



State of Colorado

Traffic Records Assessment

November 25, 2019

National Highway Traffic Safety Administration

Technical Assessment Team





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Introduction

This Traffic Records Program Assessment is the second of the online question-and-answer evaluations of Colorado's traffic records systems and is built upon the assessment of five years ago. Since the last assessment, Colorado has worked diligently in all areas of their traffic records systems and should be commended for the improvements they have made in their traffic data systems and the plans they have for future improvements.

The State Traffic Records Coordinating Committee (TRCC) is known as the State Traffic Records Advisory Committee (STRAC) and includes both voting and non-voting representatives from all six systems as well as other stakeholders. The State has also hired a contractor to assist with the duties of the STRAC as well as monitoring and improving traffic records. Colorado updates its Strategic Plan annually and the STRAC has done a good job at funding law enforcement agencies; however, an effort should be made to also fund projects to increase completeness and integration of State traffic records databases. The Strategic Plan includes some performance measures for the traffic records systems, but many of the system owners are not familiar with them. Quantifiable system performance measures are always a crucial piece for the planning, management, and evaluation for all effective traffic records systems. Colorado is encouraged to continue their efforts on implementing and tracking meaningful performance measures as they relate to the core traffic records systems.

The Colorado Department of Revenue (CDOR) has deployed a new driver, vehicle and crash traffic records system since the last traffic records assessment known as DRIVES (Driver License, Record, Identification and Vehicle Enterprise Solution). This new system has improved functionality and is also meeting many of the NHTSA Traffic Records Program Assessment Advisory ideals. Colorado is also in the process of joining the AAMVA State-to-State (S2S) program.

Colorado has updated their crash report since the last assessment and approximately 50% of the crash reports are completed and submitted electronically. Efforts are in place to increase electronic submission and once this is accomplished CDOR will begin reporting additional performance measures to the STRAC. These efforts will afford an opportunity to provide valuable feedback to law enforcement regarding timeliness, accuracy, completeness and uniformity of the crash data.

Colorado has a solid citation and adjudication system with 98% of the county courts using the State's case management system. However, most municipal courts do not. The STRAC should coordinate efforts for all courts to utilize the State's case management system, which is electronically integrated with the Department of Motor Vehicles.

The Roadway system in Colorado is moving in a positive direction with the implementation of a location referencing system for all State public roads. However, the State does not support a statewide enterprise roadway system. As plans for the All Roads Network move forward Colorado is encouraged to implement an enterprise roadway system including at least the MIRE Fundamental Data elements (FDEs) for all Colorado Public Roads.

Colorado has all five major components of an ISS and the available data are accessible to traffic safety stakeholders. Improvements could be made in establishing relevant performance measures and providing reports to the STRAC. These reports could provide valuable data that could guide future improvements to the core traffic records systems.





Finally, in the area of data integration the State has an excellent data governance framework through its Government Data Advisory Board. Continued efforts in data integration of the core data systems will continue to move Colorado forward in improving traffic safety programs that will ultimately have an impact on reducing traffic fatalities.





Assessment Results

A traffic records system consists of data about a State’s roadway transportation network and the people and vehicles that use it. The six primary components of a State traffic records system are: Crash, Driver, Vehicle, Roadway, Citation/Adjudication, and Injury Surveillance. Quality traffic records data exhibiting the six primary data quality attributes—timeliness, accuracy, completeness, uniformity, integration, and accessibility—is necessary to improve traffic safety and effectively manage the motor vehicle transportation network, at the Federal, State, and local levels. Such data enables problem identification, countermeasure development and application, and outcome evaluation. Continued application of data-driven, science-based management practices can decrease the frequency of traffic crashes and mitigate their substantial negative effects on individuals and society.

State traffic records systems are the culmination of the combined efforts of collectors, managers, and users of data. Collaboration and cooperation between these groups can improve data and ensure that the data is used in ways that provide the greatest benefit to traffic safety efforts. Thoughtful, comprehensive, and uniform data use and governance policies can improve service delivery, link business processes, maximize return on investments, and improve risk management.

Congress has recognized the benefit of independent peer reviews for State traffic records data systems. These assessments help States identify areas of high performance and areas in need of improvement in addition to fostering greater collaboration among data systems. In order to encourage States to undertake such reviews regularly, Congress’ Fixing America’s Surface Transportation Act (FAST ACT) legislation requires States to conduct or update an assessment of its highway safety data and traffic records system every 5 years in order to qualify for §405(c) grant funding. The State’s Governor’s Representative must certify that an appropriate assessment has been completed within five years of the application deadline.

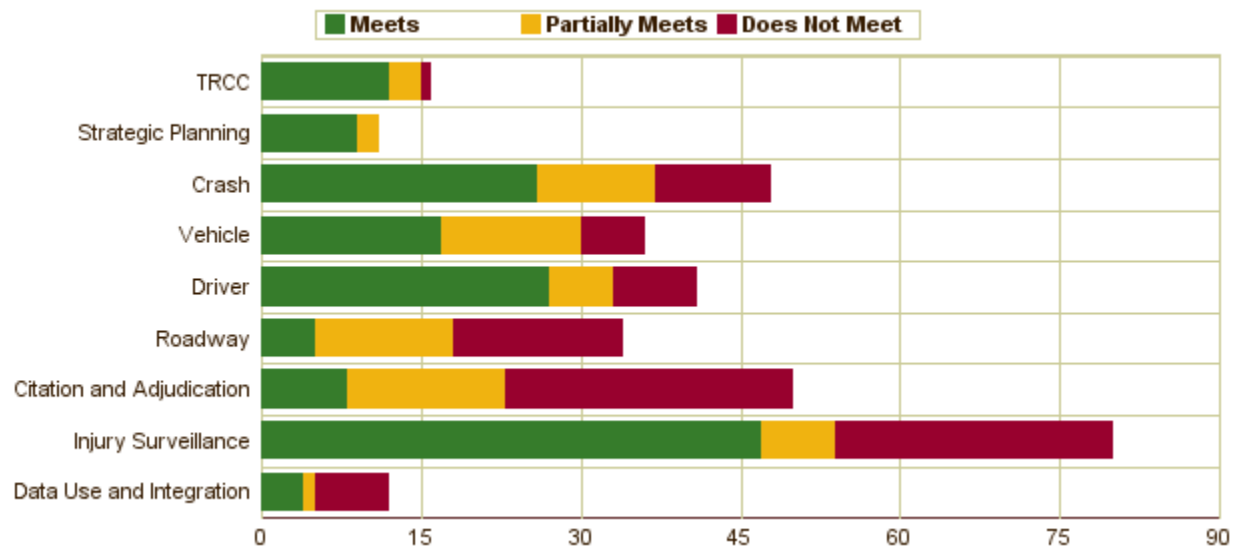
Out of 328 assessment questions, Colorado met the Advisory ideal for 155 questions (47%), partially met the Advisory ideal for 71 questions (22%), and did not meet the Advisory ideal for 102 questions (31%).

As Figure 1: Rating Distribution by Module illustrates, within each assessment module, Colorado met the criteria outlined in the Traffic Records Program Assessment Advisory 75% of the time for Traffic Records Coordinating Committee Management, 82% of the time for Strategic Planning, 54% of the time for Crash, 47% of the time for Vehicle, 66% of the time for Driver, 15% of the time for Roadway, 16% of the time for Citation and Adjudication, 59% of the time for EMS / Injury Surveillance, and 33% of the time for Data Use and Integration.





Figure 1: Rating Distribution by Module



States are encouraged to use the recommendations, considerations and conclusions of this report as a basis for the State data improvement program strategic planning process, and are encouraged to review the report at least annually to gauge how the State is addressing the items outlined.

Recommendations & Considerations

According to 23 CFR Part 1200, §1200.22, applicants for State traffic safety information system improvements grants are required to maintain a State traffic records strategic plan that—

“(3) Includes a list of all recommendations from its most recent highway safety data and traffic records system assessment; (4) Identifies which such recommendations the State intends to implement and the performance measures to be used to demonstrate quantifiable and measurable progress; and (5) For recommendations that the State does not intend to implement, provides an explanation.”

The following section provides Colorado with the traffic records assessment recommendations and associated considerations detailed by the assessors. The broad recommendations provide Colorado flexibility in addressing them in an appropriate manner for your State goals and constraints. Considerations are more detailed, actionable suggestions from the assessment team that the State may wish to employ in addressing their recommendations. GO Teams, CDIPs (Crash Data Improvement Program) and MMUCC Mappings are available for targeted technical assistance and training.

TRCC Recommendations

None

Considerations for implementing your TRCC recommendations

- The STRAC may want to reference NHTSA's Model Performance Measures for State Traffic Records Systems (DOT HS 811 441) and use the examples to create data quality performance measures for all





six traffic records systems.

- The State has made a good start towards a traffic records inventory with the Traffic Records Resource Guide and Inventory. They may wish to fill in the missing information as well as include the data elements and attributes available in the systems. The contact list will help current and future users to make use of the Guide.

Summary

The State's TRCC group, the State Traffic Records Advisory Committee (STRAC), includes both voting and non-voting representatives from all six systems as well as other stakeholders. The STRAC contains both executive level members and technical committee members. The Governor's Office of Information Technology (OIT) is mandated by statute to execute IT projects for State agencies and is represented on the STRAC. The committee meets six times a year.

The members are empowered to direct resources and a regularly updated Memorandum of Understanding has been in place since 2016 that authorizes the committee and is signed by all agency executives. A set of bylaws illustrates that the STRAC functions as a TRCC. In addition to the strategic plan, the STRAC also produces an annual report to monitor project progress.

The State has a designated Traffic Records Coordinator; the DOT Traffic Safety Engineer Crash Data Intelligence Unit Manager fulfills these duties. The State has also hired a contractor to assist with the duties of the STRAC and monitoring and improving traffic records.

The STRAC reviews and recommends projects for funding with 405c funds. While 405c funds are managed by the Department of Transportation, the STRAC representative from CDOT presents all applications to the committee for consideration, selection, and approval. Those choices are then sent to NHTSA for final approval.

The STRAC meetings give stakeholders the opportunity to provide feedback and suggestions about each other's systems. This is especially important during the planning phases of projects. The committee appears to run well and has been engaged in projects that will improve traffic records.

Strategic Planning Recommendations

None

Considerations for implementing your Strategic Planning recommendations

- The committee is to be commended for including plans to increase input of others by conducting a survey of State and local data users to identify their needs and goals and incorporate them into the strategic plan. STRAC may wish to consider expanding the grant application distribution beyond law enforcement agencies and include specific questions in surveys to data users to understand training





and technical assistance needs.

- STRAC updates the Strategic Plan annually and also produces an annual report, yet the Strategic Plan includes outdated milestones for activities. As part of the annual update, STRAC should update the status of the activities and reflect any new information that result. For example, if an activity is intended to establish a baseline for a performance measure, the Strategic Plan should then include that performance measure and related metric.
- It may be helpful for STRAC to expand the dissemination of the Strategic Plan and consider ways to further buy in and understanding of the State's strategic traffic records goals to its partner agencies. It is apparent from responses to other modules that the respondents are not familiar with the performance measures in the Strategic Plan.

Summary

Colorado's Strategic Traffic Records Advisory Committee is well established, and includes representatives from federal, State, and local agencies. STRAC updates its Strategic Plan annually, also producing an annual report that details the status of grant projects. STRAC strives to increase input of local agencies through surveys of State and local data users, to better understand their needs and incorporate them in the Strategic Plan.

The State's Strategic Plan includes countermeasures for at least one area of performance for each of the data systems. Countermeasures include improving data dictionaries, documenting work flows and schema, implementing electronic reporting, and similar activities. STRAC closely tracks performance and progress for grant projects. The State emphasizes performance measures for grant projects and indicates that they require grant projects to support achievement of the State's goals. The Strategic Plan includes action items for establishing overall performance measures, clarifying measures, or establishing baselines. However, many of the milestones or target dates for these action items have passed without an update to the performance measures in the Strategic Plan.

The Strategic Plan outlines how projects are prioritized. The Strategic Plan includes the Traffic Records Assessment recommendations; the application and project selection could be clarified to link the proposed project to the identified need or recommendation it plans to address.

Lifecycle costs are discussed during STRAC meetings, yet the definition of lifecycle costs and how they are considered is not described in the Strategic Plan.

The Strategic Plan includes projects that support federal system compliance, training and technical assistance, and new technologies, including electronic crash reporting, computers for law enforcement, real-time communication, and related technologies.





Crash Recommendations

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

Considerations for implementing your Crash recommendations

- The State should consider implementing a formal crash record retention policy.
- The State should consider developing performance measurements for accessibility, uniformity and integration which includes the calculation method, a baseline, actual values and percent change.

Summary

All crash report data, including legacy data, is stored in the Colorado Department of Revenue (DOR) DRIVES system and is accessible to DOR staff through their application. An automated extract is sent to Colorado Department of Transportation (CDOT) to use in their reporting analytics. Once the DOR DRIVES system is fully developed and implemented the State expects to make further steps towards the NHTSA Traffic Records Assessment Advisory ideal. Currently, Colorado has many strong points worth noting.

The State utilized the Model Minimum Uniform Crash Criteria (MMUCC), and ANSI standards as its primary sources for defining its crash system. Colorado had its crash report evaluated by NHTSA with regard to their compliance to the MMUCC 5th Edition, with the mapping used as a guideline for the development of the current crash report form and the Traffic Accident Reporting Manual.

Colorado has clearly defined custodial responsibility for the statewide crash system, requiring all reportable crashes (defined by statute) be submitted and stored by the DOR. Investigating officers are required to submit a crash report within 5 days of receiving information or completion of their investigation. Automated edit checks and validation rules are in place to ensure that entered data fall within acceptable values and is logically consistent among data elements.

The State has mature processes to identify crash patterns, examine roadway features, and behavioral characteristics for a particular location. Quarterly reports further identify hot spots, crash factors for fatal and injury crashes, and impaired crashes. These quarterly reports are used by law enforcement to prioritize activity. The CDOT uses crash data for before-and-after roadway project studies to help evaluate effectiveness.

The State has in place key processes governing the collection, reporting, and posting of crash data including the submission of fatal crashes to the State FARS unit as well as submitting commercial vehicle crashes to





SafetyNet.

The State has implemented quality control to manage errors and incomplete data found on crash reports. The State tracks changes to the original report and maintains a history of the different versions of that crash report.

CDOT annually examines the data for significant changes in data submission rate including total crashes as well as changes in individual fields such as DUI, injury level etc.

Though the State has many noteworthy processes in place there is opportunity to improve and expand. Even though the crash data retention and archival storage policies currently meet the needs of safety engineers and other users a more formal retention policy could be considered to ensure this remains the case for long-term access to the crash data.

Crash, vehicle, and driver datasets are all housed in the same DOR DRIVES system. The State should consider methods to leverage real-time data interfaces between crash and these other two datasets, which would allow for verification and validation of driver information, and identify inconsistencies between the crash and driver records, and between the crash and vehicle records.

Colorado indicated that crash and citation/adjudication information are all contained within DRIVES system so an interface is in place. The State notes, however, that there is no cross-population of data elements on the crash report and citation. The State should consider what cross-population of data elements are available that could facilitate later integration activities.

Though the State had no timeliness, accuracy or completeness performance measures in place, the STRAC Strategic Plan 2016-2019, showed a good understanding of what was needed for these performance measurements. And that these hadn't been fully realized because of delays in the full implementation of the DOR DRIVES system.

However, a review of the Traffic Records Strategic Plan did not reveal similar attempts to measure uniformity performance beyond training law enforcement officers on the new DR 3447 (crash form) and by December 31, 2018, developing a uniform data dictionary for the Crash record system. Accessibility and integration were two other performance measures not clearly defined in the State's Traffic Records Strategic Plan. The State is encourage to refer to "NHTSA Traffic Records Program Assessment Advisory," specifically the examples for quality control measurements for crash data systems, as a resource for identifying and implementing measures for these traffic records datasets.

Vehicle Recommendations

4. Improve the data quality control program for the Vehicle data system to reflect best practices





identified in the Traffic Records Program Assessment Advisory.

Considerations for implementing your Vehicle recommendations

- The Colorado Department of Revenue, Division of Motor Vehicles, should seriously consider, to provide the TRCC with regular data quality management reports. This connection and activity would provide additional support, and perhaps funding assistance, for future upgrades to their existing records system.

Summary

The Colorado Department of Revenue, Division of Motor Vehicles is the custodial agency for the State's Vehicle Records. The State has undertaken an improvement effort in their vehicle records system since their last Traffic Records Assessment in 2015, with the implementation of a new vehicle record system titled DRIVES.

This effort is noteworthy. The new DRIVES system includes all of the data features necessary for the titling and registration of each vehicle under their jurisdiction. Among the agency's system strengths are the system description, guidelines, and data dictionary.

Each VIN is validated using a VIN verification process. All title and registration documents are bar coded using, at a minimum, the 2D standard. The system submits all vehicle titling transactions to query NMVTIS before a new title issuance. NMVTIS and AAMVA title brands are all incorporated for all titles issued.

It was reported that Colorado does participate in PRISM. However, they did not provide the necessary documentation/evidence to support this response.

Another new system strength is in the data dictionary area. Within the system data dictionary portion, it was reported that definitions for each field existed. At the time of this assessment, only minimal supporting information was supplied and while good, did not allow for an "ideal" finding. Edit check and data collection guidelines that correspond to definitions are evident. In addition, collection, reporting, and posting procedures for registration, titles, and titling brands are formally documented.

The procedures and policies section started with a process flow chart as evidence that pointed to a process flow, but lacked enough specificity to consider it as the ideal process. However, a strength does appear in the stolen vehicle subjects. Within DRIVES, reported stolen vehicles are flagged in the system. Stolen vehicle flags are removed when recovery reports are received. In addition, a nightly listing report of all recovered stolen vehicles is generated.

Within DRIVES, all title brand history is carried forward on all newly issued Colorado titles. All the steps in the title and registration processes are documented from beginning to final issuance. The processing time and goals are documented as well.





There are no diagrams or narratives available for key alternative process flows or times. Also, there are no diagrams or narratives for processes of error correction and error handling. However, it is encouraging that there are plans to resolve these issues as soon as a system stabilization effort is completed.

The vehicle and driver system are both within the DRIVES. Both the vehicle and driver systems use the same personal information and conventions to ideally interface both systems. All users of DRIVES use the same conventions. In addition, procedures are in place to identify discrepancies, but sample manuals or excerpts were not available to confirm this information.

If a weakness exists, it is within the quality control section. This may only be because very limited document evidence was provided in support of this section. It was indicated that all titles and registrations are processed in real-time and that descriptions are edited/corrected when entered. It was said that automated edit checks and validation rules do exist, but no evidence was offered to support it.

The State does have an established protocol to grant authority for its highest-level staff to be able to amend obvious errors and omissions within the state-wide vehicle system.

It was reported that quality control performance measures existed for timeliness, accuracy, completeness, uniformity, integration, and accessibility. An example of customer service performance was offered and referenced the charts and graphs of this example. While there is some relationship to customer service measures, the sample provided only marginal documentation.

There exists a very good example of data quality feedback opportunity for all DRIVES key users. They are regularly communicated to using multiple existing State and local committees. The State's DRIVES Governing Committee plays a critical role in this communication.

The lack of any independent sample-based audits conducted periodically vehicle reports and related data-based contents is a weakness. This and the failure to provide data quality management reports to the TRCC are examples of issues that could be resolved quickly and benefit both the Agency and the vehicle records system.

As mentioned in the beginning, the DRIVES is an excellent vehicle records system and with minimal effort could be an outstanding example.

Driver Recommendations

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





Considerations for implementing your Driver recommendations

- Colorado should consider establishing a separate DUI tracking system, based on the driver, vehicle, and crash data that are integrated in the DRIVES system. Such tracking system may combine DUI-specific data from all three data systems and track the extent, frequencies, and relationships of various DUI incidents (e.g., DUI arrests, DUI-related crashes, DUI convictions, etc.) in the State, in order to identify ways to better control DUI's in Colorado. DUI tracking system may especially improve the State's ability to recognize and identify the prevalence of drug-specific DUI incidents and drug-related crashes that are becoming an increasing problem in the U.S. States in recent years.
- Although some trend analyses are already preformed, Colorado should consider conducting periodic comparative and trend analyses to examine and evaluate variations in quality of driver data across years and jurisdictions.
- Driver data system quality management reports based on performance measures should be provided to the State's STRAC for regular review.
- The State should consider developing a formal data quality control program. Such program would give the State greater ability to recognize the quality attributes of the driver system data. Like already established timeliness performance measure, Colorado should consider establishing accuracy, completeness, uniformity, integration, and accessibility performance measures. These measures would greatly improve the capability to effortlessly recognize areas within the driver system that need improvement. In addition, the State should consider performing periodic independent sample-based audits for the driver data system as they are envisioned by the Advisory.

