# KENTUCKY TRAFFIC RECORDS STRATEGIC PLAN

## 2022-2026



*Prepared for*

**Kentucky Transportation Cabinet**

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**Kentucky Traffic Records Coordinating Committee**

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Each year millions of people travel Kentucky's roadways, and their safety is a top priority of the Kentucky Transportation Cabinet. Our highway safety mission is an ongoing process of collaboration, coordination, and evaluation by a broad and dedicated group of professionals representing all of the Commonwealth. This plan outlines goals, performance measures, proposed strategies, and ongoing evaluation to be taken over the next five years to improve the traffic records data systems in Kentucky. Improvements are guided by the "six-by-six matrix", which identifies the six core state traffic records systems and six performance attributes. These are:

| Traffic Records Data Systems | Performance Attributes |
|---|---|
| Crash | Timeliness |
| Vehicle | Accuracy |
| Driver | Completeness |
| Roadway | Uniformity |
| Citation/Adjudication | Integration |
| Emergency Medical Services/Injury Surveillance | Accessibility |

The shared vision of the Kentucky Office of Highway Safety – "through the coordinated and bold efforts of all stakeholders, improve highway safety in Kentucky such that those travelling on the Commonwealth's transportation systems – every person, every trip – arrive at their destination unharmed" – can become our reality through continued collaboration, cooperation, shared knowledge, and resources, and the continued implementation of all programs under the umbrella of Kentucky's Strategic Highway Safety Plan, including this Traffic Records Strategic Plan. It also requires a commitment by each stakeholder, agency, and member to make highway safety our #1 priority every time we travel.

I extend my sincere thanks and appreciation to the Kentucky Transportation Cabinet, the Kentucky Traffic Records Coordinating Committee, the Kentucky Office of Highway Safety, the Kentucky Transportation Center at the University of Kentucky, our partners in the Federal Highway Administration, National Highway Traffic Safety Administration, and numerous local and community stakeholders across the Commonwealth in their effort to develop the 2022-2026 Kentucky Traffic Records Strategic Plan.

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# Contents

# Abstract

The Kentucky Traffic Records Strategic Plan (TRSP) serves as a guide for the Kentucky Traffic Records Coordinating Committee (KTRAC) in its efforts to improve the traffic records database system in Kentucky. The TRSP, which covers the years 2022 through 2026, serves as a blueprint for measuring progress in terms of database accessibility, accuracy, completeness, consistency, timeliness, and uniformity of the traffic records systems.

Accurate and complete data is essential for the effective creation of a safer highway system in Kentucky. As part of the strategic planning approach, traffic records are critical to the development and advancement of Strategic Highway Safety Plan (SHSP) emphasis areas. KTRAC provides support to the Emphasis Area Task Teams in the form of traffic data interpretation or application. In addition, KTRAC provides data and analysis to support the mission of the Governor's Executive Committee on Highway Safety (GECHS), which oversees programs to improve highway safety in Kentucky.

The Kentucky traffic records systems include databases containing crash data, roadway data, driver data, vehicle data, citation and adjudication records, and emergency medical services data as well as other sources of injury surveillance data. The Kentucky TRSP identifies specific performance measures and goals for each of the data systems. In all, the Kentucky TRSP provides agencies with a shared vision toward improving these data systems through system and database attribute upgrades, efforts to integrate, and data analyses used in highway safety research.

**TRSP Process**

Since 2013, The Kentucky Transportation Center at the University of Kentucky (KTC) has worked with the Kentucky Traffic Records Coordinating Committee and other database officials to self-assess the state of the traffic records systems in Kentucky and to identify potential performance measures and related goals to guide improvement. This ongoing project to improve database quality and effectiveness has two main components: 1) assess the ability and willingness of database officials to collect data for the performance measures, also referred to as metrics; and 2) obtain quantitative data and supporting information on the measures deemed useful.

The 2017-2021 plan contained performance measures and goals for the six attributes of each database (data timeliness, accuracy, completeness, uniformity, integration with other databases and data accessibility to appropriate individuals and organizations). During the years of the previous plan, many goals were successfully met and many improvement efforts are still underway.

In building the new TRSP, The Kentucky Transportation Center consulted on numerous occasions during 2020 and 2021 with database liaisons to identify what types of performance measures are viable for each system and to determine appropriate goals for improvement. The NHTSA survey tool was used with some of the database liaisons to assess the current state of their databases. This 2022-2026 plan calls for continuing previous efforts and has added many new performance measures and goals.

In addition to consulting with the liaisons and KYTC and KTRAC in the development of this new TRSP, development of the strategic plan was informed by several helpful guidelines, including FHWA's *State Traffic Records Coordinating Committee Noteworthy Practices* and NHTSA's *Traffic Records Program Assessment Advisory*. Other state traffic records strategic plans were also reviewed to further guide this plan's development.

**The Strategic Plan**

The specific performance measures and goals discussed in this TRSP constitute the substance of the traffic records strategic plan. Taken together, their overarching effect will be to raise the quality and utility of the data in each database. Reaching the goals will entail a variety of database reforms—from more use of electronic reporting to more integration across databases.

Many of the performance measures laid out in this Plan call for improvements in the accuracy and completeness of traffic records data and its integration between databases. As the numbers in this report's tables indicate, Kentucky appears to already generate useful data. Still, there is room for improvement.

Taken together, the adoption of the proposed performance measures and related goals will contribute to better data for analysis and decision-making. Kentucky will be able to shine a brighter and more informative light on the causes of crashes on its roadways. In doing so, the state will be better positioned to find ways to reduce crashes and the associated injuries and fatalities. The knowledge gained will inform safer highway design. It will also facilitate the development of more effective and comprehensive first responder practices and organization.

The goals laid out in the plan can be supplemented with other database refinements as needs and funding sources and strategies emerge. In addition, database officials are interested in formalizing many of their operations by, for instance, updating data dictionaries, officially extending the years of data retention, and devising data flow diagrams.

The selection and scheduling of projects to increase database quality and utility follow Kentucky Traffic Records Coordinating Committees standard procedures for project development. It must be noted that the quality of data is often upgraded by database officials, without additional funding as they work steadily to improve their operations.

# 1. Introduction

The Kentucky Traffic Records Strategic Plan (TRSP) serves as a guide for the Kentucky Traffic Records Coordinating Committee (KTRAC) in its efforts to improve the traffic records database system in Kentucky. The Plan, which covers the years 2022 through 2026, serves as a blueprint for measuring progress in terms of accessibility, accuracy, completeness, consistency, timeliness, and uniformity of the traffic records systems. The Kentucky traffic records systems include databases containing crash data, roadway data, driver data, vehicle data, citation and adjudication records, emergency medical services data as well as other sources of injury surveillance data. The Kentucky TRSP identifies specific performance measures and goals for each of the data systems. In all, the Kentucky TRSP provides agencies with a shared vision toward improving these data systems through system upgrades, efforts to integrate, and data analyses used in highway safety research.

## 1.1 Toward Zero Deaths

This Plan is aligned with the goals of the national traffic safety plan Toward Zero Deaths (TZD), a strategy for improving highway safety, which has been adopted by the Kentucky Transportation Cabinet (KYTC), the Federal Highway Administration (FHWA), the National Highway Traffic Safety Administration (NHTSA), and the American Association of State Highway and Transportation Officials (AASHTO). Its ultimate objective is the elimination of all deaths on the transportation system. Like TZD, TRSP supports a data-driven approach that targets specific areas for improvements and employs proven traffic safety countermeasures. TZD leverages an interdisciplinary approach by integrating highway engineering, law enforcement, public information campaigns, and emergency services strategies.

Using the TZD approach, the Commonwealth of Kentucky developed its Strategic Highway Safety Plan (SHSP). The SHSP serves as the umbrella guide for all highway safety improvement efforts in Kentucky, including this TRSP. A consensus-based effort, the plan calls forth contributions, collaboration and commitment from many partners.

TZD serves as a unifying vision that brings together all stakeholders throughout the U.S. with a role in highway safety. The TZD National Strategy on Highway Safety (the National Strategy) brings these stakeholders together, making possible both their individual and collaborative efforts.

The National Strategy envisions a highway system free of fatalities through a sustained and even accelerated decline in transportation-related deaths and serious injuries. Safety organizations and professionals embracing this vision have agreed to aggressively work toward achieving intermediate goals specific to their jurisdiction. Kentucky first adopted the Toward Zero Deaths vision in 2010.

## 1.2 Mission/Vision Statement

Vision: Continued highway safety improvements in line with the TZD strategy.

Mission: Generate the ability of stakeholders and partners to identify countermeasures that address traffic safety by improving the timeliness, accuracy, completeness, uniformity, integration, and accessibility of traffic records data and systems.

## 1.3   Integration with other State plans

The TRSP is one of several state plans that operate under the umbrella of the Kentucky Strategic Highway Safety Plan, which include the following:

- FHWA - Highway Safety Improvement Program (HSIP)

- NHTSA - Highway Safety Plan (HSP)

- FMCSA - Motor Carrier Safety Assistance Program (MCSAP)

- FMCSA - Commercial Vehicle Safety Plan (CVSP)

- Kentucky Traffic Records Assessment Committee (KTRAC) – Traffic Records Strategic Plan

Funding from these sources is used to implement both the infrastructure and behavioral strategies and programs contained in the Kentucky SHSP. In addition, recommendations from the SHSP are expected to influence the priorities set in the aforementioned plans and articulate well with other state transportation plans and programs, such as:

- Kentucky Transportation Cabinet (KYTC) Statewide and Metropolitan Planning Organizations (MPO) Long Range Transportation Plans

- The Kentucky Transportation Cabinet (KYTC) Strategic Highway Investment Formula for Tomorrow (SHIFT)

- The Kentucky Transportation Cabinet (KYTC) Strategic Plan

Accurate and complete data is essential for the effective creation of a safer highway system in Kentucky. As part of the strategic planning approach, traffic records are critical to the development and advancement of SHSP emphasis areas. KTRAC provides support to the Emphasis Area Task Teams in the form of traffic data interpretation or application.  In addition, KTRAC provides data and analysis to support the mission of the Governor's Executive Committee on Highway Safety (GECHS), which oversees programs to improve highway safety in Kentucky.

# 2. Strategic Planning Process

## 2.1 Assessment of Database Progress

Since 2013, The Kentucky Transportation Center at the University of Kentucky (KTC) has worked with the Kentucky Traffic Records Coordinating Committee and database officials and liaisons to self-assess the state of Kentucky's traffic records systems and to identify potential performance measures and related goals to guide improvement. This ongoing project to improve database quality and effectiveness has two main components: 1) assess the ability and willingness of database officials to collect data for the performance measures, also referred to as metrics; and 2) obtain quantitative data and supporting information on the measures deemed useful. Several times a year the database liaisons are contacted to ascertain their progress toward meeting the goals in the TRSP.

The annual assessment results are used to document the current state of Kentucky's traffic records systems and establish performance measure baselines and related improvement goals, against which improvements could be monitored.  Each year's contact with liaisons yields documented improvements in some of the databases. The most recent findings were used to develop the performance measures and goals in the new TRSP.

The Kentucky Transportation Center worked with KYTC and KTRAC in the development of the TRSP. Development of the strategic plan was informed by several sources, including FHWA's *State Traffic Records Coordinating Committee Noteworthy Practices* and NHTSA's *Traffic Records Program Assessment Advisory*.  Other state traffic records strategic plans were reviewed as well to further guide this plan's development.

## 2.2 Implementation and Monitoring

The Kentucky Transportation Center will continue to coordinate with KYTC and KTRAC to monitor the implementation of Kentucky's TRSP.  Progress on the performance measures for each of the traffic records systems databases will be monitored, documented, and reported back to KTRAC on an annual basis. KTRAC will use that information when considering projects to fund in coming years.

As part of the implementation process, KTC will coordinate with KYTC and KTRAC to develop an action plan for future prioritized projects by year.  The action plan will align with the goals and metrics identified in this Strategic Plan.

For new project ideas that are submitted to KTRAC each year, the TRSP will serve as a guiding document in deciding which of these projects should be funded.  The TRCC works with its members and researchers on an annual basis to select, fund, review and make final presentations of projects designed to improve the quality and utility of the data in the individual traffic records databases.  The rating method used to determine which projects receive funding is detailed in Chapter 7 of this plan.

# 3. Kentucky Traffic Records Coordinating Committee (KTRCC)

Increasing highway safety is a critical transportation policy priority. To further the goal of improving the public's safety on the nation's highways, federal legislation beginning with the Safe, Accountable, Flexible, and Efficient Transportation Equity Act: A Legacy for Users (Public law 109-59; SAFETEA-LU) called for the states to improve their traffic records data systems. To that end, the Federal Highway Administration (FHWA) and the National Highway Transit Safety Administration (NHTSA) have encouraged the states to measure the performance of their traffic records data systems. Section 405c of Title 23, U.S.C. authorizes funding for improvements in state traffic safety information systems. Funds for measurement of database effectiveness have been authorized in all the recent federal transportation bills, including MAP-21 and Fixing America's Surface Transportation Act (FAST Act and one-year extension in 2021), both of which call for collection of more accurate and complete data on fatalities and serious injuries. Examples are reforms to improve data on accident locations, seat belt usage, and ambulance time to hospital.

## 3.1    Governance and Structure

The Commonwealth of Kentucky seeks to identify and then capitalize on all opportunities to enhance the traffic records database system with the overarching goal of reducing the risk of fatalities, injuries and crashes. The Kentucky Transportation Cabinet, Division of Highway Safety Programs, serves as the Governor of Kentucky's Office of Highway Safety, and is responsible for highway safety planning and action among all agencies and organizations.   The Kentucky Traffic Records Assessment Committee (KTRAC) was established to elevate the effectiveness and application of traffic records, as part of the overall mission to reduce the number of fatalities and injuries and the severity of injuries related to road trauma. KTRAC has the authority, with executive-level input from the Governor's Executive Committee on Highway Safety, to ensure that a statewide Traffic Records System implementation is successfully completed.

KTRAC's Charter establishes that it:

   i.    Has 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;

   ii.   Considers and coordinates 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;

   iii.  Reviews and evaluates new technologies to keep the highway safety data and traffic records system current; and

   iv.   Annually approves 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.

## 3.2   TRCC Roles and Responsibilities

KTRAC's responsibilities related to the state's Traffic Records System include:

- Providing coordination and oversight responsibilities;

- Providing administrative and technical guidance;

- Facilitating communications and cooperation between and among the member organizations and agencies represented on the committee;

- Establishing goals for improving the Traffic Records System;

- Developing recommended procedures to assist localities and State agencies that are users and/or providers of the Traffic Records System in understanding and accepting their mutual responsibilities and interdependence;

- Recommending upgrades to reporting forms and formats and procedures to gather, maintain and disseminate crash records/traffic records information;

- Reviewing laws dealing with traffic records for consistency and for conformity with modern technology;

- Reviewing the need for legislation to facilitate the development and operation of the Traffic Records System;

- Fostering the development of new technologies for reporting, processing, storing and using data at both the local and State levels;

- Reviewing and recommending requirements for file linkage;

- Stimulating the creation and maintenance of a coordinated comprehensive statewide Traffic Records System that provides adequate data in an efficient, cost effective and timely manner;

- Continuously developing cooperation and support from local and State agencies as well as from the non-profit and private sectors;

- Providing continuing evaluation for the Traffic Records Systems;

- Developing and maintaining a comprehensive Strategic Highway Safety Plan, which shall provide a foundation for improving traffic records systems within the State;

- Reviewing and discussing the potential impacts of projects as noted within the Strategic Plan prior to implementation; and,

- Annually updating information that ultimately goes into the Strategic Highway Safety Plan.

KTRAC membership meets on a quarterly basis, generally at the Kentucky Transportation Cabinet, although adjustments and remote meetings have facilitated this coordination during the COVID-19 pandemic.  Administrative support for committee activities is provided by the KYTC Division of Highway

Safety Programs.  KYTC designates a full-time coordinator for KTRAC.  Ed Haring currently serves as the KTRAC coordinator.

The responsibilities of the full-time coordinator are to:

- Preside over all KTRAC meetings.

- Set agendas and maintain meeting minutes.

- Monitor membership through ongoing attendance, and ensure membership is representative.

- Foster relationships with traffic records interested parties.

- Represent KTRAC at all highway safety grant reviews and meetings.

- Help maintain current project and performance information.

- Seek input for and approval of the Strategic Plan from all KTRAC members.

The full-time coordinator, in coordination with the Kentucky Office of Highway Safety and sponsoring agencies, identifies and approves projects for funding in support of the Traffic Records Strategic Plan.

KTRAC is both interagency and intergovernmental in structure, and membership is voluntary.  As is established in its charter, KTRAC is to include membership from the following:

- KY Transportation Cabinet, Division of Highway Safety Programs

- KY Transportation Cabinet, Office of Information Technology

- KY Transportation Cabinet, Division of Motor Vehicle Licensing

- KY Transportation, Division of Driver's Licensing

- KY Transportation Cabinet, Division of Planning

- Kentucky Board of Emergency Medical Services

- University of Kentucky, Kentucky Injury Prevention Research Center

- KY Justice & Public Safety Cabinet, Kentucky State Police

- University of Kentucky, Kentucky Transportation Center

- Lexington Police Department

KTRAC conducts traffic records assessments in cooperation with FHWA and the Kentucky Transportation Center (KTC). KTC works with liaison officials from the six core agencies responsible for the collection and maintenance of traffic records databases:

1. Collision reporting and analysis (CRASH)—the repository for law enforcement crash reports

2. Vehicle—the vehicle registration system

3. Driver—the repository for information on licensed drivers and their histories

4. Roadway—a database that stores information on the roads in the state highway system

5. Citation/adjudication—a repository containing the records of traffic citations, arrests, and final disposition charges

6. Emergency Medical Services (EMS) Injury Surveillance— the component repositories for data on motor-vehicle related serious injuries and deaths. These can have multiple databases: for example, pre-hospital EMS data, hospital emergency department data, hospital discharge data, trauma registries, and death records.

