



STATE TRAFFIC RECORDS ADVISORY COMMITTEE

2018 Annual Report



COLORADO
Department of Transportation
Transportation Systems
Management & Operations



COLORADO
Department of Revenue



COLORADO
Department of Public Safety



COLORADO
Office of Behavioral Health
Department of Human Services



COLORADO
Department of Public
Health & Environment



COLORADO
Governor's Office of
Information Technology



Colorado Judicial Branch



Prepared by Cambridge Systematics

For the Statewide Traffic Records Advisory
Committee (STRAC)

May 2019

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Executive Summary

This report summarizes the activities of the Colorado Statewide Traffic Records Advisory Committee (STRAC) for Federal Fiscal Years (FFY) 2017 and 2018. Current proposals being considered for FFY 2019 also are noted in this report. The report identifies the responsibilities of the committee, successes and challenges, grant funds distributed, and planned activities.

The STRAC was formed as part of a federally sponsored effort to improve traffic records. The Committee is charged with overseeing the development, implementation, and management of a strategic plan for the improvement of state traffic records. Through a memorandum of understanding (MOU), six state agencies have agreed to implement the STRAC strategic plan to develop a comprehensive integrated traffic records system that is accurate, complete, timely, and accessible.

In FFY 2017, STRAC provided oversight of the distribution of \$903,189 (of which \$701,597 was spent) in Federal funds intended to improve traffic records. In FFY 2018, STRAC again provided oversight of an additional \$899,657 (of which \$673,721 was spent) in funds. For FFY 2019, STRAC has approved projects totaling \$965,561 to date.

The result of these expenditures has been:

- Development of the new STRAC Strategic Plan based on the 2015 assessment and updated in 2019.
- An increase in agencies reporting crashes electronically to the Department of Revenue.
 - Denver PD began to test submitting crash reports electronically to DOR
- Completion on the revision of the DR 3447 crash form and Officer's Manual to increase compliance with the Model Minimum Uniform Crash Criteria (MMUCC) and to capture more data, pertinent to current conditions.

STRAC Purpose

Colorado's Traffic Records system is a virtual system comprised of independent crash data systems. These systems collectively form the information base for the management of the State's highway and traffic safety activities. The different sources of our traffic records system can be found within seven principal state agencies. Membership in the State Traffic Records Advisory Committee (STRAC) consists of voting representation from each of these seven agencies and nonvoting representation from local government representatives, universities, researchers and others. During 2016, the Judicial Branch decided not to sign the MOU, and became temporarily inactive in STRAC. However, throughout 2018, Judicial has become active, again, and STRAC will continue to work with the Judicial Branch to improve data. Collectively, these state agencies, in cooperation with local partners, improve the data used to develop and further initiatives to reduce both the number and severity of traffic crashes on the State's roadways.

The highway safety provisions of Federal transportation legislation provide significant additional funding to each state for the improvement of Traffic Records information systems. However, this funding is conditional. To obtain it, each state must have a statewide Traffic Records Coordinating Committee (TRCC) with certain roles and responsibilities, a current Strategic Plan for traffic records, and a current traffic records assessment. STRAC has served in the role of the TRCC since the 1970s.

Mission Statement

Our mission is to coordinate and facilitate the interagency and intra-agency acquisition and disbursement of accurate, timely, and accessible traffic records to data consumers for use in the traffic safety improvement processes in a user-friendly environment.

Vision Statement

It is the vision of STRAC to provide a traffic records data system, which delivers complete, timely, and accurate data, incorporating data from all available sources, for use by approved data consumers in traffic safety decision-making processes.

STRAC Responsibilities

- Develop and oversee the long-range planning efforts of the traffic records system.
- Review potential changes to traffic records systems and highway safety data before changes are implemented.
- Follow the direction provided by the 2015 Traffic Records Assessment and implement changes as needed.
- Consider and coordinate the views of organizations in the State that are involved in the administration, collection, and use of traffic records systems and highway safety data.
- Represent the interests of agencies and organizations within the traffic records system to outside organizations.
- Review and evaluate new technologies and keep the traffic records system and highway safety data up to date.
- Investigate the possibilities of linking traffic records systems.
- Provide recommendations to the respective departments, divisions and agencies on the collection, management, and enhancement of statewide traffic records system.
- Provide a forum for discussion and reporting of highway safety data and traffic records issues to agencies and organizations in the State that create, maintain and use traffic records and highway safety data.

- Review national initiatives and best practices of other states.
- Provide education to law enforcement officers in an endeavor to enhance the quality of traffic accident reporting.

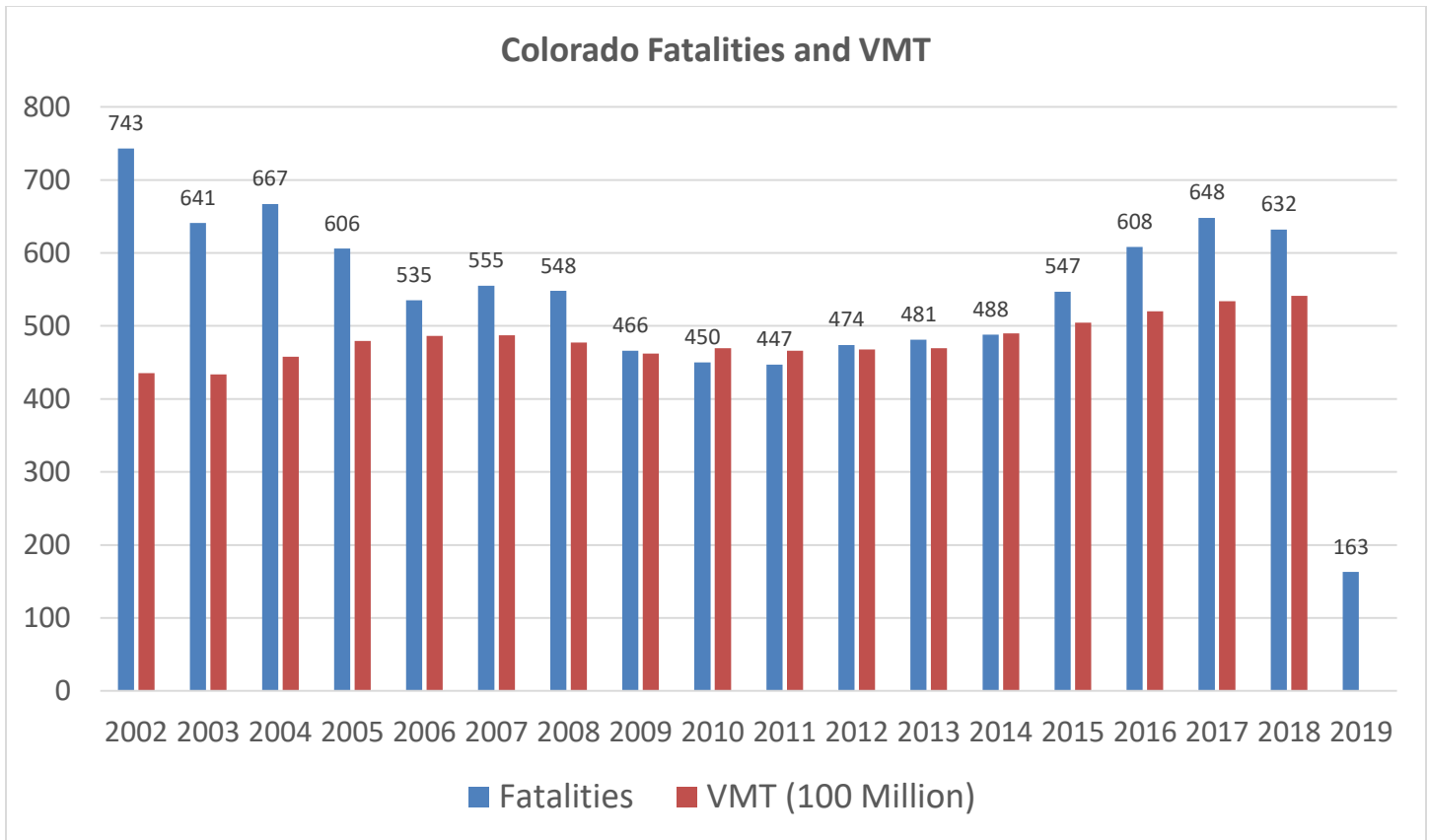
Annual Implementation of the Action Plan

On an annual basis, STRAC evaluates projects for eligibility for National Highway Traffic Safety Administration (NHTSA) 405(c) funding, and encourages projects that serve the key goals and objectives of the STRAC Strategic Plan. STRAC reviews the status and progress towards the key strategic goals and objectives, reports to executive management, and revises the Strategic Plan for Traffic Records, as needed, to meet the changing technologies and demands of the Traffic Records environment.

Performance Goals and Coordination

The Moving Ahead for Progress in the 21st Century Act (MAP-21) established a performance-based framework, which was reaffirmed in the subsequent Fixing America's Surface Transportation (FAST Act). The safety target setting requirements were finalized via rulemaking issued in March 2016. States are required to establish targets for the number and rate of fatalities and serious injuries and the number of non-motorized fatalities and serious injuries. States must report performance targets annually to the Federal Highway Administration (FHWA) through the Highway Safety Improvement Program (HSIP) Online Reporting Tool (ORT) and to NHTSA through the Highway Safety Plan (HSP). State Departments of Transportation (DOT) and State Highway Safety Offices (SHSO) must work together to set targets for performance measures common to each agency's respective program (HSIP and HSP). In Colorado, the SHSO is called the Office of Transportation Safety (OTS).

Due to the increased importance of data and coordination among transportation partners, the STRAC has taken an increased role in measuring performance goals. Similar to most of the nation, Colorado has seen a recent rise in fatalities. Based on trends, seen in the table below, fatalities may continue to rise in the coming years with an increase in VMT and population. In an effort to reverse this trend and continue the effort of working Towards Zero Deaths in Colorado, the STRAC remains committed to ensuring more accurate and timely data for decision-makers.



*2018, and 2019 fatal numbers are preliminary as of May 2019 and subject to change.

STRAC 2018 Accomplishments

New Crash Reporting Form Developed

Throughout 2017 and 2018, the STRAC worked to revise the DR 2447 crash form to create the DR 3447 crash form. The current and new crash forms were both evaluated by NHTSA with regard to their compliance to the Model Minimum Uniform Crash Criteria (MMUCC) 5th Edition. It was shown that the DR 2447 had an overall mapping score of 31.51 percent and the new DR 3447 had an overall score of 44.41 percent.

Grant Management

The STRAC oversees the solicitation, application, review, approval, and recommendation of NHTSA 405(c) grant projects to improve traffic records. In past years, a request for project applications was sent to every police department throughout the State, as well as all STRAC members, who then passed on the request to any appropriate associates. This process resulted in projects worth \$899,657 in FFY 2018 and projects worth \$965,561 in FFY 2019 being awarded by the STRAC, with the approval by NHTSA.

Colorado used improvement in uniformity as a performance measure to show improvement to NHTSA to secure funding for another year. For the 2019 application, Colorado increased the number of agencies using NEMSIS V3 from 173 agencies as of 3/31/2018 to 207 agencies as of 3/31/2019. The percent of all EMS agencies in the state reporting via NEMSIS version 3 (based on total of 230 EMS agencies) went from 75.2 percent in the baseline period to 90 percent in the current year.

Crash Records Data Collection and Processing

DOR switched from entering crash records information into the Electronic Accident Report System (EARS) database and the Electronic Document Warehouse (EDW) to entering the reports into the Colorado Driver License, Record, Identification and Vehicle Enterprise Solution (Colorado DRIVES) system at DOR. NHTSA assesses Colorado's traffic record data quality by measuring how quickly Colorado accident reports are available electronically, and by measuring the accuracy and completeness of the accident reports. Colorado's goal for processing a report, from receipt of the report to entry into the EARS or EDW systems crash data repository, was three days. In the past, the State consistently struggled to meet that goal, often taking five to seven days before a crash report was available electronically. With increased electronic data collection and increased electronic submission of crash records to DOR, but with many more fields being manually captured from paper reports.

In addition to the need for timely entry into the DRIVES database, the Colorado Department of Transportation (CDOT) needs accurate and timely crash data to respond to emerging traffic safety concerns. CDOT continues to use staff and contract employees to cleanse the crash data and provide more accurate crash location information, which improves the accuracy and completeness of crash data for safety analyses (CDOT database).

