

Maryland Traffic Records Coordinating Committee

Traffic Records Strategic Plan FFY 2016–2020

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Traffic Records Coordinating Council Overview

The State of Maryland Department of Transportation (MDOT) has a vision of providing its citizens with safe roadways and this vision is called *Toward Zero Deaths*. Maryland's interim goal is to reduce vehicle-related deaths by 50% by 2030 with zero traffic-related deaths being the ultimate goal.

The Traffic Records Coordinating Committee (TRCC) is an interagency effort that is based on a model from the Federal Department of Transportation. The TRCC is a committee of data owners, managers, and users representing six traffic records system components (crash, roadway, citation/adjudication, driver, vehicle, injury surveillance) and uses six data quality performance measures (timeliness, completeness, accuracy, accessibility, integration, uniformity) to evaluate progress. The Maryland TRCC has functioned for nearly two decades in an effort to advance the traffic safety community in achieving the vision of zero traffic-related deaths. The TRCC has developed a Vision and a Mission Statement to guide the State's efforts in these areas.

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 that enable the Maryland traffic safety community to identify and resolve traffic safety issues to achieve zero traffic-related deaths.

Maryland's TRCC shall:

- have authority to review any of the State's highway safety data and traffic records systems 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 systems, 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, the TRCC coordinator, 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.

Executive Summary

The TRCC's vision, objectives, and strategies comprise 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 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.

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 from member organizations that are custodians of the Maryland's traffic records systems, 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.

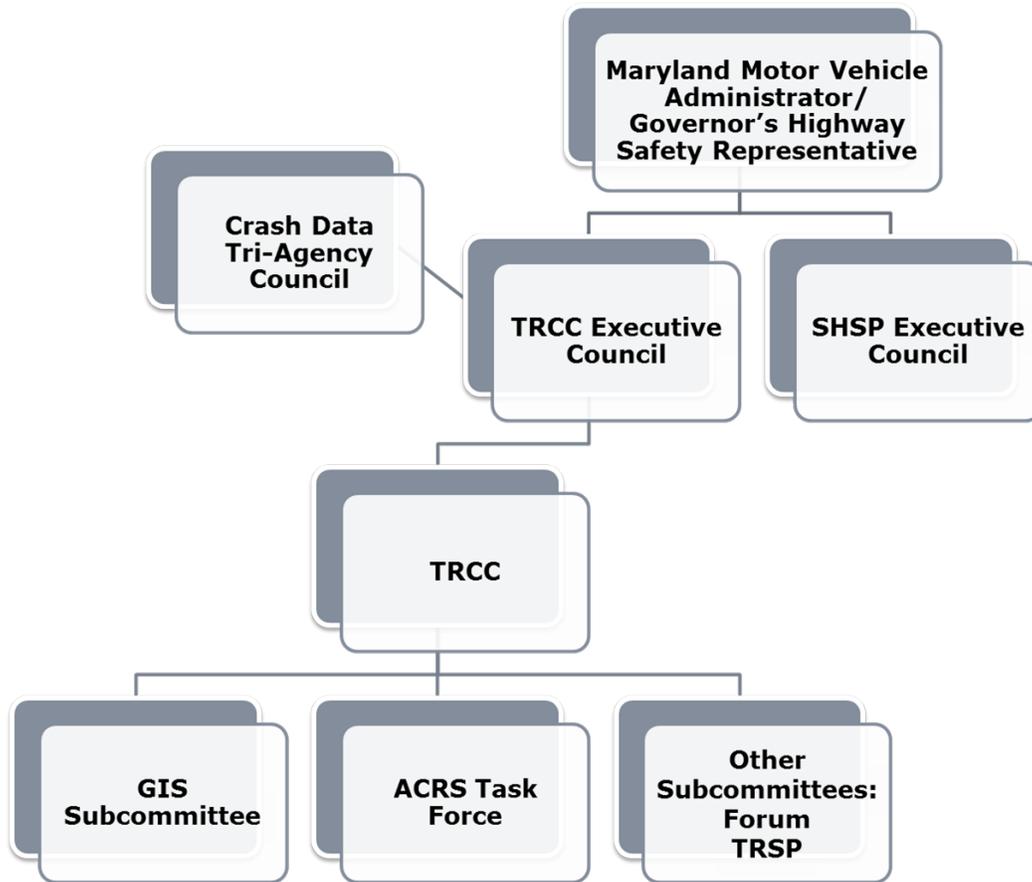
Currently, Maryland's Governor's Highway Safety Representative is designated as the Administrator of the Motor Vehicle Administration (MVA), a business unit of the Maryland Department of Transportation. This individual is also the representative responsible for overseeing the TRCC. The Maryland Department Of Transportation's Maryland Highway Safety Office (MHSO) is responsible for the day-to-day leadership and coordination of the TRCC as designated through the TRCC Charter. The 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. These individuals 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 the 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 systems.