On a continuing basis, officials who oversee the databases provide quantitative data each year on one or more metrics. This includes several years of data along with reports of improvements in some of the traffic records data systems. Taken together, the findings and changes below indicate progress toward the goal of a more complete and informative traffic records data system.

KTRAC works with officials from the traffic record databases to collect data and assist in efforts to improve its timeliness, accuracy, completeness, uniformity, accessibility, and integration, as well as usefulness for safety upgrades.

## 3.3   Technical Committees

As part of its Charter, The KTRAC may establish subcommittees to provide more targeted traffic records planning and implementation efforts. These subcommittees are to be led by subject matter experts and meet as necessary for the success of the projects.  These teams may change as the needs of Kentucky's traffic records system change.  Technical committees and their memberships are listed in **Appendix 1**.

# 4. Summary of Traffic Records Database Deficiencies and Responses to them

## 4.1 Kentucky's Ongoing Assessment of Metrics

This assessment of Kentucky's traffic records databases is based on two sources of data: (1) the results of Kentucky's ongoing database performance measurement program, which created and tracked data on specific metrics for each database for the last eight years; and (2), the need in to respond to a set of recommendations provided by NHTSA in 2017.

It must be noted that every year a number of new or revised metrics are developed for one or more of the six performance attributes of each database—timeliness, accuracy, consistency/uniformity, completeness, integration, and accessibility. Usually there is one metric and goal for each database attribute, however, a few attributes have more than one performance metric.

Discussions with database liaisons have two primary objectives: (1) find deficiencies in the traffic records databases and (2) encourage efforts to improve the databases. Thus far, Kentucky's effort has identified deficiencies, documented some recent improvements, and elicited some suggestions for improvements. Most of the suggestions appear to concern the accuracy and completeness of the data, a concern in line with the recommendations in the *Crash Data Improvement Program Final Report.* To a lesser extent the suggestions address ways to improve timeliness and integration. None of the databases appear to have lost ground, although some have experienced initial problems with documenting progress due to the installation of new software programs.

## 4.2 Response to NHTSA's Kentucky Traffic Records Assessment

This section lists and discusses NHTSA's recommendations arising from its last traffic records assessment of Kentucky' databases. It contains a table outlining the response of each database to the 2017 recommendations

**Strategic Planning Recommendations and KTRAC's Responses**

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

The TRCC will work with the Kentucky Transportation Center to create an implementation plan that will facilitate the completion of a wide range of database reforms. The TRCC will emphasize more accurate and complete data gathering including the writing of data dictionaries as recommended.

**Crash Recommendations**

- Improve the data dictionary for the Crash data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.

- Improve the interfaces with the Crash data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.

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

If funding is available a comprehensive crash data dictionary will be composed. The integration goal is to identify appropriate links between the driver and vehicle databases and the crash file. The crash database has two goals that increase data quality: increase the percent of crashes locatable with roadway location method above the current level of 94.6% and reduce missing critical data elements by 10%.

**Vehicle Recommendations**

- Improve the interfaces with the Vehicle data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.

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

As noted above, an effort will be made to increase links with the crash database.

**Driver Recommendations**

- Improve the data dictionary for the Driver data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.

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

If funding is available a comprehensive data dictionary will be constructed.

**Roadway Recommendations**

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

- Improve the data dictionary for the Roadway data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.

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

If funding is available, the roadway database will produce a comprehensive data dictionary. To improve data quality, officials at the roadway database have adopted these goals: implement a facility data audit methodology as an accuracy check of the highway information system and a methodology to check statewide centerline coverage.

**Citation / Adjudication Recommendations**

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

- Improve the procedures/ process flows for the Citation and Adjudication systems to reflect best practices identified in the Traffic Records Program Assessment Advisory.

- Improve the interfaces with the Citation and Adjudication systems to reflect best practices identified in the Traffic Records Program Assessment Advisory.

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

If funding is available, citation/adjudication will assemble a comprehensive data dictionary.

**EMS / Injury Surveillance Recommendations**

- Improve the interfaces with the Injury Surveillance systems to reflect best practices identified in the Traffic Records Program Assessment Advisory.

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

EMS has the goal of increasing the percent of appropriate records in the EMS file linked to other database systems. To do so it will identify links and funding opportunities. EMS has adopted two goals for augmenting data quality: increase the percent of records with no errors in critical data elements and raise the percent of first responders recording use of seatbelts from current 70 percent to above 90 percent.

**Data Use and Integration Recommendations**

- Improve the traffic records systems capacity to integrate data to reflect best practices identified in the Traffic Records Program Assessment Advisory.

The TRCC will assist its databases in their efforts to increase linkages across databases.

## 4.3 Database Actions to Address NHTSA Recommendations

**Table 4.1** presents NHTSA's recommendations for attribute improvements for each database along with the database attribute that NHTSA wants to see improved. It also contains a description of the current state of each database's response to the recommendations. For instance, NHTSA asked the CRASH database to upgrade its data dictionary, improve data quality, and add more data interfaces. CRASH is currently developing an improved data dictionary, which will have validation editing to enhance data quality. CRASH stated that there is no need to add interfaces with other data sources. In short CRASH is addressing two of the recommendations and asserts that there is no need for additional data interfaces.

NHTSA issued a total of 18 recommendations for the traffic records databases. At this time, 11 projects addressing the recommendations are underway or completed. Improvements over the past few years are documented in **Appendix 2**; a full list of projects funded by the Office of Highway Safety from FY 2015-2021 is included in **Appendix 3**.

**Table 4.1 Database Responses to NHTSA Recommendations for the 2017-2021 TRSP**

| Database | Database Attributes Addressed | NHTSA Improvement Recommendation | Project Begun or Requested or Proposed | Current State of Response to NHTSA |
|---|---|---|---|---|
| **CRASH** | Accuracy completeness | 1 Data Dictionary. 2 Data quality. 3 More data interfaces. | 1 2019 grant funded for new data dictionary with validation edits | 1 and 2 are complete<br><br>No need for more interfaces<br><br>Completed project to incorporate data from Civilian collision data reports (off road) |
| **Injury Surveillance (Trauma Registry)** | Completeness Integration Accuracy Uniformity | 1 Improve Data quality control program 2 Improve Interfaces with injury surveillance system | 1 Add or reinstate level III and IV hospitals 2 Develop strategy to ensure hospitals fulfill reporting obligations 2 Realign metrics with a focus on types and causes of injury | Proposal developed and submitted for both recommendations |
| **Vehicle** | Completeness Accuracy Uniformity Timeliness Integration Accessibility | 1 Data Dictionary 2 Data quality control based on NMVTIS | 1 KAVIS has a comprehensive data dictionary 2 KAVIS has a data quality control program | KAVIS is currently being installed |

**Table 4.1 Database Responses to NHTSA Recommendations for the 2017-2021 TRSP (continued)**

| Injury Surveillance (EMS) | Accuracy Integration | 1 interface with injury surveillance | | Not begun |
|---|---|---|---|---|
| | | 2 data accuracy | 2019 adoption of KEMSIS system to improve data quality validation and reporting | Complete |
| **Roadway** | Accuracy Completeness Uniformity | 1 Data dictionary | 1 Coordinate data dictionary definitions with FDE and MIRE | 1 Will review data dictionary to increase coordination |
| | | 2 Data quality | 2 Increase number of data elements within proper ranges | 2 Will train personnel |
| | | 3 Applicable guidelines | 3 Increase the % of FDEs and MIRE in data system | 3 Will have staff collect required new FDE and MIRES |
| **Citation/Adjudication** | Accuracy Timeliness Completeness Uniformity | 1 Data Dictionary | 1 Data dictionary upgrade | |
| | | 2 Procedures/ process flows for case clearance | 2 New metrics based on NCSC | All four are completed |
| | | 3 Interfaces of citation and adjudication | 3 Not needed (interfaces complete) | |
| | | 4 Data quality | 4 Reducing incidence of no match DOB and criminal history | |
| **Driver** | Accuracy Completeness | 1 Data Dictionary 2 data quality control | 1 Data dictionary upgrade 2. Real ID installation with training for local agencies | Underway |

## 4.4　Summary of Work Done to Implement the 2017-2021 Traffic Records Improvement Plan

Before discussing each database's goals and metrics in the new TRSP, we provide a snapshot of the work that's been done to implement the improvement goals of each database over the past five years. **Table 4.2** documents substantial progress in that each of the six databases has projects in motion to reach a majority of their goals and many goals have been successfully met; columns 2-5 describe the current level of progress. In all, there are 44 goals, 20 of which are complete or the goal for the attribute in questions is thought to be so close to attainment that there is no practical way to improve the attribute. For instance, the citation/adjudication database reports that it now can match traffic violations to the individual violator's valid criminal history key 99.8% of the time.

Looking at the second column in **Table 4.2**, the CRASH database has met all six goals; citation/adjudication has met 3; EMS 1, driver licensing 6; Vehicle registration none due to the unfinished KAVIS installation scheduled for completion in 2022, Trauma registry has met 1 and Roadway 3. For each database, the third column presents the number of database attributes for which an improvement project is underway and progress has been made toward the goal. In all, the databases have 14 projects currently underway, a few of which concern NHTSA recommendations. Citation/Adjudication reports progress toward meeting 3 of its goals; vehicle registration states that the installation of KAVIS will make substantial progress on all 6 database attributes; trauma registry reports progress on 2 attributes; roadway reports progress on 1 attribute and driver licensing is progressing on 1 attribute.

The fourth column lists the specific attributes on which no progress toward the goal has been made despite the presence of an active project. Three of the databases lack active projects: EMS has 2; trauma 1 and roadway 1.

The fifth column lists the number and specific attributes for each database that have no project underway. Projects have been planned but they require funding that is currently unavailable. EMS seeks funding to improve database timeliness and completeness; trauma registry is requesting money to upgrade database accuracy and accessibility; and roadway requires funding to improve accuracy and uniformity.

**Table 4.2: Number of Database Attribute Goals in Implementation Plan either Currently Met or No Practical Way to Improve, Implementation Project Underway (Progress Reported), Underway (No Progress Reported), and Attribute with No Project Underway**

| Database | Goal Has Been Met or No Practical Way to Improve | Project Underway with Progress to Goal Reported | Project Underway with no progress to Goal reported | Attribute Goal(s) With No Project Underway |
|---|---|---|---|---|
| CRASH-KSP | 6 | N/A | N/A | N/A |
| Citation/ Adjudication | 3 | 3 | N/A | N/A |
| EMS | 1 | 1 | 2 | Timeliness Completeness |
| Driver Licensing(1) | 6 | 1 | | Integration |
| Vehicle Registration (2) | 0 | 6 | 0 | N/A |
| Trauma Registry | 1 | 2 | 1 | Accuracy Accessibility |
| Roadway (3) | 3 | 1 | 1 | Accuracy Uniformity |
| Total | 20 (45.5%) | 14 (31.8%) | 4 (9.1%) | 6 (13.6%) |

(1) Driver licensing has seven goals with two for data integration

(2) All KAVIS modules except the vehicle module are complete (PODD, Boat, Placard modules). The vehicle module upon final implementation will improve all six database attributes

(3) Note Roadway has seven goals, with two for data completeness

In short, at this time, database officials at the seven traffic records databases have begun or completed the process of improving 38 of their 44 database attributes. This leaves 6 database attributes without a project developed at this juncture.

Thus, it can be submitted that considerable progress has been made toward fulfilling the goals of the 2017-2021 TRSP. To facilitate future progress, we have created tables of performance metrics and goals for each database. Liaisons will be asked to report the results of their projects. In all likelihood, they will be able to document successful attainment of performance goals over the five years of the 2022-26 strategic plan. They will also be asked to fill in missing baseline metrics and then provide evidence of database improvement following project completion.

In the next section of the report, we present in a table for each database the goals and performance measures in the new TRSP along with available baseline metrics and the proposed or ongoing project to reach the specific database attribute goal.  Liaisons can use these to document success. KTC will use them to track that progress and to work with the data liaisons throughout the implementation process, especially when obstacles are encountered. The reports provide a guideline for needed work as well as a yardstick for measuring achievement. They will facilitate a full accounting of database efforts and database performance.

# 5. Performance Measures and Goals of the 2022-2026 Strategic Plan

Kentucky will follow the same strategy for traffic records improvement in the 2022-2026 Plan as followed in the previous Traffic Records Strategic Plan. Each database was asked to develop a goal and performance metric for each database attribute. This was the approach in the prior plan and produced documented success. With seven databases and six attributes for each database, the 2017 strategic plan contained a total of 42 attributes open to improvement. Of the 42 attributes, liaisons reported with supporting evidence that a total of 23 attributes were improved. Liaisons also reported with evidence that three attributes could not be improved. Thus, the liaisons were unable to show improved performance for 18 attributes.

For the 2022-2026 TRSP, some of the designated liaisons and other officials at each database answered questions from the National Highway Traffic Safety Administration Advisory Document. The advisory contains a list of questions for each traffic records database. The questions in the advisory are designed to provide a broad portrait of the qualities and capacities of each database along with questions to assess the current ability of database officials to use their data to improve database performance.

There were approximately 30 to 60 questions for each database, which were arranged in an Excel software assessment tool. Liaisons from Crash, Roadway and Injury Surveillance chose to use the Excel assessment tool as part of this process, with survey results included in **Appendix 4**.  Based on the survey results, further discussions were held to develop database improvement ideas, goals and metrics.  Liaisons for other databases chose to develop improvement ideas, goals and metrics through email and numerous discussions.

The specific performance measures and goals discussed in this section constitute the substance of the 2022-26 TRSP. Taken together, their successful implementation can raise the quality and utility of the data in each database. The goals in the new TRSP, when reached, will produce a variety of database reforms—from more use of electronic reporting to more accurate and complete data to more integration across databases.

The new plan builds upon Kentucky's ongoing efforts to measure and upgrade the performance of its traffic records databases. Moreover, as the numerical goals in the tables below indicate, Kentucky appears to already generate useful data. Still, as NHTSA concluded, there is room for improvement.

Taken together, the adoption of the proposed performance measures and related goals will contribute to better data for analysis and decision-making. Kentucky will be able to shine a brighter and more informative light on the causes of crashes, injuries, and deaths on its roadways. In doing so, Kentucky will be better positioned to find ways to reduce crashes and the associated injuries and fatalities.  The knowledge gained will inform safer highway design. It should also facilitate the development of more effective and comprehensive first responder practices and organization.

## 5.1 CRASH Database Performance Measure, Goal, Baseline Metric and Proposed Project

**Table 5.1** presents the performance measures, goals, metrics and proposed projects by database attribute for Crash. Currently, the number of days from a crash event to data entry is 2 days for E-reports. This is better than the Kentucky State police goal of reducing that number to 3 days. The liaison stated that there is no practical project to improve timeliness of reporting.

The accuracy performance goal is to improve the specificity of one or more data categories, which was done last year by allowing the officer at the crash scene to indicate both drug and alcohol use. CRASH officials intend to select one or more other data categories and restructure them to capture more detail from a crash event.

To upgrade data completeness the liaison intends to Increase the frequency of updates of roadway maps. If funding is available, CRASH will conduct a study to identify a method for more frequent acquisition of more complete maps.

Regarding the uniformity of data, the goal is to increase the percent of crashes locatable with its roadway location technology above the current level. The current percent locatable is over 96. A study will be needed to identify a method for elevating it closer to 100 percent.

The public has access to crash reports. KSP expects the number of citizens querying its database to rise above the current annual number of 41,152 This number has been increasing from year to year. Officials say there is no practical program to increase accessibility.

**Table 5.1 CRASH Database Performance Measure, Goal, Baseline Metric and Proposed Project**

| Database Attribute | TRSP Performance Measure | Goal | Baseline Metric | Project Proposed or Begun |
|---|---|---|---|---|
| **Timeliness** | Number of days from crash event to data entry | Reduce number of days to 2 | Currently 2 days | There is no practical project to improve timeliness of reporting |
| **Accuracy** | Improve the specificity of one or more data categories to increase data specificity | More detailed information about collisions | One or more data categories improved (a recent example of an improvement was the change in recording of drug/alcohol) use by vehicle occupants) | A review of database to identify candidate data categories for improvement |
| **Completeness** | Increase the frequency of updates of roadway maps | More accurate maps | Not measured at this time | If funding is available, a study to identify method for more frequent acquisition of accurate maps |
| **Uniformity** | Percent of crashes locatable w/ roadway location method | Increase % from current level | 96.46 | If funding is available, a feasibility study to improve the percent locatable |
| **Accessibility** | Number of queries on public site annually | Increase above current baseline | 41,152 | There is no practical project to improve accessibility |

## 5.2 Emergency Medical Services (EMS) Database Performance Measure, Goal, Baseline Metric and Proposed Project

As shown in **Table 5.2**, only 66% of call records were submitted within the 72 hours reporting deadline in 2016. Kentucky intends to improve upon that percentage over the next five years.