Summary

The Driver Services of the Colorado Department of Revenue has custodial responsibility for the Colorado driver data system. Colorado replaced, in recent years, their outdated driver license and titling and registration systems with the modern Driver License, Record, Identification and Vehicle Enterprise Solution (DRIVES) system. The new DRIVES system contains all critical information and records pertaining to drivers in the State and includes records of commercially licensed drivers.

As part of the implementation of the DRIVES system, the State created well-structured and detailed manual related to different driver licensure procedures – the Driver License Operating Procedure Manual. The manual specifies information pertaining to updates of the driver data system with novice driver, motorcycle, and driver improvement training histories. The driver data system also captures the dates of original issuance for all permits, licenses, and endorsements.

Colorado maintains its driver data system in accordance with federal standards. Specifically, the driver system interacts with the National Driver Register's Problem Driver Pointer System (PDPS) and the Commercial Driver's License Information System (CDLIS). The contents of the driver system are documented in the DRIVES system, with definitions for each data field and with information on valid data field values, including null codes. Furthermore, the DRIVES system performs edit checks and data validation procedures during data entry and interface transactions. In addition, Colorado has established reviews of the daily audit reports related to the driver data system.





In addition to the Driver License Operating Procedure Manual, Colorado maintains other up to date documentation related to licensing, permitting, and endorsement issuance, as well as to procedures for reporting and recording convictions, driver education and improvement courses, and other information that may result in a change of license status. The State driver data system is supported with detailed data process flow diagrams, which depict details related to key data process flows and inputs from other data systems. Colorado does not purge data from the driver data system.

Colorado has established processes to detect and prevent specific fraudulent activities. The Department of Revenue Motor Vehicle Investigation Unit investigates and prevents fraudulent attempts concerning driver license, identification cards, motor vehicle titles, registration, and other related documents. The same Unit is also responsible to detect internal fraud by individual users or examiners. For example, the Unit performs periodic audits of the employee transactions and investigates reported fraudulent activities by the State employees. The Colorado CDL Testing Compliance Unit has responsibility to follow the State's established procedures for detecting CDL fraudulent activities.

Colorado currently obtains the previous State of Record only for CDL drivers through CDLIS. The State is in the process to join the State-to-State (S2S) program, which will allow for the exchange of the driver record information electronically for non-CDL drivers. Colorado expects to accomplish this by January 2020. The State uses multi-tiered approval procedure to control and track access and release of driver information.

The State's driver, vehicle, and crash data are integrated into the DRIVES system. Although Colorado does not have a separated DUI tracking system, DUI arrests and convictions data are transferred to the driver system. There is an interface link between the State's driver data system and the Problem Driver Pointer System (PDPS), the Commercial Driver License Information System (CDLIS), the Social Security Online Verification (SSOLV), and the Systematic Alien Verification for Entitlements (SAVE). Authorized law enforcement agencies and courts can be granted access to the Colorado driver data system.

Colorado performs edit checks and data monitoring to ensure quality of data entered into the driver system. Furthermore, the State performs a comparison of data entered at the driver license office with data that are in the DRIVES system. The State also has procedures to detect high frequency errors and to communicate data quality feedback from key users to data managers. The State's Research and Analysis Division performs trend analyses based on the driver system. Colorado does not provide data quality management reports to the TRCC for regular review.

In many ways, as described above, the recently modernized Colorado driver data system exemplifies the qualities of the ideal system. Still, like most other U. S. States, Colorado lacks a formal comprehensive data quality management program for its driver data system. While the State does not have established performance measures for accuracy, completeness, uniformity, integration, and accessibility, Colorado has established timeliness performance measure of the driver data system.





Roadway Recommendations

6. Improve the data dictionary for the Roadway data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.
7. Improve the data quality control program for the Roadway data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.
8. Improve the interfaces with the Roadway data system to reflect best practices identified in the Traffic Records Program Assessment Advisory.

Considerations for implementing your Roadway recommendations

- Consider developing an enterprise roadway system including at least the MIRE Fundamental Data elements (FDEs) for all Colorado Public Roads. The roadway system could be implemented with the new All Roads LRS project. The project is compatible with the FHWA system's All Road Network of Linear Referenced Data (ARNOLD).
- Consider development of a comprehensive data dictionary for the enterprise roadway system. The dictionary should include definitions of all data elements and attributes, all data collection guidelines, procedures for updating the data dictionary, and procedures to keep the data dictionary consistent with the roadway component's applicable forms (e.g., crash report form, EMS run reports, citations). An updated "Geometrics Field Data Collection Manual" could provide some of the information for the data dictionary. The roadway data dictionary could also be a part of the State's Traffic Records Inventory.
- Consider development of roadway core system performance measures for monitoring and reporting progress of the data quality characteristics (timeliness, accuracy, completeness, uniformity, integration, and accessibility). Development of the new All Roads LRS project provides an excellent opportunity to adopt roadway performance measures.
- The State might consider development of a representative group of local and State roadway system safety stakeholders to put in place formal procedures to collect, manage, and submit local agency roadway data to the enterprise roadway system. This could be accomplished through collaborative efforts led by the Colorado STRAC.

Summary

The Colorado Department of Transportation (CDOT) has a geospatial roadway system. The system supports the ability to map all Colorado public roads. In addition to the geospatial system, all State maintained roads are included in a mature legacy linear referencing system (LRS) maintained by CDOT. The Colorado roadway system includes approximately 9,200 miles which are State maintained (10%) of the total centerline miles and approximately 79,113 miles (90%) being non-State maintained roads. Colorado has the ability to identify crash locations using the legacy referencing system on State maintained roadways. The legacy





system also supports an impressive traffic safety analytical system.

Colorado is similar to many other States nationally, in that it is in the process of transitioning to the requirements of MAP-21, the Moving Ahead for Progress in the 21st Century Act. MAP-21 requires States to have a safety data system in place for all public roads that can be used to perform analyses supporting the strategic and performance-based goals in the Highway Safety Improvement Program (HSIP) and the Strategic Highway Safety Plan (SHSP). MAP-21 also provides guidance on collecting a subset of the Model Inventory of Data Elements (MIRE). The data element subset identified by the Federal Highway Administration (FHWA) is referred to as the Fundamental Data Elements (FDEs). The FDEs are the basic roadway data elements recommended to be collected and linked with crash data for analysis to identify safety problems and to make more effective safety countermeasure decisions for the HSIP. CDOT currently maintains roadway and traffic data for the State maintained roadways and those non-State roads included in the State's HPMS annual submittal. CDOT is implementing a project, when complete, will provide a compatible location referencing system for all State public roads. The project is compatible with the FHWA system called the All Road Network of Linear Referenced Data (ARNOLD). It appears, the State has successfully put in place the ability to conduct mapping compatibilities for all public roads. This is recognized as a best practice, and positions the State well on its way to implement a statewide comprehensive enterprise roadway system. However, beyond this accomplishment, information about the project status was not clear, including expectations for its full implementation.

Because of the emphasis on the All Roads Network project, documentation for the current roadway system is lacking. There is a data dictionary for those roadway data elements collected for the State maintained roads. The State maintained dataset includes the MIRE FDEs, but they are not noted in the data dictionary. CDOT has completed a comparison of all data elements included in the current data dictionary compared to the MIRE data elements. Plans are in place to update the data dictionary to identify and note those currently collected elements that conform to the MIRE definitions. Beyond these minor improvements in the roadway system documentation, the State does not support a statewide enterprise roadway system. As plans for the All Roads Network move forward Colorado is encouraged to consider tasks to put in place an enterprise roadway system including at least the MIRE Fundamental Data elements (FDEs) for all Colorado Public Roads. In order for an effort of this magnitude to be successful it is expected that CDOT will have to develop partnerships with local jurisdictions. No requirements currently exist for the local jurisdictions on the collection or management of roadway data. However, the CDOT GIS Section maintains the WebHUT Application to enable updating of the local road inventory database by local government staff. The State is encouraged to develop a representative group of local and State roadway system safety stakeholders to develop the procedures used to collect, manage, and submit local agency roadway data to the enterprise roadway system under the oversight and support of the Colorado STRAC. The WebHut application and an updated "Geometrics Field Data Collection Manual" could provide some of the information to assist the group in developing the data collection procedures.

Some other critical components of an enterprise roadway system that CDOT is either lacking or in the process of developing include:

A comprehensive, systematic quality control management process that ensures the efficient functioning of





the system. The quality control process should include development of system performance measures important to State safety stakeholders. NHTSA's "Model Performance Measures for State Traffic Records Systems" provide a number of example roadway system performance measures. Performance management should include the data quality measures for the timeliness, accuracy, completeness, uniformity, integration, and accessibility of the roadway data, continuous monitoring based on a set of metrics established by the State, and periodic reporting to the STRAC, data collectors and managers. The overall quality of the roadway data should be assured based on a formal program of error and edit checking as the data are entered into the statewide system and procedures for addressing detected errors.

Citation and Adjudication Recommendations

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

Considerations for implementing your Citation and Adjudication recommendations

- Evaluate whether it is feasible for all courts to utilize one case management system which is electronically integrated with the Department of Motor Vehicles.
- Develop performance measures based on the rich data contained in the various State systems.
- Evaluate whether or not it is possible to have a statewide series of unique citation numbers.

Summary

The State of Colorado has described a well-developed citation and adjudication system, which provides information about citations, arrests and dispositions to the requisite State agencies. Although Colorado does not have a statewide authority assigning unique citation numbers used by all law enforcement agencies, all citation convictions are sent to the Department of Motor Vehicles. The Colorado State Police use citation data as part of the traffic safety analysis to identify problem locations for enforcement purposes to reduce fatal and injury crashes. The State has described a system whereby final dispositions, including those resolved on appeal, are posted to the driver data system. Sixty- three of sixty four county courts are reported to use the State's case management system, most municipal courts do not and the systems are seemingly not interoperable which presents an opportunity for improvement within the State. The contents of the systems described often met the advisory ideal in many categories considered "very important."

As stated in the ideal, State citation and adjudication agencies should participate in the appropriate national data systems to ensure compatibility and serve data management and exchange needs. The State of Colorado describes a citation and adjudication system which substantially meets those expectations. The State indicates compliance with the Uniform Crime Reporting Program (UCR) guidelines, and guideline set forth by the National Center for State Courts. Compliance in this area is regarded as "somewhat important" in relation to the overall advisory ideal.





The State of Colorado faces the biggest challenges in meeting the advisory ideal in two categories: the creation and maintenance of data dictionaries and the use of quality control programs for the citation and adjudication systems. The maintenance of system-specific data dictionaries is considered “very important” in the advisory ideal. A data dictionary lists the names of the elements in the database as well as the commonly understood description. The State should consider the development of a data dictionary for each of the citations systems as well as the court’s case management systems.

It is essential that each part of the citation and adjudication systems have a formal data quality assurance program. The State of Colorado has some opportunity to improve by developing and implementing performance measures which are regarded as somewhat important for an ideal traffic records system. The State was unable to articulate performance measures in timeliness, accuracy, uniformity, integration and accessibility. The State should consider future enhancements in this area with the development of a performance measure for each of the attributes articulated in the ideal. It would appear the State regularly engages in audits. These audits could serve as the basis for the development of some excellent performance measures.

The State does well in a few very important areas of its citation and adjudication system where citations are tracked from the point of issuance to posting on the driver file. Distinctions between the administrative handling of court payments in lieu of court appearances (mail-ins) and court appearances are noted, deferrals and dismissals of citations are tracked, however they are not all forwarded to the Department of Motor Vehicles. Records are not purged and security protocols governing data access, modification, and release are documented. The State has demonstrated that citation data is linked with the driver system to collect driver information, to carry out administrative actions and determine the applicable charges. The State does have some links between citation data and the crash record.

The State of Colorado appears well positioned to meet many of the advisory ideals in the future. The State has articulated a well-developed citation and adjudication system which has many electronic components. To the extent there are opportunities for improvement, the State appears to have all the tools needed to accomplish improvement in the near future.

Injury Surveillance Recommendations

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

Considerations for implementing your Injury Surveillance recommendations

- The State should consider developing formal performance measures, including baseline, timeline, and





goal metrics, and implementing regular reviews of those measures.

- The State may consider working with data managers to provide quality reports to the Traffic Records Coordinating Committee on a regular schedule.
- The State should consider gaining access to the Colorado Hospital Association data dictionaries for user purposes only.
- The State should consider exploring the development of an interface between the EMS and trauma data systems, since both exist on the same ImageTrend software platform.

Summary

An injury surveillance system is a valuable resource intended for use by the public, researchers, government agencies, public health officials, and anyone with a vested interest in public health and safety. An injury surveillance system provides information about the characteristics and trends in non-fatal injuries, identifies emerging injury problems, identifies at-risk persons, and informs decision-making for programs and policies. With regard to traffic records, an injury surveillance system that includes crash records can describe the true nature and severity of injuries sustained by person involved in a motor vehicle crash by the status of the vehicle occupant, by the type of restraint system used – or not used, by the type of vehicle involved in the crash, by crash location, or by any number of other crash and person characteristics.

An ideal statewide Injury Surveillance System (ISS) is minimally comprised of data from five core components: pre-hospital emergency medical services (EMS), trauma registry, emergency department, hospital discharge, and vital records. Colorado has all five major components of an ISS and the available data are accessible to traffic safety stakeholders through either aggregate summary tables or department-approved data use agreements. The Colorado Department of Public Health and Environment (CDPHE) is responsible for most of the data systems and has several mechanisms for accessing the information. An Institutional Review Board will review and may approve requests for data and the CDPHE Violence and Injury Prevention-Mental Health Promotion Branch produces an annual report analyzing ISS data.

The pre-hospital data collection system is managed by the CDPHE Health Facilities Emergency Medical Services Division – Emergency Medical and Trauma Services (EMTS) Branch. All licensed agencies are required to submit patient care reports electronically to the State within 60 days of the event. The State system is NEMESIS-compliant and uses the ImageTrend software platform, which also facilitates submission to the National database. Data may be submitted to the State directly through the ImageTrend software or through a third-party vendor upload. All data collection software systems are also NEMESIS-compliant and incorporate appropriate edit checks and validations. Although there are no formal performance measures in place, the EMTS Branch has created several mechanisms for quality review, including a weekly report identifying failed submissions, ad hoc validity reports, and quarterly trend analyses. All of those reports may be generated and/or shared with regional coordinators or discussed at EMTS bi-monthly meetings to improve data quality.

The statewide emergency department and hospital discharge data systems are managed by the Colorado Hospital Association (CHA) and some of the documentation related to the systems was unavailable for





review. There seems to be open communication with regards to training and error correction between CHA and the submitting hospitals to ensure that data is as accurate as possible. Edit checks and validation rules have been documented, processes are in place for returning rejected records and tracking them to resubmission, and quality review meetings are held with CDPHE, CHA, and the Colorado Health Information Management Association. There is also an annual meeting with facility data collectors and managers to share information, address issues, and conduct analyses. Further details about the data quality management system for each of these data sets are unclear, including whether performance measures have been developed and or regular tracked. However, aggregate data is available through the CHS upon approval by the Department of Health Institutional Review Board (DOH IRB). Data quality reports are not currently provided to the TRCC, but the value of these data sets is significant.

The trauma registry data system is also managed by EMTS Branch. All designated trauma centers are required to submit records to the State database. The system complies with the National Trauma Data Standard and documentation has been created for validation rules and data specifications. This system also uses the ImageTrend software, which may facilitate and interface with the EMS data system. There are no performance measures in place, but facility-specific reports of completeness and accuracy are provided weekly and compliance reports are provided monthly. Also, quarterly meetings are held with CDPHE and trauma registry personnel to discuss system changes and quality concerns.

The CDPHE Office of the State Registrar of Vital Statistics is responsible for managing all vital statistics data including death certificates. Colorado collects death certificates from hospitals, funeral homes, and coroners and submits all data to the National Center for Health Statistics (NCHS) for quality review and assignment of cause-of-death ICD-10 codes. Data quality checks are run against all data at the point of submission, including any out-of-state imports, and after the records have been processed by the NCHS. The State electronic death registration system complies with the 2003 Revision of the US Standard Certificate of Death and error rates are calculated to compare against that national standard. There are no data performance measures or standard quality reports that are shared among stakeholders or with the TRCC. Vital records information is shared with the Fatality Analysis Reporting System analyst in the State, to improve system accuracy.

Ideally, the core components of the injury surveillance system would be integrated and then linked to the State's crash data. An integrated database that includes records spanning from the time of crash through hospital discharge provides a comprehensive look at the medical and financial outcomes of crashes occurring in Colorado. The resulting analyses can be used to implement data-driven traffic safety priorities and other highway safety applications at the State level; it can be used to quantify and report on the benefits of safety equipment and legislation; and it can support the government's highway safety offices, public health departments and injury prevention programs, transportation departments, and other such agencies and traffic safety stakeholders.





Data Use and Integration Recommendations

None

Considerations for implementing your Data Use and Integration recommendations

- Continue the linkage efforts begun through the CDC pilot projects.
- Use the data set developed through the CDC effort and through the DRIVES system to conduct small-scale evaluations of existing highway safety programs (i.e. teen drivers).

Summary

The Colorado Department of Transportation (CDOT) utilizes police-reported motor vehicle crash data for the development of strategies and the identification of target populations for the State's highway safety plans. Several key statewide data sets, in addition to the crash file, are available to support problem identification and program evaluation activities. These include: Fatality Analysis Reporting System data; hospital inpatient and emergency department data; statewide EMS data; and data collected by the Department of Revenue related to licensing and vehicle registrations (DRIVES). These data are used to produce Annual Problem Identification reports that address a variety of highway safety programs and are available to highway safety program managers, partners, and the public. Colorado Department of Public Health and Environment (CDPHE) staff also provide general data support to the highway safety community and the general public through the use of these individual data sets. To utilize these data to their fullest potential, the State has developed a data governance framework through its Government Data Advisory Board, which includes representation from several agencies which participate in the TRCC, including CDOT and CDPHE. Additionally, the State Traffic Records Advisory Committee (STRAC) Strategic Plan 2016-2019 supports the State's commitment to developing a functional and technical data model that will allow the integration of crash, injury surveillance, citation and roadway databases.

The Colorado Department of Public Health and Environment (CDPHE) completed a pilot project that successfully linked one year of crash and hospital data. The linkage used several data elements available on both data sets and included name, date of birth, age, gender, crash date, hospital admission date, ICD-10-CM external cause code, and vehicle type. CDPHE received a grant from the CDC in 2019 to link crash data to death certificate records, trauma registry, emergency department data, hospital discharge data, and the State's all payers claims database. Results will be available in 2020. This project will help demonstrate the value added to problem highway safety evaluation efforts when multiple traffic records systems are linked together for analysis. Separately, as mentioned, efforts are underway to bring crash, driver, and vehicle data into one database using the Department of Revenue DRIVES system. As DRIVES and the CDC linkage effort are completed, there will be several opportunities to provide more in-depth analysis of motor vehicle crashes through integration of most of the State's traffic records component systems.








Assessment Rating Changes

For each question, a rating was assigned based on the answers and supporting documentation provided by the State. The ratings are shown as three icons, depicting ‘meets’, ‘partially meets’, or ‘does not meet’. The table below shows changes in ratings from the last assessment for all the questions that were unchanged (N=223). This does not include new questions (N=21) and questions that can be partially mapped to questions from the last assessment (N=84).

