Alaska
TRAFFIC RECORDS PROGRAM ADVISORY

Technical Assessment Team

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Executive Summary

In November of 2006, the Alaska Department of Transportation and Public Facilities (ADOT&PF) requested a traffic records assessment. Following the request, a five-member team of traffic records professionals was chosen with team members possessing expertise in each of the major components of a state traffic records system. The ADOT & PF, Division of Statewide Planning with assistance from the Alaska Highway Safety Office began the complex process of coordinating and completing the necessary logistical, administrative and financial steps to prepare for the on-site assessment.

The five professional team members were selected based on their knowledge and expertise in crash records management, traffic engineering, driver licensing and vehicle registration, enforcement/adjudication and injury surveillance systems. An executive assistant who has substantial experience in data processing assisted in the preparation of the report. The traffic records assessment was conducted May 7-11, 2007 in Anchorage, Alaska.

The scope of the traffic records assessment included a complete and thorough review of each of the six components that comprise a state traffic records system. The purpose of the assessment was to determine the support that the State of Alaska's traffic records system provides regarding the identification of traffic safety problems, and the evaluation of implemented countermeasures to reduce and eliminate fatal, injury and property damage crashes. What follows is a summary of the attributes of the various traffic records system components, and their use in supporting the state's management of its highway safety program.

Crash Information

The official crash file for Alaska is maintained by the Alaska Department of Transportation and Public Facilities, Division of Statewide Planning. The Department of Administration's Division of Motor Vehicles (DOA/DMV) initially receives police and driver reported crashes in order to capture information needed to determine financial responsibility and insurance status. The reporting threshold for motor vehicle crash is $2,000.

There is no electronic reporting of crashes in Alaska at this time. However a pilot project will be starting for electronic reporting of commercial vehicle crashes using the TraCS system.

There are about 14,000 reported crashes in Alaska each year with over 60% of those occurring in Anchorage, the state's largest city. One major deficiency of the current system is duplicate data entry. All crashes are key entered at least two times (at DMV and ADOT&PF) with the vast majority key entered three times (Anchorage keeps its own crash database). This leads to a second area of concern, which is the delay in crash report processing. Crash data is typically not available for analysis for up to nine

months. This delay is a result of delays in report submission from police departments, batch processing for crashes from remote areas, and the inevitable delays that occur with double or triple data entry.

There is a spirit of cooperation which was evident among all of the major owners of the crash data/reporting process and universal and enthusiastic support for electronic crash reporting. These factors bode very well for the future of crash information and its utilization in Alaska.

Roadway Information

There are over 14,300 miles of public roadway in Alaska with just over 5,600 miles included in the state highway system. Boroughs, which are the Alaska equivalent of counties, are responsible for almost 3,500 miles of road with municipalities having jurisdiction over approximately 1,900 miles.

The primary database for the ADOT&PF, the agency responsible for the states roadway system, is the Highway Analysis System (HAS). HAS uses a route and mile point linear referencing system (LRS). The main components of HAS include jurisdiction (Borough, Municipality, etc) functional class, surface type, lane number and width, crashes and Annual Average Daily Traffic. Links from HAS exist to pavement, bridge information, traveler information (511), road weather, seasonal weight restrictions and the Statewide Transportation Improvement Program (STIP). Information regarding capacities, guardrail, signs and pavement striping are not included in the current database.

A video log for the state roadway system is currently being completed. A statewide GIS interface is also under development with completion slated for the end of 2007.

Updating roadway inventories after project completion was identified as a problem area. Crash locations are verified for over 80% of police reported crashes and about 60% of driver crashes. The delay (up to 9 months) in the availability of crash data for analysis is less than optimal.

One major concern is the fragile nature of institutional knowledge at ADOT&PF. Only two individuals have a complete understanding of the use and manipulation of the HAS database. With these individuals quickly approaching retirement, training for state and district personnel on the use of HAS is critical. Steps to capture local road data information and begin a local road data inventory system would also be desirable.

Vehicle Information

The Division of Motor Vehicles, Department of Administration (DMV/DOA) is responsible for maintaining and operating the motor vehicle licensing system. There are approximately 860,000 vehicles registered (including 54,000 snow machines and 40,000 commercial motor vehicles) in the State of Alaska. Vehicle registrations are renewed every two years. The original registration month becomes the registration month for renewal for that vehicle for as long as it is owned by that person. Alaska has a high proportion of seasonal vehicles; registrations for these vehicles may be more likely to lapse. The vehicle file contains the owner's name and address, the vehicle

make, model and Vehicle Identification Number (VIN). Odometer readings are taken when first titled and whenever the vehicle changes ownership. Commercial vehicles are classified by unladen weight rather than gross vehicle weight (GVW).

Alaska does not use salvage titles, but does allow the reconstruction of vehicles. These vehicles are checked to make sure they are complete and have VIN included. DMV does not confirm the validity of the parts and/or ownership of the reconstructed vehicle. Insurance is self-certified.

The information from the vehicle file is accessible by DMV offices throughout the state for update and modification of individual records. Law enforcement and other authorized users have display capabilities of vehicle records. Law enforcement has real-time access to registration and title data through their dispatcher. Registration files are updated daily. The vehicle file has no linkage capability with either the driver file or the crash file, both of which are housed in the DMV. The legacy system on which it resides cannot keep up with the needs of an increasingly technologically savvy and demanding public, researchers and government customers of the data and users of the system.

DMV has decided to replace and update the ALVIN data system

Driver Information

The Driver file is maintained by the Department of Administration's Division of Motor Vehicles (DMV), Driver Services. The driver files reside in the Alaska License and Vehicle Information Network (ALVIN). Alaska has approximately 506,000 drivers with an Alaska driver license.

Drivers can obtain new licenses or renew their license at one of thirteen DMV local public or twenty-one contract licensing offices. Most of the contract offices are located at local police departments. There is no public driver education provided by the school districts. There are, however, state commissioned private driving schools. Alaska does have an Administrative License Revocation (ALR) for all Driving Under the Influence (DUI) violations. Officers retain the driver license and issue a temporary driving permit in ALR stops.

Out of state driving records do not transfer when drivers move to Alaska. Alaska does not license drivers who have a current sanction in their former state of residence. The Driver License File provides operator and commercial driver license management, including license status and current actions against drivers. The Driver History File provides management of license actions, citations, insurance, driver records and related data. Courts are required to report traffic convictions to DMV within five days of conviction; the convictions are reported on paper for criminal convictions (felonies and misdemeanors). For minor offense convictions, court clerks manually enter the court disposition into the Alaska Public Safety Information Network (APSIN). APSIN automatically forwards the traffic convictions to ALVIN through an automated interface. Traffic convictions are entered into the driving record within five days of receipt. DMV officials state that they do not currently have the means to ascertain whether all

convictions are being received from the courts.

The driver history files must get data from the courts and police agencies as well as driver licensing offices. Paper documents are data entered into the system. Paper documents, like crash reports, are entered several times into several different databases.

There is no direct access to either statistical data or driver history data except for law enforcement purposes. DMV does not currently have any driver license data on-line. DMV officials have requested IT personnel to include driver license data in the Statistics and Research Section of the DMV website. There are no standard annual reports published by DMV.

Enforcement/Adjudication

There are four levels of courts in the Alaska Court System, each with different powers, duties and responsibilities. Alaska has a unified, centrally administered, and totally state-funded judicial system. Municipal governments do not maintain separate court systems.

The four levels of courts in the Alaska Court System are the Supreme Court, Court of Appeals, Superior Courts and District Courts. The Supreme Court and Courts of Appeals are appellate courts, while Superior and District courts are trial courts. Jurisdiction and responsibilities of each level of court are set out in Title 22 of the Alaska Statutes. There are two types of judicial officers in district courts: magistrates and district court judges. Both have the power to adjudicate cases.

The arresting agency may enter citation information into the Alaska Public Safety Information Network (APSIN). There is no law requiring the use of a uniform citation.

According to Alaska Statute 12.25.210(e), each law enforcement agency is responsible for tracking its own citations. That section also requires the agency to record the disposition of each citation issued by an officer. Agencies that enter their citations into APSIN may rely on APSIN to keep track of the citations, including the dispositions, which are updated in APSIN by the disposing agency (either the court or, in some jurisdictions, the municipality for 'no contest' pleas involving minor traffic offenses.) For citations filed with in a court that uses the court's new CourtView case management system, the citing agency can use CourtView to track traffic charges and dispositions. CourtView charges and dispositions are publicly available on the world wide web.

Citation information is currently being recorded several times. The officer completes the form on the roadside and then brings it back to the station. It may be entered into the agency's local records management system, if the agency has one. At the station, someone may enter the information into APSIN. Once the case has been filed with the court, court clerks again enter the information into the court's case management system. The Anchorage Police Department files some citations electronically. The court's rules and case management system support paperless filing of minor offense citations. The court is working to expand electronic citation filing to eliminate the need

for court clerks to type the citation information into CourtView. That will be a tremendous step forward to minimize some of the issues that currently exist.

Injury Surveillance

Provision of emergency care for injured travelers in Alaska is challenging because of Alaska's unique terrain, weather, and widely distributed, socio-culturally and economically diverse population. Approximately 5,500 trauma hospitalizations are reported each year. Of these about 750-800 are coded as motor vehicle highway transportation related injuries.

Alaska's injured travelers are cared for by 24 acute care hospitals, including four trauma centers. Pre-hospital care is provided by 98 certified Emergency Medical Services (EMS) providers, including 19 air medical services, and by 93 non-certified First Responder services. The state has been working toward the establishment of a statewide trauma care system for many years, but has not yet obtained a secure source of funding. A required component of a trauma system, a statewide trauma registry, has existed since 1991.

While the state documents major injuries in its remarkable Alaska Trauma Registry (ATR), at this time it does not collect statewide pre-hospital EMS data or data on injuries that are treated but do not result in a hospital stay. The state also does not link its injury surveillance data with crash data, and does not include rehabilitation, medical examiner or child fatality review data.

Alaska's Injury Surveillance System (ISS) is thus not all-inclusive, integrated, comprehensive, and coordinated. The state's current public health plan recognized these deficiencies and identified health data and information systems as a priority area for improvement.

The Alaska Department of Health & Social Services (DH&SS) is the lead agency for the state's injury programs. The DH&SS Division of Public Health (DPH) contains organizational units responsible for epidemiology, injury prevention and EMS, the State Medical Examiner, and Vital Statistics. DH&SS is responsible for 200 databases and is currently working toward coordination of these data.

The Alaska DH&SS has broad statutory authority to collect and manage the component files of an Injury Surveillance System, but the Legislature does not provide direct support for the development of an all-inclusive system and does not require standardized comprehensive reporting.

A few annual reports using ISS data are produced, but the primary published output of the ISS seems to be occasional papers and ad hoc reports. Collection and entry guidelines/instruction manuals and training are available to hospital coders, but data users have limited access to metadata.

The Alaska Injury Prevention Center (AIPC) in Anchorage, a non-profit corporation that is also an officially recognized Safe Community, uses hospitalization and death data to

target injury problems and design interventions. The AIPC performs highway safety surveys for the state and it writes and administers grants for traffic safety information improvement projects.

The AIPC uses ATR data to track causes and magnitude of crash injury problems. However, because the ATR is not linked to crash data, the information on costs and outcomes cannot be used by the ADOT&PF for research and policy development or to inform traffic safety program development. The Highway Safety Plan does not indicate that health data are integrated into traffic safety programming. Representatives from EMS and Injury Prevention participate in the Alaska TRCC.

Potential improvements to the ISS are pending; the state has recently received federal earmarked funds to develop a statewide, web-based pre-hospital EMS data collection and reporting system and to become National Emergency Medical Surveillance Information System (NEMSIS) compliant. It also received funds to develop an Automatic Crash Notification (ACN) system and GIS coverage of air and ground ambulance responses to crashes along the major highway corridors.

MAJOR RECOMMENDATIONS

Major Recommendations are "bolded" in each individual section.

- **Initiate all activities necessary to establish executive-level participation and representation on the ATRCC.**

- **Hire a full-time Traffic Records Coordinator.**

- **Revise AS 28.35.080 to mandate that law enforcement has the primary responsibility for crash investigation and reporting all crashes.**

- **Explore and implement electronic crash data collection and data transfer procedures.**

- **In both the SHSP and the TRSP, identify a strategy to conduct a detailed system inventory of all core data systems, with complete data dictionaries, data element and definitions, data quality indicators and collection and management processes, documenting their compliance with national standards such as ANSI D.16, MMUCC, NEMSIS and MMIRE (when available).**

- **Create, publish and market a Safety Data Resource Guide that provides summary information about the nature, location and quality of the state's traffic records system component databases, including examples of publications using the data and information about how to access them.**

- **Produce meaningful output from injury surveillance data, including annual standard reports as analogous to the CODES Management Reports.**

- **Support development of an ambulance-run data system and investigate the**

possibility of using UB-92 billing data to establish the Emergency Department system component.

- **Continue implementation of the CVARS and MAJIC projects. Use the existing MAJIC project team in concert with the TRCC to identify, develop and implement additional data integration projects.**

- **Change the crash reporting form to provide a Yes/No field for red light, school zone, and work zone crashes.**

- **Allow ADOT&PF personnel to train law enforcement officers to properly complete the crash report with special emphasis given to work zone, school zone and red light running crashes.**

- **Train personnel in ADOT&PF including regional offices regarding highway safety and information system applications.**

- **Include MPOs, and local jurisdictions on the statewide Alaska Traffic Records Coordinating Committee (ATRCC) and work to reduce redundant data entry and ensure integration with all roadway data components including GIS.**

- **Mandate the use of a single statewide uniform traffic citation.**

- **Adopt a single data entry system for crash reports.**

- **Include crash information in the driver history of ALL drivers involved in the crash.**

- **Create a new vehicle database and data entry and query system that maintains the strengths of the current system but permits data users to query the data directly.**

- **Provide a system/systems that allow for user-friendly queries.**

- **Establish a consistent way to define crash data by the use of ANSI D-16 and MMUCC.**

- **Expand the use of the Data Portal:**

    - **to traffic engineering community**
    - **to other public entities**
    - **by moving from intranet to Internet access**
    - **to other safety groups**

- **Combine the existing multiple databases into one modern database.**

TRAFFIC RECORDS

A HIGHWAY SAFETY PROGRAM ADVISORY

INTRODUCTION

Each state, in cooperation with its local and regional jurisdictions, should implement a traffic records system (TRS) to support highway and traffic safety decision making and long-range transportation planning. A complete TRS is necessary for identifying the locations and causes of crashes, for planning, for operational management and control, and for evaluating highway safety programs and improvements. Decisions based on accurate and timely data are basic to the implementation of all highway safety countermeasures and are a key ingredient to effective and efficient safety management.

Scope of This Advisory

The Traffic Records Program Advisory deals specifically with the information used for highway and traffic safety decision making within a state. This includes data about crashes on all public roadways, the people and vehicles involved, traffic volumes, roadway characteristics, environment, and the licensing of drivers and vehicles operating in a state.

This program advisory, then, must address these aspects of a TRS:

- its role in collecting, storing, and providing reliable, accurate and timely data on all contributing factors and circumstances in crashes
- its role in meeting the needs of decision makers in highway and traffic safety while still meeting the operational needs of the custodians of the major components of the system
- the coordination, management, and planning of an automated system that meets these needs

Purpose of This Advisory

The purpose of this Advisory is to provide states with guidance on the necessary contents, capabilities, and quality of data in a TRS. This Advisory serves as a description of an ideal system – one that supports high-quality decisions that lead to cost-effective improvements in highway and traffic safety.

Definition of a Traffic Records System

As stated in the *National Agenda for the Improvement of Highway Safety Information Systems*, a product of the National Safety Council's Traffic Records Committee (now ATSIP, the Association of Transportation Safety Information Professionals):

> "Highway safety information systems provide the information which is critical to the development of policies and programs that maintain the

safety and the operation of the nation's roadway transportation network."
A TRS has been defined as a virtual set of independent real systems (e.g., driver conviction records, crash records, roadway data, etc.), which collectively form the information base for the management of the highway and traffic safety activities of a state and its local subdivisions. A more modern concept of a TRS encourages states to take a global approach and work toward compiling data into a unified, accessible resource that meets the needs for safety information. Sharing and integrating data makes such a system possible, without necessarily duplicating costly and time-consuming tasks such as data entry. Achieving integrated access to data without bringing all the data into a single database is a goal of the TRS. In actual practice, states may fall short of the ideal; yet still have systems that meet most users' needs efficiently. A benefit of the integrated approach is that the agencies responsible for the TRS will come to view it as a real system, not simply the combination of separate systems that otherwise do not interact.

Traffic Records Data and the Strategic Highway Safety Plan

The Federal Highway Administration's (FHWA) preliminary guideline in October 2005, *Strategic Highway Safety Plans: A Champions' Guide to Saving Lives (Interim Guidance to Supplement SAFETEA-LU Requirements),* clearly states that data are critical in the development of an effective Strategic Highway Safety Plan (SHSP). The strength of the SHSP is in a state's ability to identify, analyze, prioritize, and evaluate reliable data. States must have a data system in place that supports safety problem identification and countermeasure analysis on all public roads. To accomplish this, states must ensure capabilities for traffic records data collection, analysis, and integration with other sources of safety data.

Furthermore, a state should strive to improve the timeliness, accuracy, completeness, uniformity, integration, and accessibility of the safety data needed to identify priorities for stakeholders. A state should not stop the SHSP development process to wait for better data systems. It must begin using the best data that are available. A traffic records assessment based on this program advisory provides recommendations and suggestions for further improvement in these systems.

SECTION 1: TRAFFIC RECORDS SYSTEM MANAGEMENT

Management of a state TRS requires coordination and cooperation. The data that make up a TRS reside in a variety of operational systems that are created and maintained to meet primary needs in areas other than highway safety. Ownership of these data files usually resides with multiple agencies and the collectors and users of the data span the entire state and beyond.

The development and management of traffic safety programs is a systematic process with the goal of reducing the number and severity of traffic crashes. This data-driven process ensures that all opportunities to improve highway safety are identified and considered for implementation. Furthermore, the effectiveness of implemented highway safety programs should be evaluated. These evaluation results can be used to facilitate the implementation of the most efficient and effective highway safety strategies and programs. This process can be achieved through the following initiatives.

1-A: Traffic Records Coordinating Committee

The National Highway Traffic Safety Administration's (NHTSA) 2004 *Initiatives to Address Improving Traffic Safety Data* Integrated Project Team report (hereafter referred to as the *Data IPT Report*) includes guidance on establishing a successful Traffic Records Coordinating Committee (TRCC). The following include recommendations from the *Data IPT Report* and additional items of an advisory nature:

- ❑ Establish a two-tiered TRCC.
  There should be an executive and a working-level TRCC. The executive-level TRCC should be composed of agency directors who set the vision and mission for the working-level TRCC. The Executive TRCC reviews and approves actions proposed by the Working TRCC. The Working TRCC should be composed of representatives for all stakeholders and have responsibilities, defined by the Executive TRCC, for oversight and coordination of the TRS. Together, the two tiers of the TRCC should be responsible for developing, maintaining, and tracking accomplishments related to the State's S*trategic Plan for Traffic Records Improvement*.

- ❑ Ensure Membership is Representative.
  TRCCs should be representative of all stakeholders, and each stakeholder representative must have support from their top management. When departments are considering changes to their systems, all TRCC members should be notified and departments should consider how to accommodate the needs of all the TRCC agencies.

- ❑ Authorize Members.
  The Working TRCC should have formal standing, recognition, and support of the administrations of participating agencies. This support will help the TRCC succeed in overcoming the institutional barriers, lack of focus, and lack of resources that prevent collaboration and progress in integrating highway safety data. The exact role and powers of the TRCC should be made explicit in its

charter. Legislators, the governor, and top management of participating agencies should give authority to the TRCC members to make policy decisions and commit their agency's resources to solve problems and approve the state's strategic plan for traffic records. The most important responsibility of the TRCC is to provide the leadership necessary to ensure that available funds are sufficient to match stated needs. Despite challenges stemming from collective decision-making by members from different agencies with competing priorities, TRCC members must speak with "one voice." The TRCC should have guidelines to determine who speaks for the TRCC and how its recommendations are communicated.

- ❑ Appoint an Administrator/Manager.
  A single point of contact for managing a data improvement project is necessary to ensure leadership. The TRCC should designate a traffic records administrator or manager and provide sufficient time and resources to do the job. This person will be responsible for coordinating and scheduling the TRCC, in addition to tracking the progress of implementing the state's traffic records strategic plan. Uniform criteria should be established for monitoring progress. NHTSA can facilitate training for the TRCC administrator/manager regarding traffic record systems, program management, and data analysis.

- ❑ Schedule Regular Meetings.
  The TRCC should establish a schedule of regular meetings, not only to discuss data coordination issues and make progress on the strategic plan, but also to share success stories to aid in overcoming fears of implementation. The meetings should take place as required to deal with the state's traffic records issues and provide meaningful coordination among the stakeholders. The TRCC needs to gain broader support by marketing the benefits of improved highway safety data. An example is by providing data and analytical expertise to local government officials, legislators, decision makers, community groups and all other stakeholders. TRCC meetings can include strategy sessions for such marketing plans.

