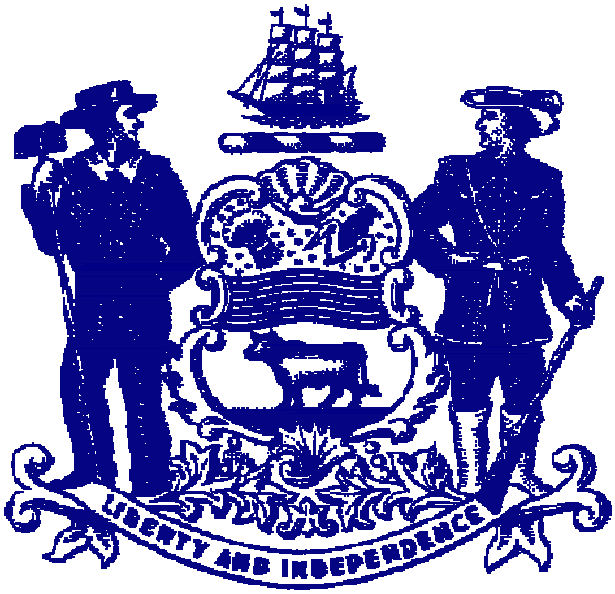

STATE OF DELAWARE

TRAFFIC RECORDS ASSESSMENT

December 4-8, 2000

National Highway Traffic
Safety Administration
Technical Assessment Team

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NOTES AND DISCLAIMERS

NOTE: The terms "Highway Safety Information System" and "Traffic Records System" are interchangeable. This Advisory uses the term, "Traffic Records System" to be consistent not only with its traditional use, but also with references in many of the publications and documents listed at the back of this Advisory, as well as its use in various pieces of legislation.

NOTE: The term “crash” is used in lieu of the term “accident” in this document. Many of the references cited in this document use the term “accident” as do many of the laws defining crashes or accidents at the state level. This advisory recommends that states begin to use the term “crash” and to reflect that change in legislation.

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EXECUTIVE SUMMARY

Following are the major recommendations drawn from the main body of the report:

MAJOR RECOMMENDATIONS

Coordination

- ❑ Insure that the Traffic Records Coordinating Committee (TRCC) includes representation from all stakeholders including: Office of Highway Safety (OHS), Delaware Department of Transportation (DelDOT), Delaware State Police (DSP), Division of Motor Vehicles (DMV), Office of Emergency Medical Services (OEMS), Delaware Justice Information System (DELJIS), Office of Administrative Services (OAS), Courts, Delaware Chiefs of Police Association, Metropolitan Plannining Organizations (MPOs), and Community Traffic Safety Programs (CTSPs).

- ❑ Assign oversight responsibility to the TRCC to assure that the traffic records system will meet the needs of all state and local agencies with a highway safety responsibility.

Strategic Plan

- ❑ Assign the TRCC the responsibility for developing the Traffic Records System Strategic Plan.

- ❑ Insure that DMV participates fully in the TRCC.

New Crash System/Data Usage

- ❑ Develop a formal, written process for the specification, design, and development of the new automated crash report system.

- ❑ Revise and implement a new crash report form now, using the new crash data elements as established in 1997. This should be accomplished in advance of the design and development of the new automated crash system.

- ❑ Create a statewide Traffic Records System Resource Guide to give users and potential users the information they need on data sources and system capabilities.

- ❑ Promote use of simpler query tools and allow broader access to systems in DSP, DelDOT, and DELJIS.

- ❑ Extend training to all member agencies to provide a wide range of users with the information technology skills they need to manage transportation safety programs at the state and local levels.

DelDOT Systems Integration

- ❑ Insure that DelDOT personnel who play a key role in the use of crash information, take an active role in the development of the new crash system.

- ❑ Establish an enterprise-wide Geographic Information System (GIS) that will enhance accuracy, accessibility, and integration of the various DelDOT files.

Injury Surveillance Systems (ISS) Initiatives

- ❑ Fully implement the Crash Outcome Data Evaluation System (CODES) project to improve data linkage with highway safety databases.

- ❑ Continue implementation of the statewide Injury Surveillance System.

ACKNOWLEDGMENTS

The Traffic Records Assessment Team would like to acknowledge and thank Tricia Roberts, Director, Office of Highway Safety, for her support and able assistance in making this assessment possible.

Also, the team would like to recognize the contributions of Jana Simpler, Management Analyst, Office of Highway Safety, for her expert guidance, planning, logistical arrangements and support in making this assessment effort a success.

Kay Banks support during the preparation phase of this report was especially appreciated. The team wishes to recognize her patience, skills, cooperative spirit, and sense of humor.

The team would like to thank Clayton Hatch, team facilitator, for giving a national perspective to the assessment process and its goals.

The team would also like to thank the principal participants in the assessment for the time invested, the information they presented, and their candor in answering the many questions put forth by the team.

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INTRODUCTION

A complete traffic records program is necessary for planning (problem identification), operational management or control, and evaluation of a state's highway safety activities. Each state, in cooperation with its political subdivisions, should establish and implement a complete traffic records program. The statewide program should include, or provide for, information for the entire state. This type of program is basic to the implementation of all highway safety countermeasures and is the key ingredient to their effective and efficient management.

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:

> "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 traffic records system is generally defined as a virtual system of independent real systems which collectively form the information base for the management of the highway and traffic safety activities of a state and its local subdivisions.

Assessment Background

The Traffic Records Assessment is a technical assistance tool that the National Highway Traffic Safety Administration (NHTSA) and the Federal Highway Administration (FHWA) offer to state offices of highway safety to allow management to review the state's traffic records program. NHTSA and FHWA have co-published a Highway Safety Program Advisory for Traffic Records which establishes criteria to guide state development and use of its highway safety information resources. The Traffic Records Assessment is a process for giving the state a snapshot of its status relative to that Advisory.

This assessment report documents the state's traffic records activities as compared to the provisions in the Advisory, notes the state's traffic records strengths and accomplishments, and offers suggestions where improvements can be made.

Methodology

The assessment process follows a "peer" review team approach. Working with the NHTSA Regional Office, the FHWA Division Office, and the state's highway safety office, the NHTSA and FHWA selected a team of individuals with demonstrated expertise in major highway safety program areas including: law enforcement, engineering, driver and vehicle services, injury surveillance systems, and general traffic records development, management, and use. Credentials of the assessment team are listed in the Team Credentials section of this report. The state officials who were interviewed during this assessment are listed in the List of Presenters section. Throughout the assessment, NHTSA and FHWA representatives served as observers and are also listed in the Acknowledgments section.

Recommendations

The recommendations in the sections following may include suggestions on how they might best be achieved, based on the experience of team members and information provided.

Report Contents

In this report, the text following the "*Advisory*" excerpt heading was drawn from the Highway Safety Program Advisory for Traffic Records. The "*Advisory*" excerpt portion is in italics to distinguish it from the "Status and Recommendations" related to that section which immediately follows. The status and recommendations represent the assessment team's understanding of the state's traffic records system and their suggestions for improvement. The findings are based entirely on the documents provided prior to and during the assessment, together with the information gathered through the face-to-face discussions with the listed state officials. Recommendations for improvements in the state's records program are based on the assessment team's judgment.

It is recognized that, based on resources and other program priorities, the recommended improvements would be considered for implementation through a strategic plan established by the Delaware Office of Highway Safety in coordination with all affected state and local agencies.

The report will follow the outline in the Advisory and present the "*Advisory*" excerpt followed by the "Status" and "Recommendation" for each section and subsection of the Advisory. Section 1-A would present the text from the Advisory related to Crash Information followed by a statement of the findings and the recommendations for improvements to crash information. Section 1-B would repeat for Roadway Information, etc.

SECTION 1:
TRAFFIC RECORDS SYSTEM INFORMATION COMPONENTS

BACKGROUND

At the time of passage of the Highway Safety Act of 1966, state central traffic records systems generally contained basic files on crashes, drivers, vehicles, and roadways. Some states added data on highway safety-related education, either as a separate file or as a subset of the Driver File. As highway safety programs matured, many states added Emergency Medical Services (EMS) and Citation/Conviction Files. Additionally, some states and localities also maintain a Safety Management File, which consists of summary information from the central files useful 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 traffic records system needs to incorporate a view of information and information flow, as opposed to focusing on the files in which that information resides. *Figure 1* displays this view of distributed data processing in a traffic records system.

Under this more distributed model, it doesn't matter whether data for a given system component are housed in a single file on a single computer or spread throughout the state on multiple local systems. What matters is whether or not the information is available to users, in a form they can use, and that this information is 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 following major components of a traffic records system *(see also Table 1)*:

- ❑ Crash Information
- ❑ Roadway Information
- ❑ Vehicle Information
- ❑ Driver/Person Information
- ❑ Enforcement/Adjudication Information
- ❑ Injury Surveillance Information

Together, these components should provide information about places, property, and people involved in crashes and about the factors that may have contributed to the events described in the traffic records system. The system should also contain information that may be used in judging the relative magnitude of problems identified through analysis of data in the traffic records system. This should include demographic data (social statistics about the general

population such as geographic area of residence, age, gender, ethnicity, etc.) to control for differences in exposure (normalization) and cost data for benefit/cost and cost effectiveness determinations. Performance level data should be included to support countermeasure management.

Further descriptions of these types of information are provided in the following sections.

