■ TRANSPORTATION SAFETY DIVISION ■

TRAFFIC RECORDS COORDINATING COMMITTEE

Strategic Plan for Traffic Records Improvement

Revised October 2016

■ OREGON DEPARTMENT OF TRANSPORTATION ■

Authors' Note

This is the report of the strategic planning process conducted of the traffic records systems in the State of Oregon. This plan is based on the most recent Traffic Records Assessment, including interviews with users, collectors, and custodians of traffic records in the state, written documentation provided by the state, and the expertise of the project team. Using this as a base, the TRCC developed this strategic plan to guide future data collection and analysis efforts.

2016-2017 Traffic Records Coordinating Committee

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Statutory Requirements for a Strategic Plan for Traffic Records Improvement

MAP-21 (Moving Ahead for Progress in the 21st century), and FAST ACT Section 405 includes a requirement for strategic planning to qualify for grants to improve a state's traffic records system. Traffic records are a key component in the effort to improve safety on the State's highway transportation system by determining crash trends and associated factors, allowing the identification and assessment of sites of safety interest on the network, evaluating outcomes and determining the effects of comprehensive polices which include engineering, education, enforcement, and emergency services.. The traffic records system underpins the overall effort to make the maximum use of resources to improve safety.

This Strategic Plan for Traffic Records Improvement meets the requirements under Section 405/408 of the SAFETEA-LU/MAP-21 legislation:

a) The Strategic Plan has been developed under the guidance of and using the input of the TRCC and has been approved by the TRCC.
b) Existing deficiencies in Oregon's highway safety data and traffic records system have been identified in the Traffic Records Deficiencies and Performance Measures section (pg. 25).
c) The System Assessment section describes the process by which deficiencies were identified (pg. 6).
d) The TRCC has prioritized the needs and set goals for improving the traffic records system in the Phases of the Strategic Plan and FY2016 Grant Funds Tracking sections (pg. 38, 47).
e) The Traffic Records Deficiencies and Performance Measures section identifies performance-based measures by which progress towards the identified goals will be determined (pg. 25).
f) The 2016 Grant Funds Tracking table specifies how Oregon will use section 405/408 and other funds to address the needs and goals identified in the Strategic Plan (pg. 47).

The Purpose of this Document

The purpose of this document is to provide the Oregon Traffic Records Coordinating Committee (TRCC), the ODOT Transportation Safety Division (TSD), and other traffic safety stakeholders of the State of Oregon with a Strategic Plan for Traffic Records Improvements. This plan is directed primarily at actions that the TRCC can help accomplish through its membership while pursuing the goal of improving traffic records. As such, it touches on the activities of all stakeholder agencies within the state but it does not represent an attempt to set those agencies' agendas. Rather, it is an attempt to help the TRCC fulfill a broad role of communication, coordination, and assistance among collectors, managers, and users of these data in Oregon.

This plan is based on the findings and recommendations documented in the most recent Traffic Records Assessment and the information provided by the state to the project team but draws upon the knowledge and expertise of the TRCC members to craft a plan that considers those findings and ensures development of a comprehensive data-driven approach to traffic records The remainder of this document includes sections on the status of the Oregon traffic records system, as well as an overview and details of the strategic plan.

Agencies Involved with Traffic Safety and Traffic Records Systems

Agencies and organizations recognized in this plan as being vested with a responsibility for transportation safety include:

Community Groups — responsible for accomplishing local traffic safety objectives.

Oregon Health Authority (OHA) Public Health Division — responsible for collecting and managing information that describes incidences of trauma occurring within the state.

Federal Highway Administration (FHWA) — provides financial resources and technical assistance to state and local governments for planning, designing, constructing, preserving, and improving the National Highway System and urban and rural roads that are not on the System, but that are eligible for Federal-aid.

Federal, State, and Local Traffic Engineering Agencies — responsible for the roadways and traffic operations within their jurisdictions.

The Judicial System — responsible for the adjudication of traffic offenses at both the state and local level.

Local Law Enforcement Agencies — enforce traffic laws and regulations at the local level.

Medical Examiners & Coroners — add to the understanding of the factors contributing to fatal injuries suffered in motor vehicle crashes.

Metropolitan Planning Organizations — responsible for addressing traffic safety planning and project programming issues within designated areas of the state.

National Highway Traffic Safety Administration (NHTSA) — responsible for preventing injuries and reducing economic costs due to road traffic crashes at a national level.

Oregon Department of Transportation (ODOT) — responsible for crash and roadway data collection, coding, statistical reporting, overall management of statewide, commercial vehicle, and FARS crash data systems, planning, designing, constructing, and maintaining the roadway infrastructure.

ODOT Driver and Motor Vehicle Services, Driver Programs — licenses drivers and maintains conviction, and driver records including insurance and accident verification reporting.

ODOT Driver and Motor Vehicle Services, Vehicle Programs — registers vehicles, maintains vehicle title information.

ODOT Motor Carrier Division —responsible for oversight of commercial motor carriers operating within the State.

ODOT Transportation Safety Division — responsible for traffic safety program management, problem identification, and countermeasure grant funding.

Oregon State Police — responsible for enforcing laws on state highways.

Trauma Care Providers — physicians, hospitals, emergency medical services, and long-term care providers who treat persons injured in motor vehicle crashes.

System Assessment

Recommended Improvements Are Based on the Results of a System Assessment

The recommendations contained in this strategic plan are the result of a systematic review of Oregon's existing traffic records system components and interviews with those persons knowledgeable in their use and operation. These findings have been combined with the TRCC's knowledge of traffic records concepts and contemporary approaches to traffic safety to produce this strategic plan. The purpose of the traffic records review was to update knowledge of Oregon's:

- Compliance with recommended standards, practices, and federal guidelines.
- Efficiency and effectiveness of data processing, information exchange, and existing technology.
- Ability to support highway safety program management with timely and accurate traffic records information.

The System Assessment is a Synthesis of Information

This strategic plan includes a synthesis by the review team of information derived from the following sources:

- Interviews with data collectors, users, and system managers of traffic records data throughout the state.
- 2010 Traffic Records Assessment Report.
- System documentation for the various data systems identified.

- Recommended practices and standards promulgated by various federal agencies and professional organizations involved in transportation, highway safety, and traffic records.
- Technical expertise of the project team itself in the definition, development, and use of traffic records to support national, state, and local highway and traffic safety applications.
- Knowledge and expertise of the TRCC

Evaluation Criteria/Results

In order to provide Oregon with an overall evaluation of its traffic records system, the capabilities of that system have been compared against a set of criteria built by the project team based on those used by National Highway Traffic Safety Administration (NHTSA) in state traffic records assessments. These criteria relate to the ability to develop accurate analytic measures of crash characteristics. These criteria recognize the need for data from a variety of sources within the state.

The following sections summarize the findings from the 2010 Traffic Records Assessment Report with updates when applicable. The subsections that follow present questions related to the desired analytic measures of crash characteristics. Each question can be answered at varying levels of specificity, requiring correspondingly more or less detail in the information needed for analysis.

For example, to conduct an overall comparison of the state's crash experience for this year versus last year, aggregate data showing crashes per million vehicle miles traveled may be sufficient. However, in order to identify highway safety problems, develop a comprehensive annual program of work, or evaluate previously implemented countermeasures, a detailed knowledge of the roadway, vehicles, occupants, injuries sustained, course of medical treatment applied, and the ultimate effectiveness and cost of those treatments may be required.

Crash Data Processes

Does the traffic records system include sufficient detail to support valid descriptions of the state's crash experience sufficient to identify problems and evaluate effectiveness of safety programs?

A major concern for Oregon crash data collection is the suspicion that up to one-third of the reportable crashes are missing from the statewide crash database. Although there are no quantitative numbers in support, there are several strong factors forming the basis of this suspicion: reluctance on the part of vehicle operators to file property damage only (PDO) reports with DMV, reduced or lack of law enforcement investigation of PDO crashes; additionally, some police reported crashes did not make it through DMV's processes due to program requirements which result in their exclusion from the statewide crash database. Examples of such crashes are hit-n-run parked vehicle crashes that have no attributing driver

record for DMV input. Many of the missing crash reports have been assumed to be crashes involving property damage only (PDO). *(Note: property damage only (PDO) crashes are defined as a motor vehicle crash in which there is no injury to any person, but only damage to a motor vehicle, other road vehicle, or to other property, including injury to domestic animals.)*

It was anticipated that this estimate would be revised upward with the 2004 change in reporting thresholds causing a corresponding decrease in reporting levels. With the damage threshold increased to $1500, fewer PDO crashes will be coming into the system. However, the initial 20 percent drop in reporting experienced after the new threshold was implemented was larger than expected due in part to confusion over the new requirements. The three years following the threshold change year of 2004 reflect reporting levels remaining approximately 10-13% lower then the three years prior to the threshold change years.

Comparisons of Oregon's overall crash reporting levels to that in other states, even after adjusting for the suspected levels of underreporting, leave the impression that the annual numbers of crashes and corresponding data being reported are less reliable than previously assumed. However, these reporting levels have been relatively consistent throughout the 22 years of Oregon's available crash history and provide a significant and valuable sampling.

Given the extent of suspected underreporting and the high proportion of crashes represented by reports from the operators alone, the general confidence expressed by users of the statewide crash information in regard to total crashes and data would seem to be optimistic. The reason so many users expressed confidence in the data appears to be due the extensive quality control steps taken by the ODOT Transportation Development Division (TDD) Crash Analysis & Reporting (CAR) Unit. In addition to the coding of the reported crash data, this unit also provides analytic services and has a track record of consistency in both the data and the resulting analyses. It is clear that the effort expended by the CAR Unit to assure crash data quality could be reduced if a greater percentage of crash reports were written by officers to begin with and if automated reporting tools for both officers and operators included extensive edit checks to match those currently in place for the CAR Unit crash data entry process. The TRCC recognizes that the review team has raised concerns over the need for greater levels of police reporting. The TRCC has established metrics to track and work toward increased law enforcement reporting and substantial efforts have been and are being devoted to this effort.