Regarding data integration across databases, the CRASH database intends, if funding is available, to conduct a feasibility study with EMS to develop routine data exports to EMS. Data accessibility will expand with the development of a more streamlined method to share data to databases with sharing agreements

EMS states that to increase timeliness of agency reporting it needs to a change of legislation. It has created a draft of a change in legislation that would amend the reporting time regulation

The accuracy goal of the percent of records being accurate (e.g., seat belt usage reported) is close to being met as it stands at 89%. The goal is greater than 90%. Kentucky intends to select a critical data element for measurement. After establishing a baseline in the first year, EMS will seek to reduce errors in the critical element so that the accuracy level goes above 90%.

To improve completeness, EMS wants to raise the validity score point value above 90 or better. Currently, it stands at 80.4.

The uniformity goal of 100% use of KEMSIS has been reached. The liaison states that there is no practical program available to increase data uniformity.

EMS would like to export data to the Trauma Registry. It states that if funding is available, it could begin the process of integration with trauma registry by conducting a feasibility study with trauma registry to develop routine data exports.

In the pursuit of greater data accessibility, EMS plans to develop a more streamlined method to share data to databases with sharing agreements. This would improve the transfer of data upon request.

**Table 5.2 Emergency Medical Services Database Performance Measures, Goals, Baseline Metrics and Proposed Projects**

| Database Attribute | TRSP Performance Measures | Performance Goals | Baseline Metrics | Project to Reach Goal |
|---|---|---|---|---|
| **Timeliness** | Percent of EMS agencies reporting within 72 hours | 95% reporting within 72 hours | In 2016, 66% of incidents were reported within 72 hours | Draft 0f legislative regulation is finished but not filed. |
| **Accuracy** | Percent of EMS records with no errors in a critical data element (occupant restraint usage or other data element) | Improve record to above 90% from current level | Currently 89% report Occupant restraint usage | Communication with EMS providers to raise above 90% |
| **Complete-ness** | Raise validity score point value | Improve validity score point value to 90 or better | The average validity score point value was 80.4 | Change control process pending regulatory updates. |
| **Uniformity** | Number and % of services reporting to KEMSIS | 98 to 100% | The current level of participating agencies is 100% | Currently there is no practical project to increase data uniformity |
| **Integration** | Establish connectivity with Trauma Registry | Provide useful information to Trauma Registry researchers | No linkage exists between EMS and Trauma Registry | If funding is available, conduct a feasibility study with trauma registry to develop routine data exports to trauma registry |
| **Accessibility** | Develop a more streamlined method to share data to databases with sharing agreements | Improved transfer of data upon request | Will be determined by the project | Develop streamlined method to execute data sharing and transfer of information |

## 5.3 Roadway/Traffic Performance Measures, Goals, Baseline Metrics and Proposed Projects

Roadway and traffic officials intend to improve the timeliness of data submission by reducing the average number of calendar days (which stands at 10 days) between completion of a state highway project and submission of the roadway database update. This will be done through a program to improve communication between the central office and the Highway District Offices. These data are shown in **Table 5.3**.

To measure data accuracy, officials will increase the percentage of critical data elements whose values are within reasonable ranges. This will require funding to improve training and/or the number of personnel.

To increase traffic count completeness the liaison seeks to increase the number of interstate traffic counting loop stations on I-165 and I-69.

Attaining the uniformity goal involves the updating or replacing of the current traffic count devices, provided funding is available. A request for funding will be solicited.

In regard to data integration a study to add local road data was conducted by the Kentucky Transportation Center. This project and follow-ons will enhance the completeness of roadway data.

Last, accessibility will be enhanced and measured by raising the number of web hits that download service requests over specific periods of time. To that end, as concerns develop, Roadway/traffic will consult with GIS staff about new data sets for addition to the website

**Table 5.3 Roadway/Traffic Database Performance Measures, Goals, baseline Metrics and Proposed Projects**

| Database Attribute | Performance Measure | Performance Goals | Baseline Metric | Project to Implement Goal |
|---|---|---|---|---|
| **Timeliness** | Mean number of days from state roadway project completion to critical data file update | For State-maintained Roads: 95% within 10 working days | Current mean # of days is 10 working days | Develop improved communication between central office and Highway District Offices |
| **Accuracy** | Percentage of critical elements whose values are within reasonable ranges | Improve accuracy of critical elements | Current % accuracy is 90% | Submit request for funding to improve training and/or number of personnel |
| **Complete-ness** | Increase the number of interstate traffic counting loop stations on I-165 and I-69 | A reduction in the number of missing counting loop stations | The current number of missing counting loop stations | Submit request for funding to increase the number of interstate traffic counting loop stations on I-165 and I-69. |
| **Uniformity** | Begin updating/ replacing the current traffic count devices. | The number or percent in need of updating or replacement | The number or percent in need of updating or replacement | Submit request for funding for updating/ replacing current traffic count devices |
| **Integration** | If appropriate, add data being collected by the Kentucky Transportation Center on local roads. | Utility of data to Roadway/ Traffic | Utility of Data | Obtain data from Kentucky Transportation Center and to database |
| **Accessibility** | Number of data sets added to the Cabinet's website for public use | Current number of websites | Current number of websites | As concerns develop, we will consult with GIS staff about new data sets for addition to website |

## 5.4 Citation/Adjudication Database Performance Measures, Goals, Baseline Metrics and Proposed Projects

As shown in **Table 5.4**, officials with responsibility for the citation/adjudication database have adopted the goal of reducing the median length of time between the citation filing date and the charge filing date. Currently the length of time is 2.73 days for e-citations and 6.77 days for manual citations. Improvement in timeliness is contingent upon the availability of funding. This will occur by installing the NCSC measures to increase process flow.

The accuracy goal is to maintain or improve the match of traffic violations to valid criminal history, which now stands at 99.8%. The liaison is of the opinion that there is no practical program available to improve the match.

Citation/adjudication will adopt the following performance measure for completeness—the percent of charges in traffic cases with Uniform Offense Reporting codes. The goal is to maintain the current level of 99.99% of charges with UOR codes. Here as well, there is said to be no program to improve the match.

In regard to uniformity of reporting, the performance measure is the percent of cases on a uniform e-citation. The goal is to increase e-citations from 81% of citations to more than 90% over 5 years. This will require funding for the smaller law enforcement agencies still reporting manually to accomplish the transition to e-reporting.

Regarding linkage, 99.1% of traffic violations correctly link to citation data at this time. The goal is to maintain or improve that percent. Data integration of five databases will occur with the completion of the data dictionary

Accessibility will be measured with the number of requests for records. The goal is to increase the number over the next 5 years.

**Table 5.4 Citation/Adjudication Database Performance Measures, Goals, Baseline Metrics and Proposed Projects**

| Attribute | Performance Measures | Goals | Baseline Metrics | Proposed Projects |
|---|---|---|---|---|
| **Timeliness 1** | Develop new measures based on the NCSC Measures | Faster case clearance rates | Current average case clearance time | Install NCSC Measures to increase process flows for case clearance |
| **Timeliness 2** | Citation to Charge Filing | Reduce time | 2.73 Days | Continue on-going effort to reduce time |
| **Accuracy** | Match traffic violation charges to valid criminal history key | Maintain or improve current accuracy match of 99.8% | 99.8% | Maintain: No practical program available to improve match |
| **Completeness** | Reduce the incidence of no match of date-of-birth for defendant entry to valid criminal history key | Reduce incidence of no match by 50%, if funding is available | Current no match Is 99.7%. | Maintain: No practical program available to improve match |
| **Uniformity** | Percent of cases on a uniform e-citation | Increase e-citations from 81% to more than 95% over 5 years, if funding is available for law enforcement agencies | 89.7% | We will cooperate with law enforcement jurisdictions to encourage switch to e-citations |
| **Integration** | Create a comprehensive data dictionary for five databases | Integration of comprehensive information in one place | Number of databases integrated | Continue updating comprehensive data dictionary for databases |
| **Accessibility** | Response to requests | Maintain rapid response of most in an hour and some next business day | Response rate is 100%. | Maintain: no practical program available to improve match |

## 5.5 Vehicle Database Performance Measures, Goals, Baseline Metrics and Proposed Projects

**Progress Report Summary for the Vehicle Database**

In Kentucky, owners of vehicles must register them with the Division of Motor Vehicles. The registry contains information on vehicle ownership, vehicle type and year, the vehicle identification number (VIN) and more. At this time, the Commonwealth is installing the new Kentucky Vehicle Identification System (KAVIS), the implementation of which will improve all six vehicle database attributes. Liaisons at the database did not send baseline metrics but are confident they can provide authentication of attribute improvements once KAVIS is fully installed.

KAVIS is not yet complete and therefore not fully functional; however, some of its modules have been installed and active statewide. These include the point-of-sale system (live in 2015); the print on demand decal system with data and document image storage (2015); disabled decals/placards (2018); and boat titling and registration (2019). According to the liaison, all remaining modules of KAVIS will be installed and operating by the end of 2022.

The following modules of interest to the Office of Highway Safety have not been installed but are currently in the process of installation: vehicle titles and registrations; ATV titles; mobile homes, Recreational Vehicles; and all other title and registration functions.

**The Ways KAVIS Will Improve Database Performance**

**Table 5.5** presents the performance measures, goals, metrics and proposed projects by database attribute for Vehicle.  KAVIS will reduce the average time to post by county clerks (the timeliness goal), by reducing the average length of time to process system changes, and by decreasing the amount of time to process transactions.

Accuracy will be improved by reducing the number of records with data errors or duplicates. KAVIS is moving toward a customer centric model with DL verified records. Also, KAVIS will have a comprehensive data dictionary with data element definitions based on appropriate data values. The data dictionary will facilitate accuracy by ensuring uniformity of data collection and review when accessing the data warehouse.

To enhance completeness of vehicle records KAVIS will reduce the percent of blanks or unknowns in critical data elements. KAVIS has a data quality control program that requires validation and verification through multiple steps including driver's license verification, ownership, tax data, regulatory issuance of title, and registrations

Database uniformity will expand with more NMVTIS standards compliant data elements in the system. Uniformity will also rise with the capacity to measure the number of mapped fields to interfaced systems and subsystems.

KAVIS in integrated with NMVTIS and VIN assist. This will allow data validation across multiple systems. Thus, it will integrate with external and third-party systems to share and provide information to relevant parties, such as law enforcement and other safety agencies, vehicle dealers, rental companies, banks, and insurance companies.

In regard to <u>accessibility</u>, KAVIS will increase citizen inquiries by decreasing response time to requests for information. In doing so, it will increase transparency in cross-functional interactions. This will result in an uptick in citizen satisfaction with county and state government services.

**Table 5.5 Vehicle Database Performance Measures, Goals, Baseline Metrics, and Proposed Projects**

| Attribute | Performance Measures | Goals | Baseline Metric | Proposed Projects |
|---|---|---|---|---|
| **Timeliness** | Average time to post by county clerks | Once KAVIS is operational, a baseline will be established and steps taken to reduce time to post | Not yet measured/estimated | KAVIS is funded and will be operational in 2022 |
| **Accuracy** | Percent of vehicle records with no errors in critical data elements | Once operational, KAVIS can select critical elements and establish a baseline to Maintain or improve Upon | Not yet measured/estimated | KAVIS is funded and will be operational in 2022 |
| **Completeness** | Percent of unknowns or blanks in critical data elements | Once operational KAVIS can select critical elements and establish a baseline to maintain or improve upon | Not yet measured/estimated | KAVIS is funded and will be operational in 2022 |
| **Uniformity** | Percent of NMVTIS standards-compliant elements in system | Will create a team to estimate current number and prepare steps to increase number | Not yet measured/estimated | KAVIS is funded and will be operational in 2022 |
| **Integration** | KAVIS will check against NMVTIS and VIN Assist | Once KAVIS is operational, a baseline will be established and steps taken to reach 100% check against NMTIS and VIN | Not yet measured/estimated | KAVIS is funded and will be operational in 2022 |
| **Accessibility** | # of users able to perform inquiries | Increase number of times database is accessed above 2015 number of 3,500 | 3,500 | KAVIS is funded and underway and will be operational in 2022 |

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## 5.6 Trauma/Injury Surveillance Database Performance Measures, Goals, Baseline Metrics and Proposed Projects

To improve timeliness, the trauma registry has developed a proposal to increase the percent of agencies who report run data by the reporting deadline to 95%. This will be accomplished by convening a working group to improve reporting performance; these improvements are outline in **Table 5.6**.

There are two accuracy performance metrics. The first calls for conducting new training for registrars and trauma staff in order to reduce errors by registrars and staff. The second is to realign metrics with a focus on types and causes of injury. This will remove inappropriate data.

To raise data completeness trauma registry intends to raise the number of cases reported from 13,000 in 2016 to more than 15,000. This will be done by developing a strategy to ensure hospitals fulfill reporting obligations.

A second completeness objective will increase the number of level 3 and 4 trauma centers reporting above the current level of 19. This will create a more complete set of data, as well.

To enhance data integration and data uniformity, the trauma registry along with EMS will request funding to conduct a feasibility study to connect its data with EMS. This will build upon research by Dr. Robert Kluger at the University of Louisville.

Data accessibility to researchers will be increased through a project to negotiate data release agreements and procedures; and to create research data sets and supporting documentation. If funding is acquired all database attributes will improve.

**Additional Trauma Registry Practices to Maintain Data Accuracy and Completeness**

- Error elimination. Data registrars submit data online to ESO and an ESO representative reviews the data for system-generated problem indicators. If a registrar submits data that fail to meet the system criteria for completeness and accuracy, the submission is returned to the registrar with specific directions for cleaning it up. The problems have always been resolved.

- New ICD-10-CM codes for specific causes and types of injuries. These may contribute to increases in both database accuracy and completeness as well as other database attributes. Strategies to increase the use of new codes despite their lack of relevance in their primary context are currently being pursued with funding from the CDC's National Center for Injury Prevention and Control.13,800

- New Insights from recent research. Dr. Robert Kluger, an engineering professor at the University of Louisville, has undertaken linkage of statewide EMS and trauma registry data. This work is currently in progress, but a pilot project in Jefferson County (Louisville) provided new information on topics such as EMS calls for individuals who requested transport to a non-trauma-system hospital and geographic clusters of specific types of injuries (notably gunshot wounds).

**Table 5.6 Trauma Registry/Injury Surveillance Registry Performance Measures, Goals, Baseline Metrics, and Proposed Projects**

| Attribute | TRSP Performance Measure | Goal | Project Proposed or Begun | Baseline Metric |
|---|---|---|---|---|
| **Timeliness** | Increase the percent reporting trauma data by the deadline to more than 95 percent | Decrease late reporting of trauma registry data | Create working group to improve reporting performance | 82% |
| **Accuracy 1** | Conduct new training for registrars and trauma staff | Fewer data errors by registrars and trauma staff | Updated Annual training sessions for new practices and new staff | Number of training sessions |
| **Accuracy 2** | Realign metrics with a focus on types and causes of injury | Remove Inappropriate data | Comprehensive reassessment of trauma registry data | NA |
| **Completeness** | Number of trauma cases reported | Increase number of cases from 13,000 in 2016 to more than 15,000 | Develop a strategy to ensure hospitals fulfill reporting obligations | 13,800 |
| **Completeness** | Increase the number of level 3 and 4 trauma centers reporting | Add trauma centers | Integrate data from level 3 and 4 trauma centers reporting | Current level of 3 and 4 centers is 19 |
| **Uniformity and Integration** | Establish data connectivity with EMS | Obtain useful information from EMS | If funding is available conduct a feasibility study | NA |
| **Accessibility** | Increase data accessibility t to Researchers | Increase number of researchers using data by 2021 | Requires a project to negotiate data release agreements and procedures; and to create research data sets Estimate: $50,000. | Provide descriptions of situation with numbers if possible |

## 5.7 Driver Licensing Database Performance Measures, Goals, Baseline Metrics and Proposed Projects

**Table 5.7** presents the performance measures, goals, metrics and proposed projects by database attribute for Driver Licensing.  The liaison stated that there is no practical project to foster more timely submission at this time because the current database entry time is that required by legal standards—24 to 48 hours. They intend to maintain that level of timeliness.

To ensure accuracy of data entry, Driver Licensing will maintain its program of training personnel. Their goal is to reduce the number of keying errors needing correction below 5% and correct all that occur.

The completeness goal is the completion of its program to install Real ID by creating regional offices. They will add the remaining regional offices, reaching a total of 30 for citizens and one for non-citizens.

Upon completion of real ID, they will have increased data uniformity by completing the data dictionary. The latter will contain best practices identified by TRPAA.

By the end of 2022, Kentucky will have integrated electronic submission of State-to-State conviction records. This will substantially raise the percent of conviction records from out-of-state submitted to the DMV electronically.

Accessibility for appropriate users will be maintained by continuation of the current security/approval practices.