Figure 1: Model of Distributed Data Processing in a Traffic Records System

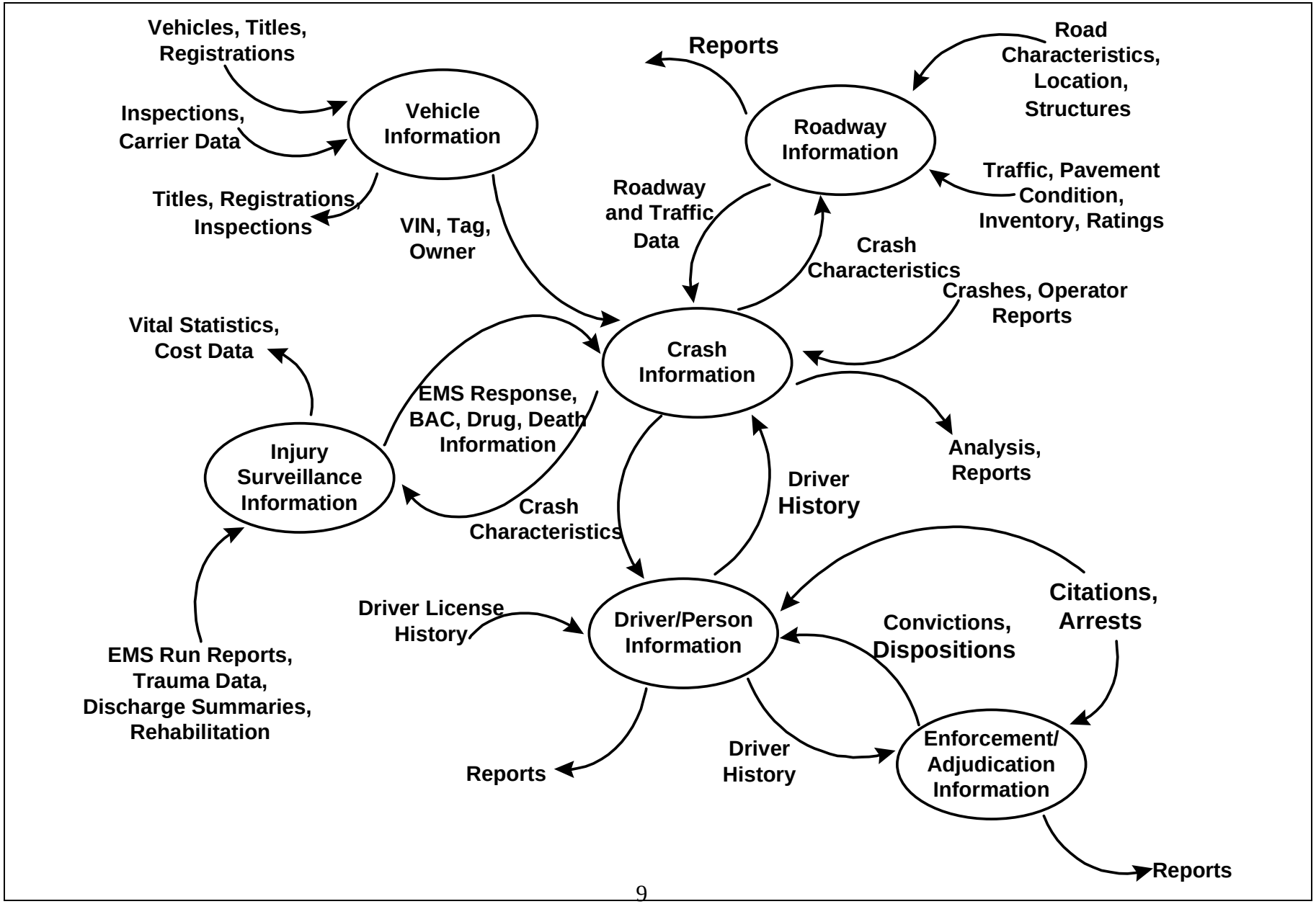

Table 1. Components of a Traffic Records System		
COMPONENTS		EXAMPLES
Crash		• Weather conditions and pavement • Illumination • Time of Day, Day of Week • Avoidance maneuvers • Violation of traffic law (speed, turns, failure to obey, reckless driving) • Number and severity of injuries or level of property damage • Number of vehicles involved • Manner of collision and speed • Object struck
Injury Surveillance System		• EMS response time for driver/pedestrian/pedacyclist • Hospital assessment of injury severity • Hospital length of stay and cost • Rehabilitation time and cost
Roadway		• Location referencing system • Roadway character (jurisdiction, classification, surface, geometries) • Structures (bridges, tunnels) • Traffic control devices, signs, delineations, and markings • Roadside features (hardware, conditions, bike lanes, sidewalks, land use) • Rail grade crossings • Traffic volume and characteristics
Vehicle	All	• Type and configuration • VIN • Age/model year • Weight • Registration information/Plates • Defects • Owner information • Safety devices (type and condition)
	Commercial	• Carrier information • Hazardous materials/Placards • Inspection/Out of Service Records
Driver/Person		• Age/DOB • Gender and Ethnicity • Experience, driver education • License status • Conviction history • Person type (driver, occupant, non-occupant) • Substance abuse • Demographics (population statistics) • Safety device use
Enforcement/Adjudication		• Citation tracking • Traffic case volume • Conviction • Sentencing • Case tracking

Section 1-A: Crash Information

Advisory

The Crash Component documents the time, location, environment, and characteristics (sequence of events, rollover, etc.) of a crash. Through links to the crash-involved segments of Roadway, Vehicle, and Driver Information, the Crash Component identifies the roadways, vehicles, and people involved in the crash and documents the consequences of the crash (fatalities, injuries, property damage, and violations charged). In addition to providing information on a particular crash, the Crash Component supports analysis of crashes in general and 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), and the interaction of various components (e.g., time of day, day of week, weather, driver actions, pedestrian actions, etc.).

The Crash Component of the Traffic Records System should contain some basic information about every reportable motor vehicle crash on any public roadway in the state. Details of various data elements to be collected are described in a number of publications. The Model Minimum Uniform Crash Criteria (MMUCC) provides a guideline for a suggested minimum to be collected for each crash. Additional information should be collected (as necessary) for crashes involving an injury or fatality to meet the requirements for tracking and analysis for the state and other systems (e.g., the Fatality Analysis and Reporting System [FARS]).

Status

The Delaware Uniform Traffic Collision Report (Form 438, Rev 1/88) is used statewide by law enforcement officers to collect information on crashes. The report form includes fields for coding information on the time, location, environment and characteristics of crashes. Data describing the vehicles and drivers involved in crashes are collected on all crashes. Information is collected on injured persons involved in the crash using a separate form – the Delaware Uniform Traffic Collision Report: Injury Information report (Form 439, Rev. 10/87). Additional information on trucks and buses involved in crashes is recorded on the Delaware State Police Commercial Vehicle Accident Supplement (Form 438A, Rev. 11/96).

The Delaware Motor Vehicle Law, chapter 42 describes the requirements for reporting crashes. Drivers involved in crashes are required (section 4203) to immediately report the crash to the jurisdictionally responsible police agency. That agency, in turn, must complete a crash report form for all reportable crashes in their jurisdiction. When a crash occurs in Delaware, the responding agency (Delaware State Police, County or Municipal Police Department) has 10 days to forward the completed crash report (including any injury and Commercial Motor Vehicle – CMV – supplemental forms) to the Delaware State Police (DSP) Traffic Unit for data entry. Most agencies in the state have a policy of completing a crash report even if the crash does not meet the state's reporting threshold (currently set at a minimum of $1400 in property damage, or any crash involving an injury or fatality). These non-reportable crashes, including hit-and-run cases, are routinely sent to DSP along with all reports of above-threshold, reportable crashes.

The current crash report is not considered MMUCC compliant. A 1997 effort to develop a new data dictionary included a review of MMUCC variables in order to increase the level of compliance at a future date when the crash report form is revised. The data dictionary subsequently became part of the State's plan for a redesigned crash data collection and reporting system. The details of this system are discussed in more detail at the end of this section. There are several key data elements that are not captured on the current crash report form. In particular, the state does not have a good way of coding crash dynamics such as Harmful Events at the crash level and Sequence of Events for each vehicle. This information is gleaned from the narrative, diagram, and to a lesser extent from a series of circle-and-arrow diagrams on the first page of the form. Most other data elements on the form are similar to nationally recommended data definitions such as MMUCC or ANSI D-16. Three key data elements (Hit & Run, Construction Zone, and Rail Bridge) were mistakenly dropped from the report form in the 1988 revision and are gathered instead by the responding officer making a manual notation on the header of the form.

Once a crash report arrives at DSP, it is reviewed by data entry staff, assigned a DSP crash report number, and keyed into the Department's statewide crash file. This is the official crash file for the state. Even non-reportable crashes are entered into the DSP crash file, although only minimal information is input (location, time, date and crash report number, for example). The crash file is an ADABAS application resident on a mainframe in the DSP Traffic Unit. Data entry includes both manual and automated edit checks designed to ensure high quality data. If the data entry clerks discover an error, they will either correct it, send the report back to the officer (in the case of DSP reports) or make note of the problem encountered for later follow-up with the issuing agency if the error occurs frequently (DSP and other agencies). There is no provision for follow-up to correct errors on individual crash reports from agencies other than DSP. There is no appreciable data entry backlog; the norm is 10-15 days to complete data entry once the reports arrive at DSP.

Not all information on the crash report form (and the injury supplement) is entered by DSP into the crash file. Vehicle area of damage and vehicle registration numbers are examples of fields which are collected on the form, but not entered into the crash file. For the three hand-written data elements (Hit & Run, Construction Zone, and Rail Bridge), data entry clerks review the crash to ensure that the notation should be there, and add it if the officer failed to do so. Despite not having a specific field on the form to record these data elements, the DSP data managers and analysts felt that they were collecting good data regarding both construction zone crashes and hit & run crashes. Delaware Department of Transportation (DelDOT) staff reported that the hand-annotations are often missing from the form for rail bridge and construction zone crashes. In the case of hit & run crashes, the report form would almost certainly contain other evidence such as a vehicle section with missing data indicators (e.g., "UNK"). In the case of crashes in a construction zone or at a rail bridge, it is likely that there is no way to tell how many crashes are missing the annotation.

If any persons were injured in the crash, the Injury Report Form is completed in the field and entered into the DSP crash file. There is no data collected on uninjured persons unless they are

the driver of one of the involved vehicles. If the crash involves injury to a pedestrian or pedalcyclist, the information for those individuals is entered on the injury report including BAC data if collected.

In the event of a fatality, law enforcement agencies in the state complete a short form as part of the Fatal Accident Mailing System (FAMS). The forms are sent to the DSP FARS analyst via teletype, fax, or e-mail. The information is entered into the FAMS database where it is available for reporting purposes. Standard reports provide data on YTD comparisons to the previous year's fatal crash experience. Roadside signs (Fatal Boards) are used to display this information to the public. All fatal crashes are investigated by trained crash reconstructionists.

Following initial data entry at DSP, a copy of each paper report is forwarded to DelDOT. DelDOT staff manually adds location codes (milepoints) to the crash report forms, then manually enters 33 data fields into their own crash data file residing on a DEC VAX system. Only reportable, above-threshold crashes are entered in the DelDOT system.

Following data entry at DSP, report forms are copied to microfiche and ultimately stored in the State's archive. Once the microfiche is delivered to the archive, the original paper reports are destroyed.

There is a separate process for data entry of commercial vehicle information collected on the CMV supplement form. This form does not go through data entry in the DSP Traffic Unit which handles the main crash report. The information is not stored in the main crash file. Instead, the supplement form is forwarded to the DSP Motor Carrier unit (the Motor Carrier Safety Assistance Program (MCSAP) agency for the State) where data are entered into the Motor Carrier Management Information System (MCMIS) via SafetyNet. There is no linkage or automated data sharing between the main crash file and the MCMIS/SafetyNet database.

The crash file at DSP does not contain automated links to any other traffic records data sources. A recently implemented Crash Outcome Data Evaluation System (CODES) project is testing probabilistic linkages to EMS run report data using victim/patient name, location, date and time as linking variables. The initial test of this linkage method in Delaware resulted in a very low match – eight percent of records matched between the two files. According to the NHTSA CODES program manager, this result is not unexpected and may reflect either the low percentage of injured parties who are hospitalized in the first place (if in fact the match was attempted against hospital discharge data as opposed to EMS run data) and may also be a reflection of the typical start up experience of new CODES states. Regardless of the reasons, it is anticipated that Delaware will eventually be able to perform probabilistic matches between EMS, hospital and crash records using the CODES methodology.

From the DelDOT crash file, it is possible to link crash information to all other roadway files which are indexed by the same milepoint system. This includes the Roadway Inventory and Traffic Volume files maintained at DelDOT. In addition, the crash file information is uploaded monthly to the DelDOT Geographic Information System (GIS) for mapping and other geographic analysis. There are no other existing links between the crash file and other sources of data useful

for analysis of the crash experience in the State. The milepoint location coding method applies to state-maintained roads only. This includes most of the roadways in the State, but excludes city and private roads. Crashes off the State-maintained system are entered into the DelDOT crash system, but no milepoint codes are added to the record for these crashes. There is no roadway Inventory or traffic data for local roads in the DelDOT systems either.

DSP plans to replace the current crash report form with an automated version that will be shared with all police agencies in the state. The primary goal is to move to completely automated field data collection with electronic data transfer to a new DSP central crash file. The new crash file will most likely be a client-server application with a standardized query tool. Since the RFP has not been finalized at the time of this report, it is not possible to fully describe the intended system design or functionality. The DSP staff member in charge of the new design effort has held preliminary meetings with various stakeholders in the state (most notably personnel throughout DSP and in DelDOT's planning and data management areas). There is, as yet, no formal process for review of the draft RFP, the system design, or to assist in the application development process. The State's Traffic Records Coordinating Committee (TRCC) has discussed the project, but does not have any oversight or assistance role in the process, which is being managed by DSP alone. Several agencies in the state expressed interest in participating in various aspects of the system design, including reviews of the draft RFP, vendor selection, Joint Application Development (JAD) sessions and/or user-centered design sessions. It is not clear how much outside input will be sought by DSP, in part because they are seeking to use commercial off-the-shelf (COTS) products where possible and thus may not need assistance in designing or developing at least some aspects of the new application.

The new system will include a new paper report form in order to accommodate agencies in the near term who fail to automate the field data collection of crashes. This will be phased out as soon as possible, the goal being that all agencies will submit reports electronically to DSP using the state-approved software.

Recommendations

- ❑ Revise the crash report form and finalize in paper format now. Implement the recommended data dictionary as developed in the 1997 review.

- ❑ Develop a formal, written process for the specification, design and development of the new automated crash report system.

