STATE
OF
ALABAMA

TRAFFIC RECORDS ASSESSMENT

January 31 – February 04, 2011

National Highway Traffic
Safety Administration
Technical Assessment Team

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EXECUTIVE SUMMARY

The National Highway Traffic Safety Administration (NHTSA), responding to a request by the Law Enforcement and Traffic Safety Division (the "highway safety office" or HSO) of the Alabama Department of Economic and Community Affairs (ADECA), assembled a team to conduct a traffic records assessment. Concurrently the HSO carried out the necessary logistical and administrative steps in preparation for the onsite assessment. A team of professionals with backgrounds and expertise in the several component areas of traffic records data systems (crash, driver, vehicle, roadway, citation and adjudication, and injury surveillance) conducted the assessment January 30 to February 4, 2011.

The scope of this assessment covered all of the components of a traffic records system. The purpose was to determine whether Alabama's traffic records system is capable of supporting management's needs to identify the State's safety problems, to manage the countermeasures applied to reduce or eliminate those problems, and to evaluate those programs for their effectiveness. The following discusses some of the key findings regarding the ability of the present traffic records system to support management of the State's highway safety programs.

Background

During this assessment we have noted progress achieved by the State resulting from implementing some of the recommendations contained in the 2006 assessment.

In 2006 all crash reports were received on paper forms; the State now is receiving about 83 percent of the reports electronically. The eCite application which had limited use in 2006 has been expanded to most of the law enforcement agencies throughout the State. The Administrative Office of Courts (AOC) has expanded the Alabama Statewide Justice Information System (ASJIS); it is now operational in all District and Circuit Courts, as well as 14 municipal courts; 200 municipal courts although not on ASJIS are also electronically uploading citations to the AOC system. Since 2006 Alabama has developed an electronic EMS data collection system which is NEMSIS compliant and submits data to the NEMSIS database multiple times a day.

Overall Alabama has experienced considerable growth throughout the State in the development and expansion of technology applications to move the State towards a paperless environment.

Crash Records System

The official custodian of the statewide crash file is the Alabama Department of Public Safety (DPS), Information Services Section. At the time of the 2006 traffic records assessment, Alabama was still using a paper based crash reporting system. The State has now implemented electronic crash reporting capabilities that account for about 83 percent of all crash reports received annually. The majority of electronic reports are submitted via the eCrash application developed by the Center for Advanced Public Safety (CAPS) at the University of Alabama. An interface was also developed to allow electronic submission from those agencies with records management systems supported by third party vendors. Fourteen of the 400 agencies statewide still continue sending reports on the paper form.

Alabama has developed a unique approach to providing analytical resources, the Critical Analysis Reporting Environment (CARE), maintained and supported by CAPS. A CARE data warehouse incorporates crash data, spatial and location reference data, roadway features data, and citation data. CARE uses advanced analytical and statistical techniques to generate valuable information directly from data. Its warehouse approach to data enrichment and storage leads to virtually instantaneous responses to any query, giving the user access to all information residing in the crash and other supplementary databases. Although the following is quoted from a State source, we agree based on our own observations: "The warehouse approach that CARE uses is unique, and we know of no other that is comparable to it."

Presently there is no formal quality control program beyond the validation process for identification of errors and the rejection of incomplete or inaccurate reports at the supervisory level. We do believe the State should develop a more focused and systematic approach to its data quality monitoring and control. While the documentation provided contained very specific measures of timeliness, completeness, etc., there are, however, some pieces of a comprehensive quality control process that are lacking in the current management of the crash system. For example, monthly/periodic summary data quality reports should be generated for use by upper level managers, and frequent reviews of data quality should be conducted by the TRCC. As stated in one of the documents provided in advance of the assessment, "The TRCC does not regularly review data quality issues." Data quality should be on the agenda at every TRCC meeting.

Citation and Adjudication Records

Traffic cases are handled by the State's 67 District Courts and 273 Municipal Courts. All District Courts use a common case management system (CMS), the Alabama Statewide Justice Information System (ASJIS), supported by the Administrative Office of Courts (AOC). Municipal Courts use a variety of CMSs provided by six to seven vendors. However, all courts, including the municipal courts, submit their electronic citations and dispositions to the AOC supported CMS. In turn these are forwarded electronically to the driver history records at DPS. Dispositions resulting from paper citations in Municipal Courts are reported to the State's driver's history repository at DPS directly. Thus, with this exception, the State is one of the very few in the country that maintains a system that can track virtually all of the citations issued and adjudicated statewide throughout their life cycle.

The State is continuing to roll out its eCite system accounting for well over 80 percent of traffic citations issued within the State. The system not only automates the writing of the tickets but also uploads them into the District Courts' case management system. Unlike most states many municipal courts are also capable of receiving electronic citations.

The State has also developed a Model Integrated Defendant Access System (MIDAS) for the Court Referral Officers who perform alcohol evaluations in DUI alcohol and drug cases. The system was developed to integrate criminal records with driver records so that any jurisdiction could identify drivers with pending cases elsewhere in Alabama.

MIDAS also enhances the suite of DUI enforcement software tools available to officers on their mobile laptops that function in a software environment anchored by two major applications: eCite and the Law Enforcement Tactical System (LETS). eCite provides the capability to administer traffic citations electronically, while LETS provides the capability to look up background information on individuals encountered by officers in the field. The idea is to

capture the DUI information as expeditiously as possible, sharing it among the various applications. Ultimately, a case record is created for import into MIDAS, the current case management system used by AOC for DUI cases.

Traffic Records Coordinating Committee

The Alabama Traffic Records Coordinating Committee meets most of the guidelines in the *Advisory*. It is long standing, originally formed in 1994. It consists of a two-tiered structure, has created a Mission Statement, established goals, and operates according to a charter agreed upon by the agency directors. A review of the list of members reveals that representation does lack some key stakeholders, especially local law enforcement. Although law enforcement is represented through their associations, both the Chiefs of Police and Sheriffs associations, officers from some of the local police agencies and sheriff's departments should be invited to become members, especially critical when making changes that directly affect the performance of their jobs, such as revising report forms or changing any of the electronic reporting processes and functionality.

The 2006 assessment recommended that a full time traffic records coordinator position be established. Although the current HSO director is the designated coordinator, due to the demands of his position, he is too encumbered by other duties to devote the attention required for a full time traffic records coordinator. This former recommendation will be reinstated in this report.

Driver and Vehicle Records

Convictions for traffic offenses are managed well in the court system and efficiently conveyed to the Driver License Division of the Department of Public Safety. However, driver histories from prior states of licensing are not maintained for non-commercial drivers, and the State's ability to identify problem drivers is thereby diminished.

The Motor Vehicle Division of the Alabama Department of Revenue (ADOR) has developed an Electronic Title Application Processing System (ETAPS) web-based system that enables Designated Agents to process title applications efficiently providing input to the county systems and to the ADOR. On-line queries to the National Motor Vehicle Title Information System (NMVTIS) are anticipated to complete Alabama's participation in NMVTIS.

Statewide Injury Surveillance System (SWISS) Components

Since the last assessment, Alabama has begun to develop key components of the SWISS. The Emergency Medical Services Information System (EMSIS) is electronically collecting data from all licensed EMS agencies. A statewide trauma registry is being developed by building upon the well established Alabama Head and Spinal Cord Injury Registry (AHSCIR). The Center for Health Care Statistics continues to collect and provide information from death certificates. As noted in the previous assessment, however, the lack of statewide emergency department and hospital discharge data are major barriers that must be overcome in order to adequately describe the burden of motor vehicle related trauma in Alabama.

The components of the SWISS in Alabama are not integrated and do not appear to be used in motor vehicle crash prevention activities. Since both EMSIS and ATR are relatively new entities most of the emphasis has been to get these data systems going and ensure participation in them. Now that they have gained acceptance and standing there is an opportunity to showcase them to the rest of the traffic records community.

Roadway Information

There are two projects included in the Strategic Plan for Traffic Safety Information Systems and the Section 408 application for traffic records funding that are critical for both accurate location of safety data and the extension of road and safety data to the county road system. One is the *Link-Node DGN Conversion.* This project is designed to move from the current link-node location reference system (LRS) to a coordinate-based system as the LRS for all public roads in the State. Another is the *Geo-Referenced County Maps* project. This project is further related to the conversion from a link-node crash location reporting system to one based on GIS coordinates. The centerlines for all county roadways must be obtained in order to make the reporting by coordinates effective for the county roadway systems. It is important to note that county roadways are the most over-represented for fatal crashes.

These initiatives were in response to recommendations made in the 2006 traffic records assessment. However, the implementation of these two projects has been delayed or tabled with no clear indication that they will be put back on schedule anytime soon.

ALDOT is pursuing a safety project to implement the major provisions of the Highway Safety Manual (HSM) that incorporates safety analysis software to identify problems and predict potential remedies. The *Scoping Study for the Implementation of the Highway Safety Manual in Alabama* is a proposal submitted jointly by the University Transportation Center for Alabama (UTCA) and the Center for Advanced Public Safety (CAPS) at the University of Alabama (UA). Researchers at these two centers have experience in roadway safety studies and crash analysis.

These initiatives will serve the State's safety community very well; however, the major deficiency still enduring in the State's highway safety information systems is the lack of a precise LRS for roadways off the state system of roads. Because of this deficiency, county and city safety officials are particularly hampered in their ability to identify high crash locations and to develop effective safety countermeasures.

Strategic Planning

The Traffic Safety Information System (TSIS) Strategic Planning process appears reliable and complete. The selection and prioritization of projects also appear reliable. The incorporation of the TSIS Plan with other State safety plans (SHSP, the Highway Safety Plan, and the Motor Carrier Safety Plan) is appropriate and should provide positive synergistic results.

One issue of concern is the lack of a progress reporting mechanism for all projects approved for implementation in the TSIS. The TRCC members and especially the Chair should have a succinct and current progress report for each of the projects in the Plan. This would enable some level of oversight and accountability for use by the TRCC and the custodial agencies of systems impacted by projects in the Plan.

The following are the major recommendations for improvements to the State's traffic records system. The references indicate the sections of the report from which the recommendations are drawn.

MAJOR RECOMMENDATIONS

Crash Records System

- ❑ Transition the remaining 14 law enforcement agencies to either the eCrash system or provide technical assistance to their RMS vendors to accept their crash report format into eCrash as soon as possible. **(Section 2-A)**

- ❑ Seek a funding mechanism to provide the MapPoint software for all law enforcement agency patrol vehicles so GIS location data can be collected universally for all crashes. If successful, eliminate the requirement for the officer to provide link-node data on the eCrash report**. (Section 2-A)**

- ❑ Conduct an evaluation of the quality of the eCrash dataset based not on the number of automated field completion errors found but on the overall accuracy of data after report approval. Note: this is to identify if there is a false sense of security in the automated validation process by those actually approving reports. **(Section 2-A)**

Citation and Adjudication Records

- ❑ Examine, through the TRCC, means by which to include the remaining small percentage of paper tickets into the State central database to ensure a comprehensive picture of the enforcement activity statewide. **(Section 2-E)**

- ❑ Use data generated by the MIDAS system to determine if the administrative sanction for driving under the influence can be changed to improve its effectiveness. **(Section 2-E)**

Traffic Records Coordinating Committee (TRCC)

- ❑ Review all systems for current deficiencies. **(Section 1-A)**

Driver and Vehicle Records

- ❑ Determine if there is a legal constraint prohibiting the recording of adverse histories of serious offenses when licensing non-CDL drivers from other states. If so, explore opportunities to change the constraint. If not, compose a listing of serious offense convictions that are reasonable for Alabama to retain from a previous state of record. Examples recommended include the following: DUI/DWI, Speeding in Excess of 25 mph over the Posted Limit, Aggressive driving, Reckless driving, Driving While Unlicensed, Making Improper or Erratic Lane Changes, and others Alabama considers serious. (**Section 2-C)**

Statewide Injury Surveillance System (SWISS)

- ❑ Develop an emergency department and hospital discharge databases. **(Section 2-F)**

- ❑ Develop annual reports on trauma and motor vehicle crashes to be available on the ADPH website. **(Section 2-F)**

- ❑ Promote the use of EMSIS and ATR data as an injury prevention tool to the public, public safety professionals, and researchers. **(Section 2-F)**

- ❑ Make EMSIS and ATR data available through an online query tool by incorporating it into CARE or similar program. **(Section 2-F)**

- ❑ Develop a means to share information on motor vehicle crashes fatalities between vital records, FARS, and the Driver License Division The development of the EDRS may provide a mechanism for this process **(Section 2-F)**

Roadway Information

- ❑ Charge the Traffic Records Coordinating Committee (TRCC) to fast track a project to develop a uniform location reference system for all public roads. **(Section 2-B)**

- ❑ Create an enterprise roadway information system that will serve the information needs of ALDOT executives to manage the transportation assets for safety and mobility. **(Section 2-B)**

Strategic Planning

- ❑ Charge the TRCC with the development of a new Strategic Plan for Traffic Records Improvement addressing the deficiencies and recommendations in this report. As previously performed with the development of the original TSIS, assure that all TRCC members participate in the development of the Plan and the selection and priority setting of the projects in the Plan. **(Section 1-B)**

- ❑ Charge the Traffic Records Coordinator with the development of a progress reporting system and the continual monitoring and reporting of progress status of projects included in the TSIS Strategic Plan and the Section 408 grant program. The progress report should be shared with all TRCC members. **(Section 1-B)**

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INTRODUCTION

A complete traffic records system 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 system. 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 Association of Transportation Safety Information Professionals (formerly the 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), the Federal Motor Carrier Safety Administration (FMCSA) 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 has published a *Traffic Records Program Assessment Advisory* 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 a State's traffic records strengths and accomplishments, and offers suggestions where improvements can be made.

Report Contents

In this report, the text following the "*Advisory*" excerpt heading was drawn from the *Traffic Records Program Assessment Advisory*. 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.

SECTION 1: TRAFFIC RECORDS SYSTEM MANAGEMENT

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

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

1-A: Traffic Records Coordinating Committee

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

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

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

- ❑ *Authorize Members.*
  The Working TRCC should have formal standing, recognition, and support of the administrators of participating agencies. This support will help the TRCC succeed in overcoming the institutional barriers, lack of focus, and lack of resources that prevent collaboration and progress in integrating highway safety data. The exact role and powers of the TRCC should be made explicit in its charter. Legislators, the governor, and top management of participating agencies should give authority to the TRCC members to make policy decisions and commit their agencies' resources to solve problems and approve the State's strategic plan for traffic records. The most important responsibility of the TRCC should be to provide the leadership necessary to ensure that available funds are sufficient to match stated needs. Despite challenges stemming from collective decision making by members from different agencies with competing priorities, TRCC members should speak with "one voice." The TRCC should have guidelines to determine who speaks for the TRCC and how its recommendations should be communicated.

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

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

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

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

1-A: Traffic Records Coordinating Committee Status

Establish a two-tiered TRCC

Alabama has a long standing Traffic Records Coordinating Committee (TRCC) which was formalized by a charter in 2006 but has been in existence since 1994. The Charter includes the Committee's Mission Statement, Goal, Authority, and Duties.

The Charter is accompanied by a Memorandum of Understanding (MOU) between the following agencies: Alabama Supreme Court, Alabama Department of Public Safety, Economic and Community Affairs, Public Health, and Transportation, as well as the Alabama Criminal Justice Information Center. Generally, those agencies in state government that act as the custodians of the traffic records are parties to the Memorandum of Understanding and it appears that all are represented by the signatories to this MOU.

The executive level committee members are generally at the level of department heads or Commissioners who can provide resources for the activities and projects approved by the TRCC, who can provide policy and decision-making support when needed and who can more easily bridge the gap between the various branches of state government whose interests are at stake.

It is the working group that determines the needs and priorities of the larger traffic safety community and determines how best the State's traffic records can meet the needs of those who use data to improve safety on the roadways of the State and where deficiencies exist that make informed decisions difficult. These are the members who coordinate efforts to improve the entire traffic records system through integration, data sharing, performing research, revising forms and reports used by several divisions or levels of government, or similar efforts where coordination is needed and interests may vary.