Legend:

System	Rating Changes from Last Assessment		
	 Meets	 Partially Meets	 Does not Meet
Traffic Records Coordinating Committee			
Traffic Records Coordinating Committee	0	-1	+1
Strategic Planning for the Traffic Records System			
Strategic Planning for Traffic Records Systems	+5	-2	-3
Crash Data System			
Description and Contents of the Crash Data System	+1	0	-1
Applicable Guidelines for the Crash Data System	0	0	0
Data Dictionary for the Crash Data System	-1	0	+1
Procedures and Process Flows for Crash Data Systems	0	0	0
Crash Data Systems Interface with Other Components	0	+2	-2
Data Quality Control Programs for the Crash System	-6	+4	+2
Vehicle Data System			
Description and Contents of the Vehicle Data System	+2	0	-2
Applicable Guidelines for the Vehicle Data System	0	-1	+1
Vehicle System Data Dictionary	+1	0	-1
Procedures and Process Flows for the Vehicle Data System	0	0	0
Vehicle Data System Interface with Other Traffic Record System Components	+1	+1	-2
Data Quality Control Programs for the Vehicle Data System	-9	+9	0
Driver Data System			
Description and Contents of the Driver Data System	0	0	0
Applicable Guidelines for the Driver Data System	0	0	0
Data Dictionary for the Driver Data System	+1	+1	-2
Procedures and Process Flows for the Driver Data System	0	0	0
Driver System Interface with Other Components	0	0	0
Data Quality Control Programs for the Driver System	-1	0	+1





Roadway Data System			
Description and Contents of the Roadway Data System	0	+1	-1
Applicable Guidelines for the Roadway Data System	0	0	0
Data Dictionary for the Roadway Data System	0	0	0
Procedures and Process Flows for the Roadway Data System	+1	0	-1
Intrastate Roadway System Interface	0	0	0
Data Quality Control Programs for the Roadway Data System	+1	+1	-2
Citation and Adjudication Systems			
Description and Contents of the Citation and Adjudication Data Systems	-1	+1	0
Applicable Guidelines and Participation in National Data Exchange Systems for the Citation and Adjudication Systems	-1	+1	0
Data Dictionary for the Citation and Adjudication Data Systems	-1	-1	+2
Procedures and Process Flows for the Citation and Adjudication Data Systems	-2	0	+2
Citation and Adjudication Systems Interface with Other Components	0	0	0
Quality Control Programs for the Citation and Adjudication Systems	0	0	0
Injury Surveillance Systems			
Emergency Medical Systems (EMS) Description and Contents	-5	-2	-1
EMS - Guidelines	-1	-1	-1
EMS – Data Dictionary	-4	0	0
EMS – Procedures & Processes	-7	-1	0
Injury Surveillance Data Interfaces	0	0	0
EMS – Quality Control	-1	0	+1
Emergency Department and Hospital Discharge – Quality Control	+3	-1	-2
Trauma Registry – Quality Control	+2	0	-2
Vital Records – Quality Control	+1	0	-1
Emergency Department - System Description	+1	+1	0
Emergency Department – Data Dictionary	+1	0	0
Emergency Department – Procedures & Processes	+2	0	0
Hospital Discharge – System Description	+2	+1	0
Hospital Discharge – Data Dictionary	+1	0	0
Hospital Discharge – Procedures & Processes	+2	0	0
Emergency Department and Hospital Discharge – Guidelines	0	0	+1
Emergency Department and Hospital Discharge – Procedures & Processes	+1	0	0
Trauma Registry – System Description	+2	0	0
Trauma Registry – Guidelines	+2	0	0





Trauma Registry – Data Dictionary	+1	0	0
Trauma Registry – Procedures & Processes	+2	0	0
Vital Records – System Description	+1	0	0
Vital Records – Data Dictionary	+1	0	0
Vital Records – Procedures & Processes	+1	0	0
Injury Surveillance System	0	0	0
Data Use and Integration			
Data Use and Integration	+2	-2	0
<i>Total Change</i>	<i>+1</i>	<i>+11</i>	<i>-12</i>





Methodology and Background

In 2018, the National Highway Traffic Safety Administration updated the *Traffic Records Program Assessment Advisory* (Report No. DOT HS 811 644). This *Advisory* was drafted by a group of traffic safety experts from a variety of backgrounds and affiliations, primarily personnel actively working in the myriad State agencies responsible for managing the collection, management, and analysis of traffic safety data. The *Advisory* provides information on the contents, capabilities, and data quality of effective traffic records systems by describing an ideal that supports data-driven decisions and improves highway safety. Note that this ideal is used primarily as a uniform measurement tool; it is neither NHTSA's expectation nor desire that States pursue this ideal blindly without regard for their own unique circumstances. In addition, the *Advisory* describes in detail the importance of quality data in the identification of crash causes and outcomes, the development of effective interventions, implementation of countermeasures that prevent crashes and improve crash outcomes, updating traffic safety programs, systems, and policies, and evaluating progress in reducing crash frequency and severity.

The *Advisory* is based upon a uniform set of questions derived from the ideal model traffic records data system. This model and suite of questions is used by independent subject matter experts in their assessment of the systems and processes that govern the collection, management, and analysis of traffic records data in each State. The 2018 *Advisory* reduces the number of questions, eases the evidence requirements, and appends additional guidance to lessen the burden on State respondents.

As part of the 2018 update, the traffic records assessment process was altered as well. While it remains an iterative process that relies on the State Traffic Records Assessment Program (STRAP) for online data collection, the process has been reduced to two question-answer cycles. In each, State respondents can answer each question assigned to them before the assessors examine their answers and supporting evidence, at which point the assessors rate each response. At the behest of States who wanted increased face-to-face interaction, a second onsite review will now be held between the first and second rounds. The facilitator will lead this discussion and any input from this meeting will be entered into STRAP for the State's review. The second and final question and answer cycle is used to clarify responses and provide the most accurate rating for each question following the onsite review. To assist the State in responding to each question, the *Advisory* also provides State respondents with suggested evidence that identify the specific information appropriate to answer each assessment question.

The assessment facilitator works with the State assessment coordinator to prepare for the assessment and establish a schedule consistent with the example outlined in Figure 1. Actual schedules may vary as dates may be altered to accommodate State-specific needs.

Independent assessors rate the responses and determines how closely a State's capabilities match those of the ideal system outlined in the *Advisory*. Each system component is evaluated independently by two or more assessors, who reach a consensus on the ratings. Specifically, the assessors rate each response and determine if a State (a) meets the description of the ideal traffic records system, (b) partially meets the ideal description, or (c) does not meet the ideal description. The assessors write a brief narrative to explain their rating for each question, as well as a summary for each section and any considerations—actionable suggestions for improvement—that will be included with the assessment's recommendations.





Figure 2: Sample Traffic Records Assessment Time Table

Upon NHTSA TR Team receipt of request		Initial pre-assessment conference call
1 month prior to kickoff meeting		Facilitator introduction pre-assessment conference call
Between facilitator conference call and kickoff		State Coordinator assigns questions, enters contact information into STRAP, and builds initial document library
Assessment	Monday, Week 1	Onsite Kickoff Meeting
	Monday, Week 1 – 12pm EST, Friday, Week 3	Round 1 Data Collection: State answers standardized assessment questions
	Friday, Week 3 – Wednesday, Week 5	Round 1 Analysis: Assessors review State answers, rate all responses and complete all draft conclusions
	Thursday, Week 5 – Monday, Week 7	Review Period: State reviews the assessors’ initial ratings in preparation for the onsite meeting.
	Tuesday, Week 7	Onsite Review Meeting: Facilitator and State respondents meet to discuss questions; clarifications entered into STRAP
	Wednesday, Week 7 – 12pm EST, Friday, Week 9	Round 2 Data Collection: State provides final response to the assessors’ preliminary ratings and onsite clarifications
	Friday, Week 9 – Monday, Week 11	Round 2 Analysis: make final ratings
	Tuesday, Week 11 – Monday, Week 12	Facilitator prepares final report
Week 12		NHTSA delivers final report to State and Region
(After completion of assessment, date set by State)		NHTSA hosts webinar to debrief State participants
(After completion of assessment)		(OPTIONAL) State may request GO Team, CDIP or MMUCC Mapping, targeted technical assistance or training

In order for NHTSA to accept and approve an assessment each question must have an answer. When appropriate, however, a State may answer questions in the negative (“no,” don’t know,” etc.)”. These responses constitute an acceptable answer and will receive a “does not meet” rating. An assessment with unanswered or blank questions will not be acceptable and cannot be used to qualify for §405(c) grant funds.





Figure 3: State Schedule for the Traffic Records Assessment

Kickoff	September 04, 2019
Begin first Q&A Cycle	September 04, 2019
End first Q&A Cycle	September 20, 2019
Begin Review Period	October 03, 2019
Onsite Meeting	October 08, 2019
Begin second Q&A Cycle	October 09, 2019
End second Q&A Cycle	November 01, 2019
Assessors' Final Results Complete	November 18, 2019
Final Report Due	November 29, 2019
Debrief	December 11, 2019





Appendix A: Question Details, Ratings and Assessor Conclusions

This section presents the assessment's results in more granular detail by providing the full text, rating, and assessor analysis for each question. This section can be useful to State personnel looking to understand why specific ratings were given and further identify areas to target for improvement.

Questions, Ratings and Assessor Conclusions

Traffic Records Coordinating Committee

1. *Does the TRCC membership include executive and technical staff representation from all six data systems?*

Meets Advisory Ideal

The State Traffic Records Advisory Committee (STRAC) membership includes voting representatives from each traffic records component system as well as non-voting members from federal agencies, State associations, local agencies, and other interested partners.

Change Notes: Rating Unchanged.

2. *Do the executive members of the TRCC regularly participate in TRCC meetings and have the power to direct the agencies' resources for their respective areas of responsibility?*

Meets Advisory Ideal

The executive members have the power to direct resources based on their positions and the Memorandum of Understanding. If they do not directly participate they empower representatives on the STRAC.

Change Notes: Rating Unchanged.

3. *Do the custodial agencies seek feedback from the TRCC members when major projects or system redesigns are being planned?*

Meets Advisory Ideal

The STRAC members and other stakeholders have the opportunity to provide feedback to the custodial agencies at the meetings. Examples of agency collaboration during project planning phases includes the crash form upgrade in the Record Management System (RMS), testing of the Department of Revenue, Driver License Record, Identification and Vehicle Enterprise Solution (DRIVES) interface with the RMS, and other interface and RMS improvements. Also, the development of the Behavioral and Engineering Safety Data for Transportation (BESDT) system, which will improve crash data coding, sharing, and electronic data entry, has involved several traffic records agencies.

Change Notes: New Question.





4. *Does the TRCC involve the appropriate State IT agency or offices when member agencies are planning and implementing technology projects?*

Meets Advisory Ideal

The Governor's Office of Information Technology (OIT) is mandated by statute to execute IT projects for State agencies and is represented on the STRAC. The OIT has staff designated to work with agencies, understand system requirements, and guide projects through to completion. The office also serves in that capacity for projects managed through the STRAC.

Change Notes: Rating Unchanged.

5. *Is there a formal document authorizing the TRCC?*

Meets Advisory Ideal

A regularly updated Memorandum of Understanding has been in place since 2016 authorizing the committee and signed by all agency executives. A set of bylaws illustrates the STRAC functions as a TRCC.

Change Notes: Rating Unchanged.

6. *Does the TRCC provide the leadership and coordination necessary to develop, implement, and monitor the State Traffic Records Strategic Plan?*

Meets Advisory Ideal

The STRAC writes and maintains the strategic plan with input from the members. An annual report shows the project accomplishments and is used to gauge the success of projects. Projects are monitored throughout the year at the meetings. The STRAC makes use of a State Traffic Records Coordinator and a contracted resource for guiding the development of the plan.

Change Notes: Rating Unchanged.

7. *Does the TRCC advise the State Highway Safety Office on allocation of Federal traffic records improvement grant funds?*

Meets Advisory Ideal

The STRAC reviews and recommends projects for funding with 405c funds. While 405c funds are managed by the Department of Transportation, the STRAC representative from CDOT presents all applications to the committee for consideration, selection, and approval. Those choices are then sent to NHTSA for final approval.

Change Notes: Rating Unchanged.

8. *Does the TRCC identify core system performance measures and monitor progress?*

Does Not Meet Advisory Ideal

Although the Traffic Records Strategic Plan lists at least one performance measure type for each system it appears that the actual measures need to be updated. A performance measure should include a baseline and target metric and timeframe (e.g. to increase accuracy by xx% from xx in 2018 to xx in 2020). NHTSA's Model Performance Measures for State Traffic Records Systems (DOT HS 811 441) is very helpful for defining performance measures.





Change Notes: Rating Changed.

From 'Partially Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.

9. *Does the TRCC enable meaningful coordination among stakeholders and serve as a forum for the discussion of the State's traffic records programs, challenges, and investments?*

Meets Advisory Ideal

The STRAC meets every two months and provides each member agency time to discuss projects, needs, successes, and/or challenges, as well as an opportunity for stakeholder engagement.

Change Notes: Rating Unchanged.

10. *Does the TRCC have a traffic records inventory?*

Partially Meets Advisory Ideal

The Traffic Records Resource Guide and Inventory has the opportunity to be a traffic records inventory but many of the sections are blank. The guide does not contain the data elements and attributes available in the systems. The contact list is a critical piece of the inventory and should be created. While key partners are listed in the Strategic Plan, the data inventory should be a standalone comprehensive document for any current or potential system user.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

11. *Does the TRCC have a designated chair?*

Meets Advisory Ideal

The current STRAC chairperson is the DOT Traffic and Safety Engineer and Crash Data Intelligence Unit Manager. The chairperson's responsibilities include developing meeting agendas, presiding over STRAC meetings, and serving as a representative of a voting member of the STRAC.

Change Notes: Rating Unchanged.

12. *Is there a designated Traffic Records Coordinator?*

Meets Advisory Ideal

The State has both a designated Traffic Records Coordinator and a contractor to assist with the duties of the STRAC and monitoring and improving traffic records. The Traffic Records Coordinator is the DOT Traffic Safety Engineer Crash Data Intelligence Unit Manager. The Coordinator's responsibilities include monitoring the work done on projects, working with stakeholders, expanding data collection as well as distribution, establishing requirements (IT, business rules, confidentiality/security, etc.) for new projects, helping manage or monitor projects, and participating in STRAC.

Change Notes: Rating Unchanged.

13. *Does the TRCC meet at least quarterly?*

Meets Advisory Ideal

The STRAC meets six times a year, on an every other month basis.





Change Notes: Rating Unchanged.

14. Does the TRCC review quality control and quality improvement programs impacting the core data systems?

Partially Meets Advisory Ideal

During the planning and testing phases, the STRAC has some quality control and improvement review over the projects they fund but not universally to all projects impacting the core data systems. Examples of performance measures can be found in NHTSA's Model Performance Measures for State Traffic Records Systems (DOT HS 811 441).

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

15. Does the TRCC assess and coordinate the technical assistance and training needs of stakeholders?

Partially Meets Advisory Ideal

The crash training is a good example of providing technical assistance and training. The STRAC is to be commended for including plans to increase input of others by conducting surveys of State and local data users to identify their needs. Although the State has surveyed stakeholders, the surveys do not appear to address any technical assistance or training needs.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

16. Do the TRCC's program planning and coordination efforts reflect traffic records improvement funding sources beyond § 405(c) funds

Meets Advisory Ideal

The STRAC is involved and helps coordinate projects using State funds as well as 405c. The Department of Transportation's Behavioral and Engineering Safety Data for Transportation (BESDT) project and the Department of Revenue's Driver License Record, Identification and Vehicle Enterprise Solution (DRIVES) projects are examples of projects funded by sources other than 405C (state funds), overseen by traffic records systems managers, and discussed regularly within the STRAC.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

Strategic Planning for Traffic Records Systems

17. Does the State Traffic Records Strategic Plan address existing data and data systems areas of opportunity and document how these are identified?

Meets Advisory Ideal

The State's Traffic Records Strategic Plan lists data and system improvements and opportunities and documents how they are identified. The State prioritizes findings from Traffic Records Assessments first, then areas of opportunity noted in the assessments.





Change Notes: Rating Unchanged.

- 18. Does the State Traffic Records Strategic Plan identify countermeasures that address at least one of the performance attributes (timeliness, accuracy, completeness, uniformity, integration, and accessibility) for each of the six core data systems?**

Partially Meets Advisory Ideal

The State's Strategic Plan includes countermeasures for at least one area of performance for each of the data systems. These countermeasures include improving data dictionaries, documenting work flows and schema, implementing electronic reporting, and similar activities. STRAC has established processes for updating performance measures and progress annually with their member agencies, and closely tracks performance and progress for grant projects. However, the measures in the Strategic Plan need to be updated. For instance many of them state that a baseline will be established by August 2018 but no further information is provided, such as what the baseline is and what the target will be and by when.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

- 19. Does the TRCC have a process for identifying at least one performance measure and the corresponding metrics for the six core data systems in the State Traffic Records Strategic Plan?**

Meets Advisory Ideal

The Strategic Plan includes at least one performance measure for most data systems. The State references page 28 as describing the process for identifying performance measures; the description on that page discusses project prioritization and states that the model performance measures guidance from NHTSA is provided to grant applicants. The State clarified in Round 2 that the overall goals of STRAC are listed on page 9, and that the grant application forms require applicants to specify how their project supports the overall STRAC goals and how they will measure performance.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

- 20. Does the TRCC have a process for prioritizing traffic records improvement projects in the State Traffic Records Strategic Plan?**

Meets Advisory Ideal

The Strategic Plan does outline how projects are prioritized and assigned a ranking of 1, 2, or 3 to determine order of funding. In addition, the Grantees that submit the short form are reviewed by the STRAC to ensure they align with the goals and objectives of the Strategic Plan. The Strategic Plan includes the Traffic Records Assessment recommendations, but the application and project selection could be clarified to link the proposed project to the identified need or recommendation it plans to address.

Change Notes: Rating Improved.

From 'Partially Meets Advisory Ideal' to 'Meets Advisory Ideal'.





21. Does the TRCC identify and address technical assistance and training needs in the State Traffic Records Strategic Plan?

Meets Advisory Ideal

Technical assistance and training are included in the State's Strategic Plan. In addition, the State provided examples of training for specific projects. The State clarified that stakeholders can request training or technical assistance and that STRAC conducts periodic surveys to a wide cast of stakeholders to assess needs. It is noted, though, that the example survey attached includes no questions on training or technical assistance.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

22. Does the TRCC have a process for establishing timelines and responsibilities for projects in the State Traffic Records Strategic Plan?

Meets Advisory Ideal

The State's Strategic Plan includes action items with corresponding responsible parties/agencies. Timelines are identified as part of performance measures. It's clear that the STRAC assigns responsibility and time frames. The Annual Report provides more detail on the timeline and responsible parties. The timelines are established through discussions with responsible agencies. It is not clear how responsible parties are identified and that could be better explained in the Strategic Plan.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

23. Does the TRCC have a process for integrating and addressing State and local (to include federally recognized Indian Tribes, where applicable) data needs and goals into the State Traffic Records Strategic Plan?

Meets Advisory Ideal

The STRAC includes a variety of stakeholders in addition to it's leadership. The Strategic Plan does not include a list of projects or examples of projects and it's difficult to tell from the performance measures and action items which agencies or stakeholders are actually involved. The State does solicit grant applications from local agencies, and provided meeting minutes showing stakeholder attendance. The State also provided surveys used to engage stakeholders.

Change Notes: Rating Improved.

From 'Partially Meets Advisory Ideal' to 'Meets Advisory Ideal'.

24. Does the TRCC consider the use of new technology when developing and managing traffic records projects in the State Traffic Records Strategic Plan?

Meets Advisory Ideal

The State does consider and fund projects that implement new technologies. The 2018 STRAC Annual Report includes projects for electronic crash reporting, computers for law enforcement, real-time communication, and related technologies. The Office of Information Technology attends the STRAC meetings to offer input and advise on technology.





Change Notes: Rating Improved.
From 'Partially Meets Advisory Ideal' to 'Meets Advisory Ideal'.

25. *Does the State Traffic Records Strategic Plan consider lifecycle costs in implementing improvement projects?*

Partially Meets Advisory Ideal

The State's Strategic Plan details the process for ranking projects. This process considers return on investment. However, ROI is not defined in the plan to know if it includes lifecycle costs. It's also not clear whether lifecycle costs would prohibit the funding of a project, if the recipient agency has a plan for addressing those costs. The State provided meeting minutes from 2018 that show lifecycle costs are discussed during grant decisions. Ideally, lifecycle costs would be defined in the Strategic Plan and the process of considering lifecycle costs would be addressed.

Change Notes: Rating Improved.
From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

26. *Does the State Traffic Records Strategic Plan make provisions for coordination with key Federal traffic records data systems?*

Meets Advisory Ideal

The State's Strategic Plan references compliance with federal systems, and the projects listed in the 2018 Annual Report also indicate this. STRAC includes representatives from federal agencies.

Change Notes: Rating Improved.
From 'Partially Meets Advisory Ideal' to 'Meets Advisory Ideal'.

