

Narrative/Work Plan

Section 1: Electronic Data Transfer (EDT)

The Department of Maryland State Police (MDSP) is responsible for the crash report system, the Automated Crash Reporting System (ACRS). All Maryland law enforcement agencies are required to submit reportable crash reports to the MDSP through ACRS electronically. ACRS was deployed to all state, local, and municipal law enforcement agencies in 2015 making the crash report one hundred (100) percent electronic. A reportable crash report in the State is defined as involving a personal injury or fatality. No state law requires any other crash to be submitted to the State; however, many agencies have policies that require officers to write a crash report for property-damaged vehicles where the vehicle is disabled in the crash. Agencies also can create an exchange of information form when the crash does not meet the threshold.

Federal agencies such as the military (e.g., Fort Meade) and the National Park Service (NPS) do not use ACRS but in some areas do complete crash investigations on public roads. While state and local and municipal participation in submitting ACRS reports is 100 percent, it is unknown how many additional reports could be included in the database if federal agencies either used ACRS or were able to submit reports to MDSP for inclusion in the data warehouse. Historically, MDSP has worked with MDOT and the United States Park Police (NPS/USPP) to obtain fatal crash investigations, amounting to approximately a dozen incidents each year.

The process for obtaining and integrating USPP into the MDSP data warehouse has been a complex, largely manual data translation and entry process, as outlined a 2021 GO Team Report and Maryland has not had the resources to streamline this process. Funding through the SEDC program will allow MDSP to improve the processes for including USPP and consider including other non-state agency crash investigations for inclusion in the warehouse. A need to standardize a process to import external data to the statewide system continuously, rather than end-of-year, is a necessity. A process will be developed to ingest the federal crashes into the warehouse where it will be made available to the EDT process as well as any user of the warehouse.

Maryland has been an EDT contributing state since its inception and sends crash reports every hour to NHTSA via the EDT service. The data transfer process is a combination of multiple systems developed to perform various tasks within the crash data, which are integrated to accomplish the data transfer efficiently. This process needs to be improved due to a change in the crash report on January 1, 2024. Since Maryland is already an EDT state, there would be a continuity of data transfer from the existing process to the new, improved process.

Maryland has a statewide repository, where the officer report is collected, as well as a data warehouse for crash data. The repository is the officer's report and is not modified or updated by anyone other than the reporting officer. This repository is the production database for the entire state to submit not only crash reports but other officer-initiated reporting such as traffic stops and field contacts. Officer reports are transferred to the repository every 6 hours to be made available to authorized users of the data warehouse. The warehouse is a direct copy of the production repository and will be used for the EDT process, which will enable a more modernized and enhanced data set.

The State uses an engineered Oracle server to handle the load and uptime required for crash data collection. The servers are regularly replaced due to end-of-life support as well as newer, more powerful hardware. The production servers are about two (2) years old and will need to be replaced within the next three (3) years. Prior to previous upgrades to the Oracle servers, the State had assessments which recommended other options such as a virtual environment or SQL server. It has been recommended each time to remain in the Oracle engineered environment to support the data and load from all agencies utilizing the application. Given the planned expansion of data elements and dashboards and number of users accessing the data warehouse, a reassessment of hardware and software needs will be conducted.

Maryland has been committed to sharing data efficiently with NHTSA and will continue to make improvements to ensure data transfer occurs. The State will redevelop the multi-tiered process to a more streamlined process which will support the NHTSA Information Exchange Package Documentation (IEPD) for EDT data transfer. The MDSP has developed a back-office application called DataHub to interact directly with multiple databases and create XML or JavaScript Object Notation (JSON) files. DataHub also pushes data to or pulls data from multiple partners whether it be direct database connections, secure file transfer protocol (SFTP), web services (Simple Object Access Protocol (SOAP) or Representational State Transfer (REST)), or email. These services within DataHub can be configured to be scheduled in timed intervals to meet the needs of the data freshness policies corresponding to each process.

Maryland uses different fields to identify crash reports that are recently approved as well as reports that have been updated and re-approved as a new version of the crash report. The process of generating a new version of the crash report and transmitting it via the EDT service will also detect subsequent/updated/later than one version, generating these updated crash reports as files to be sent to the EDT service. Using version numbers and specific approval dates, the updates will be identified and sent to the EDT service. Any deleted reports will be identified in a change tracking table indicating the deletion of a report. This deletion process will initiate the required information to be sent to the EDT service to delete any crash report data related to the report that was removed locally.