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

System	Icon	Agency(ies)
1. Crash		Maryland State Police (custodial agency); Maryland State Highway Administration (management agency)
2. Citation/Adjudication		Maryland State Police (MSP) Maryland District Court
3. Driver		Maryland Motor Vehicle Administration (MVA)
4. Vehicle		Maryland Motor Vehicle Administration (MVA)
5. Roadway		Maryland State Highway Administration (SHA)

<p>6. Injury Surveillance System</p> <ul style="list-style-type: none"> a. pre-hospital emergency medical services (EMS) b. trauma registry c. emergency department d. hospital discharge e. mortality data (e.g., death certificates autopsies, and medical examiner reports) 		<p>Maryland Institute for Emergency Medical Services Systems (MIEMSS) Maryland Health Services Cost Review Commission (HSCRC) Maryland Department of Health and Mental Hygiene (DHMH)</p>
<p>7. All (Overall Support)</p>		<p>Maryland Department of Information Technology (DoIT)</p>
<p>8. TRCC Management</p>		<p>Maryland Motor Vehicle Administration Highway Safety Office (MHSO)</p>

Introduction, Background, and History

In 2005, Congress recognized a need for states to develop and implement comprehensive data systems in the Safe, Accountable, Flexible and Efficient Transportation Equity Act (SAFETEA). That bill required each State to establish and maintain a safety data improvement program to include all traffic records system components. Accordingly, NHTSA further stressed, “(State) Traffic Records Coordinating Committees (TRCCs) should be organized and functioning in each State to build, strengthen, and provide the leadership needed to ensure that State resources for traffic safety data are coordinated.” All State data systems are reliant on accurate, accessible, complete, integrated, uniform, and timely data. States rely on many different partners to assist in the collection and maintenance of traffic records data.

To qualify for federal funding for traffic records system improvements, each State must submit a Traffic Records Strategic Plan (TRSP) to NHTSA.

This 2016–2020 TRSP incorporates all traffic records system components as identified in NHTSA’s Traffic Records Program Assessment Advisory and identifies and prioritizes performance measures as the focus to help Maryland use a systems approach to proactively identify the resources needed (legislative, organizational, or budgetary) to efficiently and effectively reach these goals. Deficiencies identified in Maryland’s 2014 NHTSA Traffic Records Assessment are addressed so that Maryland’s traffic records system meets or exceeds national standards.

2011–2015 TRSP

This new plan brings to a conclusion the 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 April 2010, Maryland completed a Traffic Records Assessment in partnership with NHTSA. The Traffic Records Assessment is a technical assistance tool that NHTSA offers to State offices of highway safety to allow management to review the State’s traffic records program and to compare to national standards established by NHTSA and the Governors Highway Safety Association (GHSA). The purpose of the Assessment was to determine the degree to which Maryland’s traffic records system is capable of identifying the State’s highway safety problems, of managing the countermeasures applied to reduce or eliminate those problems, and of evaluating those programs for their effectiveness.

An independent team of professionals with backgrounds and expertise in the component areas of traffic records data systems (crash, driver, vehicle, roadway, citation and adjudication, and injury surveillance) conducted the assessment and delivered a final report with prioritized recommendations for improvement. The TRCC and the MHSO regard the Traffic Records Assessment as the primary evidence-based and data-driven problem identification component of the Maryland Traffic Records System.

In July, 2010, members of the Maryland TRCC also participated in the Federal Highway Administration (FHWA) Crash Data Improvement Program (CDIP) and the TRCC was provided an Evaluation Report in September, 2010. The CDIP is an intensive evaluation of the crash data system in the State and evaluates methods and technologies for collection, management, sharing, and analysis of crash data. All recommendations from the Traffic Records Assessment and CDIP Reports were used to develop the objectives in Maryland TRSP. On November, 17, 2010, the TRCC Executive Council formally adopted the TRSP, which remains in effect until the acceptance of the 2016–2020 plan.

In March, 2012, the members of the Maryland TRCC participated in FHWA's Roadway Safety Data Partnership (RSDP). This process was similar to the CDIP but applied only to the roadway data system. A *Maryland Safety Data Action Plan* was submitted to the TRCC and recommendations from the report were reviewed by the State Highway Administration to be considered for inclusion in the TRSP.

NHTSA previously developed the Traffic Records Improvement Program Reporting System (TRIPRS) for tracking of all traffic records projects and performance measures. It also served as a means for State highway safety offices to submit applications for traffic records funding and fulfill other reporting needs. In 2014, TRIPRS was discontinued and the MHSO partnered with the National Study Center for Trauma and EMS (NSC) to maintain the TRSP in a comparable format to meet the annual submission requirements to NHTSA in the MHSO Highway Safety Plan (HSP).