To accomplish this, CDOT reviews a minimum of 51 data fields per crash and routinely makes corrections or additions to 98 percent of crash records. Of these changes, 34 percent are enhancements done for CDOT's benefit, 30 percent are corrections and 36 percent are completion of blank fields. The most common changes are the crash type description and crash location, both critical elements to conducting data analysis and making program resource distribution decisions. Since 2010, the delay in accurate, processed crash data was reduced from over three years to three to six months. Recently, technical challenges have delayed the release of 2017 data 3 months, but CDOT expects to release 2018 data by July. CDOT plans to return to the 3-6 month delay by the end of 2019.

Task Force on Statewide Crash Data Base

A group of STRAC members and partners met to begin the initial planning process for the development of a statewide crash database. In early 2016, a Traffic Records Coordinator (TRC) was hired. One task was to move this project forward. A key part of this initiative is the DRIVES project, which will result in a new DOR crash, vehicle, and driver databases. STRAC continued to work closely with DOR in 2018 to ensure that DRIVES will incorporate the new DR 3447 crash form and have appropriate data edit checks to enhance data quality.

E-Crash Program

The top 20 agencies, as determined by the percentage of crash reports submitted in 2018, accounted for 81.77 percent of all crash reports submitted that year. Of those, the Colorado State Patrol, and police departments in Greenwood Village, Longmont, Colorado Springs, and Broomfield currently are submitting electronic crash reports to the DOR. Additional agencies are planning to submit crash reports electronically to DOR in the coming year or two. Table 1 reflects the status of the E-Crash program from CDOT records in May of 2019.

Table 1 E-Crash Program Status by Agency

Agency Name	Crashes Reported in 2018	Percent of Statewide Crashes Reported in 2018	Status of E-Crash Program
Colorado State Patrol	26,698	21.39%	Currently sending reports electronically.
Denver Police Department	23,042	18.46%	In testing phase, scheduled to submit electronically in 2018.
Colorado Springs Police Department	9,963	7.98%	Currently sending reports electronically.
Aurora Police Department	8,392	6.72%	The department was completing electronic crash reports, before DRIVES. Aurora is working toward electronic submission to DOR.
Ft. Collins Police Department	3,563	2.85%	Scheduled to submit electronically in 2019.
Lakewood Police Department	3,243	2.60%	Scheduled to submit electronically in 2019.
Pueblo Police Department	3,000	2.4%	The department is internally completing electronic crash reports. STRAC is working toward electronic submission to DOR.
Thornton Police Department	2,655	2.13%	The department is internally completing electronic crash reports. STRAC is working toward electronic submission to DOR.
Westminster Police Department	2,556	2.05%	Scheduled to submit electronically in 2019.
Greeley Police Department	2,342	1.88%	Partially submitted electronically in 2017.
Longmont Police Department	2,200	1.76%	Currently sending reports electronically.
Loveland Police Department	1,806	1.45%	The department is internally completing electronic crash reports. STRAC is working toward electronic submission to DOR.
Grand Junction Police Department	1,804	1.45%	The department is testing for sending reports electronically.
Arvada Police Department	1,802	1.44%	Scheduled to submit electronically in 2019.
Douglas Sheriff's Office	1,618	1.3%	Interested in submitting electronically.
Arapahoe Sheriff's Office	1,594	1.28%	The department is testing for sending reports electronically.
Boulder Police Department	1,588	1.27%	The department is internally completing electronic crash reports. STRAC is working toward electronic submission to DOR.
Broomfield Police Department	1,536	1.23%	Currently sending reports electronically.

Agency Name	Crashes Reported in 2018	Percent of Statewide Crashes Reported in 2018	Status of E-Crash Program
Greenwood Village	1,383	1.11%	Currently sending reports electronically
Commerce City Police Department	1,280	1.02%	Planning to submit electronically in 2019.

Traffic Records Forum

STRAC continues to send representatives to the Traffic Records Forum utilizing a variety of funding sources. In 2018, three representatives from CDPS and DOR were funded through Technology Transfer project, and two more through the Program Support project, both 405C funding. Lastly, two representatives from the Traffic Records Coordinator project attended under their own funding.

Traffic Records Assessment

The five-year NHTSA Traffic Assessment was completed in April 2015. The recommendations from the assessment are being reviewed by the STRAC to inform the development of future traffic records projects. The next assessment is scheduled to begin in September 2019.

STRAC Ongoing and Future Initiatives

Traffic records reflect a multitude of different types of data, including citations, crash reports, traffic volume, roadway inventory data, injury outcome data, and EMS trip reports. This data is collected by multiple agencies and resides in multiple databases making data retrieval and sharing difficult. For example, the State of Colorado produces over 100,000 crash reports each year from approximately 230 separate law enforcement agencies. The data from these reports is officially stored at the Colorado Department of Revenue’s Motor Vehicle Division, and then extracted to the Colorado Department of Transportation for data processing, data scrubbing, coding, analysis, and sharing of summary data among the federal, state, local agencies, and stakeholders responsible for improving safety on Colorado’s transportation network.

STRAC guides Colorado agencies on the use of NHTSA grant funding to improve the collection, storing, linking, and sharing of this data through grant-awarded projects. Below are key future projects as well as a listing of 2017 and 2018 projects and accomplishments.

National Governors Association

Throughout much of 2018, various members of the STRAC participated in a Learning Lab with the National Governors Association (NGA). The main focus of the Learning Lab was to increase data linkages across various systems in Colorado. Through discussions with the STRAC, it was determined that the STRAC and the safety professionals using the Strategic Highway Safety Plan (SHSP) need to improve their communication and collaboration in order to improve data linkages across the state.

The key component of the STRAC would be to focus the efforts of the SHSP to implement the data linkages. To achieve this, it was determined that accountability will be enhanced by scheduling each SHSP Emphasis Area (EA) team to come in and report out to the STRAC their data needs and progress in achieving the performance measures in the SHSP and STRAC Strategic Plan. Furthermore, STRAC will be involved in the revision to the SHSP in 2019. Lastly, executive leadership will begin being briefed on the progress annually and outline how their involvement can further enhance data integration and improvements for the state.

DRIVES

According to the Colorado Department of Revenue, in the 2014 and 2015 legislative sessions funding was allocated to replace the outdated Driver License System (DLS) and Colorado State Titling and Registration System (CSTARS). This project is called the Colorado Driver (License), Record, Identification, and Vehicle Enterprise Solution (Colorado DRIVES). The primary goal of this project is to provide a flexible, reliable, accurate and integrated solution for crash, driver and vehicle services, as well as business licensing and revenue accounting. The project is planned to be completed in two 18-month periods, with DLS being replaced first, followed by CSTARS.

The DOR continued to update the State's crash database (including crash, vehicle, and person datasets). This project requires coordination from STRAC members to ensure it meets the needs of data providers and users, most notably the revision of the crash form (DR 3447) and the associated officer's manual. In 2018, the revised crash form (DR 3447) was completed, approved by STRAC and submitted to DOR for incorporation into the new DRIVES system. The new crash form will capture more robust crash data for analysis in developing countermeasures to reduce crashes in the State.

Virtual Statewide Traffic Records Database

A conceptual proposal is under consideration to identify ways to create a statewide data sharing system. This system will link all major Traffic Records (TR) stakeholders and combine their data for more universal use. This project, if developed, will involve several projects over several years.

Electronic Reporting of Crash Data

STRAC is working with law enforcement across the state to capture their crash reports electronically as well as to electronically submit them to the DOR. For the FFY 2018 and 2019 grant years, six projects were funded to improve the electronic capturing and submission of crash reports. Currently, it is estimated that over 90 percent of the statewide crashes are collected electronically by law enforcement agencies. However, due to a lack of uniformity in these systems, only about two percent of agencies are submitting electronic crash reports directly to the DOR system. Nonetheless, they still do account for 30 percent of all crashes submitted in 2017.

Traffic Records Coordinator (TRC)

All STRAC members have other full-time responsibilities that limit the amount of time that can be devoted to traffic records projects. A Traffic Records Coordinator was hired in late 2015 to assist STRAC with various projects and to represent STRAC in discussions with member agencies; this partnership was continued into FFY 2019. Of note, in FFY 2018, the TRC assisted in completing the new state crash form, DR 3447, for submission to DOR. The TRC continues to review best practices, lead, organize, and facilitate the crash coding manual updates in FFY 2018. Other accomplishments were assisting in the continued reduction of the backlog of crash reports being submitted to DOR from Denver PD, aiding in the discussions for the creation of a statewide citation repository, beginning the development of a training video for law enforcement on the DR 3447, starting to draft an RFI for creating a uniform crash reporting repository, development of an updated STRAC Strategic Plan, and this Annual Report.

New Crash Report

This year STRAC completed working with our partners to develop, present, and implement an updated crash report that is in line with new technology and concerns to improve traffic safety. The new crash form was evaluated by NHTSA for having a 12.9 percent increase in MMUCC compliance over the current crash form being utilized. It is anticipated in late 2019 the DOR DRIVES system will be able to accept the new crash form which will improve data quality of crash report analysis across the state.

FFY 2017 STRAC Projects (October 2016 – September 2017)

Through February 2018, STRAC approved projects totaling \$903,189 for FFY 2017. Of the awarded amount, \$701,597 was spent.

Northglenn Police Department

Project Name: E-Citation System 17-04-41-03
Grant Amount: \$13,643
Actual Amount Spent: \$13,643
Performance Measure: Improved Citation Accuracy

Project: The Brazos E-Ticket writer system allows officers to complete summonses on a mobile data terminal and print out each summons, on scene, for the violating driver. The information for each summons is maintained in cloud storage and later downloaded into the municipal court's computer system. The Northglenn Police Department received funding to expand the use of the Brazos E-Ticket system to 10 additional mobile data terminals.

Conditions: The project must be designed to match the State Judicial schema so that when Judicial is ready, the ability to send citations to them is in place.

Progress/Results: All necessary equipment was purchased and installed to provide a complete operational electronic ticket writing system in an additional 10 patrol vehicles. All sworn personnel were trained on the electronic ticket writing system in June 2017. After all sworn personnel were trained on the electronic ticket writing system, the number of citations increased from prior year (June-September 2016 compared to June-September 2017) by 40%. During the same period, there was a 6% decrease in traffic accidents from 2016 to 2017. The number of traffic citations recorded prior year (April-September 2016) was 2761 and the number of citations recorded after installation (April-September 2017) was 3372. This was a 22% increase in citations recorded. During the same period, there was a 3% decrease in traffic accidents from 2016 to 2017.

Alamosa Police Department

Project Name: E-Citation System 17-04-41-04
Grant Amount: \$88,575
Actual Amount Spent: \$85,238
Performance Measure: Improved Citation Accuracy, Completeness, Uniformity & Timeliness

Project: The Alamosa PD purchased E-Citation equipment and software to streamline the process of issuing citations, transferring them to court systems, and generating reports. The system integrated with electronic equipment already in use at Alamosa PD. Moving to E-Citation software will reduce the amount of errors that are commonly seen in their previous method.

Conditions: The project must be designed to match the State Judicial schema so that when Judicial is ready, the ability to send citations to them is in place.

Progress/Results: Citation errors went from 34 percent to eight percent, specifically impacting completeness, legibility, and accuracy. Citations now do not have any missing critical data or blank elements. Time from issuing officer to records clerk decreased from an average of three days down to same day/end of shift. Time from records clerk to enter into the computer decreased from an average of three days, down to the end of the issuing officer's shift. The records are uploaded automatically now, eliminating the need for the records clerk to enter them into the records management system. Time from records clerk to court decreased from an

average of one day down to the end of the issuing officer's shift. Total time from issuing officer to court decreased from an average of seven days down to the end of the issuing officer's shift.

Ft. Lupton Police Department and Municipal Court

Project Name: Ticket Writer Software and Hardware 17-04-41-05
Grant Amount: \$17,973
Actual Amount Spent: \$17,973
Performance Measure: Improve Crash Timeliness & Accuracy

Project: The purpose of the project was to replace 11-year old electronic (DROID) ticket writers with updated and more compatible writers in vehicles. The Android platform allows the addition of third party applications that will accommodate future movement of County Courts to E-Tickets. The scanner is more accurate decreasing data transfer errors. Ticket writer will allow transfer of driver's license and registration data from state resources. The court software will electronically record and report convictions, including CDL data and allows for single activity capture of DMV driver's history.

Conditions: The project must be designed to match the State Judicial schema so that when Judicial is ready, the ability to send citations to them is in place.