Through the date fields as well as the versioning field of the report, DataHub will send new and updated crash reports to NHTSA. The process within DataHub will generate the required files to be sent on an hourly basis to NHTSA. This process will be similar to what currently exists but will remove the multi-step process and be more efficient. The current process pulls the crash data from the production server and does not include any updates or integrated data from other sources. As other sources of data are integrated into the warehouse, the EDT data will be updated and enhanced with such data. Because the production environment is only used for the collection of the crash data and the viewing of the reports that have been approved, the EDT process will be initiated from the data warehouse. This change will allow mapping to the NHTSA IEPD directly and include the additional integrated data. As integrations are developed, data can be continuously incorporated into the standardized IEDP from NHTSA, reducing the effort required to make modifications to the submission process to NHTSA. The additional integrated datasets are outlined in

Section 3: Integration.

Section 2: Alignment to MMUCC

For more detail on MMUCC 6 see the supporting documentation:

MMUCC_6th_Edition_and_SEDC_Elements_and_Attributes_20240214_MD_SEDC_Application_Indications_cc

Since the State updated the crash report in January 2024, which largely used the 5th edition of MMUCC as a model, there will be a need to review the current version of the crash report and identify the next level of updates for the 6th edition of MMUCC. Through committee meetings, user feedback, and data analysis, the State will make modifications to meet the growing internal needs and to meet the MMUCC 6 requirements of this grant. At a minimum, the State will update ACRS to include the SEDC-required elements from MMUCC 6 within the timeframe of the program, and then will rely on stakeholders to review additional elements to make informed recommendations for any additional upgrades.

Similar to the MMUCC 5 review process MDSP and the TRCC will conduct a series of subject matter expert and data user panels to both review MMUCC 6 elements and consider any improvements to ACRS. As with the MMUCC 5 process, this consisted of a year-long effort with a facilitator gathering stakeholders together in person and virtually, often multiple times a month, to review and consider recommendations to be submitted to MDSP. Current staff do not have the capacity to conduct a year-long facilitation of stakeholders for a MMUCC 6 review, so a consultant will be hired to conduct and complete this activity.

Several years ago, Maryland considered creating a shorter crash report that would collect information relevant to all non-injury crash incidents, sometimes referred to as property-damage-only crashes. This idea of a “short form” would replace the ACRS crash report for property damage crashes and require a collection of data identified by a task force comprised of law enforcement and other traffic safety subject matter experts. The process for reviewing MMUCC 6 will work in conjunction with the facilitation of a short form task force.

The MDSP estimates more than 30,000 (a lower-end estimate) crashes are not reported every year and has started to collect information related to the Accident Exchange Form in Delta Plus. With more information and research, the State feels another look and evaluation of the short form is appropriate. This independent review would make a recommendation on the implementation of a short form and will increase the crash data collected and shared through the EDT process for crashes in Maryland.

Once a consensus is reached amongst stakeholders for new and revised elements that align with MMUCC 6, and the development team has made changes to ACRS, a group of law enforcement officers will convene to serve as test users. The testing group will go through a user-centered design process and will help guide upgrades to ensure there is minimal data entry (interfacing with other systems and datasets), logically ordered elements and attributes, user selections based on the crash type (to avoid any unnecessary fields for officers to review), and data validations. A varied spectrum of officers will be invited early in the process to ensure what is asked of them in the crash data collection is easy to use and will result in high quality data.

Section 3: Integration

Integrations will modernize the crash systems and allow for more accurate data while removing some of the data collection burden from the officer. Integration from source systems would include a review and validation process for data.

The MDSP and SHA have worked closely to modernize the location-based data within the crash report. Although a linear reference system is still tied to the location of a crash, GPS coordinates are now integrated into the collection of the appropriate location on a roadway. Through the roadway data file maintained by SHA, the MDSP can have the officer select a point on a roadway within 1/100 of a mile from any crash location. This enables the state to identify crash locations more accurately. Officers do not collect all the information that is required in the Model Inventory of Roadway Elements (MIRE). Additional data points in the roadway data will be integrated into the crash report or data warehouse, introducing new elements of roadway data that do not currently exist. This will remove multiple fields that officers are collecting and ensure more accurate data in the statewide repository. The review of MMUCC will guide which elements and attributes will be prioritized for integration from the source roadway inventory, e.g., number of lanes, type of barrier, speed limit, roadway geometry, and grade of roadway.