- ❑ Oversee Quality Control/Improvement.
  The TRCC should have oversight responsibility for quality control and quality improvement programs affecting all traffic records data. Regularly scheduled presentations of quality control metrics should be part of the TRCC meeting agenda, and the TRCC should promote projects to address the data quality problems that are presented.

- ❑ Oversee Training for TRS Data Improvement.
  The TRCC should have oversight responsibility for encouraging and monitoring the success of training programs implemented specifically to improve TRS data quality. Regularly scheduled presentations of training needs and training participation should be part of the TRCC meeting agenda, and the TRCC should promote projects to conduct training needs assessments and address the identified training needs.

Status

A Traffic Records Coordinating Committee (TRCC) is critical to the success of a state's traffic records system. Through the TRCC, its membership can resolve many of the problems that traditionally confound a traffic records system, including institutional barriers that often preclude access, exchange and analysis of records system data.

The State of Alaska has had a TRCC since the early 1990s, but until recently the TRCC had limited functionality. In 2006 representatives from several organizations including the Alaska Highway Safety Office (AHSO), the Department of Motor Vehicles (DMV), state and local law enforcement, the state Department of Health, the state Courts and the Federal Highway Administration (FHWA) met to form a new Alaska Traffic Records Coordinating Committee (ATRCC). The stated goal of the ATRCC is:

> To improve motor vehicle crash data in order to reduce crashes and injuries on Alaska's roadways.

The ATRCC mission statement is:

> With guidelines from NHTSA and eligible federal funding, the Alaska Traffic Records Coordinating Committee was created to bring people together who are interested in reducing traffic injuries and deaths by improving the timeliness, accuracy and consistency of traffic crash data.

The ATRCC meets on a monthly basis, and more frequently as circumstances require. While the ATRCC does not currently have an Administrator/Manager, it has designated a Chairperson with Co-Chair persons. As the ATRCC matures and expands its traffic records function, it will likely be necessary to appoint an administrator/manager who can coordinate and schedule ATRCC activities.

A companion organization to the ATRCC is the Alaska Multi-Agency Justice Integration Consortium (MAJIC). MAJIC was established to assist state and local agencies to more efficiently share timely, accurate and complete data that will improve and enhance the performance and operation of the criminal justice system. MAJIC is composed of representatives from 20 organizations from across the state and meets semi-monthly. A number of representatives on ATRCC also serve on MAJIC. One of the goals of MAJIC is to promote standards that make information sharing between agencies/systems more reliable and efficient. Examples of standards are uniform forms, tables, data definitions, and unique identifiers for persons and charges/events to ensure accurate matching of person and event information between systems.

An important feature not present with the extant ATRCC is a two-tiered TRCC. Specifically, there is no state executive-level committee, participation or representation on the ATRCC. The membership of the ATRCC understands this. Activities are being developed and implemented to expand the ATRCC by including appropriate department and agency heads. ATRCC membership further understands that executive-level

support and recognition are critical to gain resources, overcome institutional barriers and achieve an integrated state traffic records system.

An important ATRCC initiative is a review of available technologies for electronic collection of crash and citation data. Implementation of electronic data capture and transfer has the potential to reduce the time required for both data collection and input. Another major benefit of this technology is a dramatic reduction of data collection and input errors. The ATRCC has formed a user committee to work on designing the requirements for the law enforcement crash data form.

Another important ATRCC initiative is development of a web-enabled protocol and procedure that allows both law enforcement officers and drivers to complete and submit crash report forms via the web. A web-enabled procedure for law enforcement officers is still under development; the web enabled procedure for completing and submitting crash reports by drivers is operational.

The ATRCC, in combination with MAJIC, have an excellent mix of individuals possessing the expertise to develop both traffic records system data collection and data entry standards. ATRCC has already demonstrated that it is capable of developing web-enabled procedures for data entry and transfer. This ability should be expanded to include web enabled data access to traffic records for laypersons, the media, legislators, traffic safety advocates and other interested groups. Provision of such access can be a major factor in promoting interest in traffic safety.

This group, ATRCC and MAJIC, also has the expertise to develop training protocols for data collectors, managers and users. This should include developing training modules for use at law enforcement training academies. ATRCC has already demonstrated that it is capable of developing web-enabled procedures for data entry and transfer.

Recommendations

- **Initiate all activities necessary to establish executive-level participation and representation on the ATRCC.**
- Develop training protocols for traffic records system data collection, data entry and access to include use of ANSI D-16 and to include training modules for law enforcement academies.
- Develop traffic records data standards and guidelines with emphasis on use of ANSI D-16 and the Model Minimum Uniform Crash Criterion.
- Develop data access protocols that will allow traffic records system data users

ready access and use of traffic records data.

- **Hire a full-time Traffic Records Coordinator.**

1-B: Strategic Planning

The TRS should operate in a fashion that supports the traffic safety planning process. The planning process should be driven by a strategic plan that helps state and local data owners identify and support their overall traffic safety program needs and addresses the changing needs for information over time. Detailed guidance for strategic planning is included in the *NHTSA Strategic Planning Guide* and the *FHWA Strategic Highway Safety Plan* documents. The strategic plan should address activities such as:

- ❑ Assign Responsibility for the Strategic Plan.
  The strategic plan should be created and approved under the direction of the TRCC. The TRCC should continuously monitor and update the plan, to address any deficiencies in it's highway traffic records system.

- ❑ Ensure Continuous Planning.
  The application of new technology in all data operational phases (i.e., data collection, linkage, processing, retrieval, and analysis) should be continuously reviewed and assessed. The strategic plan should address the adoption and integration of new technology as this facilitates improving TRS components.

- ❑ Move to Sustainable Systems.
  The strategic plan should include consideration of the budget for lifecycle maintenance and self-sufficiency to ensure that the TRS continues to function even in the absence of grant funds.

- ❑ Meet Local Needs.
  The strategic plan should encourage the development of local and statewide data systems that are responsive to the needs of all stakeholders.

- ❑ Promote Data Sharing.
  The strategic plan should promote identification of data sharing opportunities and the integration among federal, state, and local data systems. This will help to eliminate duplication of data and data entry, assuring timely, accurate, and complete traffic safety information.

- ❑ Promote Data Linkage.
  Data should be integrated to provide linkage between components of the TRS. Examples of valuable linkages for highway and traffic safety decision making include crash data with roadway characteristics, location, and traffic counts; crash data with driver and vehicle data; and crash data with adjudication data, healthcare treatment and outcome data (e.g., Crash Outcome Data Evaluation System [CODES]).

- ❑ Coordinate with Federal Partners.
  The strategic plan's budget-related items should include coordination between the state and the various federal programs available to fund system

improvements. The data collection, management, and analysis items in the strategic plan should include coordination of the state's systems with various federal systems (e.g., the Fatality Analysis Reporting System [FARS], the Problem Driver Pointer System [PDPS] of the National Driver Registry [NDR], the Motor Carrier Management Information System [MCMIS], and the Commercial Driver License Information System [CDLIS]).

- ❑ Incorporate Uniform Data Standards.
  The strategic plan should include elements that recognize and schedule incorporation of uniform data elements, definitions, and design standards in accordance with national standards and guidelines. Current examples of these standards and guidelines include Model Minimum Uniform Crash Criteria (MMUCC), American National Standards Institute [ANSI] -D20.1, ANSI-D16.1, National Governors Association (NGA), Global Justice XML Data Model (GJXDM), and the National Emergency Medical Service Information System (NEMSIS) Data Dictionary.

- ❑ Plan to Meet Changing Requirements.
  To help the state meet future highway safety challenges, the strategic plan should include a periodic review of data needs at the local, state, and federal levels. It should be updated to include tasks to meet those needs as they are identified.

- ❑ Support Strategic Highway Safety Planning and Program Management.
  The strategic plan should include elements designed to ensure that the state captures program baseline, performance, and evaluation data in response to changing traffic safety program initiatives. Additional elements should be present for establishing and updating countermeasure activities (e.g., crash reduction factors used in project selection and evaluation).

- ❑ Strategic Planning of Training and Quality Control.
  The strategic plan should incorporate activities for identifying and addressing data quality problems, especially as these relate to training needs assessments and training implementation.

Status

State-level Planning

Alaska's transportation safety planning process should ensure that all opportunities to improve safety in roadway, behavioral, public health/trauma care arenas are identified, considered, coordinated, implemented and evaluated.

There appears to be little or no enterprise-level strategic coordination of public health and safety initiatives, at least in the transportation arena, although there have been numerous stand-alone projects.

The Alaska Department of Administration's Enterprise Technology Services unit has begun to develop statewide IT standards and to consolidate IT resources (enterprise GIS, enterprise data repositories, etc). However, an enterprise focus, such as strategic alignment of the business purposes of the public health and safety agencies with those of transportation, does not yet appear to have become an organizing principle of state government.

Executive level leadership has been exercised in the health care arena. By a February 2007 Administrative Order, the Governor established an Alaska Health Care Strategic Planning Council to develop a statewide plan to identify short-term and long-term strategies that address access to and cost and quality of health care, and to develop an action plan. The process will be strategic, beginning with an environmental scan, proceeding to short and long-term strategic plans that promote integration across delivery systems the process should establishing performance measures and accountability that can be monitored by policy makers.

The interview process did not reveal a pattern of strong leadership for transportation or public safety planning at the executive level. The interviewees were not aware of any state enterprise level planning process for information technology, standards, etc. Each agency may have internally coordinated IT planning, as in the case of the DH&SS IT unit that sets department data policies. However, there is no interagency coordination except through working-level groups such as MAJIC or the TRCC. The assessment process revealed that mismatch in timing of plan development, institutional issues, and limited awareness of the relation of the individual efforts resulted in limited cross-communications and little coordinated decision-making during plan development process.

High-quality state public health and safety plans available on-line indicate an admirable amount of effort and expertise has been allocated to planning, but the planning process seems to have been episodic. In many cases, the production of a plan seems to have resulted in little successful implementation of the planned strategies. Possible reasons for this might include a lack of or loss of champions or lack of strategic resources, or even changing state priorities.

Alaskan agencies and organizations have produced many discipline or program-related plans over the past decade. One extensive list of such plans is included in the state health plan; the list reflects a great deal of redundancy in organizational structure and mission within the state. Some of this redundancy relates to the multi-model character of Alaska's transportation network, some to the many autonomous organizations within the state with planning and programming authority. In addition to the state agencies and independent boroughs, these include the Tribes/Natives, the Park Service, and the Military, among others.

The interview process also revealed that many of the people who constitute major strategic resources for highway safety, and especially for safety data, are long-time state employees who plan to retire in the near future. A training and human resource

plan should be a component of both the SHSP and TRSP plans.

Alaska's Strategic Highway Safety Plan

Alaska DOT&PF has contracted with Cambridge Systematics, Inc., to perform strategic planning for the State's Strategic Highway Safety Plan (SHSP) and for its Traffic Records Strategic Plan (TRSP). The potential integration of the latter into the former can be expected to benefit both efforts.

Project leaders state that the contractor will be responsible to gather baseline data. It is clear from the interview process that the contractor will need a great deal of assistance in ascertaining political and institutional factors required for identifying strategic area champions, bringing executive level leadership to the effort and identifying and leveraging all potentially available strategic resources.

TRSP and SHSP planning processes have been underway since late 2006. A number of mid-level staff from affected agencies are involved in both strategic planning efforts. The contractor should be tasked to ensure that the plans are developed in an integrated collaborative manner that considers and meets the needs of all of the affected interests.

While Alaska's state traffic records system is now used in support of state and borough/local traffic safety planning, it appeared from the interview process that the safety program planning process is not strategic; i.e., an environmental scan has not been performed, nor have short- and long-term strategies with performance measures been identified.

The coordination of programming and data sharing with organizations with overlapping missions has not been identified as a priority. At this time, executive level champions have not been identified and a formal process for developing or amending the plan, for assigning responsibility for achievement of objectives and for oversight have not been established.

The planning group members identify needed partners informally, asking them to participate in further planning, and then the enlarged group identifies additional needed partners. The interview process also revealed that not all the potential partners are yet involved, or active, in the necessary exchange of information.

The Alaska Highway Safety Office (AHSO) director is involved in the planning process and intends to integrate the State Highway Safety Performance Plan into the SHSP. The interview process did not reveal whether the operational plans of other organizations with transportation safety missions would be integrated into the SHSP. The SHSP should drive the safety plans of MCSAP, HSPP, Healthy Alaska 2010, the State EMS Plan, MPOs TIPs, etc.

The work group has identified four subcommittees that appear to represent the primary emphasis areas for the SHSP: 1) Driver Behavior, 2) Special Users, 3) Highway-based and 4) TRCC. The interview process did not ascertain how these were selected.

A 2004 Safety Stewardship Conference was sponsored by ADOT&PF, FHWA and Alaska Railroad Corporation. It was a large multi-agency, multi-disciplinary meeting whose primary goal was to stimulate ideas for a prioritized set of initiatives and a systematic method for making progress in transportation safety. The planning process included breakouts into workgroups for action planning following the Integrated Safety Management Process and the NCHRP guidebooks. Each work group developed a brief problem or vision statement, identified a set of recommendations for action and identified information needs.

The 2004 Safety Stewardship Conference ended with recommended next steps, beginning with educating policy makers and continuous safety training of the public. Other recommendations included the development of a catalog of safety activities and resources, identification of a leadership model for progress on the identified safety initiatives, and bringing missing partner groups into planning.

The FHWA Alaska Division was responsible for implementing the next steps, but the records do not indicate whether implementation occurred in any formal or systematic manner. The process as described did not identify champions, assign institutional or individual responsibility for progress, performance measures or a timeline for assessing progress toward achieving the recommended activities.

Alaska's Traffic Records Strategic Plan

In October 1993, Alaska underwent a Traffic Records Assessment. Its major recommendations included: 1) the formation and operation of a Traffic Records Coordinating Committee with the responsibility of developing a Traffic Records Strategic Plan, 2) improve user access to databases and related training, 3) increase data procedural efficiencies – eliminate multiple handling of crash data, and 4) ensure that the traffic records system supports the consideration of safety in operational planning by all affected organizations.

The original TRCC met for years on a very limited basis and served primarily as a discussion group. While some progress has been made in areas identified in the 1993 assessment, it was not the result of formal integrated planning and strategic resource allocation.

The 2004 Safety Stewardship Conference Data Sharing group identified fragmentation of responsibility for record collection and management among state and local agencies as a problem. They felt this problem could be overcome so long as the data are collected in a reliable manner and shared through the use of technology.

Their recommendations included: a cross-agency location referencing method, automated data collection, development of a web portal for access to data from a variety of sources, interagency agreements/commitment to data improvements and the creation of road safety profiles that allow for multi-factorial highway safety analyses of corridor or system function.

In the past year, a core group of ATRCC members, mostly mid-level individuals with strong personal relationships, decided to reinvigorate the committee. The ATRCC will provide direction for development of its TR Strategic Plan, but no executive-level direction, leadership, or project champions have been identified.

No environmental scan has been attempted since the 1993 Traffic Records Assessment. No single document contains a description of the component files of the state's system. No data dictionaries have been published and in some cases they appear never to have been produced.

Standard, formal protocols for data quality assessments have not been established or documented; some quality studies have been performed, but on an ad hoc basis.

Systematic publication of standard reports derived from the component databases are almost universally lacking. Highway Safety data are often only available by request to the few individuals with direct access to the databases. As these highly skilled individuals leave state government, a serious interruption of access to data is possible.

Determination of baseline data quality measures and strategic objectives for data and system improvements will require all these functions be established at an early stage of strategic planning, data improvement project planning and implementation.

Healthy Alaskans 2010, Alaska's decennial public health plan, was created and monitored using the formal national CDC-driven process. It is used to track changes in Alaska's statewide health status, and serves as a point of reference for health policy development. Much of its injury and infrastructure planning the SHSP and TRSP, could be useful to process.

Recommendations

- Pursue executive level support at the highest possible levels of state government and across agencies in support of the implementation of the Strategic Highway Safety Plan and the Traffic Records Strategic Plan.

- Integrate the strategic planning process across agencies and organization units for the Strategic Highway Safety Plan, the Traffic Records Strategic Plan and the Healthy Alaska 2010 public health plan, and ensure that these processes consider the requirements for producing operating plans such as the Highway Safety Improvement Plan, the MCSAP Plan, the Highway Safety Performance Plan, the state EMS Plan and other related plans.

- Identify high-level 'champions' who have the authority to assign resources and responsibility for achievement of strategic plan objectives, and develop a timeline and reporting mechanism for progress toward achieving those objectives.

- In both the SHSP and the TRSP, require periodic reviews and updates of system needs and resources, and include a process for periodic updating of plan

objectives, supporting strategies and timelines.

- Perform an environmental scan that identifies political, budget and other constraints on ATRCC operations; identifies the overlapping missions and business needs for traffic records data of Committee members and other state organizations.

- **In both the SHSP and the TRSP, identify a strategy to conduct a detailed system inventory of all core data systems, with complete data dictionaries, data element and definitions, data quality indicators and collection and management processes, documenting their compliance with national standards such as ANSI D.16, MMUCC, NEMSIS and MMIRE (when available).**

- **Create, publish and market a Safety Data Resource Guide that provides summary information about the nature, location and quality of the state's traffic records system component databases, including examples of publications using the data and information about how to access them.**

- In both the SHSP and the TRSP, identify a strategy to address data quality assessments, requirements, protocols, analyses and publications. Establish a series of standard reports for identified target audiences such as policy makers and funding agencies.

- Within the TRSP, develop a strategy for law enforcement data automation, transmission and access/sharing that supports both SHSP and TRSP objectives. This strategy will identify logical data flow of an automated system, necessary strategic resources and the progression of improvements to system completion.

- Within the TRSP, develop a strategy for training personnel in data collection, analysis and use that supports both SHSP and TRSP objectives. A training and human resource strategy should be a component of both the SHSP and TRSP plans.

1-C: Data Integration

The *Data IPT Report* recommends that states integrate data and expand their linkage opportunities to track traffic safety events among data files. Integrated data enable driver license and vehicle registration files to be updated with current violations, preventing the wrong driver from being licensed or an unsafe vehicle from being registered. Integration ensures that all administrative actions for a driver are available at the time of the driver's sentencing. Data linkage is an efficient strategy for expanding the data available, while avoiding the expense and delay of new data collection.

State TRCCs should develop working relationships with the health care community to ensure that the causation, crash, emergency medical services, hospital, and other injury-related data linked during the event are merged statewide. They should also link to other data such as vehicle insurance, death certificates, medical examiner reports, etc., to support analysis of state-specific public health needs.

Linkage with location-based information such as roadway inventory databases and traffic volume databases at the state level can help identify the kinds of roadway features that experience problems, allowing states to better address these needs through their various maintenance and capital improvement programs. Data integration should be addressed through the following:

- ❑ Create and Maintain a System Inventory.
  The TRS should be documented to show the data elements and their definitions and locations within the various component systems. Ancillary documentation should be available that gives details of the data collection methods, edit/error checking related to each data element, and any known problems or limitations with use of a particular data element. The system inventory should be maintained centrally, ideally in a data clearinghouse, and kept up-to-date through periodic reviews with the custodial agencies. Funding for system development and improvement should include a review of existing systems' contents and capabilities.

- ❑ Support Centralized Access to Linked Data.
  The traffic records user community should be able to access the major component data files of the TRS through a single portal. To support this access, the state should promote an enterprise architecture and database, and develop a traffic records clearinghouse to serve as the gateway for users. The databases in the clearinghouse should be linked in ways that support highway safety analysis. At a minimum, this would include linkage by location, involved persons, and events.

- ❑ Meet Federal Reporting Requirements.
  The TRS, where possible, should link to or provide electronic upload files to federal data systems such as FARS, MCMIS/SafetyNet, Highway Performance Monitoring System (HPMS), and others.

- ❑ Support Electronic Data Sharing.
  The TRS should support standard methods for transporting data between systems. At a minimum, these should include a documented file structure and data definitions for information to be transferred to statewide databases. Standard information transfer formats and protocols, such as TransXML format and FTP, should be supported.

- ❑ Adhere to State and Federal Privacy and Security Standards.
  The TRS should make linked data as accessible as possible while safeguarding private information in accordance with state and federal laws. This includes security of information transferred via the Internet or other means.

Status

Integration is the electronic exchange of information between the numerous highway safety information files at the federal, state and local levels. Integration allows for surveillance that is more effective, event tracking, and data analysis. While many agencies throughout the State of Alaska have a wealth of highway safety information contained in various files, these files often operate as silos between agencies. That means the information is stored and available only to the database owner. For example, two hard copies of Commercial Vehicle Crashes (CMV) are sent to the ADOT&PF. One copy is checked and entered into the crash database while the other copy is checked and entered into the SAFETYNET database for uploading to MCMIS. This requires redundant data entry resulting in unnecessary delays and decreased accuracy.