Historically, Oregon crash statistics have only pulled data from complete crash report files in which all involved drivers have submitted crash reports to DMV. And DMV has taken all actions required to ensure drivers are in compliance with Oregon law for liability insurance coverage and receive appropriate driver license suspensions. Beginning with 2011 data, incomplete files, in which one or more drivers failed to submit a crash report or a driver license suspension is pending, will be sent to the CAR Unit for data input. Although this change in process will not impact fatality data, the number of crashes coded is expected to increase by approximately 15 percent. A sampling indicated that about half of these

incomplete crash files contain an officer report; however, future analysis will determine impacts of this change to the completeness of the crash file.

The review committee made the assumption that the state dataset does not have complete crash data and with the reliance on operator reports for a majority of the data that make up the statewide crash dataset, these factors combine to portray Oregon's crash system as less reliable for adequate analysis of safety issues. This situation has persisted for many years and has been the subject of much criticism of the state during that time. In recent years, the situation has become worse with legislation, budget cuts, and policy all contributing to structural barriers to good crash reporting in Oregon. Examples of these structural barriers include:

- In some PDO crashes, the reporting requirement applies only to the motorist whose vehicle sustained above-threshold damage. Other motorists involved whose vehicles did not sustain that level of damage may successfully avoid reporting their crash involvement. This leaves a gap in the crash case record and makes it more difficult for the DMV to identify uninsured crash-involved motorists. It is anticipated that the proportion of unknown drivers will increase because of the reduction in reporting responsibilities.

- Legislation passed in 2004 that requires operators to report crashes directly to the DMV creates the impression with the public that a crash report is used primarily to verify insurance or to assign points to a driver's record, rather than being used for safety analysis. The result is reluctance on the part of operators and some law enforcement agencies to report crashes to the state. It may be safely assumed that drivers will view crash reporting as something to be avoided if they can get away with it. (Note: The legislation to require reporting to DMV only was in response to the concern that vehicle operator reports filed with police agencies and insurance agencies were not reliably reaching DMV. In addition, in an effort to inform the public about what the report information is used for, language has been added to the instructions for filling out the "traffic accident and insurance verification report" that states, "Information collected from both sides of this form is used by DMV and other officials in making valuable transportation decisions about roadway systems and driver safety.")

- PDO single vehicle crashes are based on biased data from the one involved driver and may be underreported because the incentives to avoid reporting to the DMV are too high.

- Failure to prioritize state law enforcement's role in crash reporting and providing adequate funding to the Oregon State Police have led to substantial underreporting by that agency. Further, it was reported that some local law enforcement agencies have adopted similar policies leading to under-reporting of PDO crashes.

Oregon administrative rule requires motor carriers (employers) to notify DMV of fatal crashes occurring in Oregon within 24 hours. This separate report includes: date and time of the

accident, location, name of each carrier involved, number of persons killed, brief description of the accident, and name and telephone number of the person reporting.

In a recent survey, only Alabama reported fewer troopers per population than Oregon, and Alabama has since added 100 new troopers. The low staffing levels in the Oregon State Police (OSP) has adversely affected the agency's ability to respond to all calls for service, including crashes. Although OSP endeavors to respond to and appropriately report all crashes on state and local roadways, insufficient staffing levels have not permitted this.

The public and legislature should be educated about the importance of enforcement for traffic safety improvements. The impact of the lack of complete crash report data on all other aspects of highway safety work in the state cannot be over-emphasized. Regardless of the great strides being made within Oregon in terms of analysis and safety program planning, the lack of a more complete crash dataset undermines these efforts to a significant degree.

The review also recommended the State continue recent efforts underway to work with law enforcement on educating them on the importance of the data derived from their official crash reporting and how that data can be used effectively for strategic traffic enforcement and patrolling, including producing law enforcement data books that identify high crash areas by jurisdiction and coordination with the Oregon Department of Public Safety Standards and Training (DPSST).

The TRCC does not necessarily agree with all these conclusions and continues to find that the crash database provides a rich level of data – importantly this provides, albeit limited, data on minor and PDO crash occurrences that other states may no longer collect due to restrictions on law enforcement response to crashes. The important issue is to assess the degree to which pertinent information may be drawn from Oregon crash data and to bound the likely uncertainty of the data. Rather than take a stance to limit data collection the TRCC believes a more well considered course is to pursue increases in efficiency of reporting through large scale efforts currently underway to increase the use of e-crash and e-citations, to increase the level of automation in processing of crash reports, to increase the level of automation and exchange of information on the adjudication of citations and information on the outcome of crash events via the trauma registry.

Within MAP 21 there are new requirements for data, including the requirement to improve the collection of data on non-motorized crashes.

Roadway-Related Safety Analyses

Does the traffic records system support roadway-related safety analyses with data about locations, roadway types, structures, control devices, roadside appurtenances, and traffic volume?

State highway safety projects are identified through the annual Safety Priority Index System (SPIS) analysis. The index assigns a score to each tenth-mile segment of roadway based on

weighted combination of crash frequency, rate, and severity. The SPIS is used to identify the top 10% high-hazard locations.

ODOT regional staff reviews the SPIS locations for their area and identifies potential projects and appropriate funding sources. The safety program spending is coordinated by ODOT with these and other roadway system investments and funding sources. Regional engineers and a regional traffic safety investigator coordinate countermeasure design and selection between behavioral and engineering activities. There was some indication that this coordination role may need to be strengthened in some regions, but that it generally worked well. In addition, the regional safety engineers are authorized to review projects that are planned for high crash locations to identify behavior-related and engineering-related countermeasures. The regional staff can use a benefit cost spreadsheet with crash reduction factors from the national clearinghouse to support their selection of promising projects.

An All Public Roads SPIS was completed in April of 2012 to provide SPIS analysis and other crash analysis tools for all public roads. ODOT also developed a method of building dynamic segmentation to provide another way to analyze the data in addition to the current method of static tenth-mile segments and adjustable SPIS tool. ODOT as part of this effort is developing a mapping tool to report on the SPIS and analyze crashes on all public roads. The state has also developed systemic investment methods such as the departure crash program which aims to identify crash types and associated factors rather than focus solely on high crash locations. A similar effort is underway with intersection crashes. ODOT is also actively evaluating the Highway Safety Manual techniques to aid in crash prediction and network screening.

There is not currently a statewide system to enter roadway inventory or traffic characteristics that has the participation of all county and municipal roadway agencies (although a system exists for state highways). The Integrated Road Information System (IRIS) is available for counties and most use some portion of it. In addition, several counties participate in the GIS. The planned asset management system is expected to include local roadway data; however, a common location coding method must be implemented before this becomes practical. At the state level, there are some legacy issues with duplication of milepost numbers along different sections of the same route. ODOT's corporate information database is known as TransInfo. TransInfo supports a variety of ODOT's Transportation Management Systems and contains roadway inventory data, traffic counting information, and other pertinent roadway information. The system has been updated and is capable of containing local roads roadway inventory data.

Currently, ODOT Transportation Development Division (TDD) Geographic Information Systems (GIS) program is coordinating with Association of Oregon Counties (AOC) and other agencies in the development of a statewide road network (ORTrans). When completed, this will provide a GIS system that will also be a repository of local and state highway transportation data including roadway inventory and other traffic elements.

Beginning with 2007 crash data, the CAR Unit has added latitude – longitude to all roadway crash site data making it available to users in a GIS format with an LRS value as an option. Assigning this LRS value allows crashes to be geo-locatable.

ODOT is also in the process of adopting the Highway Safety Manual (HSM). ODOT is reviewing different elements of the HSM and integrating some of the principles and methods into the roadway safety program. ODOT has performed assessments of the data needs for HSM implementation, calibration studies for the predictive methods and included methods in the Safety Investigations Manual. ODOT is participating in the HSM implementation multi-state pooled fund study. In addition, ODOT has participated in a Roadway Data Needs assessment performed by FHWA.

With the new MAP-21 legislation there are several new requirements for roadway data. USDOT must establish a subset of the model inventory of roadway elements that are useful for the inventory of roadway safety. States will be required to adopt and use the subset to improve data collection. In addition, States are required to improve data on the ownership of the all public roads.

Vehicle-Related Safety Analyses

Does the traffic records system support vehicle-related safety analysis with data on vehicle types and physical characteristics, age, condition, and safety devices present?

The ODOT Driver and Motor Vehicle Services Division (DMV) registers vehicles utilizing 60 field offices and three dealer-processing centers located throughout the state.

Field offices can issue plates and registration stickers, but final documents and titles are sent from the central office. Field offices can perform queries and data entry to update the vehicle registration system using the DRIVE system. Updates to the central Vehicle Registration System are performed overnight in batch mode. Title information documents are submitted by the field offices to the central DMV office for data entry.

Motor vehicle registration documents include a bar code, but this is used only for remittance tracking, not for automated data collection in the field (e.g., by law enforcement). Officers have access to the vehicle registration and title information through the Law Enforcement Data System (LEDS) network. Title branding includes salvage and reconstructed brands, and title brands from other states are carried forward into the Oregon database. Oregon is not currently a participant in the National Motor Vehicle Title Information System (NMVTIS), but hopes to do so in the future.

Registration and title data are entered through the Vehicle System and the name and address of the customer is pulled from a customer-oriented DB2 application linking driver and vehicle owner information. The underlying vehicle information system dates from the 1960s. The vehicle registration system supports linkage to vehicle insurance records of the Automobile Liability Insurance Reporting (ALIR) file. ALIR contains start and stop dates for insurance

coverage and is updated automatically by insurance companies whenever the insurance status changes. Registration renewals also include the owner's certification of insurance coverage. To identify lapses in coverage, the DMV obtains a sample of vehicle records that lack a corresponding record in ALIR. This random sampling procedure requires owners to respond to a postcard by mail with proof of insurance coverage. This more directed sampling process allows DMV to only send notices to customers who don't appear to have insurance coverage.

Legislation would be required in Oregon in order to use the link between driver and vehicle owner information to support blocking registrations for suspended or revoked drivers who are vehicle owners. Current Oregon law allows registration of a vehicle when a person has a suspended or revoked driver's license. There is no link between the ODOT crash database and the vehicle database.

The registration and title information is considered part of the public record and the state sells the information to third parties (e.g., CarFax). Verifying Vehicle Identification Number (VIN) and make/model between the insurance and registration databases has identified some data quality concerns. VIN validation software is used for title and registration transactions.