2016–2020 TRSP

To assess progress toward the State's goals and to prepare for the 2016–2020 TRSP, a follow-up Traffic Records 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 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 Appendix 4.

The TRCC developed this five-year TRSP to coincide with the new Maryland SHSP (2016–2020). The alignment of the two major traffic safety plans—each being written with reflections of each other—further strengthens the alliance 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. Echoing this development, 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 measure successful strategies.

Traffic Records Logic Model

Maryland designed a Traffic Records logic model as a visual representation of project flows, program structure, and intended goals/outcomes. During the five-year plan, the logic model is subject to change.

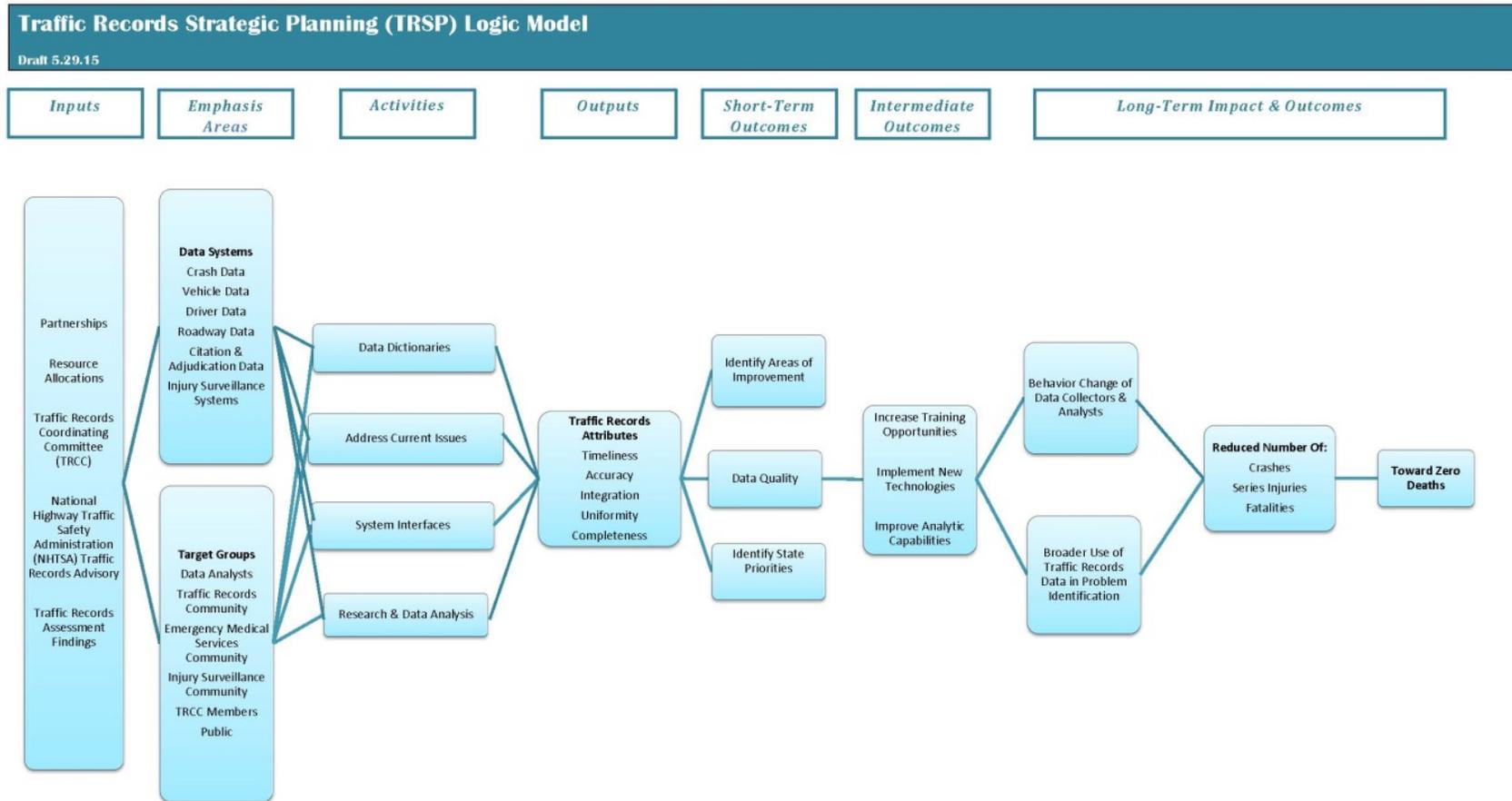
Components of the Maryland Traffic Records Logic Model

- 1) **Inputs:** Otherwise known as resources, aide in the development and overall success of the program.
 - a) Partnerships, Resource Allocation, Traffic Records Coordinating Council, National Highway Traffic Safety Administration Traffic Records Advisory, Traffic Records Assessment Findings.