- ❑ Assign the TRCC the oversight and coordination responsibility for monitoring this process in the development of the new crash report system.

- ❑ Expand the TRCC to be more inclusive of all stakeholder agencies.

- ❑ Develop a common location reference system for all public roads. The new system should be compatible with the State's GIS as implemented at DelDOT.

- Include the CMV supplemental data within the new crash system and use that as the data source for electronic downloads of information to MCMIS/SafetyNet.

- Develop linkages to DMV driver and vehicle files from the new crash file for support of data entry in the field, improved quality, and data analysis.

Section 1-B: Roadway Information

Advisory

Roadway information includes roadway location, identification, and classification, as well as a description of a road's total physical characteristics and usage which are tied to a location reference system. Linked safety and roadway information are valuable components in support of a state's construction and maintenance program development.

Roadway information should be available for all public roads in the state whether under state or local jurisdiction. A location reference system should be used to link the various components of roadway information as well as other information sources (e.g., Crash/Environment information, EMS records) for analytical purposes.

Status

The DelDOT is responsible for 3,883 miles of the state's 5,730 miles of public roads, 321 miles of which are on the National Highway System. The Traffic Statistical Unit of the Delaware State Police creates the repository of all reported crashes that occur in the state and provide copies of all crash reports to DelDOT. The Planning Division of DelDOT creates and manages the crash database for all Department functions requiring crash data.

Crashes are located by county road number/milepoint for the state maintained system. Crashes that occur on municipal streets are located by county/town/subdivision and street(s). The DelDOT Bureau of Traffic maintains records of traffic volume data that are regularly updated using permanent recorders.

An inventory of roadway elements such as pavement type and width, shoulder type and width, bridge, railroad and intersection locations, highway type and classification is maintained by the Office of Planning.

The major safety program supported by the road and crash data systems is the Highway Safety Improvement Program (HSIP). The following reports are produced for analysis for development of the HSIP:

- **General Accident Reports** - A listing of all crashes by location including county, maintenance road number, direction of traffic and milepoint.
- **Hazardous Spot locations** - This report provides a listing of hazardous locations which are presented in descending order of Critical Rate ratios. These ratios are derived by using a statistical test to determine whether the crash rate at a particular location is significantly higher than a predetermined average rate for locations with similar characteristics.
- **Fatal Accident Report** - A summary of all fatal crashes by location.

- **Road Study Report** - Crash statistics of road sections under investigation by DelDOT personnel.[1]

No single organizational unit within DelDOT is responsible for coordinating and maintaining the various road inventory, traffic, geometric, crash and location reference files. Because of the fragmented approach to the maintenance of the various DelDOT road and safety files, there is no clear responsibility for the coordination and integration of files for program development and management.

The Department maintains several GIS systems. There is an ongoing effort to develop one Department-wide GIS for all file use.

Access to data from the various files requires contacting an individual in the section maintaining the particular file. This is a cumbersome process.

There are two Metropolitan Planning Organizations (MPO) in Delaware, Wilmington Area Planning Council and the Dover/Kent County MPO. These organizations rely solely on DelDOT for data and studies to determine the Transportation Improvement Program projects within their jurisdictions. While they find this process convenient and effective, they believe response for data relating to other MPO studies can be improved. They also believe a standard format for information request by the MPOs would help expedite requests and reduce response times.

The Delaware State Police are embarking on a major revision of the state's crash record system. DelDOT's role in this effort has not been formalized.

Recommendations

- ❑ Establish a coordinating and integration function for roadway geometry, characteristics, traffic, hardware, signs, and crash files maintained by DelDOT.

- ❑ Establish a department-wide GIS for all DelDOT data files.

- ❑ Develop electronic, user-friendly access to all department files for authorized department personnel, as well as government partners of DelDOT (e.g. other state departments, MPO's, local government officials) who are responsible for highway safety on the state's streets and highways. Install the security functions necessary to prevent abuse of federal and state statutes and department policy regarding the requested information.

- ❑ Insure that DelDOT personnel who play a key role in the use of crash information, take an active role in the development of the new crash system.

[1] Annual Evaluation Report Highway Safety Improvement Program, federal fiscal year 2000, Department of Transportation, Division of Planning.

Section 1-C: Vehicle Information

Advisory

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

This information should also be available for commercial vehicles and carriers which may be registered in other states, but which are licensed to use the public roadways in the state.

Status

The Division of Motor Vehicles (DMV) maintains the vehicle registration and title file which covered 675,640 registered vehicles in 1999. The scope of information on all vehicles, private and commercial, exceeds the recommendations of the Advisory and is fully consistent with the standards of the American Association of Motor Vehicle Administrators Telecommunications Network (AAMVAnet).

Beyond maintaining the information necessary for the vehicle registration and title functions, the information from the file supports inquiries on individual records from law enforcement, the OHS, and supporting data as required for the crash reporting system, most notably the FARS system. A variety of summary reports are made upon request through ad hoc statistical queries. Standard summaries are not routinely produced for distribution outside of DMV.

The vehicle file has links with the driver file (Driver Name, Date of Birth, and Driver License Number) which enables associations of the driver/owner data as applicable (for private ownership). Thus registration (tag) numbers may be retrieved in connection with a driver/owner query or vice versa.

Registrations are currently renewed on a bi-monthly basis (24 cycles per year), but the processing capability for daily renewals is a present capability not yet implemented.

Odometer readings are captured with registration renewals, and three titling actions: Add Title, Correct Title, Transfer Title. Up to ten odometer readings are retained in the file if applicable.

Temporary registration and stolen vehicle reports are updated online. The DMV anticipates implementing the National Motor Vehicle Title Information System (NMVTIS) in 2001 which will feature acquisition of electronic Manufacturer's Statement of Origin data on new vehicles and the perpetuation of the vehicle descriptive data with previous title information on vehicles being re-titled, including those of other states which have implemented NMVTIS. Thus the data quality and timeliness of vehicle data will be improved.

Within the constraints of the state's Privacy Protection Act (PPA), the vehicle file serves a wide variety of users. Those include:

- Law enforcement
- Insurance companies
- Legal representatives
- Other jurisdictions
- Banks
- R. L. Polk (processing vehicle recall information)
- Universities, and
- Legislature

Biennial (2-year cycle) safety and emissions inspections are required in Delaware through state inspection stations. The information is maintained on the inspections in the master vehicle record.

Vehicle salvage information is obtained from insurance companies and salvage yards, and title brand information is applied to the title immediately. Title brands are reflected in the usage code and include the following conditions: Reconstructed, Previous Taxi, Flood Damaged, and Salvaged. The usage codes also include indicators for New vs. Transferred-Used and Antique and Disabled Veteran notations. Inasmuch as the Usage Code is a single alpha digit, the non-exclusive code set reflects a hierarchy that is applied to any given vehicle. Brand indicators are not standardized nationwide, and there might be situations in which multiple brands would be meaningful.

Plans anticipate implementing a 2-D bar code on registration and title documents which will contain the following data elements:

- Current odometer reading
- Mileage disclosure statement
- Title status (administration action: duplicate; title brand)
- Title and registration number (the same number in Delaware)
- Expiration date
- Title issue date
- Vehicle Make
- Vehicle Model
- Vehicle Body Style
- Vehicle Identification Number
- Registered weight
- Yearly fee
- Usage
- Owner name
- Owner address (street, city, state, and zip code)
- Lienholder information

Identification and descriptive information for vehicles is acquired when the Delaware Justice Information System (DELJIS) creates a record when entering citation data. The initialization of a record in DELJIS consists, in part, of entering the registration (tag) number for a vehicle registered in Delaware. The DMV record is accessed online to populate the DELJIS record with that part of the DMV record needed for the citation entry. DELJIS also has a need for vehicle characteristics, such as color of vehicle, which is not readily available.

DMV is in process of supporting the consequences of failure to pay child support. DELJIS initiates the process by which Child Welfare is notified, and they in turn notify the DMV where the suspension process is executed.

The DMV has advanced processing capabilities and options for file linkage with virtually all applicable components of a comprehensive, integrated traffic records system. Accordingly, DMV can provide both leadership and a unique, valuable perspective in new strategic planning processes particularly in the area of user interfaces. This applies especially to the emerging crash data system of the Delaware State Police.

Recommendations

- ❑ Insure that DMV participates fully in the Traffic Records Coordinating Committee.

- ❑ Examine whether the Usage Code in the current system has indicators which might be more useful if separated into two discreet sets of indicators: Usage and Title Brand(s).

Section 1-D: Driver Information

Advisory

Driver information includes information about the state's population of licensed drivers. It should include: personal identification, driver license number, type of license, license status, driver restrictions, convictions for traffic violations, crash history, driver improvement or control actions, and driver education data.

Driver information should also be maintained to accommodate information obtained through interaction with the National Driver Register (NDR) and the Commercial Driver License Information System (CDLIS) to enable the state to maintain complete driving histories and to prevent drivers from circumventing driver control actions and obtaining multiple licenses.

Status

The Motor Vehicle Division maintains the driver file which recorded 548,322 licensed drivers in 1999. The driver file contains driver history, driver identification, and driver control information. The driver and vehicle files are linked.

The interface between the driver file and the DELJIS data system parallels that which is described for the vehicle. Identification and basic characteristics information for drivers is acquired on licensed Delaware drivers when the DELJIS data system creates a record when entering citation data. The initialization of a record in DELJIS consists, in part, of entering the driver license number. The driver record is accessed online to populate the DELJIS record.

DMV is in process of supporting the consequences of failure to pay child support. DELJIS initiates the process by which Child Welfare is notified, and they in turn notify the DMV where the license suspension process is executed.

A graduated license law was implemented in July 2000 for a Level 1 Learner's Permit and Class D Operator's License for persons under age 18.

Delaware participates in the Driver License Compact which enables recording data from the previous license state, but information is only retained for commercial operators in a hold file in compliance with the requirements of CDLIS. Information is not retained for all other drivers. Delaware participates fully in the Problem Driver Pointer System (maintained by NHTSA).

Identification of the source of driver education (school or program) is maintained but not the performance or grade for the course.

All conviction data are entered directly into the driver history record via electronic transmission from the criminal justice data system, DELJIS, generally within 24 hours of the action. Information on cited violations is not maintained if a conviction does not result, nor is the original charge contained if the conviction is for a different (lesser) charge. Administrative

suspensions for DUI arrests are recorded. BAC information is entered if available. Suspensions and revocations resulting from convictions are dated 14 days forward from the notification to the affected driver, providing sufficient time for receipt of the notice and for appeal.

The driver data are structured to meet most of the recommendations of the Advisory and the functional requirements of AAMVAnet. The exception is the lack of information on all crash involvements. Crash information is not posted to a driver file unless a conviction was adjudicated in connection with the crash involvement.

Within the constraints of the state's Privacy Protection Act (PPA), the driver file serves a wide variety of users. Those include:

- Courts
- Law enforcement
- Insurance companies
- Legal representatives
- Other jurisdictions
- Universities
- Motor voter requirements, and
- Legislature

As with the vehicle file, plans anticipate applying a 2-D bar code to each driver license and driver identification card. The following data elements would be included:

- Driver License or Identification Card Number
- Applicant name
- Applicant address
- Date of birth
- Sex
- Applicant eye color
- Height
- Weight
- Class of license
- Issue date
- Expiration date
- Restrictions
- Endorsements
- Duplicate indicator
- Sex offender indicator
- Ignition interlock indicator

A hope of the DMV is the eventual implementation of an All Driver Pointer System which would operate approximately in parallel to the CDLIS. That implementation would supercede the Problem Driver Pointer System.

In addition to the information available for regular driver licensing and driver control functions, a confidential Medical Advisory Board (medical information) data section is maintained where a driver's medical condition dictates the need for the information and conditions or restrictions are set, if needed. Access is restricted to a few individuals within the DMV.

If a posting error occurs, DMV corrects the entry process by a required match on the driver license number, the first five characters of the surname, and the date of birth.

Recommendations

- ❑ Participate fully in the recently formed Traffic Records Coordinating Committee.
- ❑ Include crash involvements on the driver history record for all crash-involved drivers.
- ❑ Maintain records of convictions for serious offenses, e.g., DUI convictions, when received from a previous licensing state.