GPS coordinates are derived from both in-car technology and the SHA roadway file but are not verified by any additional validation methods to ensure accuracy. The precise location of the crash and the roadway issues is critical to developing countermeasures, therefore a comprehensive evaluation of GIS standards and Maryland law enforcement geospatial compliance must be conducted, and a program to validate and correct geospatial information will be implemented. Enhancing and streamlining location information will consist of an audit of GIS data infrastructure, stakeholder engagement, choosing appropriate software and tools for standardization and interoperability, custom tool development, integration of enhanced GIS validation between roadway inventories and GPS tracking systems and data warehouse operations, pilot testing with users, training, and ongoing support and upgrades. MDOT and MDSP will work with a qualified GIS agency to conduct these activities.

EMS data is maintained by the Maryland Institute for Emergency Medical Services Systems (MIEMSS) and collected electronically in the Maryland EMS Data System (eMEDS). MIEMSS has taken the lead for the initial implementation of this NEMESIS-compliant electronic Patient Care Record (ePCR) solution, providing a greater understanding of all emergency medical responses, including motor vehicle crash incidents. MIEMSS has a history of record interfaces with other entities with strict patient confidentiality adherence, including the State's Medical Examiner's Office, Hospital Emergency Departments, and Specialty Centers.

When an EMS provider responds to a crash, personnel collect data in eMEDS that is submitted to MIEMSS after the patient is transported to the hospital. Information regarding injuries, times for transport, type of transport, and where a patient was transported. Law enforcement attempt to collect the injury status of a crash victim as well as the unique EMS report number, but it is not always accurate. The system does not validate the entered report number on a crash report, leading to potential duplication for multiple victims or the inclusion of invalid report numbers.

A process will be developed that will allow MDSP to request information for a specific patient who was transported from a crash. The information provided will be included in the crash report warehouse data to ensure accuracy from the source system of EMS data. A unique identifier, related to all patient information at any time, will be established. This is a crucial piece of information for projects such as the Crash Injury Research Engineering Network (CIREN), to ensure patients can be tracked through the different stages of care. EMS providers perform a patient assessment in which they identify the severity of the injuries and classify the patient with varying scales. Information from the EMS provider will be used to validate and enhance a crash report before EDT submission. Values regarding seatbelt use and airbag deployment are collected by the officer as well as the EMS providers. These values can be validated and/or included if data is missing from the crash report.

Allowing injury severity and transport information to be retrieved from source data will add additional data not currently present on the Maryland crash report and will also enhance the accuracy of fields. Other current or future initiatives would also benefit from this new data resource. For instance, the FARS/eMEDS data reconciliation will improve with automated EMS time reporting, increasing accuracy and reducing duplication. To automate the reconciliation process, MIEMSS requires IT/server resources, application programming interface (API) development time and cost, and the development, testing, and validation of an algorithm for the automation of the FARS/eMEDS reconciliation. Additionally, ongoing maintenance of the API and monitoring of data transfer will be necessary.

The FMCSA data for commercial vehicles is available to identify and capture the appropriate carrier information from a DOT number. No relationship to this data exists for Maryland requiring the officer to collect information on every commercial vehicle including the carrier information. With the FMCSA SAFER connection, officers would only need to collect the DOT number to identify the carrier information through SAFER.

Vehicle information is collected at the crash scene and only Maryland data is collected via MVA data. Any out-of-state registered vehicles are manually entered into the crash report, including the Vehicle Identification Number (VIN), but not validated for accuracy. NHTSA has developed a service that allows a VIN to be entered and vehicle information is returned. This will allow more accurate collection of vehicle information from out-of-state vehicles involved in crashes. Makes and Models are also standardized through the NHTSA VPIC service data.

Additional data related to driver licensing and vehicle records will be integrated from the Motor Vehicle Administration (MVA)'s Customer Connect services which were recently developed to allow better access to the driver and vehicle data. With a connection to the MVA services, information can be populated into the crash report from the records maintained for drivers and vehicles. These relationships to the driver and vehicle data allow for more accurate and standardized information to be transferred through the EDT process. Maryland will map the fields regarding vehicles and drivers to cover all the fields collected by MVA that are needed in the crash report. Fields such as driver's license status, restrictions, and CDL status can be verified and populated from driver records. Vehicle and insurance information will be populated by what is reported to the MVA to ensure the accuracy of vehicle information in a crash report.