- 2) **Emphasis Areas:** Currently implemented topics associated with the Maryland Traffic Record System and those affected by the program.
 - a) Data Systems: Crash Data Systems, Vehicle Data Systems, Driver Data Systems, Roadway Data Systems, Citation and Adjudication Systems, Injury Surveillance Systems.
 - b) Target Groups: Data Analysts, Public, Traffic Records Community, Emergency Medical Services community, Roadway engineers, Injury Surveillance System components, Traffic Records Coordinating Council.

- 3) **Activities:** Help to achieve the overall outcome.
 - a) Develop Data Dictionaries.
 - b) Address Current Issues.
 - c) System Interfaces.
 - d) Research Data and Analysis.
- 4) **Outputs:** Outline the attributes of a traffic records system used to track improvement.
 - a) Timeliness, Accuracy, Integration, Accessibility, Uniformity, Completeness.
- 5) **Short-Term Outcomes:** Results which should occur within the first year of the program.
 - a) Identify Areas of Improvement.
 - b) Data Quality.
 - c) Identify State Priorities.
- 6) **Intermediate Outcomes:** Results which should occur between years two and three of the implementation of the TRSP.
 - a) Increase Training Opportunities.
 - b) Implement New Technologies.
 - c) Improve Analytic Capabilities.
- 7) **Long-Term Impacts:** Results which should occur throughout the implementation and life of the TRSP with some outcomes rolling over to the next five-year plan.
 - a) Behavior Change through training for Data Collectors and Analysts.
 - b) Broader Use of Traffic Records Data in Problem Identification.
- 8) **Long Term Outcomes:** These results begin to occur and outputs tracked throughout the life of the TRSP. As with the long-term impacts, some of the long-term outcomes will roll over to the next five-year plan.
 - a) Over-all reduction in the number of: crashes, serious injuries, and fatalities.
- 9) **Overall Outcome:** Maintains Maryland's overall focus and components of traffic safety throughout the State—*Toward Zero Deaths*.

Figure 2: Maryland’s Traffic Records Logic Model



TRCC Strategic Planning Process

A Traffic Records Strategic Plan Steering Committee was formed in February 2015 to guide the development of the 2016–2020 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 deficiencies 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 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 opportunities from Maryland’s 2014 Traffic Records 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 TRCC 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 and 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 in one-year, three-year, and five-year increments, 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 deficiencies.
- Identify, prioritize, and implement at least one annual training and technical assistance effort to improve State traffic records data systems.
- 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 state traffic records data systems.

Traffic Records Assessment—NHTSA Recommendations

In 2014, Maryland underwent a Traffic Records Assessment to conduct a comprehensive analysis of its traffic records systems based on the NHTSA ideal. The Assessment was conducted over a period of three months, starting in August 2014. A final report was accepted by Maryland in early December 2014 and the TRCC quickly formed a Traffic Records Strategic Plan Steering Committee. Out of 391 assessment questions, Maryland met the Advisory ideal for 219 questions (56%). Maryland received high ratings for its management of the TRCC and for Data Use and Integration, but had the most need for improvement in the Strategic Planning component. The development of the 2016–2020 TRSP in a systematic approach is meant to immediately address the deficiencies observed in the Assessment.

Under federal regulations for traffic records funding (405(c)), states must include all recommendations from the most recent Traffic Records Assessment in the TRSP. Those recommendations are included here as well as highlighted in each of the specific sections throughout this plan. They are also used as an example in Appendix 4.

Strategic Planning Recommendation

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

Crash Recommendations

- Improve the procedures/process flows for the Crash data system that reflect best practices identified in the Traffic Records Program Assessment Advisory.
- Improve the interfaces with the Crash data system that reflect best practices identified in the Traffic Records Program Assessment Advisory.
- Improve the data quality control program for the Crash data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.

Vehicle Recommendations

- Improve the applicable guidelines for the Vehicle data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.

- Improve the data quality control program for the Vehicle data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.

Driver Recommendations

- Improve the description and contents of the Driver data system that reflect best practices identified in the Traffic Records Program Assessment Advisory.
- Improve the data quality control program for the Driver data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.

Roadway Recommendations

- Improve the procedures/process flows for the Roadway data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.
- Improve the data quality control program for the Roadway data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.

Citation /Adjudication Recommendations

- Improve the data dictionary for the Citation and Adjudication systems that reflects best practices identified in the Traffic Records Program Assessment Advisory.
- Improve the interfaces with the Citation and Adjudication systems that reflect best practices identified in the Traffic Records Program Assessment Advisory.