Ensure Membership is Representative

The membership of the Committee must be broad enough to ensure that those who use, collect and/or own traffic records data feel that their interests have been considered. However, the coordination of effort demands that representatives of all components of the system listen to and respect the needs of all others. One of the most common points of contention in traffic records rests with crash data collection. Researchers want to know as much as possible about the people involved, so that they can gauge ways to change behavior. The agency responsible for financial responsibility (insurance) compliance wants accurate vehicle and driver information, while the engineering community wants to know about the machinery (vehicle) and the roadway, in case either has contributed to the crash. The police officer collecting the information on an icy highway in the dark may not share the enthusiasm of all those others for ensuring that no stone has been left unturned. Representative membership provides the perspective and the communication necessary to move each group to an understanding and willingness to facilitate the needs of the other.

The Alabama TRCC has representatives from each component of the traffic records system. Often, though, representatives of police and sheriffs are selected from the command staff, when the data collectors and those who would encourage their peers to understand the importance of collecting the full complement of data are underrepresented. It would appear that local law

enforcement is represented by higher ranking officers, when those actually making the reports and collecting the data might be more appropriate members in terms of their contributions to the discussion.

Authorize Members
Having the appropriate division heads involved in authorizing the involvement and decision-making ability of their subordinates provides support for members who are participating, so that they understand that their efforts are both important and appreciated by the executives in their agencies. It generally encourages the technical level to know that their work is both recognized and of interest to their superiors.

Taking an opportunity to brief department heads (the Executive Committee) on accomplishments gives them an understanding of the importance and depth of the Committee's work and gives members an opportunity to showcase their efforts to upper management.

Appoint an Administrator/Manager
Whoever is the administrator of the TRCC has the responsibility for ensuring that the Strategic Plan for Traffic Records Improvement is a living document and that projects underway are carefully guided and reviewed. Evaluation of projects should be undertaken from the goal line. Baselines should be set and improvements from that point should be expected. If improvements or progress are not forthcoming, alternative plans and efforts should be investigated. Thus, the administrator must have enough time to manage oversight of the various projects underway and should have the support needed to memorialize and ensure that progress is being made. An administrator who has many other duties and responsibilities has a difficult time devoting enough time to each project to gauge progress and to involve all those in the traffic records community who may be impacted by the project in any way. Other components of the traffic records system that might be impacted should have an opportunity to be involved, either by acknowledging opportunities, such as integration, or warning of lost opportunities (no longer collecting the data in the format needed) while there is still time to mitigate negative impacts. The traffic records coordinator for the State should have ample resources to devote to the job.

Schedule Regular Meetings
One of the most effective means by which to engender improvements in data is to make use of it. In fact, data that are not used is a waste of scarce resources in difficult financial times. As a result, every effort should be made to ensure that as much data are available and are used as is possible to make data-driven decisions about traffic safety. These efforts are rarely possible without regular meetings. Dependent upon the work to be done, meetings can be made more or less frequent, but due to the fact that projects are being overseen by the TRCC, it is important that at a minimum, quarterly meetings be held.

Presentations to the Committee should include emerging issues and problems, legislative changes or potential legislative changes. It should also be considered that impacts of prior legislation might be of interest to the legislature, so evaluation of impacts of prior year's legislation might be outlined. Even annual statistics relating to highway safety should be gathered, demonstrating trends, and presented to the legislature. Generally, legislators are appreciative of general information that can be used in their decisions related to sponsoring

legislation. When the same type of data is presented annually, the General Assembly can come to gain a better understanding of transportation issues and make determinations for themselves about needed legislation. On the other hand, if there is an issue or problem that has arisen that demands attention, it can be presented in a non-threatening way when expected annual statistical information is presented.

Regular meetings provide an excellent opportunity for information and idea exchange. Knowledge of all components of the traffic records system adds to the ability to optimize opportunities for improvement. Continued open communication will generate ideas for new projects and additional improvements. Continue to invite agencies with similar data types or needs as guests. New opportunities may arise from continued interaction even with those who might not seem to have a stake in traffic records.

Oversee Quality Control/Improvement

The current TRCC does not regularly review data quality issues. The reviews present an opportunity for users and collectors to address data issues and is actually the heart of what the TRCC should be accomplishing—ensuring better data for better decisions. One opportunity that exists is to outline the quality control programs that are currently in use in each component. Often a review can provide a fresh look that might spark ideas about new ways to improve data quality, or it can be an opportunity for the committee to debrief its successes. Certainly Alabama has a great deal of success to discuss. The quality improvement in crash data, citation data, and integration of the two has been monumental in the recent past, and this is an opportunity to both celebrate and to build on that success.

Regular review and discussion of any data quality concerns can help to ensure that the quality does not degrade but instead incrementally improves.

Oversee Training for TRS Data Improvement

A needs assessment for data improvement training would provide an opportunity for the group to reassess its vision. Since there is cooperation between the various components of the system, it is an opportune time to review any opportunities for improvement, including integration or linkage. A thorough review of the system as it stands today may prove a good opportunity to determine what the future should look like. There are numerous emerging problems, technologies, driver demographic shifts, and other issues that should be part of an environmental scan done to assess the future direction. There is a great deal of momentum in the State currently due to some successful implementations. This is a good time to use that momentum to move forward.

Recommendations:

- ❑ Hire or assign a full time Traffic Records Coordinator.
- ❑ Perform a Quality Improvement Training needs assessment for the TRCC members.
- ❑ Review all systems for current deficiencies.

1-B: Strategic Planning

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

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

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

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

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

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

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

- ❑ *Coordinate with Federal Partners.*
  The strategic plan's budget-related items should include coordination between the State and the various federal programs available to fund system improvements. The data collection, management, and analysis items in the strategic plan should include coordination of the State's systems with various federal systems (e.g., the Fatality Analysis Reporting System [FARS], the Problem Driver Pointer System [PDPS] of the National Driver Registry [NDR], the Motor Carrier Management Information System [MCMIS], and the Commercial Driver License Information System [CDLIS]).

- ❑ *Incorporate Uniform Data Standards.*
  The strategic plan should include elements that recognize and schedule incorporation of uniform data elements, definitions, and design standards in accordance with national standards and guidelines. Current examples of these standards and guidelines include:

  - *Model Minimum Uniform Crash Criteria (MMUCC)*
  - *American National Standards Institute (ANSI) -D20.1 and ANSI-D16.1*
  - *National Governors Association (NGA)*
  - *Global Justice XML Data Model (GJXDM)*
  - *National Center for State Courts, Technology Services, Traffic Court Case Management Systems Functional Requirement Standards*
  - *Guidelines for Impaired Driving Records Information Systems*

- *National Emergency Medical Service Information System (NEMSIS) Data Dictionary.*

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

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

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

1-B: Strategic Planning Status

The State's Traffic Safety Information System (TSIS) Strategic Plan was first developed in 2005. The Plan proposed traffic records projects to be implemented over the 2006-2010 fiscal years. The Section 408 Application for FY2009 identified projects in the TSIS Plan for the fiscal years 2008 through 2012.

The Plan has been updated each year in conjunction with the preparation of the Section 408 Application for traffic records funding from NHTSA. The strategic planning process was originally conducted solely within the highway safety office (HSO) and monitored by the Traffic Records Coordinating Committee (TRCC), but it has since been incorporated with the planning process for the Statewide Highway Safety Plan (SHSP). It appears that the 408 Application serves as the update to the TSIS Plan showing progress on selected projects.

The TRCC consists of members at policy levels from the key safety data systems within the State. The TRCC had its first meeting on March 28, 2006. At that meeting, an inventory for each of the key safety data systems was given to the members who were able to provide their input and feedback. The TRCC members had the opportunity to complete a list of applicable projects that would be considered a part of the TSIS. Once the project list was returned, a project survey was given to each of the designated project leaders for a more detailed description.

The information obtained was used to create a draft of the TSIS Plan, including budget information. Projects were prioritized and feedback was obtained from the TRCC, and the Plan was revised accordingly. The TRCC Executive Committee reviewed and approved the final draft of the TSIS Plan.

The TSIS Strategic Planning process appears reliable and complete. The selection and prioritization of projects also appear reliable. The incorporation of the TSIS Plan with other State safety plans (SHSP, the Highway Safety Plan, and the Motor Carrier Safety Plan) is appropriate and should provide positive synergistic results.

One issue of concern is the lack of a progress reporting mechanism for all projects approved for implementation in the TSIS. The TRCC members and especially the Chair should have a succinct and current progress report for each of the projects in the Plan. This would enable some level of oversight and accountability by the TRCC and the custodial agencies of systems impacted by projects in the Plan.

Assign Responsibility for the Strategic Plan
Members of the TRCC provide input to the Plan especially relating to their areas of responsibility. Once the Plan is completed it is endorsed by the executive TRCC.

Ensure Continuous Planning
The Plan is updated each year in conjunction with the preparation of the Section 408 Application for traffic records funding from NHTSA. This process, in addition to the progress reports required by NHTSA for this process, forces some level of continuous planning.

Move to Sustainable Systems
The justification for the projects in the TSIS is guided by the long-term needs of the State. This is especially true since the TSIS has been integrally tied to the statewide highway Safety planning process.

Although the currently developed systems would be sustainable at some level, the State may be at a loss to continue its rate of innovation without the 408 funding.

Meet Local Needs
The Alabama Department of Transportation (ALDOT) uses a location reference system (LRS) for the State maintained road system that is a milepost-link-node system. This LRS has been fairly reliable in locating road features and crashes on the State road system. Considerable effort is being made to locate crashes that are off the State system of roads. These crashes occur on non-milepost local roadways and locating them is quite imprecise. Major efforts are being made now to produce a location system that will serve the locals as effectively as the milepost system serves the State and Interstate system.

There is also a project in the Plan to capture county road centerline data in an electronic file to accommodate the placement of crash and road features data. This initiative would create a county road inventory file for ALDOT and county use for safety programming.

Promote Data Sharing
The CARE software package that allows users to extract road, crash, citation and EMS data for analysis and use in safety programming is a good example of data sharing at the State and local levels of government. It is on a web site and users throughout the State can process data from a variety of sources to satisfy their information needs. Data and systems are also available for download via the web site.

Coordinate with Federal Partners
The major federal safety agencies have representatives on the planning committees for the SHSP and the TSIS. Impacts on national data systems such as FARS, HPMS, PDPS, NDR, CDLIS, and MCMIS are considered.

Incorporate Uniform Data Standards
Compliance with the MMUCC and the NEMSIS guidelines are required as part of the Section 408 Application. ALDOT attempts to comply with the HPMS requirements.

Plan to Meet Changing Requirements
ALDOT is considering a proposal to incorporate provisions of the Highway Safety Manual published by the AASHTO for their safety analysis needs. The adoption of these safety analytic tools will require adherence to additional roadway data guidelines.

Support Strategic Highway Safety Planning and Program Management
Projects selected for inclusion in the TSIS Strategic Plan are also included in the affected agency's planning process using project management principles in implementing their respective projects.

Strategic Planning of Training and Quality Control
There have been extensive formal training efforts with regard to the eCite and eCrash projects and the use of the CARE software.

Recommendations:

- ❑ Charge the TRCC with the development of a new Strategic Plan for Traffic Records Improvement addressing the deficiencies and recommendations in this report. As previously performed with the development of the original TSIS, assure that all TRCC members participate in the development of the Plan and the selection and priority setting of the projects in the Plan.

- ❑ Charge the Traffic Records Coordinator with the development of a progress reporting system and the continual monitoring and reporting of progress status of projects included in the TSIS Strategic Plan and the Section 408 grant program. The progress report should be shared with all TRCC members.

- ❑ Develop a formal quality control program addressing all components of the traffic records system.

1-C: Data Integration

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

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

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

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

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

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

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

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

1-C: Data Integration Status

Alabama's integration of its traffic records system occurs most notably in the Critical Analysis Reporting Environment (CARE) system. Truly one of the nation's blue ribbon traffic records' analytical resources, CARE currently makes the crash file, the citation file and portions of the roadway file available to both the public and stakeholder agency personnel. The CARE data warehouse is the only place identified where any true integration of the various files exists. The eCrash application provides a linkage during the data collection process allowing the officer to directly communicate with the driver and vehicle files. Interrogating these two files assures the officer is using the most accurate and current information available about the drivers and vehicles involved in the crash. The eCite electronic citation system similarly provides the same capability. Beyond the driver, vehicle and citation files no other dynamic data capture linkages were identified. Post collection linkages with the driver file allow citations adjudicated guilty and crash involvement to automatically be appended to the driver's history file. Roadway linkages to the crash file occur through the link-node data fields, but because officers use manual methods for identifying and recording the link and node to help locate the crash, users expressed some concern about the overall accuracy of this method. GIS data permits more accurate location identification for both crashes and citations, but this too could be erroneous with respect to crash locations if officers are not careful in locating the crash correctly using the MapPoint software. The remaining files in the traffic records system are not yet linked together and are not presently supplied to CARE for any individual or integrated analysis.

The various State agency stakeholders comprising the traffic record components need to more aggressively pursue merging the remaining traffic record files not currently available to the CARE warehouse, i.e., driver, vehicle, emergency medical services, hospital, and other injury-related data within CARE. Making the various traffic records files available within the CARE data warehouse will provide the capability for cross file analysis through key field linkages identified during the data collection process. Looking beyond this outcome, Alabama should include in their plan the ability to provide linkages to other available data sets such as vehicle data, death certificates, and medical examiner reports to support an analysis of State-specific public health needs. It appears though that this effort may be potentially more difficult to accomplish based on existing policies, practices, and legislation.

Create and Maintain a Traffic Records System Inventory

A complete, centrally maintained, traffic records system inventory documenting the individual data elements and their definitions is not available. This information appears to be kept individually at the agency level and includes system documentation, data collection methods, data process flow and any edit/error checking related to each data element.

Support Centralized Access to Linked Data

A single portal, CARE, an extremely valuable and powerful analytical tool, stands ready and is capable of providing a centralized access point for all components of the traffic records system. Yet to be maximized to its full capability, the CARE warehouse does currently house crash, citation, and some roadway file information. Because of its infrastructure, there is no limit to the concurrent databases that can be integrated into the analytical capabilities of CARE. The table is set for other traffic data sources to be ingested into the CARE middleware for inclusion into the

CARE warehouse, but agreements need to be reached among the stakeholders to make this happen. When it does, this repository will allow the State to achieve the full potential for analysis of the complete traffic records system.

Meet Federal Reporting Requirements
The eCrash system provides the requisite information to the DPS FARS analysts in order to meet the federal reporting requirements to the FARS system. There is no electronic upload from the crash file to the federal FARS system. As for SafetyNet, eCrash supports an electronic submission to this system for both the crash report and corresponding truck/bus supplemental information. In addition, DPS uses ASPEN as their motor carrier inspection software which is submitted directly to MCMIS from the Motor Carrier Safety Unit office of the DPS.

Support Electronic Data Sharing
The Center for Advanced Public Safety (CAPS) of the University of Alabama has developed an XML information exchange packet documentation specification for submitting third party crash reports to the DPS. There is also a similar specification designed to return completed and approved crash reports to agency Record Management Systems (RMS). These specification templates were developed and published to include a documented file structure and data definitions for the data to be transferred to the statewide crash file database. CAPS supports this transmission protocol to further assist the agencies using this DPS standard. For those that do, these agencies need to engage their third party RMS vendors for maintenance and support for the receiving RMS to accept the information.

Adhere to State and Federal Privacy and Security Standards
It appears that the DPS and other State agency stakeholders adhere to State and Federal Privacy and Security Standards concerning the safeguarding of private information in accordance with State and federal laws. At the same time, there appears to be considerable concern on the part of each agency we spoke to about the potential liability implications for the improper disclosure of this information even to other State agencies that have a need for this information. This concern was evident throughout the sessions by the internal policies and procedures governing the release of information and the documentation necessary to support it even to State agency traffic records system stakeholders. While commendable in terms of the recognition and attention to detail in safeguarding this information, it appears this extraordinary sensitivity may be the one obstacle that will be hardest to overcome on the path to full traffic records system integration.

Recommendations:

- Work with agency stakeholders through the TRCC to address information sharing obstacles and develop a plan to address these concerns with the goal of sharing non-identifying information across the traffic records system enterprise.

- Develop an outreach plan to demonstrate the use of integrated data files in CARE in an attempt to promote data integration efforts and encourage agencies to share their data with other traffic system stakeholders.

- ❑ Conduct a Privacy Impact Assessment, if not already done, to address information sharing issues and develop agreements for standard information sharing policies among traffic system component stakeholders.

1-D: Data Uses and Program Management

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

- ❑ *Conduct Problem Identification.*
  Problem identification is the process of determining the locations and causes of crashes and their outcomes and of selecting those sites and issues that represent the best opportunity for highway safety improvements. States should be able to conduct problem identification activities with their traffic records system.