27. *Is the TRCC's State Traffic Records Strategic Plan reviewed, updated and approved annually?*

Meets Advisory Ideal

The Strategic Plan states that it is updated annually, and the State's response echo's that. The State provided the 2012, 2018, and 2019 Strategic Plans, and Annual Reports from 2016 and 2018.

Change Notes: Rating Improved.
From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

Description and Contents of the Crash Data System

28. *Is statewide crash data consolidated into one database?*

Meets Advisory Ideal

All submitted crash report data including legacy data is stored inside the DRIVES system and is accessible to DOR staff through their application. An automated extract is set to CDOT to use in their reporting and analytics.

Change Notes: Rating Improved.
From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.





29. *Is the statewide crash system's organizational custodian clearly defined?*

Meets Advisory Ideal

Custodial responsibility for the statewide crash system is defined in statute, requiring all reportable crashes be submitted and stored by the Department of Revenue.

Change Notes: Rating Unchanged.

30. *Does the State have criteria requiring the submission of fatal crashes to the statewide crash system?*

Meets Advisory Ideal

Colorado uses FARS criteria as the fatal crash reporting requirement. The criteria was provided and includes the following: the fatality must occur within 30 days of the associated crash, the crash must take place on a public road, and the death cannot be the result of an intentional act (i.e., homicide or suicide), a medical condition (i.e., heart attack or stroke), or a natural disaster.

Change Notes: Rating Unchanged.

31. *Does the State have criteria requiring the submission of injury crashes to the statewide crash system?*

Meets Advisory Ideal

By Statute (42-4-1606) investigating officers are required to submit a crash report to the Department of Revenue within 5 days of receiving information or upon completion of their investigating. A crash is further defined as unintentional damage or injury, with at least one motor vehicle in motion that involved a trafficway.

Change Notes: Rating Unchanged.

32. *Does the State have criteria requiring the submission of property damage only (PDO) crashes to the statewide crash system?*

Meets Advisory Ideal

Colorado tracks all crashes on public roads. Any crash that is not a fatal or injury crash (as defined in the previous question), and occurs on public roads, and is not an intentional act or natural disaster is considered a PDO crash.

Change Notes: Rating Unchanged.

33. *Does the State have statutes or other criteria specifying timeframes for crash report submission to the statewide crash database?*

Meets Advisory Ideal

By Statute (42-4-1606) investigating officers in the State are required to submit a crash report to the Department of Revenue within 5 days of receiving information or upon completion of their investigating.

Change Notes: New Question.





34. *Does the statewide crash system record the crashes that occur in non-trafficway areas (e.g., parking lots, driveways)?*

Does Not Meet Advisory Ideal

By Statute (42-4-1606) investigating officers are required to submit crash reports to the Department of Revenue. Colorado defines a crash as unintentional damage or injury, with at least one motor vehicle in motion that involved a trafficway. The State does not record private property crashes, including parking lots, private roadways, trails and driveways.

Change Notes: Rating Unchanged.

35. *Is data from the crash system used to identify crash risk factors?*

Meets Advisory Ideal

The CDOT has developed crash analysis techniques that can be applied to any public road. The process can be used to identify Crash patterns and causal factors for a specified location. The State provided an example report that examined a location, roadway features, behaviors, and driver characteristics.

Change Notes: Rating Unchanged.

36. *Is data from the crash system used to guide engineering and construction projects?*

Meets Advisory Ideal

The State provided a detailed summary of crashes done by the Department of Transportation occurring at a specific location that identifies potential problem areas. In addition, construction projects are required to have a safety analysis based on crash data.

Change Notes: Rating Unchanged.

37. *Is data from the crash system regularly used to prioritize law enforcement activity?*

Meets Advisory Ideal

The State provided a State Patrol quarterly report showing how crash records were used to determine high crash locations for fatal and serious bodily injury crashes. These quarterly reports identify hot spots including sections of mile posts, crash factors for fatal & injury crashes, property damage crashes, impaired crashes, identify day of week, time of day, and are used to prioritize law enforcement activity.

Change Notes: Rating Unchanged.

38. *Is data from the crash system used to evaluate safety countermeasure programs?*

Meets Advisory Ideal

Colorado conducts evaluations using before and after studies when a project is completed and crash data has accumulated, to assure the project changes achieved the desired / expected results. In addition, some data analyses are used to show trends. The most common measures are the following five federally required measures used to assess the statewide performance annually: Fatalities Fatal Crash Rate Serious Injury (SI) Serious Injury Crash Rate Non-motorized Fatalities and SI 1 - 1. A number of sample crash reports were provided to support the suggested evidence.

Change Notes: Rating Unchanged.





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?*

Meets Advisory Ideal

The State's crash reports were evaluated by NHTSA with regard to their compliance to the Model Minimum Uniform Crash Criteria (MMUCC) 5th Edition. The mapping was used as a guideline for the development of the current crash report form.

Change Notes: Rating Unchanged.

40. *Is there a process by which ANSI D.16 is used to help identify the definitions in the crash system data dictionary?*

Meets Advisory Ideal

Colorado used the ANSI standards in the development of the new crash form (DR 3447) and the officer's manual (dictionary). The Traffic Accident Reporting Manual and the Data Dictionary were provided to support the suggested evidence.

Change Notes: Rating Unchanged.

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

The Colorado DOR provided the crash database data dictionary which gives a definition for each data element and defines the data element's allowable values/attributes. The State also maintains a comprehensive 'Traffic Accident Reporting Manual'.

Change Notes: Rating Unchanged.

42. *Does the data dictionary document the system edit checks and validation rules?*

Meets Advisory Ideal

System edit checks and validation rules can be found and are available in documents other the data dictionary, which meets the requirements.

Change Notes: Rating Unchanged.

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?*

Partially Meets Advisory Ideal

The Traffic Accident Reporting manual, revised 2006, and a 2019 ICD document were provided.





These, however, don't address when the crash system's data dictionary, field data collection manual and coding manual were last updated and does not describe the processes used to ensure they remain consistent with each other.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially 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

The DOR response suggested the "Crash system interfaces with miidb TO CHECK INSURANCE STATUS", but did not include a description or documentation on how the data dictionary identified where/which elements are linked or derived from other systems.

Change Notes: Rating Changed.

From 'Partially Meets Advisory Ideal' to '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?*

Does Not Meet Advisory Ideal

The State did not address if an identical set of data elements and attributes were collected from all reporting agencies, independent of collection method.

Change Notes: New Question.

46. *Does the State reevaluate their crash form at regular intervals?*

Meets Advisory Ideal

The State conducts crash form reviews in keeping with the changing or developing of updated MMUCC standards.

Change Notes: New Question.

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?*

Meets Advisory Ideal

The key processes governing the collection, reporting, and posting of crash data including the submission of fatal crashes to the State FARS unit were provided by the State. A manual process for submitting commercial vehicle crashes to SafetyNet was also thoroughly described.

Change Notes: Rating Unchanged.





48. *Are the quality assurance and quality control processes for managing errors and incomplete data documented?*

Meets Advisory Ideal

The State has a robust process for quality control regarding the managing of errors or incomplete data found on crash reports, by either editing or returning the report back to the originating agency for correction.

Change Notes: Rating Unchanged.

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

Colorado retains crash data from 1986 on for safety engineers and other users to have long-term access to historical data.

Change Notes: Rating Unchanged.

50. *Do all law enforcement agencies collect crash data electronically?*

Partially Meets Advisory Ideal

The State reports it is currently at 50.04% electronic reporting, though it is unclear if this is the percentage of agencies collecting data or submitting to the State repository. No formal plan or long-range strategy to migrate paper agencies to electronic data collection was provided, although the effort appears on-going.

Change Notes: Rating Unchanged.

51. *Do all law enforcement agencies submit their data to the statewide crash system electronically?*

Partially Meets Advisory Ideal

The State narrative indicates the State is at approximately 50% electronically submitted crash reports. The percentage of agencies electronically submitting crash reports is 9.73%

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially 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

Before a law enforcement agency is allowed to submit crash reports electronically to the production system, they must successfully complete a test process. This test process ensures that all DR 2447 mandatory rules are met.

Change Notes: Rating Unchanged.

Crash Data Systems Interface with Other Components





53. Does the crash system have a real-time interface with the driver system?

Partially Meets Advisory Ideal

The current DOR response indicates 'when crashes are data entered into the system the driver license number will bring up current driver information (real time)' However, no other information was provided on how the crash-to-driver real-time interface enables: verification and validation of the driver's personal information, access to driver records, identification of inconsistencies between the crash and driver records. The officer's Traffic Accident Manual page 1 was cited as supporting the suggested evidence, but there was no apparent reference to the interface in the manual.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

54. Does the crash system have a real-time interface with the vehicle system?

Partially Meets Advisory Ideal

The DOR response indicated there is a real-time interface between the vehicle and crash systems since the crash, vehicle, and driver systems, are all in the same system DRIVES. The response did indicate the interface is able to populate the VIN from the plate number. However, no other information was provided on how the crash-to-vehicle real-time interface enables: verification and validation of the vehicle information, access to vehicle records, and/or identification of inconsistencies between the crash and vehicle records.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

55. Does the crash system interface with the roadway system?

Meets Advisory Ideal

The CDOT crash system has an interface to the roadway file called Colorado Roadway Information System (CORIS) through a program called "Vision Zero". The CORIS file is updated quarterly. The interface allows geo-locating all highway crashes in CDOT crash database. Vision Zero Suite also supports populating Roadway data, e.g., highway type, geometric and etc. in the crash file.

Change Notes: Rating Unchanged.

56. Does the crash system interface with the citation and adjudication systems?

Partially Meets Advisory Ideal

Colorado indicated since crash and citation/adjudication information are all contained within DRIVES on the individual accounts an interface is in place. The State notes that there is no cross-population of data elements on the crash report and citation. However, there appears to be a link that triggers departmental actions.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

57. Does the crash system have an interface with EMS?

Does Not Meet Advisory Ideal





Colorado indicated there is no crash system to injury surveillance system in place.

Change Notes: Rating Unchanged.

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

Responses from both CDOT and DOR indicated that automated edit checks and validation rules are in place to ensure that entered data fall within a range of acceptable values and is logically consistent among data elements.

Change Notes: Rating Unchanged.

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?*

Partially Meets Advisory Ideal

The DOR response stated when there is an obvious error on the crash report staff is trained to make corrections. However, no further explanation was provided to describe the process by which limited State-level correction authority is granted to quality control staff working with the statewide crash database.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially 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

The State has a documented process for rejecting crash reports and tracking resubmission.

Change Notes: Rating Unchanged.

61. *Does the State track crash report changes after the original report is submitted by the law enforcement agency?*

Meets Advisory Ideal

The State tracks changes to the original report with an amended flag field and also maintains a history of the different versions of the crash report.

Change Notes: New Question.

62. *Are there timeliness performance measures tailored to the needs of data managers and data users?*

Partially Meets Advisory Ideal





The State has an established timeliness baseline (19.83 days for the period April 1, 2015 to March 31, 2016) with a goal to reduce the average number of days from the crash date to submittal into EARS (at DOR) by 5-10% per year. The State further clarified that with a long delay in implementing the DRIVES system it is difficult to track metrics, and thus current timeliness metrics are not readily available for the needs of data managers and data users.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

63. *Are there accuracy performance measures tailored to the needs of data managers and data users?*

Does Not Meet Advisory Ideal

The State did not provide a performance measure, but instead a strategic goal. Performance measures should include calculation method, baseline, actual values and percent change. The realization of this strategic goal is, in part, dependent on the implementation of the DRIVES system, which according to the State, has had a long delay. This delay prevented the establishment and tracking of the performance measurements outlined in the STRAC Strategic Plan 2016-2019.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.

64. *Are there completeness performance measures tailored to the needs of data managers and data users?*

Does Not Meet Advisory Ideal

The State did not provide a performance measure, but instead a strategic goal. Performance measures should include calculation method, baseline, actual values and percent change. The realization of this strategic goal is, in part, dependent on the implementation of the DRIVES system, which according to the State, has had a long delay. This delay prevented the establishment and tracking of the performance measurements outlined in the STRAC Strategic Plan 2016-2019.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.

65. *Are there uniformity performance measures tailored to the needs of data managers and data users?*

Does Not Meet Advisory Ideal

Like the previous performance measures (accuracy, completeness) a similar updated response by Cambridge Systematics was provided as progress toward establishing a uniformity performance measures. A review of the Traffic Records Strategic Plan did not reveal similar attempts to measure uniformity performance beyond training law enforcement officers on the new DR 3447 (crash form) and by December 31, 2018, developing a uniform data dictionary for the Crash record system.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to '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

The State did not provide a performance measure, but instead a strategic goal. Performance





measures should include calculation method, baseline, actual values and percent change. The realization of this strategic goal is, in part, dependent on the implementation of the DRIVES system, which according to the State, has had a long delay. This delay prevented the establishment and tracking of the performance measurements outlined in the STRAC Strategic Plan 2016-2019.

Change Notes: Rating Unchanged.

67. *Are there accessibility performance measures tailored to the needs of data managers and data users?*

Does Not Meet Advisory Ideal

The State did not provide a performance measure. Although the interface agreement by itself is not a accessibility performance measure it could be moved to a performance measure. If the State encouraged establishing agreements with customers, used the current number of crash data agreements as the baseline measure, established goals for increasing accessibility, measured the results of putting new agreements in place, compared the results to goals, and shared the results with stakeholders this would meet the requirement for the performance measure.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.

68. *Has the State established numeric goals-performance metrics-for each performance measure?*

Does Not Meet Advisory Ideal

The State does not appear to have established performance measures, but instead performance measures as a strategic goal. Established performance measures should include calculation method, baseline, actual values and percent change. The realization of these strategic goal are, in part, dependent on the implementation of the DRIVES system, which according to the State, has had a long delay. This delay prevented the establishment and tracking of the performance measurements outlined in the STRAC Strategic Plan 2016-2019.

Change Notes: Rating Changed.

From 'Partially Meets Advisory Ideal' to 'Does Not Meet 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

The State does not appear to have formalized a report that provides feedback to each Law Enforcement Agency (LEA) regarding their agency's crash report timeliness, accuracy, and completeness. Only individual report rejections and a summary showing total reports submitted by the agency were provided. STRAC works with the SHSO to push information out to LEA's and increase participation in electronic submission but timeliness, accuracy and completeness measures were not shown.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to '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?*

Partially Meets Advisory Ideal

The State responses indicate that both DOR and CDOT identify patterns of high frequency errors as part of their normal analytic tasks (case-by-case basis). It does not appear there are specific QA/QC processes to detect high-frequency errors used to prompt revisions, update the validation rules, and generate updated training content and data collection manuals. As an update to the State response, CDOT cited an example where a high frequency error either resulted in an edit check or could be the source of a check to avoid a re-occurrence of the error.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets 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?*

Partially Meets Advisory Ideal

The CDOT has a robust quality control review process comparing the narrative, diagram, and coded contents of the crash report. CDOT cleans this data for its own purposes, but this process is not part of the statewide data acceptance process for a crash report to be posted to the crash database repository.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

72. *Are sample-based audits periodically conducted for crash reports and related database content?*

Meets Advisory Ideal

CDOT periodically conducts audits for crash data that is received from DOR DRIVES system to identify the data errors and missing data. Comparisons of the data with previous years to identify the data discrepancies. For example, in 2017, they identified 7,000 missing crash reports in Denver that were not submitted to DOR DRIVES system. They have also identified that the Colorado springs PD didn't submit the injury level data to DOR DRIVES system in 2018.

Change Notes: Rating Unchanged.

73. *Are periodic comparative and trend analyses used to identify unexplained differences in the data across years and jurisdictions?*

Meets Advisory Ideal

CDOT annually examines the data for significant changes in data submission rate including total crashes as well as changes in individual fields such as DUI, injury level etc.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

74. *Is data quality feedback from key users regularly communicated to data collectors and data managers?*

Meets Advisory Ideal





The State provided an example of Data quality feedback that is regularly communicated to data collectors, as well as tracking responses and the actions taken.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

75. *Are data quality management reports provided to the TRCC for regular review?*

Partially Meets Advisory Ideal

Data quality reports are not regularly shared with the TRCC, but crash data quality issues are discussed at STRAC meetings when they arise.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

Description and Contents of the Driver Data System

76. *Does custodial responsibility for the driver data system-including commercially-licensed drivers-reside in a single location?*

Meets Advisory Ideal

The Driver Services of the Colorado Department of Revenue has custodial responsibility of the Colorado driver data system, which resides in a single location and includes commercially licensed drivers.

Change Notes: Rating Unchanged.

77. *Does the driver data system capture details of novice driver, motorcycle, and driver improvement (remedial) training histories?*

Meets Advisory Ideal

Colorado maintains the Driver License Operating Procedure Manual, which specifies details related to updates of the DRIVES system with novice driver, motorcycle, and driver improvement training histories.

Change Notes: Rating Improved.

From 'Partially Meets Advisory Ideal' to 'Meets Advisory Ideal'.

78. *Does the driver data system capture and retain the dates of original issuance for all permits, licensing, and endorsements (e.g., learner's permit, provisional license, commercial driver's license, motorcycle license)?*

Meets Advisory Ideal

The driver data system captures the original issuance date for all licensing, permits, and endorsements.

Change Notes: Rating Unchanged.





Applicable Guidelines for the Driver Data System

79. *Is driver information maintained in a manner that accommodates interaction with the National Driver Register's PDPS and CDLIS?*

Meets Advisory Ideal

The Colorado driver data system is maintained in accordance with Federal standards. The State accommodates interaction with the National Driver Register's Problem Driver Pointer System (PDPS) and the Commercial Driver's License Information System (CDLIS).

Change Notes: Rating Unchanged.

Data Dictionary for the Driver Data System

80. *Are the contents of the driver data system documented with data definitions for each field?*

Meets Advisory Ideal

The contents of the State driver data system are documented in the DRIVES system with data definition for each data field.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

81. *Are all valid field values-including null codes-documented in the data dictionary?*

Meets Advisory Ideal

All valid field values - including null codes - are documented in the APP-Driver License Renewal Document of the DRIVES system.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

82. *Are there edit checks and data collection guidelines for each data element?*

Meets Advisory Ideal

The DRIVES system performs edit and data validation checks during data entry and interface transactions. In addition, the State has established reviews of the daily audit reports related to the driver data system.

Change Notes: Rating Unchanged.

83. *Is there guidance on how and when to update the data dictionary?*

Partially Meets Advisory Ideal

The DRIVES system is updated with changes to the driver system data dictionary. However, the State provided documentation that relates to the crash data system, and not to the driver data system. A documentation or narrative with more details related to the State's guidance and rules to update driver system data dictionary would have improved this rating.





Change Notes: Rating Changed.
From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

Procedures and Process Flows for the Driver Data System

84. *Does the custodial agency maintain accurate and up-to-date documentation detailing: the licensing, permitting, and endorsement issuance procedures; reporting and recording of relevant convictions, driver education, driver improvement course; and recording of information that may result in a change of license status (e.g., sanctions, withdrawals, reinstatement, revocations, cancellations and restrictions) including manual or electronic reporting and timelines, where applicable?*

Meets Advisory Ideal

The State maintains very detailed and up to date documentation related to licensing, permitting, and endorsement issuance, as well as to procedures for reporting and recording convictions, driver education and improvement courses, and other information that may result in a change of license status. While the Driver License Standard Operating Procedure Manual contains most of information related to these procedures, some details are maintained in other documentation, such as the Conviction Batch Procedure, which specifies details for reporting and recording convictions.

Change Notes: New Question.

85. *Is there a process flow diagram that outlines the driver data system's key data process flows, including inputs from other data systems?*

Meets Advisory Ideal

The Colorado driver data system is supported with detailed process flow diagrams indicating key data process flows and inputs from other data systems.

Change Notes: Rating Unchanged.

86. *Are the processes for error correction and error handling documented for: license, permit, and endorsement issuance; reporting and recording of relevant convictions; reporting and recording of driver education and improvement courses; and reporting and recording of other information that may result in a change of license status?*

Meets Advisory Ideal

Error correction and error handling processes are documented in the Driver License Standard Operations Manual.

Change Notes: Rating Improved.
From 'Partially Meets Advisory Ideal' to 'Meets Advisory Ideal'.

87. *Are there processes and procedures for purging data from the driver data system documented?*

Does Not Meet Advisory Ideal

Colorado does not purge data from the driver data system.





Change Notes: Rating Changed.
From 'Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.

