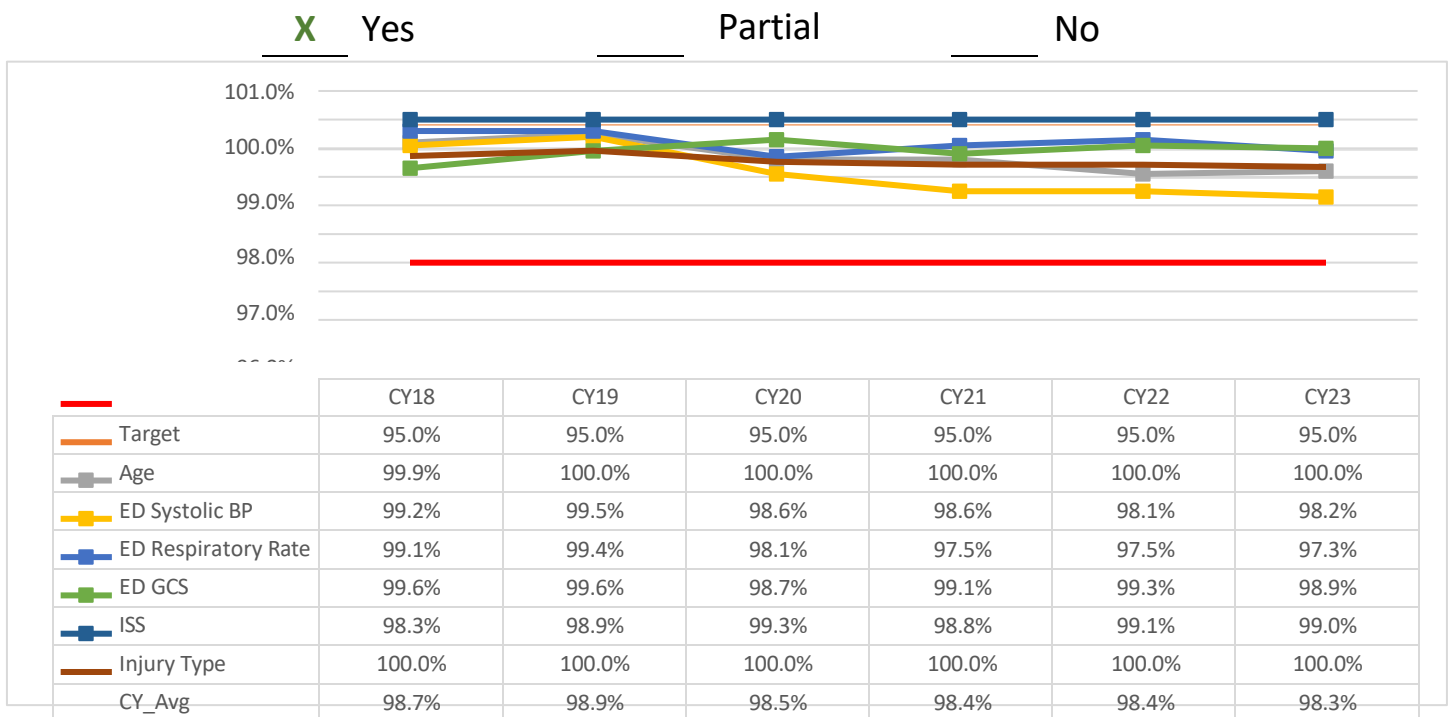| Performance Measure Statement	Measure (Baseline/Goal)
Code of Maryland Regulations (COMAR) 30.08.05.21.I - Inter-Rater Reliability (IRR) monitoring of the trauma data entered into the MTR to ensure the quality, reliability, and validity.	COMAR 30.08.05.21.I - The Trauma Registry shall have a plan to ensure IRR of the data entered into the MTR at individual trauma centers. Ongoing review and evaluation shall ensure the quality, reliability, and validity of the institution's MTR registry data. A State baseline for IRR (15-20 records per trauma center are reviewed monthly) will be determined over SFY 2021; the minimum goal is 95% with a stretch goal of 99% to assess accuracy gaps at the data abstraction level.