**Table 5.7 Driver Licensing Database Performance Measures, Goals, Baseline Metrics and Proposed Projects**

| Attribute | Performance Measures | Goals | Baseline Metric | Proposed Project |
|---|---|---|---|---|
| **Timeliness** | Average # of days from driver's adverse action conviction to date the adverse action enters database | Maintain timeliness required by standards (15 days per KRS 186.550) | Current database entry time is 24-48 hours | There is no practical project to foster more timely submission at this time |
| **Accuracy** | Correct data entry keying mistakes | Reduce the % not corrected | Current % for in-state is 5% on initial entry of records | We will continue to train personnel to reduce mistakes |
| **Completeness** | Install Real ID | Implement Real ID project in all 120 counties by creating regional offices | Current number of regional offices is 18 of 30 and one other for non-citizens | Continue to add more locations. |
| **Uniformity** | Current and comprehensive data dictionary—part of real ID | Data dictionary that reflects best practices identified in the TRPAA | Current update is complete. | Real ID project underway in KY |
| **Integration** | Percent of conviction records from out-of-state submitted to the DMV Electronically | Submission of out-of-state conviction records submitted electronically | Number of states that can submit conviction records electronically | KY will install electronic submission of State-to-State conviction records in July 2022 |
| **Accessibility** | Appropriate users accessing traffic records data | Establish baseline and improve if needed | Currently no known breaches of the system | Continue current security/approval practices |

# 6. Rating Method to Prioritize and Fund Projects for Database Integration and Improvement

The selection and scheduling of projects to increase database quality and utility will follow Kentucky Traffic Records Coordinating Committees standard procedures for project development. It must be noted that the quality of data is often upgraded by database officials, without additional funding as they work steadily to improve their operations. Improvements over the past few years are documented in **Appendix 2**.

The process and schedule by which the Traffic Records Advisory Committee reviews, approves, and monitors funded projects is as follows:

**Sequence of Steps in Project Section Process**

January

> Each year in January, the Kentucky Office of Highway Safety (KOHS) issues a call for project proposals to improve the quality of traffic records data and the use of that data. Proposals are received from the agencies responsible for data collecting as well as from university and government researchers involved in the analysis of safety related data.   These are submitted in abstract form to the TRCC.

February

> In February of that year, the KOHS TRC and the NHTSA Region 3 RPM review submission for consideration. The Transportation Traffic Records Coordinating Committee and the Technical Committee review the proposals and the proposers of the more promising research are invited to present their proposal to the TRCC. The TRCC takes into consideration the likely impact of the proposal on the six database attributes: timeliness, accuracy, completeness, uniformity, integration, and accessibility. It also considers efforts to comply with Federal Highway safety goals, procedures and standards.

March

> In March, upon completion of the review, the TRCC technical committee recommends proposals to the KOHS Grant Committee for its assessment. Those considered most likely to improve one or more of the six database attributes are selected for funding; as long as federal funds and other funding is available.

> The recommending funding level of the selected traffic records grants is used to generate the operational programs budget. All task matrixes, performance measures and goals are specified and carried forward in the grant contract.

April-May

> During April and May, The KOHS then devises and drafts all contracts and related memorandum of understanding. Contracts and MOUs are then cross referenced from contract number to project number and finalized with research products and schedules specified in detail based upon the grant's contents, funding level, and location in the federal planning cycle.

<u>June-July</u>

During June and July, contracts and denial notifications are dispatched via email and U.S. Postal Service to notify the entities.  The contracts are signed and collected for entry into the Kentucky Finance EMARS system.

<u>October</u>

New projects begin October 1 and follow the Federal Fiscal Year, concluding September 30th.

During the course of the grant, project directors submit monthly progress reports, describing tasks undertaken and related expenses, and provide all other necessary documentation agreed to in the contract or deemed necessary for performance management.

**Grant Completion Requirements**

Prior FFY projects conclude on September 30, at which time a final report describing the research findings must be submitted with the final reimbursement claim.

Any grant related claims arriving in the KOHS, **unless written prior approval is authorized**; after November 30th close of business are not eligible for reimbursement.

<u>November</u>

In November, the grantees report to the Technical Committee on the outcomes of the previous year's projects. If it is advisable to have a project carryover into the next fiscal year, the researchers advise the Technical Committee of the next year's matrix and planned outcomes.

# 7. The Plan Going Forward

Review of the work that has been done to implement the improvement goals of each database over the past five years shows substantial progress; each of the six databases has projects in motion to reach a majority of their goals and many goals have been successfully met. Thus, it can be submitted that considerable progress has been made toward fulfilling the goals of the 2017-2021 TRSP.

Looking forward to 2022-2026, the specific performance measures and goals discussed in this TRSP constitute the substance of the Traffic Records Strategic Plan. Taken together, their overarching effect will be to raise the quality and utility of the data in each database. Reaching the goals will entail a variety of database reforms—from more use of electronic reporting to more routine correction of data entry errors, to more integration across databases.

Many of the performance measures laid out in this Plan call for improvements in the accuracy and completeness of traffic records data and its integration between databases. As the numbers in this report's tables indicate, Kentucky appears to already generate useful data. Still, there is room for improvement.

Taken together, the adoption of the proposed performance measures and related goals will contribute to better data for analysis and decision-making. Kentucky will be able to shine a brighter and more informative light on the causes of crashes on its roadways. In doing so, the state will be better positioned to find ways to reduce crashes and the associated injuries and fatalities. The knowledge gained will inform safer highway design. It will also facilitate the development of more effective and comprehensive first responder practices and organization.

The goals laid out in the plan can be supplemented with other database refinements as needs and funding sources and strategies emerge. In addition, database officials are interested in formalizing many of their operations by, for instance, updating data dictionaries, officially extending the years of data retention, and devising data flow diagrams.

The selection and scheduling of projects to increase database quality and utility follow Kentucky Traffic Records Coordinating Committees standard procedures for project development. It must be noted that the quality of data is often upgraded by database officials, without additional funding as they work steadily to improve their operations.

# Appendices

# Appendix 1: List of KTRAC Membership

**Terry Bunn**
Director
UK, KY Injury Prevention & Research Center
Database – EMS/Injury Surveillance

**James Padgett**
KAVIS Project Coordinator, Info Tech.
KY Transportation Cabinet
Database – Vehicle

**Bradley Arterburn**
Captain
Kentucky State Police, Criminal ID & Records
Database – Crash, Citation/Adjudication

**Jonathan Moore**
Program Manager, Highway Safety
KY Transportation Cabinet
Database – Crash

**Jason Banta**
Grants Administrator
Kentucky State Police
Database – Crash, Citation/Adjudication

**Ed Harding**
Systems Consultant IT
KY Transportation Cabinet
Office of Highway Safety
Database – Crash, Roadway, Vehicle, Driver

**Eric Green**
Program Manager
UK, KY Transportation Center
Database – Crash, Roadway

**Shiann Sharpe**
Branch Manager
Kentucky State Police
Database – Crash, Citation/Adjudication

**Aaron Collins**
Engineer, Department of Highways
KY Transportation Cabinet
Database – Crash, Roadway

**Andy Rush**
Transportation Planner
Louisville Metropolitan Planning Organization
Database – Crash, Roadway

**Matthew Cole**
Director, Driver Licensing Division
KY Transportation Cabinet
Database – Driver

**Darren Thacker**
Regional Program Manager
NHTSA Region 3 Office

**Chad Shive**
Engineer, Division of Maintenance
KY Transportation Cabinet
Database – Roadway, Crash

**Jason Siwula**
Assistant State Highway Engineer
Kentucky Transportation Cabinet
Database – Roadway, Crash

**Monica Robertson**
Data Coordinator
KY Board of Emergency Medical Services
Database – EMS/Injury Surveillance

**Daniel Sturtevant**
Research and Statistics Manager
KY Administrative Office of the Courts
Database – Citation/Adjudication

**John Eiler**
Contractor, Office of Info Technology
KY Transportation Cabinet
Database – Vehicle

**Mike Vaughn**
Engineer, Division of Traffic Operations
KY Transportation Cabinet
Database – Crash, Roadway

**Elizabeth Lucas**
Director, Implementation & Court Services
KY Administrative Office of the Courts
Database – Citation/Adjudication

**William Staats**
Research Engineer
UK, KY Transportation Center
Database – Crash, Roadway

**Nathan Ridgway**
Engineer, Department of Highways
KY Transportation Cabinet
Database – Crash, Roadway

**Ramsey Quarles**
Branch Manager, Division of Planning
KY Transportation Cabinet
Database – Roadway

**Paul Ross**
IT Analyst
UK, KY Transportation Center
Database – Crash, Roadway

**Linda Goodman**
Division Administrator
Federal Motor Carrier Safety Association
Database – Vehicle

**Ben Blandford**
Research Engineer
UK, KY Transportation Center
Database – Crash, Roadway

**Adam Kirk**
Safety Circuit Rider
UK, KY Transportation Center
Database – Roadway, Crash

**Richard Li**
Assistant Professor/Director
University of Louisville
Center for Transportation Innovation
Database – Roadway, Crash

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# Appendix 2: A Comparison of Database Improvements in the Two Traffic Records Strategic Plans: 2013-16 and 2017-21

Both traffic record improvement plans involved consultation with a designated database liaison from each database. During the consultation, we sought to develop quantitative metrics with baseline numerical values for each database. We sought a metric for each of the six recognized database attributes (timeliness, accuracy, completeness, uniformity, integration, and accessibility). The objective of the plans was to encourage and document desired quantitative upgrades in the attribute performance of each database (e.g., more accurate reporting of data).

We did this for each database attribute in the six official databases; crash reporting, emergency medical services (EMS), traffic violation citation and adjudication, driver's licensing, vehicle registration, and roadway/ traffic record keeping. We also collected data from Kentucky's trauma registry, which collects traffic related injury data that can supplement that provided by EMS.

As previously noted, the liaisons were cooperative but could not always identify a useful baseline metric that could be measured.

**Database Progress 2013-2016**

If a metric were developed for each database attribute, there would be a total of 42 metrics. However, the liaisons could not find a suitable metric for 19 of the attributes spread across the seven databases. Thus, after consultation with the liaisons, there were only 22 attributes with baseline quantitative metrics at the end of the 2013-2016 the traffic records database project. The study obtained measured improvements during the time period for 11 of these 22 attributes along with qualitative statements of improvement for 4 attributes, producing attribute upgrades in 15 of the 42 database attributes There were 7 attributes with a quantitative baseline that reported no sign of improvement—due to the lack of a second quantitative measure. One liaison said there was no need for improvement in one of his attributes, as it was 100% accurate after an annual check.

**Table 1. Summary of TRSP Results 2013-2016**

| Database | Driver Licensing * | Crash ** | EMS*** | Citation/ Adjudica-tion | Vehicle regis-Tration ***** | Roadway/ Traffic ***** | Trauma registry ****** | Total |
|---|---|---|---|---|---|---|---|---|
| 1. Quantitative Baseline Metric(s) with measured attribute Improvement | 0 | 4 | 2 | 1 | 0 | 0 | 4 | 11 |
| 2. Number of attribute(s) without metric(s) | 6 | 1 | 2 | 5 | 1 | 2 | 2 | 19 |
| 3. Qualitative statement of attribute(s) with improvement | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 4 |
| 4. Quantitative baseline metric(s) without Attribute(s) improvement | 0 | 0 | 2 | 1 | 2 | 2 | 0 | 7 |
| 5. Attributes Said to Have No Need for Improvement | | 1 | | | | | | 1 |

* Driver licensing did not participate during this phase of the database project

**CRASH had no metric for integration.

***EMS has no metric for uniformity and accessibility.

****KAVIS has added some modules, all of which improve performance for all attributes.

*****Quantitate metrics are not available.

*****Roadway had no metric for accessibility.

******Trauma has no metric for uniformity.

Table 2 presents the attributes that each database liaison identified as having had either quantitative or qualitative improvements in specific attreibutes. Four databases reported an increase in the timeliness of data reporting. Three reported that their data was more accurate and 2 that it was more complete. Three reported an upgrade in data uniformity; two more integration with other databases, and one reported greater accessibility of data. The progress made by vehicle registration requires qualification; Not all its modules in the KAVIS system had been installed by the end of 2017.

**Table 2: Type of Quantitative or Qualitative Reports of Attribute Improvement by Database**

| Database | Crash | EMS | Citation/ Adjudica- tion | Vehicle regis- Tration | Driver Licen- sing | Roadway/ traffic | Trauma registry | Total |
|---|---|---|---|---|---|---|---|---|
| Timeliness | X | | | X | | X | x | 4 |
| Accuracy | X | | | X | | | x | 3 |
| Completeness | | | | X | | | x | 2 |
| Uniformity | X | X | X | | | | | 3 |
| Integration | | | | X | | | x | 2 |
| Accessibility | X | | | | | | | 1 |

### Database Progress 2017-2021

In the second traffic records improvement plan to upgrade the performance of each database's attributes, 25 new metrics were developed, many in response to the suggestions of NHTSA after the agency reviewed Kentucky's new 5-year plan for its databases. Some of these replaced prior metrics. In this stage, the liaison for the driver licensing database decided to participate, developing 6 metrics for his database. We decided to accept two metrics for some of the attributes when two baseline metrics for the specific attribute were available and they entailed two discrete improvements in the attribute's data quality.

**Table 3. New Metrics Developed for the Second Phase**

| Database | Crash | EMS | Citation/ adjudication | Vehicle registration | Driver Licensing | Roadway/ Traffic | Trauma Registry |
|---|---|---|---|---|---|---|---|
| New Metric | 5 | 4 | 5 | 0 | 6 | 1 | 5 |

As in the prior years (2013-2017), the liaisons found it difficult to create baseline quantitative metrics for all the attributes. In fact, there were only 26 database attributes with baseline quantitative metrics in the 2017-21 TRAC. The study obtained measured *quantitative* improvements during the time period for 13 of the attributes along with *qualitative* statements of improvement for 10 attributes. In other words, the liaisons report upgrades for23 of their 42 attributes (row 1 + row 3).

The liaisons were unable to define either a quantitative or qualitative metrics for 7 of the 42 attributes. There were 9 quantitative attributes with no sign of improvement—due to the absence of a second measurement that indicated a quantitative improvement or due to a failure to report a second measurement to compare with a baseline value. For 4 of the attributes the liaisons stated that there was no need to improve the attribute.

**Table 4: Summary 2017-2021**

|  | Crash | EMS | Citation/ Adjudi-cation | Vehicle registra-tion | Driver Licens-ing | Roadway/ traffic | Trauma registry | Total |
|---|---|---|---|---|---|---|---|---|
| Quantitative Baseline Metric(s) with measured attribute Improve-ment | 5 | 2 | 3 | 0 | 0 | 0 | 3 | 13 |
| Number of attribute(s) without a metric(s) | 0 | 2 |  | 0 | 0 | 2 | 3 | 7 |
| Qualitative statement of attribute(s) with improve-ment | 0 | 0 | 2 | 6 | 2 | 0 |  | 10 |
| Quantitative baseline metric(s) without Attribute(s) improve-ment | 1 | 2 | 0 |  | 1 | 5 | 0 | 9 |
| Attributes Said to Have No Need for Improvement |  |  | 1 |  | 3 | 0 |  | 4 |

KAVIS has added some modules, all of which are expected to improve performance. The installation is ongoing and may be finished in 2022.

Citation has 2 metrics for timeliness

Driver licensing sees no need to improve timeliness and integration.

Trauma has no metric for uniformity, uniformity and accessibility

Roadway has no metrics for integration and accessibility. Roadway has two metrics for completeness

**Table 5: Type of Quantitative or Qualitative `Attribute Improvement by Database over Time Period 2017-21**

| Database | Crash | EMS | Citation/ Adjudica-tion | Vehicle regis-tration | Driver Licen-sing | Roadway/ traffic | Trauma registry | Total |
|---|---|---|---|---|---|---|---|---|
| Timeliness | X | | X X | X | | | | 4 |
| Accuracy | | | | X | | | X | 2 |
| Completeness | X | X | X | X | X | | X | 6 |
| Uniformity | X | X | X | X | X | | | 5 |
| Integration | X | | X | X | | | X | 4 |
| Accessibility | X | | | X | | | | 2 |

**A Summary of the Work Done to Implement the 2017-21 Improvement Plan**

Table 6 documents substantial progress in that each of the six databases has projects in motion to reach their respective goals and many goals have been successfully met. Columns two through five in table 3 describe the current level of progress. In all, there are 48 goals, 23 of which are complete or the goal for the attribute in questions is thought to be so close to attainment that there is no practical way to improve the attribute. For instance, the citation/adjudication database reports that it now can match traffic violations to the individual violator's valid criminal history key 99.8% of the time.

Looking at the second column in **Table 6**, the CRASH database has met all seven goals; citation/adjudication has met 3; EMS 1, driver licensing 6; Vehicle registration none due to the unfinished, though nearing completion, installation of KAVIS, Trauma registry has met 2 and Roadway 4.

For each database, the third column presents the number of database attributes for which an improvement project is underway and progress has been made toward the goal. In all, the databases have 13 projects currently underway. Citation/Adjudication reports progress toward meeting 3 of its goals; vehicle registration states that the installation of KAVIS has made substantial progress on all 6 database attributes; trauma registry reports progress on 2 attributes; EMS reports progress on 1; roadway reports progress on no attribute and driver licensing is progressing on 1 attribute.

The fourth column lists the specific attributes on which no progress toward the goal has been made despite the presence of an active project. Three of the databases lack active projects: EMS lacks 2; citation/adjudication 2; trauma 1 and roadway 1.