88. *In States that have the administrative authority to suspend licenses based on a DUI arrest independent of adjudication, are these processes documented?*

Meets Advisory Ideal

The State maintains documentation pertaining procedures to suspend/revoke driver license based on a DUI arrest.

Change Notes: Rating Unchanged.

89. *Are there established processes to detect false identity licensure fraud?*

Meets Advisory Ideal

Colorado has established procedures to detect false identity licensure fraud. The Department of Revenue Motor Vehicle Investigation Unit investigates and prevents fraudulent attempts concerning driver license, identification cards, motor vehicle titles, registration, and other related documents.

Change Notes: Rating Unchanged.

90. *Are there established processes to detect internal fraud by individual users or examiners?*

Meets Advisory Ideal

The Motor Vehicle Investigations Unit is responsible for detecting and investigating the attempts of internal fraud by individual users or examiners. The Unit performs routine periodic audits of the employee transactions as well as investigations of reported fraud from employees.

Change Notes: Rating Unchanged.

91. *Are there established processes to detect CDL fraud?*

Meets Advisory Ideal

The State has established policies and procedures to detect CDL fraud. These procedures are followed by the CDL Testing Compliance Unit, which is responsible for detecting most of the CDL fraudulent activities.

Change Notes: Rating Unchanged.

92. *Does the State transfer the Driver History Record (DHR) electronically to another State when requested due to a change in State of Record?*

Meets Advisory Ideal

Colorado provides the driver history record information to another State "as part of a Change State of Record". The driver history record is transferred to the new State electronically. Transmission errors are worked in concert with the new State of Record so the driver history record can be pulled again.

Change Notes: New Question.





93. Does the State obtain the previous State of Record electronically upon request?

Partially Meets Advisory Ideal

Colorado obtains the previous State of Record for CDL drivers electronically through CDLIS. The State is currently in the process of becoming a participant in the State-to-State (S2S) program by January 2020, which will include the exchange of driving records electronically for non-CDL drivers.

Change Notes: New Question.

94. Does the State run facial recognition prior to issuing a credential?

Meets Advisory Ideal

Colorado uses one-to-one and a nightly one-to-many facial recognition check prior to issuing driver's license.

Change Notes: New Question.

95. Does the State exchange driver photos with other State Licensing agencies upon request?

Meets Advisory Ideal

The state exchanges driver photos with other State by the way of sending the encrypted photo via email to another State for comparison purposes. Colorado exchanges photos via the Digital Image Access Exchange (DIAE), for both CDL and non-CDL drivers.

Change Notes: New Question.

96. Are there policies and procedures for maintaining appropriate system and information security?

Meets Advisory Ideal

The DRIVES security team has a responsibility to maintain and manage appropriate system and information security within the driver data system.

Change Notes: Rating Unchanged.

97. Are there procedures in place to ensure that driver system custodians track access and release of driver information?

Meets Advisory Ideal

The State uses multi-tiered approval procedure to track access and release of driver information. The Access Request Form is used to identify the type and level of access that is requested. Once the request is granted, the DRIVES system manages the authorization and authentication to the system.

Change Notes: Rating Unchanged.

Driver System Interface with Other Components

98. Does the State post at-fault crashes to the driver record?

Meets Advisory Ideal

The State updates all crashes to the driver record. As evidence, the State provided the collision and





the crash report forms that are used to record crash data.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

99. *Does the State's DUI tracking system interface with the driver data system?*

Partially Meets Advisory Ideal

The State's driver, vehicle, and crash data are integrated into the DRIVES system. These data include DUI-related driver information, such as DUI convictions, DUI arrests, etc. However, Colorado does not have a separate DUI tracking system that is integrated with the driver system.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

100. *Is there an interface between the driver data system and the Problem Driver Pointer System, the Commercial Driver Licensing System, the Social Security Online Verification system, and the Systematic Alien Verification for Entitlement system?*

Meets Advisory Ideal

The State has an interface between the State's driver data system and the Problem Driver Pointer System (PDPS), the Commercial Driver License Information System (CDLIS), the Social Security Online Verification System (SSOLV), and the Systematic Alien Verification for Entitlement (SAVE) system.

Change Notes: Rating Unchanged.

101. *Does the custodial agency have the capability to grant authorized law enforcement personnel access to information in the driver system?*

Meets Advisory Ideal

Access to the State driver data system can be granted to authorized law enforcement personnel. The Department of Revenue uses the DOR Access Request Form that has to be completed, reviewed, and approved before access is granted to law enforcement personnel.

Change Notes: Rating Unchanged.

102. *Does the custodial agency have the capability to grant authorized court personnel access to information in the driver system?*

Meets Advisory Ideal

Colorado Courts can be granted access to the driver data through signed end user agreement with the court via web portal.

Change Notes: Rating Unchanged.

Data Quality Control Programs for the Driver System





103. *Is there a formal, comprehensive data quality management program for the driver system?*

Does Not Meet Advisory Ideal

The State does not have established a formal, comprehensive data quality management program for the driver system, as envisioned in the Advisory.

Change Notes: Rating Unchanged.

104. *Are there automated edit checks and validation rules to ensure entered data falls within a range of acceptable values and is logically consistent among data elements?*

Meets Advisory Ideal

The State performs edit checks and data validation procedures to ensure that entered data falls within a range of acceptable values and is satisfying specific format and validation rules.

Change Notes: Rating Unchanged.

105. *Are there timeliness performance measures tailored to the needs of data managers and data users?*

Meets Advisory Ideal

The State has established goals and timeliness performance measures (in days) of the driver data system tailored to the needs of data managers and data users. A list of such measures is provided by the State.

Change Notes: Rating Improved.

From 'Partially Meets Advisory Ideal' to 'Meets Advisory Ideal'.

106. *Are there accuracy performance measures tailored to the needs of data managers and data users?*

Does Not Meet Advisory Ideal

There are not any accuracy performance measures of the driver data system tailored to the needs of data managers and data users. The State has tracking mechanisms to capture data entry errors and to ensure accuracy of driver data, but the State does not have a metric to show how accurate are data in the driver system.

Change Notes: Rating Changed.

From 'Partially Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.

107. *Are there completeness performance measures tailored to the needs of data managers and data users?*

Does Not Meet Advisory Ideal

There are not any completeness performance measures of the driver data system tailored to the needs of data managers and data users. Specific evidence provided by the State does not indicate the existence of completeness performance measures.

Change Notes: Rating Unchanged.





108. *Are there uniformity performance measures tailored to the needs of data managers and data users?*

Does Not Meet Advisory Ideal

There are not any uniformity performance measures of the driver data system tailored to the needs of data managers and data users. Data validation and field input masks used in the DRIVES system is not an actual performance measure.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.

109. *Are there integration performance measures tailored to the needs of data managers and data users?*

Does Not Meet Advisory Ideal

There are not any integration performance measures of the driver data system tailored to the needs of data managers and data users. The State performs monitoring of the integrated data and tracking trends over time. However, there is no indication that integration performance measures, with baselines and actual values, exist for the driver data system.

Change Notes: Rating Unchanged.

110. *Are there accessibility performance measures tailored to the needs of data managers and data users?*

Does Not Meet Advisory Ideal

There are not any accessibility performance measures of the driver data system tailored to the needs of data managers and data users. The State has provided the access request form as documentation to this question. However, this is not a performance measure. Additionally, there are no baselines and actual values.

Change Notes: Rating Unchanged.

111. *Has the State established numeric goals-performance metrics-for each performance measure?*

Partially Meets Advisory Ideal

The State has not established numeric goals—performance metrics—for each performance measure, except for the timeliness performance measure. The State driver system is not supported by a comprehensive data quality management program, which would typically include established performance measures for each of the six data quality attributes, and not just for timeliness. Since these performance measures do not exist for accuracy, completeness, uniformity, integration, and accessibility, numeric goals for each of them cannot be specified.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

112. *Is the detection of high frequency errors used to generate updates to training content and data collection manuals, update the validation rules, and prompt form revisions?*

Meets Advisory Ideal





Colorado has established procedures to detect high frequency errors. These procedures include secondary review process of driver license and ID card transaction and weekly reporting and listing of all errors. These errors are thoroughly reviewed and can be used to generate updates to training manual. These errors can also indicate a need for an additional training for individual employee.

Change Notes: Rating Unchanged.

113. *Are sample-based audits conducted periodically for the driver reports and related database contents for that record?*

Partially Meets Advisory Ideal

The State has established detailed procedures to compare data entered at the driver license office with the driver data that are in the DRIVES system. However, these procedures are not comparable to independent sample-based audits aimed at quality aspects of the driver data system, as defined in the Advisory.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

114. *Are periodic comparative and trend analyses used to identify unexplained differences in the data across years and jurisdictions?*

Partially Meets Advisory Ideal

Trend analyses are completed by the State's Research and Analysis Division. However, details pertaining to what specific type of analyses were completed, or the frequency of such analyses, were not provided.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

115. *Is data quality feedback from key users regularly communicated to data collectors and data managers?*

Meets Advisory Ideal

Data quality feedback from key users is communicated to data managers via a help desk ticket process if there are data issues.

Change Notes: Rating Unchanged.

116. *Are data quality management reports provided to the TRCC for regular review?*

Does Not Meet Advisory Ideal

Data quality management reports are not provided to the TRCC for review.

Change Notes: Rating Unchanged.

Description and Contents of the Vehicle Data System





117. *Does custodial responsibility of the identification and ownership of vehicles registered in the State-including vehicle make, model, year of manufacture, body type, and adverse vehicle history (title brands)-reside in a single location?*

Meets Advisory Ideal

The Colorado Department of Revenue, Division of Motor Vehicles is the custodial agency of the Colorado vehicle data system that maintains all vehicle title and registration records.

Change Notes: Rating Unchanged.

118. *Does the State or its agents validate every VIN with a verification software application?*

Meets Advisory Ideal

The State DRIVES utilizes VINtelegence to populate vehicle information in regards to make model, and weight, as well as validate ever VIN.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

119. *Are vehicle registration documents barcoded-using at a minimum the 2D standard-to allow for rapid, accurate collection of vehicle information by law enforcement officers in the field using barcode readers or scanners?*

Meets Advisory Ideal

The State submitted samples of their title and registration documents showing the bar coding on these documents.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

Applicable Guidelines for the Vehicle Data System

120. *Does the vehicle system provide title information data to the National Motor Vehicle Title Information System (NMVTIS) at least daily?*

Meets Advisory Ideal

Colorado provides title information to the National Motor Vehicle Title Information System (NMVTIS) via real-time interface.

Change Notes: Rating Unchanged.

121. *Does the vehicle system query NMVTIS before issuing new titles?*

Meets Advisory Ideal

The State DRIVES system utilizes real-time querying of NMVTIS before issuing new titles.

Change Notes: Rating Improved.

From 'Partially Meets Advisory Ideal' to 'Meets Advisory Ideal'.





122. *Does the State incorporate brand information recommended by AAMVA and/or received via NMVTIS on the vehicle record, whether the brand description matches the State's brand descriptions?*

Meets Advisory Ideal

The State incorporates brand information on the vehicle records that are recommended by AAMVA. The State provided the listing and definitions of the title brands.

Change Notes: Rating Unchanged.

123. *Does the State participate in the Performance and Registration Information Systems Management (PRISM) program?*

Does Not Meet Advisory Ideal

The State answered only yes that it is a participant in the Performance and Registration Information Systems Management (PRISM) program. However, the State failed to provide any of the suggested supporting evidence.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.

Vehicle System Data Dictionary

124. *Does the vehicle system have a documented definition for each data field?*

Partially Meets Advisory Ideal

The State does have documented definitions for each data field in the DRIVES system. However, the State did not provide suggested relevant documentation (e.g., a sample of data definitions).

Change Notes: Rating Unchanged.

125. *Does the vehicle system include edit check and data collection guidelines that correspond to the data definitions?*

Meets Advisory Ideal

The State DRIVES has validation checks on data entry and interfaces. The county and State officials conduct daily reporting. Such vehicle data audits are reviewed daily as well.

Change Notes: Rating Unchanged.

126. *Are the collection, reporting, and posting procedures for registration, title, and title brand information formally documented?*

Meets Advisory Ideal

With an upgrade to the new DRIVES vehicle records system in 2018, the State has collection, reporting, and posting procedures formally documented for registration, title, and title brand. Updates to all procedures are now conducted on a regular basis on system improvements and reported to assistance managers in DRIVES.





Change Notes: Rating Improved.
From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

Procedures and Process Flows for the Vehicle Data System

127. *Is there a process flow that outlines the vehicle system's key data process flows, including inputs from other data systems?*

Partially Meets Advisory Ideal

The State provided a brief flow chart, but it lacked the kind of critical detail needed to achieve a higher rating.

Change Notes: Rating Changed.
From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

128. *Does the vehicle system flag or identify vehicles reported as stolen to law enforcement authorities?*

Meets Advisory Ideal

The DRIVES system flags vehicles reported in real-time as stolen with a "stolen" banner shown on the vehicle record.

Change Notes: Rating Unchanged.

129. *If the vehicle system does flag or identify vehicles reported as stolen to law enforcement authorities, are these flags removed when a stolen vehicle has been recovered or junked?*

Meets Advisory Ideal

The State removes the "stolen" banner when stolen vehicle has been recovered. Colorado receives a nightly data file with information on all recovered vehicles.

Change Notes: Rating Unchanged.

130. *Does the State record and maintain the title brand history (previously applied to vehicles by other States)?*

Meets Advisory Ideal

Colorado carries forward previous brand from other jurisdiction on the new Colorado title.

Change Notes: Rating Improved.
From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

131. *Are the steps from initial event (titling, registration) to final entry into the statewide vehicle system documented?*

Meets Advisory Ideal

The State DRIVES system has documented procedures that describe the steps from initial titling/registration event to final entry into the statewide vehicle data system.





Change Notes: Rating Unchanged.

132. *Is the process flow annotated to show the time required to complete each step?*

Meets Advisory Ideal

The State reported that DRIVES has the ability to track the time taken to complete each task by each user. County and State management set goals for their staff to complete tasks in DRIVES.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

133. *Does the process flow show alternative data flows and timelines?*

Does Not Meet Advisory Ideal

The State does not have a process flow that reflects alternative data flows and timelines. However, it was stated that, after system stabilization efforts are completed, a pending project will correct this deficiency.

Change Notes: Rating Unchanged.

134. *Does the process flow include processes for error correction and error handling?*

Does Not Meet Advisory Ideal

It was reported by the State that the key process flows are not yet documented but after the system stabilization efforts are completed, a pending project will correct this deficiency. Therefore, a rating of not meeting the advisory ideal is the only rating that can be issued at this time.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.

Vehicle Data System Interface with Other Traffic Record System Components

135. *Are the driver and vehicle files unified in one system?*

Meets Advisory Ideal

The driver and vehicle transactions are completed through DRIVES and driver license records can be linked to vehicle ownership, establishing a unified system.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

136. *Is personal information entered into the vehicle system using the same conventions used in the driver system?*

Meets Advisory Ideal

The DRIVES system maintains transactions for both the State vehicle and the driver data system. Therefore, personal information entered into the vehicle system uses the same conventions that are used in the driver system.





Change Notes: Rating Improved.
From 'Partially Meets Advisory Ideal' to 'Meets Advisory Ideal'.

137. *When discrepancies are identified during data entry in the crash data system, are vehicle records flagged for possible updating?*

Partially Meets Advisory Ideal

Colorado appears to have procedures to identify discrepancies during data entry into the crash system. According to the State, all users use DRIVES and follow the same conventions. All users using the same conventions is necessary for an ideal system. Had a vehicle system manual, or excerpt been provided for documentation, it may have resulted in a higher rating.

Change Notes: Rating Improved.
From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

Data Quality Control Programs for the Vehicle Data System

138. *Is the vehicle system data processed in real-time?*

Partially Meets Advisory Ideal

With their new DRIVES, the State vehicle system processes registrations and titles in a real-time environment. If a discrepancy on a VIN or license plate number is identified during entry, it is corrected immediately. If a record already in the system is identified with an error, how that record is corrected was not indicated. Additional information regarding this process would have improved this rating.

Change Notes: Rating Improved.
From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

139. *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?*

Does Not Meet Advisory Ideal

The State performs automated edit checks and validation procedures during data entry. However, the State did not provide suggested evidence. An excerpt from the relevant documentation or a narrative with details related to these edit checks and validation procedures would have improved this rating.

Change Notes: Rating Changed.
From 'Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.

140. *Are statewide vehicle system staff able to amend obvious errors and omissions for quality control purposes?*

Meets Advisory Ideal

The State has established protocol to grant authority to the highest level staff like managers to amend obvious errors and omissions.

Change Notes: Rating Unchanged.





141. *Are there timeliness performance measures tailored to the needs of data managers and data users?*

Partially Meets Advisory Ideal

The State uses visual display boards that provide information on the customer call wait times and it includes information on the established wait time goals. However, this information does not represent the timeliness performance measure of the vehicle data system, as specified in the Advisory.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

142. *Are there accuracy performance measures tailored to the needs of data managers and data users?*

Partially Meets Advisory Ideal

The State has established accuracy performance measures tailored to the needs of data managers and data users. Although the State provided some documentation indicating the existence of such measures, it is not clear which specific information in this documentation relates to accuracy performance measures. Clarifying such details could have improved this rating.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

143. *Are there completeness performance measures tailored to the needs of data managers and data users?*

Partially Meets Advisory Ideal

The State has established completeness performance measures tailored to the needs of data managers and data users. Although the State provided some documentation indicating the existence of certain performance measures, it is not clear which specific information in this documentation relates to completeness performance measures. Clarifying this information could have improved this rating.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

144. *Are there uniformity performance measures tailored to the needs of data managers and data users?*

Partially Meets Advisory Ideal

The State has established uniformity performance measures tailored to the needs of data managers and data users. Although the State provided some documentation indicating the existence of certain performance measures, it is not clear which specific information in this documentation relates to uniformity performance measures. Clarifying this information could have improved this rating.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.





145. *Are there integration performance measures tailored to the needs of data managers and data users?*

Partially Meets Advisory Ideal

The State has established integration performance measures tailored to the needs of data managers and data users. Although the State provided some documentation indicating the existence of certain performance measures, it is not clear which specific information in this documentation relates to integration performance measures. Clarifying this information would have improved this rating.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

146. *Are there accessibility performance measures tailored to the needs of data managers and data users?*

Partially Meets Advisory Ideal

The State has established accessibility performance measures tailored to the needs of data managers and data users. Although the State provided some documentation indicating the existence of certain performance measures, it is not clear which specific information in this documentation relates to accessibility performance measures. Clarifying this information could have improved this rating.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

147. *Has the State established numeric goals-performance metrics-for each performance measure?*

Partially Meets Advisory Ideal

The State has established numeric goals-performance metrics-for each performance measure and that would be true for those items (customer wait times, customer service time, inventory, auditing, and IRP web usage) listed in the attached Performance Plan, but there were no DRIVES specific vehicle records system numeric goals-performance metrics-for each measures provided to assess.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

148. *Is the detection of high frequency errors used to generate updates to training content and data collection manuals, update the validation rules, and prompt form revisions?*

Partially Meets Advisory Ideal

The State has monthly tracking of high frequency errors and that information is communicated via monthly newsletters and is used to update and enhance training. However, the State needs to verify if high frequency errors are used to update data collection manuals, update data validation rules, and prompt form revisions.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.





149. *Are sample-based audits conducted for vehicle reports and related database contents for that record?*

Does Not Meet Advisory Ideal

Colorado does not conduct sample-based audits for vehicle reports and related database contents.

Change Notes: Rating Unchanged.

150. *Are periodic comparative and trend analyses used to identify unexplained differences in the data across years and jurisdictions within the State?*

Partially Meets Advisory Ideal

The Department of Revenue has a research and analysis department that compiles statistical data throughout the State of Colorado to report comparative and trend analysis. Had some samples of vehicle records system statistical trend analysis and the frequency of these reports been provided, a higher rating could have been awarded.

Change Notes: Rating Unchanged.

151. *Is data quality feedback from key users regularly communicated to data collectors and data managers?*

Meets Advisory Ideal

The State identified multiple committees, involving local government officials using the DRIVES, with committees providing an opportunity for monitoring and feedback of the vehicle system available to ensure data quality. The State has established the DRIVES Governance Committee that plays a critical role in this process as well as in establishing best practices, system standards, and training protocol for the DRIVES system.

Change Notes: Rating Unchanged.