EMS/Injury Surveillance Recommendations

- Improve the interfaces with the Injury Surveillance systems that 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.

SWOT Analysis

During the strategic planning process, the Steering Committee conducted a SWOT (strengths, weaknesses, opportunities, threats) analysis to obtain a general sense of the overall standing of Maryland's TRCC. The analysis examined strengths and weaknesses due to internal factors and opportunities and threats caused by external factors. Maryland aspires to build a traffic records program that is sustainable and institutionalized. (Full SWOT findings can be found in Appendix 2.)

Federal Inclusion Criteria

Throughout the five-year plan, the TRCC Program Manager is expected to provide the National Highway Traffic Safety Administration (NHTSA) with regular updates on the progress of the State's plan. NHTSA Regional Representatives 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. Appendix 3 shares additional detail on ways that the State has and may continue to pursue the possibility of receiving federal safety program funds.

Operations Plan

An operations plan identifies the smaller projects that comprise the big opportunities and details regarding how the project will be executed. It includes and outlines a timeline to focus efforts strategically.

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 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

There are three major components for traffic records, as established in the Advisory:

- 1) Traffic Records System Management
 - a) Traffic Records Coordinating Committee (TRCC)
 - b) Strategic Planning
- 2) Data Use and Integration
- 3) Traffic Records Systems
 - 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) in an effort 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 to include data definitions and flow diagrams for each component system.
2. ***Strengthen the TRCC's abilities for strategic planning that reflect best practices identified in the Traffic Records Program Assessment Advisory.***¹

¹ Bold and italicized strategies are Recommendations provided in the Traffic Records Assessment.

3. Prioritize strategic plan responsibilities through the use of annual timelines.
4. Catalog and publish data release policies and/or data sharing agreements from all partners with traffic record data, specifically identifying rules that allow intra and interagency access, and public access.
5. Review and prioritize federal data element requirements (e.g., Model Minimum Uniform Crash Criteria Guideline (MMUCC), National Emergency Medical Services (EMS) Information System (NEMSIS), and Model Inventory of Roadway Elements (MIRE)) needed to enhance State traffic records data improvement systems.
6. Critically appraise the TRCC's direction, strategy, and business approaches as outlined in the approved Charter.
7. 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.

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 perspective 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), policy-makers, and general public

Prioritized Strategies

1. Implement through legislative action and individual agency policy 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 component systems 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.

Crash Data

Description

The crash data is the keystone of a State's traffic records system. The crash data not only holds the basic data critical to developing and deploying effective traffic safety countermeasures, it frequently also serves 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:

- **Who:** Information about the drivers, occupants, and non-motorists involved in a crash (e.g., license status, age, sex).
- **What:** Information about the type of vehicle involved in a crash (e.g., make, model, body type, vehicle registration).
- **When:** Information detailing the time a crash occurred (e.g., time of day, day of week).
- **Where:** Information about the crash location (e.g., location name, coordinates, type, attributes).
- **How:** Information describing the sequence of events and circumstances related to a crash—up to and including the first harmful event through the end of a crash and its consequences (e.g., damage, injury).
- **Why:** 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 assists 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 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 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 systems/components.
3. ***Improve the data quality control program for the Crash data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.***
4. Develop and maintain a comprehensive data quality management protocol to monitor collection, submission, processing, posting, and maintenance of crash data.

5. Provide a complete list of crash system timeliness, accuracy, completeness, uniformity, integration, and accessibility measures the State uses, including the most current baseline and actual values for each.
6. Define and provide a list of data elements for property-damage-only crash submission criteria for the statewide crash system.
7. ***Improve the interfaces with the Crash data system that reflect best practices identified in the Traffic Records Program Assessment Advisory.***
8. 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).
9. ***Improve the procedures/process flows for the crash data system that reflect best practices identified in the Traffic Records Program Assessment Advisory.***

Driver and Vehicle Data

Description

Driver: The driver data 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 the state's boundaries.

Vehicle: The vehicle data is an inventory of data that enables the titling and registration of each vehicle under the State's jurisdiction to ensure 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, CDL employers, judicial system

Prioritized Strategies

1. Incorporate Maryland Motor Vehicle Administration (MVA) Project Core updates (actions to modernize, standardize and integrate core MVA business systems to enable outstanding customer service, safety, and security) as they relate to the traffic records community into TRCC meetings.
 - Track National Motor Vehicle Title Information System (NMVTIS) querying (vendors, dealers) progress.
 - Document progress in meeting the requirements necessary for participation in NMVTIS by:
 - establishing compliance standards for retailers and vendors,
 - tracking number and percent of retailers and vendors in compliance,
 - tracking timely submission to NMVTIS, and
 - increasing uniformity.
 - 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 the National Law Enforcement Telecommunications System (NLETS) connection for law enforcement to access driver and vehicle data.
3. Continue the implementation of Performance Information Systems Management (PRISM), a cooperative Federal Motor Carrier Safety Administration (FMCSA) State safety program to reduce commercial vehicle crashes by:
 - determining the safety fitness of the motor carrier prior to issuing license plates, and