The interview process revealed that with the exception of some ADOT&PF and Criminal Justice Information System (CJIS) files there is little or no real data integration among the files in agencies that should comprise the Alaska highway safety information system. Integration and data linkage was virtually non-existent among the Department of Motor Vehicle (DMV) files, Emergency Medical Services (EMS) files, injury surveillance files and trauma files.

Several major initiatives are being implemented by Alaska to remedy this situation. Among some of the initiatives are the Multi-Agency Justice Information Consortium (MAJIC) and the Commercial Vehicle Analysis System (CVARS) project to implement a pilot utilizing TraCS to capture CMV crash data. TraCS will automatically upload the project necessary data directly to SAFETNET. The TraCS project will improve the timeliness, accuracy and support electronic uploading to SAFETYNET and MCMIS.

MAJIC's mission is to help agencies more efficiently share complete, accurate, timely information in order to enhance the performance of the criminal justice system. The MAJIC initiated a project in the year 2000. The project team was recently expanded to include many of the current TRCC members. The State of Alaska is to be commended for this multi-agency and multi-disciplinary approach to improving data integration. This integration will result in the education of additional highway safety partners and provide

a new emphasis to integrate other highway safety information systems.

Within the ADOT&PF a number of files are integrated in HAS. The Transportation Research Board recently published Circular E-111 titled “Integrating Roadway, Traffic, and Crash Data”. The DOT & PF participated in this review and the following are excerpts from the circular and printed with the permission of the authors. Data integration will benefit many highway safety activities although many challenges remain before complete data integration can occur.

The three primary business areas of the ADOT&PF that will benefit from data integration are:

- Highway Safety Improvement Program (HSIP);
- STIP; and
- Maintenance management system (MMS).

Six additional business areas in the ADOT&PF will also be improved through the data integration efforts:

- Road Weather Information System (RWIS);
- Traffic Data Systems (TDS);
- PMS;
- BMS;
- Traveler Information System—Condition Acquisition and Reporting System (CARS/511); and
- Seasonal weight restrictions.

ADOT&PF’s goal is to integrate the road network with transportation features and business data from each of these nine business areas through the geodatabase fields, external tables, and external databases. The geodatabase will provide location referencing and feature attribute information for transportation assets and will provide links to external tables or databases. The GIS will meet both program managers and decision-makers needs for making more informed, fact-based decisions in supporting the department’s missions, core services, and performance measures.

User confidence in the quality of the transportation feature and network data is critical to the integration. To address this data integration problem, ADOT&PF is developing these business processes:

- Data collection procedures for features and road centerline network;

- Data quality assurance (QA);
- Criteria for referencing locations
;
- Update cycles for spatial and attribute data;
- Prioritization on updating data fields and non-geometric business data;
- New sections and realignments;
- Time stamping and archiving; and
- Data of differing spatial resolutions.

The most significant data integration problems include:

Geography

ADOT&PF has 33 maintenance stations dispersed throughout the state. Alaska's topography and the great distances to the maintenance stations, many of which are accessible by only by sea or air, increases the cost and time to accomplish road inventory activities quickly. These factors will also be particularly challenging to meet the SAFETEA-LU requirements for safety analysis on
all public roads.

Road Centerline Reference Network

Additional, ongoing data collection is critical for a working GIS. Automating, to the greatest extent possible, the processing of centerline and feature data will streamline the addition of new data to the geodatabase. ADOT&PF has an ongoing business process to address the road centerline reference network. A software package has been developed to help automate the centerline and feature data processing.

Synchronization of Databases

Keeping the road centerlines and feature data the same in the geodatabase, the legacy mainframe database, and the data warehouse is necessary to maintain both the GIS and the business application programs. At present, this is completely a manual process.

GIS Layers of Different Scales and Versions

The orthorectified aerial photogrammetry and satellite imagery, which are used as background features to the base map, are gathered from several sources. There have been a few limited database layers developed for Alaska, but there is no distribution, update, or validation involved. This is a very significant institutional issue. A statewide GIS committee does exist, but does not have a mandate or funding to improve the

datasets.

Recommendations

- **Continue implementation of the CVARS and MAJIC projects. Use the existing MAJIC project team in concert with the TRCC to identify, develop and implement additional data integration projects.**

- Continue ADOT&PF data integration project.

- Task the TRCC to create a system inventory and develop a resource guide.

- Integrate and link the driver license and vehicle registration history files.

- Task the TRCC to develop working relationships with the health care community to ensure that the causation, crash, emergency medical, hospital and other injury-related data is linked and integrated with other highway safety information systems.

- Task the TRCC to consider developing a traffic records clearinghouse that users can access through a single portal.

1-D: Data Uses and Program Management

Data availability and quality directly affect the effectiveness of informed decision making about sound research, programs, and policies. Accurate, comprehensive, and standardized data that are provided in a timely manner allow the agency or decision-making entities at the state or local levels to:

- ❑ Conduct Problem Identification.
  Problem identification is the process of determining the locations and causes of crashes and their outcomes and of selecting those sites and issues that represent the best opportunity for highway safety improvements.

- ❑ Develop Countermeasure Programs and Program Management Procedures.
  States select and evaluate strategies for preventing crashes and improving crash outcomes. This requires that decision makers can select cost-effective countermeasures and that safety improvement programs and funds are managed based on data-driven decision-making.

- ❑ Perform Program Evaluation.
  States should be capable of measuring progress in reducing crash frequency and severity. Ideally, the effectiveness of individual programs and countermeasures should be evaluated and the results used to refine development and management processes.

- ❑ Support Safety-Related Policies and Planning.
  The states are responsible for developing SHSPs. These data should be available to support this and other policy and planning efforts such as development of agency-specific traffic safety policies, traffic records strategic planning, safety conscious planning, and others.

- ❑ Access Analytic Resources.
  Data users, and decision makers in particular, should have access to resources including skilled analytic personnel and easy to use software tools to support their needs. These tools should be specifically designed to meet needs such as addressing legislative issues (barriers as well as new initiatives), program and countermeasure development, management, and evaluation, as well as meeting all reporting requirements.

- ❑ Provide Public Access to Data.
  The TRS should be designed to give the public or general non-government user reasonable access to data files, analytic results, and resources, but still meet state and federal privacy and security standards.

- ❑ Promote Data Use and Improvement.
  The TRS should be viewed as more than just a collection of data repositories, and rather as a set of processes, methods, and component systems. Knowledge of how these data are collected and managed, along with where the bottlenecks

and quality problems arise, is critical to users understanding proper ways to apply the data. This knowledge also aids in identifying areas where improvement is possible.

Status

It was apparent that all of the participants of the assessment were extremely traffic safety conscious. No one person, no matter what department she/he represented, was less than enthusiastic about improving the status of traffic safety records. Each person displayed a genuine desire to improve the safety of Alaska's roadways. The State is to be commended for having such a large group of agencies all striving for the common goal of a safer Alaska.

A wealth of data is being captured by many agencies. Each agency seems to use their respective data in an attempt to improve the current conditions.

Alaska has relatively recently reactivated the Alaska Traffic Records Coordinating Committee (ATRCC). There is also a group called Multi-Agency Justice Consortium (MAJIC) that has been active for a couple of years. Both groups are working toward establishing better communication and cooperation between agencies. It also appears that ADOT&PF and DH&SS use the available data extensively for problem identification. However, it was unclear as to what degree the data were used by law enforcement and other disciplines.

A significant concern revealed through the interview process was the lack of a use of data definitions when compiling crash data. Neither ANSI D-16, nor MMUCC are referenced anywhere in the data gathering process. As a result, the quality of the crash data may very well be suspect. There is also a significant delay in the compiling of crash data, making effective program evaluation difficult. No clear definition was provided for establishing an intersection crash, which could make proper analysis difficult.

Another major concern about data quality is the process used to enter the data. The current process permits changes to crash data to be made by processing clerks with no crash investigation experience. In the case of one city, there are two separate opportunities for data on the police report to be changed prior to entry into the database. That would allow for three separate results for similar reports depending on who was running the report. In addition to the accuracy of the data, the delay in the processing of that data is a concern. The process is cumbersome.

While the amount of data seems to be generally adequate, access to data seems to be lacking. Currently, almost any kind of data is available if the requestor knows who to contact and that person is available. Cost constraints may limit access to data and/or information.

With the exception of some court data, individual agency access to comprehensive data seems cumbersome, if not impossible. There appear to be plans to correct that

situation, but these plans will require significant time and effort. Court data requires multiple entries into separate databases. Some of those databases feed other similar databases and both databases may have different fields and edit checks. It appears as though these databases are antiquated and relatively inaccessible. Agencies provide data for the database, but have limited access to their own data.

Currently, a web-based query program is being developed to allow users to run some data queries directly. Until each agency is required to use uniform definitions, effective reporting will be compromised. A comprehensive data system inventory is critical to ensure completeness.

Although communication between agencies seems to be vastly improved, there are still some gaping holes in sharing data. For example, the Injury Prevention Center used mini-CODES to link crash and Alaska Trauma Registry databases. However, this study was not shared with any other agencies. The interview process revealed that a grant was awarded to one agency for GPS units. Other stakeholder agencies that would benefit from this technology were unaware of this project.

A wealth of data is available. Accessibility to those data is limited to the individuals and/or organizations that currently have ownership.

Recommendations

- **Provide a system/systems that allow for user friendly queries.**
- Establish protocol and requirements for data quality assessments.
- Provide regular and comprehensive systematic output reports.
- **Establish a consistent way to define crash data by the use of ANSI D-16 and MMUCC.**
- **Expand the use of the Data Portal:**
    - **to traffic engineering community**
    - **to other public entities**
    - **by moving from intranet to Internet access**
    - **to other safety groups**
- Acquire funding to employ a full-time traffic records coordinator.

SECTION 2: TRAFFIC RECORDS SYSTEM COMPONENTS

At the time of passage of the Highway Safety Act of 1966, state centralized TRS generally contained basic files on crashes, drivers, vehicles, and roadways. Some states added data on traffic safety-related education, either as a separate file or as a subset of the Driver File. As traffic safety programs matured, many states incorporated EMS and Citation/Conviction Files for use in safety programs. Additionally, some states and localities maintain a Safety Management File that consists of summary data from the central files that are used for problem identification and safety planning.

As the capabilities of computer hardware and software systems increased and the availability of powerful systems has expanded to the local level, many states have adopted a more distributed model of data processing. For this reason, the model of a TRS needs to incorporate a view of information and information flow, as opposed to focusing only on the files in which that information resides.

Under this more distributed model, it does not matter whether data for a given system component are housed in a single database on a single computer or spread throughout the state on multiple local systems. What matters is whether the information is available to users, in a form they can use, and that these data are of sufficient quality to support its intended uses. Thus, it is important to look at information sources. These information sources have been grouped to form the major components of a TRS:

- ❑ Crash Information
- ❑ Roadway Information
- ❑ Driver Information
- ❑ Vehicle Information
- ❑ Citation/Adjudication Information
- ❑ Statewide Injury Surveillance Information

Together, these components provide information about places, property, and people involved in crashes and about the factors that may have contributed to the crash or traffic stop. The system should also contain information that may be used in judging the relative magnitude of problems identified through analysis of data in the TRS. This includes demographic data (social statistics about the general population such as geographic area of residence, age, gender, ethnicity, etc.) to account for differences in exposure (normalization) and data for benefit/cost and cost effectiveness determinations. Performance level data should be included to support countermeasure management.

A frequently used overview of the contents of a TRS is the Haddon Matrix, named after its developer, William Haddon, the first NHTSA Administrator. It provides a valuable framework for viewing the primary effects of Human, Vehicle, and Environmental factors and their influence before, during, and after a crash event. Table 1 is based on the Haddon Matrix.

Table 1: Expanded Haddon Matrix with Example Highway Safety Categories

	Human	Vehicle	Environment
Pre-Crash	· Age · Gender · Experience · Alcohol/Drugs · Physiological Condition · Psychological Condition · Familiarity with Road & Vehicle · Distraction · Conviction & Crash History · License Status · Speed	· Crash Avoidance · Vehicle Type · Size & Weight · Safety Condition, Defects · Brakes · Tires · Vehicle Age · Safety Features Installed · Registration	· Visibility · Weather/Season · Lighting · Divided Highways · Signalization · Geographic Location · Roadway Class, Surface, Cross-Section, Alignment, etc. · Structures · Traffic Control Devices, Signs, Delineations, and Markings · Roadside Appurtenances, Buildups, Driveways, etc. · Volume of Traffic · Work Zone · Animal Range Land & Seasonal Movements
Crash	· Belt Use · Human Tolerance · Size · Seating Position · Helmet Use	· Crash-Worthiness · Passenger Restraints · Airbags and Airbag Shutoff	· Guardrails · Median Barriers · Breakaway Posts · Rumble Strips and Other Safety Devices · Maintenance Status of Roadway and Devices
Post-Crash	· Age · Physical Condition · Insurance Status · Access to Health Care · Driver Control Actions · Court Actions · Probation	· Post Crash Fires · Fuel Leakage · Power Cell Securement · Hazardous Materials · Title	· Traffic Management · Bystander Care · EMS System · First Responders · Hospital Treatment · Long-Term Rehabilitation and Outcomes

The Haddon Matrix has proven to be a meaningful way to examine primary effects of contributing factors on crash frequency and severity. It helps decision makers to consider countermeasures designed to address specific contributing factors. In recent years, with availability of more detailed data analyses, awareness has grown about the interactions among contributing factors. A good example of such interactions would be weather and drivers' skill or experience levels. To make the contribution of interaction effects more obvious, the matrix in Table 2 can be used to supplement the Haddon Matrix.

Table 2: Examples of the Interactions among Crash Characteristics

	Human	Vehicle	Environment
Human	· Road Rage · Ped/Bike Behavior & Driver Behavior · Driver Age & Passenger Age & Number	· Familiarity with Vehicle & Training · License Class & Vehicle Type · Rollover Propensity & Driver Actions · Vehicle Ergonomics & Person Size	· Crash Avoidance · Vehicle Type · Familiarity with Roadway · Experience with Weather Conditions
Vehicle		· Vehicle Size Weight Mismatch · Under-Ride/Over-Ride · Shared Roads, No-Zone · Tire Inflation & Rollover Propensity	· Rollover Propensity & Road Configuration · Roadway Debris & Vehicle Size Weight · Vehicle Type & Weather Conditions · Vehicle Condition & Weather Conditions
Environment			· Congestion Interaction with Road Type · Congestion & Vehicle Mix & Lane Width · Animal Management Policies & Roadway Access and Seasons

Taken together, these views of traffic safety factors organize thinking about highway safety issues that is both conceptually robust and practical. For the purposes of this Advisory, the most important aspect of the TRS is that it supports high-quality decision making to improve highway safety. The remainder of this section of the Advisory presents details about the various components of the TRS.

2-A: Crash Data Component

- ❑ Description and Contents

  The Crash Data Component documents the time, location, environment, and characteristics (e.g., sequence of events, rollover, etc.) of a crash. Through links to other TRS components, the Crash Data Component identifies the roadways, vehicles, and people (e.g., drivers, occupants, pedestrians) involved in the crash. These data help to document the consequences of the crash (e.g., fatalities, injuries, property damage, and violations charged), support the analysis of crashes in general, and the analysis of crashes within specific categories defined by:

  - person characteristics (e.g., age or gender)
  - location characteristics (e.g., roadway type or specific intersections)
  - vehicle characteristics (e.g., condition and legal status)
  - the interaction of various components (e.g., time of day, day of week,

weather, driver actions, pedestrian actions, etc.)

The Crash Data Component of the TRS contains basic information about every reportable (as defined by state statute) motor vehicle crash on any public roadway in the state.

- ❑ Applicable Guidelines
  Details of various data elements to be collected are described in a number of publications. The MMUCC provides a guideline for a suggested minimum set of data elements to be collected for each crash. Additional information should be collected for crashes involving an injury or fatality to meet the tracking and analysis requirements for the state and other systems (e.g., the FARS, General Estimates System, SafetyNet).

- ❑ Data Dictionary
  Crash data are collected using a uniform crash report form that, where applicable, has been designed and implemented to support electronic field data collection. Law enforcement personnel receive adequate training at the academy and during periodic refreshers, to ensure that they know the purpose and uses for the data as well as how to complete each field on the form accurately.

  Information from the quality control program is used to develop and improve the content of training. The training manual on crash reporting is available to all law enforcement personnel. The instructions in the manual match the edit checks that are performed on the crash data prior to its being added to the statewide crash database. The edit checks are documented and are sufficient to flag common and serious errors in the data. For example, these errors include missing or out of range values in single fields and logical inconsistencies between the data recorded in multiple fields (e.g., time of day is midnight and the lighting condition is coded as daylight). All data element definitions and all system edits are shared with collectors, managers, and users in the form of a data dictionary that is consistent with the training manual and the crash report form.

- ❑ Process Flow
  The steps from initial crash event to final entry into the statewide crash data system are documented in process flow diagrams. The diagram is annotated to show the time required to complete each step and to show alternate flows and timelines depending on whether the reports are submitted in hardcopy or electronically to the statewide system. The process flow diagram includes procedures for error correction and error handling (i.e., returning reports to the originating officer/department, correction, resubmission, etc.). Process flow diagrams show all major steps whether accomplished by staff or automated systems, and clearly distinguish between the two.

- ❑ Interface with Other Components
  The Crash Data Component has interfaces, using common linking variables

shown in Table 3, to other TRS components to support the following functions:

- Driver and vehicle data are used to verify and validate the person and vehicle information during data entry and to flag records for possible updating in the driver or vehicle files when a discrepancy is identified. Key variables such as driver license number, vehicle identification number (VIN), license plate number, name, address, and date of birth are available to support matching of records among the files. The Driver Data Component should also enable access to drivers' histories of crashes and convictions for traffic violations.

- Crash data are linked to roadway inventory and other roadway characteristics based upon location information and other automated and manual coding methods. This linkage supports location-based analysis of crash frequency and severity as well as crash rate calculations based on location-specific traffic counts.

- Law enforcement personnel are able to link crash, contact, incident, citation, and alcohol/drug test results through their own department's records and/or a secure law enforcement information network. For agencies with computer-aided dispatch and/or a records management system, the crash data are linked to other data through incident, dispatch, and/or crash numbers and can be linked by names and locations to support analysis at the local level.

- Linkage to injury surveillance data is possible either directly or through probabilistic linkage in order to support analysis of crash outcomes and overall costs of treatment. Key variables for direct linkage include names of injured persons or EMS run report number. Key variables for probabilistic linkage include the crash date and time, EMS run report number, and other particulars of the crash.

Table 3: Common Linking Variables between Crash and Other Data Components of a Traffic Records System

Crash Linkages to Other Law Enforcement and Court Files	- Incident Number - Location (street address, description, coordinates, etc.) - Personal ID (name, address, DL number, etc.)
Crash Linkages to Roadway Information	- Location Coding (linear referencing system, reference post, coordinates, local street codes)
Crash Linkages to Driver and Vehicle Information	- Driver License Number - Vehicle Identification Number - Personal Identifiers (name, address, date of birth, etc.)
Crash Linkages to Statewide Injury Surveillance System Information	- Personal Identifiers (where allowed by law) - Crash Date, Time, Location - EMS Run Report Number - Unique Patient ID Number

Furthermore, there are data transfer and sharing linkages between state and local crash databases. The state crash data system supports the electronic

transfer of crash data from a variety of law enforcement agencies' records management systems. The state's crash data system management has published the specifications and editing requirements for generating the outputs from the various agency systems that can be processed into the official state crash data system.

- ❑ Quality Control Program

The crash data are timely, accurate, complete, and consistent and these attributes are tracked based on a set of established quality control metrics. The overall quality of the information in the Crash Data Component is assured based on a formal program of error/edit checking as the data are entered into the statewide system, and procedures for addressing the detected errors. In addition, the custodial agency and the TRCC frequently work together to establish and review the sufficiency of the quality control program and to review the results of the quality control measurements. The crash data managers receive periodic data quality reports. There are procedures for sharing the information with data collectors through individual and agency-level feedback, as well as training and changes to the crash report instruction manual, edit checks, and data dictionary. Example measurements are presented in Table 4.

Table 4: Examples of Quality Control Measurements for Crash Data

Timeliness	- # days from crash event to receipt for data entry on statewide database: **10 days** - # days for manual data entry: **10 days** - # days for upload of electronic data: **1 day** - % reports entered into the system within 30 days of the crash: **> 90%** - % reports aged more than 60 days: **< 5%**
Accuracy	- % of crashes "locatable" using roadway location coding method: **> 95%** - % VINs that are valid (i.e., match to vehicle record and decode): **> 90%** - % of interstate motor carriers "matched" in MCMIS: **> 95%** - % crash reports with 1 or more uncorrected "fatal" errors: **< 1%** - % crash reports with 2 or more uncorrected "serious, non-fatal" errors: **< 5%** - % crash reports with 5 or more uncorrected "minor" errors: **< 10%**
Completeness	- % LEAs with > 10% unexplained drop in reporting one year to the next: **< 5%** - % LEAs within 5% of "expected" number of crashes each month: **> 95%** - % FARS/MCMIS match: **> 98%**
Consistency	- % of time "unknown" code is used in fields with that possible value: **< 5%** - % logical error checks that fail: **< 5%** - % compliance with MMUCC guidelines: **> 95%**

The measures in Table 4 are examples of high-level management indicators of quality. The crash file managers should have access to a greater number of measures and be prepared to present a standard set of summary measures to the TRCC on a periodic schedule, such as monthly or quarterly.