152. *Are data quality management reports provided to the TRCC for regular review?*

Does Not Meet Advisory Ideal

The State does not provide any data quality management reports to the TRCC for regular review. An opportunity exists for the State to engage this regular activity to benefit the entire Colorado traffic records system while, at the same time, gaining the support of other traffic records agencies in assisting with ongoing upgrades to the vehicle records system.

Change Notes: Rating Unchanged.

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

The Colorado Department of Transportation (CDOT) is involved in a project to provide a compatible location referencing system for all State public roads. This project is compatible with the FHWA system called the All Road Network of Linear Referenced Data (ARNOLD). It appears the





State has successfully put in place a system to allow mapping compatibilities for all public roads using this project. This is a major accomplishment which is recognized as a best practice. The network is used for the annual HPMS reporting. Roadway data for all public roads and traffic data for the federal-aid system can be located along the new All Roads LRS. A map of all State public roads was provided to support the suggested evidence. Based on the single response from CDOT, it appears CDOT continues to use the legacy locating system to locate crash data, integrate roadway data with crash data on State maintained roadways only. The legacy system is also used to reference most discrete roadway data. The State is encouraged to give the All roads LRS project high priority in order to support traffic safety analytics on all public roads.

Change Notes: Rating Unchanged.

154. *Are the collected roadway and traffic data elements located using a compatible location referencing system (e.g., LRS, GIS)?*

Partially Meets Advisory Ideal

Currently the roadway and traffic data elements are located using CDOT's legacy LRM and not the new all public roads network. The State can translate between the two different systems. The State is in the process of moving other business areas to the All Roads LRM which will allow integration of location data across different systems. The State is encouraged to expedite this project in order to support statewide safety analysis on all public roads. The State did provide a sample map, demonstrating the capability to map/locate traffic count stations.

Change Notes: Rating Unchanged.

155. *Is there an enterprise roadway information system containing roadway and traffic data elements for all public roads?*

Partially Meets Advisory Ideal

At this time, the All Roads Network (ARNOLD) has been developed for the HPMS submittal, but is not available for all CDOT business areas. Further, crash data has not yet been incorporated into the new All Roads LRS for all public roads. CDOT is moving towards using only the All Roads LRM organization wide. This will allow crash data to be spatially referenced on all public roads within the State as well as allowing system integration to automate location data sharing. Staff is currently working with the Bridge systems to create APIs and REST Services to automate integration of LRM location information with the Bridge inventory data. Similar processes will be used to automate integration with Traffic Safety crash data. The ability to integrate crash data is a critical component of a statewide enterprise roadway information system, as stated earlier, the State is encouraged to expedite the ability to support this functionality.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially 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?*

Partially Meets Advisory Ideal

Colorado has the ability to identify crash locations using the legacy referencing system on State maintained roadways which supports robust safety analysis on that system. It is still in the process of moving that ability to the All Roads Network (ARNOLD) which will support similar analytical





processes on all State public roads. The State provided a sample map identifying crash locations for State maintained roadways.

Change Notes: Rating Unchanged.

157. *Is crash data incorporated into the enterprise roadway information system for safety analysis and management use?*

Partially Meets Advisory Ideal

Crash data is still integrated into the CDOT GIS enterprise roadway information system (State maintained roads) through a manual process. Crash/Roadway data is then used for project and program prioritization extensively. Safety analysis is required for all construction projects. The data drives the State Highway Safety Plan (SHSP).

Change Notes: Rating Unchanged.

Applicable Guidelines for the Roadway Data System

158. *Are all the MIRE Fundamental Data Elements collected for all public roads?*

Partially Meets Advisory Ideal

All MIRE FDEs are collected for State maintained roads and some FDEs are collected on the Off-State system roads. The State response included the Off-State system FDEs collected and the roadway types they are collected on.

Change Notes: Rating Unchanged.

159. *Do all additional collected data elements for any public roads conform to the data elements included in MIRE?*

Partially Meets Advisory Ideal

Many MIRE data elements beyond the FDEs are collected on State maintained roads. Only the FDEs are collected on some Off-System roads. CDOT has done a comparison of MIRE data elements to the existing elements already in their State system. Colorado is encouraged to map those elements to MIRE and include them in their documentation (data dictionary) which would allow the State to show acceptance and further conformance to the MIRE Guide.

Change Notes: Rating Unchanged.

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?*

Does Not Meet Advisory Ideal

The collected MIRE elements are included in the data dictionary, however they are not specifically identified as MIRE elements. CDOT plans a process of updating the data dictionary to include a





MIRE element Y/N designation to the roadway characteristics definitions.

Change Notes: Rating Unchanged.

161. *Are all additional (non-Fundamental Data Element) MIRE data elements for all public roads documented in the data dictionary?*

Does Not Meet Advisory Ideal

The State does not have a detailed data dictionary that identifies all data elements as MIRE elements. Again, As the State improves their enterprise roadway system documentation, they might consider identifying the data elements that are MIRE FDEs and any additional MIRE data elements beyond the FDEs.

Change Notes: Rating Unchanged.

162. *Does local, municipal, or tribal (where applicable) roadway data comply with the data dictionary?*

Partially Meets Advisory Ideal

The State does not have a detailed data dictionary for the roadway system, but local data sources do utilize the State data schema for their roadway data.

Change Notes: Rating Unchanged.

163. *Is there guidance on how and when to update the data dictionary?*

Does Not Meet Advisory Ideal

CDOT does not maintain a detailed roadway system data dictionary or guidance on how and when to update the data dictionary. As the State makes progress on the ARNOLD project it is encouraged to improve the roadway enterprise system's documentation to include a comprehensive roadway system data dictionary and the controls and procedures that ensure the data dictionary is kept up-to-date.

Change Notes: Rating Unchanged.

Procedures and Process Flows for the Roadway Data System

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?*

Partially Meets Advisory Ideal

Colorado does not have a formal process for incorporating new elements into the roadway information system. If a need is identified, the Data Management Unit would meet and discuss the add/change with other potentially affected units to identify any problems that could arise. They then would request the change to the database through Colorado Office of Information Technology (OIT), OIT would then conduct a change risk assessment to assess any potential impacts on other applications and systems. If the risk is low, OIT would then initiate the change.

Change Notes: Rating Unchanged.





165. *Are the steps for updating roadway information documented to show the flow of information?*

Meets Advisory Ideal

The State provided the documented workflows for both on-system and off-system data additions to their system.

Change Notes: Rating Improved.

From ‘Does Not Meet Advisory Ideal’ to ‘Meets Advisory Ideal’.

166. *Are the steps for archiving and accessing historical roadway inventory documented?*

Does Not Meet Advisory Ideal

The State is not aware of any formal documentation for archiving and accessing historical roadway data.

Change Notes: Rating Unchanged.

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?*

Partially Meets Advisory Ideal

No requirements exist for the local jurisdictions on the collection or management of roadway data. However, the CDOT GIS Section maintains the HUTF WebHUT Application to enable updating of the local road inventory database by local government staff via the internet. By using this program to enter updates, local staff can avoid “marking up” database printouts with changes, and filling out “System Change Reports” for additions to their road system. The State is encouraged to develop a representative group of local and State roadway system safety stakeholders to develop the procedures used to collect, manage, and submit local agency roadway data to the enterprise roadway system under the oversight and support of the Colorado STRAC.

Change Notes: Rating Unchanged.

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

The local jurisdictions are required to submit their roadway data in a schema that is compatible with CDOT’s roadway inventory. The schema and the submittal process is controlled through the use of the WebHUT application.

Change Notes: Rating Unchanged.

169. *Are there guidelines for collection of data elements as they are described in the State roadway inventory data dictionary?*

Partially Meets Advisory Ideal

Colorado has a number of guidelines for the collection of roadway information data elements. Since the State does not have a detailed data dictionary for safety roadway data, the State is encouraged to create a data dictionary for the data elements currently being used to support safety analysis possibly





using MIRE as a guide. Once the safety roadway inventory is in place then formal guidelines for collection and management of the required data elements could be developed.

Change Notes: Rating Unchanged.

Intrastate Roadway System Interface

170. *Are the location coding methodologies for all State roadway information systems compatible?*

Does Not Meet Advisory Ideal

Currently CDOT has at least two location coding methodologies for all State roadway information systems. These systems are not directly compatible without considerable manual effort. Colorado DOT management has issued a directive that mandates all business systems must use and be able to relate to the CDOT Unified LRS. However, the CDOT Unified LRS is for State-maintained roadways only and is landmark-based which is not compliant with the LRS developed for all public roads which is length-based and meets MAP-21 requirements. The CDOT roadway management system project will be complete in the near future and at that time all LRS editing will take place in the new system. Unfortunately, it is anticipated that the legacy system will be supported for a period of time and translations will need to take place between the two systems until the new system can be fully implemented.

Change Notes: Rating Unchanged.

171. *Are there interface linkages connecting the State's discrete roadway information systems?*

Does Not Meet Advisory Ideal

While the State does not currently have interface linkages between different systems, it appears that there are several ongoing initiatives to connect systems in the future. The State is encouraged to make the interface linkages connecting the State's discrete roadway information systems a priority whenever possible.

Change Notes: Rating Unchanged.

172. *Are the location coding methodologies for all regional, local, and tribal roadway systems compatible?*

Does Not Meet Advisory Ideal

Colorado DOT has two LRS systems in place currently. One for State-maintained roadways and a separate one that covers all public roadways. The two CDOT linear referencing systems are not compatible; however, data can be translated between the two systems. In addition, several regional or municipal entities may have their own LRS that may or may not be compliant with the two Colorado DOT linear referencing systems.

Change Notes: Rating Unchanged.





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?*

Does Not Meet Advisory Ideal

Roadway data systems maintained by local custodians can submit data to the Colorado DOT enterprise roadway information system. This is achieved through the CDOT web application WebHUT. However, local custodians of data systems cannot truly interface with the CDOT systems, and there is not a high degree of interoperability in place mostly due to the lack of compatible location methodologies for local and State roads. As the ARNOLD project progresses and compatible location methodologies are implemented the processes should support improved interfaces with local and CDOT roadway systems.

Change Notes: Rating Unchanged.

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

CDOT has a public-facing web portal, the Online Transportation Information System (OTIS). This site appears to be a robust GIS-based portal that allows the public and local governments to access a variety of roadway and other information. Local governments are also able to download any of the data from CDOT and incorporate it into their own systems if they choose.

Change Notes: Rating Unchanged.

Data Quality Control Programs for the Roadway Data System

175. *Do Roadway system data managers regularly produce and analyze data quality reports?*

Partially Meets Advisory Ideal

The State has indicated that data quality reports are produced but not on a regular basis. The State is encouraged to develop processes to produce and analyze data quality reports as well as sharing the results with the Colorado STRAC.

Change Notes: Rating Unchanged.

176. *Is there a formal program of error/edit checking for data entered into the statewide roadway data system?*

Meets Advisory Ideal

Specific tools are in place that perform data review. Some of the items checked for are missing attribution, values out of range, mismatched values (i.e. value indicates no median, but there is a median width of 20 ft recorded), missing segments, missing records, incorrect chainage of LRS are just a few.

Change Notes: Rating Improved.

From 'Partially Meets Advisory Ideal' to 'Meets Advisory Ideal'.





177. *Are there procedures for prioritizing and addressing detected errors?*

Partially Meets Advisory Ideal

When errors are reported after a validation run those validation errors are corrected before any additional work is completed. The validations are run, corrected and run again until no more errors are reported. Prioritizing errors is done on a job by job basis. If time is limited there may be some edits that must take a priority and be completed while others may be less important and not require immediate attention.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially 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

While the State has described their procedure for providing feedback to data units, they have indicated that formal procedures are not documented. Additionally, the State did not provide any information regarding training as a result of the quality control process.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

179. *Are there timeliness performance measures tailored to the needs of data managers and data users?*

Does Not Meet Advisory Ideal

It was reported that timeliness performance measures are not in place because State and federal mandates control when data should be available. An example timeliness measure from the Model Performance Measures for State Traffic Records Systems is, "The median or mean number of days from (a) roadway project completion to (b) the date the updated critical data elements are entered into the roadway inventory file". The State might consider establishing such a performance measure, monitoring progress, and reporting the results to roadway system stakeholders.

Change Notes: Rating Unchanged.

180. *Are there accuracy performance measures tailored to the needs of data managers and data users?*

Does Not Meet Advisory Ideal

Colorado has not established accuracy performance measures. CDOT reported accuracy is based on our validation run and ensuring that we do not have any spatial or tabular validation errors in the data. Colorado might consider referring to NHTSA's Model Performance Measures for Traffic Records document to see if reported errors from the validation runs could be incorporated into accuracy performance measures.

Change Notes: Rating Unchanged.





181. *Are there completeness performance measures tailored to the needs of data managers and data users?*

Does Not Meet Advisory Ideal

The State indicated they do not have completeness performance measures.

Change Notes: Rating Unchanged.

182. *Are there uniformity performance measures tailored to the needs of data managers and data users?*

Does Not Meet Advisory Ideal

Colorado reported they have not established formal uniformity performance measures for their roadway data.

Change Notes: Rating Unchanged.

183. *Are there accessibility performance measures tailored to the needs of data managers and data users?*

Does Not Meet Advisory Ideal

Colorado reported they have not established formal accessibility performance measures for their roadway data. The State might consider developing accessibility performance measure from their OTIS system.

Change Notes: Rating Unchanged.

184. *Are there integration performance measures tailored to the needs of data managers and data users?*

Does Not Meet Advisory Ideal

Colorado reported they have not established formal integration performance measures for their roadway data. The State might consider creating integration performance measures as part of the ARNOLD project implementation and the discrete roadway information data sets are integrated.

Change Notes: Rating Unchanged.

185. *Has the State established numeric goals-performance metrics-for each performance measure?*

Does Not Meet Advisory Ideal

Colorado has not established numeric goals-performance metrics for their roadway data.

Change Notes: New Question.

186. *Are data quality management reports provided to the TRCC for regular review?*

Does Not Meet Advisory Ideal

Colorado does not provide roadway data quality management reports to the TRCC for regular review.

Change Notes: New Question.





Description and Contents of the Citation and Adjudication Data Systems

- 187.** *Is citation and adjudication data used for the prosecution of offenders; adjudication of cases; traffic safety analysis to identify problem locations, problem drivers, and issues related to the issuance of citations; and for traffic safety program planning purposes?*

Partially Meets Advisory Ideal

The Colorado State Police use citation data as part of the traffic safety analysis to identify problem locations for enforcement purposes to reduce fatal and injury crashes. It is unclear from the response how this data is used. Although the Colorado Judicial Branch does not use the data for prosecution as it is not their role, perhaps the information can be obtained through the State or District Attorney's Office. For example, is a defendant's citation/adjudication history available to prosecutors when disposing of the instant case. A response re: Traffic Safety Program Planning is missing. There may be other respondents who would be able to answer that aspect of the question for the State.

Change Notes: Rating Unchanged.

- 188.** *Is there a statewide authority that assigns unique citation numbers?*

Does Not Meet Advisory Ideal

In Colorado, each law enforcement agency assigns citations unique numbers. The State does not have a statewide authority that assigns unique citation numbers.

Change Notes: Rating Unchanged.

- 189.** *Are all citation dispositions-both within and outside the judicial branch-tracked by a statewide citation tracking system?*

Partially Meets Advisory Ideal

The Colorado Department of Motor Vehicles maintains the statewide citation tracking system within a system referred to as DRIVES. The Colorado Judicial Branch sends all dispositions on cases adjudicated within judicial to the department of motor vehicles, with municipal courts reporting convictions only.

Change Notes: Rating Unchanged.

- 190.** *Are final dispositions (up to and including the resolution of any appeals) posted to the driver data system?*

Partially Meets Advisory Ideal

The judiciary sends citation dispositions to the Department of Motor Vehicles daily by SFTP. Some local courts may also send paper records to DMV. Records sent electronically are also electronically





posted to the driver record, except for errors. Those submitted on paper are entered manually. The percentage of each was not provided.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

191. *Are the courts' case management systems interoperable among all jurisdictions within the State (including tribal, local, municipal, and State)?*

Partially Meets Advisory Ideal

While 63 of 64 county courts are reported to use the State's case management system, most municipal courts do not and the systems are seemingly not interoperable.

Change Notes: Rating Unchanged.

192. *Is there a statewide system that provides real-time information on individuals' driving and criminal histories?*

Meets Advisory Ideal

The Colorado Bureau of Investigation provides real-time information on an individual's criminal history to law enforcement. The Colorado Department of Motor Vehicles is housed within the Colorado Department of Revenue and provides real-time information on driving histories to law enforcement.

Change Notes: Rating Unchanged.

193. *Do all law enforcement agencies, parole agencies, probation agencies, and courts within the State participate in and have access to a system providing real-time information on individuals driving and criminal histories?*

Partially Meets Advisory Ideal

Driver histories are available through real-time access to the Department of Motor Vehicles' DRIVES system. Criminal histories are available through CBI's CCIC system. There does not appear to be a single access system for these records. Background checks are required for access to each system. Law enforcement did not respond to this question and it is not clear if all law enforcement officers have access to DRIVES and CCIC from their cars or whether they go through dispatch or some other mechanism.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

Applicable Guidelines and Participation in National Data Exchange Systems for the Citation and Adjudication Systems

194. *Are DUI convictions and traffic-related felonies reported according to Uniform Crime Reporting (UCR) guidelines?*

Meets Advisory Ideal





The Colorado State Police and all other law enforcement agencies submit DUI and other traffic felonies originating with their agency to the Colorado Bureau of Investigation; the data collected by CSP complies with the data requirements. The CBI submits these to the FBI according to the guidelines.

Change Notes: Rating Improved.

From 'Partially Meets Advisory Ideal' to 'Meets Advisory Ideal'.

195. *Do the appropriate portions of the citation and adjudication systems adhere to the NIEM Justice domain guidelines?*

Partially Meets Advisory Ideal

Some portions of the citation and adjudication systems are NIEM compliant. NIEM standards are in place for CICJIS connections. CICJIS is the data hub for criminal cases which transfers information to other criminal justice agencies.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

196. *Does the State use any National Center for State Courts (NCSC) guidelines for court records?*

Meets Advisory Ideal

The State utilizes the National Center for State Courts Courtool Guidelines for court records.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

Data Dictionary for the Citation and Adjudication Data Systems

197. *Does the statewide citation tracking system have a data dictionary?*

Does Not Meet Advisory Ideal

The State did not provide a data dictionary for the citation tracking system. The State considers its driver system its citation tracking system, and indicated that a data dictionary is contained within DRIVES. However, the attachment provided by the State is a list of citations authorized by regulation, which is not a data dictionary. Please see the Traffic Records Assessment Advisory for a description of a data dictionary.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.

198. *Do the courts' case management system data dictionaries provide a definition for each data field?*

Does Not Meet Advisory Ideal

The State's court system includes a data base of all meta data. This documentation was not provided. The screen shot provided from the courts case management system is insufficient as a data dictionary. A data dictionary includes a description of each field, acceptable values, an indication if





a field is required or not, length of field, expected format, and dependencies or linkages to other data sources, for example.

Change Notes: Rating Unchanged.

199. *Do the citation data dictionaries clearly define all data fields?*

Does Not Meet Advisory Ideal

The documentation provided appears to be the data fields that are transmitted by the courts to the DMV daily. Although this has some components common in a data dictionary, the two things are different. Please see the Traffic Records Assessment Advisory for more information on data dictionaries.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.

200. *Do the courts' case management system data dictionaries clearly define all data fields?*

Does Not Meet Advisory Ideal

The documentation provided in previous responses are not data dictionaries for the courts case management system. No additional documentation was provided for this question, and the State indicates they cannot share because of strict policies.

Change Notes: Rating Unchanged.

201. *Are the citation system data dictionaries up-to-date and consistent with the field data collection manual, training materials, coding manuals, and corresponding reports?*

Does Not Meet Advisory Ideal

The State indicates its citation system (DRIVES) data dictionary is updated as changes are made in DRIVES, which is at least annually. A narrative or documentation explaining how and when associated training or procedures manuals are updated to comport with the data dictionary changes was not provided. The emphasis of this question is on the consistency between the data fields and the manuals and training of those collecting the data.

Change Notes: Rating Changed.

From 'Partially Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.

202. *Do the citation data dictionaries indicate the data fields that are populated through interfaces with other traffic records system components?*

Does Not Meet Advisory Ideal

The State citation data dictionaries do not indicate the data fields populated through interfaces with other traffic records system components; however the file will indicate if the case was transmitted electronically.

Change Notes: Rating Unchanged.