Section 1-E: Enforcement/Adjudication Information

Advisory

Information should be available which identifies arrest and conviction activity of the state, including information which tracks a citation from the time of its distribution to an enforcement jurisdiction, through its issuance to an offender, and its disposition by a court. 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.

This information is useful in determining level of enforcement activity in the state, accounting and control of citation forms, and monitoring of court activity regarding the disposition of traffic cases.

Status

Delaware has a state approved uniform traffic citation for use by all law enforcement agencies. All citations are numbered and have prefixes that identify the law enforcement agency to which they were issued. It is the responsibility of the individual law enforcement agencies to track the citations through their departments. The DSP has plans to create and implement an electronic citation. It was reported that two departments (New Castle County Police and Wilmington Police Department) have not ordered uniform citations for some time and possibly were not using the approved citation.

In 1982, an executive level group with criminal justice interests designed the concept of the Criminal Justice Information System (CJIS), which, among other things, records the citation from its issuance to a traffic violator through final disposition. CJIS is commonly called DELJIS (Delaware Criminal Justice Information System), although DELJIS is actually the department that manages the CJIS. The Board of Managers, an executive level board, exercises oversight over DELJIS.

All written citations are forwarded to the Voluntary Assessment Center (VAC) in Dover or one of the eight Alderman Courts. Alderman Courts (municipal courts) are required to enter all of their citations into DELJIS but it was reported that this does not happen all of the time. All citations sent to VAC are entered into DELJIS for tracking through the system. If the fines for the citations sent to the VAC are not paid a warrant is issued for the defendant and their driver's license is suspended. Final adjudications from the Magistrate and Alderman Courts are entered into DELJIS and convictions are forwarded electronically to the driver file. The driver history also electronically updates DELJIS with driver actions.

The Court of Common Pleas has concurrent jurisdiction with the Justice of the Peace Court over all traffic offenses regardless of the amount of the fine; and cases are transferred to the Court of Common Pleas at the defendant's request. The Court of Common Pleas receives cases from the

Magistrate Court electronically but does not act on them until they receive the hard copy of the citation. At the Court of Common Pleas the case is entered into the Judicial Information Center, maintained by the Administrative Office of the Courts, where it is tracked through the court. Upon adjudication the disposition is forwarded to DELJIS electronically from the Judicial Information Center. Convictions from the Court of Common Pleas forwarded to DELJIS are electronically forwarded automatically to the driver file.

The DELJIS file contains information to identify the original charge, final disposition, enforcement agency, date of occurrence, time of occurrence, location of occurrence, police agency, adjudicating agency, etc. This information is available on regular reports as well as ad-hoc reports. Data in the file are adequate for law enforcement to monitor countermeasures to insure they are being effective.

DSP is currently entering data to the DELJIS file for their own uses. There are concerns about the amount of time it takes to get ad-hoc reports from DELJIS. However, DELJIS is very agreeable to allowing other agencies access to their data if that agency can demonstrate sufficient programming skills in the access language. DELJIS developed a traffic citation tracking system that has not been used. It is unfortunate that some law enforcement agencies do not realize DELJIS facilities and outputs could be used by and be beneficial for them.

Recommendations

- ❑ Continue with complete development of an electronic citation and implement it statewide, insuring compatibility with DELJIS.
- ❑ Require all law enforcement to use the approved uniform traffic citation.
- ❑ Formalize a statewide citation tracking system with the capability to monitor a citation from its printing and distribution through issuance to final disposition, using DELJIS design and management.
- ❑ Expand the availability of DELJIS data to authorized users.
- ❑ Exploit the linkage between the DELJIS file and the crash file to allow a comparison between crashes and enforcement countermeasure activity.
- ❑ Promote increased law enforcement use of the full capabilities of DELJIS for citation tracking, capture of additional data fields, and analysis/reporting.

Section 1-F: Injury Surveillance System Information

Advisory

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 which drive the development of Injury Surveillance Systems (ISS). These systems typically incorporate pre-hospital (EMS), emergency department (ED), hospital admission/discharge, trauma registry, and long term rehabilitation databases to track injury causes, magnitude, costs, and outcomes. Often, these systems rely upon other components of the traffic records system to provide information on injury mechanisms or events (e.g., traffic crash reports).

This system should allow the documentation of information which 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 ISS should support integration of the ISS data with police reported traffic crashes. The EMS run reports and roadway attributes are first critical steps in the identification of a community's injury problem, and in turn, the identification of cost-effective countermeasures which can positively impact both the traffic safety and health communities.

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 ISS should be integrated into the injury control programs within traffic safety, and other safety-related programs at the state and local levels.

Status

The Delaware Department of Health and Social Services, Office of Emergency Medical Services (OEMS) and the Delaware State Fire Prevention Commission share responsibilities for Emergency Medical Services (EMS) in Delaware. The State Fire Prevention Commission is responsible for Basic Life Support (BLS) and ambulances, while the OEMS is responsible for Advanced Life Support (ALS) as well as other functions.

There are between 150 and 175 ambulances in Delaware, 61 BLS providers and 4 ALS providers responding to over 60,000 calls a year. The four ALS providers include one ALS provider for each of Delaware's three counties and the Delaware State Police Medivac helicopters. There are 200 EMT-Paramedics serving the 4 ALS providers. Sixty percent of the funding for the four ALS programs is provided annually by the state through grants. ALS programs do not provide ambulance transportation but function in quick response vehicles under a tiered response. If ALS care is needed in route to the hospital the paramedic will ride with the patient in the BLS ambulance.

There are approximately 1,500 BLS personnel serving as either First Responders or EMT-basics. Volunteers, generally from the fire service, provide most of the BLS service but there is at least one private BLS provider. EMS is dispatched through one of seven Emergency Medical Dispatch (EMD) Centers in the state. Emergency Medical dispatchers are trained and provide pre-arrival instructions as well as determining the level of response, BLS or ALS, required for each call.

Eight hospitals are located within Delaware. All serve as trauma centers with one being designated as a level I trauma center and four centers serving as level III trauma centers utilizing the American College of Surgeons (ACS) verification. The remaining three hospitals are state verified level IV trauma centers. All hospitals participate in the state trauma registry and collect data for the trauma registry using Cales and Associates software and utilize ICD-9 codes and Injury Severity Scales. The trauma registry data represents about five percent of the Emergency Department population in the state.

There is no statewide Injury Surveillance System (ISS) in place but one is currently under development in conjunction with the Centers for Disease Control (CDC). This process began in October of 2000 and calls for a three phased approach. The first phase is development of the foundation for a statewide ISS. Phase two calls for surveillance of severe injuries and phase three would expand surveillance to other injuries. The OEMS Injury Prevention Coordinator and an injury Epidemiologist will administer the ISS program. The ISS plan calls for eleven core data areas including vital records, hospital discharge data, Fatality Analysis Reporting System (FARS), Behavioral Risk Factor Surveillance System, Youth Risk Behavior Surveillance System, emergency department data, medical examiner data, child death review, national occupant protection use survey, Uniform Crime Reporting (UCR) system, and emergency medical services. The core data currently does not include hospital admission data or long term care data.

The OEMS has created The Delaware Coalition for Injury Prevention (DCIP) Committee to help oversee the development of the state ISS program. There are 14 members on the Coalition executive committee including the state medical director, emergency physicians, state medical examiner, Fire Commissioner, Chief of Police, Director of Highway Safety, Consumer Protection Safety Council, Legislative and other stake holders. The Coalition does not appear to have any authority or mandate from high-level policy makers within state government.

The OEMS has developed a statewide-computerized patient care report system. The EMS Data Information Network (EDIN) is Internet based and allows local providers to access and manipulate their data. The state has contracted to provide training to providers in EDIN beginning in January of 2001. Two of the four ALS providers are already utilizing EDIN and the remaining two ALS providers are expected to begin using EDIN in January of 2001. EDIN is mandated for all ALS providers but not for BLS providers. A subset of data points from EDIN has been used to develop a shorter BLS run report and a memorandum of understanding has been signed between the OEMS and the State Fire Prevention Commission to encourage BLS providers to utilize EDIN. While EDIN has over 100 data points it was developed using the NHTSA Uniform Prehospital Data Set.

Delaware is in the process of implementing the Crash Outcome Data Evaluation System (CODES). The OEMS has identified several common identifiers to link with highway safety data including name, social security number, date of birth, patient address and incident location. An initial attempt to link EMS data with highway crash data resulted in an eight percent linkage. It is anticipated that as the CODES project advances the match will improve substantially.

Recommendations

- ❑ Fully implement the CODES project to improve data linkage with highway safety databases.
- ❑ Complete implementation of the EDIN system for both ALS and BLS providers.
- ❑ Continue implementation of the statewide Injury Surveillance System.
- ❑ Expand the DCIP to include other appropriate stakeholders such as Safe Communities, MADD, local EMS, etc.
- ❑ Obtain commitment and policy level support for the DCIP from the Department of Health and Social Services.
- ❑ Provide a mechanism to allow the DCIP and the TRCC to work cooperatively to provide effective integration and linking of all appropriate data.
- ❑ Provide a mechanism to allow the DCIP and TRCC to work cooperatively to educate public officials and decision-makers in the various state, county, and local agencies on the value of data linkage to the highway safety community, injury prevention community, and the general public.

Section 1-G: Other Information

Advisory

The Traffic Records System should acknowledge the importance of, and incorporate where feasible, other types of information from the state and local level which will be useful in the identification of traffic safety problems and the evaluation of countermeasures. These supporting components may include:

- ❑ *Geographic Information System (GIS) and Global Positioning System (GPS) data.*
- ❑ *Insurance data (carrier, policy number, expiration date, claims cost).*
- ❑ *Safety Program Evaluation data.*
- ❑ *Data specifically required by state or Federal programs (e.g. the Transportation Equity Act for the 21st Century (TEA-21).*
- ❑ *Demographic data (data on the state's population including gender, age, rural/urban residence, ethnicity) sufficient to be used in normalizing crash data to the state's general population.*
- ❑ *Behavioral data (e.g., occupant protection, speeding).*
- ❑ *Attitude/perception/knowledge data (e.g., telephone surveys, focus groups).*
- ❑ *Economic loss data (e.g., medical, insurance cost, workers' compensation, lost productivity).*
- ❑ *Human factors data (e.g., inattention, task workload, life cycle changes).*
- ❑ *Inventory - Each state should have in place procedures that result in the compilation of an inventory of state and local information sources. This inventory should include information on the source, ownership (contact agency/person), quality, and availability of these data from each information source.*
- ❑ *Performance data - Performance level data, as part of a traffic records system, are those measures relating to an ongoing or proposed countermeasure that addresses a crash problem. They can include number and types of citations and convictions, number or percent of drivers and occupants using occupant protection, average Blood Alcohol Concentration (BAC) levels, average speeds, percent of injured receiving EMS response, recidivism rates for past offenders/crash-involved drivers, highway countermeasures (e.g., breakaway signs) etc.*

- *Cost data - Cost data consist of dollar amounts spent on countermeasure programs, together with the costs of fatalities, injuries, and property damage crashes. The National Highway Traffic Safety Administration (NHTSA), the National Safety Council (NSC), and other national and state agencies have published cost data for use by the states. NHTSA has also made easy-to-use cost modeling software available. In addition, specific local costs can be accumulated through injury surveillance systems or other means of collecting treatment costs and outcomes.*

Status

The Delaware traffic records system includes a variety of data sources which are used to help identify traffic safety improvement opportunities and to describe the state's crash experience. There is, however, no easy way for potential users to identify sources of traffic records information that they may be unfamiliar with.

DelDOT is attempting to establish an enterprise-wide GIS capable of mapping locations based on milepoint location codes and spatial coordinates (e.g., latitude/longitude). At present, only users on the DelDOT intranet have access to this GIS, and only the databases maintained at DelDOT have sufficient location code information to support mapping or geographic analysis using the GIS.