The MDSP also manages data for traffic stops as well as drug recognition evaluations (DRE). Citation data contains charges and citation numbers used to correlate to the crash report. This allows tracking of cases throughout the adjudication process. Currently, the warehouse is only accessible to allied agencies and traffic safety partners do not have access to the citation data. This process will involve electronically loading traffic data into the warehouse to then link citation data with crash report data using the unique citation numbers in the report. A court service will be utilized to obtain adjudication information pertaining to citations issued, including outcomes of charges related to crashes. Currently, this court service exists at the unified court for Maryland, but the process to retrieve information from the service does not. The process will utilize DataHub to process updated court data nightly for incorporation into the warehouse.

Court records are updated with the latest crash and citation data uploaded from law enforcement in from Delta Plus; in turn, law enforcement records are updated with the most current adjudications. The data integration between crash and citation can support the tracking of DUI offenders, particularly those who contributed to a crash. Citation data is also a potential additional source for verifying race and ethnicity.

Data on drug-impaired drivers also reside within the MDSP. The system was recently redeveloped to be housed within the same application and database as ACRS. This drug-impaired evaluation component enables the Drug Recognition Expert (DRE) to enter information related to the arrest, evaluation, and outcomes of the case. This includes information regarding blood samples being obtained from the impaired driver. The blood sample process is linked to the evaluation within the system, where the outcomes and results of the blood sample is entered. Drug test and result information in the ACRS report are seldom entered by the officer due to the time required to receive the blood sample results. The process to complete the blood results within the system will contain a component to allow the results to be associated with the crash report. These results would then be available in the warehouse to be included in the crash report data. This will increase the number of drug test results that are associated with the crash reports indicating a drug test was performed. In addition to drug results, alcohol-related blood kits and medical examiner results can be updated to ensure that more results are added to crash reports. A performance metric will demonstrate an increase in drug and alcohol test results due to the implementation of adding alcohol and drug results from other sources.

When there is a fatally or seriously injured person in a motor vehicle crash, a more detailed investigation is often conducted, and supplemental materials are developed or gathered by experienced investigators such as crash reconstructionist specialists. Currently these supplemental reports are not collected uniformly and are not a part of the ACRS report, resulting in missing information in the initial ACRS report that is critical to traffic safety analysis and research (e.g., autopsy reports, vehicle defect information). MDSP and MDOT will work with a consultant to evaluate all supplemental materials and related policies and procedures for collecting this information and develop recommendations for how supplemental report information can be integrated into ACRS using the same process and deliberative method as the review for MMUCC 6 and short form potential. MDSP and MDOT will work closely with the Maryland Crash Reconstruction Committee (MCRC) on this evaluation.

Section 4: Data Quality Assurance

While there is one hundred percent compliance with submitting crash reports through ACRS, there is no Maryland law or regulation regarding the timely submission of ACRS reports. Currently, Maryland has some outliers in the timeliness of crash data submissions. Most agencies have policies on submissions that are typically under 30 days. Some are timelier, including submission by the end of the shift the day the crash occurred. Monitoring timeliness and providing this information to agencies will help ensure that policies are followed. This process does not currently exist and would be accomplished through dashboards available to the agencies, using metrics and targets to meet the requirements of timely crash reporting.

The same concept for reporting timeliness metrics will be utilized to identify and share common issues and problems found within the data. These dashboards would also allow local agencies to understand the quality of data submitted from their agency. Additional transparency of timeliness metrics will encourage reporting agencies to improve submission, and in the absence of proactive improvements, this information can be used by policymakers to improve or enact legislation and/or regulations regarding crash report submissions.

Using ACRS as the sole entry point for crash data enables Maryland to monitor crash reports from the time they are initiated through the entire lifecycle until submission to the warehouse. The State will be able to identify the time a crash report was initially started, the time of the crash, and every step of the process up to entry into the data warehouse. The State intends to measure and monitor crash submissions through dashboards designed to allow agencies submitting data to track the status of each crash report and monitor metrics related to the report's lifecycle. These dashboards will enable the State and agencies to identify time-consuming processes and focus on making improvements to ensure timely acceptance of the reports. Through dashboards developed within this process, agencies will have a never-before-seen view into detailed metrics that will allow them to identify potential issues faster.

Through this project, several strategies will be deployed to address timeliness, starting with dashboards to provide greater transparency, and then working with a consultant to review current state statutes; reviewing other states and their best practices; developing recommendations for best practices that will work in Maryland; interviewing MSP personnel, a selection of local police departments, and elected officials to determine the process and challenges in developing legislation and/or regulations; and working with the Maryland Chiefs of Police (MCPA) and Maryland Sheriffs' Association (MSA) to reach consensus on crash data timely submission.