Progress/Results: Effective use of scanners in the DROID unit increased the speed of data collection and preprogrammed selection lists to increase speed and accuracy of the data. Effective use of audio and visual DROID features increased the effectiveness of data collection. This also decreased the error rates in data collection. The methodology has allowed for the seamless WIFI transfer of data from the vehicle mounted docking stations to the servers providing supervision and court access. The training of the Officers, Administrative Staff, Supervision, and Court Staff in the use and maintenance of the hardware and software also occurred.

Broomfield Police Department

Project Name: E-Citation 17-04-41-11
Grant Amount: \$30,580
Actual Amount Spent: \$30,580
Performance Measure: Improved Crash Accuracy & Timeliness

Project: The goal of this project was to improve the efficiency, accuracy, accessibility, and integration of traffic records by implementing an E-Citation system in the Broomfield Police Department's Traffic Unit. Once the Traffic Unit perfects use of the software and hardware, the Department will expand the program to include others in patrol-related functions, with the goal of eliminating the need for paper ticketing within two years with the purchase of a 10-unit E-Citation system. After the NHTSA grant funds were approved, the City of Broomfield decided to complete the project for all units. A \$105,816 match (78 % of total costs) was needed to accomplish this.

Conditions: The project must be designed to match the State Judicial schema so that when Judicial is ready, the ability to send citations to them is in place.

Progress/Results: The program went live in late June 2017 with the Department’s Traffic Unit. Since that time, it is estimated the total time spent issuing a citation is 25 percent less on average. This is due, in part, to the ability to scan driver’s licenses and vehicle information, which automatically populates the e-Ticketing system and reduces human error in recording the information. In the past, Records Unit personnel manually entered traffic citation information into the Records Management System (RMS), which took approximately five minutes per citation. The Records Unit processed 6,155 traffic citations in 2016. If e-Ticketing were in place in 2016, approximately 512 man-hours could have been saved. As of this report, the interface between the Police Department and Courts for e-Ticketing has yet to be implemented. The Courts, however, are now able to access “electronic” copies of citations at any time and are no longer dependent on waiting for the citation to be entered by Records personnel.

Arapahoe County

Project Name: Geocoding of Crashes and Creating County Roads LRS 17-04-41-06
Grant Amount: \$53,004
Actual Amount Spent: \$48,756
Performance Measure: Improved Crash Accuracy, Uniformity & Completeness

Project: The intent of this project is to improve accuracy, uniformity, and completeness of the off-system crash records in Arapahoe County. This was achieved as follows:

- Developed linear referencing system for county roads in Arapahoe County for the functional class of collector and above;
- Geocoded Crashes that have No Coordinate Information for 2010 to 2014;
- Code (snap) Crash Data to newly developed Linear Referencing System;
- Developed geo-processing model for future updates to crash data;
- Documented the process for encoding off system crash data to newly developed linear referencing system to be used by Arapahoe County going forward; and
- Worked in close cooperation with law enforcement officials reporting crashes in Arapahoe County to ensure that coordinates or locations such as milepost based crash locations on off-system roads are reported going forward.

Progress/Results: This project has been completed. Using VZS, the Arapahoe County Staff is now able to perform accident research based on intersections, segments and corridors. Example: A development is proposed at a suburban intersection in a suburban area. The County can now query accident records on the segments approaching the intersection, as well as at the intersection itself, to determine if accidents have been occurring there and if there is any pattern or countermeasures to reduce them and/or their severity. The County provided corrected crash records to the CDOT.

A significant outcome of this project is that the County can now use the LRS and geo-coded data to perform a countywide study of segments and focus on areas with accident issues.

Douglas County

Project Name: Geocoding of Crashes and Creating LRS for County Roads 17-04-41-07
Grant Amount: \$49,920
Actual Amount Spent: \$47,696
Performance Measure: Improved Crash Accuracy, Uniformity & Completeness

Project: The purpose of this project was to improve accuracy, uniformity and completeness of the off-system crash records in Douglas County. Project tasks included: developing linear referencing system for county roads in Douglas County for the functional class of collector and above; geocoding crashes without coordinate information for 2010 to 2015; coding (snap) crash data to newly developed Linear Referencing System (LRS), developing a geo-processing model for future updates to crash data and document the process; and training law enforcement officers on the new system.

Progress/Results: CDOT received improved off-system crash records with linear referencing system coordinates for inclusion in the state's crash data.

Colorado Department of Transportation

Project Name: Traffic Records Coordinator 17-04-41-08
Grant Amount: \$ 297,845
Actual Amount Spent: \$ 239,813
Performance Measure: Deliverables presented satisfactorily and on time

Project: This project is a continuation of the 2016 contract signed on 1/12/16 to provide Colorado with a Traffic Records Coordinator (TRC) to organize traffic records systems among all the agencies involved. The TRC will work closely with the STRAC, CDOT, DOR, CSP and other agencies (including Police Departments) involved with traffic records. The TRC will act as a liaison among the involved agencies, under the guidance of the CDOT Project Manager. Focus under this contract will be the completion of the update to the DR 3447 crash form and updating of the officers crash reporting manual, and completion of the STRAC Annual Report, update to the Strategic Plan.

Progress/Results: The project impacted these goals by:

- Reviewed best practices, led, organized and facilitated ten crash reporting form and manual sessions to gain input from stakeholders on the development of a new crash reporting form
- Developed, facilitated, and presented traffic safety and records presentations for the all crash reporting form and manual sessions, and the bi-monthly STRAC meetings
- Worked with Denver PD and DOR to develop a plan to submit electronic crash reports and eliminate the backlog of crash reports not submitted
- Updated action plans and provided reports of the SHSP Emphasis Area Plans
- Updated the Traffic Records Resource Guide
- Developed and finalized the new STRAC Strategic Plan and Annual Report
- Updated the Traffic Records Assessment Status Report
- Began work for a statewide E-Citation, including a statewide survey for citation data needs

The significant outcome of this project has been the drafting of the revised crash form and manual to provide Colorado with better, more up-to-date crash data. Also, the new form will incorporate additional MMUCC elements, which will result in the new crash form having a higher MMUCC compliance rating than the current crash form.

Colorado State Patrol

Project Name: Improve Access to Crash Files 17-04-41-09
Grant Amount: \$157,509
Actual Amount Spent: \$96,690
Performance Measure: Improved Accessibility of Crash Reports

Project: The CSP contracted with Integrated Document Solutions to scan and digitize statewide traffic crash records to improve accessibility to case files to end-users and centralize access to case files through the newly established RM Unit. Each case file will be associated with a bar code. Quality control measures will be performed after scanning. Costs will be for contractual services to include, preparing documents for scanning, index with barcodes, scan, quality control measures, and destruction of records for case files from 2012 to 2015.

Progress/Results: Digitized all Calendar Year (CY) 2013-2015 road-troop case files. Conducted quality assurance checks on over 312 boxes or approximately 515,000 individual pages for image accuracy. Collected customer satisfaction surveys regarding access to agency crash records showing a high degree of customer satisfaction comparable to global benchmarks for responsiveness and timely processing of record requests.

Jefferson County

Project Name: Geocoding of Crashes and County Roads LRS 17-04-41-12
Grant Amount: \$47,140
Actual Amount Spent: \$47,106
Performance Measure: Improve Crash Accuracy, Uniformity & Completeness

Project: This project will improve accuracy, uniformity, and completeness of the off-system crash records in Jefferson County. This will be achieved by: developing a linear referencing system for collector class and above roads in Jefferson Co.; geocoding crashes with no coordinate information for 2010 to 2015; code (snap) crash data to newly developed linear referencing system; developing geo-processing model for future updates to crash data; and documenting the process for encoding off-system crash data to newly developed linear referencing system (LRS) to be used by Jefferson County going forward.

Progress/Results: This project resulted in 99 percent of crashes geocoded to either intersection or non-intersection locations. CDOT's All Roads Network of Linear Referenced Data (ARNOLD) served as the basis for the construction of a Jefferson County-specific linear referencing system, and 90 percent of the named roads in Jefferson County were included in the LRS. LRS data was imported into the Vision Zero Suite, which enabled to the County to utilize the software to identify and implement crash counter-measures at non-intersection locations. Law enforcement coordination and training was provided to improve enforcement activities. Lastly, this project resulted in an updated crash record database, which will be available to CDOT for inclusion in the state's crash data system.

Pikes Peak Area Council of Governments (PPACG)

Project Name: Pikes Peak Area Improvements of Crash Records (PPACG) 17-04-41-13
Grant Amount: \$30,000
Actual Amount Spent: \$0
Performance Measure: Improve Crash Accuracy, Uniformity & Completeness

Project: The intent of this project was to improve accuracy and completeness of the off-system crash records in the PPACG Area (El Paso and Teller Counties). This will be achieved by developing unified street naming convention, correcting crash attributes and improving locational accuracy for the off-system crash records for 2010 to 2015.

Progress/Results: The project was approved by STRAC and NHTSA, but, due to key personnel changes at PPACG, this project has been delayed until FFY 2018 or possibly later.

Technology Transfer

Project Name: Technology Transfer 17-04-41-14
Grant Amount: \$ 15,000
Actual Amount Spent: \$ 6,568
Performance Measure: Improve Traffic Records Knowledge

Project: To fund the attendance of six core STRAC Members (determined based on priority) to attend the International Traffic Records Conference hosted by National Safety Council and sponsored by NHTSA, FHWA, FMCSA, and BTS. This task will enable the attendees to learn many aspects of traffic records.

Progress/Results: Four STRAC members were funded and attended the forum. Another was scheduled to go, but had to withdraw at the last minute. The forum was held in New Orleans, LA.

Colorado Department of Transportation

Project Name: Traffic Records Support 17-12-98-03
Grant Amount: \$120,000
Actual Amount Spent: \$77,457
Performance Measure: Overall advancement and support for all STRAC performance measures

Project: This project supported the statewide goals and objectives through review of the 2015 Traffic Records Assessment Report and project as identified in that report. Project tasks include 405c Traffic Records Program Management, including but not limited to: grant and project management, participation in STRAC events and facilitation, operating costs, and participation in the Traffic Records Forum.

Progress/Results: Activities include establishing resource requirements, departmental roles and responsibilities, assignment of tasks and schedules, and program management of the FFY 2017 grants. Costs include external project audit costs, program-specific staff training, necessary operating expenses, and participation of the key staff (Traffic Records Unit) in related training and conferences (including the 43rd International Traffic Records Forum). Topics will include Traffic Records, Highway Safety Information Systems and other related training and/or meetings.

Colorado Department of Transportation

Project Name: FARS Program Support 17-04-41-10
Grant Amount: \$12,000
Actual Amount Spent: \$11,733
Performance Measure: Improve Crash Timeliness, Accuracy & Completeness

Project: Supported the ongoing cooperative agreement with NHTSA/NCSA for Colorado to provide an overall measure of highway safety using fatal crash data. FARS (NHTSA) funds most of the costs; this is just supplemental funding.

Progress/Results: The FARS Database for Colorado was completed for 2016 and kept up to date for 2017. All deadlines and data requests were filled on time, and to NHTSA requirements.

FFY 2018 Projects (October 2017 to September 2018)

STRAC approved projects totaling \$899,657 for FFY 2018. Of the awarded amount \$673,721 was expended.

Trinidad Police Department

Project Name: E-Citations 18-04-41-03
Grant Amount Requested: \$91,655
Actual Amount Spent: \$91,655
Performance Measure: Improved Crash Accuracy & Timeliness
Improved Citation Accuracy & Timeliness

Project: The proposal was to purchase six laptops, docking stations, printers, and modems for the Trinidad Police Department to improve its E-Citation and E-Crash accuracy and timeliness. The City of Trinidad was to track the progress throughout the month and request that each Sergeant collect numbers from their officers about reports completed using the in car computers. Also, with the use of E-Force software and E-Citations, they were to pull reports each month regarding the number of citations per officer.

Progress/Results: This project addressed the performance measure of timeliness. The time between the actual crash and the time the crash data is pushed to the state system was used as an evaluation measure. From June 3, 2018 to July 31, 2018, the average number of days between the time of the accident and the time it was submitted to the Department of Revenue was seven days.

That number was compared to the average time for submittal between August 1, 2018 and September 17, 2018. Trinidad Police Department (TPD) significantly improved their project measurement by reducing that number to two days.

The goal of the project was to acquire E-Crash programming and retrofit police vehicles with the technology required for digital upload of accident data to the Department of Revenue (DOR).

