North Carolina Traffic Safety Information Systems Strategic Plan

2014

Developed by the
UNC Highway Safety Research Center
in collaboration with the
NC Traffic Records Coordinating Committee

North Carolina Traffic Safety Information Systems

Strategic Plan 2014

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Commonly Used Abbreviations

AASHTO – American Association of State Highway and Transportation Officials

ACIS – Automated Criminal Infraction System

DMV – Department of Motor Vehicles

DOT – Department of Transportation

DHHS – Department of Health and Human Services

DPH – Division of Public Health

ECHS – Executive Committee for Highway Safety

EMS – Emergency Medical Services

FARS – Fatality Analysis Reporting System

FHWA – Federal Highway Administration

HSRC – Highway Safety Research Center

ITRE – Institute for Transportation Research and Education

IVPB – Injury and Violence Prevention Branch

NCAOC – North Carolina Administrative Office of the Courts

NCAWARE – North Carolina Warrant Repository

NCDOT – North Carolina Department of Transportation

NCDMV – North Carolina Division of Motor Vehicles

NCGHSP – North Carolina Governor's Highway Safety Program

NHTSA – National Highway Traffic System Administration

PreMIS – Prehospital Medical Information System

SADLS – State Automated Driver License System

STARS – State Titling and Registration System

TEAAS – Traffic Engineering Accident Analysis System

TraCS – Traffic and Criminal Software

TRCC – Traffic Records Coordinating Committee

UNC – University of North Carolina

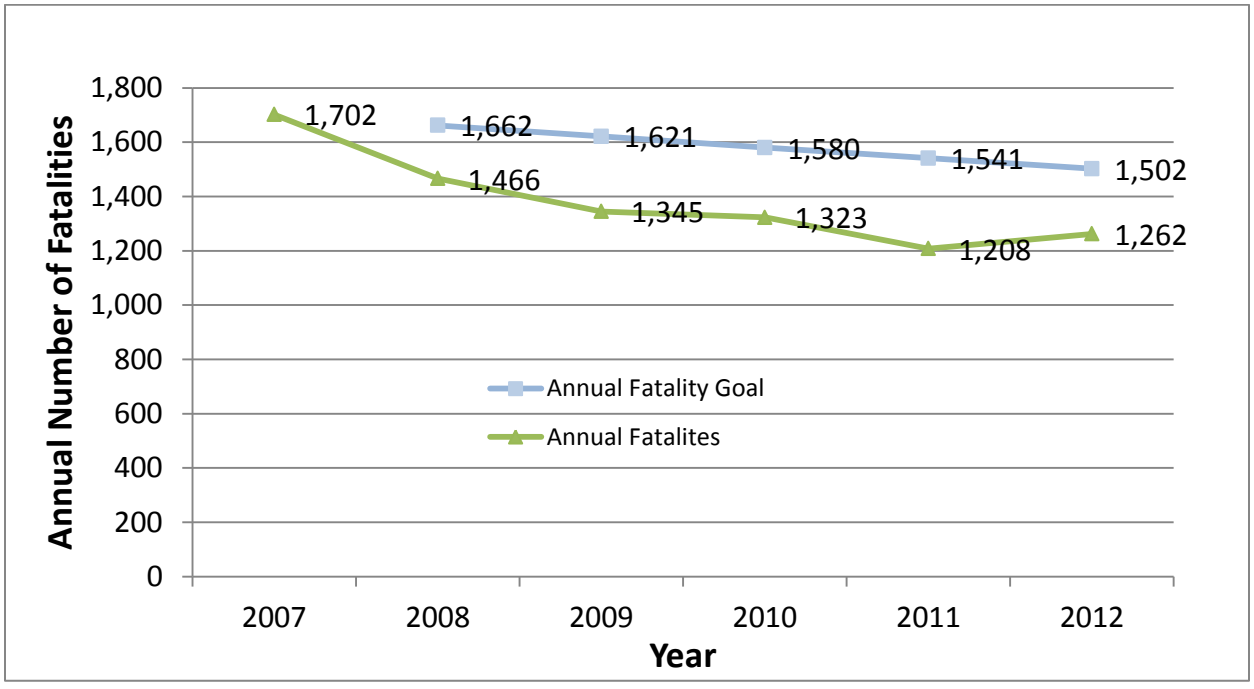
Introduction

Background

While North Carolina, like most other states, has made progress in reducing the toll that results from traffic crashes on our roadways, the number of people killed and injured remains unacceptably high. In 2012, there were 213,641 reported traffic crashes on state-maintained roads that resulted in 1,262 people killed and 110,406 injured. The economic impact of these crashes is costly, resulting in an estimated annual loss of $10.7 billion to the economy of North Carolina annually (estimate as of 2011 in 2011 dollars).

North Carolina established a vision to have a multi-disciplinary, multi-agency approach to research, planning, design, construction, maintenance, operation and evaluation of transportation systems, which results in reduced fatalities, injuries and economic losses related to crashes. In addition, there is a coordinated effort to address emerging safety issues.