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

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

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

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

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

- ❑ *Promote Data Use and Improvement.*
  The TRS should be viewed as more than just a collection of data repositories, and rather as a set of processes, methods, and component systems. Knowledge of how these data should be collected and managed, along with where the bottlenecks and quality problems arise, is critical to users understanding proper ways to apply the data. This knowledge should also aid in identifying areas where improvement is possible.

1-D: Data Uses and Program Management Status

Conduct Problem Identification

The Law Enforcement and Traffic Safety Division (LETS), the Highway Safety Office, in the Alabama Department of Economic and Community Affairs (ADECA) is responsible for the Highway Safety Plan. The Plan is based in part on the information derived from problem identification, the results of which initiate countermeasure programs. The Departments of Public Safety and Transportation participate in initiating and using problem identification also. Staff positions for ADECA-LETS are three in Montgomery and nine Community Traffic Safety Program Officers (CTSPO) who manage the grant projects in defined geographical regions.

Alabama was conducting problem identification at Auburn University before the term was formalized. The Highway Safety Plan description summarizes it well: "The goal of this process is to identify first, which type of crashes are causing the greatest problems in terms of injury and fatality. At that point the analysis can move on to determine the best countermeasures and how they can best be applied – the who, what, when, where and why of specific types of crashes – so that funds that are expended hit the right target in terms of producing a maximum benefit for the roadway users of Alabama."

Now, the University of Alabama – College of Engineering – Center for Advanced Public Safety (CAPS) is the proprietor of the well-known CARE system and is the data support and research arm of ADECA-LETS using not only ten years of crash data but providing on the CAPS web site access to crash file downloads, crash information, and on-line analysis. The on-line "system defaults to a mode called "Dashboard." There are some tabs at the top of the screen to enable you to choose the dataset that you want. If you know which dataset you want, select that first. Then, CARE is included in the next row of buttons. Click on that and you will be presented with an interface that essentially walks you through the CARE query requirements similar to those of the CARE desktop system."

User information on the web site provides this guidance: "Try getting what you are interested in off the Dashboard first before clicking on CARE. Click on the various dropdown menus and try things out. We think this will answer many if not most of your questions. It shortcuts the CARE user interface and enables you to see what the output will look like before you ask for it."

In short, CAPS enables many users to obtain high-level information for themselves immediately but also provides the data and analytic services to address deep level research when needed.

Develop Countermeasure Programs and Program Management Procedures

CARE is used for the development of countermeasures that are used for establishing grant programs that are managed by the ADECA-LETS and the CTSPOs.

The following descriptions detail the integration of problem identification with countermeasure program development:

- Run frequency distributions over all of the data elements unfiltered to assure that the data elements are sound and producing reasonable results.

- Run frequency distributions for all relevant subsets and variables. Subsets of data would include alcohol, pedestrian, motorcycle, bicycle, speed, and as many other crash causes and sources as were being considered for countermeasure funding.
- Using the CARE IMPACT module, compare these subsets with their complements or with other subsets in order to surface anomalies in the data. For example, this would surface not only the fact but the extent to which alcohol crashes are over-represented on Saturdays and in rural areas. In fact, the information mining capability of IMPACT establishes statistically significant results in over 100 crash data elements, each of which provides a "piece of the puzzle" in establishing how to respond to alcohol crashes. Similar results are found with most other crash types as well.
- Perform more in-depth analyses on the variables that have surfaced using CARE's cross tabulation and automated filter generation capabilities. An example of this would be a cross tabulation of alcohol crash severity by the rural-urban variable, which clearly shows that alcohol crashes in the rural areas are much more severe than their urban counterparts.
- Extend the analyses to determine specific locations that might be addressed by selective enforcement countermeasures. This step would look at all roadways within a given region and select out those that had particular problems in the crash type under consideration. Generally speed and alcohol are the two crash types considered for selective enforcement.

Perform Program Evaluation

ADECA-LETS and the CTSPOs perform the evaluation of programs. Grantees are required to provide both administrative and impact evaluations in their periodic reports. Again, CARE is the tool enabling the evaluation of the effectiveness of the programs and the countermeasures deployed.

The Safety Management Section of the Alabama Department of Transportation and the Strategic Highway Safety Planning Committee also conduct program evaluations.

Support Safety-Related Policies and Planning

The committees involved in the Statewide Highway Safety Plan (SHSP) and the Traffic Safety Information System (TSIS) Strategic Plan recognized that many of the key actions of the SHSP Plan will require legislative action. Legislation, they believed, will be needed to provide funding for individual programs and permanent support for enforcement and other traffic safety related issues. In some instances, enabling legislation will be needed to permit actions to proceed. Other legislation will continue and enhance existing programs.

The primary goal was to establish a committee to identify, review, monitor and propose legislation pertinent to highway safety initiatives. It would develop strategies to inform policy makers and the general public of safety issues and seek the passage of legislation to remedy issues that have been identified. The result was to reactivate the State Safety Coordinating Committee (SSCC).

The SSCC was established by an act of the Alabama Legislature with the mission to increase safety, with particular focus on traffic crashes. The SSCC is the primary liaison between the

traffic safety community and the Alabama legislature, and its role in this regard is to assure that all available expertise, both within Alabama and nationally, is brought to bear to assure that the laws passed within Alabama are as effective as possible in accomplishing the SSCC mission.

Access Analytic Resources

Traffic records system data users and decision makers in some of the larger local agencies and most State agencies in Alabama have access to skilled analytic personnel to support their needs. Most of the smaller local agencies do not have this luxury. Regardless, CAPS made CARE available to all, and it seems it is the predominant analytical tool of choice. Other systems are used by some of the local law enforcement agencies who have analytical capabilities inherent in their records management systems. Additionally, one third party system, MAPPER, was presented by the Huntsville Police Department. This database and analytical software application provides data analysis capabilities somewhat similar to CARE. Huntsville provided some nice examples of this product's use as well as product outputs using both MAPPER and CARE.

CARE uses advanced analytical and statistical techniques to generate valuable information directly from data. Developed over twenty years ago, CARE's design attempted to avoid the complexity that goes with the use of most standard statistical packages allowing it to be embraced and used by users of all skill sets. Available free of charge, CARE can be used in either a desktop Windows version or via a common web browser interface. Primarily used as a traffic records system analytical output tool, CARE can be used to process any database and provide both elementary and complex statistical analytical outputs.

Just about every person from the various agencies the assessment team interviewed mentioned CARE and recognized this solution as the analytical resource they used in their agency for the development of their traffic safety programs and for the analysis of their productivity from the use of both eCrash and eCite.

Some examples of outputs from the CARE analytical software include:

- Alabama's Annual *Crash Facts Book*
- Queries from attributes of interest with a frequency or cross tab output
- Output from generated filters selected by the user
- Information mining
- Before and after analysis
- Hotspot map location and imagery
- Location cluster analysis

Alabama is to be commended for the creation and continued development of this truly remarkable analytical resource and for making it available nationwide for any state to use.

Provide Public Access to Data
The public has many options for access to data in Alabama. Both ALDOT and CAPS have staff available to answer data requests from the media and public. All location specific requests are handled by ALDOT. CAPS also has a comprehensive website with numerous sources of crash data and reports. Several years of *Crash Facts Books* are available, as well as access to raw data through the CARE system. CAPS is in the process of developing a new website, *SafeHomeAlabama*, which will serve as a clearing house for motor vehicle crash data, safety information, research, and training.

Promote Data Use and Improvement
One of the most effective means by which to promote data use is to make the data readily available. There was some indication during this assessment that some data owners are reluctant to share with other authorized users.

Data availability can be heightened through development of a data warehouse of commonly requested data or through web access to cleansed or aggregate data. The improvement of data is generally an outgrowth of the use of the data. Often collectors of data are not aware of problems that users immediately unearth. A full inventory of the available data and the contact information for requesting access is the most effective means by which to promote data use and improvement.

Additionally, there is a potential to stimulate interaction and communication between collectors, owners and users of data by gathering a group of interested parties or even a subcommittee of the Traffic Records Coordinating Committee to develop cross-departmental protocols for data sharing. The committee or work group should address information such as data dictionaries, application hardware and software, existing data sharing done from the data store, statutory or regulatory guidelines regarding use of the data, agency policies and procedures or governance structures in place regarding the use of the data.

The goals of such a committee or work group should include determining the effectiveness of current State policies, determine protocols that meet the needs of the State/local agencies, assess existing national data-sharing standards and identify statutory or regulatory changes necessary to the success of the data-sharing protocols.

Once the framework is accomplished, examine the feasibility of a data warehouse that allows for data owners to maintain their own data, which can be made available for use through a centralized hub.

Recommendation:

- ❑ Expand the use of the CARE warehouse to include other government users and researchers.

SECTION 2: TRAFFIC RECORDS SYSTEM COMPONENTS

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

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

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

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

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

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

Table 1: Expanded Haddon Matrix With Example Highway Safety Categories

	Human	***Vehicle***	***Environment***
Pre-Crash	· *Age* · *Gender* · *Experience* · *Alcohol/Drugs* · *Physiological Condition* · *Psychological Condition* · *Familiarity with Road & Vehicle* · *Distraction* · *Conviction & Crash History* · *License Status* · *Speed*	· *Crash Avoidance* · *Vehicle Type* · *Size & Weight* · *Safety Condition, Defects* · *Brakes* · *Tires* · *Vehicle Age* · *Safety Features Installed* · *Registration*	· *Visibility* · *Weather/Season* · *Lighting* · *Divided Highways* · *Signalization* · *Geographic Location* · *Roadway Class, Surface, Cross-Section, Alignment, etc.* · *Structures* · *Traffic Control Devices, Signs, Delineations, and Markings* · *Roadside Appurtenances, Buildups, Driveways, etc.* · *Volume of Traffic* · *Work Zone* · *Animal Range Land & Seasonal Movements*

Crash	· *Belt Use* · *Human Tolerance* · *Size* · *Seating Position* · *Helmet Use*	· *Crash-Worthiness* · *Passenger Restraints* · *Airbags and Airbag Shutoff*	· *Guardrails* · *Median Barriers* · *Breakaway Posts* · *Rumble Strips and Other Safety Devices* · *Maintenance Status of Roadway and Devices*
Post-Crash	· *Age* · *Physical Condition* · *Insurance Status* · *Access to Health Care* · *Driver Control Actions* · *Court Actions* · *Probation*	· *Post Crash Fires* · *Fuel Leakage* · *Power Cell Securement* · *Hazardous Materials* · *Title*	· *Traffic Management* · *Bystander Care* · *EMS System* · *First Responders* · *Hospital Treatment* · *Long-Term Rehabilitation*

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

Table 1: Examples of the Interactions among Crash Characteristics

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

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

2-A: Crash Data Component

Advisory Excerpt:

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

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

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

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

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

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

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

- *Interface with Other Components*
  The Crash Data Component has interfaces, using common linking variables shown in Table 3, to other TRS components to support the following functions:

- *Driver and vehicle data should be used to verify and validate the person and vehicle information during data entry and to flag records for possible updating in the driver or vehicle files when a discrepancy is identified. Key variables such as driver license number, vehicle identification number (VIN), license plate number, name, address, and date of birth should be available to support matching of records among the files. The Driver Data Component should also enable access to drivers' histories of crashes and convictions for traffic violations.*
- *Crash data should be linked to roadway inventory and other roadway characteristics based upon location information and other automated and manual coding methods. This linkage supports location-based analysis of crash frequency and severity as well as crash rate calculations based on location-specific traffic counts.*
- *Law enforcement personnel should be able to link crash, contact, incident, citation, and alcohol/drug test results through their own department's records and/or a secure law enforcement information network. For agencies with computer-aided dispatch and/or a records management system, the crash data should be linked to other data through incident, dispatch, and/or crash numbers and by names and locations to support analysis at the local level.*
- *Linkage to injury surveillance data should be possible either directly or through probabilistic linkage in order to support analysis of crash outcomes and overall costs of treatment. Key variables for direct linkage include names of injured persons or EMS run report number. Key variables for probabilistic linkage include the crash date and time, crash location, person characteristics such as date of birth and gender, EMS run report number, and other particulars of the crash.*

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

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

Furthermore, there should be data transfer and sharing linkages between State and local crash databases. The State crash data system should support the electronic transfer of crash data from a variety of law enforcement agencies' (LEAs) records management systems. The State's crash data system management should publish the specifications and editing requirements for generating the outputs from the various agency systems that can be processed into the official State crash data system.

- ❑ *Quality Control Program*

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

Table 2: Examples of Quality Control Measurements for Crash Data

Timeliness	- *# days from crash event to receipt for data entry on statewide database* - *# days for manual data entry* - *# days for upload of electronic data* - *Average # of days to enter crashes into the system* - *Average # of days of backlogged crash reports to be entered*
Accuracy	- *% of crashes "locatable" using roadway location coding method* - *% VINs that are valid (e.g., match to vehicle records that are validated with VIN checking software)* - *% of interstate motor carriers "matched" in MCMIS* - *% crash reports with uncorrected errors* - *% crash reports returned to local agency for correction*
Completeness	- *% LEAs with an unexplained drop in reporting one year to the next* - *% LEAs with expected number of crashes each month* - *% FARS/MCMIS match* - *% FARS/State Crash fatality match*
Consistency	- *% time that an unknown code is used in fields with that possible value* - *% logical error checks that fail* - *% compliance with MMUCC guidelines*

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

2-A: Crash Data Component Status

At the time of the last traffic records assessment, conducted in August 2006, Alabama was still using a paper-based crash reporting system documented on the Alabama Uniform Traffic Crash Report (AUTCR), Form AST-27. Since the last assessment, Alabama has implemented an electronic crash reporting system known as eCrash. eCrash was developed at the Center for Advanced Public Safety (CAPS) at the University of Alabama under the direction of the Alabama Department of Public Safety (DPS). The DPS enjoys a collaborative partnership with CAPS at the University and this partnership has been responsible for the various automated data capture solutions in use today by Alabama law enforcement statewide. eCrash was an extremely successful implementation and continues to be expanded to meet the needs of the law enforcement community. It is an exceptional product and can be considered one of the finest automated state developed crash applications in the country.

Description and Contents

The official custodian of the statewide crash file is the DPS Information Services Section. Alabama experiences approximately 130,000 crashes annually, 22,000 of which or 17 percent are still submitted using the paper AUTCR form. Manual crash reports continue to be used by 14 of the approximately 400 law enforcement agencies in Alabama. An unknown number of law enforcement agencies rely on automated crash reporting systems developed by third party vendors who provide Records Management Systems (RMS) to these agencies. After working with these vendors CAPS has been successful at ingesting these third party submissions into the crash file electronically eliminating the need of manual data entry for these reports. Although this assessment acknowledges that the manual process is still being used, the status summary for the Crash Data Component will focus on the eCrash electronic system developed by CAPS.

Title 32, chapter 10, section 10-5 of the Alabama Motor Vehicle Code requires a driver involved in a crash resulting in injury or death to any person to immediately report the crash to the local police department, county sheriff or the State highway patrol. There is no damage reporting threshold; however, chapter 10, section 10-7 requires the completed report of any crash investigated by police to be forwarded to the Director of the DPS within 24 hours of completion of the crash investigation. Since the introduction of eCrash in June 2009, agencies are complying with this mandate as most crash reports arrive the same day or next day after the crash occurs.

The eCrash software is a comprehensive electronic data capture system completely automating the previous AUTCR form. This format represents the latest revision of the crash report form. The system integrates time savings and data quality enhancements such as driver's license barcode and magnetic stripe scanning, auto-population of driver's license and GIS location data, integrated Easy Street Draw© crash diagramming software and report validation and error checking edits. Officers completing an eCrash report have the capability of querying the driver and vehicle files directly via the Alabama Law Enforcement Tactical System (LETS) on the mobile laptop via a software framework known as the Mobile Officer Virtual Environment (MOVE). Developed also at CAPS, MOVE provides several integrated applications via a single interface allowing multiple sources to be queried, retrieved, and presented to the officer in a consolidated yet comprehensive display in the MOVE user interface. MOVE manages the

various mobile police software applications and the communications for the submission of completed crash reports and citations. Typical applications that are available in the MOVE portal include a driver's license and vehicle tag quick search, a barcode and magstripe scanner interface, LETS searches of Alabama motor vehicle and driver license databases, eCite and eCrash applications, ASPEN commercial motor vehicle safety and inspection reporting software and a daily officer's activity log.

eCrash documents the time, location, environment and characteristics of the crash. It also identifies the roadways, vehicles and people involved in the crash. At this time, eCrash only supports a linkage to the driver and vehicle component files of the traffic records system. The data collected in the eCrash system documents the consequences of the crash and supports the analysis of crashes in general and within specific categories defined in the *Advisory*. This comprehensive effort results in the crash data file containing basic information about every crash investigated by law enforcement that occurred on any public roadway in the State. The crash file is not linked to any injury surveillance data set but does capture EMS arrival time and the name of the emergency care facility patients were transported to.