Human-Related Safety Analyses

Does the traffic records system support human-related safety analyses with data on age, gender, experience, physiological and psychological condition, license status and driver training, and use of safety devices?

The DMV processes driver license applications at the same 60 field offices where vehicle registrations and titles are processed. The driver license applications are submitted at the field offices along with the fees and an interim paper card is issued to the customer. The driver license card is then mailed to the customer from a central location. In 2010, there were approximately 3.0 million licensed drivers in the state. The CIS application is used for customer information, including the customer's name and address.

The field offices process driver license applications using the DRIVE subsystem that is the same system used to process vehicle registration renewals. The central DRIVERS subsystem handles license issuance, updates to license status, conviction history, restrictions, financial responsibility, and renewal notices (among others). The driver license card incorporates 1-D and 2-D barcodes and a digital picture. Facial recognition capability was implemented in July 2008.

Oregon participates in the Commercial Driver License Information System (CDLIS), the Problem Driver Pointer System (PDPS), and the National Driver Register (NDR). Pointers are placed in PDPS to alert issuing agencies that a driver is a "problem driver." Oregon looks at PDPS information and determines whether to allow issuance of an Oregon license based on the severity of the problem. If an out-of-state driver gets a conviction in Oregon, the

conviction is posted to an Oregon record which is created for the driver. The conviction for the out-of-state driver, like convictions obtained by Oregon licensed drivers, is reported to PDPS.

Traffic violations are written by law enforcement officers using a standardized citation format set by the Office of the State Court Administrator (OSCA). Most enforcement agencies do not track individual citations and there is no single numbering system for citation forms. Each individual agency prints citations to match the approved format.

In general, OSP felony and misdemeanor charges go to the circuit court level, as do most violations. Some local agencies have the option of filing their citations through their justice courts (county level) or municipal courts, in which case any fines are collected for local use.

There are at 29 city and county agencies using electronic citation issuance, as well as Oregon State Police statewide. An expansion of the pilot is underway to include statewide electronic crash reporting. With the exception of several pilot agencies that are transferring tickets electronically to local courts, all citations are received by the courts on paper forms and must be data entered by court clerks into their own court management system. There is no statewide repository for citations. Multiple sources suggest that not all traffic cases result in a disposition (i.e., some judges engage in deferred adjudication), and that not all convictions are reported to the DMV. Currently there is no way to tell how many traffic cases are deferred statewide or how many convictions fail to make it to DMV. Some of the barriers to linking court data may be addressed through the Oregon Judicial Department's eCourt Project, which will replace the Oregon Justice Information Network (OJIN).

The driver history record at DMV is updated with notations of traffic convictions and crash involvement. Even though many courts transmit convictions electronically through the Oregon Justice Information Network (OJIN), DMV only accepts the convictions from the courts on paper. A plan is under development to allow the DRIVERS subsystem to accept the conviction data electronically. At present, DMV receives only failure-to-appear and suspension orders from Circuit Courts electronically. All other data for updating the driver history from circuit, justice, and municipal courts are received on paper.

Environmental Factors

Does the traffic records system support safety analyses of the interaction between environmental factors (pavement damp or oily, precipitation, visual obscuration, illumination, time of day)?

The review team concluded in their 2010 assessment: Realistically, the reliance on operator reports for a large proportion of the available crash data makes it unlikely that analyses of contributing factors in crashes will be valid or reliable. Drivers are likely to downplay the factors that imply poor skill or attention on their part and attribute problems to the roadway, the other drivers, the vehicles, and the environment in general. While the TRCC is aware of limitations in citizen reporting a complete dismissal of such data is rash and not desirable;

rather the fiscal limitations need to be recognized and efforts made to work within structural limitations (while separately working for additional larger scale changes).

Environmental information pertaining to weather, light, and road surface conditions are collected from Police Accident Report (PAR) and driver Accident and Insurance Verification Report. Both the PAR and driver Accident and Insurance Verification Report have been coordinated in their development over the years to use the same language and definitions for such elements. Crash coder training provides that strict methodologies are applied to factors reported in crashes and many factors must be supported by a PAR.

To the extent that engineers in ODOT and the local agencies can work together to assess high-crash locations, the contribution of at least some environmental factors will be assessed through post crash engineering analyses. The SPIS and efforts by ODOT engineers are good methods for identifying sites where engineering countermeasures may work. Information from the crash reports themselves could be more useful if they were collected in a uniform manner.

Collision Factors

Does the traffic records system support safety analyses of the interaction between collision factors (number of vehicles, manner and speed of collision, and the nature of the object struck)?

As with analysis of other contributing factors, the reliance on operator reports makes it difficult to rely on data from crash reports to analyze the interaction between contributing factors. Unfortunately, unlike the situation with analysis of environmental and roadway factors, there is no alternative source for the information on vehicles, manner of collision, and other crash factors that are obtained only from the crash reports. If drivers fail to submit their reports or are biased in the information they provide, analysis of these data will be incomplete and/or invalid.

Oregon is able to rely on the reports of fatal crashes because these are investigated by trained enforcement officers. As the level of injury severity of the crash drops, it is believed that the probability of obtaining reliable data drops as well. Building safety programs when the only truly reliable data are from fatal crashes is not a valid methodology. ODOT engineering analysts use data from reports of injury and PDO crashes, but because more then half of this information comes from driver reports only, its reliability is questionable. The TRCC believes these reports still offer valuable key crash information on location and other crash parameters such that conclusions can still be drawn; in short, there is not a consensus at the TRCC that the current approach should be or needs to be abandoned.

Post-Collision Factors

Does the traffic records system support safety analyses of the interaction between post-collision factors (EMS, hospital, et al.)?

Oregon is currently working on a pilot project to establish an EMS run report database for rural ambulance service data tracking. This pre-hospital data system will conform to National EMS Information System (NEMSIS) guidelines. Several years ago, the Oregon Health Authority (OHA) implemented a NEMSIS version 2.2-compliant field collection software for EMS service providers to use, but the state is not able to accept the data without developing a pre-hospital data system.

The current TraumaOne database (Oregon Trauma Registry) complies with the National Trauma Data Standard (NTDS). There are a number of data elements in the NTDS that are exactly the same as in the NEMSIS standard; however, NTDS does not include a standard XML format to facilitate data exchange.

There are 62 hospitals in the state, 45 of which are state-designated trauma centers and are mandated to participate in the statewide trauma registry. Oregon does not require American College of Surgeons (ACS) certification for trauma center designation.

The state also recognizes the trauma designation of four hospitals in Washington State and one of those reports data on Oregon residents treated. OHA estimates that approximately 95% of the motor vehicle crash-related trauma cases are entered into trauma registries. The trauma registry includes pre-hospital treatment information but does not include the EMS run report number. The trauma registry has not been linked to crash data. Analysts use the annual crash facts book to correlate crash and injury data at an aggregate level only.

Personal identifiers are not used in the medical data files available for analysis. Instead, emergency medical personnel assign each patient a unique identification number through use of green armbands. This number is event-specific, however, so it is difficult to track an individual across multiple events or even multiple visits for the same event (e.g., if a person is treated and released, then re-enters the system at a later date).

EMS run reporting has taken on a secondary status to the statewide trauma registry. There are currently only a few agencies (39 out of 136) reporting run reports electronically to the state. As the state hopes to resolve their internal database issues, they may be faced with a larger-than-anticipated backlog of paper reports unless they can encourage many more EMS providers to use the available software and report electronically, however, there are some initiatives underway.

Some local users reported not using health-care information for analysis because it was judged too difficult to integrate with the crash information. They felt that they had reasonable data about injury and fatal crashes from the crash reports alone. There have not been many efforts to link crash and medical data as the main effort to date has been to implement the various injury surveillance databases.

Accessibility and Ease of Analyzing Interactions

Does the traffic records system allow users to access and combine data from various sources in order to determine the interactions between crash-related characteristics?

There is no overall system inventory or comprehensive source of traffic records in Oregon. In general, users expressed satisfaction with the quality of the data they received, despite difficulties in the areas of location-specific coding, and a missing data problem for crash report information.

Users' needs for information are met through a combination of sharing data extracts and analytic services, especially from the ODOT Transportation Development Division (TDD). The statewide GIS is a candidate system for meeting users needs for accessible information and analytic tools. ODOT has recently provided Internet access to its highway crash reporting tool, TransViewer, which contains a query tool. Phase 2 of this effort is to expand the reporting parameters to local jurisdiction roads.

Within ODOT, there is a project to develop standards for use of GPS so that field personnel collect location data in a uniform manner. ODOT is moving toward a statewide GIS-based Asset Management System and is promoting a standard set of basic data on all roadways for each of the roadway agencies to supply. The information is available for spatial reporting using TransGIS, an online application.

Local agencies have expressed an interest in linking various data sets such as calls for service (911), crash records, citation records and complaint records and have the ability to cross query them in order to better understand both the traffic safety issues and solutions, but also understand how resources such as law enforcement are being used in contrast with calls for service and crashes.

Data Quality

Are the traffic records data of sufficient quality (timeliness, accuracy and completeness) to support valid quantitative analysis and give decision-makers confidence in the numbers they use?

The reason so many users expressed confidence in the data appears to be due to the extensive quality control steps taken by the TDD. In addition to the collection and coding of crash data the CAR Unit provides analytic services and has a track record of consistency in both the data itself and the resulting analyses. It is clear that much of the effort expended by TDD to assure crash data quality could be avoided if a greater percentage of crash reports were written by officers to begin with and if automated reporting tools for both officers and operators included extensive edit checks to match those currently in place for the TDD crash data entry. The greater use of e-crash and e-citation reporting should offer a palliative here by moving up front corrections earlier and allowing more immediate verification by officers rather then weeks afterwards. Given the extent of suspected underreporting and the high proportion of crashes represented by reports from the operators alone, the general

confidence expressed by users of the statewide crash information in regard to total crashes and data would seem to be unwarranted. The TRCC recognizes the conclusions made by the review team but does not dismiss the citizen reporting database as readily as it appears the review team does. Essentially, the data is only as good as the person filling out the form, whether law enforcement officer or citizen. Education and outreach and improved data collection and analysis tools are needed to obtain better accuracy in reporting.