The fifth column lists the number and specific attributes for each database that have no project underway. Projects have been planned but they require funding that is currently unavailable. EMS seeks funding to improve database timeliness and completeness; trauma registry is requesting money to upgrade database accuracy and accessibility; and roadway requires funding to improve accuracy and uniformity.

**Table 6: Number of Database Attribute Goals in Implementation Plan either Currently Met or Said to Have No Practical Way to Improve, Implementation Project Underway (Progress Reported), Underway (No Progress Reported), and Attribute with No Project Underway**

| Database | Goal Has Been Met or Said to Have No Practical Way to Improve | Project Underway with Progress to Goal Reported | Project Underway with no progress to Goal reported | Attribute Goal(s) With No Project Underway |
|---|---|---|---|---|
| CRASH-KSP (1) | 7 | N/A | N/A | N/A |
| Citation/ Adjudication (2) | 3 | 3 | 2 | |
| EMS | 1 | 1 | 2 | Timeliness Completeness |
| Driver Licensing (3) | 6 | 1 | | Integration |
| Vehicle Registration (4) | 0 | 6 | 0 | N/A |
| Trauma Registry | 2 | 2 | 1 | Accessibility |
| Roadway (5) | 4 | 0 | 1 | Accuracy Completeness |
| Total | 23 (46.7%) | 13 (31.1%) | 6 (8.9%) | 6     (13.3%) |

(1)    CRASH has two goals for accuracy

(2)    Citation adjudication has eight goals with two for timeliness and two for integration

(3)    Driver licensing has seven goals with two for data integration

(4)    All KAVIS modules except the vehicle modules are complete (PODD, Boat, Placard modules). KAVIS upon final implementation will improve all six database attributes

(5)    Note Roadway has seven goals seven goals with two for data completeness

In short, at this time liaisons have reported that 36 of the attribute goals have been met or determined to be impractical to reach and six other goals have been partially met—a total of 36 of the 48. The databases have put in motion six projects that thus far have yet to make progress toward their specific goals. This leaves 6 database attributes without a project developed at this juncture. Thus, it can be submitted that considerable progress has been made toward fulfilling the goals of the TRIP.

# Appendix 3:  Traffic Records Projects funded by OHS

FY 2021

**Project Number:** M3DA-2021-01

**Project Title:** University of Kentucky – Kentucky Transportation Center - Traffic Safety Data Service (KTSDS)

**Description:** Continue the Kentucky Traffic Safety Data Service program in Kentucky to help agencies integrate and use (accessibility) traffic records data. This project is a continuation of the popular Kentucky Traffic and Safety Data Service.  For data to be useful, they must first be developed into information.  From this information, knowledge and even wisdom can be derived. The improper (intentional or unintentional) use of data can result in poor analytical conclusions, waste of resources and ultimately injury or even loss of life.  Accessibility is a key metric to describe the quality of traffic records.  Much has been done in Kentucky to improve the accessibility of data but not to improve the accessibility to and timely integration of the information, knowledge and wisdom that can and should be the goal of a data query.  Access to those with the education, training, and experience to provide this outcome is difficult or impossible to many who would benefit from this improved access.  These groups include decision makers, consultants, non-safety state and local agencies, law enforcement groups, citizens groups, attorneys and the media.  For the last 3 categories especially, careful attention must be paid to so-called simple data and information requests such that a) all potentially affected parties are aware of the requests, b) information and analysis is properly obtained and developed, c)the information provided is properly documented and that d) users are adequately educated as to proper use.  Often, data experts must work with requestors and help them articulate what they actually need to accomplish the goal that precipitated the initial request.

**Budget:** $36,160.00 (FAST ACT 405C)

**Project Number:** M3DA-2021-02

**Project Title:**  University of Kentucky, KY Injury Prevention & Research Center (KIPRC) Improving Motor Vehicle Crash-Related Data Quality

**Description**: Collect, review, analyze and report on data from Kentucky trauma hospitals, to improve the trauma data management system and reporting to the state registry.  Will implement the new Trauma Registry Data Dictionary, provide dissemination of best practices in reporting, and develop peer-to-peer training and support mechanisms.  Provide analysis of KY trauma data, improve the trauma data management system, and increase the number of hospitals reporting to KY Trauma Registry.  The Trauma registry staff will perform a comprehensive evaluation of the state's trauma data, to assure that reported cases meet national criteria and are coded consistently.

**Budget:** $96,356.00 (FAST ACT 405C)

**Project Number:** M3DA-2021-03

**Project Title:** Kentucky Transportation Center (KTC)-University of Kentucky Research Foundation - Improving Completeness and Uniformity of Kentucky MIRE (Model Inventory of Roadway Elements) Fundamental Data Elements

**Description**: This project will develop a through lane data collection approach using Google Street View images and develop a statewide interchange inventory.  The Model Inventory of Roadway Elements (MIRE) Fundamental Data Elements (FDEs) are essential in enabling the state to apply Highway Safety Manual methodologies and supporting data-driven safety decision making.  Various FDEs are required for roadway segments, intersections and interchanges/ramps.  Among these, the number of through lanes that is needed for public paved roadway segments.  This project will take advantage of the technical expertise and resources at the KYTC to employ Geographic Information Systems (GIS) and machine learning methods to collect number of lanes data and statewide interchange inventory.  The results of the project would help to improve the accuracy, completeness, integration and uniformity of the roadway database.

**Budget:** $62,715.00 (FAST ACT 405C)

**Project Number:** M3DA-2021-04

**Project Title:** Kentucky Transportation Center (KTC) – University of Kentucky Research Foundation - Facilitating the Development of Projects to Attain the Goals in the Implementation Plan for the 2018-2021 Traffic Records Strategic Plan

**Description:** A new Kentucky traffic records strategic plan was developed during FY2017 and put into place June 30, 2017.  The University of Kentucky Transportation Center, in co-operation with both the Kentucky Traffic Records Advisory Committee (KTRAC) and the KY Office of Highway Safety, will continue to analyze, identify, refine, improve, and monitor status of performance metrics from the Traffic Records Strategic Plan. This project will continue the traffic records improvement plan, and the collection of performance metrics of each database, ID projects, etc. The procedures and data collection will facilitate the efforts of the KTRAC data quality improvement sub-committee team, to effectively review the existing traffic records system, identify potential improvements (with a particular emphasis on integration efforts), and report to the KTRAC membership. The research will update and advance the Traffic Records Implementation Plan (TRIP), which is being developed to assist the Kentucky traffic records community in meeting the goals and objectives identified in the Strategic Plan.

**Budget:** $67,681.00 (FAST ACT 405C)

**Project Number:** M3DA-2021-05

**Project Title:** Kentucky Community and Technical College System (KCTCS)/Kentucky Board of Emergency Medical Services (KBEMS) - Kentucky Emergency Medical Services Information System (KEMSIS)

**Description**: This is a continuation for the Kentucky EMS Information System (KEMSIS), and aims further enhance the EMS database for completeness and integration with other systems. The KEMSIS project is aimed to improve the accessibility and portability of patient care information between Kentucky EMS agencies and the KEMSIS system.  Performance measures from the Traffic

Records Strategic Plan (TRSP) will be utilized for this project period. Kentucky's licensed ambulance services are required to submit data to KBEMS using the latest National EMS Information System (NEMSIS) standard without exception. As of January 2018, all ambulance services have submitted data to the state repository. The TRSP noted deficiencies in the use of critical elements that relate to highway incidents. The examination team cited low utilization of occupant safety equipment questions. The KY Board of Emergency Medical Services team will work with TRCC database liaisons to develop validation rules around these data elements that will improve their usage in the incident reports. Additionally, the TRSP identifies the lack of integration between databases. While development of database linkage is predominantly a funding issue, work has already started in a prior project period to identify EMS elements found to be critical to the other databases.

**Budget:** $93,440.00 (FAST ACT 405C)

**Project Number:** M3DA-2021-06
**Project Title:** University of Louisville Research Foundation, Inc. – Developing Statewide Horizontal Curve Database for Kentucky Local Roads
**Description**: This project is to improve the completeness and consistency of all horizontal curve data of Kentucky local roads.  In Kentucky, the majority of roadway departure crashes happen in rural highways.  Due to the predominance of horizontal curves on typical rural roads, a higher percentage of fatal curve-related crashes occur on rural roads, particularly on two-lane roadways in rural areas.  Having a complete horizontal curve database covering all roads, including county and local roads is essential to reach the Towards Zero Deaths goal and meet the MUTCD requirements.  Although, the state has good coverage of curve data on state owned routes, curve data on non-state routes is needed for comprehensively understanding and addressing curve safety issues (more road departure crashes on local roads).  With complete curve data on all Kentucky public roads, safety performance functions along with crash modification factors can be developed to facilitate addressing curve issues through appropriate countermeasures, considering most road departure crashes occurred on local roads rather than state trunk routes.  At the same time, accuracy of the existing horizontal curve data in the KYTC is potential to be validated.

**Budget:** $45,000.00 (FAST ACT 405C)

**Project Number:** M3DA-2021-07
**Project Title:** University of Louisville – Statewide Linkage of Crash, EMS and Trauma Center Records
**Description**: This project will link data from the Statewide Crash Records, KBEMS EMS Response Data and KIPRC Trauma Registry Data.  State Police records do not track detailed information about the care received as a result of crashes.  The information contained in EMS records and Trauma registries contain substantially more information about pre-hospital care, and the injury details, both of which can explain variance in crash outcome and lead to improved response.  By linking the crash records to these databases, trends in crash outcomes can be identified based on crash conditions to improve the recognition of injuries at the scene, to differentiate how EMS

respond to different crash types, and more.  A similar project has been implemented in Jefferson County, KY.  The result found no statistically significant difference in EMS response based on crash conditions, despite certain crash types and conditions being more prone to severe injuries and fatalities.  Additionally, it was found that numerous cases existed of low-rated crash severity resulting in admission to the ICU upon arrival at the hospital.  This project will help to identify the cases where these issues arise and direct policy toward addressing them.
**Budget:** $73,770.85 (FAST ACT 405C)

**Project Number:** M3DA-2021-08
**Project Title:** EMS Assessment
**Description:**  The purpose of this assessment is to describe EMS, EMS Emergency Preparedness, and 911 systems in Kentucky using existing data sources. Insight on current issues within EMS and disaster preparedness will be provided through the findings from expert panels.  Additionally these expert panels will be used to better identify and define trends and industry patterns currently immeasurable with any existing data sources.
**Budget:** $12,000.00 (FAST ACT 405C)

**Project Number:** M3DA-2020-01
**Project Title:** Traffic Records Program Management (Kentucky Office of Highway Safety)
**Description**: Includes salaries & benefits, travel, training and office supply expenses for one staff member of the Office's Division of Highway Safety Programs. This specifically pays for personnel who supply traffic records analysis to all safety partners, internal and external.
**Budget:** $75,000.00 (NHTSA 405C MAP-21 funds/FAST Act)

**Project Number:** M3DA-2020-02
**Project Title:** Kentucky Transportation Center (KTC) – University of Kentucky Research Foundation - Facilitating the Successful Attainment of the Goals in the Implementation Plan for the 2018-2021 Traffic Records Strategic Plan
**Description:** A new Kentucky traffic records strategic plan was developed during FY2017 and put into place June 30th, 2017.  The University of Kentucky Transportation Center, in co-operation with both the Kentucky Traffic Records Advisory Committee (KTRAC) and the KY Office of Highway Safety, will continue to analyze, identify, refine, improve, and monitor status of performance metrics from the Traffic Records Strategic Plan. This project will continue the development and implementation of procedures for regularly monitoring the quality of traffic records in Kentucky. The procedures and data collection will facilitate the efforts of the KTRAC data quality improvement sub-committee team to effectively review the existing traffic records system, identify potential improvements, with a particular emphasis on integration efforts, and report to the KTRAC membership. The research will update and advance the Traffic Records Implementation Plan (TRIP), which is being developed to assist the Kentucky traffic records community in meeting the goals and objectives identified in the Strategic Plan.
**Budget:** $76,597.05 (NHTSA 405C MAP-21 funds/FAST Act)

**Project Number:** M3DA-2020-03
**Project Title:**  University of Kentucky, KY Injury Prevention & Research Center (KIPRC) Improving Motor Vehicle Crash-Related Trauma Data Quality and Completeness
**Description**: Provide analysis of KY trauma data, improve trauma data management system, and increase the number of hospitals reporting to KY Trauma Registry. The Kentucky Trauma Advisory Council will add or reinstate four new hospitals as members of the trauma system. The new member hospitals will then initiate reporting to the state trauma registry.
The Trauma registry staff will perform a comprehensive evaluation of the state's trauma data to assure that reported cases meet national criteria and are coded consistently. The results of this evaluation will be presented to the Trauma Advisory Council for review, and the council will provide guidance regarding potential quality improvements. KIPRC will perform a comprehensive reassessment of trauma registry data for the period 2010-2019 so as to realign metrics with a focus on the types and causes of injury that (a) have the greatest impact on the state's overall burden of injury and/or (b) have the greatest potential for improved data integrity, quality, and integration.
**Budget:** $96,074.00 (NHTSA 405C MAP-21 funds/FAST Act)

**Project Number:** M3DA-2020-04
**Project Title:** Kentucky Transportation Center (KTC)-University of Kentucky Research Foundation - Crash Data Integration, Accuracy, and Consistency Review

**Description**: This project will be to develop a team comprised of crash users, police that enter crash data, roadway database users, roadway database maintainers, and developers of the KYOPS system. This team will meet and a facilitated discussion will help identify issues related to data entry or data use. This multi-disciplinary team will develop solutions that focus on four import factors: 1) simplify the data entry process for the police, 2) increase the accuracy of the data for data users, 3) increase the consistency of data across agencies, and 4) improve the integration between traffic records databases. A part of the analysis will be to identify data fields in the various database that could be used to integrate information.
**Budget:** $37,516.00 (NHTSA 405C MAP-21 funds/FAST Act)

**Project Number:** M3DA-2020-05
**Project Title:** Kentucky Emergency Medical Services Information System (KEMSIS)
**Description**: This is a continuation for the Kentucky EMS Information System (KEMSIS) to further enhance the EMS database for completeness and integration with other systems. The KEMSIS project is aimed to improve the accessibility and portability of patient care information between Kentucky EMS agencies and the KEMSIS system. Performance measures from the Traffic Records Strategic Plan (TRSP) will be utilized for this project period. Kentucky's licensed ambulance services are required to submit data to KBEMS using the latest National EMS Information System (NEMSIS) standard without exception. As of January 2018, all ambulance services have submitted data to the state repository. The TRSP noted deficiencies in the use of critical elements that relate to highway incidents. The examination team cited low utilization of occupant safety equipment questions. The KY Board of Emergency Medical Services team will work with TRCC database liaisons to develop validation rules around these data elements that will improve their usage in the incident reports. Additionally, the TRSP identifies the lack of integration between databases. While development of database linkage is predominantly a funding issue, work has already started in a prior project period to identify EMS elements found to be critical to the other databases.
**Budget:** $93,440.00 (NHTSA 405C MAP-21 funds/FAST Act)

**Project Number:** M3DA-2020-06
**Project Title:** University of Kentucky – Kentucky Transportation Center - Traffic Safety Data Service (KTSDS)
**Description:** Develop and execute a traffic records data and analysis quick response team at the Kentucky Transportation Center (KTC). The Kentucky Transportation Center has considerable resources and expertise for identifying and addressing safety concerns using a variety of traffic records databases and tools. The aim of this project is to increase access to data from the six traffic record systems but more especially to increase access to expert resources with a more in-depth knowledge of the databases. Accordingly, KTC will develop and host a free traffic data service to enable users to "access an expert" to conduct small studies and get answers to traffic safety problems. These answers would ordinarily be out of reach due to a) difficulty and expense of contracting, or b) lack of awareness that such expert resources exist and are available to them. The project will also post to the website http://ktsds.ktc.uky.edu completed project information as well as publicizing the service.
**Budget:** $46,646.40 (NHTSA 405C MAP-21 funds/FAST Act)

**Project Number:** M3DA-2019-01
**Project Title:** Traffic Records Program Management (Kentucky Office of Highway Safety)
**Description**: Includes salaries & benefits, travel, training and office supply expenses for one staff member of the Office's Division of Highway Safety Programs. This specifically pays for personnel who supply traffic records analysis to all safety partners, internal and external.
**Budget:** $80,000.00 (NHTSA 405C MAP-21 funds/FAST Act)

**Project Number:** M3DA-2019-02
**Project Title:** Kentucky Transportation Center (KTC) – University of Kentucky Research Foundation - Facilitating the Successful Attainment of the Goals in the Implementation Plan for the 2018-2021 Traffic Records Strategic Plan
**Description:** A new Kentucky traffic records strategic plan was developed during FY2017 and put into place June 30th, 2017. The University of Kentucky Transportation Center, in co-operation with both the Kentucky Traffic Records Advisory Committee (KTRAC) and the KY Office of Highway Safety, will continue to analyze, identify, refine, improve, and monitor status of performance metrics from the Traffic Records Strategic Plan. This project will continue the development and implementation of procedures for regularly monitoring the quality of traffic records in Kentucky. The procedures and data collection will facilitate the efforts of the KTRAC data quality improvement sub-committee team to effectively review the existing traffic records system, identify potential improvements, and report to the KTRAC membership. The research will update and advance the Traffic Records Implementation Plan (TRIP), which is being developed to assist the Kentucky traffic records community in meeting the goals and objectives identified in the Strategic Plan.
**Budget:** $76,195.90 (NHTSA 405C MAP-21 funds/FAST Act)

**Project Number:** M3DA-2019-03
**Project Title:**  University of Kentucky, KY Injury Prevention & Research Center Improving Motor Vehicle Crash-Related Trauma Data Quality and Completeness
**Description**: Provide analysis of KY trauma data, improve trauma data management system, and increase the number of hospitals reporting to KY Trauma Registry. The Kentucky Trauma Advisory Council will recruit four new hospitals as members of the trauma system. The new member hospitals will then initiate reporting to the state trauma registry.
The Trauma registry staff will perform a comprehensive evaluation of the state's trauma data to assure that reported cases meet national criteria and are coded consistently. The results of this evaluation will be presented to the Trauma Advisory Council for review, and the council will provide guidance regarding potential quality improvements. The trauma registrars at each participating hospital will have two opportunities for in-person training and will be encouraged to consult with staff as needed in the course of the year. Because there is considerable turnover in trauma registrar staffing, newly appointed registrars will be given the opportunity to participate in training as soon as feasible. Feedback from the registrars will be incorporated into training evaluations and planning for future educational programming.
**Budget:** $95,671.00 (NHTSA 405C MAP-21 funds/FAST Act)

**Project Number:** M3DA-2019-04
**Project Title:** Kentucky Transportation Center (KTC)-University of Kentucky Research Foundation - Investigation of the Accuracy of Alcohol and Drug Involvement Reporting

**Description**: This project proposes to investigate the crash types (run off road, head-on, etc.), crash narratives, and contributing factors (time of day, distraction, etc.) associated with known alcohol and drug related crashes to develop an algorithm to assist in determining an accurate indication of all drug and alcohol crashes. The algorithm would be based on FARS crashes with known alcohol and drug use, and applied to all crashes to confirm the likelihood of alcohol and/or drugs being involved.