Status

In 2005, 13,138 crashes were reported on Alaska roads. Of these 9,018 were property damage only, 3,585 involved a minor injury, 468 a major injury and 66 were fatal crashes.

Crash data in Alaska are reported using two crash forms; Form 12-200 for law enforcement reported crashes, and Form 12-209 for driver reported crashes. The variables provide for in the crash report forms document the time, location, environment and characteristics or sequence of events of the crash. Also provided for are variables identifying the crash location and the people (and characteristics) and vehicle(s) involved as well as the crash outcome (fatal, injury, property damage only). The crash report forms were last modified in 2000 and became effective January 1, 2001. Crash report Form 12-200 is considered 95% compliant with the Model Minimum Uniform Crash Criterion (MMUCC) version 1. Crash report forms 12-200 and 12-209 are used throughout the state.

The requirements for reporting a crash in Alaska is covered under the provisions of Alaska Statute 28.35.080. The statute reads:

> Immediate notice of accident. (a) The driver of a vehicle involved in an accident resulting in bodily injury to or death of a person or total property damage to an apparent extent of $2,000 or more shall immediately by the quickest means of communication give notice of the accident to the local police department if the accident occurs within a municipality, otherwise to the Department of Public Safety. (b) The driver of a vehicle involved in an accident resulting in bodily injury to or death of a person or total property damage to an apparent extent of $2,000 or more shall, within 10 days after the accident, forward a written report of the accident to the Department of Administration and to the local police department if the accident occurs within a municipality. A report is not required under this subsection if the accident is investigated by a peace officer. (c) The form of accident report required under (b) of this section can be obtained from any local police department or the Department of Public Safety. (d) The Department of Administration may require the driver of a vehicle involved in an accident of which a report must be made to file supplemental reports whenever the original report is insufficient in the opinion of that department.

It is obvious from the AS 28.35.080 that the primary responsibility for reporting a crash rests with the driver(s) of the vehicle(s) involved in a crash. The driver crash report is completed as previously indicated on Form 12-209. In-state drivers can complete a Form 12-209 through web access. A similar application is being developed for the Form 12-200 (police reported crashes).

A driver report is not required when a crash is investigated and reported by a law enforcement agency. Law enforcement agencies complete the crash report, as noted, on Form 12-200. As a rule, any crash involving a commercial vehicle should be investigated by a law enforcement agency. A lack of training for officers contributes to

under reporting of commercial vehicle crashes.

All completed crash reports, either Form 12-200 or Form 12-209, are submitted to Driver Services, Division of Motor Vehicles (DMV), Department of Administration (DOA). Following proof of insurance, Driver Services assigns a security responsibility (SR) number to the crash report. During the time that DMV retains the crash report in order to establish proof of insurance and assign a SR number, DMV personnel also attempt to determine and assign the "at fault" driver of the crash. One of the criteria used to assign fault is whether and to which driver a citation was issued by a law enforcement officer. This criterion would only apply when the crash is investigated and reported by a law enforcement agency.

Once a crash report has been assigned a SR number, it is bundled with other crash reports by date of the occurrence of the crash reports and forwarded to the Division of Statewide Planning, Department of Transportation and Public Facilities (ADOT&PF). At this time, applicable crash reports are also forward to the Fatality Analysis Reporting System (FARS) analyst and the Motor Carrier safety analyst.

It was reported by DMV that their goal was to forward all crash reports to ADOT&PF within 45 days of receipt of the crash report. ADOT&PF reported that, typically, they do not receive crash reports until 60 – 90 days after the crash event. It was not clear why there is a discrepancy in the receipt of crash reports to ADOT&PF given that DMV attempts to forward crash reports within 45 days of their receipt. One possible source may be a delay in submitting crash reports by law enforcement agencies.

ADOT&PF is the primary custodian of crash data in Alaska. The first activity completed by ADOT&PF after receipt of the crash reports is to sort the crash reports. (SEE CHART 2A-1) In general, crashes are sorted by: law enforcement reported (12-200) versus driver reported (12-209); year of crash; and area of the state where the crash occurred.

Following the sort of the crash reports, the first of two quality control activities are completed. This first quality check determines if data are either missing or incorrect such as; date of crash; police case number; time of crash; number of vehicles involved in the crash (number of vehicles must agree with the number of vehicle data sections); number of injuries/fatalities (must agree with the number of occupants included in the occupant data sections); driver information including driver operator's license number; vehicle information including vehicle plate number, vehicle year and make and whether the vehicle was a commercial vehicle; crash environment; and crash circumstances. While ANSI D16.1 is being used in this quality control process, it is not being used by the law enforcement in the initial data capture. If it is not possible to obtain missing data or to correct data that are incorrect the variable may be left blank or a default code entered.

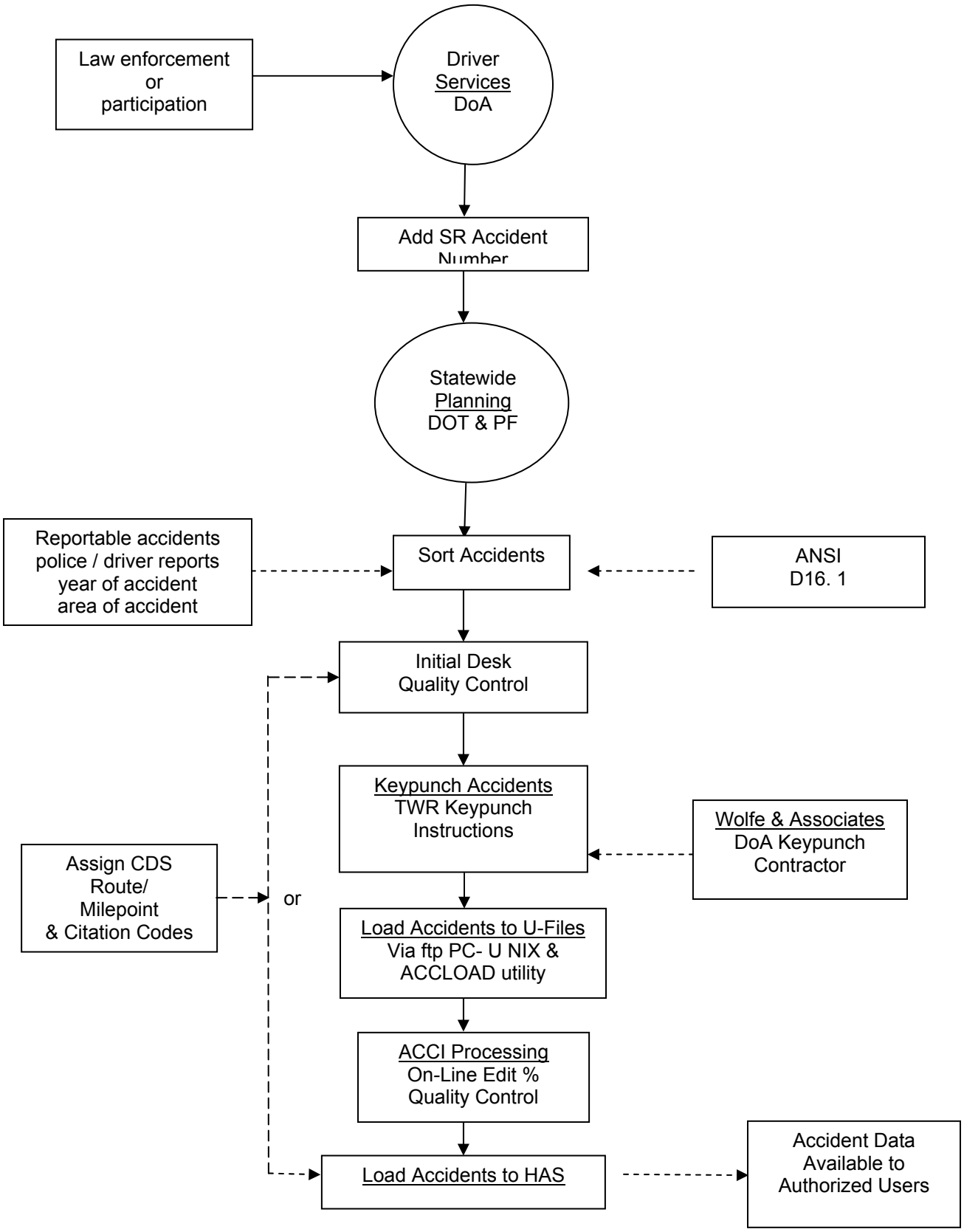


Figure Accident Processing

At the time of this first quality control process, another activity is implemented to verify the crash location. Specifically, an effort is made to assign the Coordinated Data System (CDS) route name and milepost. This assignment is made based on the road(s) the vehicle(s) was traveling from rather than the road(s) the vehicle(s) was traveling to or across.

After the initial quality control activity is completed, crash reports are bundled in groups based on location and crash frequency, then forwarded to a private contractor where the reports are keypunched. For some locations, the delay in date entry of crashes may be up to a year. Following keypunching, crash reports are uploaded to a legacy computer system. After crash data input, crash data are accessed through the On-line Accident Processing System (ACCI).

ACCI is the second of the two quality activities completed during crash data input. Crash data are contained in what are referred to as the U-files, or unverified files. The U-files are temporary files that have crash data that can be changed. At the ACCI processing phase of the crash data input, there is an additional opportunity to add, modify or delete crash location data. This is the last opportunity to add, modify or change other crash data as appropriate.

The ACCI processing phase is the final step prior to forwarding or uploading the crash data to the Highway Analysis System (HAS). HAS is the official crash data repository for the State of Alaska. Crash variables are located in three files analogous to MMUCC (crash-level, occupant-level, vehicle-level). HAS allows for two levels of access to crash data. For authorized users, the crash data in HAS is complete including all personal identifiers. For unauthorized users HAS contains the same data except all personal identifiers have been purged or redacted. Crash data for year 2006 are expected to be available in HAS by June 2007.

The crash data collection and data entry procedures in Alaska are essentially paper dependent. This not only results in lack of crash data timeliness, but also introduces the potential for error at each stage of the data entry and review processes. There also seemed to be limited or no ability to electronically link to other traffic records system components files such as the driver or vehicle files, or injury surveillance files. The inability to electronically link to other record system component files means that requisite data from these files must be acquired manually. Again, this is not only time consuming, but increases the chance for data entry error.

As a means of improving the timeliness and accuracy of the crash data, electronic data collection or capture is to be explored in the near future. Specifically, the crash data collection procedure used in New York State (TraCS) will be examined to determine the adaptability of this crash data collection procedure in Alaska. It has been found in those states where electronic data capture has been implemented, crash data collection efficiency both in timeliness and accuracy has improved significantly.

At least two caveats must be noted in conjunction with any planned use of an electronic data collection procedure. The first is training. Personnel responsible for the using the

electronic data collection procedure must be thoroughly trained in the use of both the data collection hardware and software. Failure to provide the proper training will result in frustration and loss of confidence in the electronic data collection procedure.

The second caveat in any planned use of electronic data capture is that recipient organizations of the collected data have the means that allow them to electronically receive the collected data. If the collected data can only be forwarded via hardcopy rather than electronically, an important facet for improving data timeliness and accuracy is undermined.

Another major advantage of electronic data capture is the potential for electronically reading or scanning data directly into the data collection form. Two examples of this are reading or scanning driver license and vehicle registration data. Provided appropriate hardware and software are available, these data can be read or scanned to auto-populate the appropriate variable field(s).

In additional to the problem of crash data timeliness, it was also noted that at least one large municipality is entering its own crash data. This duplicate entry of data seems to relate primarily to the issues of data access and timeliness. The reason(s) why this municipality has decided to enter its own crash data should be reviewed and a determination made as to how an accommodation might be achieved that works to the advantage of both the municipality and the State.

Recommendations

- **Revise AS 28.35.080 to mandate that law enforcement has the primary responsibility for crash investigation and reporting all crashes.**

- **Explore and implement electronic crash data collection and data transfer procedures.**

- Evaluate and revise crash investigation training for law enforcement officers to include in-service and expanded academy training.

- Review existing data linkage protocols and determine where data entry efficiencies might be gained through linkage to other traffic records system files such as the driver, vehicle and roadway files.

- Consider allowing submission of completed crash reports directly to ADOT&PF who would assume responsibility for assigning SR number while DMV would be still remain responsibility for determining proof of insurance of drivers for all forwarded crash reports from ADOT&PF.

- Ensure that law enforcement is trained in the use of ANSI D16.1.

2-B: Roadway Data Component

- ❑ Description and Contents.
  Roadway information includes roadway location, identification, and classification, as well as a description of a road's total physical characteristics and usage. These attributes are tied to a location reference system. Linked safety and roadway information are valuable components that support a state's construction and maintenance program development. This roadway information should be available for all public roadways, including local roads.

  The state Department of Transportation (DOT) typically has custodial responsibility for the Roadway Data Component. This component includes various enterprise-related files such as:

  - roadway inventories
  - traffic counts
  - traffic control devices (TCDs)
  - project inventory
  - video log
  - geographic information system (GIS)
  - roadside appurtenances
  - bridge management system
  - maintenance management system
  - pavement management system

- ❑ Applicable Guidelines.
  The major guideline that pertains to the Roadway Data Component is the HPMS. This provides guidance to the states on standards for sample data collection and reporting for traffic volume counts, inventory, capacity, delay, and pavement management data elements. Guidelines and tools that address roadway data, as well as identifying which of these are expected to have the greatest correlation with crash incidences, should be considered part of this Advisory. Examples of these resources are the Highway Safety Manual, Safety Analyst, and the Interactive Highway Safety Design Model. In addition, the American Association of State Highway and Transportation Officials (AASHTO) is developing a series of guides for its Strategic Highway Safety Plan. This multi-year cooperative effort includes guidelines relevant to several TRS components.

- ❑ Data Dictionary
  Roadway information should be available for all public roads in the state whether under state or local jurisdiction. The contents of the Roadway Data Component should be well documented, including data definitions for each field, edit checks, and data collection guidelines that match the data definitions. Procedures for collection of traffic data and calculation of vehicle miles traveled (VMT) should be documented as well.

- Process Flow
  The steps from initial event to final entry onto the statewide roadway data system are documented in process flow diagrams for each file that is part of the Roadway Data Component. The diagram is annotated to show the time required to complete each step and to show alternate flows and timelines depending on whether data are submitted in hardcopy or electronically to the statewide system. The process flow diagram includes processes for error correction and error handling (i.e., returning reports to the original source for correction, resubmission, etc.). Process flow diagrams show all major steps whether accomplished by staff or with automated systems, and clearly distinguish between the two.

- Interface with Other Traffic Records System Components
  A location reference system is used to link the various components of roadway information as well as other TRS information sources, especially crash information, for analytical purposes. Compatible location coding methodologies apply to all roadways, whether state or locally maintained. When using a GIS, translations are automatic between legacy location codes and geographic coordinates. This process is well established documented. Compatible levels of resolution for location coding for crashes and various roadway characteristics supports meaningful analysis of these data.

- Quality Control Program
  The roadway data are timely, accurate, complete, and consistent and these attributes are tracked based on a set of established quality control metrics. The overall quality of the roadway data is assured based on a formal program of error/edit checking as the data are entered into the statewide system, and procedures for addressing the detected errors. In addition, the custodial agency and the TRCC frequently work together to establish and review the sufficiency of the quality control program and to review the results of the quality control measurements. The roadway data managers receive periodic data quality reports. There are procedures in place for sharing the information with data collectors through individual and agency-level feedback as well as training and changes to the applicable instruction manuals, edit checks, and roadway data dictionary. Audits and validation checks are conducted as part of the quality control program to assure the accuracy of specific critical data elements. Example measurements are shown in Table 5.

Table 5: Examples of Quality Control Measurements for Roadway Data

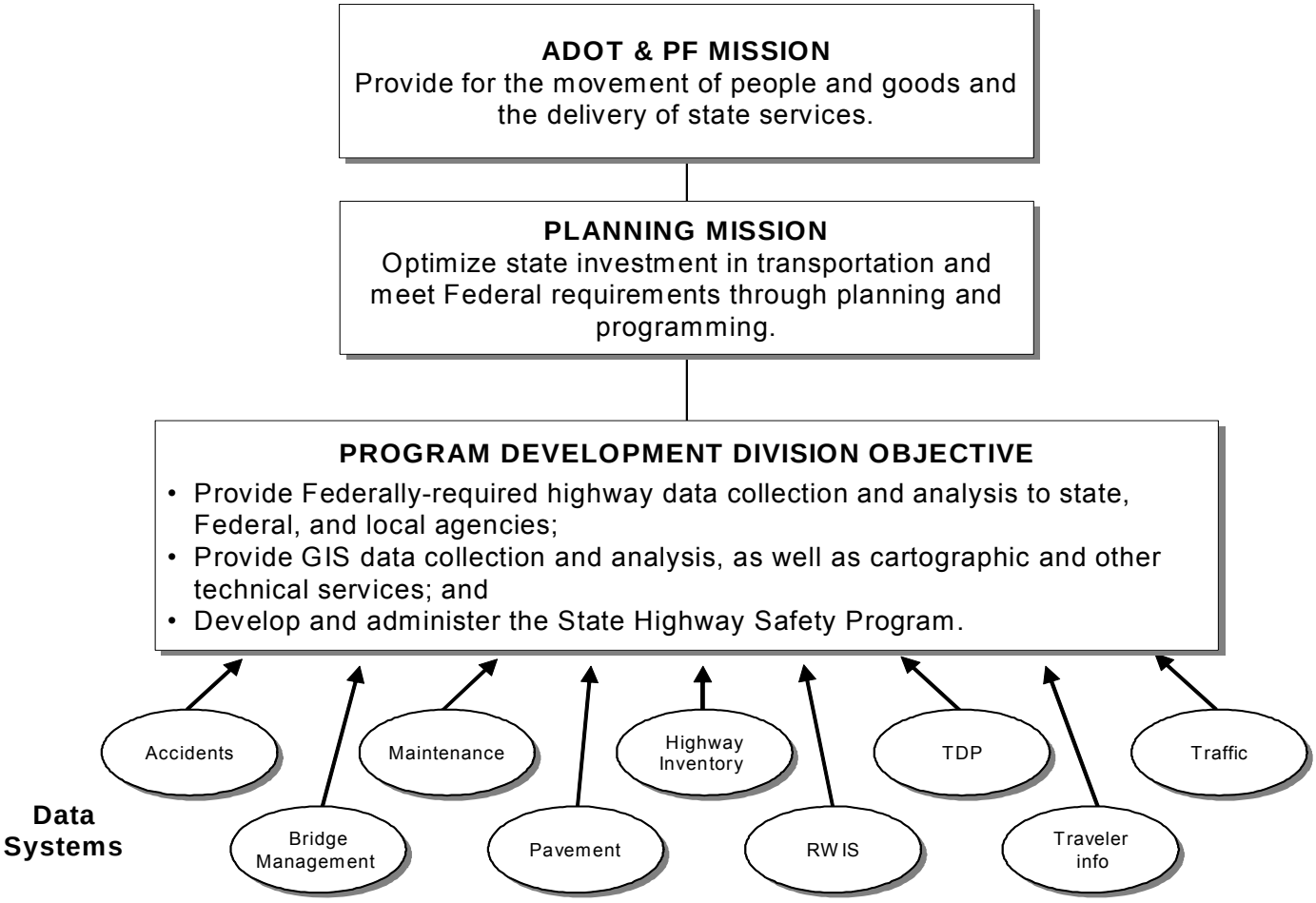
Timeliness	- % of traffic counts conducted each year: **33%** - # days from crash event to location coding of crashes: **< 60 days** - # days from construction completion to roadway file update: **< 30 days**
Accuracy	- % of crashes “locatable” using roadway location coding method: **> 95%** - % “errors” found during data audits of critical data elements: **< 5%**
Completeness	- % traffic data based on actual counts no more than 3 years old: **> 95%** - % public roadways listed in the inventory: **> 98%**

The measures in Table 5 are examples of high-level management indicators of quality. The managers of individual roadway files should have access to a greater number of measures. The custodial agency should be prepared to present a standard set of summary measures to the TRCC monthly or quarterly.