This process may also identify barriers for agencies to submit timely ACRS reports, and a consultant's final report will enumerate the challenges and develop recommendations for solutions to include model legislation and/or regulations to require timeline submission. The benefit of having a consultant to assess crash data submission timeliness helps to overcome the lack of staff to conduct proper assessments. For example, every law enforcement agency in Maryland has their own policy and procedures for handling any law enforcement reports, including crash investigations. A consultant can review a representative sample of agency policies to determine if there are conflicts between local and state agency policy and procedures. This may also shed some light on data collection practices that affect the quality of the data in

addition to the timeliness. Model legislation for a threshold (which will help support the deployment of a short form) of reporting and updating current state statutes will also be included in the consultant's report.

Within the interface of ACRS, validation rules are applied as a first control for quality assurance. Some rules are as simple as a field being required whereas others are validated between multiple fields. Through a quality control process and identification of the most common errors and issues, validation rules will be added whenever possible.

All crash reports require at least one level of approval performed by a supervisor at the law enforcement agency. The supervisor review screen contains a selection of (not all) fields for supervisors to review and compare ensuring the accuracy of specific fields. Warnings are implemented on the supervisor's screen to draw attention to fields where there may be conflicts in officer reporting, ensuring the supervisor's attention is directed to those specific areas. Once approved at the agency level, additional reviews, based on the type of report or specific criteria, may be performed. This could include reports where officers indicate the crash occurred offroad, a non-motorist was involved, or details are missing for seatbelt use. Utilizing dashboards, this secondary review would create queues and reports that local agencies and the State could review to monitor the processes which would allow personnel at appropriate and approved levels to make modifications or reject the report, sending it back to the reporting officer for corrections as needed.

As integrations with source data increase, there is a need for more rigorous review of the data. This quality assurance process would include dashboards accessible to the local agencies who submit data to the state. The dashboards will be developed to allow users to compare metrics, identify potential errors, identify outliers to data, and monitor their agency's performance related to reporting crashes to the repository. Metrics for monitoring timeliness will include, but are not limited to, the following key performance indicators (KPI):

- Average/Min/Max time to start a crash report.
- Average/Min/Max time to submit a crash report.
- Average/Min/Max time to approve a crash report.
- Average/Min/Max time from crash to approval of the report.
- AVG/Min/Max time from crash report reopened to resubmitted and approved.
- Alcohol results percentage present.
- Drug results percentage present.
- Report rejection identification and evaluation.
- Location-based reporting of crashes (off-road crashes, improper location, etc.).
- Incomplete fields or N/A; percentage of unknowns.

These KPIs would be designed to look at different levels of detail including officer level, agency level, jurisdiction level, and state level. All metrics would be available to the appropriate agencies and personnel at different levels of responsibility to allow monitoring for the improvement of timely data. These KPIs will also be incorporated in the State's Traffic Records Strategic Plan (TRSP) and reviewed by the TRCC.

Regarding the integration of EMS data, the following performance measures have been established and will be tracked and reported to the TRCC:

- Completeness:
 - The linkage percentage of eMEDS to Crash Records will increase from 86% to 95% after the first year of program application.
- Accuracy:
 - Associated eMEDS times will improve in accuracy by 3% compared to previous years due to the new algorithm implementation developed through this application.
- Integration:
 - 95% of crash-related incidents resulting in EMS response will be linked, providing planners/administrators/researchers with a valuable resource for highway safety improvement.

The MDSP has a Tableau server environment that is currently used internally by the agency. The authentication and server location prevent it from being shared with other agencies, as they require specific credentials for logging in. A new Tableau server would be purchased and configured to allow external users to have authenticated access, allowing them to view internal reports and identify areas for improvement. The Tableau dashboards will allow users at different levels to access the appropriate level of detail necessary to perform QA checks and monitor key performance indicators effectively. Agencies will have a transparent view of data and metrics enabling them to make decisions and improve the crash data. The ability to allow agencies to monitor their own data at any stage of the submission process will improve the timeliness and accuracy of the data.