In addition, the project will identify locations/roadway features where alcohol and drug crashes occur most often (intersections, rural 2 lanes, etc.) to identify countermeasures to combat drunk/drugged driving crashes.
**Budget:** $75,000.00 (NHTSA 405C MAP-21 funds/FAST Act)

**Project Number:** M3DA-2019-05
**Project Title:** Kentucky Emergency Medical Services Information System (KEMSIS)
**Description**: This project is a statewide initiative for collection, analysis, and integration of EMS System and Patient Care Data. The KEMSIS project is aimed to improve the accessibility and portability of patient care information between Kentucky EMS agencies and the KEMSIS system. The ultimate goal is to have 100% of EMS agencies electronically reporting their calls to the Kentucky Board of EMS database system. During the next fiscal year, the project will increase the completeness and quality of EMS incident reports by adopting and implementing national and state validation rules, conduct analysis and publish findings. The Kentucky Board of Emergency Medical Services will publish the findings of report analysis looking at such elements as seatbelt usage, alcohol and drug use indicators, and transport times. KBEMS will also strive to educate external stakeholders on the robustness of EMS data and make it an accessible tool through the use of data sharing agreements to query EMS data for items such as severity of injury, and also identify trends.
**Budget:** $75,000.00 (NHTSA 405C MAP-21 funds/FAST Act)

**Project Number:** M3DA-2019-06
**Project Title:** KSP Crash Data Dictionary
**Description:** The Kentucky State Police will develop a formal data dictionary that included each data element and a description of their validation edits. A Joint Application Design (JAD) session will be held with CRASH subcommittee members to create the data dictionary to ensure the proper considerations are taken.
**Budget:** $39,500.00 (NHTSA 405C MAP-21 funds/FAST Act)

**Project Number:** M3DA-2019-07
**Project Title:** KSP Online Civilian Collision Reporting
**Description:** The Kentucky State Police (KSP) will implement functionality that will give the public the ability to complete the Kentucky Civilian Traffic Collision Report electronically from a KSP hosted website. In addition, functionality will be implemented to ensure the collected civilian collision information is available from within the CRASH Web Portal for appropriate report distribution as well as advanced data analytics. These records are currently an untapped resource.
**Budget:** $46,000.00 (NHTSA 405C MAP-21 funds/FAST Act)

**Project Number:** M3DA-2019-08
**Project Title:** University of Kentucky – Kentucky Transportation Center - Traffic Safety Data Service (KTSDS)

**Description:** Develop and execute a traffic records data and analysis quick response team at the Kentucky Transportation Center (KTC). The Kentucky Transportation Center has considerable resources and expertise for identifying and addressing safety concerns using a variety of traffic records databases and tools. The aim of this project is to increase access to data from the six traffic record systems but more especially to increase access to expert resources with a more in-depth knowledge of the databases.  Accordingly, KTC will develop and host a free traffic data service to enable users to "access an expert" to conduct small studies and get answers to traffic safety problems. These answers would ordinarily be out of reach due to a) difficulty and expense of contracting, or b) lack of awareness that such expert resources exist and are available to them. The project will also develop a website documenting and publicizing the service.
**Budget:** $40,171.17 (NHTSA 405C MAP-21 funds/FAST Act)

**Project Number:** M3DA-18-01
**Project Title:** Traffic Records Program Management (Kentucky Office of Highway Safety)
Description: Includes salaries and benefits, travel, training, and office supply expenses for one staff member of the Office's Division of Highway Safety Programs. This pays for personnel who supply traffic records analysis to all safety partners, internal and external.
**Budget:** $80,000.00 (NHTSA 405C MAP-21 funds)

**Project Number:** M3DA-18-02
**Project Title:** University of Kentucky**,** KY Injury Prevention & Research Center – CRASH, Injury and Roadway Integration
**Description**: This project will integrate previously linked CRASH, hospital, and emergency department records with Kentucky roadway files to support analyses. The project aims to link Kentucky's roadway databases to already-linked CRASH and injury files (emergency department visit and hospital discharges) for 2008-2014. The linked database will be used to assess the impact of cable median barriers on reducing injury severity and preventing specific types of injury. We will look for reductions in potentially long-term disabling injuries such as traumatic brain and spinal cord injuries.
**Budget:** $92,595.00 (NHTSA 405C MAP-21 funds)

**Project Number:** M3DA-18-03
**Project Title:** University of Kentucky, KY Injury Prevention & Research Center - Improving Motor Vehicle Crash-Related Data Quality
**Description**: Provide analysis of Kentucky trauma data, improve trauma data management system, and increase the number of hospitals reporting to Kentucky Trauma Registry. The Kentucky Trauma Advisory Council will recruit four new hospitals as members of the trauma system. The new member hospitals will then initiate reporting to the state trauma registry. The Trauma registry staff will perform a comprehensive evaluation of the state's trauma data to assure that reported cases meet national criteria and are coded consistently. The results of this evaluation will be presented to the Trauma Advisory Council for review, and the council will provide guidance regarding potential quality improvements. The trauma registrars at each participating hospital will have two opportunities for in-person training and will be encouraged to consult with staff as needed during the year. Because there is considerable turnover in trauma registrar staffing, newly appointed registrars will be given the opportunity to participate in training as soon as feasible. Feedback from the registrars will be incorporated into training evaluations and planning for future educational programming.
**Budget:** $92,976.00 (NHTSA 405C MAP-21 funds)

**Project Number:** M3DA-18-04
**Project Title:** Kentucky Emergency Medical Services Information System (KEMSIS)
**Description**: This project is a statewide initiative for collection, analysis, and integration of EMS System and Patient Care Data. The KEMSIS project is aimed to improve the accessibility and portability of patient care information between Kentucky EMS agencies and the KEMSIS system. The ultimate goal is to have 100% of EMS agencies electronically reporting their calls to the Kentucky Board of EMS database system. During the next fiscal year, the project will increase the completeness and quality of EMS incident reports by adopting and implementing national and state validation rules, conducting analysis and publishing findings. The Kentucky Board of Emergency Medical Services will publish the findings of report analysis looking at such elements as seatbelt usage, alcohol and drug use indicators, and transport times. KBEMS

will also strive to educate external stakeholders on the robustness of EMS data and make it an accessible tool using data sharing agreements to query EMS data for items such as severity of injury, and also identify trends.
**Budget:** $75,000.00 (NHTSA 405C MAP-21 funds)


**Project Number:** M3DA-18-05
**Project Title:** University of Kentucky Transportation Center - Improvement of Fatal Crash Analysis and Follow-up
**Description:** Assess, identify, and recommend actions to improve the accuracy and completeness of fatal collision reporting. The project will review all fatal crash reports for 2016, analyze and document the consistency of investigations for fatal collisions, and then compare results from police reported fatal collision data and FARS data to identify differences. Results from the analysis could be used to identify countermeasures (legislation, engineering, education, and enforcement, emergency medical) to reduce fatal crashes. In addition, a subset of all fatal crashes, those involving alcohol and drugs would be given special attention. Following analysis, recommendations will be given where appropriate to the processes and procedures to improve inconsistencies between police reported fatal collision data and FARS data. Also, recommend supplemental types of data for inclusion in fatal crash reports and identify countermeasures to reduce fatal crashes.
**Budget**: $75,004.00 (NHTSA 405C MAP-21 funds)


**Project Number:** M3DA-18-06
**Project Title:** University of Kentucky Transportation Center - Traffic Records Strategic Plan Implementation
**Description:** A new Kentucky traffic records strategic plan was developed during FY2017 and put into place June 30, 2017. The University of Kentucky Transportation Center, in co-operation with both the Kentucky Traffic Records Advisory Committee (KTRAC) and the KY Office of Highway Safety, will continue to analyze, identify, refine, improve, and monitor status of performance metrics from the Traffic Records Strategic Plan. This project will continue the development and implementation of procedures for regularly monitoring the quality of traffic records in Kentucky. The procedures and data collection will facilitate the efforts of the KTRAC data quality improvement sub-committee team to effectively review the existing traffic records system, identify potential improvements, and report to the KTRAC membership. The research will update and advance the Traffic Records Implementation Plan (TRIP), which is being developed to assist the Kentucky traffic records community in meeting the goals and objectives identified in the Strategic Plan.
**Budget:** $75,000.00 (NHTSA 405C MAP-21 funds)


**Project Number:** M3DA-18-07
**Project Title:** University of Kentucky Transportation Center - Traffic Safety Data Service (KTSDS)
**Description:** Develop and execute a traffic records data and analysis quick response team at the Kentucky Transportation Center (KTC). The Kentucky Transportation Center has considerable resources and expertise for identifying and addressing safety concerns using a variety of traffic records databases and tools. The aim of this project is to increase access to data from the six traffic record systems, but especially to increase access to expert resources with a more in-depth knowledge of the databases. Accordingly, KTC will develop and host a free traffic data service to enable users to access an expert to conduct small studies and get answers to traffic safety problems. These answers would ordinarily be out of reach due to a) difficulty and expense of contracting, or b) lack of awareness that such expert resources exist and are available to them. The project will also develop a website documenting and publicizing the service.
**Budget**: $28,606.00 (NHTSA 405C MAP-21 funds)

FY 2017

**Project Number:** M3DA-17-02
**Project Title:** University of Kentucky, Kentucky Transportation Center – KY Traffic Records Assessment Program
**Description**: The Kentucky Transportation Center will work with the Kentucky Transportation Cabinet, Kentucky State Police, Department of Criminal Justice Training, Kentucky Board of Emergency Medical Services, KIPRC, and other agencies as appropriate and available, to collaboratively develop metrics and obtain data to evaluate the quality among the following traffic records systems: crash, roadway, vehicle, driver, citation/adjudication and injury surveillance.
**Budget:** $25,000.00 (NHTSA 405C MAP-21 funds)

**Project Number:** M3DA-17-03
**Project Title:** Kentucky State Police – Training Modules for KYOPS
**Description**: Recently, with KYTC funding the Kentucky Stated Police updated and enhanced the KyOPS/CRASH client application, traffic safety related wizards, and Web Portal. The new version of KyOPS includes feature-rich components that help the user search and analyze data like never before. Because some these features did not exist in the old version and require special attention to utilize, detailed training is required. The new version is less familiar for users; therefore, new training must be established.
**Budget:** $37,500.00 (NHTSA 405C MAP-21 funds)

**Project Number:** M3DA-17-04
**Project Title:** Kentucky Emergency Medical Services Information System (KEMSIS)
**Description**: This project is a statewide initiative for collection, analysis, and integration of EMS System and Patient Care Data. The KEMSIS project is aimed to improve the accessibility and portability of patient care information between Kentucky EMS agencies and the KEMSIS system. The goal is to have 100% of EMS agencies electronically reporting their calls to the Kentucky Board of EMS database system. Approximately 40% of EMS agencies in Kentucky still utilize paper copies to track patient information. The continuance of this project will allow those agencies to adopt an electronic system of submission for their patient care reports, and allow KBEMS to set a goal to accept data from at least 90% of Kentucky EMS agencies by September 30, 2017. The project will also allow stakeholder agencies to query EMS data for items such as severity of injury, and identify trends.
**Budget:** $80,000.00 (NHTSA 405C MAP-21 funds)

**Project Number:** M3DA-17-05
**Project Title:** University of Kentucky**,** KY Injury Prevention & Research Center – Enhance Completeness, Timeliness and Accuracy of Kentucky Motor Vehicle Trauma Data
**Description**: This ongoing project expects to have 32 reporting facilities by the end of FY 2016. During FY2017, the goal is to add an additional five hospitals providing data to the Kentucky Trauma Registry (KTR) strategically located in areas of need. The goals of this grant include: 1) to improve the completeness of Kentucky highway traffic safety data by increasing the number of hospitals reporting data to the Kentucky Trauma Registry by 5 in FY 2017; 2) to improve the completeness of Kentucky highway traffic safety data by increasing the number of patient records reported to the Kentucky Trauma Registry from 12,525 in FY 2015 (preliminary data) to 13,525 in FY 2017; 3) to improve the timeliness of highway traffic safety data reports provided to state officials and policymakers, including the Kentucky Trauma Registry annual report and other analyses addressing areas of concern, by providing support for professional staff and software upgrades throughout the budget year; 4) to improve the accuracy of Kentucky highway traffic safety data with training and education for trauma registrars individually upon request and as a

group at least once at a statewide meeting during FY 2017; 5) to improve the ability of the Kentucky trauma registry to reduce highway traffic-related injuries and deaths by adding data fields that support the development of uniform performance standards for participating hospitals statewide.
**Budget:** $100,000.00 (NHTSA 405C MAP-21 funds)

**Project Number:** M3DA-17-06
**Project Title:** University of Kentucky, KY Injury Prevention & Research Center (KIPRC) Improving Identification of Drugged Driving Collisions and Injuries Using Multiple Data Sources
**Description**: With support from NHTSA's Crash Outcome Data Evaluation System (CODES) program and Section 405/408 traffic records improvement grants from the Kentucky Office of Highway Safety, KIPRC has linked CRASH records with several injury databases. The goal of this grant is to improve the completeness of drugged driving data on Kentucky's CODES files. We will do this by consolidating information on drug involvement captured in injury surveillance databases that have been linked with CRASH, including FARS, hospital inpatient claims records, emergency department claims records, and trauma registry records.
**Budget:** $12,650.00 (NHTSA 405C MAP-21 funds)

**Project Number:** M3DA-17-07
**Project Title:** University of Kentucky, KY Injury Prevention & Research Center Ramp Crash Reconciliation and Estimation of Missing Ramp Volumes
**Description**: Despite the high quality of crash and roadway data in Kentucky, the accuracy of data for ramps has been problematic. Many routes, particularly interstates, in Kentucky have exaggerated crash experiences due to ramp crashes being incorrectly assigned to them. An effort to estimate the missing ramp traffic volumes would allow researchers to better understand the safety issues they face. More accurately locating ramp crashes, along with a more complete inventory of ramp volumes, will be beneficial to safety professionals.
**Budget:** $49,720.00 (NHTSA 405C MAP-21 funds

FY 2016

**Project Number:** M3DA-16-02
**Project Title:** University of Kentucky, Kentucky Transportation Center – KY Traffic Records Assessment Program
**Description**: The Kentucky Transportation Center will work with the Kentucky Transportation Cabinet, Kentucky State Police, Department of Criminal Justice Training, Kentucky Board of Emergency Medical Services, KIPRC, and other agencies as appropriate and available, to collaboratively develop metrics and obtain data to evaluate the quality among the following traffic records systems: crash, roadway, vehicle, driver, citation/adjudication, and injury surveillance.
**Budget:** $70,478.00 (NHTSA 405C MAP-21 funds)

**Project Number:** M3DA-16-03
**Project Title:** University of Kentucky**,** KY Injury Prevention & Research Center –
Enhance Completeness, Timeliness and Accuracy of Kentucky Motor Vehicle Trauma Data
**Description**: This project will support the inclusion of the expanded trauma data set, which is part of a uniform national data set in the statewide trauma registry report. A growing number of hospitals have expressed interest in trauma system participation. This project intends to add new reporting entities, including one major south central Kentucky hospital, making a total of at least 34 providing data to the Kentucky Trauma Registry (KTR). This grant will: 1) provide modest first-year financial support for facilities that seek Level III or IV status within the state's trauma system, allowing them to connect with the online reporting network; 2) update and expand the software for the state's reporting system; 3) add data fields to the KTR that support the development of uniform performance standards for participating hospitals statewide; and 4) provide the analytical expertise necessary to produce the annual statewide KTR report as well as ad hoc reports requested to address specific areas trauma data concern.
**Budget:** $98,906.95 (NHTSA 405C MAP-21 funds)