Status

The Alaska transportation system consists of approximately 14,368 miles of public roadways. 5,618 miles are under the jurisdiction of the Alaska Department of Transportation and Public Facilities (ADOT&PF). The remaining mileage is under the jurisdiction of various agencies. Boroughs are responsible for 3,492 miles and municipalities are responsible for 1,906 miles. The remaining mileage is the responsibility of numerous agencies including the Alaska Department of Natural Resources, Bureau of Indian Affairs, Indian Nations, U. S Forest Service, National Park Service, U.S Corps of Engineers, U.S. Department of Defense – Army, U.S. Coast Guard and U.S. Fish and Wildlife Service. 4,730 miles of the public roadways are paved, 6,366 are unpaved and 3,272 are not identified in reports to the ADOT&PF by the Department of Commerce, Community & Economic Development and the U.S. Forest Service. It is likely that the vast majority of the unidentified mileage is unpaved. There are also approximately 300 public highway-rail grade crossings in Alaska.

The Alaska DOT&PF recognizes the importance of roadway data and the need to integrate these data. This is shown in the following diagram, which was presented to the interview team.



The primary legacy database for ADOT&PF is the Highway Analysis System (HAS). HAS employs a route and mile point linear referencing system (LRS). Features along a route are expressed in mile points to the nearest 1/1000th of a mile. If a feature can be described by a single location on the road network, it is treated as point data. Examples of point data are signs, traffic signals, traffic counting stations, culverts, bridges, and accidents. If an attribute can be described continuously with the same properties for a distance over 5 feet, then it is treated as line data. Examples of line data are guardrails, traffic links, shoulders, lanes, lane width, and bike paths. The HAS contains information about the highway network and attributes. ADOT&PF maintains a Data Dictionary for HAS. Traffic data that is maintained in the Highway Analysis System (HAS) meets the Federal Highway Administration (FHWA) reporting requirements for the national Highway Performance Monitoring System (HPMS).

The main components of HAS are:

- Roadlog (General Direction, Region, Maintenance District, City, Borough, Functional Class, Type of Surface, Number of Lanes, Width of Lanes, Shoulder Type, Shoulder Width, Median Width, etc.)

- Accidents (Location, Date, Environmental Factors, Roadway Characteristics, Sequence of Events, Human Factors, Vehicle Information, etc.)

- Traffic (Design Designations, Turning Movements, Annual Average Daily Traffic (AADT), Vehicle Classification, Speed Data, etc.)

Other databases which can be linked to HAS include:

- Pavement Management System (PMS) – Rutting, Pavement Serviceability Rating (PSR), International Roughness Index (IRI)

- Bridge Management System (BMS) – PONTIS

- Traveler Information – Condition Acquisition and Reporting System (CARS), 511

- Road Weather

- Seasonal Weight Restrictions -Temperature Data Probe (TDP) Information)

- Statewide Transportation Improvements Program (STIP)

None of the existing databases contain information for capacity, guardrail, signing and pavement striping. ADOT&PF has retained the services of a contractor, and a video log for the state road system is currently being created. A statewide GIS interface project for the state system is currently under development and is expected to be completed by

the end of 2007. ADOT&PF personnel indicated the need to properly identify work zone, school zone and red light running crashes. Additionally, much of the information collected for the state system does not exist for the non-state system. The roadway inventory data is currently being updated. When the update is complete, future updates will be conducted when a change occurs to the roadway system. Updating the roadway inventory after project completion was identified as a problem area as it appears there is no one office or person that is accountable to ensure that the update occurs. It may take as long as six months to several years for the "As Built Plans" to be sent to the ADOT&PF, Division of Program Development. Traffic counts on routes with high traffic volumes are updated on a 3 year cycle. Traffic counts on roadways with lesser volumes are updated at least every five years.

Law enforcement agencies and participants forward crash reports to Driver Services, Division of Motor Vehicles (DMV), Alaska Department of Administration. DMV then forwards a copy of each crash report to the ADOT&PF. The ADOT&PF is responsible for developing the crash system database. ADOT&PF staff processes each vehicle crash report checking for completeness, consistency, and then locates the crash on the road network. The crash report is then entered into HAS.

The HAS database includes only those accident reports that DMV sends to ADOT&PF. Crashes that are not sent to the DMV or go unreported do not get into the crash database. There is currently a six to nine month delay in having the crash data available for analysis although this is an improvement over the fourteen month delay experienced in recent years. Overall, location verification is successful on approximately 75% of the crashes received. There is approximately an 80 – 85% location verification success rate on police reported crashes and approximately a 60% success rate on driver reported crashes.

The State Traffic and Safety Engineer in ADOT&PF is responsible for the development and implementation of the Highway Safety Improvement Program (HSIP). Highway safety projects were allocated approximately $21 million in FY 2006–07. The major reason for the increase in highway safety funding is the Section 154/164 transfer of funds which are returned to ADOT&PF for roadway safety improvements. The HSIP is data driven with funds targeted towards reducing the number and severity of crashes or to decrease the potential for crashes. Traffic and Safety Engineers in Alaska's three regions (Northern, Central and Southeast) identify potential project locations by the number and severity of crashes. Generally, projects are ranked by analyzing the benefit cost of making specific safety-related improvements using estimated accident reduction factors and improvement costs. The most cost effective proposed projects are submitted to the State Traffic and Safety Engineer at the ADOT&PF Headquarters (HQ Traffic) for review. The HSIP addresses safety problems at high crash locations and at other locations with identified deficiencies. Follow-up studies are conducted to determine the effectiveness of completed projects and HSIP.

The interview process revealed that there are only two individuals in the ADOT&PF that have knowledge and understanding of HAS. In addition to utilizing HAS, ADOT&PF employs Intersection MAJIC as an analytical tool. Both individuals have many years of

experience and will be retiring in the near future. Other ADOT&PF regional engineers rely on these two individuals to provide the necessary information and data extracts to assist in potential project identification and analysis. The need to properly train other engineers and information technology personnel in the use of analytical tools and ADOT&PF system is very apparent.

Some roadway data can be accessed through the ADOT&PF Highway Data Port (HDP). The HDP is the department's intranet application for providing easy, efficient access to transportation data. Outside agencies are provided access to the HDP through a Virtual Private Network (VPN) connection. Currently the cities of Anchorage and Wasilla have VPN accounts. Additional VPN accounts are being provided to the cities of Fairbanks and Mat-Su.

The HDP generates data extracts and reports based on user-defined queries. The HDP accesses an Oracle database populated with road network, bridge, accident, and traffic data extracted from the department's integrated transportation database, HAS. The HDP contains vehicle crash records, basic bridge locations, speed study stations, Weigh in Motion (WIM) data, and Annual Average Daily Traffic (AADT). Crash records, bridges, and roadway characteristics are retrievable by CDS route or by geographic area (census areas and first class cities). Mainframe HAS extracts populate the HDP periodically. The HDP provides a limited query capability.

The HDP query capabilities include:

- CDS route number—lookup by common road name;
- Route log attribute report—by CDS route number;
- Route lists—by geographic area and route attributes;
- Public road mileage report—by geographic area and route attributes;
- Accident data—by CDS route number;
- Accident data—by geographic area and route attributes; and
- Speed study reports—by CDS route number.

Users can sort the reports by roadway/geographic classifications:

ADOT&PF Region	NHS	Ownership/maint. respon.
Borough	AHS	Paved/unpaved/waterway
Census area	Functional classification	Maintenance station
Election district	Rural/urban/urbanized	Maintenance category

Alaska has two Metropolitan Planning Organizations (MPOs). They are the Anchorage Metropolitan Area Transportation Solution (AMATS) and Fairbanks Metropolitan Area Transportation Solution (FMATS). FMATS relies on the ADOT&PF to provide the necessary safety data for them to analyze and study highway safety issues. Additionally, FMATS recommended that the ADOT&PF make the location specific data available on-line. This will provide them with the level of safety data necessary to conduct safety studies. FMATS also indicated that they did not have a proactive program to address highway safety issues. Instead they address an issue after it is brought to their attention. AMATS collects crash data and develops a crash database. There is little or no correlation between the state and the AMATS database.

ADOT&PF indicated they are contacted to routinely provide crash information to consultants conducting highway safety studies in the city of Anchorage. In an effort to work from one database, the ADOT&PF has provided AMATS access to their database through the web portal. The development and maintenance of two crash databases is redundant and creates additional work for both the state and AMATS. Additionally, there is a significant difference in the two databases since the ADOT&PF locates the crashes on a route and mile point basis and AMATS locates the crashes to the nearest intersection.

Another significant difference is that the state database has police and driver reported crashes while the AMATS database contains only police reported crashes. It is estimated that driver reported crashes account for 20% of the crashes. AMATS is also in the process of deploying a GIS. Both MPOs should be encouraged to use safety data to address and incorporate highway safety into their Transportation Improvement Program (TIP) and Long Range Transportation Plans.

The ADOT&PF has selected a consultant to assist in the preparation and development of a Strategic Highway Safety Plan (SHSP). The goal is to have the plan completed and approved by FHWA no later September 30, 2007. ADOT&PF has formed a multi-disciplinary committee and has identified four key emphasis areas. A committee has been formed for each emphasis area to identify strategies and action items. The SHSP will be developed by state and local agencies that have the ability to influence transportation safety. The characteristics for a successful SHSP are:

- Excellence in Leadership
- Collaboration
- Data Driven
- Comprehensive
- Effective Implementation

The State of Alaska has all the elements necessary for the development and implementation of a successful SHSP. ADOT&PF indicated their intent is for the SHSP to drive all other highway safety strategic plans (e.g., Traffic Records, HSP, FMCSA, ASP, etc.) including the allocation of funds. It should be noted that one of the four major emphasis areas of the SHSP includes highway safety information systems.

Recommendations

- Develop and Implement an in-vehicle electronic crash reporting system using GPS location techniques.

- Continue to develop the GIS.

- **Allow ADOT&PF personnel to train law enforcement officers to properly complete the crash report with special emphasis given to work zone, school zone and red light running crashes.**

- Assign responsibility for updating the roadway inventory files within 30 days after completion of a construction project.

- **Train personnel in ADOT&PF including regional offices regarding highway safety and information system applications.**

- Consider adding sign, lighting, pavement marking, capacity and guardrail information to the roadway inventory.

- Begin steps to capture local road data to develop a local road inventory system.

- **Include MPOs, and local jurisdictions on the statewide Alaska Traffic Records Coordinating Committee (ATRCC) and work to reduce redundant data entry and ensure integration with all roadway data components including GIS.**

- Expand the information available in, and the use of, the data portal to the greater highway safety and/or engineering community to include a web-based application.

- Consider linking HAS with hospital/trauma data.

- Implement an executive level TRCC.

- Encourage federal highway safety partners to be active participants in the development and implementation of the SHSP and TRSP.

- When the state crash report form is updated, consider issues such as the reporting threshold and recommended Model Minimum Uniform Crash Criteria (MMUCC) elements.

2-C: Driver Data Component

- ❑ Description and Contents

  Driver information includes information about the state's population of licensed drivers as well as information about convicted traffic violators who are not licensed in that state. Information about persons licensed by the state should include: personal identification, driver license number, type of license, license status, driver restrictions, convictions for traffic violations in this state and the history of convictions for critical violations in prior states, crash history whether or not cited for a violation, driver improvement or control actions, and driver education data.

  Custodial responsibility for the Driver Data Component usually resides in a state Department or Division of Motor Vehicles. Some commercial vehicle operator-related functions may be handled separately from the primary custodial responsibility for driver data. The structure of driver databases is typically oriented to individual "customers."

- ❑ Applicable Guidelines

  The ANSI D-20 standard is used to develop data definitions for traffic records-related information in the driver and vehicle files. Driver information is maintained to accommodate information obtained through interaction with the NDR via the PDPS, and the CDLIS. This enables the state to maintain complete driving histories and prevent drivers from circumventing driver control actions and obtaining multiple licenses. Data exchange for PDPS and CDLIS is accomplished using the American Association of Motor Vehicle Administrators (AAMVA) Code Dictionary. Security and personal information verification are in accordance with the provisions of the Real ID act.

- ❑ Data Dictionary

  At a minimum, driver information should be available for all licensed drivers in the state and for all drivers convicted of a serious traffic violation (regardless of where or whether the person is licensed). The contents of the driver data files should be well documented, including data definitions for each field, and where applicable, edit checks and data collection guidelines that match the data definitions. Procedures for collecting, reporting and posting of license, conviction, and license sanction information should be documented.

- ❑ Process Flow

  The steps, from initial event (licensure, traffic violation, etc.) to final entry onto the statewide driver and vehicle data files, are documented in process flow diagrams for each file that is part of the Driver Data Component. The diagram is annotated to show the time required to complete each step and to show alternate flows and timelines depending on whether the data are submitted in hardcopy or electronically to the statewide system. The process flow diagram includes processes for error correction and error handling (i.e., returning reports to the

original source for correction, resubmission, etc.). The process flow should also document the timing, conditions, and procedures for purging records from the driver files. Process flow diagrams show all major steps whether accomplished by staff or automated systems, and clearly distinguish between the two.

- ❑ Interface with Other Traffic Records System Components
  The Driver Data Component has interfaces (using common linking variables shown in Table 6) to other TRS components such that the following functions are supported:

  - Driver component data are used to verify/validate the person information during data entry in the crash data system, and to flag records for possible updating in the driver or vehicle files when a discrepancy is identified. Key variables such as driver license number, name, address, and date of birth are available to support matching of records among the files. Validated Social Security Numbers are essential for interstate records exchange.

  - Driver and vehicle owner addresses are useful for geographic analyses in conjunction with crash and roadway data components. Linkage in these cases is based on conversions of addresses to location codes and/or geographic coordinates in order to match the location coding method used in the roadway data component and in the GIS.

  - Links between driver convictions and citation/adjudication histories is useful in citation tracking and systems for tracking specific types of violators (DUI [Driving Under the Influence] tracking systems, for example). Even if a citation tracking system is lacking, there is value in being able to link to data from enforcement or court records on the initial charges in traffic cases. These linkages are usually based on driver name and driver license number, but other identifiers may be used as well. The National Center for State Courts (NCSC) is looking for these identifiers in addition to methods to improve data sharing. "NCSC offers solutions that enhance court operations with the latest technology; collects and interprets the latest data on court operations nationwide; and provides information on proven *best practices* for improving court operations." (http://www.ncsconline.org/)

  - Linkage to injury surveillance data is possible either directly or through probabilistic linkage in order to support analysis of crash outcomes and crash risk associated with specific driver characteristics (e.g., the driver's history of violations or crash involvement). Key variables include names, dates, times, and locations of crashes and citations.

Table 6: Common Linking Variables between Driver and Other Data Components of a Traffic Records System

Driver Linkages to Other Law Enforcement & Court Files	- Citation Number & Case Number - Location (street address, description, coordinates, etc.) - Personal ID (name, address, DL number, date of birth, etc.)
Driver Linkages to Roadway Information	- Driver Addresses (location code, coordinates)
Driver Linkages to Crash Information	- Driver License Number - Personal Identifiers (name, address, date of birth, etc.)
Driver Linkages to Statewide Injury Surveillance System Information	- Personal Identifiers (where allowed by law) - Crash Date, Time, Location

- ❑ Quality Control Program

The driver data are timely, accurate, complete, and consistent and these attributes are tracked based on a set of established quality control metrics. The overall quality of the information in the Driver Data Component is assured based on a formal program of error/edit checking as the data are entered into the statewide system, and procedures for addressing the detected errors. In addition, the custodial agency (or agencies) and the TRCC frequently work together to establish and review the sufficiency of the quality control program and to review the results of the quality control measurements. The driver data managers receive periodic data quality reports. There are procedures in place for sharing the information with data collectors through individual and agency-level feedback, as well as training and changes to the applicable instruction manuals, edit checks, and the driver and vehicle data dictionaries. Audits and validation checks to assure the accuracy of specific critical data elements are conducted as part of the formal quality control program. Example measurements are presented in Table 7.

Table 7: Examples of Quality Control Measurements for Driver Data

Timeliness	- % of driver licenses posted within 24 hours: **100%** - % convictions posted with 24 hours of receipt: **100%** - % convictions posted within 2 days of conviction date: **95%**
Accuracy	- % of duplicate records for individuals: **< 0%** - % "errors" found during data audits of critical data elements: **< 2%**
Completeness	- % convictions for serious violations resulting in a PDPS or CDLIS record: **> 95%** - % drivers records checked for drivers moving into the state: **> 100%**
Consistency	- % of SSN and immigration documents verified online: **> 100%** - % violations reported from other states added to driver history: **100%**

The measures in Table 7 are examples of high-level management indicators of quality. The managers of individual driver files should have access to a greater number of measures. The custodial agency should be prepared to present a

standard set of summary measures to the TRCC monthly or quarterly.

Status

The Driver file is maintained by the Department of Administration's Division of Motor Vehicles (DMV), Driver Services. DMV receives all crash reports (police and driver reports) and is the statutory repository of crash reports. The Driver Services unit captures financial responsibility data and assigns a Safety Responsibility (SR) number to each report before forwarding reports to the Department of Transportation and Public Facilities for data entry into their own database. The driver files reside in the Alaska License and Vehicle Information Network (ALVIN).

Alaska has approximately 506,000 drivers with an Alaska driver license. There are 1.4 million driving records in the Driver license file. Driver license statistics are not currently included in the research and statistics section of the DMV web pages.

Drivers can obtain new licenses or renew their license at one of thirteen DMV local public or twenty-one contract licensing offices. Most of the contract offices are located at local police departments. There is no public driver education provided by the school districts. There are, however, state commissioned private driving schools. Alaska does have an Administrative License Revocation (ALR) for all Driving Under the Influence (DUI) violations. Officers retain the driver license and issue a temporary driving permit in ALR stops.

Because of a large military presence and the state's role as a major tourist destination relative to the resident population, the state has a large group of drivers with out-of-state licenses. The DMV driver license unit can create records for drivers without an Alaska Driver License. Out of state driving records to not transfer when drivers move to Alaska. Alaska does not license drivers who have a current sanction in their former state of residence. Out-of-state tickets and sanctions received by drivers licensed in Alaska are included on the Alaska driving record. The National Problem Driver Pointer System is used. Alaska DMV belongs to the Driver License Compact.

The Driver License File provides operator and commercial driver license management, including license status and current actions against drivers. Driver History File provides management of license actions, citations, insurance, driver's records and related data. Traffic convictions are entered into the driving record within five days of receipt. DMV officials state that they do not currently have the means to ascertain whether all convictions are being received from the courts.

There are two versions of the driver history records. One version is maintained for insurance purposes, which maintains traffic convictions for three years and five years for driver control actions (sanctions and revocations). In the second version, the retention time for traffic convictions and driver sanctions is open-ended. Drivers can ask for a copy of either version of their record. Insurers can only have access to the limited version.

Commercial Driver's License (CDL) traffic convictions are retained indefinitely on both versions of the driving record. CDL traffic violations and sanctions carry a CDL marker on the driving record.

ALVIN files are linked internally by a unique personal identifier. A Person Record is added whenever a new person is recognized by the ALVIN network. The ALVIN network enables access to NCIC, CDLIS, NDR and NLETS. The driver history files must get data from the courts and police agencies as well as driver licensing offices. Paper documents are data entered into the system. Paper documents, like crash reports, are entered several times into several different databases.

Unlicensed drivers and out-of-state drivers who receive traffic convictions have a record created with a unique number. Duplicate records that include a three-point personal data match are combined manually. Past actions are available on microfilm.

Entry of traffic convictions can be delayed by the legal process, data entry backlogs and other processing delays. Crash information for the "at-fault" driver may be delayed until all legal documentation is completed (alcohol testing, offense adjudication).

The DMV system includes edits, but multiple data entry may lead to mistakes.

Driver license data and conviction data are complete. However, crash involvement for drivers who DMV personnel determined not at fault, is not entered on the driving record.

DMV makes a good effort to ensure accuracy of records. Proof of insurance is only checked at re-issuance of license after sanction. Insurance can be canceled after issuance without detection by the DMV. A lack of personnel was cited as a reason for not entering some critical information on a driving record. The area of concern is with Financial Responsibility. The driver database is not updated with the most current insurance status. If insurance status changes, that change is not being updated to their driving record. That brings into question the accuracy of the statistics regarding insured motorists.

Special reports are created by programmers upon request in batch tapes. There is no direct access to either statistical data or driver history data except for law enforcement purposes. DMV does not currently have any driver license data on-line. DMV officials have requested IT personnel to include driver license data in the Statistics and Research Section of the DMV website. There are no standard annual reports published by DMV.

Alaska does not have integrated crash or traffic citation/conviction files (tracking system) shared between police, courts, DMV and ADOT&PF. Efforts are being made to make separate files compatible as part of an update to ALVIN.

Recommendations

- Electronic transmission of crash reports and traffic citations should be used to

send copies of the crash report and uniform traffic citations from police simultaneously to DMV and ADOT&PF.

- **Mandate the use of a single statewide uniform traffic citation.**
- Provide direct linkage to Insurance Companies to allow for direct entry of insurance information into the DMV system.
- Provide regular and comprehensive systematic data output reports.
- **Adopt a single data entry system for crash reports.**
- **Include crash information in the driver history of ALL drivers involved in the crash.**
- Integrate DMV and ADOT&PF data systems.