Beginning with 2007 crash data, the quality of crash location data will improve with the implementation of latitude – longitude attribute. With the implementation of the Crash Data System (CDS) Rel.3, additional validations have been built into the data entry screen further reducing potential data entry errors. In addition, a streets and intersection validation table has been developed and will greatly improve the accuracy of street numbering and labeling, another location accuracy improvement.

Management and Coordination of the Traffic Records System

Do stakeholders in traffic records have input into the practices and system improvement processes that affect their ability to collect, manage, and use the information?

Oregon's Traffic Records Coordinating Committee (TRCC) appears to match closely the current standards for recommended participation from a broad range of stakeholders. Prior to 2007, this group was known as the Safety Information Advisory Committee (SIAC). Adding a representative from a statewide prosecutor's association (the Oregon District Attorney's Association) and periodic review of the membership are needed.

The TRCC has the mission to coordinate among the various collectors, managers, and users of the broad range of traffic records component systems. This coordination is facilitated by the co-location of many of the key data systems (e.g., roadway, crash, driver, and vehicle) within a single agency – ODOT.

Overall Assessment

How does the traffic records system compare to national standards, practices in other states, and what is possible given the current state of technology and management?

The review team found that the lack of complete data and the reliance on operator reports of crashes are the most serious deficiencies of the Oregon traffic records system in comparison to the practices of other states and as recommended by NHTSA. In most other respects, Oregon has excellent processes, records systems, and analytic capabilities. The Traffic Records Assessment resulted in system-wide, data collection, data linkage, and training recommendations. For each recommendation in these areas, the key findings and recommendations are summarized below.

System-wide Recommendations

Strengthen the Traffic Records Coordinating Committee.

The TRCC's membership does not include representation from prosecutors. The TRCC continues to review its membership annually for any recommended changes. The TRCC updated its mission statement and charter in April 2012 and should continue to review annually.

Develop a traffic records system inventory to assist users in identifying data sources and analytic resources.

Descriptions of system contents for key components of the Oregon traffic records system are available upon request but not easily accessible. Users who need specific pieces of information do not have a single point of contact or resource where they can go to identify whether the needed data exist or where they might find the data. Plans to use the statewide GIS to serve users' needs for location-based analyses may alleviate some of the problems, but users still will need access to details such as data element definitions, caveats and limitations of the data, and where to turn for additional information (especially non-location based).

Address and correct the systemic barriers to full crash reporting.

The reasons for law enforcement failing to report crashes in Oregon are numerous and many of them relate directly to law and funding changes over the years. The only way to remove these barriers and put the crash records in Oregon on the road to reliability and validity is to make changes at the appropriate levels of government authority.

Data Collection Recommendations

Encourage electronic citation issuance statewide.

At least eighteen agencies use field applications for electronic citations (Clackamas, Marion, Lane, Deschutes, and Washington counties; Albany, Beaverton, Keizer, Medford, Newberg, Portland, Salem, Sherwood, and Woodburn police departments; as well as Oregon State Police). Courts, law enforcement, and the DMV each benefit from improved timeliness and accuracy supported by these applications.

Encourage law enforcement reporting of crashes.

In addition to the systemic barriers that are addressed as one of the system-wide recommendations, much needs to be done to simply gain law enforcement's cooperation in reporting crashes. Current state law and resource shortages combine to make it difficult to compel law enforcement agencies to consistently report crashes.

The review team concluded that the evidence is clear that at least some injury crashes are going unreported, as are a large number of reportable PDO crashes. The result is missing data on crashes of unknown characteristics and causes. The TRC recognizes weaknesses with the current reporting structure, but does not agree with the review team's strident assessment.

In the case of crashes where the only data come from operators, the reliability of the information is questionable to the point that the state should consider discontinuing using it for anything but financial responsibility purposes. This recommendation may invalidate 22 years of state crash history and may require redevelopment of several automated systems and processes, and those considerations must be addressed.

The solution to this problem includes better compliance and accuracy from operators, and a greater emphasis on crash reporting by law enforcement officers. The following recommendations are in addition to those in the system-wide section and may be viewed as interim steps or more immediate actions that can be taken while working to implement the solutions requiring changes in legislation.

Electronically image crash reports when received at DMV and immediately share those images with the TDD CAR Unit operation.

The lags in forwarding paper reports from DMV to the TDD can be excessive. Use of paper reports severely limits legitimate access to the original reports' contents, especially the narrative and diagram. By creating a digital image archive, DMV would better support access to the full reports and speed data availability to all ODOT staff.

Implement electronic data collection of crash reports and electronic data sharing.

ODOT's crash database cannot accept data electronically submitted from other sources, whether law enforcement or operator reports. The manual data entry processes at ODOT have been sufficient to maintain the database without a growing backlog, but if improvements are made in submitting a higher volume of crashes this may not continue to be the case. The current processes are costly, improvements to timeliness are difficult to implement, and error correction occurs at or near the end of the process instead of at or near the time of the crash event.

Improve data quality measurement.

Create a formal data quality measurement program that addresses all of the data quality attributes listed in the Advisory and any other federal guideline. In particular, however, Oregon should expand its data accuracy and completeness measures. The measures should be based on initial submissions by law enforcement, not just the final data file created by the CAR Unit staff. Ensure frequent periodic presentations at the TRCC meetings of data quality metrics for each component of the traffic records system.

In addition, create an error-tracking system that can report the number and type of errors for each law enforcement agency. Use the information to inform training content at the law enforcement academy and to provide feedback to law enforcement agencies in general and, where errors are most severe, to specific agencies.

Support expansion of GIS and use of map locator software or GPS use.

ODOT is investing in GIS for all location-based information, and latitude and longitude coordinates are either recorded at the site or are coded separately based on milepost or intersection data supplied on the crash report.

Enhance medical data collection and availability.

The current software for collecting EMS run report data is out of date. A plan is in place to enhance that system, but there is concern that many months will have passed without entry of pre-hospital data.

The hope is that EMS providers will send their data electronically to the new database; however, this is a major change from the past when only 13 services have been using the EMS collection software and the remaining 130 services have been using the paper form.

While the EMS providers were given the software, it is apparently unknown how many of them have been using it and what the status of report submissions will be when the new statewide EMS database is online. Even internal users of medical data for research do not have access to personal identifiers or other linkage variables. This situation makes it even more difficult to identify people who are in the system more than once and makes linkage more costly, if possible.

Data Linkage Recommendations

Develop links between components of the traffic records system.

With the exception of roadway and crash data to some extent, as well as limited linking of vehicle and driver data, there are no working links between components of the traffic records system. This results in fewer opportunities for automated field completion on forms, data validation and error checking, and enhanced analyses. Oregon is making strides in developing automation with citations, crashes and allowing electronic transfer of citation data from law enforcement agencies to the courts. The link could be further improved with the implementation of electronic receipt of citation records by DMV from courts and electronic crash by DMV.

Training Recommendations

Expand the Enforcement Conference training concept.

ODOT has developed a successful model for delivering training and developing productive relationships with local law enforcement agencies. The traffic safety community of the state could benefit from expansion of this concept to promote improved crash data collection, and beyond that as a way to reach out to local agencies in engineering, emergency response, and adjudication areas.

Content of Plan

The Plan Provides Guidance for Needed Improvements

The TRCC does not have operational responsibility for any of the traffic records system components. However, by virtue of its role in promoting highway and traffic safety, and through its role as the primary deliberative body concerned with traffic records information, the TRCC serves in a lead role to ensure that the data in the traffic records system in Oregon serves all users well.

The central focus of this plan is use of traffic records data to support traffic safety decision making. The TRCC is meant to be the representative body for the traffic records community where collection, management, and use of these records are discussed and plans are made for meeting the needs. Thus, even when goals or objectives may involve actions by specific departments or agencies, the steps to be taken are written with the understanding that those steps and oversight of the strategic plan will be guided and coordinated by the TRCC.

The Plan Emphasizes Safety

The sole purpose of this strategic plan is to provide Oregon with the guidance needed to achieve a traffic records system that meets the broadly stated system goal of "providing complete, accurate, and timely transportation safety information." The emphasis of this plan is on safety in the broadest sense; i.e., transportation safety encompasses the improvement of road systems; the regulation of motor vehicles and drivers operating on these road systems; and the treatment of injuries arising from motor vehicle crashes.

Three Sections in the Plan Describe Needed Improvement and a Method for Managing these Improvements

Recommended improvements are presented in three sections corresponding to key issue areas that must be addressed:

- Phase 1 — Elements of the plan relating to coordination and statewide initiatives affecting broad areas of responsibility.
- Phase 2 — Elements of the plan relating to improvement of specific components of the traffic records system and how the components interact.
- Phase 3 — Elements of the plan relating to promoting use of the data for decision-making.

This plan is multiyear in scope, as demonstrated by the following steps:

- Immediate Actions — To be implemented now through FY 2017.
- Near Term Actions — To be implemented FY 2016 through FY 2017.
- Long Term Actions — To be implemented later than FY 2017.

Relationship of the Plan to the Traffic Records Assessment Report

Action items in this strategic plan are drawn from the recommendations in the 2010Traffic Records Assessment conducted in Oregon. The recommendations have been carried forward into this plan as a series of actions for the TRCC and its members, including influencing the activities of others. Some recommendations may require action by entities that are not involved in the TRCC (e.g., the legislature).

These recommendations also have been included. Even though the TRCC may not be directly responsible for their final implementation, the TRCC and the representatives of the member organizations are in a position to support these initiatives. For example, while the TRCC does not have a vote in the legislature, its members can influence their own agency's legislative package, help to find sponsors for legislative initiatives, and support passage of priority legislation by providing needed analyses.

The Plan Attempts to Consider the Changing Needs of All System Users

The potential for diminished utility of the data and the need to avoid it are guiding factors in the development of this strategic plan for enhancing Oregon's traffic records system. Other factors given consideration include:

The Changing Role of State/Regional/Local Agencies

Shifts in national programs and changes resulting from SAFETEA-LU/MAP-21 legislation require state, regional, and local agencies to continue to assume broad responsibilities for improving traffic safety. In fact, these needs expand the scope of what data are needed, who needs access, how they use it, and how it can be distributed.