Cañon City Police Department

Project Name: E-Citations and E-Crash Submission 18-04-41-04
Grant Amount Requested: \$205,400
Actual Amount Spent: \$171,322
Performance Measure: Improved Citation Accuracy & Timeliness
Improved Crash Accuracy & Timeliness

Project: The proposal was to purchase 30 mobile data computers for the Department's existing fleet of fully marked patrol vehicles. Funding was also to be used for mounting, installation, software, and mobile RMS licensing for each unit. The mobile data computer project will allow the department to electronically submit crash reports to the DMV through email as PDF. This project also will allow for electronic submission of citations to the courts in the same way.

Progress/Results: This project addressed performance measure of timeliness for officers to upload crash, citation data and submitting into the state system, which will also reduce the error rate of crash reporting on critical elements.

The goal of this program was to increase the reporting efficiency, accuracy and safety of the officers of the Cañon City Police Department. The project impacted the performance measure by:

- Acquiring and deploying 30 mobile data computers for use by officers in the field.
- Acquiring and deploying an electronic crash reporting system that directly uploaded crash data to the Department of Revenue.
- Crash reporting software was developed for CO state form 2447 and electronic submission to DOR was implemented successfully 8/31/18. The time required by officers to complete and upload crash reports was reduced by 40%.
- The number of crash reports rejected by DOR for critical errors was reduced by 100%
- Electronic traffic citation records database was not completed and will be finalized in the FFY 2019 Phase II of the project.

Purchasing authority was not received from the funding entity until six months into the grant cycle. As a result, not all traffic records were completely digitized and citation data transmission to the State Court Administrator was not accomplished. An extension of this project was requested and approved for the FY 2019 to accomplish the remaining project objectives.

Aurora Municipal Courts

Project Name:	DOR Conviction and License Hold Reporting	18-04-41-05
Grant Amount Requested:	\$12,825	
Actual Amount Spent:	\$12,825	
Performance Measure:	Improved Citation Accuracy & Timeliness	

Project: The proposal was to upgrade the City of Aurora Municipal Court to Cypher 2.3+ to offer real-time communication and information processing between the City of Aurora conviction reporting system/database and the DOR DRIVES system. The current version of their vendor system for reporting convictions and driver's license holds will no longer be supported by Mindshare as of May 2017. The conversion to Cypher 2.3 was to also improve their rejection rate, which will improve the accuracy of the data their court sends to DMV and save the court staff's time who correct the incorrect records. Previously, the City of Aurora received several rejected cases every week since the DRIVES system implementation. Upgrading to Cypher 2.3 will increase the accuracy and timeliness of citation data submitted to DMV.

Progress/Results: This project addressed performance measures of data encryption, reducing the number of failed convictions reported to State of Colorado DRIVES System and saving court staff time to correct failed conviction errors. The outcome of this program was successful implementation and interchange of secure, encrypted data between the City of Aurora and the State of Colorado DRIVES system. COA employee time has been reduced in error checking and correction due to implementation of this software upgrade.

Arapahoe County Sheriff's Office (ACSO)

Project Name:	E-Crash Submission	18-04-41-06
Grant Amount Requested:	\$26,700	
Actual Amount Spent:	\$24,631	
Performance Measure:	Improved Crash Accuracy & Timeliness	

Project: The vendor Tyler (Brazos) offers an add-on accident module that will streamline crash reporting to ACSO records and on to the State. To do this, the PDAs need to be upgraded to newer models, the E-Crash

component purchased and installed and the message switch obtained for the system to interface with ACSO's RMS and the State system (when completed). The objective of this is that it will save staff time and staff costs by making the system automated.

Progress/Results: The goal of this project was to improve deputy efficiency and to decrease the amount of time our records staff spends manually entering accident reports into our RMS. The project impacted the performance measure by:

- Reducing the amount of time a deputy spends manually writing accident reports. Our Traffic Safety Unit write 85 percent of all citations and accident reports for the Arapahoe County Sheriff's Office.
- Improved turn-around time on accident report availability to citizens. With the interface from our RMS to the state Department of Revenue, the amount of waiting time will be reduced for citizens to obtain accident report information for insurance purposes and repairs.
- Reduction in accident report errors. As data is manually entered, it leaves more opportunity for human error in failing to complete necessary information. With this new accident component, we will see a reduction in staff time spent addressing errors.

As we move forward with this project we expect to see a large decrease in staff time spent writing, reviewing and correcting errors on accident reports. We also expect to see a reduction in the use of paper and quicker turn-around on accident report availability to citizens with the interface to the Department of Revenue.

Weld County Sheriff's Office

Project Name:	E-Citation and E-Crash Improvements	18-04-41-07
Grant Amount Requested:	\$75,000	
Actual Amount Spent:	\$66,165	
Performance Measure:	Improved Citation Accuracy & Timeliness Improved Crash Accuracy & Timeliness	

Project: Weld County planned to purchase and install up to 40 additional electronic ticketing/crash reporting devices, associated printers, and docking equipment for the remaining cars in the patrol fleet. The project was to purchase all hardware and software, installation of equipment into the Patrol vehicles, one year of maintenance and complete implementation of the program.

Progress/Results: This project addressed performance measures in the areas of crash timeliness and citation adjudication timeliness. The goals of this project was to implement E-crash and E-ticketing in every patrol vehicle within the first six months of the grant period to improve timeliness, reduce errors and expedite the submission of data to the State and courts. The project impacted the performance measures by:

- E-Ticketing and E-Crash software was successfully installed and working on March 28, 2018.
- E-ticket and E-crash data is being submitted electronically to the State and courts.
- Average rejection rate for MTC Summons is 5.65 percent; the objective was a reduction to seven percent or less.
- Average rejection rate for State summons is two percent; the objective was a reduction to seven percent or less.
- Average rejection rate for crash reports is zero percent; the objective was a reduction of seven percent or less.
- Average time to submit E-ticket data to the State is one day; the objective was a reduction to five days or less.
- Average time to submit E-ticket data to the Courts is 4.8 days after the payment grace period; the objective was a reduction to five days for less.
- The administrative records approval time for E-crash reports was reduced by 2.78 percent.

Colorado Department of Transportation

Project Name: Traffic Records Coordinator 18-04-41-08
Grant Amount Requested: \$297,845
Actual Amount Spent: \$180,191
Performance Measure: Deliverables Presented Satisfactorily and On Time.

Project: This project was created to supply Colorado with a Coordinator to organize traffic records systems among all the agencies involved. The TRC was to work closely with the STRAC, CDOT, DOR, CSP and other agencies (including Police Departments) involved with traffic records. The TRC will act as a liaison among the involved agencies, under the guidance of the CDOT Project Manager. This project will be a continuation of the work completed under the FFY 2017 contract.

Duties were to include monitoring the work done on projects relating to developing a statewide crash database. Also, working with stakeholders to facilitate the rollout of a new state crash form and crash manual, expand data collection as well as distribution, establishing requirements (IT, business rules, confidentiality/security, etc.) for new projects, especially those related to data sharing, and helping manage or monitor TR projects. Other duties were to include participation in STRAC and promoting participation in projects by stakeholders, promoting e-crash transmission into DOR, helping with related projects, soliciting new agencies to transmit their crash reports electronically, and working to institute a state e-citation platform to promote a uniform citation format.

Progress/Results: This project focused on program management, project coordination, strategic planning, evaluation, and training associated with the Statewide Traffic Records Advisory Committee (STRAC). It monitored progress of the Strategic Highway Safety Plan (SHSP) Data Emphasis Area teams. The goal of this project is to improve the timeliness, accuracy, completeness, uniformity, integration and accessibility of the various traffic records systems in Colorado through the development and implementation of strategic planning.

The project impacted these goals by:

- Reviewed best practices, led, organized and facilitated ten crash reporting form and manual sessions to gain input from stakeholders on the development of a new crash reporting form
- Developed, facilitated, and presented traffic safety and records presentations for the crash reporting form and manual sessions, and the bi-monthly STRAC meetings
- Worked with Denver PD and DOR to develop a plan to submit electronic crash reports and eliminate the backlog of crash reports not submitted
- Updated action plans and provided reports of the SHSP Emphasis Area Plans
- Updated the Traffic Records Resource Guide
- Developed and finalized the new STRAC Strategic Plan and Annual Report
- Updated the Traffic Records Assessment Status Report
- Began work for a statewide E-Citation, including a statewide survey for citation data needs

The significant outcome of this project has been the production of the revised crash form and manual, through collaboration with many state and local agencies. The new form will provide Colorado with better, more up-to-

date crash data. The new form will also incorporate additional MMUCC elements, which will result in the new crash form having a higher MMUCC compliance.

Colorado Department of Transportation

Project Name: Technology Transfer 18-04-41-10
Grant Amount Requested: \$15,000
Actual Amount Spent: \$4,597
Performance Measure: Improve Traffic Records Knowledge

Project: To fund the attendance of six core STRAC Members (determined based on priority) to attend the International Traffic Records Conference hosted by National Safety Council and sponsored by NHTSA, FHWA, FMCSA, and BTS (Bureau of Transportation Statistics). This task will enable the attendees to learn and incorporate best practices around the nation.

Progress/Results: Three STRAC members were funded to attend the forum and another was scheduled to go, but had to withdraw. All attendees wrote a summary report of lessons learned. The forum was held in Milwaukee, WI.

Northern Front Range Metropolitan Planning Organization (NFRMPO)

Project Name: Geocoding Crash Reports 18-04-41-11
Grant Amount Requested: \$4,430
Actual Amount Spent: \$1,752
Performance Measure: Improved Crash Completeness & Accessibility

Project: The NFRMPO was to hire an Intern to geocode crashes in Larimer and Weld counties from 2007 – 2010 and 2016. Crashes from 2011 – 2015 were geocoded by the NFRMPO in early 2017. Geocoding was completed based on the Location 1, Location 2, and city data fields using the ArcGIS geocoder with “address locator” files available for all public roads from Larimer and Weld county governments.

Geocoding crashes from 2007-2010 will provide historical data to the NFRMPO and member communities for trend analysis. Crash trends will be used for a variety of purposes, including establishing targets for the safety performance measures. This project was also to geocode crashes in 2016, since the 2016 dataset will become available during 2018 and will provide current crash data for the NFRMPO and member communities. All geocoded crashes will be provided to CDOT as well.

In addition to geocoding the historical (2007-2010) and current year (2016) data, the project was to include a review of the geocoded results for 2011-2015 to ensure accuracy and improve documentation of location data cleaning and geocoding methodology.

Progress/Results: Crash records 2011-2015 were reviewed for completeness. 618 missing records were identified and added back into the final file.

The draft methodology documentation was edited and expanded to provide more detail on each step and standardize file names.

Crash data from 2007-2010 was processed for location cleaning and geocoding. Of the 39,194 crash records in these four years, 16,353 crashes did not have latitude and longitude attributes in the original dataset. Through the cleaning and geocoding process, 16,279 of those crashes were geocoded and 54 were found to be outside of the bi-county area. The revised data was submitted to CDOT for inclusion in the state database.

No progress was made during the 4th quarter. The intern who had been working on this project left to pursue another opportunity. The 2016 crash dataset was not Geocoded. The project used only \$1,752 of the \$4,430 budgeted.

Weld County Traffic Engineer's Office

Project Name:	Crash Records Improvements	18-04-41-12
Grant Amount Requested:	\$25,000	
Actual Amount Spent:	\$25,000	
Performance Measure:	Improved Crash Accuracy & Completeness	

Project: Implementation of this project was expected to substantially improve the quality of crash records in Weld County. This project was to improve accuracy, uniformity and completeness of the off-system crash records in Weld County. This was to be achieved by developing unified street naming convention, correcting crash attributes and improving locational accuracy for the Weld County crash records for 2007 - 2016. Approximately 34,000 crash records were to be subject to examination and possible correction. All crashes were to be subject to locational accuracy check and correction. Also, particular attention was to be paid to crash type designation. Following the completion of this project, Weld County was to provide corrected crash records to the CDOT's Traffic and Safety Branch to be included in the state's permanent crash records file.

Progress/Results: The number of crash records corrected averaged 40% of the total reviewed and provides improved data results for the county database. The county's efforts to identify critical crash locations will be significantly improved because of this effort. There were no problems encountered while using the cleaned database provided by the contractor.

These project activities are being applied immediately to improve the county's continuing traffic safety operations. The cleansed data is being used in a comprehensive study of critical road segments and intersections throughout the county. Similar studies in the past required additional staff members to spend many hours of manual inspection and data entry of each crash report provided to the county.