Met Performance Measure:

X Yes   _____ Partial   _____ No
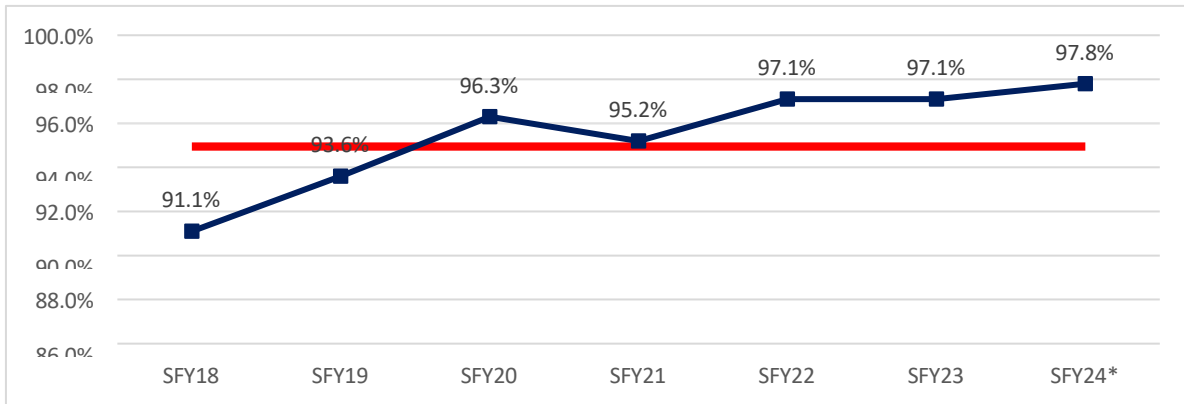
*Note: *FY24 only July 2023 to March 2024*

COMPLETENESS

Performance Measure Statement	Measure (Baseline/Goal)
Reduce the percentage of missing/unknown values in data elements (Patient Age-years, Glasgow Coma Score, Systolic Blood Pressure, Injury Severity Score) used for the calculation of Trauma Injury Severity Scores (TRISS).	Utilize the report, "Percent Data Completeness for Specific Data Elements" to identify qualifying records with TRISS elements that are below a baseline of 90%. **Goal** is 95% for all elements, during the current state Fiscal Year.

Met Performance Measure:

X Yes   _____ Partial   _____ No

	CY18	CY19	CY20	CY21	CY22	CY23
Target	95.0%	95.0%	95.0%	95.0%	95.0%	95.0%
Age	99.9%	100.0%	100.0%	100.0%	100.0%	100.0%
ED Systolic BP	99.2%	99.5%	98.6%	98.6%	98.1%	98.2%
ED Respiratory Rate	99.1%	99.4%	98.1%	97.5%	97.5%	97.3%
ED GCS	99.6%	99.6%	98.7%	99.1%	99.3%	98.9%
ISS	98.3%	98.9%	99.3%	98.8%	99.1%	99.0%
Injury Type	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
CY_Avg	98.7%	98.9%	98.5%	98.4%	98.4%	98.3%

Notes:

- Percentage Compliance Goal is 95+%:   Currently 98.3%
- For all six (6) data elements, the measurement has a greater than 95% compliance rate.
    - Age (years)
    - ED Systolic Blood Pressure (BP)
    - ED Respiratory Rate
    - ED Glasgow Coma Score (GCS)
    - Injury Severity Score (ISS)
    - Injury Type

INTEGRATION

Performance Measure Statement	Measure (Baseline/Goal)
Maryland trauma center submissions to the National Trauma Data Standard (NTDS) are included in the overall NTDS data repository.	Yearly comparisons of Maryland trauma centers with the rest of NTDS submittals nationwide. The goal is 95%.

Met Performance Measure:

X Yes ____ Partial ____ No

Calendar Year 2023 Submissions

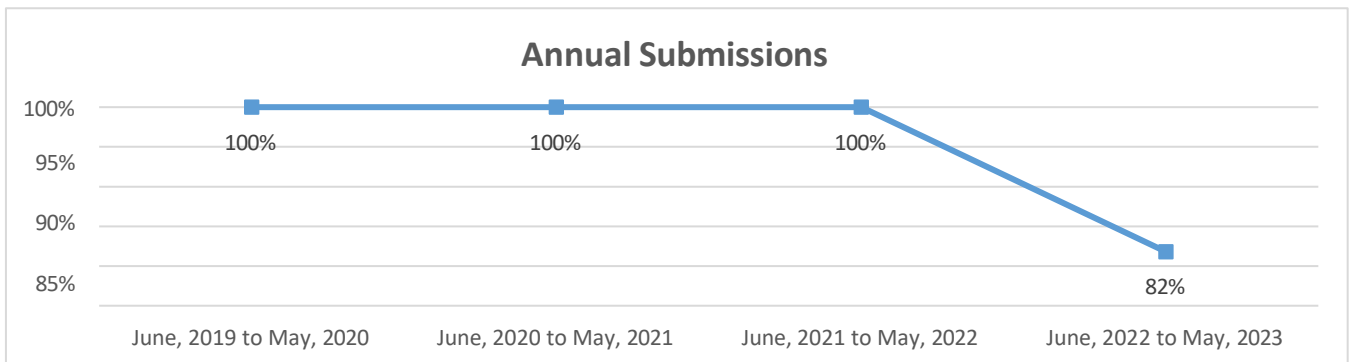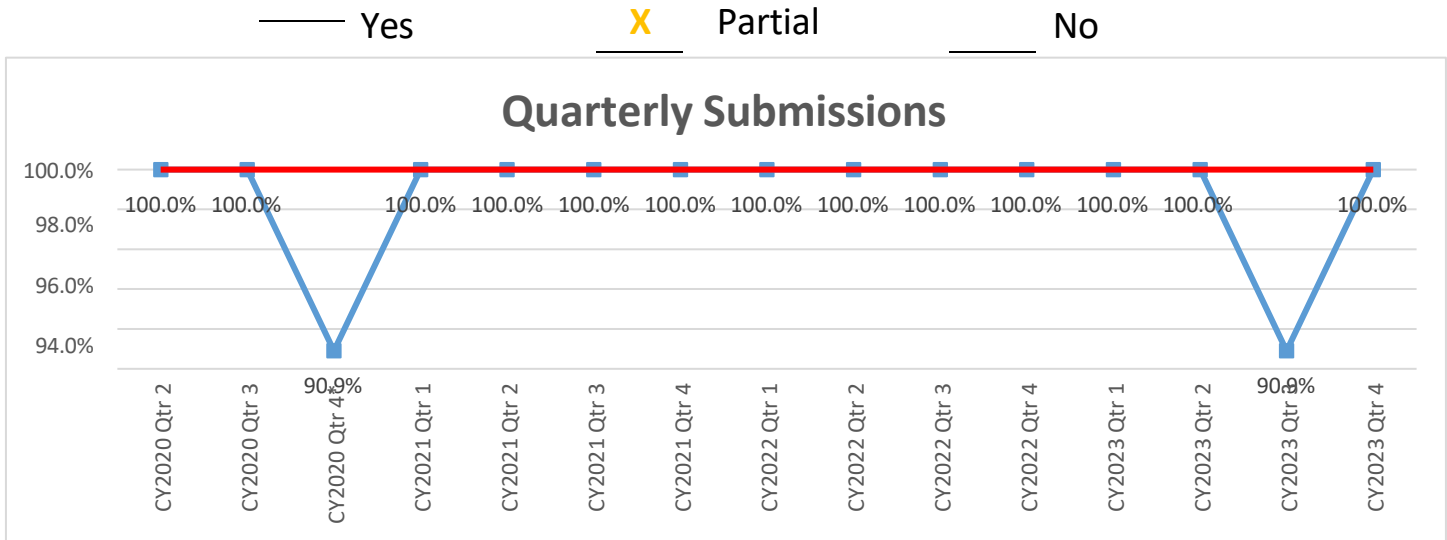|	Number Accepted By NTDS	Number Submitted to NTDS	Percentage
Annual Submissions	8,721	8,776	99.4%
Quarterly Submissions	11,479	11,487	99.9%
Total Submissions	**20,200**	**20,263**	**99.7%**

Notes:
- We are meeting this measure with 97.3% for calendar year 2023. The Trauma Registry now has an inclusion button for an ITDX report check that produces errors prior to NTDS submission. This allows the centers to correct their data prior to submission to the NTDS.

Performance Measure Statement	Measure (Baseline/Goal)
Verification of trauma records no later than 6 weeks after the end of each quarter.	All trauma patient records shall be submitted both quarterly and annually. Verification of counts and data element completeness shall be within six weeks after the end of each quarter. The goal is 100%.