The Need to Allocate Resources and Measure Progress

Increasingly, the demand for resources to support traffic safety programs exceeds the available supply. As the cost of initiatives increase and the demand for new programs rise, states assume more of the financial burden for their program administration and funding. Information plays an expanded role and greater emphasis must be placed on effective allocation of available resources. Of particular importance for traffic safety is that much of the value of information rests in its ability to improve resource allocation decisions and measure progress in achieving defined goals.

The Need to Rapidly Integrate New Initiatives into the State's Safety Programs

Continually, new legislative mandates and administrative responsibilities are placed on state safety programs. These changes must often be made quickly, implying that processes, rulings, and data required for implementation must be in place as rapidly as possible.

The Plan Attempts to Consider the Primary Mission of Traffic Records System Component

The Need to Maintain the Primary Operational Functions

Most systems that provide the data used to analyze highway and traffic safety are created and maintained for other distinct missions; e.g., licensing drivers, titling vehicles, etc. It is not feasible to change these systems to bring a more direct safety-related focus, if the primary uses of a system cannot be retained, as well. Cost savings to the state as a whole for effectively managing these data systems for multiple uses must be recognized.

Traffic Records Deficiencies and Performance Measures

Crash System

	Data Quality	Reportable Crash Data
Deficiency	Timeliness	A high-speed imaging and document management system for crash reports could improve the timeliness of processing for ODOT.
Deficiency	Timeliness	Delays in crash report processing while DMV builds a case file (30-90 days) are unnecessary. The CAR Unit could begin processing crash reports almost as soon as they are received by DMV rather than waiting months for the paper to be released to them. Courts, law enforcement agencies, and DMV would benefit from improved timeliness and accuracy supported by more field data collection. Current actions are addressing this issue; however, increased staffing demands need to be addressed.
Performance Measure	Timeliness	Decrease the number of days until the annual statewide crash data file is available each year.
Performance Measure	Timeliness	Increase the percentage of crash reports reported to FMCSA within 90 days.
Performance Measure	Timeliness	C-T-1: The median or mean number of days from (a) the crash date to (b) the date the crash report is entered into the database.
Performance Measure	Timeliness	C-T-2: The percentage of crash reports entered into the database within XX days after the crash (e.g., 30, 60, or 90 days).
Deficiency	Accuracy	Oregon does not have a formal data quality measurement program that addresses all of the data quality attributes. In particular, the data accuracy and completeness measures should be expanded. The measures should be based on initial submissions by law enforcement, not just the final data file created by the CAR unit staff.
Deficiency	Accuracy	An error-tracking system that can report the number and type of errors for each law enforcement agency's crash reports does not exist.
Deficiency	Accuracy	There is a need to improve the Police Officer's Instruction Manual as part of the next crash report form revision.
Deficiency	Accuracy	Location data could be improved by including GPS and/or map-based location coding tools in projects for electronic crash data collection.
Deficiency	Accuracy	Crash data system accuracy could be improved if system generated validations were added (hard-coded business rules.)
Performance Measure	Accuracy	Increase the number of crash data elements having system generated validations within the crash database data entry screen (CDS).
Performance Measure	Accuracy	C-A-1: The percentage of crash records with no errors in critical data elements (example: crash severity).

Performance Measure	Accuracy	C-A-2: The percentage of in-state registered vehicles on the State crash file with Vehicle Identification Number (VIN) matched to the State vehicle registration file.
Deficiency	Completeness	Crashes are under-reported.
Deficiency	Completeness	Outreach is needed to build support for law enforcement crash reporting.
Deficiency	Completeness	A public report of percentage of crashes, by jurisdiction, reported by each law enforcement agency does not exist.
Deficiency	Completeness	State law does not require reporting of crashes by police agencies and it is suspected that the state is missing 30-35% of all reportable crashes. Crash location data is often inaccurate on an operator's report and the source of approximately two-thirds of the data is provided from operator reports.
Deficiency	Completeness	Missing location data from the crash form.
Performance Measure	Completeness	Increase the percentage of crash reports submitted by law enforcement officers.
Performance Measure	Completeness	Increase the percentage of fatal and injury crash reports (no property damage only) submitted by law enforcement officers.
Deficiency	Completeness	Missing MMUCC data elements on the crash form.
Performance Measure	Completeness	Increase the number of MMUCC collected data elements present on the crash form.
Deficiency	Completeness	Missing location data from the crash form.
Performance Measure	Completeness	Increase the percentage of crashes coded with a geospatial coordinate value.
Performance Measure	Completeness	C-C-1: The percentage of crash records with no missing critical data elements.
Performance Measure	Completeness	C-C-2: The percentage of crash records with no missing data elements.
Performance Measure	Completeness	C-C-3: The percentage of unknowns or blanks in critical data elements for which unknown is not an acceptable value.
Deficiency	Uniformity	The number of MMUCC data elements entered into the crash database or obtained via linkage to other databases.
Performance Measure	Uniformity	C-U-1: The number of MMUCC-compliant data elements entered into the crash database or obtained via linkage to other databases.
Deficiency	Integration	Web-based crash reporting for both operator reports and law enforcement reports is lacking. Web reporting will help agencies with no automation to submit their reports electronically and reduce the amount of data entry and delay in both DMV and the CAR unit.

Deficiency	Integration	Electronic data transfer of crash data from law enforcement is non-existent. Failure to accept electronic data is inevitably going to cause resistance among law enforcement agencies and could have a deleterious effect on the ongoing efforts to increase the proportion of crashes they investigate.
Deficiency	Integration	Subsidies for law enforcement field data collection equipment and software should be based on the proportion of crash reports submitted by that agency in their jurisdiction.
Deficiency	Integration	Law enforcement agencys' ongoing budget may not include the cost of vehicle replacements, including field data collection hardware and software maintenance.
Deficiency	Integration	ODOT is unable to share crash report images simultaneously with the Crash Analysis and Reporting Unit and the DMV, or with other legitimate users.
Deficiency	Integration	ODOT's crash database cannot currently accept data electronically submitted from other sources, whether law enforcement or operator reports.
Performance Measure	Integration	Increase the number of law enforcement officers that utilize a system that links local citation database to court data system electronically to send citations to courts.
Performance Measure	Integration	C-I-1: The percentage of appropriate records in the crash database that are linked to another system or file (examples: Crash w/in-State driver linked to Driver file, Crash w/EMS response linked to EMS file).
Deficiency	Accessibility	A method of generating crash report images from electronically submitted crash reports does not exist.
Deficiency	Accessibility	Oregon is unable to generate crash images to serve the need for DMV, TDD, regional engineers, and others access to crash reports.
Deficiency	Accessibility	Direct access to crash report images (when available) through the GIS is unavailable.
Deficiency	Accessibility	Limited crash analysis available on the Internet via TransGIS and TransViewer, however, analysis and data extracts are available for up to 22 years of crash data through the CAR Unit.
Performance Measure	Accessibility	Increase the percentage of law enforcement agencies using online crash data system for data retrieval and statistical reports.
Performance Measure	Accessibility	Increase the number of ODOT region staff, as well as city and county users, accessing online collision diagramming tools for specific corridor segments.
Performance Measure	Accessibility	C-X-1: To measure accessibility: Identify the principal users of the crash database, query the principal users to assess (a) their ability to obtain the data or other services requested and (b) their satisfaction with the timeliness of the response to their request, document the method of data collection and the principal users' responses.

Roadway System

	Data Quality	Roadway Data
Deficiency	Timeliness	Delays between (a) the date a roadway project is completed to (b) the date the updated critical data elements are entered into the database.
Performance Measure	Timeliness	R-T-1: The median or mean number of days from (a) the date a periodic collection of a critical roadway data element is complete (e.g., Annual Average Daily Traffic) to (b) the date the updated critical roadway element is entered into the database.
Performance Measure	Timeliness	R-T-2: The median or mean number of days from (a) the date a roadway project is completed to (b) the date the updated critical data elements are entered into the database.
Deficiency	Accuracy	Roadway segment records may contain errors in critical data elements (example: Surface/Pavement).
Performance Measure	Accuracy	R-A-1: The percentage of all roadway segment records with no errors in critical data elements (example: Surface/Pavement).
Deficiency	Completeness	There is no statewide central source where all county roadway inventory and traffic count data are captured. The ODOT Asset Management System will have the capability of including local roadway data; however, a common location coding method must be implemented before this becomes practical.
Performance Measure	Completeness	Increase the percentage of traffic count data contained within the ODOT Asset Management System (one statewide source).
Performance Measure	Completeness	R-C-1: The percentage of road segment records with no missing critical data elements.
Performance Measure	Completeness	R-C-2: The percentage of public road miles or jurisdictions indentified on the State's basemap or roadway inventory file.
Performance Measure	Completeness	R-C-3: The percentage of roadway unknowns or blanks in critical data elements for which unknown is not an acceptable value.
Performance Measure	Completeness	R-C-4: The percentage of total roadway segments that include location coordinates, using measurement frames such as a GIS basemap.
Deficiency	Uniformity	There is no statewide central source where all county roadway inventory and traffic count data are captured. The ODOT Asset Management System will have the capability of including local roadway data; however, a common location coding method must be implemented before this becomes practical.
Deficiency	Uniformity	State highway referencing need to eliminate multiple occurrences of the same mile point on a single route. A pilot project on OR 140 is underway to demonstrate any resulting efficiencies.
Performance Measure	Uniformity	Decrease the number of instances where there are multiple occurrences of the same mile marker on a single route.