Applicable Guidelines

eCrash conforms to the ANSI D16.1 standard classifying crashes by the first harmful event. An internal MMUCC compliance review conducted in October of 2009 indicated 601 of 653 matching element attributes. Additional data are collected to meet the tracking and analysis requirements for FARS and SafetyNet. For Commercial Motor Vehicle (CMV) crashes, the eCrash software analyzes key data fields in the data collection process. When these key fields indicate the involvement of a CMV in the crash, the software automatically presents the truck/bus supplemental fields to the officer.

Data Dictionary

eCrash is supported by a Data Element Manual (DEM) that is equivalent to a system data dictionary. Data in eCrash are collected in a uniform report format that supports electronic field data collection. Alabama law enforcement officers receive regular academy training and additional field officer training in the use of the eCrash system and in crash investigation procedures in general. Other training efforts include supervisory feedback and monthly, quarterly, or annual in-service training. The OHS also sponsored and conducted an intensive training effort during the rollout period for eCrash users to ensure its acceptance within the law enforcement community.

Process Flow

Process flow diagrams document the business flow of the report from creation to completion. Since the time required for the reports to be appended into the crash file is minimal and usually falls within 48 hours of the crash occurrence, the process flow diagrams are not annotated to show the time required for each step in the business flow. These diagrams show the steps for error handling and resubmission upon correction. While DPS reported they are no longer concerned with the timeliness metrics of the paper crash report process, they still provided documentation that paper reports are entered into the crash file the same day they are received and 98 percent of these arrive within 30 days of the crash occurrence.

Interface with Other Components
eCrash, via the MOVE portal, is capable of using the driver and vehicle files in the crash data collection process. Dependent upon LETS availability and a cellular connection, officers can use the Quick License or Quick Tag fields to obtain the actual data from either the driver or vehicle files on the State's mainframe repository. When cellular service is unavailable, barcode/magstripe readers in patrol vehicles allow officers to read the driver's license and upload the driver's data from the actual license without having to type the data into the eCrash system. Data from the eCrash report are not used to support any matching process in the driver or vehicle file, and discrepancies or updates to key fields found in the data collection process do not update either file. eCrash is not linked to the roadway file during the data collection process, but link-node location information is manually assigned by the officers from manuals provided and collected within the eCrash process. In DPS-owned patrol vehicles, latitude and longitude coordinates are also captured using MapPoint. Because MapPoint requires a client license fee, it is available only to DPS vehicles unless other law enforcement agencies choose to provide the license to their officers' laptop computers. Because of this expense, typically this is not the case.

For most law enforcement agencies, personnel are able to obtain crash, citation, driver history, and vehicle information through a linkage provided in the MOVE portal returned in a comprehensive consolidated view. This linkage element is the driver license number and/or vehicle registration number associated with a specific name. Similar linkages exist in any agency using a RMS to manage its report and citation information. For many agencies, the eCrash system and the CARE system provide the equivalent of this RMS function in the management of crash reports. A CARE data warehouse incorporates crash data, spatial and location reference data and roadway features data. A CARE analysis engine accesses the warehouse by user defined filtered queries and returns the results. The majority of users interviewed by the assessment team indicated their reliance on the CARE system to support their analytical needs.

There is only one statewide crash file. This file resides on the State mainframe under the control of the DPS and contains only crash component records. Agencies that generate their crash reports from their RMS crash reporting systems software can electronically submit their reports to the crash file by a transmission exchange specification developed by CAPS. CAPS also developed and provided an XML exchange specification template for agencies that chose to use the State-provided eCrash software but wish to receive their crash records back for inclusion into their RMS.

Quality Control Program
There is no formal quality control program beyond the validation process for identification of errors and the rejection of incomplete or inaccurate reports. Supervisory review allows for the immediate feedback of problem areas associated with the report and forms the basis of any remedial training undertaken by specific agencies. An extensive and well written training manual is available in electronic format as well as on-line help for each individual field on the eCrash report. Engineered within the application are edit checks to identify both common and serious errors. Each error is listed individually, and the officer may not submit the report for review until each error is corrected. As the errors are corrected, the flag alerting the error disappears from the list.

CAPS developed a very good quality control program for crash data validation prior to reports being accepted into the crash file. Programmatic edits exist within the software that generate error messages to users that must be corrected before the report can be successfully uploaded to the crash file. These validation edits are extremely important to the overall quality of the data set, but some anecdotal evidence from the interview sessions suggests that more oversight of the report submissions by supervisory personnel may be necessary. The built in edit routines appear to focus primarily on field completion; however, some edits do evaluate the accuracy of the field content. Because the validation error routine does not typically evaluate the accuracy of the data entered in the various fields, data quality could be an issue that bears evaluation and further investigation. There may also be a false sense of security on the part of some supervisors who review their subordinates' reports. That is to say they may feel that since the report "passed" the internal validation checks there is no reason to check each report any further. This concern may not be valid as most of those interviewed in law enforcement indicated their supervisors checked the reports carefully but they did acknowledge this could be dependent upon the interest and level of commitment of the supervisor. Those who indicated there was a potential problem were from non-law enforcement agencies who were consumers of the crash report data. Regardless, it is recommended this situation be evaluated and corrected if found to be true.

Completed crash reports submitted to DPS have no central consistent standardized oversight beyond the internal error checking edits. Some officers indicated an inconsistency in how the crash reports were filled out. These inconsistencies were noted at the individual officer level, the supervisory levels, and even within the same agency citing differences in the acceptable procedures from different troops of the Highway Patrol. The crash report should have one standard set of approved procedures for properly completing the report, and these procedures should be uniform in their acceptance and use among the law enforcement community. What could be of value is that consideration be given to either the programming of more intelligent edit routines into the validation process, or have the DPS personnel provide consistent, final, review approval of all crash reports. This review group should conform to an established set of standards free of the subjective and arbitrary quirks of individual officers and supervisors.

There was no evidence indicating that agency supervision or administrators receive periodic data quality reports to monitor or improve user and agency performance metrics within the eCrash system. While some evidence indicated agency level feedback occurs, this appears to be sporadic suggesting again there may be a high degree of confidence placed solely in the on-line edits within the eCrash software by the DPS.

The Fatality Analysis Reporting System (FARS) unit falls under the DPS Administration, Public Information/Education Section. Seven hundred and seventy four fatal crashes were reported in CY2009 resulting in 849 deaths. The FARS unit consistently meets the federal deadline for reporting and cited an exceptionally efficient and knowledgeable analyst as one of the main reasons. The FARS representative cited some data quality issues with some of the edit checks in the eCrash program. For example, officers who administer a BAC test should enter "0.00" when results are pending. Another issue was an inability to track fatal crash occurrences in the State and the FARS representative reporting his unit has no way of knowing whether a fatality occurred. He cited two fatal crash reports seven months old that his office just received, and

DPS was totally unaware of their occurrence. One-third of the municipalities and the DPS provide an informational email to the FARS unit in DPS upon the occurrence of a fatal crash, but the remainder of the municipalities do not provide anything. There are no linkages with the Office of Vital Statistics or the Medical Examiner to assist in this determination. In fact, Alabama has no consistency in attributing the causation of a death to a traffic fatality as the death certificate can be generated from a coroner, medical examiner or attending physician at a hospital. It is not unusual for the cause of death to be recorded without any reference to "resulting from a vehicular crash" being noted on the death certificate. It is surprising that more incidents of fatalities resulting from crashes do not go undetected without any formal tracking mechanism in place.

The Motor Carrier Safety Unit falls under the DPS Highway Patrol Division. This unit cited a SafetyNet status of overall "green" equating to GOOD in the accuracy, timeliness and completeness of CMV crash report submissions. Unit representatives indicated no issues related to the identification or reporting of CMV crashes. The SafetyNet analyst reportedly goes through each crash report to ensure all CMV crashes are properly identified and reported. CMV eCrash data quality and the timeliness of reports received at the Motor Carrier Safety Unit were reported as good and acceptable. CMV identification triggers inherent in the eCrash program provide the truck/bus supplemental information automatically to the investigator, and no problems were cited in terms of any failure to report CMV crashes to the Motor Carrier Safety Unit. All CMV related crashes are submitted to the Safety Unit for uploading to SafetyNet.

It appears that DPS has sole and unilateral control over changes to the eCrash report format and crash file. While evidence suggests the TRCC is involved, statements to the assessment team and questionnaire responses indicate this involvement is informal and not binding on the DPS.

Statewide metrics provided by the custodial agency of the crash file are indicated below and are reproduced here exactly as they were reported. The custodian advised these metrics were based on measurements collected on or about October 15, 2010.

Timeliness

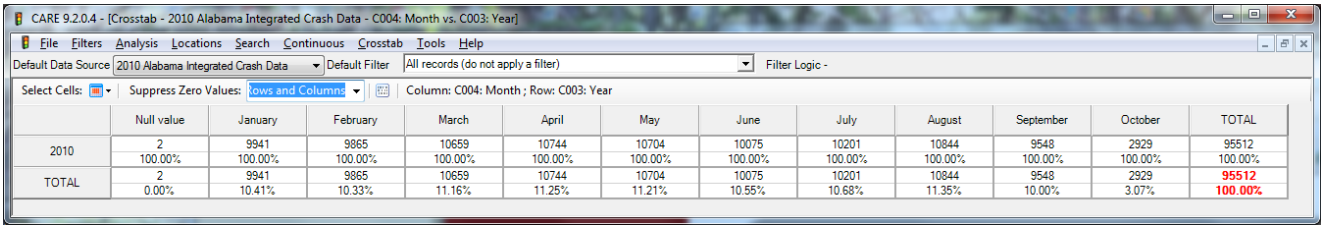
- Virtually 100 percent of the crashes are available from January through September; the average per month is approximately 10,379 crashes per month.

- The 9,548 crash reports in September represent 92 percent of all crash reports (paper and eCrash); the latency for September is largely (probably over 95 percent) due to the time it takes to get the paper forms entered.

- The speed with which eCrash reports are received is evidenced by the number received for October – this is 28 percent of the crashes that have already been received – these would be almost exclusively eCrash reports;

- Once the remainder of the state is converted to eCrash, the average latency from crash time to database availability will be less than one week, with a mode of two to three days.

- Number of reports entered within 30 days will equal over 98 percent with effectively none taking more than 60 days unless there is some extraordinary delay.



	Null value	January	February	March	April	May	June	July	August	September	October	TOTAL
2010	2	9941	9865	10659	10744	10704	10075	10201	10844	9548	2929	95512
	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%
TOTAL	2	9941	9865	10659	10744	10704	10075	10201	10844	9548	2929	95512
	0.00%	10.41%	10.33%	11.16%	11.25%	11.21%	10.55%	10.68%	11.35%	10.00%	3.07%	100.00%

Accuracy

- Estimated by null values for mile posted roadways: 97% locatable crashes; the only reason a location is missing is officer error.

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Completeness

- % LEAs with > 10 percent unexplained drop in reporting 2008 to 2009 = 4.2 percent

- % LEAs within 5 percent > 10 percent unexplained drop in reporting 2008 to 2009 = 18.3 percent

Consistency

- 601 of 653 element attributes collected at scene matched.

Recommendations:

- ❑ Transition the remaining 14 law enforcement agencies to either the eCrash system or provide technical assistance to their RMS vendors to accept their crash report format into eCrash as soon as possible.

- ❑ Seek a funding mechanism to provide the MapPoint software for all law enforcement agency patrol vehicles so GIS location data can be collected universally for all crashes. If successful, eliminate the requirement for the officer to provide link-node data on the eCrash report.

- ❑ Encourage through the TRCC those traffic records custodial agencies that do not provide their files to CARE to do so citing the benefits to them and the overall traffic records community.

- ❑ Engineer into eCrash additional edits to address more specifically the accuracy of the data collected where feasible.

- ❑ Conduct an evaluation of the quality of the eCrash dataset based not on the number of automated field completion errors found but on the overall accuracy of data after report approval. Note: this is to identify if there is a false sense of security in the automated validation process by those actually approving reports.

- Develop a tracking system to ensure all fatal crash occurrences are identified and submitted to the FARS unit for inclusion into the FARS program.

- Create a quality review oversight process for statewide eCrash reports to ensure that report content conforms to a uniform standard procedure regardless of the agency authoring the report. Implement within eCrash a capability to produce periodic data quality reports. This needs to be separate from the existing automated error checking process and should concentrate on accuracy and consistency in reporting across all jurisdictions.

2-B: Roadway Data Component

Advisory Excerpt:

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

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

  - *Roadway Inventories*
    - *Pavement*
    - *Bridges*
    - *Intersections*
  - *Roadside Appurtenances*
    - *Traffic Control Devices (TCD)*
    - *Guard Rails*
    - *Barriers*
  - *Traffic*
    - *Vehicle Miles Traveled (VMT)*
    - *Travel by Vehicle Type*
  - *Other*
    - *Geographic Information Systems (GIS)*
    - *Location Reference System (LRS)*
    - *Project Inventories*

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

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

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

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

- *Quality Control Program*

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

Table 3: Examples of Quality Control Measurements for Roadway Data

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

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

2-B: Roadway Data Component Status

Description and Comments

Making informed decisions on matters affecting highway safety is a difficult challenge for most State transportation officials because it requires an understanding of how safety is affected by the geometric design of the roadway, selection and placement of roadside hardware, use of traffic control devices, size and performance capabilities of vehicles, and needs and abilities of users. This understanding can be developed only through sound analysis of information on crashes, enforcement efforts, driver characteristics, roadway geometrics, traffic control devices, traffic volume data, and the location of roadside hardware and obstacles. It is important, therefore, that these data be available in a timely manner in computerized files and be easily linked so that data can be assembled rapidly and prepared for analysis.

The Alabama Department of Transportation (ALDOT) is one of several safety agencies that must address this challenge. ALDOT is responsible for the highway infrastructure of 906 miles of Interstate and 9,959 miles of State roads. County and city authorities are responsible for an additional 63,000 miles of county roads and city streets. The ALDOT County Transportation Bureau serves as liaison for the department with the counties. The Bureau assists county governments with design, construction, and maintenance of county roads and bridges.

As noted in the 2006 traffic records assessment, ALDOT has been involved in many efforts to collect, store and make available roadway data for use by transportation safety officials to aid management to provide for the mobility and safety of the traveling public. Roadway inventory data, traffic volumes, roadway geometrics, bridge, pavement friction, and a Geographic Information System (GIS) are in existence. However, most road data exist in a legacy mainframe and are not easily accessed and manipulated in a timely manner for informed decision-making.

While this is a major obstacle to developing effective safety countermeasures, ALDOT along with other State safety stakeholders has retained the consultation services of the Center for Advanced Public Safety (CAPS) at the University of Alabama for the development and maintenance of the CARE software package. This safety analysis software was designed for problem identification and countermeasure development in traffic safety applications. CARE uses advanced analytical and statistical techniques to generate valuable information directly from the data.

The development and use of CARE has placed Alabama as a leader in safety analysis and countermeasure development capabilities for several decades. The following safety programs conducted in Alabama depend on CARE for their successful implementation:

- **Statewide Highway Safety Plan (SHSP)**
  The SHSP outlines action plans in several safety emphasis areas such as: Interstate Median Barrier Program, Rural State Route Program (Pavement, Shoulder Widening, and Wet Weather Analysis), HES (Hazard Elimination Safety) Type Programs, and Overtime Enforcement (Flex Funding) Programs.

- **High Risk Rural Road (HRRR) Program**
  An extensive effort has been made to train county engineers on the use of crash data to identify safety problems on rural roads and to implement low cost safety countermeasures.

- **Highway Safety Improvement Program (HSIP)**
  ALDOT selected a consultant to review in more detail the sites identified in the annual report to FHWA. ALDOT is reviewing the prioritized list to identify potential funding through the use of CARE.