Met Performance Measure:

—— Yes   **X** Partial   ___ No

Quarterly Submissions

100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 100.0% 90.9% 100.0%

Categories: CY2020 Qtr 2, CY2020 Qtr 3, CY2020 Qtr 4, CY2021 Qtr 1, CY2021 Qtr 2, CY2021 Qtr 3, CY2021 Qtr 4, CY2022 Qtr 1, CY2022 Qtr 2, CY2022 Qtr 3, CY2022 Qtr 4, CY2023 Qtr 1, CY2023 Qtr 2, CY2023 Qtr 3, CY2023 Qtr 4

Annual Submissions

100%   100%   100%   82%

June, 2019 to May, 2020   June, 2020 to May, 2021   June, 2021 to May, 2022   June, 2022 to May, 2023

Data not available for Annual Submissions (June 2023 to May 2024). Reporting deadline is July of this year.

Notes:

- Quarterly Submission CY2020 Qtr 4:
  - MIEMSS moved to a new version of the Maryland State Trauma Registry (ESO Gen 6). Only one center was slightly delayed as a result of the transition. That center's data was submitted a short while later.
- Quarterly Submission CY2023 Qtr 3 **AND** Annual Submission June 2022 to May 2023:
  - Due to changes in the system by the vendor, some of the centers periodically had difficulties submitting their data.

UNIFORMITY

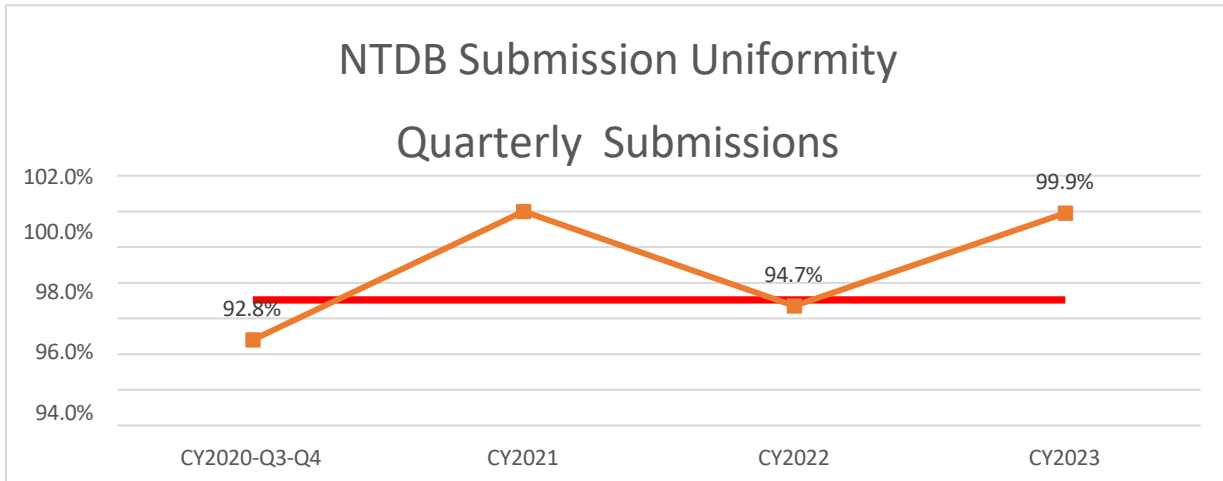| Performance Measure Statement	Measure (Baseline/Goal)
Ensure Maryland Trauma Registry (MTR) compliance with the National Trauma Data Standard (NTDS) standard data elements and responses through successful periodic submission to NTDS.	Each trauma center submits directly to the NTDS. MIEMSS currently does not receive feedback directly from the NTDS. Each hospital reports the number of records successfully submitted to MIEMSS. The goal is 95%.

Met Performance Measure - ANNUAL:

__X__ Yes   _____ Partial   _____ No

Met Performance Measure - QUARTERLY:

__X__ Yes   _____ Partial   _____ No

NTDB Submission Uniformity — Annual Submissions
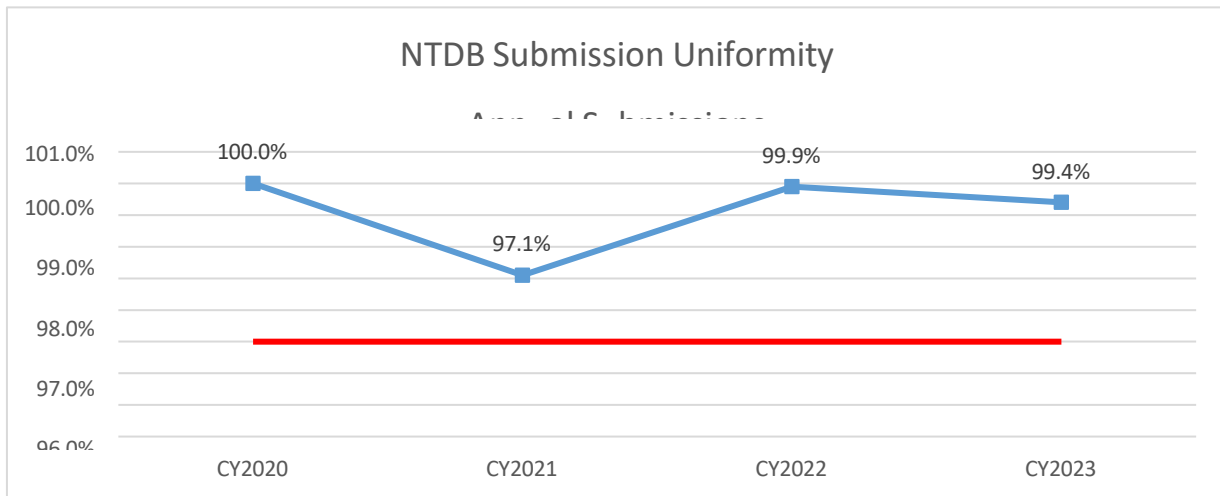
Note: CY2022, reporting one (1) facility.

NTDB Submission Uniformity — Quarterly Submissions

Note: CY2022: Two (2) facilities reported first 3 quarters. Three (3) reported all quarters.

Notes:

- There are eleven (11) designated trauma centers in the State of Maryland. Of these centers, five (5) report annually and six (6) report quarterly.
    - Annual Reporting Centers:
        - American College of Surgeons (ACS) NTDS requires annual data submission.
        - In CY2023, Maryland has met the measure. All centers have submitted data for CY2023.
    - Quarterly Reporting Centers:
        - Quarterly Submission are made by ACS-TQIP Centers – TQIP collects more data points (performance measures) than the general NTDS and requires more frequent submissions. The goal for the quarterly data submission was also met.

###

Appendix 10: Citation Data Quality Review (NSC)

Note: This is only can be viewed as a report on data received by NSC, not an assessment of the original Maryland Judiciary records. NSC does not/may not receive every field from the Court's database, depending on MOU/DUA. This is only an evaluation of available data for analysis purposes at the NSC.

2022 Citation Data (Data Received March 2024):

The 2022 citation database contains a total of 622,953 observations and 107 variables. Notably, there are numerous special characteristics in the Full Name and License variables.

We have observed improvements in the License Number variable. Previously, this field had several issues, including the presence of special characters, redundant alphabets, various synonyms for unknown license numbers, and spelling errors. Additionally, some license numbers were coded as sequences like 000, 0000, 00000, etc.

This year, we have seen some progress. Special characters and redundant alphabets have been eliminated, and only 2% of license numbers are missing or blank. However, issues remain with coding, as some license numbers are still represented as 00, 000, 0000, 00000, 00000000, none, nolicense, xx, xxxxxxx, xxxxxxxxxx, etc., along with spelling errors.

There are few variables where more than 90% of observation are missing/blanks such as batch number (93% missing), case circuit court case (99.6% missing and rest coded as X), case commercial vehicle license (96% missing and rest coded as X), case commercial vehicle (93% missing), case contrib accident (95% missing and rest coded as X), case fatal accident (99.9% missing and rest coded as X). It is possible that "X" indicates "Yes" and missing indicates "No", but that is merely an assumption.

Despite these ongoing issues, the License Number variable has improved compared to previous years. Among all citations, 79% have a Maryland (MD) license state, and of these, 80% have valid license numbers. There are no duplicate citation numbers.

There is definitely a need for a data dictionary. For a long time, NSC has been referencing the citation manual and online resources to understand the meaning of various variables. However, there are still some variables that remain unclear. For instance, the "arrest type" variable is coded both alphabetically and numerically, and we lack information on its definition and description. Additionally, the "case district" variable, coded as 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, and 12, also lacks definition and description.