Performance Measure	Uniformity	R-U-1: The number of Model Inventory of Roadway Elements (MIRE)-compliant data elements entered into a database or obtained via linkage to other databases.
Deficiency	Integration	There is a need to create necessary translation mechanisms between coordinate-based and other location coding methods used by ODOT to support ongoing analyses and to support spatial analysis of routes and areas in addition to specific points on the roadway. Beginning with 2007 crash data, coordinates are available for all jurisdictions of roadway.
Performance Measure	Integration	Increase the percentage of crashes linked to the SMS database by intersection or segment (to produce the SPIS used to identify the top 10% high-hazard locations for state and local highways and perform comprehensive safety analysis).
Performance Measure	Integration	R-I-1: The percentage of appropriate records in a specific file in the roadway database that are linked to another system or file (example: Bridge inventory linked to roadway basemap).
Deficiency	Accessibility	Limited roadway data is available for online spatial reporting in TransGIS and internet road inventory reporting in TransViewer.
Performance Measure	Accessibility	Increase the percentage of roadway data that is available for online spatial reporting (TransGIS).
Performance Measure	Accessibility	R-X-1: To measure accessibility of a specific file within the roadway database: Identify the principal users of the roadway file, query the principal users to assess (a) their ability to obtain the data or other services requested and (b) their satisfaction with the timeliness of the response to their request, document the method of data collection and the principal users' responses.

Vehicle System

	Data Quality	Vehicle Data
Deficiency	Timeliness	Delays between (a) the date of a critical status change in the vehicle record to (b) the date the status change is entered into the database.
Performance Measure	Timeliness	Decrease the number of days until vehicle registration and title information is available through the Law Enforcement Data System (LEDS) network.
Performance Measure	Timeliness	V-T-1: The median or mean number of days from (a) the date of a critical status change in the vehicle record to (b) the date the status change is entered into the database.
Performance Measure	Timeliness	V-T-2: The percentage of vehicle record updates entered into the database within XX days after the critical status change (e.g., 1, 5, or 10 days).
Deficiency	Accuracy	Verifying VIN and make/model between the insurance and registration databases has identified some data quality concerns.

Performance Measure	Accuracy	Decrease the number of errors received when verifying VIN and make/model between the insurance and registration databases.
Performance Measure	Accuracy	Maintain 100% of inspection records reported over a 12-month period that were matched to a company registered in MCMIS.
Performance Measure	Accuracy	V-A-1: The percentage of vehicle records with no errors in critical data elements (example: VIN).
Deficiency	Completeness	Increase the percentage of vehicle records with no missing critical data elements.
Performance Measure	Completeness	Increase the percentage of fatal and non-fatal crash records in the MCMIS database with complete vehicle information (i.e., the number of crash records with complete vehicle information divided by the number of crash records reported) over a 12-month time period.
Performance Measure	Completeness	V-C-1: The percentage of vehicle records with no missing critical data elements.
Performance Measure	Completeness	V-C-2: The percentage of vehicle records with no missing data elements.
Performance Measure	Completeness	V-C-3: The percentage of unknowns or blanks in critical data elements for which unknown is not an acceptable value.
Performance Measure	Completeness	V-C-4: The percentage of vehicle records from large trucks and buses that have all of the following data elements: Motor Carrier ID, Gross Vehicle Weight Rating/Gross Combination Weight Rating, Vehicle Configuration, Cargo Body Type, and Hazardous Materials (Cargo Only).
Deficiency	Uniformity	Increase the number of standards-compliant data elements entered into a database or obtained via linkage to other databases.
Performance Measure	Uniformity	V-U-1: The number of standards-compliant data elements entered into a database or obtained via linkage to other databases.
Deficiency	Integration	Data collection using machine-readable features of registration documents is not available.
Deficiency	Integration	Older technology is the primary barrier to data linkage between the crash and vehicle databases. Legislation would be required in Oregon in order to use the link between driver and vehicle data to support blocking registrations for suspended or revoked drivers who are vehicle owners.
Performance Measure	Integration	Increase the percentage of vehicle owners and operators that can be linked to the driver database.
Performance Measure	Integration	Increase the percentage of vehicle owners and operators that can be linked to the crash database.
Performance Measure	Integration	V-I-1: The percentage of appropriate records in the vehicle file that are linked to another system or file (example: Vehicle registration linked to Driver file).

Deficiency	Accessibility	Law enforcement officers have access to the vehicle registration and title information through the Law Enforcement Data System (LEDS) network. Oregon is not a participant in the National Motor Vehicle Title Information System (NMVTIS).
Performance Measure	Accessibility	Increase the percentage of active titles and brands updated to the National Motor Vehicle Title Information System (NMVTIS) Vehicle Identification Number (VIN) pointer and brand files *(currently 0%)*.
Performance Measure	Accessibility	V-X-1: To measure accessibility: Identify the principal users of the vehicle database, query the principal users to assess (a) their ability to obtain the data or other services requested and (b) their satisfaction with the timeliness of the response to their request, document the method of data collection and the principal users' responses.

Driver System

	Data Quality	Driver Data
Deficiency	Timeliness	There are delays between receiving crash reports at DMV and posting on the driver record.
Performance Measure	Timeliness	Increase the percentage of crash occurrences posted on the driver record within less than 25 days following the crash.
Deficiency	Timeliness	The state is unable to meet the federal requirement for reporting commercial driver convictions in 10 days. DMV receives only limited information electronically.
Performance Measure	Timeliness	Increase the percentage of commercial driver convictions reported within 10 days.
Performance Measure	Timeliness	D-T-1: The median or mean or number of days from (a) the date of a driver's adverse action to (b) the date the adverse action is entered into the database.
Performance Measure	Timeliness	D-T-2: The median or mean number of days from (a) the date of receipt of citation disposition notification by the driver repository to (b) the date the disposition report is entered into the database.
Deficiency	Accuracy	Centralized issuance and facial recognition software are planned to decrease the chances of license fraud.
Performance Measure	Accuracy	Decrease the percentage of duplicate records for individuals.
Performance Measure	Accuracy	D-A-1: The percentage of driver records that have no errors in critical data elements (example: Date of Birth).
Performance Measure	Accuracy	D-A-2: The percentage of records on the State driver file with Social Security Numbers (SSN) successfully verified using Social Security Online Verification (SSOLV) or other means.
Deficiency	Completeness	Histories of serious offenses when licensing drivers from other states for non-commercial drivers are not recorded, as is done for commercial drivers in compliance with CDLIS.

Deficiency	Completeness	Oregon is lacking a statewide citation tracking system.
Deficiency	Completeness	Not all traffic cases result in a disposition, so not all convictions are reported to the DMV.
Performance Measure	Completeness	Increase the percentage of convictions reported to the DMV. *(Currently, not measurable.)*
Performance Measure	Completeness	Increase the percentage of fatal and non-fatal crash records in the MCMIS database with complete driver information (i.e., the number of crash records with complete driver information divided by the number of crash records reported) over a 12-month time period.
Performance Measure	Completeness	D-C-1: The percentage of driver records with no missing critical data elements.
Performance Measure	Completeness	D-C-2: The percentage of driver records with no missing data elements.
Performance Measure	Completeness	D-C-3: The percentage of unknowns or blanks in critical data elements for which unknown is not an acceptable value.
Deficiency	Uniformity	Increase the number of standards-compliant data elements entered into the driver database or obtained via linkage to other databases.
Performance Measure	Uniformity	Increase the percentage of Social Security Numbers (SSNs) and immigration documents verified. *(Note: DMV is currently verifying SSNs for all licenses, ID cards and driver permits. DMV began using the federal Systematic Alien Verification for Entitlements (SAVE) system to verify immigration status in January 2010.)*
Performance Measure	Uniformity	D-U-1: The number of standards-compliant data elements entered into the driver database or obtained via linkage to other databases.
Deficiency	Integration	Electronic receipt of citation records from courts is lacking.
Deficiency	Integration	The driver records database is currently not capable of supporting linkage with crash and other databases.
Deficiency	Integration	DMV receives only failure-to-appear and suspension orders from Circuit Courts electronically, even though many courts transmit convictions electronically through the Oregon Justice Information Network (OJIN). Driver file includes a notation of crash involvement that is placed on the file manually at DMV. There is no easy way to generate a merged crash/driver dataset for analytic use.
Performance Measure	Integration	Increase the percentage of conviction records submitted to the DMV electronically.
Performance Measure	Integration	Increase the percentage of DMV driver records in which the notation of crash involvement is placed automatically (versus manually).
Performance Measure	Integration	D-I-1: The percentage of appropriate records in the driver file that are linked to another system or file (example: Driver in crash linked to adjudication file).

Deficiency	Accessibility	No reported deficiencies.
Performance Measure	Accessibility	D-X-1: To measure accessibility: Identify the principal users of the driver database, query the principal users to assess (a) their ability to obtain the data or other services requested and (b) their satisfaction with the timeliness of the response to their request, document the method of data collection and the principal users' responses.

Citation/Adjudication System

	Data Quality	Citation/Adjudication Data
Deficiency	Timeliness	Courts, law enforcement agencies, and DMV would benefit from improved timeliness and accuracy supported by more field data collection of citation information.
Performance Measure	Timeliness	Increase the percentage of citations sent to courts within 10 days.
Performance Measure	Timeliness	Increase the percentage of convictions sent to the DMV within 10 days of conviction.
Performance Measure	Timeliness	C/A-T-1: The median or mean number of days from (a) the date a citation is issued to (b) the date the citation is entered into the statewide citation database, or a first available repository.
Performance Measure	Timeliness	C/A-T-2: The median or mean number of days from (a) the date of charge disposition to (b) the date the charge disposition is entered into the statewide adjudication database, or a first available repository.
Deficiency	Accuracy	A quality control program for citation/adjudication data with measurable attributes does not exist.
Deficiency	Accuracy	Very limited electronic citation issuance statewide. Lack of DMV systems and documents (license and registration) using data linkage and automatic form completion possibilities for law enforcement officers in the field.
Performance Measure	Accuracy	Increase the percentage of citation locations that match statewide location coding.
Performance Measure	Accuracy	Decrease the percentage of errors found during citation data audits of critical data elements.
Performance Measure	Accuracy	C/A-A-1: The percentage of citation records with no errors in critical data elements (example: time citation issued).
Performance Measure	Accuracy	C/A-A-2: The percentage of charge disposition records with no errors in critical data elements (example: citation reference number).
Deficiency	Completeness	Increase the percentage of citation records with no missing critical data elements.