203. *Do the courts' case management system data dictionaries indicate the data fields populated through interface linkages with other traffic records system components?*

Does Not Meet Advisory Ideal

The State maintains that it cannot release court data dictionary details. The documentation provided in previous questions does not indicate which data fields for the courts case management system are populated through interfaces with other data sources. It appears that the documentation provided is the agreement of data fields submitted in its daily transmission from the courts to the DMV. This is not a data dictionary, nor is this data transfer the same as linking data sources. Data linkages might be, for example, if the court staff entered a driver license number in the case management system and that number is then used to link to the driver record system maintained by DMV and pulls back the associated name, address, or even simply validates that the data entered by the courts matches that of the driver system.

Change Notes: Rating Unchanged.

Procedures and Process Flows for the Citation and Adjudication Data Systems

204. *Does the State track citations from point of issuance to posting on the driver file?*

Partially Meets Advisory Ideal

The State does not have a single citation tracking system from point of issuance, as each law enforcement agency manages its own citations. Once citations are submitted to the courts, they are tracked through to adjudication (by the court) and posting on the driver record (by the DMV). Please consider providing a flow chart showing transmittal and indicating whether any citations are electronically issued and if citation data is electronically submitted to the court by the law enforcement agencies or manually submitted via paper citations.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

205. *Does the State distinguish between the administrative handling of court payments in lieu of court appearances (mail-ins) and court appearances?*

Meets Advisory Ideal

The State distinguishes between the administrative handling of court payments in lieu of court appearances (mail-ins) and court appearances.

Change Notes: Rating Improved.

From 'Partially Meets Advisory Ideal' to 'Meets Advisory Ideal'.

206. *Does the State have a system for tracking administrative driver penalties and sanctions?*

Meets Advisory Ideal

The State's DMV records and tracks administrative sanctions through DRIVES. The Driver License System calculates administrative sanctions each night based on new citation or conviction data that would trigger an administrative sanction.





Change Notes: Rating Unchanged.

207. *Does the State track the number and types of traffic citations for juvenile offenders?*

Partially Meets Advisory Ideal

The court does not track citations based on age, although the court's case management system is capable of generating this information.

Change Notes: Rating Unchanged.

208. *Are deferrals and dismissals tracked by the court case management systems or on the driver history record (DHR) to insure subsequent repeat offenses are not viewed as first offenses?*

Partially Meets Advisory Ideal

Deferrals and dismissals are tracked by the court case management systems but not always on the driver history record (DHR). Dismissed citations and successful deferrals are not sent to the Department of Motor Vehicles.

Change Notes: Rating Unchanged.

209. *Are there State and/or local criteria for deferring or dismissing traffic citations and charges?*

Does Not Meet Advisory Ideal

The State did not articulate any State and/or local criteria for deferring or dismissing traffic citations and charges.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.

210. *Are the processes for retaining, archiving or purging citation records defined and documented?*

Partially Meets Advisory Ideal

The courts maintain electronic case files permanently and have a documented records retention schedule for paper files. DOR states that citation records are kept 41 days before being destroyed or returned to the court. DOR's response did not appear to consider electronic records retention - when citations are entered on the driving record, it is not clear if they are permanently retained or purged based on certain criteria.

Change Notes: Rating Unchanged.

211. *Are there security protocols governing data access, modification, and release in the adjudication system?*

Meets Advisory Ideal

The State has documented security protocols governing data access, modification, and release in the adjudication system.

Change Notes: Rating Unchanged.





212. *Does the State have an impaired driving data tracking system that uses some or all the data elements or guidelines of NHTSA's Model Impaired Driving Records Information System (MIDRIS), which provides a central point of access for DUI Driver information from the time of the stop/arrest through adjudication, sanctions, rehabilitation, prosecution and posting to the driver history file?*

Does Not Meet Advisory Ideal

While the Department of Revenue indicates that there is tracking of administrative actions, the narrative does not explain how that is done, what the data components include, or whether criminal DUI charges and convictions are tracked.

Change Notes: Rating Unchanged.

213. *Does the DUI tracking system include BAC and any drug testing results?*

Does Not Meet Advisory Ideal

The Department of Revenue collects BAC, although no evidence of that collection was provided. DOR states that drugs are not captured in its system. Again, it is not explained what system tracks this information for DOR.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.

Citation and Adjudication Systems Interface with Other Components

214. *Does the citation system interface with the driver system to collect driver information to help determine the applicable charges?*

Partially Meets Advisory Ideal

The State considers DRIVES its citation tracking system as well as its driver license system. Based on previous responses, DRIVES runs nightly jobs to identify new citation or adjudication data that might trigger administrative sanctions, including points. No documentation was provided.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

215. *Does the citation system interface with the vehicle system to collect vehicle information and carry out administrative actions (e.g., vehicle seizure, forfeiture, interlock)?*

Partially Meets Advisory Ideal

The State's DRIVES system includes citation, driver, and vehicle data. Based on previous responses, one could infer that the vehicle information is used in nightly processes to apply interlock and other vehicle sanctions based on new citation or adjudication data. This is not clearly explained, however, nor is documentation attached.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.





216. *Does the citation system interface with the crash system to document violations and charges related to the crash?*

Partially Meets Advisory Ideal

Crash data is also contained within DRIVES.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

217. *Does the adjudication system interface with the driver system to post dispositions to the driver file?*

Meets Advisory Ideal

Based on previous responses, the courts do transmit dispositions to the DMV daily by SFTP. This electronic data is posted electronically to the driver record, and errors are returned to the court electronically for correction.

Change Notes: New Question.

218. *Does the adjudication system interface with the vehicle system to collect vehicle information and carry out administrative actions (e.g., vehicle seizure, forfeiture, interlock mandates, and supervision)?*

Does Not Meet Advisory Ideal

The adjudication system does not interface with the vehicle system.

Change Notes: Rating Unchanged.

219. *Does the adjudication system interface with the crash system to document violations and charges related to the crash?*

Partially Meets Advisory Ideal

The court's case management system interfaces with DRIVES, which contains the crash system. According to DOR, various applications within the system indicate crash data. The court transmits files to DOR nightly and those files update DRIVES. Although it is not fully explained, it appears that nightly batch jobs may also update crash data.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Partially Meets Advisory Ideal'.

Quality Control Programs for the Citation and Adjudication Systems

220. *Are there timeliness performance measures tailored to the needs of citation systems managers and data users?*

Does Not Meet Advisory Ideal

The State did not articulate any timeliness performance measures tailored to the needs of citation systems managers and data users, although the response indicates performance metrics and goals





exist.

Change Notes: Rating Unchanged.

221. *Are there accuracy performance measures tailored to the needs of citation systems managers and data users?*

Does Not Meet Advisory Ideal

The State did not provide a performance measure. An example performance measure for citation timeliness might be the duration between the date of citation issuance and the date of receipt of the citation by the court. It appears that this type of measures is contemplated in the State's Traffic Records Strategic Plan.

Change Notes: Rating Unchanged.

222. *Are there completeness performance measures tailored to the needs of citation systems managers and data users?*

Does Not Meet Advisory Ideal

The State did not articulate a completeness performance measure.

Change Notes: Rating Unchanged.

223. *Are there uniformity performance measures tailored to the needs of citation systems managers and data users?*

Does Not Meet Advisory Ideal

The State did not provide a performance measure. An example performance measure for citation uniformity might be whether all required data fields are included for all citations provided to the court or Department of Revenue, or whether certain data fields, regardless of issuing agency, contain a valid set of responses.

Change Notes: Rating Unchanged.

224. *Are there integration performance measures tailored to the needs of citation systems managers and data users?*

Does Not Meet Advisory Ideal

The State did not provide a performance measure. A citation integration performance measure might include a reference to the collection of data from original data sources, for example, the number or percentage of citations where driver license information is imported directly from the driver record/license.

Change Notes: Rating Unchanged.

225. *Are there accessibility performance measures tailored to the needs of citation systems managers and data users?*

Does Not Meet Advisory Ideal

The State did not articulate an accessibility performance measure.





Change Notes: Rating Unchanged.

226. *Has the State established numeric goals-performance metrics-for each citation system performance measure?*

Does Not Meet Advisory Ideal

The State did not provide the specific, State-determined numeric goals associated with each performance measure in use. The respondent may have misinterpreted this question. Please note that this question references targets or metrics specific to established system performance measures.

Change Notes: New Question.

227. *Are there timeliness performance measures tailored to the needs of adjudication systems managers and data users?*

Partially Meets Advisory Ideal

The Judicial Branch uses Courttools Time to Disposition standards to measure our data is within the timeliness standards suggested by the National Center for State Courts. Statute (18-1-405) provides that a trial must be held within 6 months of the entry of a not guilty plea by the defendant. The most current baseline and actual values were not provided.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

228. *Are there accuracy performance measures tailored to the needs of adjudication systems managers and data users?*

Does Not Meet Advisory Ideal

The State did not articulate an accuracy performance measure tailored to the needs of adjudication systems managers and data users, although the response indicates these performance measures exist. There appears to be a fairly robust system in place to audit the records therefore it would appear a performance measure in accuracy could be developed and tracked relatively easily.

Change Notes: Rating Changed.

From 'Partially Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.

229. *Are there completeness performance measures tailored to the needs of adjudication systems managers and data users?*

Does Not Meet Advisory Ideal

The State did not articulate a completeness performance measure, tailored to the needs of adjudication systems managers and data users, although the response indicates performance measures exist.

Change Notes: Rating Unchanged.





230. *Are there uniformity performance measures tailored to the needs of adjudication systems managers and data users?*

Does Not Meet Advisory Ideal

The State did not articulate a uniformity performance measure tailored to the needs of adjudication systems managers and data users.

Change Notes: New Question.

231. *Are there integration performance measures tailored to the needs of adjudication systems managers and data users?*

Does Not Meet Advisory Ideal

The State did not articulate an integration performance measures tailored to the needs of adjudication systems managers and data users.

Change Notes: Rating Changed.

From 'Partially Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.

232. *Are there accessibility performance measures tailored to the needs of adjudication systems managers and data users?*

Does Not Meet Advisory Ideal

The State did not articulate an accessibility performance measure tailored to the needs of adjudication systems managers and data users.

Change Notes: New Question.

233. *Has the State established numeric goals-performance metrics-for each adjudication system performance measure?*

Does Not Meet Advisory Ideal

The State has not articulated any established numeric goals-performance metrics-for each adjudication system performance measure.

Change Notes: New Question.

234. *Does the State have performance measures for its DUI Tracking system?*

Does Not Meet Advisory Ideal

The State does not have performance measures for a DUI tracking system. It is not clear if the State has a DUI tracking system.

Change Notes: Rating Unchanged.

235. *Are sample-based audits conducted periodically for citations and related database content for that record?*

Meets Advisory Ideal

The State performs sample-based audits periodically.

Change Notes: New Question.





236. *Are data quality management reports provided to the TRCC for regular review?*

Does Not Meet Advisory Ideal

Data quality management reports are not provided to the TRCC for regular review.

Change Notes: New Question.

Injury Surveillance System

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?*

Meets Advisory Ideal

The Colorado Department of Public Health and Environment (CDPHE) produces an annual report, called Injury in Colorado, that includes injuries from traffic using emergency department, hospital discharge, and vital records data. The Injury in Colorado report will be updated in the winter of 2019 using 2016-2018 data.

Change Notes: New Question.

238. *Are there any other statewide databases that are used to quantify the burden of motor vehicle injury?*

Meets Advisory Ideal

The CDPHE's Child Fatality Prevention System uses a combination of vital records data, hospitalization data, EMS reports, coroner reports, child protective services reports, and other source documents. Traffic crashes are a circumstance that is investigated as part of that project.

Change Notes: Rating Unchanged.

239. *Do the State's privacy laws allow for the use of protected health information to support data analysis activities?*

Meets Advisory Ideal

The CDPHE has the authority to use protected health information for the purpose of public health activities, including data analyses for injury surveillance. CDPHE is defined as a public health authority and as such may use protected health information data for program purposes. Access to other agencies is available with proper Institutional Review Board approval.

Change Notes: New Question.

Emergency Medical Systems (EMS) Description and Contents

240. *Is there a statewide EMS database?*

Meets Advisory Ideal

All licensed agencies are required to submit patient care reports to the CDPHE Emergency Medical





and Trauma Services (EMTS) branch. That system serves as the statewide EMS database.

Change Notes: Rating Improved.

From ‘Partially Meets Advisory Ideal’ to ‘Meets Advisory Ideal’.

241. *Does the EMS data track the frequency, severity, and nature of injuries sustained in motor vehicle crashes in the State?*

Partially Meets Advisory Ideal

The EMS data tracks the frequency and nature of injuries sustained in motor vehicles crashes through the use of ICD-10 codes. Other than through the use of the Trauma Triage Criteria and pain assessment, severity is not calculated as part of the ePCR.

Change Notes: Rating Unchanged.

242. *Is the EMS data available for analysis and used to identify problems, evaluate programs, and allocate resources?*

Meets Advisory Ideal

The Regional Emergency Medical and Trauma Advisory Councils regularly use EMS data for problem identification, resource allocation, and program evaluation. EMS data have also been used to support legislative activities such as advocating for a primary seat belt law.

Change Notes: Rating Unchanged.

EMS - Guidelines

243. *Does the State have a NEMSIS-compliant statewide database?*

Meets Advisory Ideal

The statewide EMS database is NEMSIS-compliant and submissions to the national database are completed by the vendor, ImageTrend.

Change Notes: Rating Unchanged.

EMS – Data Dictionary

244. *Does the EMS system have a formal data dictionary?*

Meets Advisory Ideal

Colorado requires all NEMSIS elements, with no additional State-specific fields, and uses the national data dictionary.

Change Notes: Rating Unchanged.

EMS – Procedures & Processes





245. *Is there a single entity that collects and compiles data from the local EMS agencies?*

Meets Advisory Ideal

The EMS reporting system is managed by the Emergency Medical and Trauma Services (EMTS) Branch in the Colorado Department of Public Health and Environment (CDPHE) Health Facilities Emergency Medical Services division.

Change Notes: Rating Unchanged.

246. *Is aggregate EMS data available to outside parties (e.g., universities, traffic safety professionals) for analytical purposes?*

Meets Advisory Ideal

Aggregate EMS data are available upon request, which is reviewed internally by the EMTS data manager and CDPHE EMTS Branch staff to ensure all confidentiality requirements are met.

Change Notes: Rating Unchanged.

247. *Are there procedures in place for the submission of all EMS patient care reports to the Statewide EMS database?*

Meets Advisory Ideal

Only electronic patient care reports are accepted into the State system, either transmitted directly using ImageTrend software or through a third-party vendor upload.

Change Notes: Rating Unchanged.

248. *Are there procedures for returning data to the reporting EMS agencies for quality assurance and improvement (e.g., correction and resubmission)?*

Partially Meets Advisory Ideal

Errors identified during the submission process are shared with the agency through email feedback reports. On a quarterly basis, quality control reports are provided to the Regional EMS and Trauma Advisory Councils (RETAC) for agency-specific outreach and improvement.

Change Notes: Rating Unchanged.

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

Automated checks and validation rules have been documented and are incorporated into the data review process.

Change Notes: Rating Unchanged.





250. *Are there processes for returning rejected EMS patient care reports to the collecting entity and tracking resubmission to the statewide EMS database?*

Meets Advisory Ideal

The EMTS branch created a weekly report that shows which reports have failed and for what reason. This report is delivered via email to the affected agencies. If necessary, a follow-up call is made to the agency to insure the issue is resolved and the rejected report was properly resubmitted.

Change Notes: Rating Improved.

From 'Partially Meets Advisory Ideal' to 'Meets Advisory Ideal'.

251. *Are there timeliness performance measures tailored to the needs of EMS system managers and data users?*

Partially Meets Advisory Ideal

Electronic patient care reports are required to be submitted to CDPHE within 60 days of patient contact. A report is generated that tracks the number of hours taken to submit reports to CDPHE. There is no performance measure with a baseline, timeframe, and goal against which the system may be evaluated regularly.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

252. *Are there accuracy performance measures tailored to the needs of EMS system managers and data users?*

Does Not Meet Advisory Ideal

Quality reports are available, but there is no performance measure with a baseline, timeframe, and goal against which the system may be evaluated regularly.

Change Notes: Rating Unchanged.

253. *Are there completeness performance measures tailored to the needs of EMS system managers and data users?*

Partially Meets Advisory Ideal

Validity measure reports are produced quarterly, but there is no documented performance measure with a baseline, timeframe, and goal against which the system may be evaluated regularly.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Partially Meets Advisory Ideal'.

254. *Are there uniformity performance measures tailored to the needs of EMS system managers and data users?*

Does Not Meet Advisory Ideal

There were no uniformity measures available to review.

Change Notes: Rating Changed.

From 'Meets Advisory Ideal' to 'Does Not Meet Advisory Ideal'.





255. *Are there integration performance measures tailored to the needs of EMS system managers and data users?*

Does Not Meet Advisory Ideal

Colorado does not have a performance measure related to integration that would allow the State to track their ability to integrate EMS data with other traffic records data systems.

Change Notes: Rating Unchanged.

256. *Are there accessibility performance measures tailored to the needs of EMS system managers and data users?*

Does Not Meet Advisory Ideal

Colorado does not maintain a performance measure related to the accessibility of EMS data.

Change Notes: Rating Unchanged.

257. *Has the State established numeric goals-performance metrics-for each EMS system performance measure?*

Partially Meets Advisory Ideal

While not established as performance measures, goals have been set for the State's timeliness, accuracy, and completeness. The inclusion of baseline metrics and periodic updates will allow the State to accurately track the health of data collection systems.

Change Notes: Rating Unchanged.

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

Quality control reviews are not being conducted on EMS data.

Change Notes: Rating Unchanged.

259. *Are periodic comparative and trend analyses used to identify unexplained differences in the EMS data across years and agencies?*

Meets Advisory Ideal

Trend analyses are conducted quarterly and shared with the regional coordinators to improve data quality and address any gaps.

Change Notes: Rating Unchanged.

260. *Is data quality feedback from key users regularly communicated to EMS data collectors and data managers?*

Meets Advisory Ideal

There is a structured feedback loop that the EMTS data team has built using bi-monthly meetings with agencies, data collectors, and software vendors.

Change Notes: Rating Improved.





From 'Partially Meets Advisory Ideal' to 'Meets Advisory Ideal'.

261. *Are EMS data quality management reports produced regularly and made available to the State TRCC?*

Does Not Meet Advisory Ideal

EMS data quality reports are not regularly provided to the Traffic Records Coordinating Committee.

Change Notes: Rating Unchanged.

Emergency Department - System Description

262. *Is there a statewide emergency department (ED) database?*

Meets Advisory Ideal

The Colorado Hospital Association (CHA) manages the statewide emergency department data system and the CDPHE subsequently purchases those data.

Change Notes: Rating Unchanged.

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

Emergency department data include frequency, principal diagnosis (nature of injury), and the external cause codes as recorded using ICD-10. Severity, in the form of AIS or ISS scores, is not calculated or tracked.

Change Notes: Rating Unchanged.

264. *Is the emergency department data available for analysis and used to identify problems, evaluate programs, and allocate resources?*

Meets Advisory Ideal

The Violence and Injury Prevention Mental Health Promotion Branch at CDPHE produces an annual report each year that includes emergency department data in addition to data from death and hospitalization records.

Change Notes: Rating Unchanged.

Emergency Department – Data Dictionary

265. *Does the emergency department dataset have a formal data dictionary?*

Meets Advisory Ideal

The Colorado Hospital Association has developed a data dictionary for the emergency department data system.





Change Notes: Rating Unchanged.

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

The Colorado Hospital Association maintains the State's emergency department database.

Change Notes: Rating Unchanged.

267. *Is aggregate emergency department data available to outside parties (e.g., universities, traffic safety professionals) for analytical purposes?*

Meets Advisory Ideal

Aggregate data may be obtained through the CDPHE once a request has been submitted and approved.

Change Notes: Rating Unchanged.

Hospital Discharge – System Description

268. *Is there a statewide hospital discharge database?*

Meets Advisory Ideal

The CHA manages the statewide hospital discharge data system and the CDPHE subsequently purchases those data.

Change Notes: Rating Unchanged.

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

The State's hospital discharge data are used to track the frequency and nature of injury. However, Abbreviated Injury Scale (AIS) and Injury Severity Scores (ISS) are not calculated.

Change Notes: Rating Unchanged.