At DSP, an annual crash facts book is produced using vehicle miles traveled, driver-population demographics, state population and vehicle registrations as normalizing variables. The analyses are performed in-house using the NATURAL language to access the ADABAS crash file. Other users do not have direct access to the files to run queries, so they typically ask either DSP or DelDOT to give them analytic results.

The DELJIS system includes data on most citations issued in Delaware, excluding those filed in some Alderman Courts. It includes original charges, court actions and final dispositions in one file. Through a link to the DMV, DELJIS updates the driver history file automatically with conviction data. The DELJIS system is open to potential users provided they can be approved for access by DELJIS managers, and can demonstrate the necessary NATURAL programming skills. There are several analytic users of the DELJIS system who are outside the agency. A new, simpler to use query tool (G Product) has opened the system to even more users.

There are no specific files for monitoring the progress or effectiveness of traffic safety programs in the state. To receive a state highway traffic safety grant under any of the various federal grant sources (section 402, 411, 153, etc.), applicants must supply information identifying the problem and projecting the benefits of the proposed program. During the grant period, program managers must collect and report performance monitoring data. Such data can include any measures relevant to the program, including number of citations or crashes, average travel speeds, proportion of vehicle occupants properly restrained, and others.

The Office of Highway Safety coordinates and conducts annual occupant protection surveys in compliance with the NHTSA approved procedures. No other examples of attitudinal or human factor studies were reported.

Economic loss and cost/benefit analyses are used by various agencies in the state to support grant requests, proposals like that for funding of the new crash reporting system, and monitoring the overall crash experience of the state. DSP uses the NSC crash cost estimates to project the annual cost to the state of property damage crashes, injuries and fatalities. With the advent of the state's CODES project, and potential linkages later on to hospital discharge data, analysts may be able to collect more detailed data on selected cost components.

Recommendations

- ❑ Create a statewide Traffic Records System Resource Guide to give users and potential users the information they need on data sources and system capabilities.
- ❑ Promote easier access to and use of the crash file information (with appropriate safeguards for confidentiality) for analytic purposes.
- ❑ Direct by executive level mandate one enterprise-wide GIS be used for location based highway safety information.
- ❑ Utilize the GIS to support more thorough analyses of crash and other data sources.

Section 1-H: Data Integration

Advisory

Although various information sources may exist separately, these sources should be easily tied together to support analysis and decision making. This integration can eliminate the need to duplicate data, thus reducing data collection, entry, and storage costs. The best example is the link between the Crash and Roadway Information. Information on individual crashes can be correlated to traffic and roadway features to support analysis of locations and traffic patterns and their contribution to the state's crash experience. To provide for data integration, each physical data file must include appropriate common data elements (also called linking variables or unique identifiers). Information can be passed (shared) between sources as long as one or more data elements are common. States are also encouraged to consider implementing probabilistic linkages of their traffic safety, public health, and medical files to evaluate the magnitude of their traffic injury problem and attendant financial and medical outcomes. The following examples of linking variables are the most commonly used in Traffic Records Systems:

- ❑ *Crash number*
- ❑ *EMS run report number*
- ❑ *Location coding (latitude/longitude coordinates, linear referencing system, GIS, GPS, mile points)*
- ❑ *Vehicle Identification Number (VIN) or vehicle registration number*
- ❑ *Driver License number*
- ❑ *Social Security Number*
- ❑ *Citation number*

Discussions of a Comprehensive Computerized Safety Recordkeeping System (CCSRS)*, related file linkages, and advantages of linked systems are included in the Transportation Research Board (TRB) publication,* Introduction to Comprehensive Computerized Safety Recordkeeping Systems, in the TRB's Study Report of Methods to Improve the Application of State Traffic Records Systems*, and the NHTSA technical report,* So You Want to Link Your State Data*. The studies, and others, present information on general advantages of linking data from several sources and describe the CODES project as a method of probabilistic linkage between information sources.*

Status

Members of the Delaware highway safety community and the custodians of various data files such as the DelDOT, DSP, DELJIS and OEMS demonstrated that they understood the benefits of integrating and linking various data files to support data analysis and decision making. It was also clear that many constituents were frustrated with the inability to obtain timely, useful data or their ability to identify what data was available to them from various sources.

Various agencies expressed interest in linkage and eliminating redundant data entry where it exists. Information sharing among agencies exists to some extent but linking of data are limited

with the notable exception of DELJIS, which has a wealth of information and linkage ability. Efforts are underway, notably by DSP, to design a new crash system that has the potential to link various data files. Lack of linkages is attributed to incompatible file formats, inaccessible databases, confidentiality issues, turf, funding and personnel.

Recommendations

- ❑ Assign responsibility to the TRCC to oversee integration efforts and eliminate duplicate data entry processes.

- ❑ Create a statewide Traffic Records System Resource Guide to give users and potential users the information they need on data sources and system capabilities.

SECTION 2:
INFORMATION QUALITY

BACKGROUND

A state's traffic records information should be of an acceptable level of quality to be useful and should be maintained in a form that is readily accessible to users throughout the state. The quality of information in a state's traffic records system is determined by the following characteristics:

- ❑ Timeliness
- ❑ Consistency
- ❑ Completeness
- ❑ Accuracy
- ❑ Accessibility
- ❑ Data integration with other information

The definition of each of these attributes and their relative significance may vary for each information area (crash, roadway, etc.). For example, while a high degree of timeliness may be crucial for entry of actions in a driver history database, it may not be as significant for certain roadway related data.

2-A: Crash Information Quality

Advisory

- ❑ *Timeliness – The information should be available within a time frame to be currently meaningful for effective analysis of the state's crash experience.*

- ❑ *Consistency – The information should be consistent with nationally accepted and published guidelines and standards, for example:*

  - ➢ *Model Minimum Uniform Crash Criteria (MMUCC).*
  - ➢ *Manual on Classification of Motor Vehicle Traffic Accidents, 6th Edition, ANSI D16.1-1996.*
  - ➢ *Data Element Dictionary for Traffic Records Systems, ANSI D20.1, 1993.*
  - ➢ *EMS Data Dictionary (Uniform Pre-Hospital Emergency Medical Services Data Conference).*

  The information should be consistent among reporting jurisdictions; i.e., the same reporting threshold should be used by all jurisdictions and the same set of core data elements should be reported by all jurisdictions.

- ❑ *Completeness – The information should be complete in terms of:*

  - ➢ *All reportable crashes throughout the state are available for analysis.*
  - ➢ *All variables on the individual crash records are completed as appropriate.*

- ❑ *Accuracy – The state should employ quality control methods to ensure accurate and reliable information to describe individual crashes and the crash experience in the aggregate.*

- ❑ *Accessibility – The information should be readily and easily accessible to the principal users of these databases containing the crash information for both direct (automated) access and periodic outputs (standard reports) from the system.*

- ❑ *Data Integration – Crash information should be capable of linkage with other information sources and use common identifiers where possible and permitted by law.*

Status

Timeliness – Crash reports generally arrive at DSP within the 10-day post-crash window. Data entry at DSP has no appreciable backlog – most crashes are entered into the system within 10 to 15 days of receipt at DSP. Initial reporting of fatalities to the FARS analyst takes place within 24 hours of the crash or fatality. Final submission of the fatal crash investigation requires up to four to six months. Some fatalities are not reported until much later, but these are rare cases, usually involving persons transported to out-of-state hospitals.

Consistency – Reports were judged to be of consistent quality throughout the state. There is some indication that the DSP officers provide higher quality data than do officers from other police agencies (county or municipal), however there were no quality control audits to provide quantitative data on this. The DSP performs follow-up to correct errors on individual reports submitted by their own agency. Errors on reports from other agencies are noted and, if they become too frequent, the agency is notified by DSP with a request to pay closer attention to the problem areas identified during data entry. Data entry clerks at DSP (and also at DelDOT) make some attempts to correct obviously erroneous data through a manual process of review.

The current Delaware crash report is not consistent with MMUCC guidelines or the ANSI-D16.1 standard. It is missing key data elements, some of which are hand-written on the form's header, but others (Harmful Events and Sequence of Events) must be deduced from the officer's narrative and diagram. A planned replacement of the state's crash data system at DSP includes a new Data Dictionary developed after a 1997 review of applicable standards. DSP plans to implement the new, MMUCC-compliant data collection form as part of the new system.

The state's CMV supplement form complies with the data set recommended by the National Governors' Association (NGA) and subsequently adopted as the national standard by the Federal Motor Carrier Safety Administration (FMCSA). The form does not allow for easy coding of information on the individual trailers in a combination vehicle (e.g., a tractor pulling two trailers).

Completeness – DSP crash data managers reported that most reports are acceptably complete. The data entry clerks at DSP and DelDOT attempt to supply missing data when they can figure out the appropriate entry based on the other information on the crash report form. The narrative and diagram are used extensively for the purposes of correcting errors or supplying missing codes.

There are three data elements that suffer from special problems with completeness because the officer must remember to hand write the values in the headers of the crash report form. A notation for "hit and run," if missing from the header, is probably easily corrected during data entry because other information on the form would point to the involvement of a vehicle that was no longer present at the scene. The two other data elements are more problematic. It is unknown how often the annotations of either "construction zone" or "rail bridge" are missing from crash reports. Unless the construction activity or rail bridge is noted in the narrative or diagram, it would be impossible for the data entry staff to know that a particular crash should have been annotated. The DelDOT data managers reported serious doubts about the reliability of both of these data elements.

Accuracy – No audits of crash report accuracy were reported. There were anecdotal reports that DSP-generated crash reports are more accurate than those generated by other police agencies. This is ascribed to DSP officers' greater experience in writing crash reports as well as to the review processes before crashes are turned in for data entry. Since DSP's data entry staff will also follow up on questionable data on crash reports within their own agency, it is likely that the

data file contains more accurate data for DSP-reported crashes than for other agencies crash reports.

Accessibility – There are two completely isolated crash report data systems in Delaware. Both reside on mainframes and are not readily accessible to anyone outside the specific offices where they are managed and maintained. The DSP file is an ADABAS database and no one outside the Traffic Unit in DSP has access to the system. This is, in part, to protect the confidentiality of persons involved in crashes. ADABAS itself is, however, a barrier to broader access to the data files, as there are relatively few people trained in ADABASE and the associated NATURAL programming language. Certainly most highway and traffic safety stakeholders lack the training that would enable them to access DSP crash data, even if they were granted the authority to do so. There are, however, many outside analytic users of the DELJIS system (also an ADABAS system), and some of them make use of simpler query tools that are now available.

The DelDOT system is somewhat more accessible in that the data are ultimately made available to authorized users on the department's intranet. The most accessible form of the data, however, is not in its original VAX system at DelDOT, but is accessible once merged into the Oracle GIS database. From there, authorized DelDOT users can obtain map-based analyses using the Integraph software available throughout the department. Any user connected to the DelDOT intranet with access to Integraph may conduct their own geographic analysis of crash data. The GIS upload of crash data are performed monthly.

Data Integration – There is no data integration of the crash file at DSP. The DMV driver history system integrates with the DELJIS data on convictions to provide for automated electronic updates of final dispositions.

DelDOT's roadway applications are all somewhat integrated by virtue of the use of milepoint codes for locations. Crashes on the state-maintained roadways are all coded with the milepoint and can then be linked with data from the roadway inventory, traffic volume and GIS databases. Crashes on local roads (those not maintained by the state) cannot be linked with the DelDOT GIS.

A new CODES project is being managed by the Office of Emergency Medical Services (OEMS) which will involve the integration of crash and EMS run data (and other sources of treatment and outcome data from hospitals). This project is in its early stages. It is anticipated that the CODES project will mature (as it has in preceding CODES states) to provide a new analytic data source for interested users.

Recommendations

- ❑ Develop methods to allow easier access to the DSP crash data.

- ❑ Revise and implement a new crash report form now, using the new crash data elements as established in 1997. This should be accomplished in advance of the design and development of the new automated crash system.

- ❑ Develop a formal mechanism for periodic audits of crash report quality in the state and use the resulting information to provide content for training of and feedback to enforcement officers and agencies.