A thorough evaluation of quality assurance policies and procedures needs to be conducted, something the State has not done and is needed given the changes in technology, organization structure and resources, and high demands. With the move from manual to automated processes, staff attrition occurred, but also resulted in a loss of historical knowledge. An assessment of current staff capabilities and determining what levels of QC can be automated versus maintained manually must be conducted. A consultant will be hired to assess the current staffing and technology resources to determine where there are gaps in policies and procedures to ensure high quality data is collected and released.

Maryland only has anecdotal information about the challenges each agency faces with staff shortages and overburdened staff handling more administrative requirements. Current practices of supervisors reviewing crash reports for error-checking were developed based on processes when supervisors would have the time needed to check reports thoroughly. An assessment of current capabilities is needed. A consultant will assist Maryland in identifying needs at the law enforcement level that will help determine what can be automated and what QC processes may need to be handled by other staff.

Currently Maryland does not have an accessibility measure for crash data but in the past year, the State has increased access to the data online. Maryland has simple website tracking information like a count of visits to the Zero Deaths Crash Data Resources web page, the Fatal Crash

Dashboard, and MDSP has Tableau statistics for the Dashboard and Public Data Download Tool, but the State does not have a true accessibility measure, e.g., conducting a survey of data users to determine if it needs their needs and they understand the data. Maryland will develop and implement a survey for users who download data or view it online and use results to improve the customer experience in accessing the data.

Not only will a consultant be of benefit to Maryland to assess the feasibility of quality assurance resources but will have the capacity to work with agencies that receive crash data and/or crash reports for use in their own processes and will help identify efficiency gaps and make recommendations for improvement to policies and procedures to ensure the data users, the customers, have the most accurate information. A recent review of MDOT SHA's Office of Finance's policies and procedures revealed outdated processes and references to an older version of the crash report, thus affecting SHA's ability to effectively seek compensation for property damage to state owned facilities due to collisions caused by a driver.

Another reveal was in working with the MVA Driver Licensing Division which has policies and procedures for updating a driver's record when a crash has occurred, and the driver is cited for contributing to that crash. These two examples illustrated to MDOT and MDSP staff that there are unknown numbers of policies and procedures that need to be reviewed that are affected by changes not only to what is collected on the crash report but also how that report is distributed, or access is granted. When changes happen to the crash report, it has a ripple effect, and without appropriate resources with current staffing, these issues are unknown until after decisions have been made and processes have been changed.

As documented in a NHTSA Go Team report (2021), there are several areas that can be evaluated to help improve the consistency and quality of the crash data. Consultants will work with MDSP, MDOT, and the TRCC to revisit the Go Team report and evaluate what may now be feasible with the resources afforded under this program.

Section 5: Training

Another facet of crash data improvement is to improve the knowledge and skill level of those who are submitting the data from the field. Standardized and specialized training are a key component in a comprehensive quality control program.

MDSP has implemented a train-the-trainer program, overseen by a sworn member who is responsible for its management. Within the program, trainers regularly receive updates to the training curriculum when changes are made in data collections systems such as ACRS. In 2023, the training program was re-written to conform with the new crash report deployed in January 2024, and additional training is still needed and will be conducted through the train-the-trainer program based on continual feedback on the ACRS upgrade,

MDSP has instituted a structure where each participating agency has at least one point of contact for the application, with most agencies having more than one point of contact. These contacts receive regular publications from the training staff and, in turn, distribute that information to the field. These publications are commonly used to clarify data collection methods or issues that have been identified on crash reports. This process will continue to ensure updates and identified issues are distributed to the local agencies. Communications through the Delta Plus platform and a newsletter, *Crash Corner*, are ways MDSP has communicated with local agencies. Staff resources have limited the ability for MDSP to evaluate the effectiveness of these communications and measure the reach of these updates. Consultants will be hired to assist current staffing with increase the scale, scope, and reach of training opportunities and materials to ensure law enforcement know about changes to crash data collection, and can be educated and trained on collecting better data.

More and frequent training will be offered to local agencies using trainers around the state. Currently, basic crash report training is required within the system, which only covers crash data collection in ACRS, with limited instruction on the context for the value and use of the data. Throughout the grant period, additional refresher training will be provided to users of ACRS and Delta Plus. This training will involve updates to the system, common issues, and explanations of fields that may not be properly understood. With greater visibility of KPIs through the new dashboards, it is expected that local agencies will review these metrics and communicate at a higher rate within their departments and with MDSP to address areas in need of improvement.