Performance Measure	Completeness	C/A-C-1: The percentage of citation records with no missing critical data elements.
Performance Measure	Completeness	C/A-C-2: The percentage of citation records with no missing data elements.
Performance Measure	Completeness	C/A-C-3: The percentage of unknowns or blanks in critical citation data elements for which unknown is not an acceptable value.
Deficiency	Uniformity	There is no statewide repository for citations and there is no way to track how many cases are deferred statewide or how many convictions fail to make it to DMV. There is no single numbering system for citation forms.
Performance Measure	Uniformity	Increase the percentage of citations contained within a single statewide data repository.
Performance Measure	Uniformity	C/A-U-1: The number of Model Impaired Driving Record Information System (MIDRIS)-compliant data elements entered into the citation database or obtained via linkage to other databases.
Performance Measure	Uniformity	C/A-U-2: The percentage of citation records entered into the database with common uniform statewide violation codes.
Deficiency	Integration	Oregon does not have a statewide Citation Tracking System to contain data on the life cycle of all citations issued and adjudicated in the state.
Deficiency	Integration	Oregon Judicial Information Network (OJIN) requires improvement with an up-to-date case management system (CMS). All courts in Oregon should use the upgraded CMS to transfer citations electronically to the driver file.
Deficiency	Integration	Oregon is lacking the linkage between the Citation/Adjudication Data Component and other components of the State's Traffic Record System.
Deficiency	Integration	Oregon is lacking an interface between DMV and courts to receive electronic convictions.
Deficiency	Integration	Very limited electronic citation issuance statewide. Lack of DMV systems and documents (license and registration) using data linkage and automatic form completion possibilities for law enforcement officers in the field.
Deficiency	Integration	Very few agencies are able to send data electronically to the courts.
Performance Measure	Integration	Increase the number of citations that are distributed from law enforcement agencies to local courts electronically.
Performance Measure	Integration	C-I-1: The percentage of appropriate records in the citation file that are linked to another system or file (example: DWI citation linked to Adjudication file).
Deficiency	Accessibility	Outreach is needed to educate judges on how to access the state's driver file.
Deficiency	Accessibility	Minimal use of automation for data collection and online data retrieval for citations.

Performance Measure	Accessibility	Increase the percent of law enforcement agencies using online citation data system for data retrieval and statistical reports.
Performance Measure	Accessibility	C/A-X-1: To measure accessibility of the citation database: Identify the principal users of the citation database, query the principal users to assess (a) their ability to obtain the data or other services requested and (b) their satisfaction with the timeliness of the response to their request, document the method of data collection and the principal users' responses.

Injury Surveillance System

	Data Quality	Injury Surveillance Data
Deficiency	Timeliness	EMS run reporting software for pre-hospital data is out of date and most EMS providers are using paper submittal.
Performance Measure	Timeliness	Increase the percentage of EMS run reports sent to the state within 60 days.
Performance Measure	Timeliness	I-T-1: The median or mean number of days from (a) the date of an EMS run to (b) the date when the EMS patient care report is entered into the database.
Performance Measure	Timeliness	I-T-2: The percentage of EMS patient care reports entered into the State EMS discharge file within XX days after the EMS run (e.g., 5, 30, or 90 days).
Deficiency	Accuracy	Increase the percentage of EMS patient care reports with no errors in critical data elements (example: Response Time).
Performance Measure	Accuracy	I-A-1: The percentage of EMS patient care reports with no errors in critical data elements (example: Response Time).
Deficiency	Completeness	Data collected since the initial pilot project in May 2008 requires data entry to the statewide EMS database.
Deficiency	Completeness	The EMS, inpatient, and outpatient hospital databases are not currently used to identify all persons treated as the result of a motor vehicle crash.
Deficiency	Completeness	Data linkage between crash and hospital data for ad-hoc analysis is limited.
Deficiency	Completeness	Encourage GPS and/or map-based location coding for EMS run report data collection.
Deficiency	Completeness	The trauma registry includes pre-hospital treatment information, but does not include the EMS run report number. There is a backlog of pre-hospital data that requires manual data entry to catch up. The state estimates that approximately 95% of the motor vehicle crash-related trauma cases are entered into the trauma registry.
Performance Measure	Completeness	Increase the number of EMS Patient Care Reports collected and entered into the statewide EMS database.

Performance Measure	Completeness	I-C-1: The percentage of EMS patient care reports with no missing critical data elements.
Performance Measure	Completeness	I-C-2: The percentage of EMS patient care reports with no missing data elements.
Performance Measure	Completeness	I-C-3: The percentage of unknowns or blanks in critical data elements for which unknown is not an acceptable value.
Deficiency	Uniformity	Continue the statewide EMS data collection system.
Deficiency	Uniformity	Oregon is currently working on a pilot project to establish an EMS run report database for rural ambulance service data tracking. This pre-hospital data system will conform to National EMS Information System (NEMSIS) guidelines. The current TraumaOne database (Oregon Trauma Registry) complies with the National Trauma Data Standard (NTDS). There are a number of data elements in the NTDS that are exactly the same as in the NEMSIS standard; however, NTDS does not include a standard XML format to facilitate data exchange.
Performance Measure	Uniformity	Increase the number of NEMSIS collected data elements present in the Oregon Pre-hospital Database.
Performance Measure	Uniformity	I-U-1: The percentage of records on the State EMS data file that are National Emergency Medical Service Information System (NEMSIS)-compliant.
Performance Measure	Uniformity	I-U-2: The number of records on the State EMS data file that are National Emergency Medical Service Information System (NEMSIS)-compliant.
Deficiency	Integration	Production of the biennial trauma registry report.
		A unique identifier system that follows patients across multiple incidents, is shared among medical data applications, and that can be used for linkage with crash and other data does not exist.
Deficiency	Integration	Lack of personal identifiers in medical datasets, even for internal departmental use, makes it difficult to identify patients who are in the system more than once and to link with crash or other data.
Performance Measure	Integration	Increase the number of records within the trauma registry that contain or are linked to the EMS run report number.
Performance Measure	Integration	Increase the percentage of traffic-related EMS injury runs that can be precisely linked to crash reports.
Performance Measure	Integration	I-I-1: The percentage of appropriate records in the EMS file that are linked to another system or file (example: EMS response linked to Trauma file).
Deficiency	Accessibility	There are currently only a few agencies reporting run reports electronically to the statewide trauma registry.
Performance Measure	Accessibility	Increase the percent of EMS agencies using online system for submitting run reports electronically to the statewide trauma registry, as well as data retrieval and statistical analysis.

Performance Measure	Accessibility	I-X-1: To measure accessibility of the EMS file: Identify the principal users of the file, query the principal users to assess (a) their ability to obtain the data or other services requested and (b) their satisfaction with the timeliness of the response to their request, document the method of data collection and the principal users' responses.
Deficiency	N/A	A member of the Injury and Violence Prevention Program is not currently a member of the TRCC.

Phases of the Strategic Plan

PHASE 1: Strengthen the structure for guiding improvements to the traffic records data and highway safety decision-making.

Step One. Strengthen the Traffic Records Coordinating Committee *(in progress)*.

PHASE 2: Improve data capture, storage, and linkage.

Step One. Address and correct the barriers to full crash reporting *(in progress)*.

Step Two. Improve efficiency of data collection and management for crashes and citations.

Step Three. Improve location data collection and access *(in progress)*.

Step Four. Improve medical data collection and access.

Step Five. Develop links between key components of the traffic records system.

PHASE 3: Improve the use of traffic records for highway safety decision-making.

Step One. Develop a traffic records system inventory to assist users in identifying data sources and analytic resources *(in progress)*.

Step Two. Improve training for collectors and users of traffic records information.

Step Three Analyze data needs for investment decisions and develop hierarchy of data elements; use limitations to establishment investment sureness boundaries.

PHASE 1: Strengthen the Structure for Guiding Improvements to the Traffic Records System and Highway Safety Decision Making.

Step One: Strengthen the Traffic Records Coordinating Committee.

The Oregon Traffic Records Coordinating Committee (TRCC) closely matches the guidelines listed in theSAFETEA-LU and MAP-21- legislation. Section 405/8 of that legislation gives the following descriptions about the roles and responsibilities of state TRCCs:

Membership

In order to satisfy the TRCC requirement for a grant, SAFETEA-LUand MAP-21 legislation provides that a TRCC must have a multidisciplinary membership that includes, among others, the managers, collectors, and users of traffic records systems, public health systems, and injury control data systems.

Strategic Planning Authority

The TRCC must have the authority to approve the State's Strategic Plan for Traffic Records Improvement.

Inclusive membership

The TRCC includes representatives from highway safety, highway infrastructure, law enforcement, adjudication, public health, injury control, and motor carrier agencies.

Authority

The TRCC has authority to review any of the state's highway safety data and traffic records systems and to review changes to such systems before the changes are implemented.

Function

The TRCC provides a forum to discuss highway safety data and traffic records issues, vetting and discussion of agency strategic and implementation plans for associated traffic data systems and assessment of progress made on implementing strategic plan and report on any such issues to the agencies and organizations in the state that create, maintain, and use highway safety data and traffic records.

Coordination

The TRCC considers and coordinates the views of the organizations in the state involved in the administration, collection, and use of the highway safety data and traffic records system.

Promotion

The TRCC represents the interests of the agencies and organizations within the traffic records system to outside organizations.

Technology

The TRCC reviews and evaluates new technologies to keep highway safety data and traffic records systems up-to-date.

To ensure representative participation, the TRCC membership and charter must be reviewed now and periodically in the future. The TRCC also must be more involved in identifying and promoting new technologies to improve data collection and data access.

The prime responsibility of the TRCC in Oregon will be to regularly review and update this strategic plan. In addition, formally vesting the TRCC with the authority to review quality control measurements for system components and charging the group with, at a minimum, an advisory role to the lead agencies, will further establish the requisite authority.

Where the TRCC will face the biggest challenges, and perhaps be most effective in the long run, is in implementing the strategies for improving crash reporting to bring Oregon's system more in line with current practices in the nation.

Objective

To strengthen the TRCC as the advisory body for management, improvement, and promotion of traffic records systems and data-driven decision making in Oregon.

General Approach

The recommended approach to meet this objective addresses the first recommendation in Oregon's Traffic Records Assessment. Included under this heading are actions to ensure that the TRCC is representative of the traffic safety community/ stakeholders and that the committee is empowered to act as outlined in the SAFETEA-LUand MAP-21 legislation.