2-B: Roadway Information Quality

Advisory

- *Timeliness – The information should be updated as required to produce valid analysis. This implies that changes on the roadway (e.g., construction, sign improvements) should be available for analysis as soon as the project is completed.*

- *Consistency – The same data elements should be collected over time and for various classes of roadways.*

- *Completeness – The information should be complete in terms of the miles of roadway, the trafficway characteristics, the highway structures, traffic volumes, traffic control devices, speeds, signs, etc.*

- *Accuracy – The state should employ methods for collecting and maintaining roadway data that produces accurate data and should make use of current technologies designed for these purposes.*

- *Accessibility – The information should be readily and easily accessible to the principal users of these databases containing the roadway information for both direct (automated) access and periodic outputs (standard reports) from the files.*

- *Data Integration – In order to develop viable traffic safety policies and programs, the roadway information must be linked to other information files. Integration should also be supported between state and local systems.*

Status

Timeliness – While there appears to be no formal process in place for updating the various roadway inventory and traffic files, it does not appear to detrimentally affect the use of the data for the planning function. However, other users (e.g., MPOs) expressed concern regarding timeliness of requested crash data queries.

Consistency – The location reference method for city streets is not compatible with that used for state maintained roads.

Completeness – Completeness does not seem to be an issue.

Accuracy – Location accuracy is within one-hundredth of a mile on the state maintained system for data, and even less accurate on the municipal road system.

Accessibility – Access to the various road and safety files maintained by DelDOT is controlled by the section responsible for maintaining the various files.

Data Integration – Integration is possible between road and crash files for development of the HSIP. For other analyses, the files are not easily merged.

Recommendations

- ❑ Take an active role in the crash system redesign to assure timeliness, consistency, accuracy, accessibility and integration is addressed with information technology upgrades.

- ❑ Establish an enterprise-wide GIS that will enhance accuracy, accessibility, and integration of the various DelDOT files.

2-C: Vehicle Information Quality

Advisory

- *Timeliness – The information should be updated at least annually.*
- *Consistency – The same data elements should be collected over time and should be consistent with published practices and standards (state documents, MMUCC, et al.).*
- *Completeness – The information should be complete in terms of the vehicle ownership, registration, type, VIN, etc. Information on vehicle miles traveled (VMT) by type or class of vehicle should be available. For commercial vehicles, completeness also involves collection and availability of standard data elements (such as the NGA elements, a set of data developed and recommended by the National Governors Association for collection of data from crashes involving commercial vehicles).*
- *Accuracy – The state should employ methods for collecting and maintaining vehicle data that produces accurate data and should make use of current technologies designed for these purposes.*
- *Accessibility – The information should be readily and easily accessible to the principal users of these databases containing the vehicle information for both direct (automated) access and periodic outputs (standard reports) from the system, within the parameters of confidentiality.*
- *Data Integration – Vehicle information should be capable of linkage with other information sources and use common identifiers where possible and permitted by law.*

Status

Timeliness – The file is updated and maintained online.

Consistency – The file contains all of the data content recommended by the Advisory and required for AAMVAnet support. The content is consistent for all vehicles of the same classifications and as applicable for each vehicle type.

Completeness – The file is complete and includes odometer readings which are updated in the four types of transactions noted in Section 1-C and retained for 10 occurrences.

Accuracy – In addition to the accuracy assistance resulting from linkage with the driver file, DMV uses the VINA analysis program to enhance the accuracy of VIN's.

Accessibility – The file information is accessible online for authorized users and is available to all users, consistent with the requirements of the Privacy Protection Act.

Data Integration – The file is actively linked with the driver file, and it is updated online with information on stolen vehicles and any information which might be required from a court adjudication (also updated online).

Linkage does not occur with the crash data file, however.

Recommendations

- ❑ Participate fully in the development of the Crash Data System.
- ❑ Establish linkage with the crash data file. Use the new linkage capability to populate the vehicle field of the crash record during data entry.

2-D: Driver Information Quality

Advisory

- *Timeliness – Routine license issuance information should be updated at least weekly. Adverse actions (license suspension, traffic conviction) should be posted daily.*

- *Consistency – Information maintained on the state's Driver File should be compatible for exchange with other driver-related systems such as the National Driver Register (NDR), the Commercial Driver License Information System (CDLIS), and other applications for interstate exchange of driver records, especially those facilitated via the American Association of Motor Vehicle Administrators Telecommunications Network (AAMVANet).*

- *Completeness – The information should be complete in terms of data elements (e.g., unique personal identifiers and descriptive data such as name, date of birth, gender) and complete in terms of all prior history, especially adverse actions received from other states either while licensed elsewhere or while driving in other states.*

- *Accuracy – The state should employ methods for collecting and maintaining driver information that produces accurate data and should make use of current technologies designed for these purposes.*

- *Accessibility – The information should be readily and easily accessible to the principal users of these databases, including especially driver licensing personnel, law enforcement officers, the courts, and for general use in highway safety analysis. The information should be available electronically for individual record access, and technology should be available to support automated downloading of summary data sets for analytical purposes, providing safeguards are in place to protect confidentiality within the guidelines established by the state.*

- *Data Integration – Driver information should be capable of linkage with other information sources and use common identifiers where possible and permitted by law. Updates of driver information from courts should be accomplished through linkages, preferably electronic, to the driver history data.*

Status

Timeliness – The file is updated and maintained online.

Consistency – Data content meets all of the requirements of the PDPS, CDLIS, and other applications of AAMVAnet and the recommendations of the Advisory.

Completeness – The data contains all of the elements for all drivers, including the source of driver education (as applicable).

Accuracy – Accuracy of the file is enhanced with the linkage to the vehicle file and through the matching process identified in Section 1-D. In the event of file updates which do not exclusively and fully match a record presumed to be on file, the record is flagged for a manual search and match process to identify and correct any match failures.

Accessibility – The file information is accessible online for authorized users and is available to all users, consistent with the requirements of the Privacy Protection Act.

Data Integration - The file is actively linked with the vehicle file, and it is updated online with information from court adjudication.

Linkage does not occur with the crash data file, however.

Recommendations

- ❑ Participate fully in the development of the Crash Data System.

- ❑ Establish linkage with the crash data file. Use the new linkage capability to populate the driver field of the crash record during data entry.

Section 2-E: Enforcement/Adjudication Information Quality

Advisory

- *Timeliness - Information from an issued citation should be recorded on a statewide citation file as soon as possible after issuance. Information regarding the disposition of a citation should be available for entry on the citation file, as well as on the driver history record, as soon as possible after adjudication by the courts.*

- *Consistency - All jurisdictions should use a uniform traffic citation form, and the information should be uniformly reported throughout all enforcement jurisdictions.*

- *Completeness - All citations issued should be recorded in a statewide citation file with all variables on the form completed including the violation type; the issuing enforcement agency; violation location; a cross reference to a crash report, if applicable; and BAC, where applicable, etc. Also, the final disposition from the courts should be posted on the citation file as well as the court of jurisdiction. All dispositions should also be forwarded for entry on the driver history record.*

- *Accuracy - The state should employ accepted quality control methods to ensure accurate and reliable information is reported on the citation form and updated on the citation and driver history file.*

- *Accessibility - The information should be readily and easily accessible to the principal users, particularly:*

  - *driver control personnel -- to take timely license sanction actions when appropriate.*
  - *law enforcement personnel -- for operational analysis and allocation of resources.*
  - *agencies with administrative oversight responsibilities related to the courts under its jurisdiction.*
  - *court officials -- to assess traffic case adjudication workload and activity.*

- *Data Integration - Citation information should be capable of linkage with other information sources, such as the crash and driver history data, and use common identifiers where possible and permitted by law.*

Status

Timeliness – Citations are entered into DELJIS in a timely manner by the VAC and the Alderman Courts upon receipt from law enforcement. Some law enforcement agencies are slow in sending citations to the VAC.

There were also concerns regarding the time it takes to obtain ad hoc reports from DELJIS.

Consistency – All law enforcement is required to use the state approved uniform citation. It was reported that two agencies may not be using the approved citation. Many law enforcement agencies track their own citations using systems developed internally but there is no statewide accountability. DELJIS developed a tracking and accountability system but no agency has made use of this.

Completeness – All citations received are recorded in the DELJIS file. The file contains adequate fields from the citation to insure countermeasure activity can be monitored. All convictions are electronically transferred to the driver file.

Accuracy – Updates are accurately recorded on the DELJIS file and the driver file. Some citations are illegible, incomplete, and inaccurate. There are current plans to develop and implement an electronic citation to address these problems.

Accessibility – Information from the DELJIS file is available through periodic and ad hoc reports but not all users know of the existence or capabilities of the file. DELJIS allows access to users who can demonstrate the necessary programming skills.

Data Integration – Conviction data in the driver file is electronically received from the DELJIS file. Similar interactions with other files are possible but are not implemented yet.

Recommendations

- ❑ Ensure timely relay of citations from law enforcement to the VAC.
- ❑ Ensure that all agencies use the state-approved uniform citation.
- ❑ Continue with plans to develop an electronic citation using TRCC guidance to ensure coordination among all interested agencies.
- ❑ Create a statewide Traffic Records System Resource Guide to give users and potential users the information they need on data sources and system capabilities.
- ❑ Develop a method to share data from the DELJIS file with other traffic record files.

2-F: Injury Surveillance Systems Information Quality

Advisory

- *Timeliness - Ideally, the medical data on an injury should be available within an Injury Surveillance System (ISS) in the same time frame as data about the event that created that injury is available elsewhere within the traffic records system; e.g., the entry of the crash report. However, the medical record on the individual may be incomplete initially because local protocols dictate that the medical record is only placed in the ISS when the patient leaves the health care system (e.g., discharge). Every effort should be made to integrate the ISS record with the event data as soon as it does become available.*

- *Consistency - The reporting of EMS run data, hospital ED and admission data, trauma registry data, and long term health care data should be in consistent formats statewide. Where state-level reporting and repository standards are not possible, consistent systems at the local community-level should be encouraged to support the local injury control efforts. These systems should follow national standards such as ICD-9-CM, as published by the Centers for Disease Control (CDC), the use of Injury Severity Scale standards, etc.*

- *Completeness - Although a trauma registry based ISS can provide a valuable source of ISS information, it cannot provide a complete picture of the injuries within a community or state. Where possible, the ISS should represent a consensus of all injuries that occur within the community. The ISS should, where feasible, be maintained at a state level but, at a minimum, should be operated at the local level.*

- *Accuracy - The state should provide local heath care providers with training and support in the accurate coding of injuries and should foster the proper use of the resulting ISS data through education of data users in proper interpretation of these data.*

- *Accessibility - Recognizing the issues of patient and institutional confidentiality, there should be mechanisms in place to balance the demands for data accessibility from end users and the requirements of state and local privacy rules. At a minimum, the traffic safety and injury control communities should be able to access these data in summarized reports designed to address specific needs, including injury type and severity cost data. Ideally, the system should support the creation of "sanitized" extracts of the ISS data for use in research, problem identification, and program evaluation efforts.*

- *Linkage - The true power of the ISS is recognized when the ISS data are integrated with other traffic records system data such as traffic crash, roadway, and crime data, as well as internally between EMS runs, hospital/ED admission data and discharge data. The ISS should be implemented in a fashion that supports this integration in as efficient a manner as possible. Often GIS systems provide the ideal platform for linkage and interpretation of the ISS and traditional traffic records system data. The use of common identifiers whenever possible within the traditional traffic records system and ISS data*

systems will facilitate this integration effort. The ISS should be used regularly in a linked configuration to perform traffic safety analyses.

Status

Timeliness – The new EDIN ambulance run report is Internet based and will be submitted on line. Two of the four ALS programs are already using EDIN and the remaining two are expected to begin using it in January of 2001. BLS providers are expected to start using a subset of the data for BLS runs in the near future. Trauma registry data is normally processed within 3-6 months.

Consistency – The EDIN ambulance run report data are based on recommended standard data elements. The state trauma registry uses Injury Severity Scale Standards and the software allows for this to be converted to ICD-9 information. The hospitals use E coding in discharge and emergency department data.

Completeness – The state is in the process of developing a statewide ISS and has established the DCIP. At this time there is no statewide emergency department or rehabilitation data reported.