2-D: Vehicle Data Component

- ❑ Description and Contents

  Vehicle information includes information on the identification and ownership of vehicles registered in the state. Data should be available regarding vehicle make, model, year of manufacture, body type, and vehicle history (including odometer readings) in order to produce the information needed to support analysis of vehicle-related factors that may contribute to a state's crash experience. Such analyses would be necessarily restricted to crashes involving in-state registered vehicles only.

  Custodial responsibility for the vehicle data usually resides in a state Department or Division of Motor Vehicles. Some commercial vehicle -related functions may be handled separately from the primary custodial responsibility for all other vehicle data. The structure of vehicle databases is typically oriented to individual "customers."

- ❑ Applicable Guidelines

  Title and registration information, including stolen and salvage indicators, are available and shared with other states. The National Motor Vehicle Title Information System (NMVTIS) facilitates such exchanges. In addition, some states empower auto dealers to transact vehicle registrations and title applications following the Business Partner Electronic Vehicle Registration (BPEVR) guidelines from AAMVA. The International Registration Plan (IRP) -- a registration reciprocity agreement among U.S states Canadian provinces – administers the registration processes for interstate commercial vehicles.

- ❑ Data Dictionary

  Vehicle information should be available for all vehicles registered in the state. The contents of the Vehicle Data Component's files should be well documented, including data definitions for each field, and where applicable, edit checks and data collection guidelines that match the data definitions. Procedures for collection, reporting and posting of registration, title, and title brand information should be documented.

- ❑ Process Flow

  The steps from initial event (registration, title, etc.) to final entry onto the statewide vehicle data files are documented in process flow diagrams for each file that is part of this component. The diagram is annotated to show the time required to complete each step and to show alternate flows and timelines depending on whether the data are submitted in hardcopy or electronically to the statewide system. The process flow diagram includes processes for error correction and error handling (i.e., returning reports to the original source for correction, resubmission, etc.). The process flow should also document the timing, conditions, and procedures for purging records from the vehicle files. Process flow diagrams show all major steps whether accomplished by staff or

automated systems, and clearly distinguish between the two.

- ❑ Interface with Other Traffic Records System Components
  The Vehicle Data Component has interfaces (using common linking variables shown in Table 8) to other TRS components such that the following functions are supported:

  - Vehicle data are used to verify/validate the vehicle information during data entry in the crash data system, and to flag records for possible updating in the vehicle files when a discrepancy is identified. Key variables such as VIN, license plate number, names, and addresses are available to support matching of records among the files.

  - Vehicle owner addresses are useful in geographic analyses in conjunction with crash and roadway data . Linkage in these cases is based on conversions of addresses to location codes and/or geographic coordinates in order to match the location coding method used in the Roadway Data Component and in the GIS.

  - As with crash data, linkage to injury surveillance data is possible either directly or through probabilistic linkage in order to support analysis of crash outcomes and crash risk associated with specific driver characteristics (e.g., the driver's history of violations or crash involvement). Key variables include names and dates, times, and locations of crashes.

Table 8: Common Linking Variables between Vehicle and Other Data Components of a Traffic Records System

Vehicle Linkages to Other Law Enforcement & Court Files	- Location (street address, description, coordinates, etc.) - Personal ID (name, address, DL number, etc.)
Vehicle Linkages to Roadway Information	- Owner Addresses (location code, coordinates)
Vehicle Linkages to Crash Information	- Vehicle Identification Number - Personal Identifiers (name, address, date of birth, etc.)
Vehicle Linkages to Statewide Injury Surveillance System Information	- Personal Identifiers (where allowed by law) - Crash Date, Time, Location

- ❑ Quality Control Program
  The vehicle data are timely, accurate, complete, and consistent and these attributes are tracked based on a set of established quality control metrics. The overall quality of the vehicle data is assured based on a formal program of error/edit checking as the data are entered and/or entered into the statewide system, and procedures for addressing the detected errors. In addition, the custodial agency (or agencies) and the TRCC frequently work together to establish and review the sufficiency of the quality control program and to review the results of the quality control measurements. The vehicle data managers receive periodic data quality reports. There are procedures in place for sharing

the information with data collectors through individual and agency-level feedback, as well as training and changes to the applicable instruction manuals, edit checks, and the driver and vehicle data dictionaries. Audits and validation checks to assure the accuracy of specific critical data elements are conducted as part of the formal Quality Control Program. Example measurements are presented in Table 9.

Table 9: Examples of Quality Control Measurements for Vehicle Data

Timeliness	- % of title transactions posted within 24 hours: **100%** - % title brands posted with 24 hours of receipt: **100%** - % registrations and title brands posted within 24 hours: **100%**
Accuracy	- % of duplicate records for individuals: **< 2%** - % "errors" found during data audits of critical data elements: **< 2%** - % VINs successfully validated with VIN checking software: **> 95%**
Completeness	- **%** of records with complete owner name and address: **> 95%**

The measures in Table 9 are examples of high-level management indicators of quality. The managers of individual vehicle files should have access to a greater number of measures. The custodial agency should be prepared to present a standard set of summary measures to the TRCC monthly or quarterly.

Status

Ten years ago, the Division of Motor Vehicles was moved to the Alaska Department of Administration from the Alaska Department of Public Safety. The Division of Motor Vehicles is responsible for maintaining all data related to motor vehicles.

The motor vehicle title and registration information is contained in the Alaska License and Vehicle Information Network (ALVIN), a legacy data system created when DMV moved from DPS to the Department of Administration. ALVIN is a transaction processing system in which vehicle registrations can be entered, retrieved and updated in a real-time, on-line environment. Statistical queries must be written by programmers because the system is not designed for ease of query or for producing a large number of ad hoc queries.

There are approximately 860,000 vehicles registered (including 54,000 snow machines and 40,000 commercial motor vehicles) in the State of Alaska. Vehicle Registrations are renewed every two years. The original registration month becomes the registration month for renewal for that vehicle for as long as it is owned by that owner. Alaska has a high proportion of seasonal vehicles; registrations for these vehicles may be more likely to lapse. The vehicle file contains the owner's name and address, the vehicle make, model and Vehicle Identification Number (VIN). Odometer readings are taken when first titled and whenever the vehicle changes ownership. Commercial vehicles are classified by unladen weight rather than gross vehicle weight (GVW).

Alaska does not use salvage titles, but does allow the reconstruction of vehicles. These vehicles are checked to make sure they are complete and have VIN included. DMV

does not confirm the validity of the parts and/or ownership of the reconstructed vehicle. Insurance is self-certified.

The information from the vehicle file is accessible by DMV offices throughout the state for update and modification of individual records. Law enforcement and other authorized users have display capabilities of vehicle records. Law enforcement has real-time access to registration and title data through their dispatcher. Registration files are updated daily.

Registration data by vehicle type and place of registration data is published annually and is included on the DMV website. Immediate on-line access is provided to most approved users. The vehicle file has no linkage capability with either the driver file or the crash file, both of which are housed in the DMV.

The timeliness, consistency, completeness, and accuracy are satisfactory for the present. However, the legacy system on which it resides cannot keep up with the needs of an increasingly technologically savvy and demanding public, researchers and government customers of the data and users of the system.

DMV has decided to replace and update the ALVIN data system.

Recommendations

- **Create a new vehicle database and data entry and query system that maintains the strengths of the current system but permits data users to query the data directly.**

- Create a system that can interface easily with, and seamlessly integrate into other traffic safety data systems within the state.

- Enhance the ability to produce annual statistical reports for publication concerning the vehicles registered in the state.

- Coordinate database changes with other agencies through the ATRCC and MAJIC.

2-E: Citation/Adjudication Data Component

- ❑ Description and Contents

  Information, which identifies arrest and conviction activity of the state, should be available, including information that tracks a citation from the time of its distribution to an enforcement officer, through its issuance to an offender, its disposition by a court, and the posting of disposition in the driver history database. Case management systems, law enforcement records systems, and DMV driver history systems should share information to support:

  - citation tracking
  - case tracking
  - disposition reporting
  - specialized tracking systems for specific types of violators (e.g., DUI tracking systems)

  Information should be available to identify the type of violation, location, date and time, the enforcement agency, court of jurisdiction, and final disposition. Similar information for warnings and other motor vehicle incidents that would reflect enforcement activity are also useful for highway safety purposes and should be available at the local level.

  The information should be used in determining the level of enforcement activity in the state, for accounting and controlling of citation forms, and for detailed monitoring of court activity regarding the disposition of traffic cases.

  Custodial responsibility for the multiple systems that make up the Citation/Adjudication Data Component should be shared among local and state agencies, with law enforcement, courts, and the Department of Motor Vehicles (DMV) sharing responsibility for some files (e.g., portions of the citation tracking system). State-level agencies should have responsibility for managing the law enforcement information network (e.g., a criminal justice information agency), for coordinating and promoting court case management technology (e.g., an administrative arm of the State Supreme Court), and for assuring that convictions are forwarded to the DMV and actually posted to the drivers' histories (e.g., the court records custodian and the DMV).

- ❑ Applicable Guidelines

  Data definitions should meet the standards for national law enforcement and court systems. Applicable guidelines are defined for law enforcement data in:

  - National Crime Information Center (NCIC)
  - Uniform Crime Reporting (UCR)
  - National Incident-Based Reporting System (NIBRS)
  - National Law Enforcement Telecommunication System (NLETS)

- Law Enforcement Information Network (LEIN)

Applicable guidelines are defined for court records in the National Center for State Courts (NCSC), and jointly for courts and law enforcement in the GJXDM (with specific Traffic Processing Standards created through a national committee). Tracking systems for citations (i.e., a citation tracking system) and for specific classes of violators (e.g., a DUI tracking system) should meet the specifications for such systems published by NHTSA.

❑ Data Dictionary

The citation/adjudication data files should be well documented, including data definitions for each field, and where applicable, edit checks and data collection guidelines that match the data definitions. Procedures for collection, reporting and posting of license, registration, conviction, and title brand information should be documented.

Law enforcement personnel receive adequate training at the academy and during periodic refreshers that ensure they know the purpose and uses for the data. Training also ensures officers know how to access information on violators and process citations and arrests properly. The training manual is available to all law enforcement personnel and the instructions match, as appropriate, the edit checks that are performed on the data prior to its being added to the local records management system and statewide databases. The edit checks are documented and flag common and serious errors in the data including missing or out-of-range values and logical inconsistencies. The data element definitions and system edits are shared with all collectors, managers, and users in the form of a data dictionary that is consistent with the training manual and the crash report form. Court case management systems and tracking systems (citation tracking and DUI tracking) are well documented to include definitions of all data elements and corresponding edit checks to ensure accuracy.

❑ Process Flow

The processing of traffic violations, citations, arrests, and court cases are documented in a series of flow diagrams showing the typical procedures and their average time to completion for each step. Administratively handled citation processes (payment in lieu of court appearance) are shown separately from those that are not handled administratively. The processes for collecting blood alcohol concentration (BAC) values through various methods (breath test, blood or urine tests) are also documented. The processes for tracking DUI cases in a DUI tracking system are also included in the set of process flow diagrams. Processes for paper and electronic filing and reporting are shown separately. Process flow diagrams show all major steps whether accomplished by staff or automated systems, and clearly distinguish between the two.

❑ Interface with other traffic records system components

NCIC, GJXDM, NIBRS, LEIN, and NLETS guidelines all define methods and data standards for information transfer and sharing at the state and national level.

Typically, there are also state-level equivalents of the various networks and standards governing the sharing of law enforcement and court-related data. For the purposes of safety analysis at a state and local level, linkage between the Citation/Adjudication Data Component and other components of the TRS is important because it is useful for analyzing the geographic distribution of traffic violations and incidents, as well as monitoring the effectiveness of countermeasures that involve enforcement or court processes. It also enables the creation and updating of adverse driver histories for the purpose of driver control. Key linkages within the TRS for citation/adjudication information are listed in Table 10.

Table 10: Common Linking Variables between Citation/Adjudication and Other Data Components of a Traffic Records System

Citation/Adjudication Linkages to Other Law Enforcement Files and Tracking Systems	- Computer Aided Dispatch (CAD) Record Number - Citation/Arrest/Incident Number, Court Case Number - Location (street address, description, coordinates, etc.) - Personal ID (name, address, DL number, etc.)
Citation/Adjudication Linkages to Driver/Vehicle Files	- Driver and Owner Names, Driver License Number - Driver & Owner Addresses (location code, coordinates) - Vehicle Plate Number, VIN
Citation/Adjudication Linkages to Statewide Injury Surveillance System Information	- Personal Identifiers (where allowed by law) - Crash-Related Citation/Arrest Date, Time, Location

❑ Quality Control Program

The citation/adjudication data are timely, accurate, complete, and consistent and these attributes are tracked based on a set of established quality control metrics. The overall quality of the citation/adjudication data is assured based on a formal program of error/edit checking as the data are entered into the statewide system, and procedures for addressing the detected errors. In addition, the custodial agency (agencies) and the TRCC frequently work together to establish and review the sufficiency of the quality control program and to review the results of the quality control measurements. The data managers receive regular, periodic data quality reports. There are procedures in place for sharing the information with data collectors through individual and agency-level feedback as well as training and changes to the applicable instruction manuals, edit checks and the driver and vehicle data dictionaries. Audits and validation checks to assure the accuracy of specific critical data elements are conducted as part of the formal Quality Control Program. Example measurements are presented in Table 11.

Table 11: Examples of Quality Control Measurements for Citation/Adjudication Data

Timeliness	- % citations sent to courts within 10 days: **95%** - % cases (excluding failure to appear) scheduled within 90 days of receipt of citation by court: **95%** - % convictions sent to DMV within 10 days of conviction: **95%** - # days from citation to case appearance on "pending case" system: **< 2 days**

Accuracy	- % locations that match statewide location coding: **> 95%** - % "errors" found during data audits of critical data elements: **< 2%** - % violations narratives that match the common code: 100%
Completeness	- % of cases older than 90 days with a disposition record in citation tracking system: > **85%** - % cases older than 1 year with a disposition record: **95%**
Consistency	- % traffic citations statewide written on a single uniform citation: **100%** - % of cases under state court jurisdiction that have proper state violation codes: **100%**

The measures in Table 11 are examples of high-level management indicators of quality. The managers of individual roadway files should have access to a greater number of measures. The custodial agency should be prepared to present a standard set of summary measures to the TRCC monthly or quarterly.

Status

There are four levels of courts in the Alaska Court System, each with different powers, duties and responsibilities. Alaska has a unified, centrally administered, and totally state-funded judicial system. Municipal governments do not maintain separate court systems.

The four levels of courts in the Alaska Court System are the Supreme Court, Court of Appeals, Superior Courts and District Courts. The Supreme Court and Courts of Appeals are appellate courts, while Superior and District courts are trial courts. Jurisdiction and responsibilities of each level of court are set out in Title 22 of the Alaska Statutes.

The Supreme Court and Superior Courts were established in the Alaska Constitution. In 1959, the Legislature created a District Court for each judicial district and granted power to the Supreme Court to increase or decrease the number of District Court judges. In 1980, the Legislature created a court of appeals.

The Chief Justice of the Alaska Supreme Court is the administrative head of the Alaska Court System. The Chief Justice appoints an administrative director with concurrence of the Supreme Court. The director supervises the administration of all courts in the state. The Supreme Court promulgates rules governing the administration of all courts and the rules of practice and procedure for civil and criminal cases. There are two types of judicial officers in district courts: magistrates and district court judges. Both have the power to adjudicate cases.

The Chief Justice of the Supreme Court is responsible for statewide court administration. By court rule, this responsibility is delegated to the administrative director of the courts subject to general guidelines set forth by the Supreme Court. Stephanie Cole is the Administrative Director of the Alaska Court System.

Magistrates preside over certain district court matters in areas of the state where

services of a full-time district court judge are not required. Some magistrates serve more than one court location. Magistrates also serve in metropolitan areas to handle routine matters and to ease the workload of the district court.

A magistrate is not required to be a lawyer. The magistrate is a judicial officer of the district court whose authority is more limited than the authority of a district court judge. In additional to some other responsibilities a magistrate may; act as a hearing officer to review an ADMINISTRATIVE REVOCATION of a driver's license, enter a judgment of conviction if a defendant pleads guilty or no contest to any STATE MISDEMEANOR, hold TRIALS and enter judgments in STATE MISDEMEANORS if defendant agrees in writing to be tried by a magistrate, hear trials of MUNICIPAL ORDINANCE violations, STATE TRAFFIC INFRACTIONS and Alaska Statute TITLE 11 violations, preside over PRELIMINARY HEARINGS in felony cases, issue SEARCH AND ARREST WARRANTS, and SUMMONSES.

Traffic citations are processed through a District Court. A case may be heard by a District Court Judge or a Magistrate, depending on the location of the violation and the workload of the respective court. The court maintains paper or electronic files of all citations filed. In Anchorage, Palmer, Fairbanks, Nome, Barrow, Kotzebue and Unalakleet, the electronic files are maintained in a new case management system called “CourtView.” In other courts the records are maintained in the court’s old system called Rural Users Group (RUG). Summary information is publicly available on the court’s website for CourtView records, searchable by defendant name, citation (ticket) number, or court case number. The website allows provides access to electronic information for RUG courts but it is not as complete or timely as that from CourtView courts.

For minor offenses, the court manually enters the court’s disposition into the Alaska Public Safety Information Network (APSIN). The original citation should be entered into APSIN by the issuing agency. If the original citation number is not in APSIN, the court creates the citation record, then adds its disposition. APSIN, which is maintained by the Department of Public Safety (DPS) automatically updates the Department of Motor Vehicles (DMV) Alaska License and Vehicle Information Network (ALVIN) if the disposition is a conviction. A copy of the citation and its disposition is also retained in APSIN. The traffic offense disposition is matched to the original traffic offense through the citation number.

CourtView stores the charge as originally filed and any amended version of that charge through disposition. RUG does not store the original and amended version(s) of a charge for a minor offense; it stores only the current version, i.e. it overwrites the original charge with the amended charge.

Types of violations, locations, date and time of offense and other information may be available through CourtView and with some additional effort, the identity of the issuing agency may be derived through the data. However, if the information is entered into RUG, none of the information is available. For a criminal offense, CourtView stores the identity of the prosecuting agency rather than the police agency that made the arrest or

issued the citation.

In Alaska, a DUI offense is a criminal violation and therefore the identity of the arresting agency would not be readily available from CourtView without additional effort. District Court Judges and Magistrates are permitted to hear DUI cases. After the third violation of DUI, the charge becomes a felony.

The BAC results are not recorded into CourtView or RUG. There is a field available on CourtView. Law enforcement and the courts have a direct link to the Datamaster (a breath testing instrument) file where the results are kept. However, it is too cumbersome to use the Datamaster file to determine the average BAC result for only DUI arrests.

The arresting agency may enter citation information into the Alaska Public Safety Information Network (APSIN).
There is no law requiring the use of a uniform citation. The Department of Public Safety (DPS) has a uniform citation form that is used by some local law enforcement agencies, but they are not required to use it.

According to District Criminal Rule 8(b) the charging document for a minor offense may be in the form of a citation. If a citation is used, then it must include certain information required by the criminal rule. However, the form itself may be whatever the law enforcement administrator elects to use as long as the appropriate court clerk accepts it, thereby allowing for a variety of citation formats to be used.

The DPS is responsible of issuing the blocks of citation numbers to the agencies. Agencies that print their own citation forms are supposed to use the appropriate block of number for printing. When the agency administrator has citations printed without checking with DPS for the numbers, and assigns their own numbers, errors involving duplicate citation numbers won't be revealed until the information is entered into CourtView or APSIN – both systems reject entry of a citation record if another record already exists with the same citation identifier.

According to Alaska Statute 12.25.210(e), each law enforcement agency is responsible for tracking its own citations. That section also requires the agency to record the disposition of each citation issued by an officer. The CourtView database allows the agency to track the disposition of the case if the agency chooses to use it.

The law enforcement agency may enter the citation information into APSIN. Some agencies also enter citation information into their own local records management systems. There is no process to ensure the cases are being entered into APSIN. Court clerks enter citation information into CourtView after the law enforcement agency files the citation with the court. (Citations may be filed electronically in Anchorage, by the Anchorage Police Department, relieving court clerks of the manual data entry into CourtView). Court clerks do not enter citation information into RUG until after the case has been disposed of because disposition is a required field. With the RUG system, the disposition must be available for entry prior to the case being entered into the system.

This creates a substantial delay in timeliness, which may affect subsequent charging decisions. This is not the case with CourtView since disposition is not required for initial entry.

There is no consistency in the amount of time between the arrest and delivery of the citation to the court.. The delay can be as long as a month. If a defendant appears in court to pay the waiver prior to the citation being delivered to the court by the officer, the court has several options. It can use the violator's copy of the citation to determine the fine and costs based on the charges that appear on the citation. It can contact the agency to verify the information or it can have the defendant return at a later time to dispose of the case.