The MDSP has created a field reference guide where users can find information on any field that is collected. This guide includes definitions and an explanation or justification for collecting the data. The document will be expanded to include validations that occur on the fields as well as cross-validations that exist to improve the accuracy and integrity of the data collected. The document is currently a static PDF, and this program will provide the costs to improve the documentation and update the guide to a dynamic format that can be updated more frequently and be provided digitally to end-users. The additional funding will also provide an opportunity to create more dynamic content such as short training videos to highlight common areas in the guide that may be misunderstood or misinterpreted.

MDSP and MHSO will work together to hire additional consultants and trainers to improve data collection and quality. Consultants will develop three trainings to be delivered in-person to up to 16,000 Law Enforcement personnel in support of improved data collection to increase their knowledge to better identify, preserve, document/report and relay relevant crash information (e.g., proper seatbelt/child restraint use, occupant seating position, and other topics identified through data quality assurance evaluations.) This will lead to fewer “unknown” entries in data reporting systems. The State will hire the subject matter experts to supplement current ACRS training and develop additional materials specific to law enforcement. The funding will allow the State to scale up to provide this training in person and virtually, with related materials, to many law enforcement agencies in Maryland. There are approximately 150 agencies and over 16,000 officers in Maryland. Appropriate funding will allow the State to reach more agencies and officers than has ever been possible before. Recognizing that law enforcement today has many competing priorities and significant training requirements already, an assessment of the most effective means to deliver training and information will be the first step for evaluating a training implementation plan and will determine the scope of materials based on delivery method.

Training for officers who collect the data are one component of improvement. Additionally, staff at MDOT and MDSP, including current and planned consultants, who work on any area in the crash data system also need training and development. This could be in the form of virtual training, in-person training, or participation in related conferences and professional association meetings. Funds from the SEDC program will provide opportunities for staff development and training for areas including, but not limited to software training (Tableau, PowerBI, ArcGIS); Tableau trainings/conferences; ATSIP Traffic Records Forum; ESRI Users Conference; etc.

Maryland has a long-standing group of highly trained crash investigators, the Maryland Crash Reconstruction Committee (MCRC). MDOT and MDSP will work closely with the MCRC on reviewing and developing materials and rely on their expertise and guidance for quality crash investigations resulting in improved data quality. The MCRC will also be instrumental in working with the MDSP on evaluating supplemental report information not currently collected in ACRS. The MCRC has an outdated website for distributing training materials and the Committee is largely run by volunteers who do not have the capacity to frequently update their communication platforms. Funds will be used to support and enhance the MCRC’s communication content and channels.

Ensuring the accuracy of location information will require specific training for law enforcement at all levels. The objective will enhance the skills and capabilities of staff in using advanced GIS applications through targeted, competency-based training. This effort will draw from the Geospatial Technology Competency Model to ensure team members at all levels (advanced investigators, supervisors, traffic, and patrol officers) are proficient in GIS technologies and methodologies developed under the integration activities in this program. The State will work with qualified GIS experts to conduct a skills audit, develop curriculum, deliver a training program (in-person and virtual), monitor and adjust training, gather feedback and assess data quality, create and update training materials, ensure training meets certification requirements, and provide ongoing professional development opportunities that arise throughout the course of this program.

Section 6: Crash Data System Coordination (TRCC)

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) and 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's vision and strategies is outlined in a strategic plan which 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. 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.

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 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 previously included a GIS Subcommittee, an ACRS Task Force, and a MMUCC 5 stakeholders committee. Currently there are two active subcommittees: the Crash Data Accessibility Subcommittee and the Crash Data Advisory Subcommittee. Both will be deeply involved in the activities carried out in the SEDC-funded projects.

The Administrators of the agencies most responsible for crash data management and distribution formed a Tri-Agency Council on Crash Data several years ago when ACRS was initially conceived and launched. This Council has been intermittently active over the years, particularly with changes in staff and administrations and will be reactivated to provide the appropriate leadership and oversight for this program. Because the Council comprises the Executive Administrators for the respective owner agencies who are responsible for these systems and this program, their involvement early and often will help mitigate risks foreseen or unforeseen with the activities and projects under SEDC.

Maryland's Technical Council includes SHSP Data Strategy Leads who serve as members of each of the SHSP Emphasis Area Teams (EATs) to ensure that all data needs are appropriately met. They are all members of the Technical Council and 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. For example, SHSP EATs were consulted when ACRS 2.0 was being planned. A subgroup of the Pedestrian and Bicycle Emphasis Area Team (PBEAT) met with TRCC members to review potential new elements and attributes for non-motorist types. The PBEAT subgroup reached consensus on recommendations for new non-motorist types and submitted those to MDSP, which incorporated the new types into ACRS 2.0.