Accuracy – The OEMS will be providing training in the new EDIN ambulance run Internet based software beginning in January of 2001. The trauma registry software has built in edit checks and the trauma coordinator meets quarterly with all trauma registrars to provide additional education and training.

Accessibility – The EDIN ambulance run data are accessible through the OEMS. Local ambulance providers also have access to the data through the Internet. Trauma registry data are accessible through local hospitals and the OEMS.

Linkage – A CODES project is currently being implemented in the State of Delaware.

Recommendations

- ❑ Complete implementation of the CODES project.
- ❑ Implement a statewide emergency department and rehabilitation data reporting system to provide a continuum of care data that can be used for the analysis of injuries associated with motor vehicle crashes.
- ❑ Complete development and implementation of the State of Delaware ISS.

SECTION 3:
USES OF A TRAFFIC RECORD SYSTEM

BACKGROUND
The end purpose of a state's traffic records system is to establish a base of information and data that is available and useful to its customers, including operational personnel, program managers, analysts and researchers, policy makers, and the public. To be of optimal value to its customers, the system should provide for efficient flow of data to its users and be used in support of a wide range of activities. The traffic records system should support the needs of users at all levels of government (state & local), as well as the private sector and the public. The information demands from this wide range of professions and interests is driven by the need for operational data, as well as planning and evaluation information. Examples of uses are provided in the following sections.

3-A: Operational Purposes

Advisory

Across the spectrum of political subdivisions, public and private sector users, there is a demand for information in order for them to perform their daily business (e.g., the Department of Motor Vehicles' administration of the driver licensing function). In order for these entities to operate, it is imperative that these data be complete, current, and accessible at all times. Each component of the system (crash, roadway, person, and vehicle, etc.) should be designed to perform its primary operational functions efficiently and effectively.

Status

The Delaware crash file at DSP is used by limited number of entities within the state. Others would use the file if they knew where it was housed and the data available. More would use it if electronic data retrieval were available. Those requesting ad hoc crash reports usually receive them within one week. The DSP will not release hard copy crash reports except to individuals involved in the crashes or their agents. DelDOT also has a crash file. This file is primarily for internal DelDOT use, but DelDOT receives many external requests for data.

The citation file is housed within DELJIS. This is another file that is not used to its full potential because of not publicizing its existence and capabilities.

In addition to its use for internal DMV operations, the driver file is used by law enforcement entities to query driver status, residence information, etc. The driver file also contains conviction information but does not contain the range of traffic violation history as contained in the DELJIS file. The driver file adequately meets its operational needs.

The vehicle file functions very well for DMV's operational needs.

DelDOT is the custodian of the various roadway files and meets the needs of the sections in which each file resides.

Recommendations

- ❑ None

3-B: Research and Program Development

Advisory

The expectation that the highway and traffic safety communities are making data-driven planning decisions necessitates identification of trends and baseline measures. In order to identify safety problems and trends, the traffic records system should provide comparable data, over time, that can be easily linked and analyzed, and that data should be made available to a wide range of users (e.g., State Traffic Safety Offices for development of the safety plan, local police agencies for identification of enforcement zones, etc.).

Status

Crash data have been consistent over several years in Delaware and this stability supports statistical analysis of trends and comparisons against (previous) baseline years. Data are not easily shared among components of the traffic records system. Some examples of effective linkage do exist, including the DELJIS/DMV link for automated updates of the driver history data with final dispositions from the courts. The DelDOT crash file links with the roadway inventory and traffic count data files by virtue of the common milepoint location coding system (for state-maintained roads) and uploads to the department's GIS.

Data are not made available to a wide range of users, except through printed summary reports. It often takes 2 weeks or more for users to obtain the information they request from analysts in the custodial agencies. In part, the delays are due to staff constraints in analytic areas, but more important might be the lack of clear understanding on the part of users about how the systems work and how best to frame a request. For example, some users did not realize that DelDOT's location coding system was based on milepoints and that requests for data should be referenced by milepoint, when feasible. Users also do not know where to go for data that they have not asked for previously. Most users reported that they would have to identify the correct sources through a process of calling their existing agency contacts until they got to the right agency, office and person.

Management of the highway safety processes in the state is somewhat data driven. At the OHS, grants are funded based on the ability of the requestor to identify a problem and propose a cost-effective solution. There is ongoing performance monitoring of grant-funded countermeasure programs. However, it is nearly impossible to make the link between programs and an actual improvement in the state's crash experience. There are barriers preventing easy access to crash and other data for use in program design or evaluation at the local level (i.e., outside of DSP or DelDOT). As a consequence, these two lead agencies must handle the bulk of the traffic records analytic needs of local agencies. For users requiring information on citations and dispositions, the DELJIS system does allow outside agencies access to their system, however effective use of the system for analytic purposes requires a skill set that is probably beyond the reach of most departments. Recent promotion of easier-to-use query tools has helped some agencies run their own reports on citations arrests and other crime data.

Recommendations

- ❑ Promote use of simpler query tools and allow broader access to systems in DSP, DelDOT and DELJIS.

- ❑ Establish a research and analysis subcommittee of TRCC to promote in-depth use of traffic records for research and program development.

3-C: Program Management and Evaluation

Advisory

Fiscal limitations make it imperative that existing resources (time, staff, and dollars) be used efficiently. The safety programs at all levels should be accountable for demonstrating the impact of their countermeasures. This places demands on the traffic records system for information to monitor progress and evaluate the impact of countermeasure programs (e.g., monitoring of construction zone crashes during a project, and changes in alcohol-related injuries as a result of an enforcement project).

Status

There is generally no effective way for Delaware's traffic safety stakeholders to evaluate the effectiveness of their programs *on traffic safety*. A crash reduction at specific locations on the state-maintained roadway system is the one measure of effectiveness that DelDOT analyzes. Agencies off the DelDOT intranet cannot perform their own analyses and so must request data from DelDOT. The data on local roads (those not maintained by the state) are stored in the DelDOT system, but cannot be analyzed using the more powerful GIS tools at DelDOT. Use of the DSP crash file is also problematic. No agencies outside of DSP have access to the DSP crash file, and DSP does not support location-based analyses. Some users complained of long delays in getting what they thought were "simple" data reports back from the state agencies. In some cases, they did not know the proper format for requests or how to phrase the request to get the data they needed in the most efficient and timely manner possible. For their part, the state agencies all reported ongoing support of analytic requests from local and other state agencies. None of the agencies reported an inability to respond to external requests for data, except in cases when the data could not be provided for reasons of confidentiality.

Surrogate measures, to replace crash frequency or severity, are used in many projects funded by the OHS using federal grant dollars. It is a requirement of those grants that the initial project idea be supported by data analyses, and that the ongoing and final results of the project be quantified using valid methods and meaningful performance measures. While no pressing problems were reported regarding grantees' ability to provide appropriate data, it is clear that all but a couple of the larger local police agencies do not maintain their own data systems. As a consequence, most people seeking to use traffic records data in the state must request reports or analyses from OHS, DSP, DelDOT, DELJIS or the DMV. In some cases, potential users of traffic records information lacked knowledge about what sources are available to them, and what the limitations of those data sources are. One user, for example, did not realize that the DelDOT crash file did not contain below-threshold Property Damage Only crashes, whereas DSP and locally maintained crash files do code some information on PDO crashes regardless of the dollar amount of damage.

Recommendations

- ❑ Create a statewide Traffic Records System Resource Guide to give users and potential users the information they need on data sources and system capabilities.

- ❑ Identify data needs for project justification with the concomitant data required for evaluation.

3-D: Private Sector and Public Requests

Advisory

The traffic records system, through a combination of information sources, technical staff, and public records access policies, should be capable of producing scheduled and ad hoc reports. The media, advocacy groups, safety organizations, the general public, and internal (state and local) users have demands for regular reporting as well as for unforeseen ad hoc reports and access to data extracts. There should be a mechanism in place for establishing what data should be available to public and private sector users, within the laws protecting individual privacy and proprietary information.

Status

Various data are maintained by several state agencies including DelDOT, DSP, OHS, DMV, DELJIS and others. There was confusion among state agencies regarding who controls the system and information and the process to obtain data. Conflicting information was received regarding the frequency of internal and external requests for data.

There was considerable frustration demonstrated by local users that data was not available, and that feedback on data they submitted was not timely or, in some cases, never received. They do not know whom to contact to request data, or what data was available to them. Due to legal constraints, there are some requests for information that cannot be approved. Concerns were also raised by the file custodians about the knowledge level of some users regarding crash data. There is no listing of routine reports and queries available to the public and the private sector.

Recommendations

- ❑ Expand the use of the agencies' Internet web sites to make routinely requested reports available and to process queries.

- ❑ Develop or acquire PC-based analysis tools for local agencies to obtain data for highway safety purposes.

- ❑ Develop and implement education and training programs to educate the public and private sector about crash data, what reports are available and how to obtain them.

3-E: Policy Development

Advisory

In the absence of timely, accurate, and accessible information, informed decision making is not possible. The traffic records system should be capable of supporting highway and traffic safety policy decisions. Traffic records systems should also be capable of promptly responding to legislative requests with reliable data.

Status

The State of Delaware had a Safety Management System Task Force that had representation from state and local agencies, with responsibility for highway safety policy decisions in the state. The concept of safety management has been continued in the establishment of a TRCC with a more focused emphasis on highway safety information. The membership consists of representatives from OHS, DelDOT, DSP, OEMS, and DMV.

The TRCC was established to oversee the creation "…of a comprehensive data collection network in order to capture crash data relating to location of crashes, demographics of those involved, occupant protection use, primary contributing circumstances in crashes, severity of injury data, and specifics with regard to fatalities."[2]

There are several stakeholders who are not currently members of the TRCC, including DELJIS, local police and the state's court system.

Recommendations

- ❑ The TRCC should invite DELJIS, the Chief Magistrate, a representative of the Delaware Chiefs of Police, and other appropriate entities to participate on the committee.

- ❑ Assign oversight responsibility to the TRCC to assure that the traffic records system will meet the needs of all state and local agencies with a highway safety responsibility.

[2] FY 2001 Highway Safety Plan Benchmark Report and Planning Document, Office of Highway Safety

SECTION 4:
MANAGEMENT INITIATIVES

BACKGROUND
The development and management of safety programs should be a systematic process with the goal of reducing the number and severity of traffic crashes. This process should ensure that all opportunities to improve highway safety are identified, considered, implemented as appropriate, and evaluated in all phases of highway planning, design, construction, maintenance, and operation and when providing information for selecting and implementing effective highway safety strategies and projects. This goal should be achieved through the following initiatives.

4-A: Coordination

Advisory

There should be a statewide traffic records coordinating committee (STRCC) with representation of the interests from all levels of public and private sector traffic safety stakeholders, as well as the wide range of disciplines that have need for traffic safety information. This committee should be formed within state policy and legal guidelines and institutionalized and empowered with the responsibility (through formal agreements) to recommend policy on traffic records. The state should provide a mechanism to ensure support for the administration and continuance of the coordinating committee, as well as technical guidelines. The STRCC should be responsible for adopting requirements for file structure and data integration, assessing capabilities and resources, establishing goals for improving the traffic records system, evaluating the system, developing cooperation and support from stakeholders, and ensuring that high quality and timely data will be available for all users.

Status

The TRCC was established in the summer of 2000 with the Office of Highway Safety taking the lead. This committee has met twice since its formation. The TRCC has replaced the original SMS Committee comprised of over fifty people. This committee was dissolved in 1998. Without the TRCC or SMS guidance many of the states' traffic records components were developed without the knowledge or feedback of many key highway safety interests. New technology and an increased awareness of user needs have created the necessity for statewide system coordination and management to maximize the use and availability of information to manage safety programs effectively.