270. *Is the hospital discharge data available for analysis and used to identify problems, evaluate programs, and allocate resources?*

Meets Advisory Ideal

The Violence and Injury Prevention Mental Health Promotion Branch at CDPHE produces an annual report that includes hospital discharge data in addition to data from death and emergency department records. Additionally, the Colorado Problem Identification Report contains hospital discharge data related to motor vehicle injuries.





Change Notes: Rating Unchanged.

Hospital Discharge – Data Dictionary

271. *Does the hospital discharge dataset have a formal data dictionary?*

Meets Advisory Ideal

The CHA has developed a data dictionary for the hospital discharge data system.

Change Notes: Rating Unchanged.

Hospital Discharge – Procedures & Processes

272. *Is there a single entity that collects and compiles data on hospital discharges from individual hospitals?*

Meets Advisory Ideal

The CHA maintains the State's hospital discharge database.

Change Notes: Rating Unchanged.

273. *Is aggregate hospital discharge data available to outside parties (e.g., universities, traffic safety professionals) for analytical purposes?*

Meets Advisory Ideal

Aggregate data may be obtained through the CDPHE once a request has been submitted and approved.

Change Notes: Rating Unchanged.

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?*

Does Not Meet Advisory Ideal

Neither AIS or ISS scores are included in the emergency or hospital discharge data nor are they calculated using the ICD-10 codes contained in each.

Change Notes: Rating Unchanged.

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

There are submission procedures and rules established by the Colorado Hospital Association for the hospital discharge system but not the emergency department system.

Change Notes: Rating Unchanged.

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

Edit checks and validation rules for the emergency department and hospital discharge data systems have been documented by the CHA.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to '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

The Colorado Hospital Association (CHA) has developed processes for returning rejected emergency department and hospital discharge records to hospitals and instructions on how these reports may be resubmitted CHA. The CHA's iCHART data submission guide describes these processes.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to '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?*

Does Not Meet Advisory Ideal

The Colorado Hospital Association did not provide a timeliness performance measure related to the hospital data systems.

Change Notes: Rating Unchanged.

279. *Are there accuracy performance measures tailored to the needs of emergency department and/or hospital discharge database managers and data users?*

Does Not Meet Advisory Ideal

Quality reports are available, but there is no accuracy performance measure with a baseline,





timeframe, and goal against which the system may be regularly evaluated.

Change Notes: Rating Unchanged.

280. *Are there completeness performance measures tailored to the needs of emergency department and/or hospital discharge database managers and data users?*

Does Not Meet Advisory Ideal

Quality reports are available, but there is no completeness performance measure with a baseline, timeframe, and goal against which the system may be regularly evaluated.

Change Notes: Rating Unchanged.

281. *Are there uniformity performance measures tailored to the needs of emergency department and/or hospital discharge database managers and data users?*

Does Not Meet Advisory Ideal

The Colorado Hospital Association did not provide a metric to track uniformity in the State's hospital data systems.

Change Notes: Rating Unchanged.

282. *Are there integration performance measures tailored to the needs of emergency department and/or hospital discharge database managers and data users?*

Does Not Meet Advisory Ideal

The Colorado Hospital Association did not provide information related to integration performance measures used for the State's hospital data systems.

Change Notes: Rating Unchanged.

283. *Are there accessibility performance measures tailored to the needs of emergency department and/or hospital discharge database managers and data users?*

Does Not Meet Advisory Ideal

The Colorado Hospital Association did not provide information on a performance measure to track the State's accessibility of the hospital data systems.

Change Notes: Rating Unchanged.

284. *Has the State established numeric goals-performance metrics-for each emergency department and/or hospital discharge database performance measure?*

Does Not Meet Advisory Ideal

Due to the data being managed by a private entity, there are no known data quality performance measures or associated metrics.

Change Notes: Rating Unchanged.





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

Quality control reviews are conducted through system management by the CHA and also by the CDPHE as part of special studies. The CHA, CDPHE, and the Colorado Health Information Management Association have combined meetings where data quality issues are discussed.

Change Notes: Rating Improved.
From ‘Partially Meets Advisory Ideal’ to ‘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

The CDPHE is a key user of the emergency department and hospital discharge data systems and regularly shares data quality feedback with the Colorado Hospital Association. An annual meeting is held to share information, address issues, and conduct analyses using hospital discharge and emergency department data.

Change Notes: Rating Unchanged.

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

Quality reports are regularly created and sent to data submitters and editors, but the information is not shared with the TRCC.

Change Notes: Rating Unchanged.

Trauma Registry – System Description

288. *Is there a statewide trauma registry database?*

Meets Advisory Ideal

All designated trauma centers are required to submit to the statewide trauma registry housed at the EMTS branch of the CDPHE.

Change Notes: Rating Unchanged.

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

It is possible to track the frequency, nature, and severity of crash-related injuries in the trauma registry.

Change Notes: Rating Improved.
From ‘Does Not Meet Advisory Ideal’ to ‘Meets Advisory Ideal’.





290. *Is the trauma registry data available for analysis and used to identify problems, evaluate programs, and allocate resources?*

Meets Advisory Ideal

Trauma registry data are regularly used to identify problems and allocate resources; Level I and II trauma centers are required to support injury prevention activities. Most notably, the registry is used during trauma designation site reviews.

Change Notes: Rating Unchanged.

Trauma Registry – Guidelines

291. *Does the State's trauma registry database adhere to the National Trauma Data Standards?*

Meets Advisory Ideal

Colorado's trauma registry database includes NTDS data elements as well as some additional data elements specifically included for the State.

Change Notes: Rating Unchanged.

292. *Are AIS and ISS derived from the State trauma registry for motor vehicle crash patients?*

Meets Advisory Ideal

All patient records in the trauma registry contain AIS codes and calculated ISS values, which have been used to evaluate traffic crash-related injuries.

Change Notes: Rating Improved.

From 'Partially Meets Advisory Ideal' to 'Meets Advisory Ideal'.

Trauma Registry – Data Dictionary

293. *Does the trauma registry have a formal data dictionary?*

Meets Advisory Ideal

A comprehensive data dictionary has been developed for the trauma registry in Colorado.

Change Notes: Rating Unchanged.

Trauma Registry – Procedures & Processes

294. *Is aggregate trauma registry data available to outside parties (e.g., universities, traffic safety professionals) for analytical purposes?*

Meets Advisory Ideal

Aggregate trauma registry data is available upon request and approval by the CDPHE.





Change Notes: Rating Unchanged.

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

Validation reports are shared with submitting facilities weekly and compliance reports provide a monthly summary of any database issues.

Change Notes: Rating Improved.

From 'Partially Meets Advisory Ideal' to '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

Validation rules for the trauma registry data have been developed and documented for all users.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

297. *Are there timeliness performance measures tailored to the needs of trauma registry managers and data users?*

Does Not Meet Advisory Ideal

Quality reports are available, but no performance measures with a baseline, timeframe, and goal have been developed.

Change Notes: Rating Unchanged.

298. *Are there accuracy performance measures tailored to the needs of trauma registry managers and data users?*

Does Not Meet Advisory Ideal

Quality reports are available, but no performance measures with a baseline, timeframe, and goal have been developed.

Change Notes: Rating Unchanged.

299. *Are there completeness performance measures tailored to the needs of trauma registry managers and data users?*

Does Not Meet Advisory Ideal

Quality reports are available, but no performance measures with a baseline, timeframe, and goal have been developed.

Change Notes: Rating Unchanged.





300. *Are there uniformity performance measures tailored to the needs of trauma registry managers and data users?*

Does Not Meet Advisory Ideal

Quality reports are available, but no performance measures with a baseline, timeframe, and goal have been developed.

Change Notes: Rating Unchanged.

301. *Are there integration performance measures tailored to the needs of trauma registry managers and data users?*

Does Not Meet Advisory Ideal

Quality reports are available, but no performance measures with a baseline, timeframe, and goal have been developed.

Change Notes: Rating Unchanged.

302. *Are there accessibility performance measures tailored to the needs of trauma registry managers and data users?*

Does Not Meet Advisory Ideal

Quality reports are available, but no performance measures with a baseline, timeframe, and goal have been developed.

Change Notes: Rating Unchanged.

303. *Has the State established numeric goals-performance metrics-for each trauma registry performance measure?*

Does Not Meet Advisory Ideal

There are several reporting requirements, but no performance measures with a baseline, timeframe, and goal metrics.

Change Notes: Rating Unchanged.

304. *Are quality control reviews conducted to ensure the completeness, accuracy, and uniformity of injury data in the trauma registry?*

Meets Advisory Ideal

Facility-specific reports including completeness and accuracy feedback are provided weekly.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to 'Meets Advisory Ideal'.

305. *Is data quality feedback from key users regularly communicated to trauma registry data collectors and data managers?*

Meets Advisory Ideal

Quarterly meetings are held with CDPHE and trauma registry personnel to discuss any changes in





the system and data quality issues.

Change Notes: Rating Unchanged.

306. *Are trauma registry data quality management reports produced regularly and made available to the State TRCC?*

Does Not Meet Advisory Ideal

Data quality management reports are not regularly provided to the TRCC.

Change Notes: Rating Unchanged.

Vital Records – System Description

307. *Is there a statewide vital records database?*

Meets Advisory Ideal

The Office of the State Registrar of Vital Statistics in the CDPHE maintains the statewide vital records data system.

Change Notes: Rating Unchanged.

308. *Does the vital records data track the occurrence of motor vehicle fatalities in the State?*

Meets Advisory Ideal

Traffic crash fatalities are tracked in the vital records data system and that information is regularly shared with the Colorado FARS team to improve system accuracy.

Change Notes: Rating Unchanged.

309. *Is the vital records data available for analysis and used to identify problems, evaluate programs, and allocate resources?*

Meets Advisory Ideal

Aggregate and individual-level, de-identified vital records data are available for analysis. It is also shared with partners for use in the study of motor vehicle fatalities, to develop prevention programs, and identify needed resources. Vital records data were used to support tightening of the State's GDL law in 2004.

Change Notes: Rating Unchanged.

Vital Records – Data Dictionary

310. *Does the vital records system have a formal data dictionary?*

Meets Advisory Ideal

Although considered proprietary, there is a data dictionary for the Colorado Electronic Death Registration System that is based on the 2003 Revision of the US Standard Certificate of Death.





Change Notes: Rating Unchanged.

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

Summary aggregate data are available through the Colorado Health Information Dataset and record-level datasets are available upon request and CDPHE approval.

Change Notes: Rating Unchanged.

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

Edit checks and validation rules are run against data at the point of submission, including the import process for death data received from other States, and also after the records have been processed by the National Center for Health Statistics.

Change Notes: Rating Unchanged.

313. *Are quality control reviews conducted to ensure the completeness, accuracy, and uniformity of injury data in the vital records?*

Meets Advisory Ideal

As with all States' electronic death reporting systems, Colorado's vital records works closely with the Centers for Disease Control and Prevention to conduct quality reviews of fatality data and to calculate error rates for the State which are compared to national standards.

Change Notes: Rating Improved.

From 'Does Not Meet Advisory Ideal' to '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

Data quality reports are not regularly provided to the TRCC, but may be upon request.

Change Notes: Rating Unchanged.

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

No interface has been established between the State's EMS and hospital data systems.

Change Notes: Rating Unchanged.

316. *Is there an interface between the EMS data and the trauma registry data?*

Does Not Meet Advisory Ideal

No interface has been established between the State's EMS and trauma registry data systems.

Change Notes: Rating Unchanged.

Data Use and Integration

317. *Do behavioral program managers have access to traffic records data and analytic resources for problem identification, priority setting, and program evaluation?*

Meets Advisory Ideal

The Office of Transportation Safety has a statistician in-house to process data for problem identification and other analyses. The Problem ID Report includes data from crash, injury, and roadway files. Limited data from citation, driver, and vehicle files are also available. The crash data are approximately one year old when the reports are available.

Change Notes: Rating Unchanged.

318. *Does the State have a data governance process?*

Meets Advisory Ideal

The State has developed a data governance framework through its Government Data Advisory Board, which includes representation from several agencies which participate in the TRCC, including CDOT and CDPHE.

Change Notes: Rating Improved.

From 'Partially Meets Advisory Ideal' to 'Meets Advisory Ideal'.

319. *Does the TRCC promote data integration by aiding in the development of data governance, access, and security policies for integrated data?*

Meets Advisory Ideal

The State provided its State Traffic Records Advisory Committee (STRAC) Strategic Plan 2016-2019. Strategy 4 of the strategic plan demonstrates its commitment to developing the functional and technical data models to integrate crash, injury surveillance, citation and roadway databases.

Change Notes: Rating Improved.





From 'Partially Meets Advisory Ideal' to 'Meets Advisory Ideal'.

320. *Is driver data integrated with crash data for specific analytical purposes?*

Does Not Meet Advisory Ideal

Driver and vehicle data from the Department of Revenue are often used individually in analysis efforts but no direct linkage between the driver and crash data was provided.

Change Notes: Rating Unchanged.

321. *Is vehicle data integrated with crash data for specific analytical purposes?*

Does Not Meet Advisory Ideal

Reports are routinely generated that relate to commercial motor vehicle crashes in the State. However, it appears that these reports are generated primarily from data collected through the crash report and not the result of a linkage with any additional databases that would add vehicle characteristics not normally included on the crash form.

Change Notes: Rating Unchanged.

322. *Is roadway data integrated with crash data for specific analytical purposes?*

Meets Advisory Ideal

Roadway data are used to map all highway crashes in the Colorado Department of Transportation database. Two specific data elements, highway RouteID and mile point, are used to link the two files. Once linked, data from both files can be extracted and used for further queries and analysis. Two example analysis using this linkage were provided.

Change Notes: Rating Unchanged.

323. *Is citation and adjudication data integrated with crash data for specific analytical purposes?*

Does Not Meet Advisory Ideal

The crash and citation/adjudication data are used individually for reporting purposes. However, no linkage between the two systems has been undertaken at this time.

Change Notes: Rating Unchanged.

324. *Is injury surveillance data integrated with crash data for specific analytical purposes?*

Partially Meets Advisory Ideal

The Colorado Department of Public Health and Environment (CDPHE) completed a pilot project that successfully linked one year of crash and hospital data, the description of the project and a summary of the results was provided. The linkage used several data elements available on both data sets and included name, date of birth, age, gender, crash date, hospital admission date, ICD-10-CM external cause code, and vehicle type. CDPHE received a grant from the CDC in 2019 to link crash data to death certificate records, trauma registry, emergency department data, hospital discharge data, and the State's all payers claims database. Results will be available in 2020.

Change Notes: Rating Unchanged.





325. *Are there examples of data integration among crash and two or more of the other component systems?*

Does Not Meet Advisory Ideal

While efforts are underway to bring crash, driver, and vehicle data into one database using DRIVES, linkages between multiple traffic records data systems are not currently being conducted. As DRIVES and the CDC linkage effort are completed, there will be several opportunities to provide more in-depth analysis of motor vehicle crashes through integration of most of the State's traffic records component systems.

Change Notes: Rating Unchanged.

326. *Is data from traffic records component systems-other than crash-integrated for specific analytical purposes?*

Does Not Meet Advisory Ideal

Currently, the State does not integrate any traffic records component systems that do not include crash data.

Change Notes: Rating Unchanged.

327. *For integrated datasets, do decision-makers have access to resources-skilled personnel and user-friendly access tools-for use and analysis?*

Does Not Meet Advisory Ideal

Through the Colorado Open Records Act, CDOT makes summary crash data available and levels of filters can be applied. However, integrated datasets are not available for separate analyses.

Change Notes: Rating Unchanged.

328. *For integrated datasets, does the public have access to resources-skilled personnel and user-friendly access tools-for use and analysis?*

Does Not Meet Advisory Ideal

While data from individual data sets (i.e. crash) are available through the Open Records Act, the public does not have access to skilled personnel and user-friendly access tools specifically designed for integrated data sets.

Change Notes: Rating Unchanged.





Appendix B – Assessment Participants

State Highway Safety Office Representative(s)

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State and Local Respondents

The following State and Local staff assisted in the Assessment by providing responses to the Advisory criteria and questions.

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Appendix C

National Acronyms and Abbreviations

AADT	Average Annual Daily Traffic
AAMVA	American Association of Motor Vehicle Administrators
AASHTO	American Association of State Highway and Transportation Officials
ACS	American College of Surgeons
AIS	Abbreviated Injury Score
ANSI	American National Standards Institute
ATSIP	Association of Transportation Safety Information Professionals
BAC	Blood Alcohol Concentration
CDC	Center for Disease Control
CDIP	NHTSA's Crash Data Improvement Program
CDLIS	Commercial Driver License Information System
CODES	Crash Outcome Data Evaluation System
DDACTS	Data Driven Approaches to Crime and Traffic Safety
DHS	Department of Homeland Security
DMV	Department of Motor Vehicles
DPPA	Drivers Privacy Protection Act
DOH	Department of Health
DOJ	Department of Justice
DOT	Department of Transportation
DOT-TRCC	The US DOT Traffic Records Coordinating Committee
DRA	Deputy Regional Administrator (NHTSA)
DUI	Driving Under the Influence
DUID	Driving Under the Influence of Drugs
DWI	Driving While Intoxicated
ED	Emergency Department
EMS	Emergency Medical Service
FARS	Fatality Analysis Reporting System
FDEs	Fundamental Data Elements
FHWA	Federal Highway Administration
FMCSA	Federal Motor Carrier Safety Administration
GCS	Glasgow Coma Scale
GDL	Graduated Driver Licensing
GES	General Estimates System
GHSA	Governors Highway Safety Association
GIS	Geographic Information System
GJXDM	Global Justice XML Data Model
GPS	Global Positioning System
GRA	Government Reference Architecture
HIPAA	Health Information Privacy and Accountability Act
HPMS	Highway Performance Monitoring System
HSIP	Highway Safety Improvement Plan
HSP	Highway Safety Plan





ICD-10	International Classification of Diseases and Related Health Problems
IRB	Institutional Review Board
ISS	Injury Severity Score
IT	Information Technology
JIEM	Justice Information Exchange Model
LEIN	Law Enforcement Information Network
MADD	Mothers Against Drunk Driving
MCMIS	Motor Carrier Management Information System
MIDRIS	Model Impaired Driving Records Information System
MIRE	Model Inventory of Roadway Elements
MMUCC	Model Minimum Uniform Crash Criteria
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
NAPHSIS	National Association for Public Health Statistics and Information Systems
NCHIP	National Criminal History Improvement Program
NCHS	National Center for Health Statistics
NCIC	National Crime Information Center
NCSC	National Center for State Courts
NDR	National Driver Register
NEMSIS	National Emergency Medical Service Information System
NGA	National Governor's Association
NHTSA	National Highway Traffic Safety Administration
NIBRS	National Incident-Based Reporting System
NIEM	National Information Exchange Model
NLETS	National Law Enforcement Telecommunication System
NMVTIS	National Motor Vehicle Title Information System
NTDS	National Trauma Data Standard
PAR	Police Accident Report
PDPS	Problem Driver Pointer System
PDO	Property Damage Only
PII	Personally Identifiable Information
RA	Regional Administrator (NHTSA)
RDIP	FHWA's Roadway Data Improvement Program
RPM	Regional Program Manager (NHTSA)
RTS	Revised Trauma Score
RMS	Records Management System
RPC	Regional Planning Commission
SaDIP	FMCSA's Safety Data Improvement Program
SAVE	Systematic Alien Verification for Entitlements
SHSP	Strategic Highway Safety Plan
SME	Subject Matter Expert
SSOLV	Social Security Online Verification
STRAP	State Traffic Records Assessment Program
SWISS	Statewide Injury Surveillance System
TCD	Traffic Control Devices
TRA	Traffic Records Assessment
TRIPRS	Traffic Records Improvement Program Reporting System
TRCC	Traffic Records Coordinating Committee





TRS	Traffic Records System
UCR	Uniform Crime Reports
VIN	Vehicle Identification Number
VMT	Vehicle Miles Traveled
XML	Extensible Markup Language

State-Specific Acronyms and Abbreviations

ARNOLD	All Road Network of Linear Referenced Data
BESDT	Behavioral and Engineering Safety Data for Transportation
CDOR	Colorado Department of Revenue
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CHA	Colorado Hospital Association
DOH IRB	Department of Health Institutional Review Board
DRIVES	Driver License, Record, Identification and Vehicle Enterprise Solution
EMTS	Emergency Medical and Trauma Services
OIT	Office of Information Technology
STRAC	State Traffic Records Advisory Committee