The time for bringing a case to trial is 120 days (4 months). That time begins when the driver receives notice of the charge. Thus, if an officer stops someone and issues a citation, the four-month rule begins to run when the citation is issued. If the officer cites the person to come to court a month in the future, then an entire month of the time limit is used up before the prosecutor is even aware of the charge. On the other hand, if an officer arrests someone, that person is given notice of the charge when he is arraigned in court the next day, and the prosecutor has immediate notice of the case. Thus, the prosecutor has all of the four months to prepare for trial.

Citation information is currently being recorded several times. The officer completes the form on the roadside and then brings it back to the station. At the station, someone may enter the information into APSIN. Some agencies also enter it into the agency's own records management system. Once the case has been filed with the court, the information must be entered into RUG or CourtView.

It appears as though citation data can be made available to stakeholders from the various databases. However, the location of information and the effort needed to retrieve it is cumbersome.

The interview process revealed that Alaska intends to expand its electronic citation program in the near future. The Anchorage Police Department files some citations electronically with the Anchorage Court. The Department of Transportation is producing citations electronically, using TraCS, but still files paper copies at this time. The court is working with DOT and the TraCS project team to modify the electronic citation filing program used by the Anchorage Police Department so that other agencies that produce citations electronically, including any TraCS user agency, may use the electronic filing program. The court's electronic citation filing program and court rules support electronic signature of the citation by the issuing officer. That will be a tremendous step forward to minimize some of the issues that currently exist. However, because of the remoteness of some areas and the lack of required uniformity for citation information and processing, it may only be somewhat effective in dealing with the issues.

Recommendations

- Encourage the agencies to record the disposition of each traffic case as a quality control measure.
- Establish a minimum time by which a copy of an issued citation must be provided to the courts.
- Require the use of a uniform traffic citation by all law enforcement agencies.
- Require the recording of the BAC results within the court's database.
- **Expand CourtView to all courts, statewide.**
- Establish and make available a uniform system for submitting electronic citations to the State.
- Consider the adoption of a statewide uniform table of traffic offenses and possible use of the Global Justice XML Data Model and National Information Exchange Model for data dictionary/definitions.

2-F: Statewide Injury Surveillance System (SWISS) Data Component

- ❑ Description and Contents

  With the growing interest in injury control programs within the traffic safety, public health, and enforcement communities, there are a number of local, state, and federal initiatives that drive the development of a SWISS. These systems typically incorporate pre-hospital (EMS), trauma, emergency department (ED), hospital in-patient/discharge, rehabilitation and morbidity databases to track injury causes, magnitude, costs, and outcomes. Often, these systems rely upon other components of the TRS to provide information on injury mechanisms or events (e.g., traffic crash reports). The custodial responsibility for various files within the SWISS typically is distributed among several agencies and/or offices within a State Department of Health.

  This system should allow the documentation of information that tracks magnitude, severity, and types of injuries sustained by persons in motor vehicle related crashes. Although traffic crashes cause only a portion of the injuries within any population, they often represent one of the more significant causes of injuries in terms of frequency and cost to the community. The SWISS should support integration of the injury data with police reported traffic crashes and make this information available for analysis to support research, public policy, and decision making.

  The use of these data should be supported through the provision of technical resources to analyze and interpret these data in terms of both the traditional traffic safety data relationships and the specific data relationships unique to the health care community. In turn, the use of the SWISS should be integrated into the injury control programs within traffic safety, and other safety-related programs at the state and local levels.

- ❑ Applicable Guidelines

  NHTSA has produced the National Emergency Medical Service Information System (NEMSIS) to serve as a guideline for a uniform pre-hospital dataset. It applies to all EMS runs, not just those related to traffic crashes. The American College of Surgeons (ACS) certifies trauma centers and provides guidelines for trauma registry databases and for a National Trauma Databank. Emergency Department and in-patient data guidelines (UB-92) are available from the US Department of Health and Human Services. The National Center for Health Statistics, within the Centers for Disease Control (CDC), sets ICD-9 codes and E-codes for injury morbidity/mortality. The CDC also sets standards for reporting to their injury database and for use of the Public Health Information Network for data sharing.

- ❑ Data Dictionary

  The contents of the SWISS Data Component's files should be well documented to include data definitions for each field, and where applicable, edit checks and

data collection guidelines that match the data definitions. Procedures should be documented in instruction manuals for collection, reporting, and posting of EMS run data on a uniform run report, uniform data in various hospital and trauma databases, and for tracking morbidity and mortality for each system.

Training should include (where applicable) data collection, data entry, use of various injury coding systems (ICD and E-codes) as well as injury and trauma severity scoring systems such as the Injury Severity Score (ISS), Revised Trauma Score (RTS), and Abbreviated Injury Score (AIS) scales.

- ❑ Process Flow
  The information and processes involved in transport and treatment of victims of crash-related injuries are documented in a series of flow diagrams showing the typical data collection and management processes and their average time to completion for each step in the data flow process. Processes for paper and electronic filing and reporting are shown separately. Process flow diagrams show all major steps whether accomplished by staff or automated systems, and clearly distinguish between the two.

- ❑ Interface with other Traffic Records System Components
  Data transfer and sharing between local systems and the SWISS are governed by data definitions, quality control requirements and data transfer protocols defined by the data file custodial agencies. Transfer and sharing between SWISS files and the relevant national databases are governed by the data definitions, quality control requirements, and data transfer protocols for those systems (e.g., National Trauma Database).

  The CODES project is the primary example of data sharing and integration between SWISS and the other components of a TRS. It can take the form of direct linkage using personal identifiers or probabilistic linkage using other data elements such as incident time, date, and locations, responding officer/agency, and others. Key linkages within the TRS for SWISS information are listed in Table 12.

Table 12: Common Linking Variables between SWISS and Other Data Components of a Traffic Records System

Linkages Internal to the SWISS data on injury and healthcare treatments/outcomes	- Patient name - Patient ID number - EMS run report number - Social Security Number
Linkages between SWISS data and Crash Data	- Personal Identifiers: Name, address, date of birth (direct linkage) - CODES linking variables (probabilistic linkage) - EMS run report number - Crash Report Number

Linkages between SWISS data and other (non-Crash) components of the traffic records system	- Name & SSN linked to driver file (direct linkage) - Location/address - Event & treatment date and time

- Quality Control Program

  The SWISS data are timely, accurate, complete, and consistent and these attributes are tracked based on a set of established quality control metrics. The overall quality of the information in the SWISS Data Component is assured based on a formal program of error/edit checking as the data are entered into the statewide system, and procedures for addressing the detected errors. In addition, the custodial agency (or agencies) and the TRCC frequently work together to establish and review the sufficiency of the quality control program and to review the results of the quality control measurements. The data managers receive periodic data quality reports. There are procedures in place for sharing the information with data collectors through individual and agency-level feedback as well as to provide modifications to applicable training and instruction manuals, edit checks, and the SWISS files' data dictionaries. Audits and validation checks to assure the accuracy of specific critical data elements are conducted as part of the formal Quality Control Program. Example measurements are presented in Table 13.

Table 13: Examples of Quality Control Measurements for the Statewide Injury Surveillance System

Timeliness	- % EMS run reports sent to governing agency within 10 days of incident: **> 90%** - % EMS run reports sent to governing agency within 30 days: **> 99%** - Average # days from incident to availability of data on statewide EMS system: **< 20 days** - # days from death to appearance of record on mortality database: **< 30 days**
Accuracy	- % EMS run locations that match statewide location coding: **> 95%** - % "errors" found during data audits of critical data elements: **< 2%**
Completeness	- % of traffic crash-related EMS runs in the EMS database: **> 95%** - % of trauma cases represented in the trauma database: **> 90%**
Consistency	- % correct ICD-9 and E-codes: **> 95%**

The measures in Table 13 are examples of high-level management indicators of quality. The managers of individual roadway files should have access to a greater number of measures. The custodial agency should be prepared to present a standard set of summary measures to the TRCC monthly or quarterly.

Status

Alaska's Injury Surveillance System (ISS) is not an all-inclusive, functioning, integrated, comprehensive and coordinated Injury Surveillance System (ISS). While the state documents major injuries in its remarkable Alaska Trauma Registry (ATR), it does not

collect comprehensive EMS, clinic or emergency department data on injuries that are treated but do not result in a hospital stay. The state also does not link its injury surveillance data with crash data, and does not integrate rehabilitation, medical examiner or child fatality review data.

There is no legislative mandate or direct support for development of a single integrated system or for standardized comprehensive reporting. Nonetheless, the state's many excellent health planning initiatives demonstrate widespread understanding that comprehensive health planning depends upon the availability of quality data.

ISS System Overview – Health Care Service Providers

Provision of emergency care for injured travelers in Alaska is challenging because of Alaska's unique terrain, weather, and widely distributed, and socio-culturally and economically diverse population. Approximately 5,500 trauma hospitalizations are reported each year. Of these about 750-800 are coded as motor vehicle highway transportation related injuries.

Alaska's injured travelers are cared for by 24 acute care hospitals, including four trauma centers. These hospitals include eight Critical Access Hospitals, Alaskan Indian/Alaska Native hospitals, two military hospitals, and the four American College of Surgeons-certified Trauma Centers; a Level II center in Anchorage, and Level IV centers in Anchorage, Bethel, Nome and Sitka. The American Native Health Center in Anchorage is Level II certified for both adult and pediatric care.

The many predominantly small, rural Native communities are served by hospitals, clinics, and ambulance services. The Indian Health Service collects tribal injury data and is responsible for the Area Epidemiology Program of health risk appraisals for all tribal communities. These data are routinely shared with the state.

The state is divided among seven regional EMS programs, including 3 regional health corporations, 3 non-profit councils and 1 Borough fire department. Pre-hospital care is provided by 98 certified Emergency Medical Services (EMS) providers, including 19 air medical services, and by 93 non-certified First Responder services.

Of the 98 certified EMS services, 32 provide advanced life support, 43 provide mixed basic life support with occasional ALS, and four provide basic life support. In addition, there are 19 air medical services, of which three are hospital-based.

In addition to the certified services, there are approximately 93 non-certified First Responder services that provide Basic Life Support. Registered pre-hospital care providers include 1,960 level I EMT-Basic, 501 level II and 649 level III EMT's and 336 Paramedics.

The state has been working toward the establishment of a statewide trauma care system for many years, but has not yet obtained a secure source of funding.

ISS System Overview – Authority/Organization/Management/Funding

While the Alaska Department of Health & Social Services is the state's lead agency for health data, several initiatives now underway may have significant effect on state injury surveillance data. These include state-level strategic planning by the New Alaska Health Care Strategies Planning Council, implementation of the state public health plan and grant projects administered by the Alaska Injury Prevention Center.

On 15 Feb 2007, Administrative Order 232 established the Alaska Health Care Strategies Planning Council in the Office of the Governor to develop a statewide plan to identify short and long-term strategies to address access to, cost and quality of health care. The order requires the council to describe current system, inventory plans, reports and initiatives, short-term and long-term strategic plans and performance measures and accountability. A health care action plan is due on January 1, 2008.

Healthy Alaskans 2010, Alaska's decennial public health plan, tracks changes in Alaska's statewide health status, and serves as a point of reference for health policy development. Its chapter on Public Health Infrastructure identified Data and Information Systems as a major component needing improvement.

The public health plan data improvement performance measures included increased direct access to public health information by public health staff and the general public via Internet at the smallest geographic and socio-economic unit possible while maintaining confidentiality, data improvements permitting establishment of baselines and performance measurement for each public health indicator, and improved timeliness of data release to no later than 1 year after the end of data collection.

The plan also recommended a statewide process of health status assessment, combined with priority setting and action plan development, at both state and community levels. While some activity may be underway, there is no documentation of timelines and assignment of responsibility, or periodic status reporting, and progress has been slow due to funding limitations.

The Healthy Alaskans 2010 plan referred to a series of related data-driven plans that have bearing on transportation safety. These include the Alaska Native Statewide Health Plan 2002-2010, the Alaska Native Tribal Health Consortium Strategic Plan 2000-2005, the EMS Communications Plan (1997) the EMS for Children (1999), EMS Goals (1996), the Injury Prevention Plan (1994), the Public Health Improvement Plan (1999) and the Trauma System Plan (1994, rev. 2002).

The Alaska Injury Prevention Center (AIPC) – Anchorage, organized in 1999 as a non-profit entity not affiliated with the University. It is also a WHO-recognized Safe Community. The AIPC now has five employees including the director who is an epidemiologist. The AIPC uses trauma registry and death data to target injury problems and to design interventions. The AIPC performs highway safety surveys for the state and it writes and administers grants for traffic safety information improvement projects.

Lead Agency - The Alaska Department of Health & Social Services (DH&SS) is the lead agency for injury programs in the state. The Division of Public Health within the DH&SS contains organizational units responsible for epidemiology, injury prevention and EMS, the State Medical Examiner, and vital statistics.

The DH&SS manages 200 databases and is currently addressing data coordination and department-wide IT standards including XML format, MS Sequel server, and Oracle database.

The agency applied unsuccessfully for a Center for Disease Control's Core State Injury Surveillance and Program Development Plan (ISPDP) to fund the development, enhancement, and integration of injury prevention and control and surveillance programs at the state level. Planning for integration and coordination of the many agency files has continued even without that funding.

The Alaska Department of Health & Social Services (DH&SS) has broad statutory authority to collect and manage the component files of an Injury Surveillance System under Alaska Statutes (AS) Title 18, the Administration of Public Health, and specifically under sections 18.15.011 Administration of Laws, and 18.15.360, Data Collection. Electronic collection and use is authorized under section 18.23.100.

Data security is controlled by AS 18.15.362 and 365 and AS18.23. Privacy or health data confidentiality is maintained by stripping data of identifiers, and requiring data use agreements from researchers wishing to use un-redacted data.

Reports and Access

A few annual reports using ISS data are generated, but the primary published output of the ISS seems to be occasional papers and ad hoc reports.

No mandate or mechanism is in place through which sanitized extracts of ISS data are made available for linkage and for use in policy generation, research, problem ID and program evaluation, and to the public. Injury surveillance information has been used for public policy development on an ad hoc basis, but no standard periodic reports, white papers or fact sheets are generated for the Legislature.

The Alaska Trauma Registry posts a list of included data elements, but it appears that no data dictionary containing data elements, definitions and attributes or data flow diagrams is published for any of the core data sets.

Little information about the nature, quality and availability of injury surveillance or other public health information is published. Collection and entry guidelines/instruction manuals and training are available to hospital coders, but data users have limited access to metadata. The public health plan process could be used to issue periodic data quality status reports.

The interview process did not reveal any systematic planning process for moving to a

distributed model of data entry, processing and information flow, the promulgation of reporting standards, or reporting training. Only a few individuals have the skills to interpret and use the ISS data and they thus serve as "gatekeepers". Some of these issues will be addressed with the adoption of the NEMSIS-compliant EMS run data system.

Coordination with Transportation and Highway Safety Activities

ISS experts from the DH&FS and the Alaska Injury Prevention Center – Anchorage (AIPC) are members of Public Health Plan, Highway Safety Plan, Strategic Highway Safety Plan and Traffic Records Coordinating Committees; they assist local Safe Communities Projects and regularly provide data to the FARS analyst.

Alaska Highway Safety Office (AHSO) staff reported that ISS data are used in the Highway Safety Performance Plan (HSPP) development process to identify populations at risk, determine costs of injuries, develop projects and measure the impact of highway safety projects and programs. However, the HSPP document does not include these data or measures. The AHSO stated that using ISS data gives additional or more accurate data on response times, crash outcome/severity and the effect of protective gear on outcome and that ISS data can also control for differences in exposure /normalization and provide cost data for benefit/cost and cost-effectiveness determinations.

ISS representatives from the EMS and Injury Prevention participate in the Alaska TRCC. It does not appear that the ATRCC have any analogous working relationship with the state health care planning and advisory boards, although their missions overlap and some duplication of effort can be identified as a result.

The state public health plan, Healthy Alaskans 2010, Health Goals and Objectives of identified alcohol abuse, especially among young people, motor vehicle fatalities, and belt use rates as "highlights" or major problem areas. These problems were identified using Alaska Trauma Registry and ADOT&PF data. The Alaska Highway Safety Office (AHSO) was not involved in developing or implementing this plan.

The 2004 Safety Stewardship Conference Incident Response group identified gaps in the EMS system as their major requirement. Recommendations for improvements included increasing the number of EMS responders, training and retraining opportunities and increasing the scope of practice and improving incident response communications using OnStar technology.

The Alaska Injury Prevention Center – Anchorage (AIPC) works extensively on transportation safety projects, but does not always inform the ADOT&PF or other potentially affected interests of these activities. The AIPC uses the Alaska Trauma Registry as the basis for much of its research. Using probabilistic linkage, the AIPC linked ATR and crash data in 1996 but not thereafter.

The AIPC also performs observational surveys such as NOPUS and the AK Helmet

Observational Surveys May 2000 to May 2001 on behalf of the DH&SS. Their ATR-based study of the costs of belted vs. unbelted hospitalizations and the distribution of those costs to the public helped in pass Alaska's primary enforcement safety belt legislation last year.

ISS Improvement Projects

Recently, the AIPC received federal earmarked funds for several transportation safety data-related projects: 1) to assist the state in becoming NEMSIS compliant, 2) to develop an Automatic Crash Notification (ACN) system analogous to OnStar to provide trauma centers with real time information from the vehicle about the crash forces, and 3) to develop GIS coverage of air and ground ambulance responses to crashes along the major highway corridors, along which about 90 percent of travel occurs.

For the ACN project, the AIPC surveyed EMS services regarding the target corridors to learn about the types of responders to crashes on the corridors, their hardware and software for data entry and their relation to the Public Safety Answering Points (PSAPs) along the corridors. They are working with the University of Buffalo Center for Transportation Injury Research.

For the GIS project, the AICP has granted $100,000 to the Alaska State Troopers and EMS units along the corridors to purchase GPS units so that they can produce cluster maps of motor vehicle injury locations.

For the NEMSIS project, an RFP will be awarded in the fall of 2007 and Matanuska-Susitna Borough has volunteered to pilot test the software. They are working with Dr. Rice from Nebraska as well as the DH&SS.

All of these projects have implications for improved safety data well beyond their immediate study purposes. Coordination with all potentially affected interests could be effected through the ATRCC.

ISS Component Systems

Alaska collects statewide data from some of the State and Territorial Injury Prevention Director's Association (STIPDA)'s 11 "Data Sets recommended for Core Injury Surveillance." Few are used for highway safety purposes. The primary data set used for transportation-related planning, program development and analysis and public policy generation is the Alaska Trauma Registry.

Alaska Trauma Registry (ATR)

The Department of Health and Social Services (DH&SS) has custodial responsibility for the Alaska Trauma Registry (ATR). The ATR was initiated in the early 1990's, and in 1994, received a Trauma System grant and a legislative mandate for data collection and definition (AS 18.08.16(c). The ATR contains data beginning in January 1991 and annually thereafter. Approximately 5,500 trauma hospitalizations are reported per year.

Of these about 750-800 are coded as transportation-related injuries.

All 24 acute care hospitals report provide data sheets on all defined trauma cases to the DH&SS Trauma Registry. The many small, rural hospitals, clinics, and ambulance services often treat minor injuries that are not included in the ATR. The Indian Health Service collects tribal injury data and is responsible for the Area Epidemiology Program of health risk appraisals for all tribal communities. These data are routinely shared with the state.

Case selection: The ATR contains information on injuries occurring in Alaska that result in a hospitalization within the state, transfer to a higher level of care, or death in the emergency department. The cases in the ATR are identified by ICD-9-CM E-Codes 800.00-994.9 and 995.5 by coders at the hospital who abstract the trauma data from the medical record. Six hospitals are paid by the state. Trauma centers are required to pay for themselves and the others provide data voluntarily.

Five of the hospitals report electronically. Data entry clerks abstract the data from the patient records. A contract DH&SS employee reviews the electronic and paper data sheets, checks for new coders, corrects errors or sends the sheets back to the hospital for corrections, then enters the data into the registry. Data quality reports may be run against the registry to identify missing data, and logic checks of E-Codes against narrative are performed. No standard QA reports are generated on a regular basis.

The DH&SS offers an annual workshop to train coders, as well as on-site training and technical support. The DH&SS plans to develop on-line support for trauma registrars in the use of ICD-9-CM coding, data collection and information management, and on-site training of hospitals to use common data dictionary and protocols to improve accuracy.

The data elements abstracted, listed on the DH&SS Internet site, are: patient demographics, circumstances of injury, risk, and mitigating factors, pre-hospital and in-hospital response times and treatment, injury severity, body parts injured, diagnosis, length of hospital stay, charges and payment source, treating hospital and discharge condition. Additional data about on-scene deaths are obtained from DH&SS Vital Statistics and from FARS, and blood alcohol concentration is taken from the narrative.

The interview process revealed that timeliness of the completed annual dataset is any issue for some researchers because there can be as much as a two year delay between the crash and the availability of the ATR data.

Trauma Registry data are confidential and protected under AS18.23. Access to the database is limited. No public use datasets are available. Requests to IPEMS for access to de-identified data must sign confidentiality agreements, and data are generally provided in aggregate form. Non-aggregate data may be requested for special research projects in accordance with the Trauma Registry Release of Information policy.