The TRCC has thirteen members that represent five state departments or divisions. This was reduced from the larger (50 members) SMS committee, which was considered to large to be effective. There is no representation from counties, municipalities, or the private sector. Also, there is no executive level representation among current participants. Few systems in the state have a greater dependence on interagency coordination than traffic records. Traffic Records Systems must be planned and managed from a statewide perspective. This cannot be accomplished without the participation and support of top-level state administrators currently responsible for the different components of the traffic record system in Delaware. These administrators must understand the value of managing and developing the state traffic record function as an enterprise of highly efficient and cooperative elements of an interdependent statewide system. The Board of Governors of DELJIS is an example of a successful executive level oversight committee.

Recommendations

- ❑ Insure that the TRCC includes representation from all stakeholders including: OHS, DelDOT, DSP, DMV, OEMS, DELJIS, OAS, Courts, Delaware Chiefs of Police Association, MPOs, and CTSPs.

- ❑ Improve communications among data collectors, data processors, and data users and between state agencies and local communities.

4-B: Integrated Safety Planning Process

Advisory

It has been demonstrated that, through the cooperation of the broad range of highway and traffic safety stakeholders, the most efficient and effective highway and traffic safety programs are developed. There should be within the state, an ongoing integrated safety planning process. By incorporating the viewpoints and interests of the widest possible breadth of users, the traffic records system will be able to most effectively support identification of needs and respond to those needs. There should be a strong link between the STRCC, described above, and this Integrated Safety Planning Process.

Status

OHS has the ultimate responsibility for integrated safety planning within the state. An integrated safety planning process is contingent upon effecting the coordination addressed in Section 4-A.

The TRCC, which is expected to achieve this integration, does not appear to have any real authority or legislative mandate to accomplish the integration. Support, oversight, and commitment from the highest levels of the organizations represented on the TRCC is necessary for integrated safety planning to be successful.

Recommendation

- ❑ Use the TRCC as the deliberative body to assist OHS in managing an integrated safety planning process.

4-C: Strategic Planning

Advisory

The traffic records system should be operated in a fashion that supports the traffic safety planning process. The planning process should be driven by a traffic records system strategic plan which helps state and local data owners support the overall safety program needs within the state. This plan should address such issues as:

- ❑ *The state should have in place an effort to continuously review and assess the application of new technology in all phases of its data operations: collection, processing, retrieval, and analyses. The strategic plan should address the adoption and integration of new technology, as such change is feasible and desirable in improving the traffic records system.*

- ❑ *Promotion of local data systems that are responsive to the needs of local stakeholders.*

- ❑ *Identification and promotion of integration among state and local data systems to eliminate duplication of data and to help assure current, reliable information.*

- ❑ *Data integration to provide linked data between components of the traffic records system (e.g., CODES).*

- ❑ *Coordination of the federal systems (e.g., FARS, NDR, CDLIS) with the state records systems.*

- ❑ *Recognition and incorporation, where feasible, of uniform data elements and definitions and design standards in accordance with national standards and guidelines (e.g., MMUCC, ANSI-D20.1, ANSI-D16.1, NGA, EMS Data Dictionary, others).*

- ❑ *Changing state and federal requirements.*

- ❑ *The capture of program baseline, performance, and evaluation data in response to changing safety program initiatives.*

- ❑ *Establishment and updating of countermeasure impacts (e.g., crash reduction factors used in project selection and evaluation).*

The strategic plan should be endorsed by, and continually updated through the activities of, the statewide traffic records coordinating committee.

Status

There is no existing Strategic Plan for Traffic Records in Delaware. The state does have a 1997 plan for crash data collection and reporting. This document does not address all the issues of a strategic plan as described in the Advisory. Delaware does comply with some of the elements of the Advisory for inclusion in a traffic records system Strategic Plan. For example, Delaware has just become a CODES state and meets the requirements of FARS, PDPS, and CDLIS.

The DSP anticipates going forward with the 1997 plan.

This traffic records assessment has been requested as an initial step in the process for the TRCC to activate its planning role. Development of a Strategic Plan should be a significant first step as the TRCC assumes that role.

Recommendations

- ❑ Assign the TRCC the responsibility for developing the Traffic Records System Strategic Plan.

- ❑ Create and maintain a Traffic Records System Strategic Plan with a scope of at least five years and with reviews for reassessment at least every two years.

4-D: Training and Staff Capabilities

Advisory

Throughout the data gathering, interpretation, and dissemination process, there is a need for training and technical support. A training needs analysis should be conducted for those highway safety professionals involved in program development, management, and evaluation. Training should be provided to fulfill the needs identified in this analysis. There should also be an ongoing outreach program for users of traffic safety program information to assure that all users are aware of what is available and how to use the information to fulfill their needs.

Status

The state has not conducted a training needs analysis as recommended in the Advisory. The FY 2001 Highway Safety Plan, however does identify under Traffic Records a need for "…training efforts in computer use for the Office of Highway Safety staff, as well as efforts to upgrade existing computer software and hardware as necessary." There are other agencies and users who could also benefit from similar type training.

Recommendation

- ❑ Conduct an analysis of training needs.

- ❑ Extend training to all member agencies to provide a wide range of users with the information technology skills they need to manage transportation safety programs at the state and local levels.

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DELAWARE GLOSSARY OF TERMS AND ACRONYMS

AAMVANet	American Association of Motor Vehicle Administrators Telecommunications Network
ANSI	American National Standards Institute
ANSI D16.1	Manual on Classification of Motor Vehicle Traffic Accidents
ANSI D20.1	Data Element Dictionary for Traffic Record Systems
BAC	Blood Alcohol Concentration
CCSRS	Comprehensive Computerized Safety Record-keeping System
CDC	Centers for Disease Control
CDLIS	Commercial Driver License Information System
CODES	Crash Outcome Data Evaluation System
DOB	Date of Birth
DUI	Driving Under the Influence
ED	Emergency Department
EMS	Emergency Medical Services
FARS	Fatality Analysis Reporting System
FHWA	Federal Highway Administration
GIS	Geographic Information System
GPS	Global Positioning System
ICD-9-CM	International Classification of Diseases, Volume 9, Clinical Modification
ISS	Injury Surveillance Systems
MMUCC	Model Minimum Uniform Crash Criteria
NDR	National Driver Register
NGA	National Governors' Association
NHTSA	National Highway Traffic Safety Administration
NSC	National Safety Council
STRCC	Statewide Traffic Records Coordinating Committee
TEA-21	Transportation Equity Act for the 21st Century
TRB	Transportation Research Board
VIN	Vehicle Identification Number
VMT	Vehicle Miles Traveled

TEAM CREDENTIALS

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PREVIOUS EXPERIENCE

- ❑ Director, North Carolina Office of Emergency Medical Services (1985-1999)
- ❑ Deputy Director, North Carolina Office of Emergency Medical Services (1979-1985)
- ❑ Field Operations Manager, Education and Training Director, Field Services Coordinator, North Carolina Office of Emergency Medical Services (1974-1979)
- ❑ Teacher, Isothermal Community College, Rutherford County School System (1969-1974)

APPOINTMENTS/POSITIONS

- ❑ President, National Association of State EMS Directors (1992-1994)
- ❑ National EMS-C Advisory Committee (1995-present)
- ❑ Advisor, North Carolina Medical Society (1985-1999)
- ❑ Steering Committee, National EMS Agenda for the Future
- ❑ National Consensus Panel on Role of EMS in Primary Injury Prevention
- ❑ National Consensus Panel on EMS Education and Training Blueprint
- ❑ Board of Directors, NC Division of ATS (1990-1992)
- ❑ Board of Directors, National Registry of Emergency Medical Technicians (1996-1999)
- ❑ Member, NREMT EMT, EMT-I, EMT-P Practice Committee (1994-present)

- Member, Federal Technical Assistance Teams to study EMS systems in the States of Louisiana, Arizona, Kentucky, West Virginia, Virginia, Idaho, New Jersey, Florida, Kansas, Vermont, Minnesota, Alaska, and American Samoa

CONSULTING ACTIVITIES

- President, Bob Bailey, Inc.: Clients include the National Highway Traffic Safety Administration, USDOT; the Health Resources Services Administration, USDHHS; the North Carolina Department of Health and Human Services, Office of the Secretary; Rockingham County North Carolina; The Duke Endowment

- Consulting projects include: Regional EMS Assessments for the States of Virginia and West Virginia; an EMS assessment for the County of Rockingham North Carolina; Identification of Chief Complaint definitions for NHTSA; the development of a comprehensive disaster response plan for the North Carolina Department of Health and Human Services, Office of the Secretary, Development of Comprehensive EMS/Fire/Emergency Management System for Loudon County, Virginia and the coordination of EMS Initiative Program for The Duke Endowment

- Member of the Federal Reassessment Teams to study EMS Systems in the states of Minnesota, Connecticut, and Pennsylvania

- Federal Maternal and Child Health EMS for children site visit in the states of Hawaii, Oregon, Minnesota, Virgin Islands, Colorado, Georgia, Florida, and Maine

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ORGANIZATIONS/AFFILIATIONS

- Member, Transportation Research Board, National Academy of Sciences, Law Enforcement Committee
- Past Executive Board Member, Traffic Records Committee, National Safety Council
- Member ANSI D-16 Committee on Motor Vehicle Accident Classification
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- Member, Colorado State Traffic Records Advisory Committee
- Member, National Agenda Committee for Highway Information Systems
- USDOT, NHTSA, Traffic Records Assessment Team Member, Iowa, Nebraska, Louisiana, Kansas, Arizona, South Carolina, New Mexico, Wisconsin, North Dakota, Idaho, Illinois, and Oregon
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ORGANIZATIONS/AFFILIATIONS

- Member, NCHRP Synthesis Panel; Statistical Methods in Transportation Research; National Academy of Sciences.
- Executive Board Member, Traffic Records Committee, National Safety Council.
- Chair, Performance Measures Subcommittee of the Florida Safety Management System Steering Committee.
- Member, Traffic Records Subcommittee and Commercial Vehicle Subcommittee of the Florida Safety Management System Steering Committee.
- Newsletter Editor, Statistical Data Analysis Committee, Transportation Research Board, National Academy of Sciences.
- Support Staff, 1998 Panel to Revise National Highway Traffic Safety Administration Traffic Records Advisory and Assessment.

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PROFESSIONAL EXPERIENCE

Mr. Spell entered his professional career in traffic records systems and data exchange over 30 years ago. He is nationally recognized for his work in development of traffic records systems, and especially interchange (NDR and CDL) of information amongst various users and the development and promulgation of data standards in information processing.

He developed the AAMVA Violations Exchange Code or "ANSI" code while employed with AAMVA and later served as subcommittee chairman for the ANSI D-20 Standard, A States Model Motorist Data Base, while employed with the National Highway Traffic Safety Administration. He was involved in the design and developmental efforts for the Commercial Driver Licensing Information System (CDLIS) and its AAMVAnet environment.

HISTORY

1992 – present	Consultant to AAMVAnet
1977 – 1992	Senior Traffic Records Analyst National ConServ, Inc. (but 1980 to 1983: Independent Consultant)
1974 – 1977	Vice President GENASYS (Systems Division) (now Keane, Inc.)
1968 – 1974	Chief, Information Systems, NHTSA, US Department of Transportation
1966 – 1968	Director of Data Systems for the AAMVA
1953 – 1966	Staff Specialist in MVR for Retail Credit Co. (now Equifax) Atlanta, GA

MEMBERSHIPS IN PROFESSIONAL ASSOCIATIONS

- ❑ Traffic Records Committee, Transportation Research Board
- ❑ American Nation Standards Institute, D-16, D-20, and X3L8 Committees

- ❑ Executive Board, Traffic Records Committee, National Safety Council

- ❑ Society of Automotive Engineers Committee on Standardization of Vehicle Identification Numbers

EDUCATION

Boston University.....S.T.B., 1956
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PROFESSIONAL EXPERIENCE

Most of my professional career was engaged in traffic safety management. The past nine years were consulting with federal and state agencies and the private sector in safety management, strategic planning, and information systems implications.

Previously, I worked for 30 years with the Pennsylvania Department of Transportation. The last thirteen years of my public service tenure was as Deputy Secretary of Safety Administration. In this position I was the state's Governor's Highway Safety Representative and the Motor Vehicle Commissioner.

PROFESSIONAL ORGANIZATION AFFILIATION

Institute of Transportation Engineer
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