2021 Citation Data (Data Received March 2024):

The 2021 citation database contains a total of 647,042 observations and 107 variables. Notably, there are numerous special characteristics in the Full Name and License variables.

We have observed minimal improvement in the License Number variable. Previously, this field had several issues, including redundant alphabets, various synonyms for unknown license numbers, and spelling errors. The only notable improvement is a reduction in redundant alphabets.

However, many license numbers are still incorrectly coded as sequences like 000, 0000, 00000, P0000000000, M00000000, C9999999999, etc. This problem has persisted for years. It's crucial to ensure that if a license number is unavailable, it should simply be entered as "Unknown."

This year, we've also noticed the use of special characters in license numbers. Currently, only 2% of license numbers are missing or blank. However, issues remain with coding, as some license numbers are still represented as 00, 000, 0000, 00000, 00000000, none, nolicense, xx, xxxxxxx, xxxxxxxxxx, etc., along with spelling errors.

There are few variables where more than 90% of observation are missing/blanks such as batch number (93% missing), case charge code (98% missing), case circuit court case (99.5% missing and rest coded as X), case commercial vehicle license (96% missing and rest coded as X), case commercial vehicle (93% missing), case contrib accident (95% missing and rest coded as X), case fatal accident (99.9% missing and rest coded as X).

Approximately 49% of the time, the fine amount is zero. In instances related to size, weight, and load violations, the maximum fine can reach $2040. However, there are situations where fines exceed this amount. No indication is given as to why some fines surpass the $2040 limit.

In 88% of the cases, the recorded speed is zero. This suggests that either the speed was not recorded, or it represents a parked or stationary vehicle.

After 2018, the dataset contained a limited variety of plea types. Although we have made efforts to incorporate all plea types, it's worth noting that the most recent data may not include all of them.

Among all variables, approximately 37% of them have more than 90% of values missing.

Summary Points

2022 Citation Data:

The 2022 citation database contains a total of 622,953 observations and 107 variables. Notably, there are numerous special characteristics in the Full Name and License variables.

- **License Number Improvements**:
  - Previously, this field had several issues, including the presence of special characters, redundant alphabets, various synonyms for unknown license numbers, and spelling errors.
  - Some license numbers were coded as sequences like 000, 0000, 00000, 99999,99999, etc.
  - This year, we have seen some progress. Special characters and redundant alphabets have been eliminated, and only 2% of license numbers are missing or blank.
  - However, issues remain with coding, as some license numbers are still represented as 00, 000, 0000, 00000, 00000000, none, nolicense, xx, xxxxxxx, xxxxxxxxxx, etc., along with spelling errors.
- **Missing Data in Variables**:
  - Batch number: 93% missing.
  - Case circuit court case: 99.6% missing (rest coded as X)
  - Case commercial vehicle license: 96% missing (rest coded as X)
  - Case commercial vehicle: 93% missing.
  - Case contrib accident: 95% missing (rest coded as X)
  - Case fatal accident: 99.9% missing (rest coded as X)
  - It is possible that X indicates "Yes" and a missing value indicates "No" but no information is given to support that assumption.
- **License Number Analysis**:
  - Among all citations, 79% have a Maryland (MD) license state, and of these, 80% have valid license numbers. Note that, these valid License numbers have been calculated based on the old format of License number in Maryland.
  - There are a total 75,140 citations issued to drivers having a driver's license beginning with "MD" followed by a series of numbers, for a total of 12.1% of all citations issued that year. Among those, there were citation where 0.4% citations have invalid license number, fox example, MD, MD00000000, MDNONE, MDXXXXXXXX, PMD00000000, etc.
  - There are no duplicate citation numbers.
- **Need for Data Dictionary**:
  - NSC has been referencing the citation manual and online resources to understand the meaning of various variables.
  - Some variables remain unclear, such as:
    - "Arrest type" variable is coded both alphabetically and numerically without a clear definition.
    - "Case district" variable, coded as 01, 02, 03, 04, 05, 06, 07, 08, 09, 10, 11, and 12, lacks definition and description.
    - Race variables is coded both alphabetically and numerically without a clear definition.

2021 Citation Data:

The 2021 citation database contains a total of 647,042 observations and 107 variables. Notably, there are numerous special characteristics in the Full Name and License variables.