**Project Number:** M3DA-16-04
**Project Title:** University of Kentucky, KY Injury Prevention & Research Center
CRASH-FARS-Death Certificate Integration
**Description**: The primary aim of this project is to link the NHTSA Fatality Analysis Reporting System (FARS) and the Kentucky death certificate databases for 2010 through 2014, and provide a link between the Kentucky CRASH databases and the linked FARS-Death Certificate records. The integration of the CRASH, FARS and Death Certificate systems through this project will enhance Kentucky's capacity to conduct surveillance and research on fatal crashes involving Kentucky residents.
**Budget:** $45,406.79.00 (NHTSA 405C MAP-21 funds)

**Project Number:** M3DA-16-05
**Project Title:** University of Kentucky, KY Injury Prevention & Research Center
CRASH-Hospital Integration (CODES)
**Description**: This project has two primary aims. First will be to link (integrate) the Kentucky CRASH, hospital inpatient and hospital outpatient (including emergency department) databases for 2014. Second is to use this linked database, and similar databases from previous years, to produce a comprehensive report on charges resulting from traffic crashes in Kentucky from 2008 to 2014. The objective of the second aim is to increase accessibility to the integrated CRASH-Inpatient-Outpatient data, particularly the data on crash-related hospital and emergency department charges.
**Budget:** 83,942.87 (NHTSA 405C MAP-21 funds)

**Project Number:** M3DA-16-06
**Project Title:** Kentucky Emergency Medical Services Information System (KEMSIS)
**Description**: This project is a statewide initiative for collection, analysis, and integration of EMS System and Patient Care Data. The KEMSIS project is aimed to improve the accessibility and portability of patient care information between Kentucky EMS agencies and the KEMSIS system. The goal is to have 100% of EMS agencies electronically reporting their calls to the Kentucky Board of EMS database system. Approximately 40% of EMS agencies in Kentucky still utilize paper copies to track patient information. The continuance of this project will allow those agencies to adopt an electronic system of submission for their patient care reports, and allow KBEMS to set a goal to accept data from at least 90% of Kentucky EMS agencies by September 30, 2016. The project will also allow stakeholder agencies to query EMS data for items such as severity of injury, and identify trends.
**Budget:** $80,000.00 (NHTSA 405C MAP-21 funds)

FY 2015

**Project Number:** M3DA-15-04
**Project Title:** University of Kentucky, Kentucky Transportation Center – KY Traffic Records Assessment Program
**Description**: The Kentucky Transportation Center will work with the Kentucky Transportation Cabinet, Kentucky State Police, Department of Criminal Justice Training, Kentucky Board of Emergency Medical Services, KIPRC, and other agencies as appropriate and available, to collaboratively develop metrics and obtain data to evaluate the quality among the following traffic records systems: crash, roadway, vehicle, driver, citation/adjudication, and injury surveillance.
**Budget:** $75,000.00 (NHTSA 405C MAP-21 funds)

**Project Number:** M3DA-15-05
**Project Title:** University of Kentucky, Kentucky Transportation Center – CRASH-EMS Traffic Records Integration
**Description**: This project will link the CRASH database for 2014 from Kentucky State Police with the Emergency Medical Services (EMS) database for 2014 from the Kentucky Board of EMS and the hospital inpatient and emergency department databases for 2014 from the Kentucky Office of Health Policy. The project will also link CRASH, hospital inpatient, and ED databases for 2014. This is essentially a project to expand traffic records linkages formerly done under the NHTSA CODES project to include the EMS database.
**Budget:** $86,651.00 (NHTSA 405C MAP-21 funds)

**Project Number:** K9-15-01
**Project Title:** Kentucky Emergency Medical Services Information System (KEMSIS)
**Description**: This project is a statewide initiative for collection, analysis, and integration of EMS System and Patient Care Data. The KEMSIS project is aimed to improve the accessibility and portability of patient care information between Kentucky EMS agencies and the KEMSIS system. The goal is to have 100% of EMS agencies electronically reporting their calls to the Kentucky Board of EMS database system. Approximately 40% of EMS agencies in Kentucky still utilize paper copies to track patient information. The continuance of this project will allow those agencies to adopt an electronic system of submission for their patient care reports, and allow KBEMS to set a goal to accept data from at least 90% of Kentucky EMS agencies by September 30, 2015. The project will also allow stakeholder agencies to query EMS data for items such as severity of injury, and identify trends.
**Budget:** $80,000.00 (408 SAFETEA-LU funds)

**Project Number:** K9-15-02
**Project Title:** University of Kentucky**,** KY Injury Prevention & Research Center – Improving Scope and Quality of KY Trauma Data
**Description**: This project will support the inclusion of the expanded trauma data set, which is part of a uniform national data set in the statewide trauma registry report. A growing number of hospitals have expressed interest in trauma system participation. This project intends to add 10 new reporting entities, including one major south central Kentucky hospital, making a total of at least 30 providing data to the Kentucky Trauma Registry (KTR). This grant will: 1) provide modest first-year financial support for facilities that seek Level III or IV status within the state's trauma system, allowing them to connect with the online reporting network; 2) update and expand the software for the state's reporting system; 3) support essential staff travel to attend in-state meetings; and 4) provide the analytical expertise necessary to

produce the annual statewide KTR report as well as ad hoc reports requested to address specific areas trauma data concerns.
**Budget:** $110,237.00 (408 SAFETEA-LU funds)


**Project Number:** K9-15-03
**Project Title:** University of Kentucky, KY Transportation Center – Quality Control of HIS Data
**Description**: The purpose of this study will be to perform a quality check of critical Highway Information System data elements. This study will limit its focus to planning data (HIS, Traffic, and Class Counts). The study will determine a statistically significant data comparison of these data elements, report findings by state, Highway District Office (HDO), Metropolitan Planning Organizations (MPO), and Area Development Districts (ADDs), and summarize any systemic issues uncovered with the data audit. The project will develop a baseline of quality of HIS data by September 2015, with the goal to decrease the number erroneous HIS elements from this baseline to under 5% in 2016.
**Budget:** $50,000.00 (408 SAFETEA-LU funds)


**Project Number:** K9-15-04
**Project Title:** University of Kentucky, KY Transportation Center – HIS Asset for Safety Roadway Features
**Description**: Several low-cost, systemic countermeasures have been applied to Kentucky's roadways in the last few years. While the safety benefit of these treatments is assumed to exist, there is a need to quantify them, and furthermore, track their application. Currently none of these safety treatments are included in the Highway Information System (HIS) database. Such features include rumble strips, centerline rumble stripes, edge line rumble stripes, safety edge, and high friction treatments. This project will identify the location and increase the inventory in the HIS database of cable barrier, rumble stripes, rumble strips, safety edge, and high friction surface treatments from 0% to 100% by September 2015.
**Budget:** $50,000.00 (408 SAFETEA-LU funds)


**Project Number:** K9-15-05
**Project Title:** University of Kentucky, KY Transportation Center – usRAP Methodology
**Description**: Few safety data elements are available for non-state-maintained county secondary roads. However, crashes on these roads can often be severe due to high speeds, narrow lanes, sharp curves, and severe roadsides. The Kentucky Transportation Center (KTC) will select 10 counties in which to collect roadway safety data on 500 miles of rural secondary roads using the US Roadway Assessment Program (usRAP) methodology. KTC will collect and upload all data to usRAP tools online program for processing. The tool develops countermeasure improvement programs for highway authorities. KTC will use the processed data to create a Safer Roads Investment Program which will be provided to officials in each of the 10 counties. KTC will provide all processed data in GIS format to the Kentucky Transportation Cabinet for inclusion in the Highway Information System database.
**Budget:** $50,000.00 (408 SAFETEA-LU funds)


**Project Number:** K9-15-06
**Project Title:** University of Kentucky, Kentucky Injury Prevention & Research Center – Trauma Registry CRASH Data
**Description**: The new project will probabilistically link the 2014 CRASH and Trauma Registry data. Goals of the project include: 1) increase the percentage of appropriate records in the 2014 Trauma Registry that are linked to 2014 CRASH records by 10% compared with the 2012 baseline linkage. The improvement in the linkage is expected as a result of the new state-specific data fields added in 2013 trauma registry data collection, including EMS run number, transport origin, and transport agency; 2) Establish a baseline percentage on the completeness of the data elements in both systems pertaining to commercial vehicle

occupants; 3) Establish a baseline percentage on accuracy of the information in the both systems pertaining to commercial vehicle occupants.
**Budget:** $80,245.00 (408 SAFETEA-LU funds)


**Project Number:** K9-15-07
**Project Title:** Kentucky State Police E-crash and KyOPS Web Portal
**Description**: The current version of Kentucky's Open Portal Solutions (KyOPS) client and the traffic safety-related client wizards are written in the Microsoft's Visual Basic 6, which has not been supported since April 8, 2008. During this project, the KyOPS client application will be rewritten in the latest supported programming language Microsoft Visual Studio 2013. The following updates are scheduled to be completed during this grant year: 1) There will be new ways to collect and capture data, eliminating duplicate data entry, which will dramatically decrease the time it takes to create KyOPS reports and increase the accuracy of the data; 2) Redesign how created and archived reports are stored, accessed, and managed on the KyOPS Client, improving reporting timeliness and accessibility; 3) A new client mapping component will be created with street level view mapping functionality for increased accuracy of incident location data; 4) The latest version of the Model Minimum Uniform Crash Criteria (MMUCC) 4th Edition Guidelines will be incorporated into the E-Crash wizard module during the grant cycle; 5) The KyOPS Web Portal will be rewritten with improved analytics, better identification of problem areas, enhanced search features, the ability to save searches and customizable output variables within search results.
**Budget:** $1,031,490.00 (408 SAFETEA-LU funds)

# Appendix 4: Summary of Deficiency Assessment Using NHTSA Questions

**Survey Results**

Designated liaisons and other officials at several database answered questions from the National Highway Traffic Safety Administration Advisory Document. The advisory contains a list of questions for each traffic records database. The questions in the advisory are designed to provide a broad portrait of the qualities and capacities of each database along with questions to assess the current ability of database officials to use their data to improve database performance.

There were approximately 30 to 60 questions for each database, which were arranged in an Excel software assessment tool. Liaisons from Crash, Roadway and Injury Surveillance chose to use the Excel assessment tool as part of this process. Injury Surveillance contains questions for several distinct databases: hospital emergency department; hospital discharge, vital records, trauma registry and EMS.

For each of the Excel assessment tool questions, the response categories are:

- Meets Advisory Ideal
- Partially Meets Advisory Ideal
- Does not Meet Advisory Ideal

Based on the survey results, further discussions were held to develop database improvement ideas, goals and metrics. The completed survey responses for Crash, Roadway and Injury Surveillance are included here.

## Crash Data Questions

The State crash system ideally contains—at a minimum—basic information about every reportable motor vehicle crash in the State. (Reportable is defined by the appl State statute.) The available data should be sufficient to permit decision-makers to draw valid conclusions about the crash experience in their State. Ideally, all State c is consolidated into one generally accessible database with a clearly defined organizational custodian. The crash system provides both an official record of the crash a for analytic purposes.

**You have answered all the questions in this section. Please proceed to the next tab.**

| Q# | Crash Questions | Self-Assessmer |
|----|-----------------|----------------|
| | **Description and Contents of the Crash Data System** | |
| 28 | Is statewide crash data consolidated into one database? | Meets Advisory ideal |
| 29 | Is the statewide crash system's organizational custodian clearly defined? | Meets Advisory ideal |
| 30 | Does the State have criteria requiring the submission of fatal crashes to the statewide crash system? | Meets Advisory ideal |
| 31 | Does the State have criteria requiring the submission of injury crashes to the statewide crash system? | Meets Advisory ideal |
| 32 | Does the State have criteria requiring the submission of property damage only (PDO) crashes to the statewide crash system? | Meets Advisory ideal |
| 33 | Does the State have statutes or other criteria specifying timeframes for crash report submission to the statewide crash database? | Meets Advisory ideal |
| 34 | Does the statewide crash system record crashes occurring in non-trafficway areas (e.g., parking lots, driveways)? | Partially meets Advisory ideal |
| 35 | Is data from the crash system used to identify crash risk factors? | Meets Advisory ideal |
| 36 | Is data from the crash system used to guide engineering and construction projects? | Meets Advisory ideal |
| 37 | Is data from the crash system regularly used to prioritize law enforcement activity? | Meets Advisory ideal |
| 38 | Is data from the crash system used to evaluate safety countermeasure programs? | Does not meet Advisory ideal |
| | **Applicable Guidelines for the Crash Data System** | |
| 39 | Is there a process by which MMUCC is used to help identify what crash data elements and attributes the State collects? | Partially meets Advisory ideal |
| 40 | Is there a process by which ANSI D.16 is used to help identify the definitions in the crash system data dictionary? | Partially meets Advisory ideal |
| | **Data Dictionary for the Crash Data System** | |
| 41 | Does the data dictionary provide a definition for each data element and define that data element's allowable values/attributes? | Meets Advisory ideal |
| 42 | Does the data dictionary document the system edit checks and validation rules? | Meets Advisory ideal |
| 43 | Is the data dictionary up-to-date and consistent with the field data collection manual, coding manual, crash report, database schema and any training materials? | Meets Advisory ideal |
| 44 | Does the crash system data dictionary indicate the data elements populated through links to other traffic records system components? | Does not meet Advisory ideal |
| | **Procedures and Process Flows for Crash Data Systems** | |
| 45 | Does the State collect an identical set of data elements and attributes from all reporting agencies, independent of collection method? | Meets Advisory ideal |
| 46 | Does the State reevaluate their crash form at regular intervals? | Does not meet Advisory ideal |
| 47 | Does the State maintain accurate and up-to-date documentation detailing the policies and procedures for key processes governing the collection, reporting, and posting of crash data—including the submission of fatal crash data to the State FARS unit and commercial vehicle crash data to SafetyNet? | Does not meet Advisory ideal |
| 48 | Are the quality assurance and quality control processes for managing errors and incomplete data documented? | Meets Advisory ideal |
| 49 | Do the document retention and archival storage policies meet the needs of safety engineers and other users with a legitimate need for long-term access to the crash data reports? | Meets Advisory ideal |

| 50 | Do all law enforcement agencies **collect** crash data electronically? | Meets Advisory ideal |
| 51 | Do all law enforcement agencies **submit** their data to the statewide crash system electronically? | Meets Advisory ideal |
| 52 | Do all law enforcement agencies collecting crash data electronically in the field apply validation rules consistent with those in the statewide crash system prior to submission? | Meets Advisory ideal |
| | **Crash Data Systems Interface with Other Components** | |
| 53 | Does the crash system have a real-time interface with the driver system? | Does not meet Advisory ideal |
| 54 | Does the crash system have a real-time interface with the vehicle system? | Does not meet Advisory ideal |
| 55 | Does the crash system interface with the roadway system? | Meets Advisory ideal |
| 56 | Does the crash system interface with the citation and adjudication systems? | Does not meet Advisory ideal |
| 57 | Does the crash system have an interface with EMS? | Does not meet Advisory ideal |
| | **Data Quality Control Programs for the Crash System** | |
| 58 | Are there automated edit checks and validation rules to ensure that entered data falls within a range of acceptable values and is logically consistent among data elements? | Meets Advisory ideal |
| 59 | Is limited State-level correction authority granted to quality control staff working with the statewide crash database to amend obvious errors and omissions without returning the report to the originating officer? | Meets Advisory ideal |
| 60 | Are there formally documented processes for returning rejected crash reports to the originating officer and tracking resubmission of the report in place? | Meets Advisory ideal |
| 61 | Does the State track crash report changes after the original report is submitted by the law enforcement agency? | Meets Advisory ideal |
| 62 | Are there timeliness performance measures tailored to the needs of data managers and data users? | Meets Advisory ideal |
| 63 | Are there accuracy performance measures tailored to the needs of data managers and data users? | Meets Advisory ideal |
| 64 | Are there completeness performance measures tailored to the needs of data managers and data users? | Partially meets Advisory ideal |
| 65 | Are there uniformity performance measures tailored to the needs of data managers and data users? | Does not meet Advisory ideal |
| 66 | Are there integration performance measures tailored to the needs of data managers and data users? | Does not meet Advisory ideal |
| 67 | Are there accessibility performance measures tailored to the needs of data managers and data users? | Does not meet Advisory ideal |
| 68 | Has the State established numeric goals—performance metrics—for each performance measure? | Partially meets Advisory ideal |
| 69 | Is there performance reporting that provides specific timeliness, accuracy, and completeness feedback to each law enforcement agency? | Does not meet Advisory ideal |
| 70 | Are detected high-frequency errors used to prompt revisions, update the validation rules, and generate updated training content and data collection manuals? | Does not meet Advisory ideal |
| 71 | Are quality control reviews comparing the narrative, diagram, and coded contents of the report considered part of the statewide crash database's data acceptance process? | Meets Advisory ideal |
| 72 | Are sample-based audits periodically conducted for crash reports and related database content? | Does not meet Advisory ideal |
| 73 | Are periodic comparative and trend analyses used to identify unexplained differences in the data across years and jurisdictions? | Does not meet Advisory ideal |
| 74 | Is data quality feedback from key users regularly communicated to data collectors and data managers? | Partially meets Advisory ideal |
| 75 | Are data quality management reports provided to the TRCC for regular review? | Does not meet Advisory ideal |