Colorado State Patrol (CSP)

Project Name:	Implementation of the Niche Records Management System	18-04-41-13
Grant Amount Requested:	\$169,000	
Actual Amount Spent:	\$0	
Performance Measure:	Improved Crash Accuracy & Completeness	

Project: This project was to allow CSP to have three full time individuals support the implementation of the Niche Records Management System. This project would fund the project through September 30, 2018. The completion of Phase II and the planning and execution of additional phases will be submitted as a FFY 2019 and 2020 requests.

The below activities are specific to Phase II of the Niche RMS implementation planning, analysis and initial design. Additional work will be required to implement Phase II for which a separate request will be submitted as a request for FFY19 funding.

- Business process mapping and narratives, both current and future state to identify any additional data, system or business process changes that will be a direct result of the changes.
- Review and development of Functional Requirements Documents - these documents outline field by field the data required and any associated business rules or lists of values to ensure the integrity and accuracy of the data.
- Review of current test plans and scripts, and development of thorough test plans and draft test scripts to support the implementation.
- Conducting data audits, which will result in recommendations for system enhancements, system corrections or business process improvements.
- Review of the current CSP system configuration, permissions and definition of requirements and proof of concepts for the future configuration and permissions, to accommodate the DR 3447 changes and improve the quality of data.
- Catalog and store all project documentation to ensure the integrity of the project and the end product.
- Plan, coordinate and monitor smaller initiatives to ensure the work is completed and remains on schedule.
- Additional duties as assigned to support the implementation of the changes for Phase II and any other enhancements to improve the quality of the data/ system.

Progress/Results: The final contract was completed August 7, 2018, therefore CSP was unable to post positions and onboard the resources to support the project. CSP was able to purchase computers for the resources that will be contracted to support the project. CSP also made significant strides to improve the quality of crash data by developing an audit report for the crash data. CSP leveraged the audit report to identify issues with the data that need either corrections or areas where the system updates would improve the data. CSP also worked with DOR to test and update the interface and import process to send crash reports to DRIVES.

Following the close of the project year, CSP discovered that they would not be able to proceed with the multi-year project. No funds were claimed by CSP for this project.

Colorado Department of Transportation

Project Name:	FARS Program Support	18-04-41-09
Grant Amount Requested:	\$12,000	
Actual Amount Spent:	\$0	
Performance Measure:	Improved Crash Accuracy & Completeness	

Project: This project was necessary to support the ongoing cooperative agreement with NHTSA/NCSA. It enables Colorado to provide an overall measure of highway safety, to help identify traffic safety problems and to suggest solutions to those problems. It was also to facilitate an objective basis to evaluate the effectiveness of motor vehicle safety standards and highway safety programs. FARS (NHTSA) funds most of the costs; this is just supplemental funding.

Progress/Results: The FARS Database for Colorado was completed for 2017 and kept up to date for 2018. All deadlines and data requests were filled on time, and to NHTSA requirements.

A new FARS contract was implemented during the year. Therefore, this supplemental funding was not needed.

Colorado Department of Transportation

Project Name: Traffic Records Support 18-12-98-03
Grant Amount Requested: \$120,000
Actual Amount Spent: \$79,584
Performance Measure: Overall Advancement and Support for All STRAC Performance Measures

Project: The Traffic and Safety Engineering Branch was to provide staff to manage the 405c Traffic Records program. This staff was to address statewide goals and objectives through a review of the 2015 Traffic Records Assessment Report, and was to address implementation of the recommendations. Staff members were to review and assess progress of the 2016 Statewide Traffic Records Advisory Committee Strategic Plan, and outline the current state of the Traffic Records program. Staff members participate in the activities of the Statewide Traffic Records Advisory Committee (STRAC) who partner with local governments to implement statewide traffic records initiatives and improvements. This year, the 5-year assessment will be incorporated by CDOT and STRAC into our strategic planning to coordinate the traffic record systems, statewide. Staff members were to assess the program management responsibilities with an emphasis on interface and coordination among CDOT Traffic and Safety Engineering Branch, Office of Transportation Safety (CDOT), DOR and CSP traffic records staff, and the Governor's Office of Information Technology.

Progress/Results: Activities include establishing resource requirements, departmental roles and responsibilities, assignment of tasks and schedules, and program management of the FFY 2018 grants. Costs include program-specific staff training, necessary operating expenses, and participation of the key staff (Traffic Records Unit) in related training and conferences (including the 44th International Traffic Records Forum). Topics included Traffic Records, Highway Safety Information Systems and other related training and/or meetings.

RMS Consortium; Lakewood PD – Lead Agency

Project Name: E-Crash: NicheRMS to DOR Interface 18-04-41-14
Grant Amount Requested: \$50,000
Actual Amount Spent: \$16,000
Performance Measure: Improve Crash Timeliness, Accuracy & Completeness

Project: This project aims to achieve timely and accurate reporting of crash data through primarily an electronic means utilizing an interface from NicheRMS to DOR. The goal of this project was to improve completeness and accuracy of crash data submitted to DOR and to improve timeliness of DOR's receipt of crash data.

Contractual services were hired to develop an RMSC specific interface. Once completed, RMSC IT staff will install the interface in a test environment. Testing by IT, police staff, and feedback from DOR will determine when the interface is functioning as desired. Once finalized, it will be installed in live NicheRMS system for real crash data to be transmitted rather than mailed.

Progress/Results: Planet Technologies was hired, and then developed the RMSC interface. The project was going well, however, DOR's IT resources are limited and this resulted in the inability to connect the interface to the DOR system for testing and finalization. This resulted in the inability to complete the project before the grant period ended.

Additional achievements were they were able to configure Azure, which is a cloud to run Niche and the interface. Built the Azure function and the interface code to run in designated intervals. Built the in-between database, to keep track of what the interface has and has not sent to DOR. Configured the interface to use the Niche and in-between databases. Next steps, waiting for DOR to provide a test environment that will test actual production interface operation. Lastly, a new 2019 405C grant application was submitted so the work can be completed in FFY 2019.

FFY 2019 Projects (October 2018 to September 2019)

Through February 2019, STRAC approved projects totaling \$965,561 for FFY 2019. Of the awarded amount, \$539,039 has been spent thus far (May 2019). The large multi-year project with the State Patrol has been canceled. Additional projects are likely to be identified, approved, and completed throughout 2019.

Cañon City Police Department

Project Name:	E-Citations and E-Crash Submission	19-04-08
Grant Amount Requested:	\$ 34,078	
Actual Amount Spent:	\$ 34,078	
Performance Measure:	Improved Citation Accuracy & Timeliness Improved Crash Accuracy & Timeliness	

Project: In FY 2018, mobile data computers were purchased for the existing fleet of fully marked patrol vehicles. Since the contract was awarded late, Canon City requested and was approved a time extension to complete the project. For FFY 2019, these funds will be utilized to purchase the software needed to allow the department to submit crash reports electronically to the DOR through email as a PDF. This will also allow for the electronic submission of citations to the courts in the same way.

Conditions: The project must be designed to match the State Judicial schema so that when Judicial is ready, the ability to send citations to them is in place. Also, crash reports must be E-Transmitted to DOR with GPS, included.

Progress/Results: The project is a continuation of a 2018 project. The project is active.

Lakewood Police Department

Project Name:	Mobile Data Computers and Printers	19-04-03
Grant Amount Requested:	\$ 284,928	
Actual Amount Spent:	\$ 277,645	
Performance Measure:	Improved Citation Accuracy & Timeliness	

Project: The Lakewood PD is in the process of transitioning from their current RMS (I Leads) and their current e-citation software (Report Beam) to a new RMS system (Niche). Niche will combine both the traffic accident reporting function and the e-citation function into one program, which will reduce the amount of time both the officers and the records department spends on traffic accident and citation entry. In order to run Niche RMS, LPD will need updated mobile data computers (MDC) and printers to facilitate the transfer of traffic accident information and e-citations to the Records Unit so the information can be transferred to DOR through a portal and the courts via an electronic discovery process.

Conditions: The project must be designed to match the State schema so that citations can be submitted to the DRIVES system at DOR.

Progress/Results: The project is active. The majority of the equipment has been purchased, installed and is operational. E-crash transmittal is waiting for the RMSC project to complete the electronic connection to DOR.

Records Management System Consortium (RMSC)

Project Name: E-Crash: Niche RMS to DOR Interface 19-04-09
Grant Amount Requested: \$ 34,000
Actual Amount Spent: TBD
Performance Measure: Improved Crash Accuracy & Timeliness

Project: The Colorado State Patrol (CSP) has recently gone live with a separate implementation of the Niche RMS software and has already spent considerable time and money developing an interface between Niche RMS and DOR that allows crash data to be sent electronically. CSP has shared their resulting interface work with the RMSC, led by Lakewood PD, so they can leverage this to jump start on the process with this funding.

Progress/Results: This project has continued from FFY 2018; the project is active.

Colorado Department of Transportation

Project Name: Traffic Records Coordinator (TRC) 19-04-04
Grant Amount Requested: \$ 297,845
Actual Amount Spent: \$ 179,010 (as of May 2019)
Performance Measure: Deliverables Presented Satisfactorily and On Time.

Project: This project was created to supply Colorado with a Coordinator to organize traffic records systems among all the agencies involved. The TRC would work closely with the STRAC, CDOT, DOR, CSP and other agencies (including Police Departments) involved with traffic records. The TRC will act as a liaison among the involved agencies, under the guidance of the CDOT Project Manager. This project will be a continuation of the work completed under the FFY 2018 contract.

Duties will include monitoring the work done on projects relating to developing a statewide crash database. Also, working with stakeholders to facilitate the rollout of a new state crash form and crash manual, expand data collection as well as distribution, establishing requirements (IT, business rules, confidentiality/security, etc.) for new projects, especially those related to data sharing, and helping manage or monitor TR projects. Other duties will include participation in STRAC and promoting participation in projects by stakeholders, promoting e-crash transmission into DOR, helping with related projects, soliciting new agencies to transmit their crash reports electronically, and working to institute a state e-citation and e-crash platforms to promote a uniform citation format and easier e-crash submission for smaller agencies.

Progress/Results: The project is active. The DR 3447 crash form and coding manual is ready for implementation.

Colorado Department of Transportation

Project Name: Technology Transfer 19-04-05
Grant Amount Requested: \$15,000
Actual Amount Spent: TBD
Performance Measure: Improve Traffic Records Knowledge

Project: To fund the attendance of six core STRAC Members (to be determined based on priority) to attend the International Traffic Records Conference hosted by National Safety Council and sponsored by NHTSA,

FHWA, FMCSA, and BTS (Bureau of Transportation Statistics). This task will enable the attendees to learn and incorporate best practices around the nation.

Progress/Results: The project is active; approved attendees are making arrangements

Mesa County

Project Name: Geocoding, Creating County Roads LRS and Crash Records Correction
19-04-11
Grant Amount Requested: \$55,060
Actual Amount Spent: TBD
Performance Measure: Improved Crash Completeness, Accessibility & Uniformity

Project: The intent of this project is to improve accuracy, uniformity and completeness of the off-system crash records in Mesa County (MC). This will be achieved by the following:

- Developing LRS for county roads in MC for the functional class of collector and above,
- Geocode crashes with no coordinate info for 2007 – 2016,
- Code (snap) crash data to newly developed LRS,
- Develop geo-processing model for future updates to crash data,
- Document the process for encoding off system crash data to newly developed LRS to be used by MC, Develop unified street naming convention,
- Correcting crash attributes and improving locational accuracy for the off-system crash records for 2007 - 2016.
- Following the completion of this project MC will provide corrected crash records to the CDOT to be included in the state's permanent crash records file.

Progress/Results: The project is active, with a late start date (May 2019).

Department of Revenue (DOR)

Project Name: Crash Form Update-DR3447 19-04-12
Grant Amount Requested: \$124,650
Actual Amount Spent: TBD
Performance Measure: Improved Crash Uniformity
Improved Crash Completeness

Project: DOR in conjunction with the STRAC has updated the state of Colorado traffic crash report. This change incorporates the new injury severity definition as required by the National Highway Safety Traffic Administration (NHTSA) in addition to many other features. This update requires upgrades to DOR's existing system, DRIVES. To update DRIVES, DOR must acquire outside funding to meet the injury severity definition change deadline by April 2019 (23 CFR 490.207) to fully integrate the new report in the system. At the end of this project, Colorado will have a new form within the system developed with data entry for the DR3447, the ability to key a new crash form, reject a new crash form, interface with current partners, and have enhanced reporting and data integration capabilities. The project will include validation rules and data checking of the data mapping and report contents.