- motivating the carrier to improve its safety performance either through an improvement process or the application of registration sanctions.
- 4. Evaluate the need to include Blood Alcohol Content (BAC) information on the driving record and what actions would be required to have this information on the driving record in a reasonable timeframe.
- 5. **Improve the data quality control program for the Vehicle and Driver data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.**
- 6. Assist the driver and vehicle system custodians with developing quality management systems that list performance measures for timeliness, accuracy, completeness, uniformity, accessibility, and integration.
- 7. Maintain a data dictionary for the driver and vehicle systems and include this information as part of Maryland's traffic records inventory.
- 8. Determine if critical and essential administrative actions are being added to driving records and determine what actions would be required to have additional information added to the driving record.
- 9. Maintain process flow diagrams and written narrative details that outline data submission, returning and resubmission requirements for the driver, and vehicle systems and include in traffic records inventory.
- 10. Develop and maintain interfaces between the driver and vehicle systems with other components of the traffic records system.
- 11. Develop and implement a DUI tracking system following the recommendations from the National Highway Traffic Safety Administration (NHTSA) and in support of Maryland's Strategic Highway Safety Plan on a model Impaired Driving Records System (MIDRIS).
- 12. **Improve the applicable guidelines for the Vehicle data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.**
- 13. **Improve the description and contents of the Driver data system that reflect best practices identified in the Traffic Records Program Assessment Advisory.**

Roadway Data

Description

The State's roadway data comprises data collected by the State (State-maintained roadways and, in some cases, local roadways) as well as data from local sources such as county and municipal public works agencies and metropolitan planning organizations.

Target Customers

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

Prioritized Strategies

1. **Improve the procedures/ process flows for the Roadway data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.**
 - Maintain process flow diagrams and written narrative details that outline data submission, returning and resubmission requirements for the roadway system, including local agency procedures, and include in 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 (RSDCA).**

- 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 Maryland's traffic records inventory.
 - Document the SHA structure.
 - Enhance the roadway inventory to include a full data element list of all safety-related infrastructure attributes.
 4. Consider evaluating current systems using findings from the Roadway Data Improvement Program (RDIP), Roadway Safety Data Program (RSDP), and Roadway Safety Data Capability Assessment (RSDCA).
 5. Improve State roadway system to meet federal guidelines, All Roads Network of Linear-Referenced Data (ARNOLD).
 - Capture all public roadways using a compatible (uniform) location referencing system in the roadway system (collaborating with county partners) thus eliminating redundancy.
 - Maintain an enterprise roadway information system.
 - Maintain interfaces between the roadway information systems with each other
 - Expand the Model Inventory of Roadway Elements (MIRE) data elements collected to improve analytical analysis to develop and track potential countermeasures and identification of safety problems.
 6. Develop and maintain interfaces between the roadway information systems and the other components of the traffic records system.

Citation and Adjudication Data

Description

For traffic records purposes, the goal of the citation and adjudication data is to collect all the information relevant to traffic records-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, licensing system, Court system to include Drug/DUI Courts, Maryland State Highway Administration (SHA)

Prioritized Strategies

1. Maintain a citation tracking system (from issuance to disposition).
 - Include violations issued to commercial drivers/vehicles to the tracking system and make that information available to administrative stakeholders.
2. **Improve the interfaces with the Citation and Adjudication systems to reflect best practices identified in the Advisory.**
 - 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.

- Include BAC results on the driver history.
- 3. **Improve** (and maintain) *the data dictionaries for the Citation and Adjudication systems to reflect best practices identified in the Traffic Records Program Assessment Advisory.*
- 4. 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.
- 5. Assist the citation/adjudication systems with developing quality management systems that list performance measures for timeliness, accuracy, completeness, uniformity, accessibility, and integration.
- 6. Establish an effective process to ensure paper citations are submitted timely and accurately by law enforcement to the District Court.
- 7. Expand the use of Delta Plus with other federal partners.
- 8. 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.
- 9. Continue to expand the deployment and functionality of Delta Plus electronic citation capabilities as the standard for the State.
- 10. Improve the accuracy and collection of make, model, and location of the data through traffic citations.
- 11. 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

Injury Surveillance Data

Description

Ideally, the injury surveillance data 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, and efficient resource allocation.