- **Statewide Safety Outreach Program**
  ALDOT is developing a statewide safety outreach program. A meeting has been held with various safety agencies to develop areas for focus.

- **Crash Data Analysis and Location Improvements**
  ALDOT has an agreement with the University of Alabama to continue data analysis and improve crash location identification using a GIS. A major focus will be on developing a referencing system for roadways throughout the State including those without mileposts.

- **Safety Operations**
  ALDOT performed Road Safety Audit Reviews of approximately 40 sites, with safety recommendations developed for approximately 20 sites, to date. ALDOT is pursuing systematic, statewide safety applications, including scoring of shoulders, centerline rumble strips, traffic control device upgrades, and other infrastructure related areas.

There are two projects included in the Strategic Plan for Traffic Safety Information Systems and the Section 408 application for traffic records funding that are critical for both accurate location of safety data and the extension of road and safety data to the county road system. One is the *Link-Node DGN Conversion.* This project is designed to move from the current link-node location reference system (LRS) to a coordinate-based system as the LRS for all public roads in the State. Another is the *Geo-Referenced County Maps* project. This project is further related to the conversion from a link-node crash location reporting system to one based on GIS coordinates. The centerlines for all county roadways must be obtained in order to make the reporting by coordinates effective for the county roadway systems. It is important to note that county roadways are the most over-represented for fatal crashes.

These initiatives were in response to recommendations made in the 2006 traffic records assessment. However, the implementation of these two projects has been delayed or tabled with no clear indication that they will be put back on schedule anytime soon.

ALDOT is pursuing a safety project to implement the major provisions of the Highway Safety Manual (HSM) that incorporates safety analysis software to identify problems and predict potential remedies. The *Scoping Study for the Implementation of the Highway Safety Manual in Alabama* is a proposal submitted jointly by the University Transportation Center for Alabama (UTCA) and researchers at these two centers have experience in roadway safety studies and crash analysis.

The HSM provides an opportunity to consider safety quantitatively along with other typical transportation performance measures. The HSM can be used for projects that are focused specifically on responding to safety-related questions. In addition, the HSM can be used to conduct quantitative safety analyses on projects that have not traditionally been included in this type of analysis, such as corridor studies to identify capacity improvements and intersection studies to identify alternative forms of traffic control. The HSM can also be used to add quantitative safety analyses to multidisciplinary transportation projects.

These initiatives will serve the State's safety community very well; however, the major deficiency still enduring in the State's highway safety information systems is the lack of a precise LRS for roadways off the State system of roads. Because of this deficiency, county and city safety officials are particularly hampered in their ability to identify high crash locations and to develop effective safety countermeasures.

Applicable Guidelines
The Highway Performance Monitoring System (HPMS) is the national guideline adopted by Alabama for those roadways required to be surveyed for road data. AASHTO guidelines are also followed with regard to the Pavement Management System, the Bridge Management System, and the Interactive Highway Safety Design Model.

If the proposal to incorporate the analytic software tool recommended in the HSM is adopted by ALDOT, these safety tools will require the collection of additional roadway features data and adherence to data requirements for use with these analytic safety software tools.

Additionally, in conjunction with the use of these tools, ALDOT should review the data elements suggested in the Model Inventory of Road Elements (MIRE) guideline.

Data Dictionary
The HPMS data dictionary has been adopted by ALDOT for the elements in the HPMS file. There is a data dictionary for roadway elements included in the CARE system.

Process Flow
It is not clear whether process flow diagrams or maps exist for the major roadway data files with the exception of the federal HPMS.

Interface with other Traffic Records System Components
The CARE software integrates roadway, crash, citation, and EMS data for problem identification data extracts and analysis.

Quality Control Program
Processes exist to update road features by surveys conducted on a five-year cycle and traffic counts are updated on a one and a half to three-year cycle.

Recommendations:

- ❑ Charge the Traffic Records Coordinating Committee (TRCC) to fast track a project to develop a uniform location reference system for all public roads.

- ❑ Create an enterprise roadway information system that will serve the information needs of ALDOT executives to manage the transportation assets for safety and mobility.

2-C: Driver Data Component

Advisory Excerpt:

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

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

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

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

- *Process Flow*
  The steps, from initial event (licensure, traffic violation, etc.) to final entry onto the statewide driver and vehicle data files, should be documented in process flow diagrams for each file that is part of the Driver Data Component. The diagram should be annotated to show the time required to complete each step and to show alternate flows and timelines depending on whether the data are submitted in hardcopy or electronically to the statewide system. The process flow diagram should include processes for error correction and error handling (i.e., returning reports to the original source for correction, resubmission, etc.). The process flow should also document the timing, conditions, and procedures for purging records from the driver files. Process flow diagrams should show all major steps whether accomplished by staff or automated systems and clearly distinguish between the two. The steps also should be documented in those States that have administrative authority to suspend licenses based on a DUI arrest independent of the judicial processing of those cases.

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

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

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

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

operations with the latest technology; collects and interprets the latest data on court operations nationwide; and provides information on proven best practices for improving court operations." (http://www.ncsconline.org/)

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

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

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

❑ *Quality Control Program*

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

Table 3: Examples of Quality Control Measurements for Driver Data

Timeliness	- *Average time to post driver licenses* - *Average time to post convictions after receipt at DMV* - *Average time to forward dispositions from court to DMV*
Accuracy	- *% of duplicate records for individuals* - *% "errors" found during data audits of critical data elements*
Completeness	- *% drivers records checked for drivers moving into the State* - *% of driver records transferred from prior State*
Consistency	- *% of SSN verified online* - *% of immigration documents verified online* - *% violations reported from other States added to driver history*

The measures in Table 7 are examples of high-level management indicators of quality. The managers of individual driver files should have access to a greater number of measures. The custodial agency should be prepared to present a standard set of summary measures to the TRCC monthly or quarterly.

2-C: Driver Data Component Status

Description and Contents

Basic Characteristics

The Driver License Division (DLD) of the Alabama Department of Public Safety (DPS) maintains the driver licensing and history records on over three and a half million persons. Commercial driver license (CDL) records are maintained in the same file, and the percentage of CDL records ranges between five and eight percent from year to year.

Driver license examiners are DPS personnel, but renewals can be processed through county offices following procedures defined by the DLD. The driver database is maintained in legacy software, and an upgrade to a DB2 database system is currently underway in the testing phase. The full migration is scheduled for completion by July 2011.

Access to records is primarily through the numeric driver license number, name, and date of birth. The driver license card has enhanced security features. Facial recognition is not used for establishing identity, but it is used in conjunction with renewals.

Obtaining Licenses

It was reported that all driver license applications are checked against the NDR's PDPS, and CDLIS. CDLIS queries are included for all drivers to detect the possibility that an applicant may have a CDL record and has not disclosed it. Regarding verification of alien status, the written response was "Access to the SAVE file to check on resident aliens is being pursued." It was explained during the interviews that a driver license is issued to aliens only for the duration of their valid presence in this country.

General Administration

Alabama has had a graduated driver license program for many years. The DLD had enabling legislation for administrative authority to suspend licenses based on a DUI arrest (*admin per se*) independent of the judicial processing of those cases. However, the DLD rescinds the suspension of individuals who refuse a test for alcohol presence and obtain a "not guilty" disposition from a court—a practice contrary to the intent of the *admin per se* process. The override of the DLD *admin per se* suspensions has resulted from a subsequent court opinion. It was previously reported that half of the breath test refusal cases result in "not guilty" dispositions.

It was also reported in an earlier alcohol assessment that the number of positive breath test records was significantly greater than the DLD records of receiving *admin per se* packets.

Acquiring Records from Prior State

Driver histories from a prior state of record are obtained for commercial drivers only as required by CDLIS. DLD personnel indicated that they have no definition for "serious offense" convictions and cannot equate the points that may have been applied by another state that uses a point system for driver control purposes. It was reported in the traffic records assessment of 2006 that there is a law prohibiting the use of records from a prior state, but the management officials interviewed indicated no knowledge of such a law.

The CDLIS requirements for perpetuating serious adverse driver histories are *de facto* best practices. Obliterating adverse driver license histories is the equivalent of title washing of known unsafe damaged motor vehicles, and doing so degrades Alabama's detection of problem drivers and denies any subsequent state the benefit of this significant information.

Driver History Information

Driver education information is not maintained in the driver file. Conviction records from Alabama courts are predominantly complete and timely through close coordination with the Administrative Office of the Courts and receipt of 80 to 90 percent of electronic submissions.

Courts have pre-trial diversion processes that prevent information about the charge and disposition from being reported to the DLD for the driver history. The following information was provided:

- There is a Court Referral Officer diversion program through the courts, but this does not affect the original charge that is entered in the citation.

- Courts have the authority to use driver improvement schools that will result in a dismissal of charges. The use of these varies greatly from court to court, and there is no consistent statewide policy on their use.

Crash involvement information for those at fault, regardless of whether a citation was issued, is also timely and complete as a result of the majority of crash reports being generated electronically and the fact that the DLD is the custodian of the crash records. BAC information is also recorded when present. If a conviction results from a citation associated with a crash, the events are connected.

Identifying Problem Drivers

The circumstances described in the three subsections above diminish the State's ability to identify problem drivers. Otherwise, the DLD uses a straightforward point system for driver control, and the point system is displayed on the DPS web site.

Applicable Guidelines

The DLD does not use the AAMVA Code Dictionary aside from its integration with CDLIS.

Data Dictionary

A data dictionary was reported that defines each field and includes edits for each field.

Reference Materials

Examiners have access to the Law Enforcement Tactical System and can check a person's past criminal and driving record. Training is provided by DPS, and it includes fraudulent document recognition.

Process Flow

Flow diagrams were not made available, but functions are documented for both paper and electronic transactions.

Interface With Other Traffic Records System Components

The driver file is online with the Law Enforcement Tactical System and links with the citation and adjudication components and the crash database maintained by the DLD.

Quality Control Program

The following statement was the only information provided regarding a quality control program: "If the driver number look-up does not produce results that are consistent with other data provided, it is kicked out for a manual verification."

Quality Control Measurements for Driver Data

No responses were provided.

Recommendations:

- ❑ Determine if there is a legal constraint prohibiting the recording of adverse histories of serious offenses when licensing non-CDL drivers from other states. If so, explore opportunities to change the constraint. If not, compose a listing of serious offense convictions that are reasonable for Alabama to retain from a previous state of record. Examples recommended include the following: DUI/DWI, Speeding in Excess of 25 mph over the Posted Limit, Aggressive driving, Reckless driving, Driving While Unlicensed, Making Improper or Erratic Lane Changes, and others Alabama considers serious.

- ❑ Determine whether suspending licenses based on a DUI arrest (*admin per se*) independent of the judicial processing of those cases provides a significant benefit in view of the current requirement to rescind those suspensions when a court dismisses the charges or finds the defendant not guilty.

2-D: Vehicle Data Component

Advisory Excerpt:

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

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

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

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

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

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

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

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

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

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

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

- *Quality Control Program*

  The vehicle data should be timely, accurate, complete, and consistent and these attributes should be tracked based on a set of established quality control metrics. The overall quality of the vehicle data should be assured based on a formal program of error/edit checking as the data are entered into the statewide system and procedures should be in place for addressing the detected errors. In addition, the custodial agency (or agencies) and the TRCC should work together frequently to establish and review the sufficiency of the quality control program and to review the results of the quality control measurements. The vehicle data managers should receive periodic data quality reports. There should be procedures in place for sharing the information with data collectors through individual and agency-level feedback, as well as training and changes to the applicable instruction manuals, edit checks, and the driver and vehicle data dictionaries. Audits and validation checks should be conducted to assure the accuracy of specific critical data elements as part of the formal Quality Control Program. Example measurements are presented in Table 9.

Table 9: Examples of Quality Control Measurements for Vehicle Data

Timeliness	- *Average time for DMV to post title transactions* - *% title transactions posted within a day of receipt*
Accuracy	- *% of duplicate records for individuals* - *% errors found during data audits of critical data elements* - *% VINs successfully validated with VIN checking software*
Completeness	- *% of records with complete owner name and address*

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

2-D: Vehicle Data Component Status

Description and Contents

Basic Characteristics

The Alabama Department of Revenue (ADOR) Motor Vehicle Division (MVD) maintains the registration and title files and is the repository of the vehicle records. Registration is a county function in Alabama. The MVD registration file is a repository for the collective county files. Counties process the registrations, and a variety of business partners have automated processing of registrations and title applications. Titles are issued only by the MVD. Titling is the initial process for first time registrations, and electronic business partners populate the title applications automatically. CVINA is used for VIN verification and for extracting the descriptive information coded in the VIN. Records from the counties and business partners are uploaded daily.

Interstate commercial vehicle and IRP registrations are processed separately and uploaded to the MVD database. Those processes are not addressed in this report. Vehicle registration clerks manually enter the registration information for the vehicles that do not require titling.

Today's title applications are enhanced through ADOR's Electronic Title Application Processing System (ETAPS) web-based system that enables some 4,000 Designated Agents, the majority being auto dealers, to process title applications efficiently providing input to the county systems and to the ADOR. ETAPS also provides the capability for auto dealerships with proprietary systems to input their data. It was reported that extensive edits are applied to the data submitted to the MVD.

Vehicles are classified by vehicle type and weight, and there are numerous license plate types. The MVD published tables on the ADOR website listing the numbers of vehicles by the various classes by county.

Odometer readings are recorded at initial titling and when titles are transferred. The file is accessed directly by law enforcement using the e-crash and e-Cite applications.

ADOR uploads vehicle title data to the National Motor Vehicle Title Information System (NMVTIS) nightly and currently processes single vehicle inquiries. Full online participation in NMVTIS is anticipated later this year. Title brands received from other states that do not match those used in Alabama are translated into an Alabama equivalent.

Applicable Guidelines

NMVTIS and ETAPS specifications are processing guidelines. Also NCIC nomenclature is used for make and model descriptors, and the other descriptors extracted by VINA constitute a *de facto* standard or guideline.

Data Dictionary

There is a data dictionary document for the vehicle file that defines each data field and the values for each.

The following describes the reference material used: "The Department provides a wide range of reference materials for employees who are responsible for the titling and registration of vehicles, including administrative rules, memorandums, license plate information, frequently asked questions and system user manuals. This information is available on the Department's website."

Process Flow
Process flow diagrams and documentation are available as reported:

a. Registration and title application to registration and title issuance. Yes.

b. Requests for non-routine statistics from the vehicle file. No.

c. Production of periodic management reports and summaries. Yes.

d. Posting of title brands and retention of title brand information from prior States. Yes.

e. How information on salvage vehicles is obtained and recorded? Manual inspection and online NMVTIS interface.

Interface With Other Traffic Records System Components
The vehicle database has no dynamic update capability with other components of the traffic records system. It is queried by law enforcement for crash and citation reporting.

Quality Control Program
Quality controls in place include the following: VIN edits, tag classification edits, tag numbering scheme edits, standard make edits, standard color edits and registration issue/expiration date edits.

Quality Control Measurements for Vehicle Data

This information was provided by the MVD.

Timeliness	– Average time to post registrations = daily – Average time to process title documents = 5 – Average time to produce completed titles = 2 – % title brands posted with 24 hours of receipt = 100% – % registrations and title brands posted within 24 hours = 100%
Accuracy	– % of duplicate records for individuals = 0 - duplicate records not allowed – % "errors" found during data audits of critical data elements = less than 5% – % VINs successfully validated with VIN checking software = 100%
Completeness	– % of records with complete owner name and address = 100%

Recommendations:

None

2-E: Citation/Adjudication Data Component

Advisory Excerpt:

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

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

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

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

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

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

  - *National Crime Information Center (NCIC)*
  - *Uniform Crime Reporting (UCR)*
  - *National Incident-Based Reporting System (NIBRS)*
  - *National Law Enforcement Telecommunication System (NLETS)*
  - *Law Enforcement Information Network (LEIN)*
  - *Traffic Court Case Management Systems Functional Requirement Standards*

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

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

  Law enforcement personnel should receive adequate training at the academy and during periodic refreshers to ensure they know the purpose and uses for the data. Training also should ensure that officers know how to access information on violators and process citations and arrests properly. The training manual should be available to all law enforcement personnel and the instructions should match, as appropriate, the edit checks that are performed on the data prior to its being added to the local records management system and statewide databases. The edit checks should be documented and both common and serious errors in the data should be flagged, including missing or out-of-range values and logical inconsistencies. The data element definitions and system edits should be shared with all

collectors, managers, and users in the form of a data dictionary that is consistent with the training manual and the crash report form. Court case management systems and tracking systems (citation tracking and DUI tracking) should be well documented to include definitions of all data elements and corresponding edit checks to ensure accuracy.