Progress/Results: The project is active; with a late start (April 2019).

Colorado Department of Transportation

Project Name: Traffic Records Support 19-12-04
Grant Amount Requested: \$ 120,000
Actual Amount Spent: \$ 48,336 (As of May 2019)
Performance Measure: Overall Advancement and Support for All STRAC Performance Measures

Project: The Traffic and Safety Engineering Branch will provide staff to manage the 405c Traffic Records program. This staff will address statewide goals and objectives through a review of the 2015 Traffic Records Assessment Report, and will address implementation of the recommendations. Staff members will review and assess progress of the 2016 Statewide Traffic Records Advisory Committee Strategic Plan, and will outline the current state of the Traffic Records program. Staff members will also participate in the activities of the Statewide Traffic Records Advisory Committee (STRAC) who partner with local governments to implement statewide traffic records initiatives and improvements. This year, the 5-year assessment will be incorporated by CDOT and STRAC into our strategic planning to coordinate the traffic record systems, statewide. Staff members will assess the program management responsibilities with an emphasis on interface and coordination among CDOT Traffic and Safety Engineering Branch, Office of Transportation Safety (CDOT), DOR and CSP traffic records staff, and the Governor's Office of Information Technology. This will include the sharing of expertise of other major stakeholders.

Progress/Results: The project is active.

STRAC 2018 Strategic Plan Summary

The following overarching strategic goals were identified for Colorado’s statewide traffic records system:

1. **Traffic Records Coordinating Committee Management:** Provide a sustainable, ongoing, dynamic mechanism for strategic decision-making for traffic records improvements, project coordination, and project implementation.
2. **Strategic Planning:** The Traffic Records Strategic Plan is also connected to the Strategic Highway Safety Plan (SHSP) with has a data emphasis area. These strategic plans are living documents, which can and should be changed as priorities evolve. Further consideration was made in the development and maintenance of performance measures based on recommendations from the Traffic Records Assessment.
3. **Crash Data:** Identify and implement improvements to crash records based on recommendations from the Traffic Records Assessment. The main priority is for the electronic transmission of crash reports.
4. **Vehicle Data:** Improve integration of vehicle records into the traffic records system.
5. **Driver Data:** Improve integration of driver records into the traffic records system.
6. **Roadway Data:** Improve integration and linkage of roadway data with traffic records.
7. **Citation/Adjudication Data:** Institute electronic citation projects to facilitate the development of statewide citation data and provide linkage to traffic records.
8. **EMS/Injury Surveillance Data:** Pursue integration of EMS/Hospital files with crash and other traffic records files.
9. **Data Use and Integration:** Improve data linkage between traffic records data systems.

Tables 2 through 10 identify specific action items and performance measures for each of these goals.

Table 2. Strategic Goals for Traffic Records Coordinating Committee Management

Goal 1: Provide a sustainable, ongoing, dynamic mechanism for strategic decision-making for traffic records improvements, project coordination, and project implementation.

No.	Objectives	Action Items	Performance Measure
1.1	Identify and develop a written inventory of all traffic records databases within the state. It is important to have a clear understanding of the individual traffic records databases and the relationship they have to one another to be effective in managing the overall State’s traffic records system. STRAC currently does not have a Traffic Records Inventory.	<ul style="list-style-type: none"> • Identify and develop a Traffic Records Inventory to fully understand the data sources, promote integration, and promote uses of traffic records information and the interrelated nature of data elements. 	<ul style="list-style-type: none"> • By December 31, 2017, all Colorado traffic records databases will be identified in a Traffic Records Inventory.
1.2	Conduct one annual meeting with the directors/administrators of the seven represented state agencies. Interaction between the STRAC and the Executive Directors/Administrators of the seven state agencies currently is limited to direct reports from STRAC members back through their individual organizational structure.	<p>STRAC officers will meet annually with:</p> <ul style="list-style-type: none"> • The Executive Director of the Colorado Department of Transportation • The Executive Director of the Colorado Department of Public Safety 	<ul style="list-style-type: none"> • Beginning in 2016, the STRAC officers will meet annually with the directors/administrators of the seven represented state agencies.

No.	Objectives	Action Items	Performance Measure
	This has resulted in limited involvement by those executive-level members in improving the Colorado Traffic Records System.	<ul style="list-style-type: none"> The Executive Director of the Colorado Department of Revenue The Executive Director of the Colorado Department of Public Health and Environment The Executive Director of the Colorado Department of Human Services The State Chief information Officer for the Governor's Office of Information Technology 	
1.3	Identify all potential funding sources to best utilize the money available to the State of Colorado and fund needed projects to improve our traffic records systems. STRAC primarily uses Federal funds administered through the Colorado Department of Transportation to support projects designed to improve our traffic records system. A variety of these funds exist, but STRAC has typically only utilized one source.	<ul style="list-style-type: none"> Identify all appropriate sources of potential funding and the mechanisms by which these funds are obtained. Review grant applications and direct funding requests towards the appropriate funding source. 	<ul style="list-style-type: none"> By December 31, 2016, STRAC will identify all appropriate sources of potential funding and the mechanisms by which these funds are obtained. 2018 Grant applications will be reviewed and funding requests will be directed towards the appropriate funding source by July 31, 2017.
1.4	Identify and hire, through the contract process, a group or individual who will serve as the TRC for the State of Colorado. To achieve success, STRAC must have dedicated personnel that have the skills and time to devote sufficient attention to STRAC assignments in order to accomplish the goals of this Strategic Plan. That currently is not possible. Each member of the STRAC has a full-time job for one of the seven agencies that they are expected to be successful in. STRAC becomes an additional duty whose projects get accomplished as time allows. In order to achieve our goals in an efficient manner, the State must have a dedicated Traffic Records Coordinator (TRC).	<ul style="list-style-type: none"> Develop a position description and responsibilities of the TRC. Identify and hire, through the contract process, a group or individual who will serve as the TRC for the State of Colorado. 	<ul style="list-style-type: none"> By July 31, 2016, a dedicated TRC will be in place and functioning at accomplishing the goals of this Strategic Plan.

Table 3. Strategic Goals for Strategic Planning

Goal 2: Develop and maintain performance measures based on recommendations from the Traffic Records Assessment.

No.	Objectives	Action Items	Performance Measure
2.1	Annually review the STRAC Strategic Plan, and modify and update as necessary to ensure that plan remains a valuable document to guide the STRAC. It is important to have a strategic plan that provides for long-range objectives and is reviewed annually to ensure that it remains current and the goals consistent with the direction of the State. While the prior strategic plans provided those long-range goals, they were not reviewed and updated on an annual basis.	<ul style="list-style-type: none"> Review and modify the STRAC Strategic Plan as necessary to reflect the STRAC goals and objectives for a three-year period. Conduct a survey of state and local data users to identify their needs and goals and incorporate them into the strategic plan. 	<ul style="list-style-type: none"> Annually by April 15th the STRAC Strategic Plan will be reviewed and modified as necessary to reflect the STRAC goals and objectives for a three-year time period.
2.2	Publish an annual report that reviews the progress on strategic goals, funded projects, and STRAC coordination efforts. It also is important to have a document that reviews short-term objectives and reports on the successes and failures of the STRAC to accomplish the goals identified within the Strategic Plan. The STRAC has produced annual reports but these need to be modified to better achieve the ideal as described by NHTSA.	<ul style="list-style-type: none"> Publish an annual report that provides at a minimum the following: <ul style="list-style-type: none"> A review of the progress on each of the strategic goals; A review of the funded grant project for the previous year; A summary of any grants not funded and the STRAC's reasoning for not funding those projects; A projection of future funding sources as well as both known and potential funding levels; A time line for the next grant submission-cycle; and A projection of future trends that STRAC should consider in the year ahead. 	<ul style="list-style-type: none"> Annually by April 15th the STRAC will publish an annual report that reviews the progress on strategic goals, funded projects, and STRAC coordination efforts.
2.3	Improve the level of knowledge about traffic records by hosting a traffic records conference. Traffic Records Conference: The impact and reach of traffic records is not well understood. Showing the need for accurate data collection, input, and accessibility is vital to achieving the level of cooperation needed throughout the State to accomplish the goals of this strategic plan.	<ul style="list-style-type: none"> Host a traffic records conference in the Metro Denver area that provides at a minimum the following: <ul style="list-style-type: none"> An overview of the STRAC role in traffic records; A presentation of the strategic goals; A presentation on possible funding sources to improve traffic records; and The progress on the development of a new accident reporting form. 	<ul style="list-style-type: none"> By October 1, 2016, the STRAC will host a traffic records conference in the Metro Denver area.

Table 4. Strategic Goals for Crash Data Systems

Goal 3: Identify and implement improvements to crash records based on recommendations from the Traffic Records Assessment.

No.	Objectives	Action Items	Performance Measure
3.1	<p>Achieve timely and accurate reporting of these events through primarily an electronic means utilizing a current crash reporting form. Crash data serves as one of the six cornerstones for Colorado’s Traffic Records. It is vitally important to the effectiveness of our ability to identify and respond to traffic issues through the appropriate use of enforcement, education, or engineering to save lives and minimize the economic impact of traffic crashes. The most effective way to improve our crash data is to continue to push for the electronic reporting of crashes by law enforcement with current forms that are consistent with the Model Minimum Uniform Crash Criteria.</p>	<ul style="list-style-type: none"> • Revise state accident reporting form (DR 3447). • Identify critical elements for crash report forms. • Train law enforcement agencies in the State on the new DR3447 form. • Make the new DR3447 form available for use. 	<ul style="list-style-type: none"> • By July 1, 2017, a proposed draft of the revised state accident reporting form (DR3447) will be available in both paper and electronic form. • By July 1, 2017, the critical elements for crash report forms will be identified. • By December 31, 2017, all law enforcement agencies in the State will have received training on the new DR 3447. • By January 1, 2018, the new DR 3447 will be available for use. • By January 1, 2020, 80 % of all crash reports in Colorado will be submitted electronically to the Department of Revenue. • Using the 2016 Integrated Safety Plan reported number (19.83 days for the period April 1, 2015 to March 31, 2016) as the baseline, reduce the average number of days from the crash date to submittal into EARS (at DOR) by 5 to 10 % per year. • By December 31, 2017, obtain (with the new form) baseline percentage of the electronically submitted crash reports that have no errors in critical data elements (critical fields). • By January 1, 2019, establish a goal for improvement of the percentage of the electronically submitted crash reports that have no errors in critical data elements (critical fields).

No.	Objectives	Action Items	Performance Measure
3.2	Develop a web-based data system that is accessible to authorized users and meeting all legal requirements. The ability to share data among authorized stakeholders is vital to a successful traffic records system.	<ul style="list-style-type: none"> • Identify and publish in an annual report applicable legal requirement related to the sharing of traffic records. • Develop a best practice recommendation to verify authorized traffic records users. • Develop a web-based query data system that is accessible for crash record stakeholders to use that meets legal requirements. 	<ul style="list-style-type: none"> • By December 31, 2017, the STRAC will have identified, and published in an annual report, the applicable legal requirements related to the sharing of traffic records. • By December 31, 2018, the STRAC will have developed a best practice recommendation to verify authorized traffic records users. • By December 21, 2019, the State will have a web-based data query system that is accessible for crash record stakeholders and meets legal requirements.
3.3	Ensure that the Crash data system is integrated with both the Vehicle and Driver systems. To have robust traffic records system, the vast majority of the information must be integrated to ensure consistent and accessible data.	<ul style="list-style-type: none"> • Develop a uniform data dictionary for the Crash record system. • Document the schema for the Crash record system. • Integrate the Crash data system into the Driver and Vehicle data systems. 	<ul style="list-style-type: none"> • By December 31, 2018, a uniform data dictionary will be developed for the Crash record system. • By December 31, 2018, the Crash record system will have a documented schema. • By December 31, 2019, 100 % of the electronic Crash data system will be integrated with Driver and Vehicle data systems.

Table 5. Strategic Goals for Vehicle Data Systems

Goal 4: Improve integration of vehicle records into the traffic records system.