## Roadway Data Questions

The State's roadway data system comprises data collected by the State including non-State-owned public roads and roads on tribal land in the State. Per the HPMS Fie
Manual, a public road is defined as "any road or street owned and maintained by a public authority and open to public travel" [23 U.S.C. 101(a)]. The ideal statewide s
incorporates sufficient information on all public roads to support valid, system-wide network screening and countermeasure development, deployment, and evaluatio

**You have answered all the questions in this section. Please proceed to the next tab.**

| Q# | Roadway Questions | Self-Assessmen |
|----|-------------------|----------------|
| | **Description and Contents of the Roadway Data System** | |
| 153 | Are all public roadways within the State located using a compatible location referencing system? | Meets Advisory ideal |
| 154 | Are the collected roadway and traffic data elements located using a compatible location referencing system (e.g., LRS, GIS)? | Meets Advisory ideal |
| 155 | Is there an enterprise roadway information system containing roadway and traffic data elements for all public roads? | Meets Advisory ideal |
| 156 | Does the State have the ability to identify crash locations using a referencing system compatible with the one(s) used for roadways? | Meets Advisory ideal |
| 157 | Is crash data incorporated into the enterprise roadway information system for safety analysis and management use? | Meets Advisory ideal |
| | **Applicable Guidelines for the Roadway Data System** | |
| 158 | Are all the MIRE Fundamental Data Elements collected for all public roads? | Partially meets Advisory ideal |
| 159 | Do all additional collected data elements for any public roads conform to the data elements included in MIRE? | Meets Advisory ideal |
| | **Data Dictionary for the Roadway Data System** | |
| 160 | Are all the MIRE Fundamental Data Elements for all public roads documented in the enterprise system's data dictionary? | Meets Advisory ideal |
| 161 | Are all additional (non-Fundamental Data Element) MIRE data elements for all public roads documented in the data dictionary? | Partially meets Advisory ideal |
| 162 | Does local, municipal, or tribal (where applicable) roadway data comply with the data dictionary? | Meets Advisory ideal |
| 163 | Is there guidance on how and when to update the data dictionary? | Partially meets Advisory ideal |
| | **Procedures and Process Flows for Roadway Data Systems** | |
| 164 | Are the steps for incorporating new elements into the roadway information system (e.g., a new MIRE element) documented to show the flow of information? | Meets Advisory ideal |
| 165 | Are the steps for updating roadway information documented to show the flow of information? | Meets Advisory ideal |
| 166 | Are the steps for archiving and accessing historical roadway inventory documented? | Partially meets Advisory ideal |
| 167 | Are the procedures used to collect, manage, and submit local agency roadway data (e.g., county, MPO, municipality, tribal) to the statewide inventory documented? | Meets Advisory ideal |
| 168 | Are procedures for collecting and managing the local agency (to include tribal, where applicable) roadway data compatible with the State's enterprise roadway inventory? | Meets Advisory ideal |
| 169 | Are there guidelines for collection of data elements as they are described in the State roadway inventory data dictionary? | Meets Advisory ideal |
| | **Intrastate Roadway System Interface** | |
| 170 | Are the location coding methodologies for all State roadway information systems compatible? | Meets Advisory ideal |
| 171 | Are there interface linkages connecting the State's discrete roadway information systems? | Meets Advisory ideal |
| 172 | Are the location coding methodologies for all regional, local, and tribal roadway systems compatible? | Meets Advisory ideal |
| 173 | Do roadway data systems maintained by regional and local custodians (e.g., MPOs, municipalities, and federally recognized Indian Tribes) interface with the State enterprise roadway information system? | Partially meets Advisory ideal |

| 174 | Does the State enterprise roadway information system allow MPOs and local transportation agencies (to include federally recognized Tribes, where applicable) on-demand access to data? | Meets Advisory ideal |
|---|---|---|
| | **Data Quality Control Programs for the Roadway System** | |
| 175 | Do Roadway system data managers regularly produce and analyze data quality reports? | Meets Advisory ideal |
| 176 | Is there a formal program of error/edit checking for data entered into the statewide roadway data system? | Meets Advisory ideal |
| 177 | Are there procedures for prioritizing and addressing detected errors? | Meets Advisory ideal |
| 178 | Are there procedures for sharing quality control information with data collectors through individual and agency-level feedback and training? | Partially meets Advisory ideal |
| 179 | Are there timeliness performance measures tailored to the needs of data managers and data users? | Meets Advisory ideal |
| 180 | Are there accuracy performance measures tailored to the needs of data managers and data users? | Meets Advisory ideal |
| 181 | Are there completeness performance measures tailored to the needs of data managers and data users? | Meets Advisory ideal |
| 182 | Are there uniformity performance measures tailored to the needs of data managers and data users? | Meets Advisory ideal |
| 183 | Are there accessibility performance measures tailored to the needs of data managers and data users? | Meets Advisory ideal |
| 184 | Are there integration performance measures tailored to the needs of data managers and data users? | Partially meets Advisory ideal |
| 185 | Has the State established numeric goals—performance metrics—for each performance measure? | Partially meets Advisory ideal |
| 186 | Are data quality management reports provided to the TRCC for regular review? | Does not meet Advisory ideal |

There is a definite interest in injury control programs within the traffic safety, public health, and enforcement communities. The development of a statewide injury su system is driven by local, State, and Federal programs within the traffic safety, public health, and law enforcement communities. These surveillance systems typically incorporate pre-hospital emergency medical services (EMS), trauma registry, emergency department, hospital discharge, rehabilitation databases, payer-related datab mortality data (e.g., death certificates, autopsies, and coroner and medical examiner reports). The data from these different systems are used to track injury type, cau severity, cost, and outcome.

**You have answered all the questions in this section. Please proceed to the next tab.**

| Q# | Injury Surveillance Questions | Self-Assessmen |
|---|---|---|
| 237 | Is there an entity in the State that quantifies the burden of motor vehicle injury using EMS, emergency department, hospital discharge, trauma registry and vital records data? | Partially meets Advisory ideal |
| 238 | Are there any other statewide databases that are used to quantify the burden of motor vehicle injury? | Partially meets Advisory ideal |
| 239 | Do the State's privacy laws allow for the use of protected health information to support data analysis activities? | Does not meet Advisory ideal |
| | **EMS Description and Contents** | |
| 240 | Is there a statewide EMS database? | Meets Advisory ideal |
| 241 | Does the EMS data track the frequency, severity, and nature of injuries sustained in motor vehicle crashes in the State? | Meets Advisory ideal |
| 242 | Is the EMS data available for analysis and used to identify problems, evaluate programs, and allocate resources? | Meets Advisory ideal |
| | **EMS - Guidelines** | |
| 243 | Does the State have a NEMSIS-compliant statewide database? | Meets Advisory ideal |
| | **EMS - Data Dictionary** | |
| 244 | Does the EMS system have a formal data dictionary? | Meets Advisory ideal |
| | **EMS – Procedures & Processes** | |
| 245 | Is there a single entity that collects and compiles data from the local EMS agencies? | Meets Advisory ideal |
| 246 | Is aggregate EMS data available to outside parties (e.g., universities, traffic safety professionals) for analytical purposes? | Meets Advisory ideal |
| 247 | Are there procedures in place for the submission of all EMS patient care reports to the Statewide EMS database? | Meets Advisory ideal |
| 248 | Are there procedures for returning data to the reporting EMS agencies for quality assurance and improvement (e.g., correction and resubmission)? | Meets Advisory ideal |
| | **EMS – Quality Control** | |
| 249 | Are there automated edit checks and validation rules to ensure that entered EMS data falls within a range of acceptable values and is logically consistent among data elements? | Meets Advisory ideal |
| 250 | Are there processes for returning rejected EMS patient care reports to the collecting entity and tracking resubmission to the statewide EMS database? | Partially meets Advisory ideal |
| 251 | Are there timeliness performance measures tailored to the needs of EMS system managers and data users? | Meets Advisory ideal |
| 252 | Are there accuracy performance measures tailored to the needs of EMS system managers and data users? | Partially meets Advisory ideal |
| 253 | Are there completeness performance measures tailored to the needs of EMS system managers and data users? | Meets Advisory ideal |
| 254 | Are there uniformity performance measures tailored to the needs of EMS system managers and data users? | Partially meets Advisory ideal |
| 255 | Are there integration performance measures tailored to the needs of EMS system managers and data users? | Meets Advisory ideal |
| 256 | Are there accessibility performance measures tailored to the needs of EMS system managers and data users? | Meets Advisory ideal |
| 257 | Has the State established numeric goals—performance metrics—for each EMS system performance measure? | Partially meets Advisory ideal |

| | | |
|---|---|---|
| 258 | Are quality control reviews conducted to ensure the completeness, accuracy, and uniformity of injury data in the EMS system? | Does not meet Advisory ideal |
| 259 | Are periodic comparative and trend analyses used to identify unexplained differences in the EMS data across years and agencies? | Meets Advisory ideal |
| 260 | Is data quality feedback from key users regularly communicated to EMS data collectors and data managers? | Meets Advisory ideal |
| 261 | Are EMS data quality management reports produced regularly and made available to the State TRCC? | Meets Advisory ideal |
| **Emergency Department - System Description** | | |
| 262 | Is there a statewide emergency department (ED) database? | Meets Advisory ideal |
| 263 | Does the emergency department data track the frequency, severity, and nature of injuries sustained in motor vehicle crashes in the State? | Partially meets Advisory ideal |
| 264 | Is the emergency department data available for analysis and used to identify problems, evaluate programs, and allocate resources? | Meets Advisory ideal |
| **Emergency Department – Data Dictionary** | | |
| 265 | Does the emergency department dataset have a formal data dictionary? | Meets Advisory ideal |
| **Emergency Department – Procedures & Processes** | | |
| 266 | Is there a single entity that collects and compiles data on emergency department visits from individual hospitals? | Meets Advisory ideal |
| 267 | Is aggregate emergency department data available to outside parties (e.g., universities, traffic safety professionals) for analytical purposes? | Meets Advisory ideal |
| **Hospital Discharge – System Description** | | |
| 268 | Is there a statewide hospital discharge database? | Meets Advisory ideal |
| 269 | Does the hospital discharge data track the frequency, severity, and nature of injuries sustained in motor vehicle crashes in the State? | Partially meets Advisory ideal |
| 270 | Is the hospital discharge data available for analysis and used to identify problems, evaluate programs, and allocate resources? | Meets Advisory ideal |
| **Hospital Discharge – Data Dictionary** | | |
| 271 | Does the hospital discharge dataset have a formal data dictionary? | Meets Advisory ideal |
| **Hospital Discharge – Procedures & Processes** | | |
| 272 | Is there a single entity that collects and compiles data on hospital discharges from individual hospitals? | Meets Advisory ideal |
| 273 | Is aggregate hospital discharge data available to outside parties (e.g., universities, traffic safety professionals) for analytical purposes? | Meets Advisory ideal |
| **Emergency Department and Hospital Discharge – Guidelines** | | |
| 274 | Are Abbreviated Injury Scale (AIS) and Injury Severity Score (ISS) derived from the State emergency department and hospital discharge data for motor vehicle crash patients? | Partially meets Advisory ideal |
| **Emergency Department and Hospital Discharge – Procedures & Processes** | | |
| 275 | Are there procedures for collecting, editing, error-checking, and submitting emergency department and/or hospital discharge data to the statewide repository? | Meets Advisory ideal |
| **Emergency Department and Hospital Discharge – Quality Control** | | |
| 276 | Are there automated edit checks and validation rules to ensure that entered data falls within a range of acceptable values and is logically consistent among data elements? | Meets Advisory ideal |
| 277 | Are there processes for returning rejected emergency department and/or hospital discharge records to the collecting entity and tracking resubmission to the statewide emergency department and hospital discharge databases? | Meets Advisory ideal |
| 278 | Are there timeliness performance measures tailored to the needs of emergency department and/or hospital discharge database managers and data users? | Meets Advisory ideal |
| 279 | Are there accuracy performance measures tailored to the needs of emergency department and/or hospital discharge database managers and data users? | Meets Advisory ideal |
| 280 | Are there completeness performance measures tailored to the needs of emergency department and/or hospital discharge database managers and data users? | Meets Advisory ideal |
| 281 | Are there uniformity performance measures tailored to the needs of emergency department and/or hospital discharge database managers and data users? | Meets Advisory ideal |

| 282 | Are there integration performance measures tailored to the needs of emergency department and/or hospital discharge database managers and data users? | Partially meets Advisory ideal |
|---|---|---|
| 283 | Are there accessibility performance measures tailored to the needs of emergency department and/or hospital discharge database managers and data users? | Partially meets Advisory ideal |
| 284 | Has the State established numeric goals—performance metrics—for each emergency department and/or hospital discharge database performance measure? | Meets Advisory ideal |
| 285 | Are quality control reviews conducted to ensure the completeness, accuracy, and uniformity of injury data in the emergency department and/or hospital discharge databases? | Meets Advisory ideal |
| 286 | Is data quality feedback from key users regularly communicated to emergency department and/or hospital discharge data collectors and data managers? | Meets Advisory ideal |
| 287 | Are emergency department and/or hospital discharge data quality management reports produced regularly and made available to the State TRCC? | Does not meet Advisory ideal |
| **Trauma Registry – System Description** | | |
| 288 | Is there a statewide trauma registry database? | Meets Advisory ideal |
| 289 | Does the trauma registry data track the frequency, severity, and nature of injuries sustained in motor vehicle crashes in the State? | Meets Advisory ideal |
| 290 | Is the trauma registry data available for analysis and used to identify problems, evaluate programs, and allocate resources? | Partially meets Advisory ideal |
| **Trauma Registry – Guidelines** | | |
| 291 | Does the State's trauma registry database adhere to the National Trauma Data Standards? | Meets Advisory ideal |
| 292 | Are AIS and ISS derived from the State trauma registry for motor vehicle crash patients? | Meets Advisory ideal |
| **Trauma Registry –Data Dictionary** | | |
| 293 | Does the trauma registry have a formal data dictionary? | Meets Advisory ideal |
| **Trauma Registry –Procedures and Processes** | | |
| 294 | Is aggregate trauma registry data available to outside parties (e.g., universities, traffic safety professionals) for analytical purposes? | Meets Advisory ideal |
| 295 | Are there procedures for returning trauma data to the reporting trauma center for quality assurance and improvement (e.g., correction and resubmission)? | Meets Advisory ideal |
| **Trauma Registry – Quality Control** | | |
| 296 | Are there automated edit checks and validation rules to ensure that entered trauma registry data falls within a range of acceptable values and is logically consistent among data elements? | Meets Advisory ideal |
| 297 | Are there timeliness performance measures tailored to the needs of trauma registry managers and data users? | Meets Advisory ideal |
| 298 | Are there accuracy performance measures tailored to the needs of trauma registry managers and data users? | Meets Advisory ideal |
| 299 | Are there completeness performance measures tailored to the needs of trauma registry managers and data users? | Meets Advisory ideal |
| 300 | Are there uniformity performance measures tailored to the needs of trauma registry managers and data users? | Meets Advisory ideal |
| 301 | Are there integration performance measures tailored to the needs of trauma registry managers and data users? | Does not meet Advisory ideal |
| 302 | Are there accessibility performance measures tailored to the needs of trauma registry managers and data users? | Does not meet Advisory ideal |
| 303 | Has the State established numeric goals—performance metrics—for each trauma registry performance measure? | Partially meets Advisory ideal |
| 304 | Are quality control reviews conducted to ensure the completeness, accuracy, and uniformity of injury data in the trauma registry? | Meets Advisory ideal |
| 305 | Is data quality feedback from key users regularly communicated to trauma registry data collectors and data managers? | Meets Advisory ideal |
| 306 | Are trauma registry data quality management reports produced regularly and made available to the State TRCC? | Does not meet Advisory ideal |
| **Vital Records – System Description** | | |

| 307 | Is there a statewide vital records database? | Meets Advisory ideal |
|---|---|---|
| 308 | Does the vital records data track the occurrence of motor vehicle fatalities in the State? | Meets Advisory ideal |
| 309 | Is the vital records data available for analysis and used to identify problems, evaluate programs, and allocate resources? | Meets Advisory ideal |
| | **Vital Records – Data Dictionary** | |
| 310 | Does the vital records system have a formal data dictionary? | Meets Advisory ideal |
| | **Vital Records – Procedures & Processes** | |
| 311 | Is aggregate vital records data available to outside parties (e.g., universities, traffic safety professionals) for analytical purposes? | Meets Advisory ideal |
| | **Vital Records – Quality Control** | |
| 312 | Are there automated edit checks and validation rules to ensure that entered vital records data falls within a range of acceptable values and is logically consistent among data elements? | Meets Advisory ideal |
| 313 | Are quality control reviews conducted to ensure the completeness, accuracy, and uniformity of injury data in the vital records? | Meets Advisory ideal |
| 314 | Are vital records data quality management reports produced regularly and made available to the State TRCC? | Does not meet Advisory ideal |
| | **Injury Surveillance Data Interfaces** | |
| 315 | Is there an interface among the EMS data and emergency department and hospital discharge data? | Does not meet Advisory ideal |
| 316 | Is there an interface between the EMS data and the trauma registry data? | Does not meet Advisory ideal |