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

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

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

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

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

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

Timeliness	- *Average time for citations to be sent from LEAs to courts* - *Average time for convictions to be sent to DMV*
Accuracy	- *% errors found during data audits of critical data elements* - *% violations narratives that match the proper State statute*
Completeness	- *% of cases with both original charges and dispositions in citation tracking system*
Consistency	- *% traffic citations statewide written on a single uniform citation*

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

2-E: Citation/Adjudication Data Component Status

Description and Contents

Since the 2006 assessment, the State of Alabama has placed a great deal of emphasis on the implementation of the electronic citation. The overwhelming adoption of electronic ticketing has brought numerous improvements to the data related to this traffic record component. These data are now more readily available and more often used for decision making about resource allocation and placement.

Alabama had taken steps prior to and independent of the eCite System development that favored successful completion of such a project. A uniform traffic citation, used by all law enforcement agencies that is centrally printed, numbered and distributed, and a unified court system that has an active relationship with municipal courts, are both aspects of the traffic records system that allow for optimizing data in this arena.

Uniform Citation

Unquestionably, the most basic data needed to gauge the impact of enforcement countermeasures is some means by which to track the statewide issuance and outcome of traffic enforcement.

Ultimately, the development of a Citation Tracking System (CTS) within a State will provide a snapshot of the traffic enforcement activity, so that highway safety advocates and researchers can determine the overall efforts to reduce unsafe driving behavior, the judiciary's treatment of such cases, including whether sanctions are applied consistently or at all, and finally, the impact of countermeasures on the number and severity of crashes in the State. Successful tracking of every citation requires that each citation number is accounted for at every step of its journey through the system, meaning delivery to a law enforcement agency, dissemination to a specific officer, issuance to a violator, entry into the court case management system, adjudication or some other form of disposition, and finally entry onto the driver history record.

Alabama is one of few States that has a statutorily mandated uniform citation and a policy related to citation handling and distribution. The fact that audits of citation processing are also required makes it even more likely that, once issued, a citation will make its way through the entire adjudicatory process as intended.

The Alabama Rules of Judicial Administration (Rule 19) outline the processes and policies related to both paper and electronic citations, including content, numbering schemes, and format.

Currently, the Administrative Office of Courts (AOC) has a database which includes all citations adjudicated in state (District and Circuit) courts, which account for approximately 60 percent of the traffic tickets issued in the State. Additionally, all electronic citations are captured in this same database, the Alabama Statewide Judicial Information System (ASJIS), which functions as the case management system (CMS) for the unified courts. Currently, only 14 of the 273 Municipal Courts use this CMS, and the remaining Municipal Courts use one of about seven other products.

Of the Municipal Courts that do not use the ASJIS as their case management system, most upload their citation data into the ASJIS in order that the data will pass through and benefit from the edit checks built into that software. The non-automated courts send their paper citations/dispositions to the Alabama Department of Public Safety (DPS) directly. This is a very small percentage of the total number of citations and dispositions, but these data are not entered into the ASJIS.

All electronic citations are entered into the ASJIS. Thus, with the exception of the small percentage of dispositions that are sent directly to the DPS by non-automated courts, the ASJIS contains all the citation data one would expect to find in a comprehensive CTS. Once all citations are issued electronically, this CTS will be complete and will provide the total enforcement experience for Alabama in a single system.

It would be beneficial, since the numbers are small, for a means to be determined to enter the data from paper tickets into the ASJIS, so that the CTS would be complete and the State would have a comprehensive record of its enforcement activity.

Electronic Citation

The State has, since beginning its work on development of electronic citations, made excellent progress in their acceptance and adoption. One of the reasons for the ease in transition was obviously the support of the AOC, which, recognizing the potential for more efficient work processes and reduction of data entry, became the agency lead on the project.

eCite was developed as a five-phase project. The first group of law enforcement officers to pilot the effort was the Motor Carrier Safety Assistance Program (MCSAP) Troopers from the DPS. It was the intent of phase one to outfit these 55 troopers with the e-Cite software, GIS capability to locate their citations and to provide training and eventually push the responsibility for technical support of the software to the DPS.

Phase two of the project involved the software development necessary to track citations through the court system. The third and fourth phases involved adding more police personnel and finally, in the last phase, determination of the best means of providing continuing technical support to the project.

The case management in phase two was designed so that the MCSAP officers could track their citations through the court, which allowed them to determine the extent of masking of charges that might be occurring inappropriately with offenses committed by commercial driver license holders.

Once the MCSAP officers grew familiar with the software, it was expanded to all troopers throughout the State. Then local agencies began to be added to the program, until over 1300 users are now generating citations electronically.

During 2010, over 535,000 citations were generated electronically, while only 103,000 statewide were written manually.

Performance measures for the eCite project have demonstrated that electronic data capture and transmission has the effect of improving most aspects of the traffic records system components. The tickets are more quickly written and arrive at the court faster (timeliness); use of drop downs, keying rather than handwriting and gathering driver and vehicle information directly from those systems onto the citation form improves accuracy, as does the use of the GPS for collecting location of the violation. Completeness of data has improved due to the edits imbedded into the software; uniformity is better, again due to data collection directly from the driver/vehicle files and the use of drop down menus, and integration with the crash file has improved dramatically, due to synchronized locations. The citation also is now integrated with the ASPEN Motor Carrier Inspection software package and can auto-populate the officers' log sheets. This endeavor is a prime example of how electronic data collection provides multiple benefits as it relates to data quality on many fronts.

Not only has electronic ticketing provided a more efficient means by which to generate enforcement actions, but it has other benefits as well. First, the citizens who are cited now have the option to pay their fines on-line, which provides a time-savings for them. Also, the data made available related to citation issuance is now being used more effectively to plan future enforcement, to evaluate the effectiveness of countermeasures, and to determine the optimal resource allocation for police agencies. In these times of constrained budgets, it is important to be able to focus resources directly on problems.

Law enforcement officers, supervisors and commanders report that because their citations and crash reports now have locations that can be linked and compared, it is possible to overlay maps of crash locations with citation locations to discern whether, for example, speed enforcement has had the result of reducing crashes caused by speed.

With more data, the nine Community Traffic Safety Program Officers in the State are more readily able to assist their regions with focused plans to attack the hot spots or problems identified within those regions. The potential to save lives and resources has been the outgrowth of the electronic citation project. The State can be proud of this successful effort.

DUI Tracking System

Adjudication of alcohol-involved traffic offenses in Alabama requires referral of the defendant to the Court Referral Officer (CRO) who performs an evaluation or assessment to determine the level of alcohol use, dependence or abuse and then assign the appropriate alcohol education or education/treatment regimen to address it.

The CROs were experiencing difficulty in tracking offenders through the system and were not always aware when offenders failed to complete, or even to begin their court ordered treatment. As a result, Alabama engaged in a three-year project sponsored by NHTSA which was dubbed the Model Integrated Defendant Access System (MIDAS), which functioned as a DUI tracking system.

The MIDAS system was designed to track impaired drivers from the first contact on the roadside, through adjudication and treatment, and to continue if there were a repeat offense.

The basic concept of MIDAS was to manage offenders using a single software computer application that would access court records, criminal and driver history records, and would have case management functionality. The 2003 development was intended to provide a statewide system to identify, evaluate and classify offenders, maintain records for evaluation and follow-up, and provide accessibility of data to all appropriate agencies.

Essentially, MIDAS was initially designed as a case management system for the Court Referral Officers. It allowed them to follow their clients through the court process, to test and monitor the defendants for drug/alcohol use, and for compliance with court orders. MIDAS alerts judges and the probation department if a client in the system receives a traffic citation. Thus, the system provides a means by which to readily share client information among the various involved agencies and to assure that records on DUI offenders are complete and accurate.

By 2005, MIDAS was being upgraded to add Drug Court information and to expand availability to District Attorneys and Community Corrections Officers. As its value and usefulness became more apparent, MIDAS was rewritten again in 2007 to add Pardons and Paroles.

The system is password protected and web-based, so it is accessible from various locations, providing information to courts, corrections officials and law enforcement. The NHTSA Model Impaired Driver Record Information System (MIDRIS) was an outgrowth of the pilot program of which MIDAS was a part.

A comprehensive DUI tracking system should provide for two specific functions. First, such a system should track all offenses, from arrest through dismissal or sentence completion. This information should be accessible on a central network, so that updates are available immediately. This function can provide decision-makers with adequate and timely information to guide case processing decisions and dispositions, and allow decision-makers to immediately identify an offender's prior offenses and charges, and the status of sanction compliance. Fines and fees assessed and collected can be managed through the system. Court-ordered and administrative license actions can be posted to the system as they occur, providing up-to-date information about an offender's license status. Second, NHTSA recommends that all DUI tracking systems provide statewide statistics on various measures of DUI that will allow legislators, policy-makers, treatment professionals, and others to evaluate the current DUI environment and the effect of countermeasures and laws designed to reduce DUI or provide services for DUI offenders. At a minimum, annual statistical reports should be available that identify arrests, convictions, fines assessed and paid, sanctions, and treatment effectiveness by age, sex, county, or court (NHTSA 1997).

Additional examples of the types of data that can be gleaned from an effective DUI tracking system include referral rates to treatment, completion/non-completion, conviction rate, BAC refusal rate, offender demographics, and recidivism rates. DUI tracking also provides information regarding the courts' treatment of DUI offenders, to include plea bargains, diversions, deferrals, and sentencing. These data provide valuable information regarding the effectiveness of various types and levels of education and treatment, help the State to address anti-drinking and driving messages to the correct demographic groups, and guide law enforcement, prosecutorial and judicial training.

As of May 2007, MIDAS included nearly 50,000 clients, and had information on over 150,000 transactions. In Fiscal Year 2009 alone 35,322 persons were evaluated and managed using the system. However, this system provides evidence that data are only useful if they are used. Unless the licensing authority actively checks the MIDAS system prior to reinstating a driver's license or driving privilege, the value of the tracking will be diminished.

Currently in Alabama, the DUI test refusal rate stands at approximately one-third of those offered a test. The rescission rate for administrative suspensions and revocations is almost double that. Based on the amount of time that it takes a law enforcement officer to process a Driving Under the Influence arrest, and the increased potential for an impaired driver to cause harm to fellow highway users, there is a need to use the data generated by the MIDAS system to determine if there is some potential legislative or administrative solution to the lack of successful DUI prosecution. A study should be undertaken to seek solutions and/or changes to the current laws and procedures.

Alabama Court System

The court system structure in the State of Alabama includes the State Supreme Court, Courts of Civil and Criminal Appeals, and the Circuit Court. The 41 Circuit Courts are the trial courts of general jurisdiction and have jurisdiction in all felony cases. The courts of limited jurisdiction include the probate, municipal and district courts. Where there is a Municipal Court it will have jurisdiction in all matters involving violations of municipal ordinances.

There are 67 District Courts in the State and 273 Municipal Courts. The current court structure was outlined in the Judicial Article Implementation Act of 1975. This Act amended the State constitution and provided for a Unified Judicial System, which became effective on January 17, 1977.

The intent of the Unified Court System provided for the following:

- Unified procedures across all types of courts,
- Centralized Administrative Services provided through the Administrative Office of Courts (AOC), and
- State funding.

The AOC provides centralized State level administrative support, which is intended to improve the procedural system and to increase operational capacity. Other benefits from the centralized administration were foreseen, and included collection and dissemination of data necessary for policy development and efficient operation, uniform procedures, centralized administrative services, training and development for officials and employees of the system, and, finally, statewide technological expertise through the Court Services and IT Division.

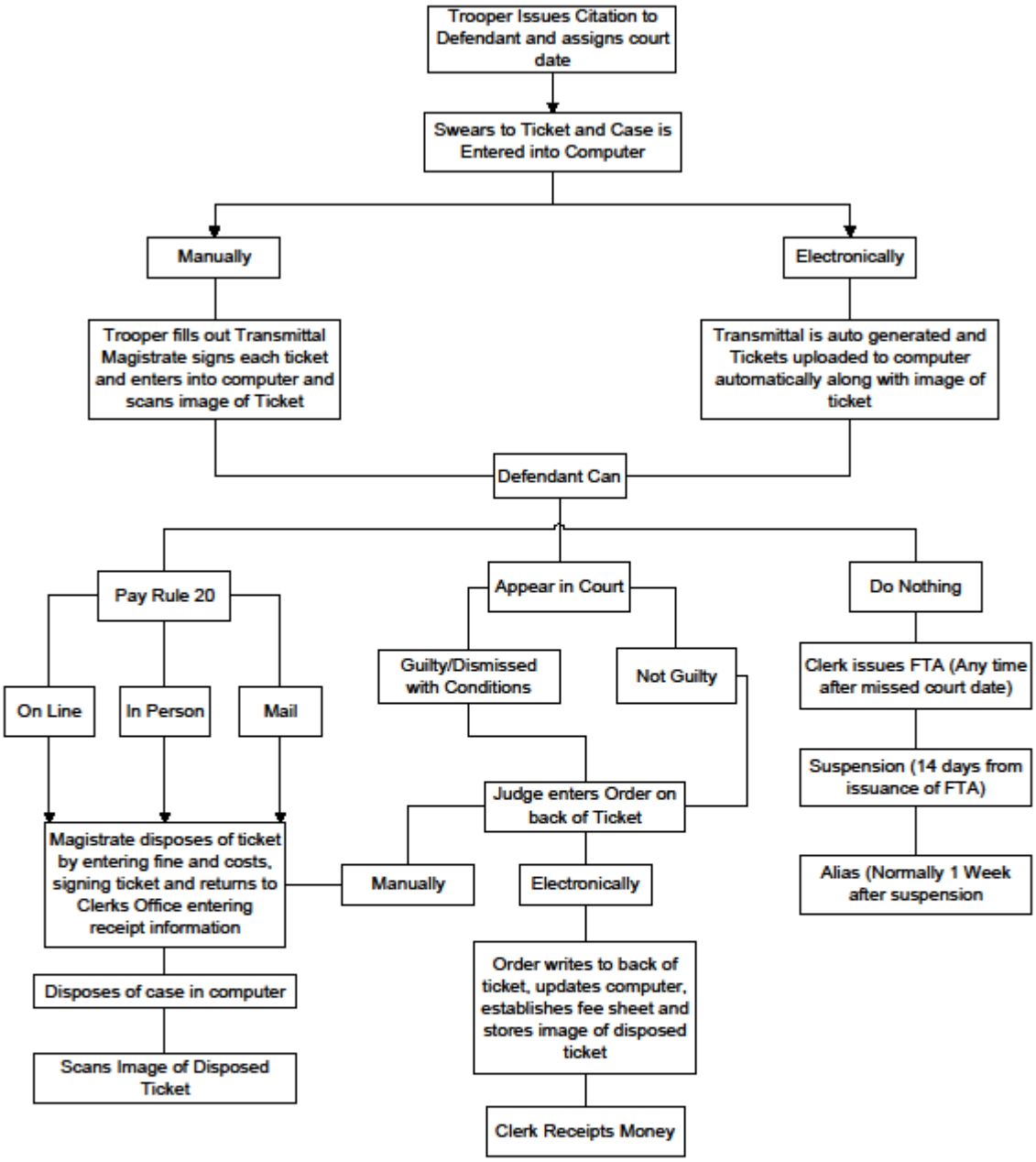
Even though municipal courts receive support and training from the State, the judges and court personnel for municipalities are chosen by and answer to the city government.