No.	Objectives	Action Items	Performance Measure
4.1	Ensure that the Vehicle data system is integrated with both the Crash and Driver systems. To have robust traffic records system, the vast majority of the information must be integrated to ensure consistent and accessible data.	<ul style="list-style-type: none"> • Develop a uniform data dictionary for the Vehicle record system. • Document the schema for the Vehicle record system. • Integrate the Vehicle data system into the Driver and Crash data systems. 	<ul style="list-style-type: none"> • By December 31, 2018, a uniform data dictionary will be developed for the Vehicle record system. • By December 31, 2018, the Vehicle record system will have a documented schema. • By December 31, 2019, 100 % of the electronic Vehicle data system will have been integrated with Driver and Crash data systems.
4.2	Establish the data flow for vehicle system information. The current user manual documents the system, but high-level flow charts would help new personnel to understand the systems.	<ul style="list-style-type: none"> • Develop high-level flow charts depicting the data process for vehicle system information. • Update current user manual documents to reflect the data process flow. 	<ul style="list-style-type: none"> • By December 31, 2020, 75 % of relevant DOR staff has been trained on the data process flow.
4.3	Improve the data quality and assurance of vehicle data system.	<ul style="list-style-type: none"> • Assess the possibility of barcoded vehicle registrations in the DRIVE system. • Assess the possibility to automate queries of NMVTIS to reduce clerk lookup time and possible errors. • Formalize trend analysis process to identify unexplained differences in data across years and jurisdictions. • Perform trend analysis on a regular basis. • Provide data quality management reports to the STRAC for review. • Develop performance measures for timeliness, accuracy, and completeness of the vehicle data system. • Establish numeric goals for performance measures. 	<ul style="list-style-type: none"> • By December 31, 2017, present the results of the registration barcode assessment to the STRAC, along with the recommended plan of action. • By December 31, 2017, present the results of the NMVTIS automation assessment to the STRAC, along with the recommended plan of action. • <i>By August 1, 2018, obtain baseline percentage of records in the vehicle data system with no errors in critical data elements.</i> • <i>By August 1, 2018, obtain baseline percentage of records in the vehicle data system with no missing critical data elements.</i>

Table 6. Strategic Goals for Driver Data Systems

Goal 5: Improve integration of driver records into the traffic records system.

No.	Objectives	Action Items	Performance Measure
5.1	Ensure that the Driver data system is integrated with both the Crash and Vehicle systems. To have robust traffic records system, the vast majority of the information must be integrated to ensure consistent and accessible data.	<ul style="list-style-type: none"> • Develop a uniform data dictionary for the Driver record system. • Document the schema for the Driver record system. • Integrate the Driver data system into the Vehicle and Crash data systems. 	<ul style="list-style-type: none"> • By December 31, 2018, a uniform data dictionary will be developed for the Driver record system. • By December 31, 2018, the Driver record system will have a documented schema. • By December 31, 2019, 100 % of the electronic Driver data system will have been integrated with Vehicle and Crash data systems.
5.2	Establish data flow for driver system information.	<ul style="list-style-type: none"> • Develop high-level flow charts depicting the data flow for driver system information. • Update current user manual documents to reflect the data process flow. 	<ul style="list-style-type: none"> • By December 31, 2020, 75 % of relevant DOR staff has been trained on the data process flow.
5.3	Improve the data quality and assurance of driver data system.	<ul style="list-style-type: none"> • Develop a formal data quality management system. • Provide data quality management reports to the STRAC for review. • Develop performance measures for timeliness, accuracy, and completeness of the driver data system. • Establish numeric goals for performance measures. 	<ul style="list-style-type: none"> • <i>By August 1, 2018, obtain baseline percentage of driver record updates entered into the database within seven days after the date of a driver's adverse action.</i> • <i>By August 1, 2018, obtain baseline percentage of records in the driver data system with no errors in critical data elements. By December 31, 2020, 75 % of the driver data system will have no missing critical data elements.</i>

Table 7. Strategic Goals for Roadway Data Systems

Goal 6: Improve integration and linkage of roadway data with traffic records.

No.	Objectives	Action Items	Performance Measure
6.1	Improve the data quality and assurance of roadway data system.	<ul style="list-style-type: none"> • Implement the new Geographic Roadway Database Management System and use it for roadway and non-roadway data and LRS management. • Develop automated business rule validations and data review procedures. • Develop performance measures for timeliness, accuracy, and completeness of the roadway data system. • Establish numeric goals for performance measures. 	<ul style="list-style-type: none"> • By 2016, the new Geographic Roadway Database Management System will be fully implemented and used for 100 % of roadway and non-roadway data and LRS management. • By 2016, automated business rule validations and data review procedures will be implemented as part of the new Geographic Roadway Database Management System. • By December 31, 2017, 100 % of on-system crashes will be locatable using GPS latitude/longitude coordinates. • By January 1, 2010, 100 % of state highway roadway segments will have mile points tied to GPS.
6.2	Per FHWA requirement develop a plan to collect or obtain Fundamental Data Elements (FDEs) currently not collected for the Model Inventory of Roadway Elements (MIRE) on all public roads.	<ul style="list-style-type: none"> • Develop and execute a plan to draft a plan to collect the remaining FDEs. 	<ul style="list-style-type: none"> • By 2020, present to the STRAC a document outlining the plan for collecting the remaining FDEs in time to meet the FHWA requirement.
6.3	Establish data process flow for obtaining CDOT Project information and notification of project completion.	<ul style="list-style-type: none"> • Establish a formal process/work flow to provide information regarding roadway and asset changes as a result of completed CDOT projects to the roadway data managers for correction/updating of roadway and non-roadway data. (There currently is not a well-defined process for sharing this information to ensure that roadway and non-roadway data are the most current and accurate.) 	<ul style="list-style-type: none"> • By December 31, 2018, attempt to establish a formal process/work flow to provide information regarding roadway and asset changes as a result of completed CDOT projects to the roadway data managers for correction/updating of roadway and non-roadway data.
6.4	Improve data documentation and electronic consolidation of business processes, workflows and data dictionaries involved with collecting, editing, publishing and reporting of roadway data.	<ul style="list-style-type: none"> • Document all business processes and workflows (collecting, editing, publishing, and reporting of data). • Develop and publish a comprehensive data dictionary. • Develop and publish guidelines for update scheduling. • Consolidate all business processes, workflows, data dictionary, and guidelines in a central digital location. 	<ul style="list-style-type: none"> • By December 31, 2017, all business processes and workflows (collecting, editing, publishing and reporting of data) will be documented and consolidated in a central digital location. • By June 30, 2017, a comprehensive data dictionary will be developed and published, including guidelines for update scheduling and consolidated in a central digital location.

Table 8. Strategic Goals for Citation/Adjudication Data Systems

Goal 7: Institute electronic citation projects to facilitate the development of statewide citation data and provide linkage to traffic records.

No.	Improvement Area	Action Items	Performance Measure
7.1	Improve the data quality and assurance of citation/adjudication data.	<ul style="list-style-type: none"> Reduce the number of cases where the courts dismiss charges due to the citation from CDOR to Courts not arriving before the court appearance date. 	<ul style="list-style-type: none"> By February 1, 2017, identify the baseline percentage of unpaid citations sent from CDOR to Courts less than three days before the court appearance date. By January 31, 2018, achieve a reduction in the percentage.
7.2	Ensure components of electronic citation data adhere to National guidelines.	<ul style="list-style-type: none"> Document compatible guidelines for National Crime Information Center, Uniform Crime Reporting, and National Incident Based Reporting System. Implement the process to establish compatible guidelines. 	<ul style="list-style-type: none"> By December 31, 2018, compatible guidelines for National Crime Information Center, Uniform Crime Reporting, and National Incident Based Reporting System have been documented. By December 31, 2019, the process to establish compatible guidelines has been implemented. By December 31, 2020, the electronic citation data meets compatible guidelines for the National Crime Information Center, Uniform Crime Reporting, and National Incident Based Reporting System.
7.3	Enhance the State judicial data dictionary for citation/adjudication data systems.	<ul style="list-style-type: none"> Develop a comprehensive Charge Code table with Common Codes, with agreement between CDOR, CDAC, and the State Court. 	<ul style="list-style-type: none"> By February 28, 2018, have an agreed Charge Code table in place, along with an appropriate Data Dictionary.
7.4	Pursue data linkage of citation/adjudication data with other data systems.	<ul style="list-style-type: none"> Develop a plan identifying the desired linkages. 	<ul style="list-style-type: none"> By December 31, 2017, document a proposed plan to achieve the desired linkage.
7.5	Develop performance measures for the citation/adjudication data systems.	<ul style="list-style-type: none"> Develop performance measures for the citation/adjudication data systems. Establish numeric goals for performance measures. 	<ul style="list-style-type: none"> By June 1, 2017, identify performance measures in two of the six quality areas (timeliness, accuracy, uniformity, completeness, integration, accessibility) relative to citation/adjudication data systems. By December 31, 2017, establish numerical goals for those performance measures.

Table 9. Strategic Goals for EMS and Injury Surveillance Data Systems

Goal 8: Pursue integration of EMS/Hospital files with crash and other traffic records files.

No.	Improvement Area	Action Items	Performance Measure
8.1	Improve the integration of EMS and injury surveillance data systems with other data systems	<ul style="list-style-type: none"> • Identify mutually beneficial projects, based on the opportunities listed in the Traffic Records Assessment and in the 2007 Colorado study on data integration (Linking Traffic Accident Information to Public Health Data). Of interest to STRAC is the economic cost of motor vehicle-related injuries and clinical severity measures such as Glasgow Coma Score, Abbreviated Injury Score for body regions, and Injury Severity Scale. • Test the feasibility of linking Colorado crash report data and injury surveillance data systems at the state level. 	<ul style="list-style-type: none"> • By December 31, 2017, CDPHE and STRAC have identified mutually beneficial projects for data integration. • By December 31, 2018, CDPHE has completed a pilot linking of the necessary databases at CDPHE, and assessed the feasibility and need to routinely link these databases. • By December 31, 2019, CDPHE has an established system in place to routinely integrate (link) key components of the injury surveillance system and share updated results with STRAC and other stakeholders. • By December 31, 2018, PSD and HFEMSD will collaborate on a pilot study of linkage achieved using multiple steps using deterministic (exact) matches of various number of elements (name, gender, date of incident +/- 1 day) followed by probabilistic (close match) linking and report on the percentage of records linked under different criteria.
8.2	Improve the data quality and assurance of EMS and injury surveillance data.	<ul style="list-style-type: none"> • Compile and share relevant data quality and assurance documentation needed for the next NHTSA traffic records assessment. • Develop, compile, and share data quality management reports as applicable for the EMS, trauma, and vital records data systems that CDPHE manages. • Develop and document performance measures related to timeliness, accuracy, completeness, uniformity, integration, and accessibility as applicable for the EMS, trauma, and vital records data systems that CDPHE manages. 	<ul style="list-style-type: none"> • By December 31, 2019, CDPHE has compiled and shared with STRAC relevant documentation needed for the next NHTSA traffic records assessment. • By December 31, 2019, CDPHE has developed, compiled, and shared with STRAC data quality management reports as applicable for the EMS, trauma, and vital records data systems that CDPHE manages. • By December 31, 2019, CDPHE has documented or developed performance measures related to timeliness, accuracy, completeness, uniformity, integration, and accessibility as applicable for the EMS, trauma, and vital

No.	Improvement Area	Action Items	Performance Measure
8.3	Improve the uniformity of EMS and injury surveillance data.	<ul style="list-style-type: none"> • Migrate the Colorado EMS data system to the national standard of NEMSIS Version 3. • Determine data elements to include in this migration. • Identify additional personal identifiers in Version 3 to make it easier to link data systems, especially the trauma system. 	<p>records data systems that CDPHE manages.</p> <ul style="list-style-type: none"> • By December 31, 2019, 70 % of EMS patient care reports will be entered into the State EMS discharge file within 90 days after the EMS run. • By December 31, 2019, 70 % of EMS patient care reports will be submitted with no errors in critical data elements. • By December 31, 2019, 70 % of EMS patient care reports will be submitted with no missing critical data elements. <p>By December 31, 2019, 100 % of records on the State EMS data file will be National Emergency Medical Service Information System (NEMSIS)-compliant.</p>
8.4	Improve the accessibility of EMS and injury surveillance data.	<ul style="list-style-type: none"> • Compile and distribute an annual report on the percentage of injury records that have external cause of injury to maintain or increase cause reporting using ICD-10-CM. 	<ul style="list-style-type: none"> • By December 31, 2017, the Colorado Hospital Association routinely shares with member hospitals and with the Colorado Health Information Management Association the percentage of injury records that have external cause of injury to maintain or increase because reporting using ICD-10-CM. Note: CDPHE can provide annual results to stakeholders, such as STRAC.

Table 10. Strategic Goals for Data Use and Integration

Goal 9: Improve data linkage between traffic records data systems.