- **License Number Minimal Improvement**:

- o Previously, this field had several issues, including redundant alphabets, various synonyms for unknown license numbers, and spelling errors.
  - o The only notable improvement is a reduction in redundant alphabets.
  - o Many license numbers are still incorrectly coded as sequences like 000, 0000, 00000, P0000000000, M00000000, C9999999999, etc.
  - o This problem has persisted for years.
  - o It's crucial to ensure that if a license number is unavailable, it should simply be entered as "Unknown."
  - o This year, we've also noticed the use of special characters in license numbers.
  - o Currently, only 2% of license numbers are missing or blank.
  - o Issues remain with coding, as some license numbers are still represented as 00, 000, 0000, 00000, 00000000, none, nolicense, xx, xxxxxxx, xxxxxxxxxx, etc., along with spelling errors.
  - o There are no citations where License number starts with "MD".
- **Missing Data in Variables**:
  - o Batch number: 93% missing.
  - o Case charge code: 98% missing.
  - o Case circuit court case: 99.5% missing (rest coded as X)
  - o Case commercial vehicle license: 96% missing (rest coded as X)
  - o Case commercial vehicle: 93% missing.
  - o Case contrib accident: 95% missing (rest coded as X)
  - o Case fatal accident: 99.9% missing (rest coded as X)
  - o It is possible that X indicates "Yes" and a missing value indicates "No" but no information is given to support that assumption.
- **Plea Types After 2018**:
  - o The dataset contained a limited variety of plea types.
  - o Efforts have been made to incorporate all plea types, but the most recent data may not include all of them.
- **Fine Amount Analysis**:
  - o Approximately 49% of the time, the fine amount is zero.
  - o In instances related to size, weight, and load violations, the maximum fine can reach $2040. However, there are situations where fines exceed this amount. No information is given as to why some fines surpass the $2040 limit.
  - o
- **Speed Recording Issue**:
  - o In 88% of the cases, the recorded speed is zero. This suggests that either the speed was not recorded, or it represents a parked or stationary vehicle.
- **Missing Values**:
  - o Among all variables, approximately 37% of them have more than 90% of values missing.

Recommendations:

- Develop a comprehensive data dictionary to clarify the definitions and descriptions of all variables. NSC is consistently working to improve it, however, we need additional information and clarification from our data partners.
- Address the inconsistencies in the "arrest type" and "case district" variables.
- Standardize the coding for license numbers, ensuring that unavailable license numbers are consistently entered as "Unknown."
- Investigate the reasons behind zero fine amounts in nearly half of the cases.
- Review and correct the recording of vehicle speeds to ensure accurate data.
- Update the dataset to include a full range of plea types.
- Investigate the reasoning on why 37% of variables have 90% missing values.

Appendix 11: FFY2024-2025 TRSP Projects with Funding Sources

#	Project	Funding
	• Maryland Center for Traffic Safety Analysis (MCTSA) (National Study Center for Trauma and EMS)	NHTSA 405c
	• Seat Belt Observation Project (NOPUS Analysis) (National Study Center for Trauma and EMS)	NHTSA 405b
	• Implementation of Web Based Crash Forecasting Application and Approaches to Reach Zero Deaths in MD (Crash CORE/National Study Center)	NHTSA 402
	• Toxicology Sampling (Drugged Driving Data Project) (National Study Center for Trauma and EMS) • Impaired Driving Analysis and SPIDRE Support (Washington College) • DRE Database Development in Delta Plus (MSP ITD)	NHTSA 405d
	• Traffic Records Program Manager/MHSO TRCC Coordinator Position	NHTSA 405c
	• Traffic Records Data Improvement and Accessibility (Washington College)	NHTSA 405c
	• Maryland Safety and Crash Analysis Network (MSCAN)	State Funding; FHWA HSIP
	• Customer Connect (Driver and Vehicle Systems, MDOT-MVA)	Maryland State Funds
	• CDLIS, State State/SPEXS (MDOT-MVA)	Maryland State Funds
	• PRISM (MDOT MVA) • FMCSA Facial Recognition Pilot Program (MDOT MVA)	FMCSA
	• SAFETYNET Data Management (SHA Motor Carrier Division)	FMCSA
	• Commercial Vehicle Crashes Dashboard Development (Washington College and SHA Motor Carrier Division)	FMCSA
	• Race/Ethnicity and Traffic Stops in Maryland (NSC; Washington College; Crash CORE)	1906
	• Crash Data Improvements	SEDC

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