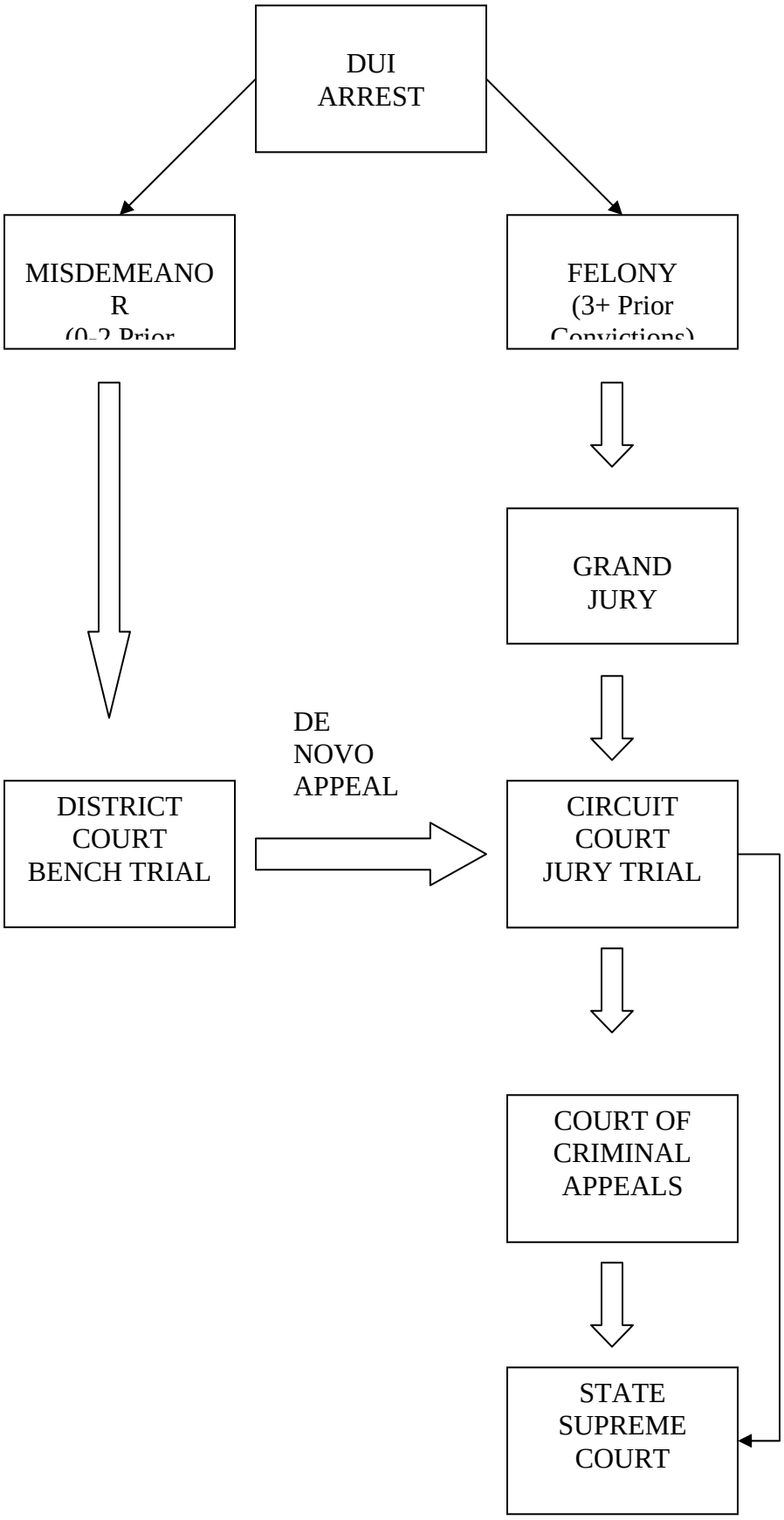
Applicable Guidelines
The State follows appropriate guidelines in its development and programming of systems with output to the courts and law enforcement agencies.

Data Dictionary
A 30 page data dictionary for the electronic citation is available upon request from the University of Alabama, Center for Advanced Public Safety.

MIDRIS has a very complex and exhaustive data dictionary for State DUI tracking systems.

Process Flow
Process flow diagrams have been provided and are displayed for both citation processing and DUI processing. (See below.)


Trooper Issues Citation to Defendant and assigns court date
Swears to Ticket and Case is Entered into Computer
Manually
Electronically
Trooper fills out Transmittal Magistrate signs each ticket and enters into computer and scans image of Ticket
Transmittal is auto generated and Tickets uploaded to computer automatically along with image of ticket
Defendant Can
Pay Rule 20
Appear in Court
Do Nothing
On Line
In Person
Mail
Guilty/Dismissed with Conditions
Not Guilty
Clerk issues FTA (Any time after missed court date)
Suspension (14 days from issuance of FTA)
Judge enters Order on back of Ticket
Magistrate disposes of ticket by entering fine and costs, signing ticket and returns to Clerks Office entering receipt information
Manually
Electronically
Alias (Normally 1 Week after suspension
Disposes of case in computer
Order writes to back of ticket, updates computer, establishes fee sheet and stores image of disposed ticket
Scans Image of Disposed Ticket
Clerk Receipts Money


DUI
ARREST
MISDEMEANOR
(0-2 Prior
FELONY
(3+ Prior
Convictions)
GRAND
JURY
DE
NOVO
APPEAL
DISTRICT
COURT
BENCH TRIAL
CIRCUIT
COURT
JURY TRIAL
COURT OF
CRIMINAL
APPEALS
STATE
SUPREME
COURT

Interface with other Components of the Traffic Records System

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

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

In general, linkages exist in every instance identified in the above chart. However, because agencies have a variety of records management vendors and not every agency is currently using the electronic crash and citation modules, these linkages are variable dependent upon agency and equipment and software.

There has been a desire expressed to have the State's eCrash and eCite software integrate with the various records management systems used by law enforcement. The University of Alabama staff has developed an XML protocol to enable such integration, but some law enforcement agencies do not have funding to pay their vendors for work required at their end. As a result, it would be helpful for agencies that might be using the same RMS vendor to share the cost of such programming. The TRCC should survey police agencies to ascertain which have common vendors, so that they may work in concert to fund the programming.

Quality Control Program

Because of the extent of the use of electronically generated data, with embedded edit and consistency checks, the citations issued in Alabama are reported to be very accurate. In fact, the edit checks that were built into the eCite software are the same ones that are built into the State Court Case Management software, helping to provide a second layer of quality control.

Examples of Quality Control Measurements for Citation/Adjudication Data

Timeliness	- Average time for citations to be sent from LEAs to courts**72 hours** - Average time for convictions to be sent to DMV **14 days**
Accuracy	- % errors found during data audits of critical data elements**0%** - % violations narratives that match the proper State statute **100%**
Completeness	- % of cases with both original charges and dispositions in citation tracking system**100%**
Consistency	- % traffic citations statewide written on a single uniform citation**100%**

Recommendations:

- Examine, through the TRCC, means by which to include the remaining small percentage of paper tickets into the State central database to ensure a comprehensive picture of the enforcement activity statewide.

- Integrate the MIDAS system with the driver license system to develop a flag that indicates a driver whose license is suspended or revoked is eligible to reinstate due to compliance with court orders or, minimally, require that prior to reinstatement of a driver privilege or license, the Driver License Division personnel ensure the MIDAS system shows that a driver has completed all court requirements for re-licensure.

- Survey law enforcement agencies to determine those who share common records management vendors to provide for economies of scale in contracting for programming to integrate records management systems with eCrash and eCite systems provided by the State of Alabama.

- Use data generated by the MIDAS system to determine if the administrative sanction for driving under the influence can be changed to improve its effectiveness.

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

Advisory Excerpt:

- *Description and Contents*

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

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

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

- *Applicable Guidelines*

  NHTSA has produced the National Emergency Medical Service Information System (NEMSIS) to serve as a guideline for a uniform pre-hospital dataset. It applies to all EMS runs, not just those related to traffic crashes. The American College of Surgeons (ACS) certifies trauma centers and provides guidelines for trauma registry databases and for a National Trauma Databank. Emergency Department and in-patient data guidelines (UB-92) are available from the US Department of Health and Human Services. The National Center for Health Statistics, within the Centers for Disease Control (CDC), sets ICD-9 codes and E-codes for injury morbidity/mortality. These codes are updated as needed and the ICD-10 codes are expected by the fall of 2007. The CDC also sets standards for reporting to their injury database and for use of the Public Health Information Network for data sharing.

- *Data Dictionary*

  The contents of the SWISS Data Component's files should be well documented to include data definitions for each field, and where applicable, edit checks and data collection guidelines that match the data definitions. Procedures should be documented in instruction manuals for collection, reporting, and posting of EMS run data on a uniform run report, uniform data in various hospital and trauma databases, and for tracking morbidity and mortality for each system.

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

- *Process Flow*

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

- *Interface with other Traffic Records System Components*

  Data transfer and sharing between local systems and the SWISS should be governed by data definitions, quality control requirements, and data transfer protocols defined by the custodial agencies. Transfer and sharing between SWISS files and the relevant national databases are governed by the data definitions, quality control requirements, and data transfer protocols for those systems (e.g., National Trauma Database).

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

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

Linkages Internal to the SWISS data on injury and healthcare treatments/outcomes	- *Patient name* - *Patient ID number* - *EMS run report number* - *Social Security Number*
Linkages between SWISS data and Crash Data	- *Personal Identifiers: Name, address, date of birth (direct linkage)* - *CODES linking variables (probabilistic linkage)* - *EMS run report number* - *Crash Report Number*
Linkages between SWISS data and other (non-Crash) components of the traffic records system	- *Name & SSN linked to driver file (direct linkage)* - *Location/address* - *Event & treatment date and time*

- *Quality Control Program*

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

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

Timeliness	- *Average time for EMS run reports to be sent to governing agency* - *% EMS run repots sent to governing agency in the prescribed time* - *Average time from treatment & discharge from ED to record availability in the ED discharge database* - *Average time from patient discharge to record availability in the hospital discharge database* - *Average time from date of incident to record appearing in the trauma registry* - *# days from death to appearance of record on mortality database*
Accuracy	- *% EMS run locations that match statewide location coding* - *% correct ICD-9 and E-codes* - *% "errors" found during data audits of critical data elements in EMS, ED, trauma registry, hospital discharge, & mortality databases*
Completeness	- *% of traffic crash-related EMS runs in the EMS database* - *% of ED visits for crash-related injuries recorded in ED discharge database.* - *% of trauma cases represented in the trauma registry* - *% of SCI/TBI cases represented in the SCI/TBI registries*
Consistency	- *% correct ICD-9 and E-codes (see also accuracy)* - *CODES match rate (where applicable)* - *% crash-related deaths with motor vehicle crash in cause of death field on death certificate*

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

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

There are several key components of a statewide injury surveillance system (SWISS) including emergency medical services (EMS), acute care, trauma and rehabilitation facilities, and vital records. Oversight for these entities' activities may be governed by local, State, and regional authorities. Data from these entities provides a wealth of patient care routing, intervention, and prevention information that can be used to evaluate current treatment modalities and injury prevention activities.

Description and Contents

Since the last assessment, Alabama has begun to develop key components of the SWISS. The Emergency Medical Services Information System (EMSIS) is electronically collecting data from all licensed EMS agencies. A statewide trauma registry is being developed by building upon the well established Alabama Head and Spinal Cord Injury Registry (AHSCIR). The Center for Health Care Statistics continues to collect and provide information from death certificates. As noted in the previous assessment, however, the lack of statewide emergency department and hospital discharge data are major barriers that must be overcome in order to adequately describe the burden of motor vehicle related trauma in Alabama.

Emergency Medical Services Information System (EMSIS) Database

Applicable Guideline

The Office of EMS and Trauma (OEMS&T) licenses 324 Advanced Life Support (ALS) agencies and more than 12,000 providers at the EMT basic, intermediate, and paramedic levels. Basic Life Support (BLS) or Rescuer agencies are not required to be licensed. Code of Ala. 1975, §22-18-1 420-2-1-.24 requires that licensed EMS providers prepare a report for every call where a patient is assessed or medical care rendered. The Office of EMS and Trauma has the authority to revoke an agency's license for failing to submit data.

Data Dictionary

Since all data are submitted electronically, there is not a uniform paper EMS run report. As the de facto State EMS run report the OEMS&T requires agencies to submit all NEMSIS national elements. To ensure adherence to the State data standard, agencies must use the state-developed data entry system or a NEMSIS Gold certified data collection tool.

Process Flow

Data are collected by individual EMTs at the time of patient care. Agencies have seven days to submit data to the OEMS&T. Data may be submitted as part of a batch file or uploaded at a website. After passing through validation checks data are entered into the statewide database and are immediately available to be analyzed. Data are transmitted to NEMSIS multiple times a day.

Agencies may access their own records and have the ability to construct customizable queries. The OEMS&T will also run requests for agencies. The OEMS&T will run reports for the public but have yet to receive a request. No standard publications or annual reports are produced but a number of presentations are given each year showcasing the EMSIS data. Data are also shared

with researchers at the University of Southern Alabama and the University of Alabama at Tuscaloosa. Data are not routinely shared with FARS.

Quality Control
There are extensive validation rules data must pass before arriving in the EMSIS database. Rejected records are returned to the agency for correction. It was reported that there are issues with EMTs coding 'unknown' for medications given and procedures performed. Rules are being developed to catch these cases. The Office of EMS and Trauma conducts train-the-trainer trainings both at their offices and at large agencies to improve the quality of the data. No information is collected on 911 calls so it is uncertain how complete the EMS file is. The lack of data from BLS/Rescuer agencies also makes it difficult to estimate the annual number of EMS runs.

Interface with other Traffic Records System Components
The EMSIS database is not interfaced with the any other traffic records system at this time.

Emergency Department and Hospital Discharge Databases

Statewide emergency department and hospital discharge data are not available in Alabama. It is felt that without legislative mandate and funding, collection of statewide emergency department and hospital discharge data is not feasible. Lack of data to describe patient encounters represents a significant missing component for understanding the burden of injuries.

Trauma Registry

Applicable Guidelines
Building on the established Alabama Head and Spinal Cord Injury Registry (created by Act 98-611), the Alabama Trauma Registry (ATR) and Alabama Trauma System (ATS) were established in 2007 by Senate Bill 278, "This bill would establish a statewide trauma system to be administered by the State Board of Health, would establish the Statewide Trauma Advisory Council and provide for its membership and responsibilities, would create a statewide trauma registry, would provide for regional trauma advisory councils, and would provide funding through the State Board of Health."

Under the trauma system hospitals can be designated at levels I, II, and III. At the time of the assessment there were four Level I, three Level II, and 37 Level III trauma centers. There remain 45 hospitals without a designation. Trauma center designation criteria are developed by the Statewide Trauma Advisory Council (STAC) and are based on the American College of Surgeons (ACS) guidelines. Trauma centers are required to submit information on patients meeting trauma system criteria but there is no penalty for failing to report. Undesignated hospitals are only required to submit head and spinal cord injury cases; all other injury encounters are voluntarily reported. Data are also received from two Florida hospitals which treat a high volume of Alabama patients.

Data Dictionary
The ATR data dictionary is based on the National Trauma Data Standard (NTDS). Modifications have been incorporated to support State-specific needs. Hospital billed charges information is not available from within ATR and costs are estimated using DRGs.

Quality Control
Quality control checks and edits are built into the data entry tools. Additional data verification procedures are performed once the data are submitted to the ATR. Due to the newness of the system not all desired checks are in place. A manual review of the database is required to identify duplicate records, for instance; patients are supposed to receive a trauma system number to identify them throughout their care; however, it was reported that the coding and accuracy of the number in the database needs to be improved. There is no mechanism for ATR personnel to audit hospitals to determine if all AHSCIR and ATS patients are being correctly identified and submitted.

When the new ATR software became available trainings were held at the OEMS&T offices for all registrars. New personnel receive one-on-one training from OEMS&T. Additionally, twice a year conference calls with each trauma region are held to address training and data quality concerns.

Process Flow
All designated hospitals are required to submit data on patients meeting ATS inclusion criteria within three months of discharge; however, data may be submitted as soon as it has been entered. Since there is no integration between the EMS and ATR systems, trauma registrars at each hospital must hand enter EMS information from paper copies of the patient care report (PCR). Larger hospitals are using a different data entry program than the other trauma centers. Thus, staff at OEMS&T must compile two different files and combine them to complete the ATR. A report on head and spinal cord injuries is produced annually.

Interface with other Traffic Records System Components
The ATR is not interfaced with other traffic records system components.

Death Certificate Database

Applicable Guidelines
The Alabama Department of Public Health (ADPH) Center for Health Statistics maintains records of deaths that occur in Alabama. Data are collected on approximately 45,000 deaths per year, of which more than 900 are motor vehicle crash related.

Data Dictionary
Death certificate data are coded according to national guidelines set by the National Centers for Health Statistics (NCHS). Cause-of-death information is classified in accordance with the ICD-10 standard.