No.	Improvement Area	Action Items	Performance Measure
9.1	Improve data linkage between traffic records data systems.	<ul style="list-style-type: none"> Develop and execute a plan to understand data users and their data integration needs. Identify and document the key data fields, data definitions, and data standards that would enable data to be linked between the six Traffic Records data systems (crash, driver, motor vehicle, citation/adjudication, roadway, and injury surveillance). Link the vehicle, driver, and crash data systems to create one data interface. 	<ul style="list-style-type: none"> By December 31, 2016, present to the STRAC a document covering the various stakeholder/user needs for data integration between the six Traffic Records data systems (crash, driver, motor vehicle, citation/adjudication, roadway, and/or injury surveillance). By June 30, 2019, the vehicle, driver, citation, and crash data systems have been linked to create one data interface.
9.2	Improve access to resources for use and analysis of traffic record data systems.	<ul style="list-style-type: none"> Develop and execute a plan to understand data users and their accessibility needs. 	<ul style="list-style-type: none"> By December 31, 2018, 80 % of authorized traffic records data stakeholders have access to the crash data linked to vehicle, driver, and/or citation data. <i>(Accessibility)</i>
9.3	Improve intra-agency interface and interagency data integration.	<ul style="list-style-type: none"> Develop and execute a plan to understand intra-agency interface and interagency data integration needs across all six Traffic Records data systems (crash, driver, motor vehicle, citation/adjudication, roadway, and/or injury surveillance). Develop a plan for providing law enforcement officers with interfaces (for example, web service calls) that would assist in auto-population of the relevant fields of various forms (crash report, citation, impairment, etc.) based on the input information. (For example, the information for the driver fields could be obtained using the driver's license number, or the information for the vehicle-related fields could be obtained using the license plate number.) 	<ul style="list-style-type: none"> By December 31, 2017, present to STRAC a document covering the various stakeholder/user needs for access to the integrated data sets identified in Objective 9.1. By June 1, 2018, present to the STRAC a proposed plan for providing services to assist in the auto-population of fields across various forms for use by the law enforcement agencies.

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Membership in the STRAC Committee

Voting Agencies and the Assigned Members:

- | | |
|---|-----------------------|
| • Department of Public Safety | Major David Santos |
| • Department of Revenue | Ms. Crystal Soderman |
| • Department of Transportation | Ms. Alisa Babler |
| • Department of Public Health and Environment | Ms. Christine Demont |
| • Department of Human Services | Mr. Webster Hendricks |
| • State Judicial Branch | Ms. Molly Saxton |
| • Office of Information Technology | Mr. Jon Gottsegen |

Federal Agencies:

- National Highway Traffic Safety Administration (NHTSA)
- Federal Motor Carriers Safety Administration (FMCSA)
- Federal Highway Administration (FHWA)

State Associations:

- Colorado Chiefs of Police Association
- Colorado Sheriff's Association
- Colorado District Attorney's Association
- Colorado Motor Carrier's Association
- Bicycle Colorado
- Colorado Local Technical Assistance Program

Local Agencies:

- Denver Regional Council of Governments
- City and County Officials
- City and County Law Enforcement
- Coroner's Office
- Higher Education

Other Participants:

- Any other person, association, or governmental agency with a demonstrated interest in traffic records and accepted as a participant by a majority of the Voting Members.

STRAC Officers:

- | | |
|--------------------|--------------------------|
| • Chairperson | Ms. Alisa Babler – CDOT |
| • Vice Chairperson | Major David Santos – CSP |
| • Secretary | Mr. David Bourget – CDOT |
| • Sergeant at Arms | Mr. Glenn Davis – CDOT |

Team Leads:

- | | |
|---|---------------------|
| • Injury Surveillance | CDPHE |
| • Citation/Adjudication | State Judicial/ CSP |
| • Crash Records and Roadway Files | CDOT |
| • Crash, Driver Licensing and Vehicle Records | CDOR |
| • STRAC Committee | STRAC Officers |

Appendix A. Data Area Suggestions from SHSP Stakeholders

In 2016, safety stakeholders from across the state participated in a half-day SHSP session at the conclusion of Colorado’s Road Health Safety Summit, focusing on “Moving Towards Zero Deaths”. At the Summit, the emphasis area team has once again reviewed updated data for fatalities and serious injuries and determined if changes in the action plans were necessary. From this Summit, an SHSP Implementation Plan was developed to work as a companion document to the SHSP that was approved in 2015. The STRAC also conducted a full day workshop to establish action plans to accompany the emphasis area recommendations from the SHSP.

At this Summit, it was concluded that data continues to be an emphasis area for the SHSP given its importance to the plan’s content and evaluation. Data strategies and actions, however, are a part of the Traffic Records Strategic Plan which is managed by the STRAC. The below items were discussed at the Summit for consideration by the STRAC and the Status of these items is noted below.



Colorado Strategic Highway Safety Plan

Data Emphasis Area Action Plan

Strategy 1: Identify and support efforts which maintain and/or improve the timeliness, completeness, accuracy, uniformity, accessibility, and integration of individual agency traffic information databases.

Performance Measure(s): progress on system and project performance measures in the strategic plan reported at STRAC meetings regularly

Step #	Action Step Leader	Description	Status
AS 1.1	STRAC	Review and update a traffic records system strategic plan, which focuses on improving the timeliness, completeness, accuracy, uniformity, accessibility, and integration of traffic information databases and identifies performance measures for each traffic records system.	Annually each May
Step #	Action Step Leader	Description	Status
AS 1.2	STRAC voting members	Identify, prioritize, and select projects for funding which will support the goals and strategies in the traffic records strategic plan.	Annually in Feb. & April

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Step #	Action Step Leader	Description	Status
AS 1.3	STRAC	Identify performance measures for each selected project based on guidelines in NHTSA's Model Performance Measures for State Traffic Records Systems.	Annually in May
Step #	Action Step Leader	Description	Status
AS 1.4	STRAC	Track quarterly progress of the performance measures for each project in the strategic plan.	Quarterly
Step #	Action Step Leader	Description	Status
AS 1.5	STRAC	Track progress of performance measures for each system in the strategic plan and report progress on meeting performance measure goals to the STRAC.	Annually

Strategy 2: Identify and document traffic safety databases and pathways of information, redundancies, needs, and gaps in current traffic safety data systems throughout Colorado.

Performance Measure(s): *Gap Analysis Report delivered to STRAC*
 Data Resource Guide delivered to STRAC

Step #	Action Step Leader	Description	Status
AS 2.1	STRAC	Secure a contractor to develop 1) a Gap Analysis Report which documents the redundancies, needs, and identified gaps of the current traffic safety data systems, and 2) a data resource guide that documents traffic safety databases and pathways of information throughout the State.	Completed
Step #	Action Step Leader	Description	Status

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AS 2.2	STRAC /Traffic Records Coordinator	Identify data owners and contact information.	Completed, however with DRIVES coming online much of it will begin to be outdated and may need to be revised in 2020.
Step #	Action Step Leader	Description	Status
AS 2.3	STRAC /Traffic Records Coordinator and CDOT	Identify data elements in the state and local databases and collect data maps/data dictionaries for each database.	Partially completed, available data dictionaries have been collected. Data dictionary for the DR 3447 crash report has been created. With DRIVES coming online between 2019-2020 new data dictionaries may need to be collected as the system is implemented. – Tier 1* CDOT is developing a plan by 2020 to collect local data elements to comply with Federal MIRE requirements. - Tier 2
Step #	Action Step Leader	Description	Status
AS 2.4	STRAC /Traffic Records Coordinator and CDOT	Identify key data elements (selected by STRAC) and determine existing and potential linkages between databases.	TBD – Tier 1 TBD - Tier 2
Step #	Action Step Leader	Description	Status
AS 2.5	STRAC/ CDOT and DOR	Identify redundancy across traffic safety data systems.	Ongoing. Redundancies have been identified between crash reporting data at DOR and CDOT, which create different data outcome sets for analysis. Looking at opportunities to resolve this with implementation of DRIVES by 2020. – Tier 1
Step #	Action Step Leader	Description	Status
AS 2.6	STRAC /Traffic Records Coordinator	Identify needs of each traffic safety data system.	Ongoing, priority has been given by STRAC to improve and research options for collection of citations into a central repository for analysis. – Tier 1

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Step #	Action Step Leader	Description	Status
AS 2.7	STRAC /Traffic Records Coordinator	Perform gap analysis of each traffic safety data system.	TBD – Tier 1
Step #	Action Step Leader	Description	Status
AS 2.8	STRAC /Traffic Records Coordinator	Develop and deliver a Gap Analysis Report to the STRAC, which documents the redundancies, needs, and identified gaps of the current traffic safety data systems.	TBD, contingent upon priority discussions with STRAC and input from other EA teams.
Step #	Action Step Leader	Description	Status
AS 2.9	LTAP/ STRAC	Develop a common curriculum and educate local agencies on data access and management.	June 2019 – Tier 1 June 2020 – Tier 2
Step #	Action Step Leader	Description	Status
AS 2.10	STRAC	Provide training/resources on how to analyze and use the data	Ongoing
Step #	Action Step Leader	Description	Status
AS 2.11	STRAC /Contractor	Develop and deliver a Data Resource Guide to the STRAC, which documents the traffic safety databases and pathways of information throughout the State.	Completed, however with DRIVES coming online much of it will begin to be outdated starting in 2019 and may need to be revised in 2020.

* Tier 1 refers to state databases and Tier 2 refers to local databases. The STRAC will determine the definition of local databases for the purpose of this task based upon the jurisdictions, which comprise the largest percentage of crash reports.

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Strategy 3: Revise DR 2447 to reflect current and emerging data needs.

*Performance Measure(s): DR 3447 recommendations delivered to STRAC
DR 3447 in use by law enforcement agencies*

Step #	Action Step Leader	Description	Status
AS 3.1	STRAC/ Traffic Records Coordinator	Establish a working group to review the DR2447 and provide recommendations to STRAC for revision of the crash report.	Completed
Step #	Action Step Leader	Description	Status
AS 3.2	DR 3447 working group/ Traffic Records Coordinator	Review the most current MMUCC guidelines, recent and proposed legislation, Gap Analysis Report (Strategy 2) and other pertinent information, which may impact the DR 3447 and/or data collection, record maintenance, or crash records accessibility processes.	Completed
Step #	Action Step Leader	Description	Status
AS 3.3	DR 3447 working group/ Traffic Records Coordinator	Deliver recommendations for revision of the DR 2447 to the STRAC.	Completed
Step #	Action Step Leader	Description	Status
AS 3.4	STRAC	Secure a contractor to facilitate development of the DR3447 implementation plan.	Completed
Step #	Action Step Leader	Description	Status
AS 3.5	STRAC	Develop implementation plan to deliver paper and electronic form, user's manual, develop training curriculum, migration plan, and communications plan for rollout.	Ongoing.
Step #	Action Step Leader	Description	Status

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AS 3.6	DOR	Statewide DR3447 implementation (live date).	Contingent on DRIVES implementation timeline, potentially 2020.
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Strategy 4: Develop processes to integrate the crash, EMS/injury surveillance, citation, and roadway databases.

Performance Measure(s): Integration Plan for traffic information databases developed functional and technical data models developed to integrate the crash, database with EMS/injury surveillance, roadway, and/or citation databases

Step #	Action Step Leader	Description	Status
AS 4.1	STRAC	Develop a plan to prioritize the desired capabilities for integration of the traffic information databases, with first priority on the crash, injury, and roadway databases.	Ongoing, with DRIVES coming online much of it will begin to be outdated and will need to be revised once DRIVES is implemented.
Step #	Action Step Leader	Description	Status
AS 4.2	STRAC	Explore the feasibility of a unique identifier across traffic safety data systems.	Awaiting schema of the DRIVES system to become available.
Step #	Action Step Leader	Description	Status
AS 4.3	STRAC	Identify the Custodian of Record for each database and communicate with them the importance to the State of seeking a unique identifier.	Awaiting schema of the DRIVES system to become available.
Step #	Action Step Leader	Description	Status

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AS 4.4	STRAC	Establish a STRAC working group to develop an ingrained process to improve the location accuracy, which uses electronic capture of location data.	Awaiting discussions with DRIVES vendor to determine data edit rules that can be put in place to improve location accuracy.
Step #	Action Step Leader	Description	Status
AS 4.5	STRAC	Develop functional and technical data models to integrate the crash, EMS/injury surveillance, citation, and roadway databases.	Contingent on DRIVES implementation status.