This section incorporates:

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

Target Customers

Traffic records community, Injury Surveillance System components, 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 include in traffic records inventory .
2. Ensure injury surveillance systems (Emergency Department, Hospital Discharge, Trauma Registry, and Vital Records) aggregate data are available for analytical purposes.

3. Maintain data dictionaries for the core injury surveillance systems (EMS, Emergency Department, Hospital Discharge, Trauma Registry, and Vital Records), and include in traffic records inventory.
4. Develop, maintain, and **improve the interfaces with the Injury Surveillance systems that reflect best practices identified in the Traffic Records Program Assessment Advisory.**
5. Assist each of the injury surveillance systems (EMS, Emergency Department, Hospital Discharge, Trauma Registry, and Vital Records) with developing quality management systems that list performance measures for timeliness, accuracy, completeness, uniformity, accessibility, and integration.
6. Develop training, data collection manuals, and validation rules addressing high frequency errors for Maryland's performance areas from documented quality control methods and lists regarding timeliness, accuracy, completeness, and uniformity.
7. **Improve the data quality control program for the Injury Surveillance systems that reflects best practices identified in the Traffic Records Program Assessment Advisory.**
 - Document and ensure quality control processes for each of the core injury surveillance systems (EMS, Emergency Department, Hospital Discharge, Trauma Registry, and Vital Records) are in place to assess completeness, accuracy, timeliness, integration, accessibility, and uniformity updating records at a minimum every three years.
 - Track documented findings from quality control methods and lists regarding completeness, accuracy, timeliness, integration, accessibility, and uniformity.
 - Develop corresponding training, data collection manuals, and validation rules addressing high frequency errors for each performance area.
 - Assist partnering agencies with implementation of quality assurance and improvement procedures for collecting, editing, error checking, and submitting reports by tracking completeness, accuracy, timeliness, integration, accessibility, and uniformity.

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 for each of the traffic records systems as well as performance attributes. Included measures will be assessed on a yearly basis using accepted best practice standards. Draft measures will be developed by the State Traffic Records Coordinator and prioritized and adopted by the TRCC. A yearly summary of progress will be included as an addendum to this plan. Example performance measures used previously include: percentage of records present in the state crash database within 30 days of incident, percentage of records in the State crash database with GPS coordinates, and percentage of pedestrian records in the State crash database with date of birth.

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 TSIS 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. Appendix 4 provides an example of the data collection format that will be used throughout the five-year cycle of this plan.

Implementation Process

Strategies in the TRSP will be monitored annually in a progress performance report (see sample in Appendix 4). Appropriate actions 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 annual Highway Safety Plan.

Appendices

Appendix 1: Maryland Traffic Records Strategic planning Steering Committee

Appendix 2: Maryland Traffic Records System S.W.O.T. Analysis

Appendix 3: Federal Partners: Supporting Resources

Appendix 4: Sample Tracking Log of Traffic Records Assessment Recommendations

Appendix 5: References

Appendix 1: Maryland Traffic Records Strategic planning Steering Committee

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

Captain Danielle Bradshaw-Lee, Maryland Transportation Authority

Brian Brown, Maryland District Court

Cynthia Burch, University of Maryland Baltimore, National Study Center for Trauma & EMS

Sergeant Christopher Corea, Maryland State Police

Richard Johnson, Federal Motor Carrier Safety Administration

Deondra Jones, Maryland Motor Vehicle Administration

Timothy Kerns, University of Maryland Baltimore, National Study Center for Trauma & EMS

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Douglas Mowbray, Maryland Motor Vehicle Administration, Highway Safety Office

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Diedre Parish, Maryland Transportation Authority

Betty Rabbit, Maryland Motor Vehicle Administration

Deborah Rogers, Maryland Motor Vehicle Administration

Michel Sheffer, Maryland State Highway Administration

Dr. Hyeonshic Shin, Morgan State University

Ida Williams, Maryland State Police

Steering Committee Facilitator

Jacqueline Milani, University of Maryland Baltimore, National Study Center for Trauma & EMS