PHASE 2: Improve Data Capture, Storage, and Linkage.

This section of the plan deals with specific system component and functional recommendations from the Traffic Records Assessment and from the summary of the system status found earlier in this plan. This section goes beyond the strict requirement of Section 405/8 of SAFETEA-LUand MAP-21 in that it also addresses the GAO's concerns that strategic plans should address the recommendations of the state's most recent traffic records assessment. This is not stated in the legislation as an absolute requirement, but it is a feature added to this plan to meet the intent of the footnoted material as well.

The assessment recommendations are incorporated into this strategic plan in the form of steps and the action items within each step. The system-specific recommendations have been retained and are combined under more general headings where appropriate. More than in any other section of this plan, the steps in this section can happen simultaneously and largely independent of each other since the various systems are under different agency or department control. It should be noted, however, that there are many interactions between

these systems and that the efficiencies to be gained are significant. For example, upgrading software for law enforcement, courts, and roadway functions in a coordinated fashion.

The TRCC shall serve as a forum to discuss multiple users' needs and provide overall monitoring and coordination of the improvement efforts. It is thus essential that agencies recognize the importance of the TRCC and actively maintain involvement. Similarly, it is important that the TRCC promote the free and open exchange of ideas, as well as problems and concerns without regard to agency boundaries to promote the overall intent of reducing the human toll from traffic crashes. It is assumed, moreover, that the lead departments or agencies for each system are working with and through the TRCC to help identify those who have a stake in the improvement efforts and furthermore, will use that group as a source of on-going information and assistance for system design, development, and testing efforts.

Some of the recommendations go beyond system changes to address barriers that must be dealt with at a level beyond the control of agencies or the TRCC. The role of TRCC is especially important in supporting these efforts through promotion, encouragement, and coordinated action.

Objective

The objective of this section of the plan is to incorporate all necessary system improvement efforts and provide a logical sequence for their completion.

General Approach

The approach to accomplishing this objective is to sequence the steps for each of the planned and/or proposed system improvement efforts and then to show the necessary links between these efforts. The relevant recommendations from the Assessment that are incorporated into this phase of the plan relate to:

- Addressing the long-standing problems with crash data collection in Oregon.
- Improving law enforcement data collection and data management.
- Improving collection and use of location-based and medical-related information.
- Improving linkage and data sharing among various systems.

Step One: Address and correct the barriers to full crash reporting.

Immediate Actions

- Create a separate, reduced operator report to cover financial responsibility (FR) verification needs. Mandate that the FR report go directly to DMV. A legislative change to eliminate citizen crash reporting to DMV, except for FR purposes, may be needed.

- Update the crash report instruction manual *(completed September, 2007)*.
- Develop data-for-data exchanges with local enforcement and engineering agencies to promote increased crash reporting.
- Make law enforcement crash reporting a priority for grant funding and grant eligibility.

Near Term Actions

- Prioritize crash reporting within the OSP and other law enforcement agencies.
- Identify impediments to law enforcement crash reporting and identify priority actions.
- Facilitate electronic reporting of crashes by law enforcement (*in progress)*.
- Institute a web-based citizen crash form and reporting process *(in progress)*.
- Change the reporting threshold to ensure that it signals a need for full reporting.
- Support efforts to require law enforcement to respond to all reportable[1] crashes. As a twin task support evaluation of and strengthening of improvements to citizen reporting to extract the maximum feasible reliable data, use data imputation, and make effective decisions based on sound data.
- Route crash reports directly to ODOT Crash Analysis & Reporting Unit.
- Consider requiring a minimum level of crash reporting before releasing highway-safety related construction and maintenance funds to local communities.

Long Term Actions

- Consider funding crash reporting by the OSP through the Highway Trust Fund.
- Establish state standards for electronic crash reporting by law enforcement.
- Review incentives for law enforcement agencies to submit crash reports.

[1] ORS 811.720 requires that crashes be reported within 72 hours when damage to the vehicle you were driving is over $1500; or damage to any vehicle is over $1500 and any vehicle is towed from the scene as a result of damages from this crash; or injury or death resulted from the crash; or damages to any one person's property other than a vehicle involved in the crash is over $1500.

Step Two: Improve the efficiency of data collection and management for crashes and citations.

Immediate Actions

- Identify law enforcement agencies with (or ready to pursue) electronic field data collection for citations and other reports *(in progress)*.

- Establish multiple in-state models/pilot implementations of electronic citation issuance *(in progress)*.

Near Term Actions

- Assess the new Highway Safety Manual procedures and SafetyAnalyst Software to determine data inventory needs for possible future implementation *(in progress)*.

- Evaluate the use of data for systemic investment methods that do not rely on high crash location information, but draw on widespread implementation over large segments of the system or invest in areas of high crash potential.

- Update systems and documents (i.e., license and registration) to facilitate linkage and auto-completion in field software for law enforcement.

- Work with the Office of the State Court Administrator to electronically transfer all courts' initial charges and convictions to the DMV.

- Implement high-speed imaging and document management system for crashes reported to ODOT.

    - Share crash report images with all legitimate users.

    - Develop a method of generating crash report images from electronically submitted reports.

Long Term Actions

- Assess new technologies and implement pilot projects.

Step Three: Improve location data collection and access.

Immediate Actions

- Include GPS and map-based location coding tools in pilot projects for electronic crash data collection *(in progress)*.

- Promote a system-wide standard for location coding protocols for use in field data collection *(in progress)*.

Near Term Actions

- Create the necessary translations between coordinate-based and other location coding methods used by ODOT.
- Encourage use of GPS and map-based location coding tools for EMS run report data collection.
- Develop user-friendly analytic tools supporting GIS mapping and non-spatial analysis *(in progress)*.
- Support GIS-based access to crash report images.

Long Term Actions

- Change state highway referencing to eliminate multiple occurrences of the same mile marker on a single route and eliminate the need to translate data between two different highway referencing systems *(in progress)*.

Step Four: Improve medical data collection and access.

Immediate Actions

- Implement the planned EMS run report database *(in progress)*.
- Develop contingency plans for manual data entry of pre-hospital data to ensure completeness of the dataset in a timely fashion.

Near Term Actions

- Facilitate analysis of trauma registry data to identify traffic crash outcomes and identify future strategies.

Long Term Actions

- Pursue a shared unique identifier system that follows patients through multiple databases.

Step Five: Develop links between key components of the traffic records system.

Immediate Actions

- Update the driver records database to support linkage with crash and other databases.

Near Term Actions

- Implement data collection using machine-readable features of license and registration documents.

- Develop methods of linking medical, crash and driver data to support analysis of crash outcomes.

- Standardize location coding methods to facilitate links between state and local spatial data.

Long Term Actions

- Periodically review linkage and data sharing capabilities to identify new opportunities.

PHASE 3: Improve the use of traffic records for highway safety decision-making.

Several contemporary efforts to improve highway safety decision-making (including SAFETEA-LUand MAP-21 legislation and the ongoing development of a Highway Safety Manual) point to the central role and proper use of data. Oregon has a strong tradition of analytic support for decision-making and has an excellent model for user training in the Enforcement Conferences held throughout the state each year. There is a need for much more training, and many of the training needs have yet to be identified, especially for specific groups of collectors and users of information.

One of the key ways to support users of traffic records is to simplify the task of finding data in the first place. A resource that gives users a list of available data sources, and contacts – a system inventory – is recommended in the Traffic Records Assessment. Some consideration is also recommended to developing a data clearinghouse. Giving users access to data and analytic tools helps to promote data-driven decision making and also builds a constituency for further improvements to the data and the systems.

Objective

The objective of this phase of the plan is to develop the means for improving decision making and establishing the link between better data and improved highway and traffic safety.

General Approach

The approach to meet the objective of improved decision-making is by meeting the information needs of decision makers. These needs include knowledge of where to obtain the data, how best to use the data, and how to measure the outcomes of their decisions. The steps in this section of the plan address each of these critical needs and specifically address the recommendations in the Assessment related to:

- Availability and access to data analytic resources.

- Training for collectors and users of the data.

Step One: Develop a traffic records list of resources to assist users in identifying data sources and analytic resources.

Immediate Actions

- Develop a list of resources for all components of the Oregon traffic records system *(in progress)*.
- Identify a point of contact for each component *(in progress)*.

Near Term Actions

- Consider developing a clearinghouse of data files and analytic resources *(complete)*.
- Develop easy-to-use query tools accessible to all users *(in progress)*.

Long Term Actions

- Periodically update the system inventory and contacts list *(in progress)*.

Step Two: Improve training for collectors and users of traffic records information.

Immediate Actions

- Develop crash reporting training to be delivered at the Enforcement Conferences *(in progress)*.
- Conduct a training needs assessment for targeted users and collectors in enforcement, engineering, adjudication, and medical areas.

Near Term Actions

- Develop training for targeted users and collectors *(in progress)*.
- Develop a training delivery mechanism such as expanded Enforcement Conferences or similar for other target groups *(in progress)*.

Long Term Actions

- Periodically update the training needs assessment and training content.

FY2016 Grant Funds Tracking

The table below specifies how Oregon will use section 405, 408 and other funds to address the needs and goals identified in the Strategic Plan. In prioritizing the projects, the TRCC considered the statewide effect, how the projects would add value to agencies, the complexity and importance of the projects, associated costs, likelihood of success, how the projects fit into established priorities and objectives, and whether or not the projects could leverage other projects or improvements.

Project No.	TRCC Priority	Deficiency	Project Name	405/408 Funds	Match	Total Project Cost
K9-16-54-03	N/A		Traffic Records Grant	$1,923,426	$641,142	$2,564,568
M3DA-16-54-03	I-u-1	Crash/ Accessibility, Completeness	Regional Data Portal	$54,138.00	$13,620	$67,758
		Crash/Accessibility, Completeness,	Data Linkages	$111,305	$88,444	199,749
Check Math		Accessibility, Completeness	Expansion of EMS Data System	60,046	25,601	85,647
				$0	$0	$0
			FY2016 TRCC Approved 405/408 Funds	**$2,148,914**	**$715,506**	**$2,864,420**