Process Flow
When a death occurs, the medical portion of the death certificate is completed by the attending

physician, medical examiner, or coroner. The personal information about the deceased is completed by the funeral home. Death certificates are filed with the county health department in which the death occurred. The county registrar forwards the death certificate to the Center for Health Statistics. A staff of four data entry clerks enter the death certificate information into an in-house developed database. Several edit checks and validations are performed during data entry and queries and edits are performed once the data is keyed. After passing validation, records are submitted to NCHS for ICD-10 cause of death coding. . A pilot project for an electronic death reporting system (EDRS) is in place in several counties. EDRS will automate many of the manual processes taking place now and lead to faster and more accurate data. Researchers may request specific data variables dependent upon completion of an Application for Research purposes. Each request for data for research purposes is reviewed and subject to approval prior to release of any data. A fee is charged for compiling the data. Annual reports are generated and available on the ADPH's website. Included in the Annual Vital Statistics report that is posted on the website, is a summary of deaths due to motor vehicle accidents. In addition, an online query tool is also available for the public to run simple crosstabs. Data are not routinely shared with drivers license or FARS.

Quality Control

Several quality control measures are in place to ensure the accuracy of mortality data. A number of these take place during the data entry process. Death certificates containing obvious errors are queried and may be returned to the funeral home or medical certifier.

Interface with other Traffic Records System Components

The death certificate database is not integrated with other components of the traffic records system.

Integration of the SWISS with Motor Vehicle Crash Information

The components of the SWISS in Alabama are not integrated and do not appear to be used in motor vehicle crash prevention activities. The ease of access and quality of data provided by eCrash and available in CARE may be partially to blame for this lack of use. Since both EMSIS and ATR are relatively new entities most of the emphasis has been to get these data systems going and ensure participation in them. Now that it appears they have gained acceptance and standing there is an opportunity to showcase them to the rest of the traffic records community. Further efforts need to be taken to integrate not only EMSIS and ATR but also the data from eCrash. Once this is done traffic safety professionals will be able to follow victims from the time of the crash, through treatment at the scene, to eventual discharge from the hospital.

Using data from an older version of the crash and EMS file, a linkage demonstration project was undertaken at the University of Southern Alabama. Unfortunately, the results of this project are unknown to the TRCC and traffic safety office. With the development of eCrash, EMSIS, and ATR a new linkage project is warranted. Integrating the SWISS with State traffic records system components can benefit both entities. Motor vehicle crash data can supply much of the pre-event, event, and behavioral information needed to plan injury prevention programs. In addition, linking medical outcomes, such as length-of-stay and hospital charges, can augment the

understanding of injury severity beyond the typical five-point scale captured on most police crash reports allowing safety decisions to be based on more information than fatalities alone.

Recommendations:

- ❑ Develop annual reports on trauma and motor vehicle crashes to be available on the ADPH website.
- ❑ Promote the use of EMSIS and ATR data as an injury prevention tool to the public, public safety professionals, and researchers.
- ❑ Make EMSIS and ATR data available through an online query tool by incorporating it into CARE or similar program.
- ❑ Explore the possibility of collecting dispatch information from BLS/Rescuer providers and 911 calls.
- ❑ Conduct a review of trauma centers to ensure all ATR eligible cases are being submitted.
- ❑ Develop a method of integrating EMS information into ATR electronically from EMSIS and eliminate the need for entry from paper forms.
- ❑ Explore the possibility of requiring all hospitals to submit all ATS eligible cases.
- ❑ Ensure adequate representation on the TRCC by members from all components of the SWISS.
- ❑ Develop an emergency department and hospital discharge databases.
- ❑ Develop a means to share information on motor vehicle crashes fatalities between vital records, FARS, and the Driver License Division

APPENDFIX A

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APPENDIX B

Abbreviations and Acronyms

AAAM	Association for the Advancement of Automotive Medicine
AAMVA	American Association of Motor Vehicle Administrators
AASHTO	American Association of State Highway and Transportation Officials
ACJIC	Alabama Criminal Justice Information Center
ACS	American College of Surgeons
ADECA	Alabama Department of Economic and Community Affairs
AHSO	Alabama Highway Safety Office
AIS	Abbreviated Injury Score
ANSI	American National Standards Institute
ATSIP	Association of Transportation Safety Information Professionals
BAC	Blood Alcohol Concentration
BPEVR	Business Partner Electronic Vehicle Registration
CAPS	Center for Advanced Public Safety
CARE	Critical Analysis Reporting Environment
CDC	Center for Disease Control
CDLIS	Commercial Driver License Information System
CODES	Crash Outcome Data Evaluation System
CTSPO	Community Traffic Safety Program Officers
DMV	Department of Motor Vehicles
DOT	Department of Transportation
DUI	Driving Under the Influence
ED	Emergency Department
EMS	Emergency Medical Service
FARS	Fatality Analysis Reporting System
FHWA	Federal Highway Administration
GES	General Estimates System
GIS	Geographic Information System
GJXDM	Global Justice XML Data Model
GPS	Global Positioning System
HPMS	Highway Performance Monitoring System

ICD	Injury Coding System
IRP	International Registration Plan
ISS	Injury Surveillance Score
LEIN	Law Enforcement Information Network
MCMIS	Motor Carrier Management Information System
MMUCC	Model Minimum Uniform Crash Criteria
NAHSO	North Alabama Highway Safety Office
NCIC	National Crime Information Center
NCSC	National Center for State Courts
NDR	National Driver Registry
NEMSIS	National Emergency Medical Service Information System
NGA	National Governor's Association
NHTSA	National Highway Traffic Safety Administration
NIBRS	National Incident-Based Reporting System
NLETS	National Law Enforcement Telecommunication System
NMVTIS	National Motor Vehicle Title Information System
PDPS	Problem Driver Pointer System
RTS	Revised Trauma Score
SHSP	Strategic Highway Safety Plan
SWISS	Statewide Injury Surveillance System
TCD	Traffic Control Devices
TRCC	Traffic Records Coordinating Committee
TRS	Traffic Records System
UCR	Uniform Crime Reporting
UTCA	University Transportation Center of Alabama
VIN	Vehicle Identification Number
VMT	Vehicle Miles Traveled

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PROFESSIONAL EXPERIENCE

03/02 – Present	Director of Motor Vehicle Research Intermountain Injury Control Research Center
01/96 – Present	Statistician, Intermountain Injury Control Research Center;
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08/94 – 12/00	Associate Instructor, University of Utah, Department of Mathematics Instructor for Introductory Probability and Statistics Course
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PROFESSIONAL MEMBERSHIPS AND ACTIVITIES

2004 – 2005	Program Chair, American Public Health Association Injury Control and Emergency Health Services Section.
2005 –Present	Section Councilor, American Public Health Association Injury Control and Emergency Health Services Section
2007 –	Present Board Member, Association of Traffic Safety Information Professional
2005 – Present	Data Committee Member, American Public Health Association InjuryControl and Emergency Health Services Section
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2005 – Present	Member American Statistical Association

2001 – Present Data Advisory Board, Utah's Health: An Annual Review

1996 –Present Coalition for Utah Traffic Safety

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MICHAEL J. MCDONALD

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After earning an Associates Degree from the University of Delaware, Mike joined the Delaware State Police on September 8, 1978. During his career, Mike was assigned to a number of operational divisions within the state police. His most notable assignment was as a charter member of the Fatal Accident Investigation and Reconstruction Team known as F.A.I.R. His responsibilities included investigating all fatal motor vehicle accidents and personal injury accidents having the likelihood of becoming a fatality. During the six years he spent with the F.A.I.R. team, Mike was recognized as an expert witness in accident reconstruction. Mike has testified in all levels of the courts in Delaware including federal court. In 1984, Mike earned his Bachelor of Science Degree from the University of Delaware in Business Administration with a concentration in Operations Management. Mike was promoted to sergeant out of the F.A.I.R. team in 1988 and assigned to the patrol division.

In 1990 Mike was selected to attend the Federal Bureau of Investigation's National Academy in Quantico, VA and graduated from the 164th National Academy class. This school provides leadership training and is one of the most renowned and respected advance command schools in the nation. Mike held administrative positions from 1990 until 1992 when he was promoted to Captain and assigned as a Troop Commander. Mike was assigned to the Executive Staff in February 1993. Later that same year, he was promoted to the rank of Major and permanently assigned to Headquarters to manage the Division's budget and the Information Technology Section. In 1998, he was selected as a recipient of the Exceptional Performance award, and is credited even today with developing the Division's original and continuing vision for information technology and its business process reengineering model. Mike held this position until his retirement from active service in July 1999 when he accepted a civilian position with the agency as the Director Information Technology.

In addition to his duties with the Division, Mike also represents the State Police on a variety of boards and committees at the local and national level most notably as the CJIS Systems Officer for Delaware for the FBI's National Crime Information Center (NCIC) and the International Justice and Public Safety Information Sharing Network (*Nlets*). He is the northeast regional working group representative for Delaware to the FBI's shared management model of NCIC and a member of the FBI's Advisory Policy Board; the group that advises the Director of the FBI regarding changes in the NCIC system. He is also the past Chairman of the Finance and Management Committee for *Nlets*. Mike is Chairman of the Delaware Justice Information System (DELJIS); the Board of Managers who oversee criminal justice information within the state.

LANGSTON (LANG) A. SPELL

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Independent Consultant

PROFESSIONAL EXPERIENCE

Mr. Spell entered his professional career in traffic records systems and data exchange over 50 years ago. He is nationally recognized for his work in development of traffic records systems, especially interchange (NDR and CDL) of information amongst various users and the development and promulgation of data standards in information processing.

He served as a member of D16.1 committee. He developed the AAMVA Violations Exchange Code or "ANSI" code (predecessor of the AAMVAnet Code Dictionary or ACD which he also co-developed) while employed with AAMVA and later served as the Accident (Crash) Subcommittee Chairman for the ANSI D-20 Standard, A States Model Motorist Data Base, while employed with the National Highway Traffic Safety Administration.

While employed with NHTSA he created the original reporting forms and file structure for the Fatality Analysis File which was renamed in 1975 as the Fatal Accident Reporting System (FARS) and later renamed again, the Fatality Analysis Reporting System (FARS). He and his staff conducted the training for all of the original analysts.

As an independent consultant, he conducted the NHTSA Uniform Traffic Ticket Study to determine the extent and details of emerging Citation Tracking Systems. He conducted all aspects of the study including on-site State visits and assessments to determine the extent of control being exercised in citation issuance, processing of conviction information through the courts, and recording conviction dispositions in driver history files.

In the private sector, he developed numerous Crash Report forms, instruction manuals for crash reporting, data input procedures, all edits to assure data quality, and reporting and analysis procedures for problem identification. He also developed the EMS Run Report for Kentucky.

He designed the graphical user interface for the Highway Traffic Records Information System for the Virginia Department of Transportation (VDOT) and provided training in the use of the system to the district offices of VDOT.

He was involved in the design and developmental efforts for the Commercial Driver Licensing Information System (CDLIS) and its AAMVAnet environment and was a member of the AAMVAnet "Tiger Team" that made the assessments of selected states to become pilots and eventual founding states in the National Motor Vehicle Title Information System. His background, experience and interested cover the entire spectrum of traffic records systems.

HISTORY

1992 – Present	Independent Consultant (now essentially retired)
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
1958 – 1966	Staff Specialist in MVRs (driver histories) for Retail Credit Co. (now Equifax) Atlanta, GA

MEMBERSHIPS IN PROFESSIONAL ASSOCIATIONS (FORMER)

Traffic Records Committee, Transportation Research Board

American National 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

Duke University ..... A.B. 1953

JOAN VECCHI

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Professional Experience

Joan Vecchi retired as the Senior Director of the Colorado Motor Vehicle Division, which houses the Driver's Licensing, Driver Control, Traffic Records, Emissions, Titling & Registrations, Ports of Entry, IRP, Motor Carrier Services, and Motor Vehicle Investigations Sections. She held the position for 5 years.

Her prior experience includes twelve years as a Police Officer/Sergeant in Denver. During that period, Joan worked as a technician responsible for Department policy and procedures and design of forms and citations. In this capacity, she acted as liaison between the Department and the County Court to assure that citations met the needs of both entities. Joan left the City of Denver to work at the Colorado Department of Revenue in the Office of Program Analysis as a policy/budget analyst. In that capacity, Joan was responsible for developing budget requests and justifications, analyzing the efficiency and effectiveness of various state programs, auditing the performance of existing programs, and implementing new programs. Later, she was assigned to the Liquor Enforcement Division as Enforcement Manager, where she worked with the industry and law enforcement to assure a fair regulatory system while targeting underage consumption and over-service of alcohol. During her tenure with Liquor Enforcement, Joan was acting Director of the Division for a period of eleven months and implemented the tobacco enforcement program in Colorado.

She was co-chair of the Identity Fraud Working Group, which crafted legislation that allowed the use of facial recognition technology on applicants for driver licenses or identification cards. Investigations using facial recognition prevent issuance of more than 100 fraudulent documents each year. Vecchi was a member of a national panel in 2009 seeking to develop identity security standards.

Education

Bachelor of Science, Majors in Law Enforcement and Psychology 1977
Master of Arts, Management
emphasis in Human Relations and Organizational Behavior 1984
Numerous professional training courses in law enforcement and management subjects

JOHN J. ZOGBY, PRESIDENT

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Summary of Experience

Mr. Zogby has over 40 years experience in highway safety engineering and management and motor vehicle and driver licensing administration.

Mr. Zogby's transportation career began in the Bureau of Traffic Engineering in the Pennsylvania Department of Highways, where he was responsible for the statewide application of highway signs and markings. He was instrumental in developing the state's first automated accident record system in 1966. In the late 1960's he helped initiate and was project director for the statewide safety improvement program and the state's in-depth accident investigation function.

Mr. Zogby worked in the private sector in traffic safety research for several years before returning to public service as the Director of the Bureau of Accident Analysis in the Pennsylvania Department of Transportation. He was appointed Deputy Secretary of Transportation for Safety Administration in February of 1979, a position he head for 13 years, until his retirement from public service in December 1991.

Since his retirement from state government, Mr. Zogby has been engaged as a consultant on management and policy issues for federal, state and local government agencies in the area of transportation safety and motor vehicle/driver licensing services.

Professional Business Experience

- Subcontract with GeoDecisions Consulting on a Safety Analysis Management System (SAMS) for the state of Mississippi.
- Subcontract with iTRANS Consulting, Inc. on NCHRP project 17-18-(05), Integrated Management Process to Reduce Highway Injuries and Fatalities Statewide for the Transportation Research Board.
- Contract with the National Academy of Sciences (NAS) to provide AASHTO Strategic Highway Safety Plan – Case Studies (17-18(06A) for the Transportation Research Board.
- Subcontract with ISG, a systems integration consulting company, conducting a re-engineering contract with the Pennsylvania Department of Transportation in the area of motor vehicle processes.
- Subcontractor with the Pennsylvania State University to research the impact of an education provision in state law governing novice drivers.
- Conducted a three week course on safety management for the Ministry of Communications in the Kingdom of Saudi Arabia.

- Subcontractor with a Moroccan engineering firm to develop a national highway safety plan for the country of Morocco.
- Completed a study for the state of Mississippi, Department of Public Safety to develop a Strategic Plan for Highway Safety Information.
- Contracted by the Federal Highway Administration, Office of Motor Carrier Safety to help in the final implementation phase of the Commercial Driver License (CDL) program.
- Participated as a team member conducting Traffic Records Assessments with states in assessing their Traffic Records capabilities to address highway safety program management needs
- Project director and principal instructor for a Federal Highway Administration (FHWA) contract to develop, implement, and instruct a training program for the Highway Safety Management System.

Professional Societies and National Committees

- Member Institute of Transportation Engineers (ITE).
- Member Emeritus of the Transportation Research Board (TRB) Committee on Transportation Safety Management.
- Member of Association of Transportation Safety Information Professionals.
- Past President of the Mid-Atlantic Section of ITE.
- Past Chair of the National Safety Council's Traffic Records Committee.
- Past President of Region 1 of the American Association of Motor Vehicle Administrators.
- Past Chair of the Governing Board of the International Registration Plan.
- Past Chair of a subcommittee of the NGA Working Group on State Motor Carrier Taxation and Regulation.
- Completed six year tenure as the Chair of the TRB Committee on Planning and Administration for Transportation Safety.

Community

- President, Duncannon Area Revitalization, Inc.
- Pastoral Associate, St. Bernadette Church, Duncannon, PA.

Education

- B.S., Economics, Villanova University
- MPA, Penn State University