Hospital Discharge Data (HDD)

The Alaska Hospital and Health Care Association fund the collection of Hospital Discharge Data in cooperation with DH&SS. After the data are cleaned and entered into the Alaska Trauma Registry, they are returned to the hospitals. This system is not affiliated with the Alaska Trauma Registry.

Data Use Agreements with third-party data users allow sharing of data only in summary form. No data may be released that may identify an individual.

Emergency Department (ED) and Outpatient Clinic (OP) Visits

The DH&SS Trauma Registry Coordinator has been trying to develop an ED database, but none exists at present. However, because much of Alaska's health care delivery takes place at clinics far from the nearest hospital, a purely Emergency Department-derived database would seriously undercount treated transportation-related injuries.

In the interview process, no respondent felt comfortable estimating the annual number of emergency department total or motor vehicle-related visits. The number of these visits is several times that of hospitalizations and would provide adequate sample size for studies of protective factors in motor vehicle crashes.

ED or Outpatient Visit records would raise the same privacy and data quality issues as for Hospital Discharge Data, and coders would also need ICD-9-CM training.

There is no State or Hospital Association mandate for reporting ED visits to any central database. The hospitals have obtained individually selected software for collecting these data for their own use. Extracting data from the standard UB-92 billing form might be a way to avoid the problem of the multiple formats, and thus allow researchers to obtain some information about persons treated and released as a result of motor vehicle injuries.

These data would be an important component of an ISS. However collected, they should be capable of integration with Trauma Registry, Ambulance Run and motor vehicle crash data

Pre-Hospital/Ambulance Run/EMS Data

The DH&SS Division of Public Health Section of Injury Prevention and Emergency Medical Services is responsible for certification and licensing, training, technical support and regulation of EMS activities. Ground and air medical services providing advanced life support must be certified by the DH&SS. EMTs, EMS Instructors, and Defibrillator Technicians are certified by the DH&SS; Mobile Intensive Care Paramedics are licensed though the Department of Commerce and Economic Development.

Alaska has no mandate for all emergency service providers to collect pre-hospital care and transportation information or to provide those data to a centralized state file. The state does require certified ambulance services to collect pre-hospital care data and to

participate in the EMS patient information system (AS 18.08.015), In addition, Alaska requires all hospitals providing emergency medical services to make available trauma data as defined by the state (AS 18.08.16(c). A standardized Run Report in paper format (Alaska Pre-Hospital Patient Report, 06-1368 (5/99)), was made available but never widely used.

Emergency Medical Service in Alaska is provided by a complex mixture of paid and volunteer responders, incorporated in seven regions, including three regional health corporations, three non-profit councils and one Borough fire department. Services range in size from small rural agencies providing basic life support to state-of-the-art paramedic-based agencies in the more populous areas of the state.

Of the 98 certified Emergency Medical Services (EMS) providers, 32 provide advanced life support, 43 provide mixed basic and occasional advanced life support and four provide basic life support. Of the 19 air medical services, three are hospital-based. In addition to the certified services, there are 93 non-certified First Responder services. There are 1,960 level I EMT Basic, 501 level II and 649 level III EMT's and 336 Paramedics. Approximately 70 percent of pre-hospital care providers are volunteers and 47 percent are associated with fire departments. Twenty-six percent of the certified services are private (profit and non-profit). Services may also be government, military, Native Health Corporation, municipal or industrial (private) organizations.

Transport vehicles range from the standard box to snow machines, ATVs, dogsleds, and boats. There are no ambulance inspectors, but annual certification of a service requires adherence to a list of required equipment.

The great variety of services and the challenges of Alaska's physical and cultural landscape make collection of pre-hospital data particularly difficult. The DH&FS Section of Injury Prevention and EMS has received federal earmarked funds to develop a statewide, web-based pre-hospital EMS data collection and reporting system that meets the NEMSIS Gold Standard and is based on the Missouri and CDC's WISQRS model. System goals include establishing data linkages with the ATR and hospitals, and integration data with the Fatality Analysis Reporting System (FARS) and Alaska's Highway analysis System (HAS). An RFP has recently been issued and implementation is planned for 2010. Data privacy and data interpretation issues are being studied.

Vital Statistics – Death Records

The lead agency for vital records data is the DH&SS Bureau of Vital Statistics. Access to these data are limited. Individual death records are confidential for 50 years.

E-coding of death records to match with non-fatal injuries requires the use of ICD-10 standards. These must be cross-walked to the ICD-9-CM codes used for injury hospitalizations, so data integration is somewhat problematic.

In 1993 the Trauma Registry manager downloaded 25 elements on each pre-hospital

death from the Bureau of Vital Statistics, but determined that these did not provide much information on the nature of injuries or autopsy results. They are not used for highway safety analyses.

Medical Examiner Reports, Child Fatality Review Team Data, and Alaska Violent Death Reporting System (AVDRS)

The office of the State Medical Examiner is in the DH&SS. Local medical examiners are found in boroughs throughout the state; Alaska does not have a coroner system.

Under AS 12.65.020(9)(b), when the state medical examiner or deputy medical examiner completes an investigation or inquiry, the examiner prepares a report of findings and conclusions. The investigative report may be disclosed to public officers and employees for a public purpose.

The enabling legislation, Chapter AS12.65, requires the establishment of a state Child Fatality Review Team to assist the medical examiner, and permits development of a database.

The statute allows the team to 1) collect data and analyze and interpret information, 2) develop state and local databases on deaths of children, and 3) periodically issue reports to the public containing statistical data and other information that does not violate federal or state law concerning confidentiality of the children and their families involved in the reviews.

These data have the potential to add information on the nature of injuries and autopsy results to children not otherwise available in the Alaska Trauma Registry.

CODES Linked Medical Data and Motor Vehicle Crash Data Program

The Alaska DH&SS DPH initiated a CODES project linking Trauma Registry and crash data from the ADOT&PF's HAS using a highway safety mini-grant in 1995-96. The result of the data linkage was the production of a paper, "Comparison of Young & Adult Driver Crashes in Alaska using Linked Traffic Crash and Hospital Data 1991-1995," used in support of a graduated driver licensing bill.

The Alaska Injury Prevention Center performed a similar linkage of crash and ATR data, but neither organization continued to link these data. They stated that, if they would link health and safety data, they would prefer a deterministic linkage using individual patient identifiers to the CODES probabilistic method.

The ATR has been linked with crash data and could potentially be linked with the new EMS data system when that is fully operational, or the EMS data could be linked directly to the crash data. The linkage could be undertaken either probabilistically using the new CODES software or deterministically, if individual patient identifiers were adopted. Linkage issues should be explored as part of the development of any new ISS component system.

Behavioral Risk Factors Surveillance System (BRFSS), Youth Behavior Risk Survey (YBRS), and College Risk Behavior Survey

The State of Alaska has participated in both the BRFSS and YBRS surveys for many years. The results are published on the CDC Internet site.

The interview process revealed that Alaska health and highway safety researchers make very little use of these data for program or public policy development. They stated that they distrust the quality of these self-reported data.

Recommendations

- Establish high-level integration of the components of the state's Injury Surveillance System, following the model prescribed in the CDC Core State Injury Surveillance and Program Development Plan.

- Establish common data standards, dictionaries and definitions across component data sets, document data definitions for each field, and where applicable, edit checks and data collection processes, flow diagrams showing the typical data collection and management processes and their average time to completion for each step in the data flow process.

- Perform a training needs assessment for data collection, data entry, use of various injury coding systems (ICD and E-codes) as well as injury and trauma severity scoring systems such as the Injury Severity Score (ISS), Revised Trauma Score (RTS), and Abbreviated Injury Score (AIS) scales.

- Publish a Public Health Data Resource Guide describing the State's data sets, including data quality metrics and information about their strengths, limitations, access, and reports. Update the guide on a regular basis.

- Develop periodic data quality reports for each component of the injury surveillance system and provide them to public health, injury prevention and highway safety analysts and planners.

- Develop a workforce development and training plan to ensure continuation of institutional memory and skill sets as highly skilled data managers and analysts retire.

- **Produce meaningful output from injury surveillance data, including annual standard reports such as the CODES Management Reports.**

- Establish an on-line injury data portal or provide de-identified ATR data to the ADOT&PF to be included in the Safety Data Portal.

- Re-establish the CODES project, and link ATR to crash data at least for the

years after the 2002 revision of the police crash report.

- **Support development of an ambulance-run data system and investigate the possibility of using UB-92 billing data to establish the Emergency Department system component.**

- Encourage cross-disciplinary cooperation between public health injury prevention and the transportation safety communities and use ISS data more extensively in the development of the Strategic Highway Safety Plan and the annual behavioral Highway Safety Plan.

- Integrate ARR and crash reporting into PSAP and dispatch planning, the automated vehicle notification system and the GIS emergency response coverage.

- Conduct an EMS and Injury Surveillance System Assessment in the near future.

APPENDIX A. Resources

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APPENDIX B
Advisory Panel Members

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National Highway Traffic
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Louisiana Department of Transportation
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Systems Engineer
Missouri Department of Transportation

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Office of Highway Safety
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Transportation Safety Policy &
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APPENDIX C. Abbreviations and Acronyms

AAAM	Association for the Advancement of Automotive Medicine
AAMVA	American Association of Motor Vehicle Administrators
AASHTO	American Association of State Highway and Transportation Officials
ACS	American College of Surgeons
AIS	Abbreviated Injury Score
ANSI	American National Standards Institute
ATSIP	Association of Transportation Safety Information Professionals
BAC	Blood Alcohol Concentration
BPEVR	Business Partner Electronic Vehicle Registration
CDC	Center for Disease Control
CDLIS	Commercial Driver License Information System
CODES	Crash Outcome Data Evaluation System
DMV	Department of Motor Vehicles
DOT	Department of Transportation
DUI	Driving Under the Influence
ED	Emergency Department
EMS	Emergency Medical Service
FARS	Fatality Analysis Reporting System
FHWA	Federal Highway Administration
GES	General Estimates System
GIS	Geographic Information System
GJXDM	Global Justice XML Data Model
GPS	Global Positioning System
HPMS	Highway Performance Monitoring System
ICD	Injury Coding System
IRP	International Registration Plan
ISS	Injury Surveillance Score
LEIN	Law Enforcement Information Network
MCMIS	Motor Carrier Management Information System

MMUCC	Model Minimum Uniform Crash Criteria
NCIC	National Crime Information Center
NCSC	National Center for State Courts
NDR	National Driver Registry
NEMSIS	National Emergency Medical Service Information System
NGA	National Governor's Association
NHTSA	National Highway Traffic Safety Administration
NIBRS	National Incident-Based Reporting System
NLETS	National Law Enforcement Telecommunication System
NMVTIS	National Motor Vehicle Title Information System
PDPS	Problem Driver Pointer System
RTS	Revised Trauma Score
SHSP	Strategic Highway Safety Plan
SWISS	Statewide Injury Surveillance System
TCD	Traffic Control Devices
TRCC	Traffic Records Coordinating Committee
TRS	Traffic Records System
UCR	Uniform Crime Reporting
VIN	Vehicle Identification Number
VMT	Vehicle Miles Traveled

APPENDIX D Agenda and List of Presenters

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
	MAY 7	MAY 8	MAY 9	MAY 10	MAY 11
8:30-9:30	**Session 1** Carl Gonder, DOT&PF	**Session 7** Diane Schenker / Susan Miller, AK Courts System	**Session 13** Ulf Peterson, DOT&PF Sara Penisten, AK SafeKids Ron Perkins, AK Injury Prev.	Report Write-Up	Report Close-out Briefing TRCC & HSO Rep. Slated for Attendance
9:30-9:45	Break	Break	Break	"	"
9:45-10:45	**Session 2** Cindy Cashen / Chris Thomas, DOT&PF	**Session 8** Diane Schenker, AK Courts System Sue McLean, DOL	**Session 14** Ron Martindale / Kurt Smith via telephone, DOT&PF	"	"
10:45-11:00	Break	Break	Break	"	
11:00-12:00	**Session 3** Cindy Cashen / Chris Thomas, DOT&PF Mary Ostendorf / Ulf Peterson, MSCVE	**Session 9** Lt. Nancy Reeder / Officer Rick Dykstra, APD Chief Tom Clemons, SPD AACOP Chief Angela Long, Wasilla PD Chief Dale Pitmann, UAA PD	**Session 15** Lt. Dan Lowden / Capt. Dennis Casanovas / Jill Bybee / Lt. Lonnie Piscoya (T) / Sue Dupont (T) / Sgt. Rex Leath / Brenda Morris (T), AST Bruce Detloff, DPS	"	
12:00-1:00	LUNCH	LUNCH	LUNCH	LUNCH	
1:00-2:00	**Session 4** Martha Moore / Shelley Owens(T) / Tim Bundy(T), DH&SS Sue Hecks, Anchorage EMS	**Session 10** Kerry Hennings / Carl Springer / Rick Richter / David Nolen / Mina Torvie / Susan Miller / Shelley Mallot / Kevin Burchfield, State DMV	Report Write-Up	Report Write-Up	
2:00-2:15	Break	Break	"	"	

2:15-3:15	**Session 5** Martha Moore / Shelley Owens(T) /Tim Bundy(T), DH&SS Sue Hecks, Anchorage EMS	**Session 11** Danielle Cadiente / Carl Gonder / Jack Stickel, DOT&PF	"	"	
3:15-3:30	Break	Break	"	"	
3:30-4:30	**Session 6** All ATRCC Committee Members	**Session 12** Robert Kniefel / Kim Carpenter, MOA	"	"	

APPENDIX E Team Credentials

Scott R. Falb
Des Moines, Iowa
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Title: Research & Driver Safety Data Analysis Administrator, FARS Administrator and CVARS Administrator.

Research & Driver Safety Data Analysis unit conducts research and data analysis for the Office of Driver Services and the Motor Vehicle Division. It conducts research and data analysis using Iowa crash data, driver history data, driver license demographic data, census population data, crash location data, Iowa FARS, CVARS, CODES data and vehicle registration data.

Experience:
Scott has been a traffic safety practitioner for the Iowa Department of Transportation since 1978. He was a Driver License Examiner from 1978-1985. He was the Driver Improvement Program Administrator from 1985-1991. He has been a driver safety and crash data spokesperson and researcher for the Office of Driver Services since 1991 and the Iowa Fatality Analysis Reporting System (FARS) Administrator since 1994. He is also the Iowa Commercial Vehicle Analysis Reporting System (CVARS) Administrator for Iowa. He has served on the original 1997 Model Minimum Uniform Crash Criteria (MMUCC) committee and the 2002 MMUCC Revision Committee as well as the committee for the seventh edition of the ANSI D-16 Crash Definitions. He has been a trainer in crash reporting improvements for local police agencies. He is the crash data, driver records and driver safety press and public spokesperson for the Motor Vehicle Division of the Iowa DOT. He is an author of research papers on the driving behavior of both older and younger drivers.

Organizations and State Committees:

- Co-Chair of the Iowa Statewide Traffic Records Coordinating Committee
- Iowa Crash Outcomes Data Evaluation (CODES) Steering Committee
- Executive Board Member of the Association of Transportation Safety Information Professionals (ATSIP)
- Iowa state Child Death Review Team liaison
- Iowa's Governor's Brain Injury Council
- Healthy Iowans 2010

Martha E. Florey
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Title: Assistant to the Director, Bureau of Transportation Safety

The Wisconsin Department of Transportation's Bureau of Transportation Safety includes the State Highway Safety Office. The office coordinates state and local highway safety activities and resources. The Assistant to the Director researches and prepares the Highway Safety Plan and annual report, prepares grant applications, manages the Traffic Records Improvement Program, manages Wisconsin's CODES and TraCS projects

Experience:

Martha has 20 years experience in highway safety program and project planning strategic planning, management and analysis, grant writing and community-based behavioral change program development and analysis.

Organizations:

- Secretary, Association of Transportation Safety Information Professionals
- Member, Association for the Advancement of Automotive Medicine
- Chair, Wisconsin Division, American Trauma Society
- Chair, Wisconsin State Traffic Records Coordinating Committee since 1999
- Member, TRB's Native American Transportation Issues Committee's Safety

Subcommittee

- Member, Wisconsin EMS for Children Committee
- Member, Wisconsin Child Death Review Team

Tom Hollingsworth
Columbus, OH
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Title: Chief of Data Services for Ohio Department of Public Safety

Data Services is responsible for the gathering and entering of the crash data for all reportable crashes that occur in Ohio. We enter a variety of data for multiple sections within the ODPS. I am responsible for the publishing of Ohio's annual crash fact's book.

Experience:

Chief of Data Services for 4 years
Retired as a Lieutenant after 28 years with the Ohio Highway Patrol.
Involved in the modifications for the Ohio Crash Report Form
Trained Law Enforcement officers throughout the state in completion of the crash form
Instructor at the OSP Academy for 12 Years
Team member for State Traffic Records Assessment

Organizations:

Chairman Traffic Records Coordinating Committee
Association of Transportation Safety Information Professionals (Board Member)
Committee for ANSI D-16

Daniel J. Magri. P.E.
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Title: Highway Safety Manager

The Highway Safety Office is responsible for development, administration and evaluation of the Department's Highway Safety Improvement Program (HSIP). Activities related to this program include:

- Identification and Evaluation of Abnormal Crash Locations
- Development and administration of a $30 million HSIP
- Highway Safety Studies
- Traffic Records
- Tort Reduction
- Strategic Highway Safety Plan

Experience

He is the Highway Safety Office manager for the Louisiana Department of Transportation and Development and is responsible for all statewide highway safety activities. He also chairs the Louisiana Traffic Records Coordinating Committee. He also chairs the Louisiana Traffic Records Coordinating Committee.

He has twenty-two years experience in the transportation field. He has spent the last nineteen years in highway safety both with the Governor's Office of Highway Safety (Louisiana Highway Safety Commission) and the Louisiana Department of Transportation and Development.

Organizations

- Louisiana Traffic Records Coordinating Committee
- Association of Transportation Safety Information Professionals (past president)
- Institute of Transportation Engineers
- American Society of Civil Engineers
- National Committee on Uniform Traffic Control Devices
- Louisiana Engineering Society

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Education

University of Georgia, B.S., Microbiology, 1964
University of Georgia, M.A., Political Science/Research Methods/Applied Statistics, 1968
University of Georgia, Ph.D., Political Science/Research Methods/Applied Statistics, 1976
University of Michigan, Post-Doctorate, Survey Research Methods, 1978

Professional Experience

2004 – Present	Consultant
2001 – 2004	Chief, National Driver Register, NHTSA
1996 – 2001	Team Leader/Traffic Records Team, NHTSA
1988 - 1996	Mathematical Statistician, Traffic Safety Programs, NHTSA
1986 – 1988	Operations Research Analyst, US Department of Army
1984 – 1986	Chief Statistician, National Transportation Safety Board
1982 - 1984	Operations Research Analyst, US Department of Army
1979 – 1982	Program Analyst, NHTSA, Region IV
1976 - 1979	Assistant Professor, University of Missouri

Associate/Affiliations

American Statistical Association
National Academy of Sciences, National Transportation Safety Board (Committee on Statistical Methodology and Statistical Computer Software in Transportation Research)
Association of Transportation Safety Information Professionals

Awards

2004 Distinguished Service to Safety Award presented by the National Safety Council

Robert L. Thompson
Ames, IA 50010
e-mail rthompso@dps.state.ia.us

Title: Program Evaluator, Governor's Traffic Safety Bureau, Iowa Department of Public Safety. 1987 – Present.

Responsible for development of the state's Annual Highway Safety Plan, Comprehensive Problem Identification and Annual Evaluation Report.

Prepares grant applications and manages the Bureau's Traffic Records Program. Develops performance measurers and monitors contract compliance.

Assists the Bureau's director in the overall operation and management of the agency. Serves as agency liaison to numerous Highway Safety groups.

Experience:
Bob has 20 years experience in Highway Safety. Prior to that, he was a data and management analyst for six years at the Iowa Energy Policy Council.

Education:
B.S. in Agricultural Economics, Iowa State University.
Post Graduate work in Economics and Sociology, Iowa State University.

Organizations:
Co-founder and Co-chair – State Traffic Records Coordinating Committee.
Management team – Iowa's Comprehensive Highway Safety Plan.
Vice-Chair, - Highway Traffic Safety Division, National Safety Council.
Board of Delegates, National Safety Council.
Board of Directors, Iowa CODES project.
Member – Iowa Motorcycle Safety Task Force.
Member – Iowa Trauma Systems Advisory Council.
Chair, - Member Services sub-committee, Association of Transportation Safety Information Professionals (ATSIP)
Member – Committee on Transportation Safety Management, Transportation Research Board.
Expert Panel – Evaluating Highway Safety Programs, National Cooperative Highway Research Program, National Academy of Sciences.
Past President – Association of Transportation Safety Information Professionals (ATSIP)

Previous Assessments:
Traffic Records –Georgia, South Carolina, Wisconsin, Connecticut, Oklahoma and Oregon.
Alcohol – North Dakota, South Carolina and Indiana