Between the Crash Data Accessibility Subcommittee and the EAT membership, Maryland has a significant collaboration reach with regional and local collectors and users of crash data. This multi-tiered structure of the TRCC (with data owners and administrators), and coordination with SHSP EATs, provides an opportunity for recommending improvements in crash data for all those directly and indirectly involved.

Maryland last had a Traffic Records Assessment in 2019 and will conduct and conclude a new Assessment in Summer/Fall 2024; soon thereafter, Maryland will develop a new five-year Traffic Records Strategic Plan (TRSP 2026-2030). The TRSP will incorporate all the projects, activities, and performance measures made possible through this SEDC program. And the TRCC will be apprised of progress in these efforts throughout the lifecycle of the grant funding, which nearly mirrors the timeframe of the new TRSP.

A significant effort identified as a strategy by the TRCC and enumerated in the TRSP is to conduct a traffic records inventory. A consultant will be hired to conduct such an inventory with a focus on all datasets related to motor vehicle crashes and identify the detailed criteria for these datasets and elements to support the integration efforts described above. While some knowledge exists between data owners through the TRCC, a detailed and comprehensive review that will be gained by a formal inventory is needed to proceed with data integration. There currently is no central collection of data dictionaries for systems that can contribute data to the crash data warehouse. MDOT and MDSP will need help gathering all these documents and work closely with data owners and managers on documenting the specifications for data not owned by MDSP.

In addition to an inventory, while MDOT and MDSP have implemented some components of data governance in their respective agencies, MDOT has not conducted an inventory or data

governance assessment for crash data within and between MDOT's multiple modes. Since MDOT and MDSP share responsibilities with releasing crash data to the public, this effort is critical to adopting uniformity in making crash data accessible. Many agencies within the structure of MDOT use crash data but there is no governance MDOT-wide for how these data are to be processed, stored, and made accessible. Currently, there is disparate knowledge and processes for using crash data and providing analysis and analytical applications, internally and externally. The usage of crash data within MDOT is siloed and a comprehensive assessment, with associated recommendations and development of reports and data governance structures is needed. MDOT has relied on consultants in the past to conduct such assessments and will need to do so again for the success of this program. Since MDOT will be a partner with MDSP in improving the quality of the data and making the data accessible, a consultant will assist MDOT with providing general data governance guidance and support to develop strategic content and outreach plan. Guidance will be aligned with MDOT and State of Maryland strategies and Information Technology requirements.

MDSP and MDOT, in coordination with the TRCC will collaborate with national, regional, and local partners to understand the needs for Traffic Incident Management (TIM) programs and personnel in crash data collection and analysis. Maryland will work with the FHWA Office of Operations TIM Program Team as well as the Traffic Incident Management for the Baltimore Region (TIMBR) Committee and the TRCC to assess these needs as part of the partner engagement strategies to consider MMUCC 6 updates in the next ACRS iteration. The TIM Program Team expressed support of collecting first responder UUID and linking to the crash report as a benefit to their program needs, which will be included in the scope of this program in working with MIEMSS and integrating fields from the eMEDS system. MDOT and MDSP will work with the TIM Program Team and TIMBR to develop and deliver training to first responders and officers on how to collect and communicate related information related to TIM analysis (secondary crashes, work zones).

Additional task forces will be drawn from existing TRCC membership, and more subject matter experts will be recruited under the auspices of the TRCC, for specific focus areas such as the development of a short form. Consultants will provide the information and assessments needed for the developers to carry out the work. The consultants will report directly to MDOT and MHSO and MDSP and be responsible for keeping the TRCC and its many tiers informed, and engaged, appropriately.

The TRSP runs concurrent with and supports Maryland's Strategic Highway Safety Plan (SHSP). Additional data strategies related to crash data have been adopted into the SHSP Implementation Plan based on the needs and priorities of SHSP Emphasis Area Team stakeholders. The Distracted Driving, Impaired Driving, Occupant Protection, Pedestrian and Bicycle, and Speeding and Aggressive Driving Emphasis Area Teams have all identified areas of crash data improvements and accessibility that will be addressed in this program. SHSP EATs will continue to be an integral component of ensuring data users who are working to improve traffic safety are included in the improvements planned for crash data collection, quality improvement, and increased accessibility.