State Traffic Records Coordinator

Douglas Mowbray, Maryland Highway Safety Office

Appendix 2: Maryland Traffic Records System S.W.O.T. Analysis

Maryland Traffic Records System S.W.O.T. Analysis	
<p>Strengths</p> <ol style="list-style-type: none"> 1. all systems represented on the TRCC 2. support of all participants (incl. federal partnerships) 3. leadership 4. data accessibility & integration 5. training/sharing of information (MHSA support of Forum participation) 6. modernizing data systems 7. improved connection to traffic safety community (SHSP incorporates TRSP) 8. recent use of funding 9. traffic records/safety expertise & leadership in MD 10. analytical resources within data systems and for integrated data 11. statutes/laws requiring data collection 12. MD secured FMCSA Safety Data Improvement (SADIP) Grants to improve the crash upload accuracy for Commercial Motor Vehicle Crashes 	<p>Weaknesses</p> <ol style="list-style-type: none"> 1. no interfaces 2. limited executive-level participation 3. leveraging of funding 4. lack of legislative support (funding of projects) 5. understanding the unified vision of ‘traffic safety is public safety’ 6. incomplete regulations (i.e. State-level threshold for reporting) 7. no performance measures or metrics in use 9. accuracy of real-time data
<p>Opportunities</p> <ol style="list-style-type: none"> 1. reallocation of funding 2. recruit legislative support for traffic records projects 3. advocate for cost-benefit of traffic records investments on traffic safety outcomes 4. find overlap with other non-traffic safety systems (cost savings in other fields that benefit traffic safety) 5. explore federal collaboration (insight into new projects and grant opportunities) 6. consolidation of systems for efficiency (Statewide uniform data collection systems i.e. Delta+, eMEDS) 	<p>Threats</p> <ol style="list-style-type: none"> 1. reduction in funding (State & federal) 2. misunderstanding the unified vision of ‘traffic safety is public safety’ 3. loss of experts, institutional knowledge 4. decreased opportunities for training 5. staying up-to-date with technologies and advancements (incl. in 5 year plan) 6. security of systems and data (protection from internal and external threats) 7. greater access → increased demand which requires resources 8. accuracy of real-time data 9. roadside performance based measurement tools such as FMCSA CSA, citation data, etc. → influence on real time data

Appendix 3: Federal Partners: Supporting Resources

Federal Partners: Supporting Resources				
Type of Assessment or Analysis	Responsible Federal Partner	Description	Date Last Completed	Future Plans
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 States may consider in working to improve their traffic records system.	December 2014	
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.		
Impaired Driving Assessment	National Highway Traffic Safety Administration	Under a cooperative agreement with NHTSA, the American Probation and Parole Association (APPA) prepared this report on their development of a screening tool, Impaired Driving Assessment (IDA) to identify a DWI offender's risk of engaging in future conduct of impaired driving, and to help determine the most effective community supervision that will reduce such risk.		
OP 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.		
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 their 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.		
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	April 2012	

		expansion of roadway data for use in safety programs and decision-making. FHWA uses information gathered from the States to identify common themes and critical gaps to develop a national gap analysis and action plan.		
Safety Data Improvement Program	Federal Motor Carrier Safety Administration	Grants to improve the crash upload accuracy for Commercial Motor Vehicle Crashes in the State of Maryland.		
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.		
Compliance Safety and Accountability (CSA) program	Federal Motor Carrier Safety Administration	Is a roadside performance based measurement, therefore accurate real time data is very important.		
Go Teams	NHTSA	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.		

Appendix 4: Sample Tracking Log of Traffic Records Assessment Recommendations

MARYLAND TRAFFIC RECORDS ASSESSMENT RECOMMENDATIONS DECEMBER 2014							
REC LABEL	RECOMMENDATION	Not Addressed	No Progress	Pending Action	Some Progress	Significant Progress	Complete
SP1	Strengthen the TRCC's abilities for strategic planning that reflect best practices identified in the Traffic Records Program Assessment Advisory.						
Crash1	Improve the procedures/ process flows for the Crash data system that reflect best practices identified in the Traffic Records Program Assessment Advisory.						
Crash2	Improve the interfaces with the Crash data system that reflect best practices identified in the Traffic Records Program Assessment Advisory.						
Crash3	Improve the data quality control program for the Crash data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.						
Vehicle1	Improve the applicable guidelines for the Vehicle data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.						
Vehicle2	Improve the data quality control program for the Vehicle data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.						
Driver1	Improve the description						

	and contents of the Driver data system that reflect best practices identified in the Traffic Records Program Assessment Advisory.						
Driver2	Improve the data quality control program for the Driver data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.						
Roadway 1	Improve the procedures/ process flows for the Roadway data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.						
Roadway 2	Improve the data quality control program for the Roadway data system that reflects best practices identified in the Traffic Records Program Assessment Advisory.						
Citation1	Improve the data dictionary for the Citation and Adjudication systems that reflects best practices identified in the Traffic Records Program Assessment Advisory.						
Citation2	Improve the interfaces with the Citation and Adjudication systems that reflect best practices identified in the Traffic Records Program Assessment Advisory.						
ISS1	Improve the interfaces with the Injury Surveillance systems that reflect best practices identified in the Traffic Records Program Assessment Advisory.						
ISS2	Improve the data quality						

	control program for the Injury Surveillance systems that reflects best practices identified in the Traffic Records Program Assessment Advisory.						
SP1	Strengthen the TRCC's abilities for strategic planning that reflect best practices identified in the Traffic Records Program Assessment Advisory.						

Appendix 5: References

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