In 2007, the number of fatalities on North Carolina's roads totaled 1,702. The North Carolina Department of Transportation (NCDOT) adopted a goal of reducing fatalities by 2.5 percent per year from that point forward. As shown in the chart below, the state is currently ahead of this pace and is working hard to keep this trend moving in the right direction.



Annual number of fatalities on North Carolina's roads versus the annual fatality goal of the NCDOT

For North Carolina to continue to make progress toward these goals and reach the vision of multi-disciplinary and multi-agency approaches to the challenges we face, improvements in the quality and utility of traffic safety information data and systems must continue to evolve.

Improvements are needed in each of our primary traffic safety information systems, which include 1) crash records, 2) vehicle and driver records, 3) roadway inventory and geographic information systems, 4) medical outcome systems, and 5) citation and adjudication systems. The even greater achievement will be to increase the effectiveness and efficiency of linking crash data to the other systems for improved reporting and analysis. These important linkages must be achieved while protecting the privacy rights of our citizens' data and abiding by the appropriate laws and regulations.

Coordination, communication and cooperation are the defining attributes for success of the North Carolina Traffic Records Coordinating Committee (TRCC). Each stakeholder will be able to develop awareness of the needs of the various data collectors, data users, data managers and traffic records systems owners.

North Carolina's Traffic Safety Information Systems Strategic Plan documents progress toward the overall goal of providing high-quality data to users in timely and efficient processes. This document records the progress of the TRCC's efforts and will serve as the guide for planning and implementing change. This resource will be continually updated and available online in an electronic format at http://www.hsrc.unc.edu/nctrcc/guide.cfm.

Organization of the Report

This report includes an overview of the organizational structure that is in place in the state to address traffic safety information needs, a strategic plan that was developed with input from the North Carolina TRCC membership and a description of safety information projects that have been conducted with specific objectives of improving traffic safety information systems since 2009.

Organizational Structure

The multidisciplinary approach to traffic system information systems requires multiple agencies to be included in the planning and implementation of programs and processes designed to improve the components of the various systems, linkages among the systems and ultimately affect the outcome of reducing the level of harm on the roads of North Carolina. There are two committees that have been established in North Carolina to ensure that all information stewards and stakeholders are included in the decision-making process for improving our traffic safety information: the North Carolina Executive Committee for Highway Safety (ECHS) and the TRCC. The purpose and role of each of these groups are described below.

Executive Committee for Highway Safety

The state's ECHS was established in 2003; it is empowered to address the motor vehicle crash epidemic and coordinate the many safety initiatives both within and outside of the NCDOT, with an emphasis on efficiency of resources and the prioritization of programs. The ECHS is comprised of representatives from top management of selected disciplines involved in highway safety who control the current and potentially available resources for use in safety efforts. The committee endorsed and adopted the American Association of State Highway and Transportation Official's (AASHTO) Strategic Highway Safety Plan (SHSP) as its working plan with the understanding that this is a dynamic document subject to modifications as necessary to address North Carolina's needs.

The committee has also adopted the goal of reducing fatalities on North Carolina's roads by 2.5 percent per year for the next 20 years. The goal for 2012 was 1,502 fatalities; 1,262 people lost their lives that year in crashes on North Carolina's roads. Implementation of the strategies and directives of the ECHS and the AASHTO SHSP are viewed as the key mechanism to reach this goal and thereby significantly reduce the annual number of fatalities and deaths on our highways.

The energy generated and knowledge of the multi-disciplined ECHS team members has provided many opportunities for innovative strategies. Representatives from different agencies are teamed up to find solutions to a common goal. A key "facilitator" works closely with all of the working groups through meetings and discussions with members. This central point of reference provides assistance in eliminating road blocks suggests champions for strategy involvement and ensures elimination of redundant strategies.

The ECHS endorses and supports North Carolina TRCC. TRCC, as necessary and appropriate, will provide strategies for the Executive Committee to support and endorse. These strategies could include legislative initiatives, inter-agency projects requiring significant resources and other important strategies.

ECHS Membership

The ECHS is chaired by La Nica Allison, Deputy Secretary of Intergovernmental Affairs and Budget Coordination, NCDOT. The membership is listed below and includes representatives for the NCDOT, municipal transportation departments, state and local law enforcement, universities, and other state and local agencies.

- La Nica Allison, Deputy Secretary, Intergovernmental Affairs and Budget Coordination, NCDOT
- Robert Andrews, Jr., Director, Safety and Risk Management, NCDOT
- Deborah Barbour, Director, Preconstruction, NCDOT
- Greer Beaty, Director, Communications Office, NCDOT
- James Forte, Commissioner, NCDOT-DMV
- Terry Gibson, Chief Engineer, Division of Highways, NCDOT
- William J. Grey, Colonel, NCSHP
- Herbert Garrison, III, Executive Director, Eastern Carolina Injury Prevention Program
- Regina Godette-Crawford, Chief, NCEMS
- Wayne Goodwin, Commissioner, NC Department of Insurance
- David Harkey, Director, UNC HSRC
- Terry Hopkins, State Traffic Safety Engineer, NCDOT
- Kelvin Lacy, State Traffic Engineer, NCDOT
- Calvin Leggett, Manager, Program Development Branch, NCDOT
- Don Nail, Director, NCGHSP
- Jon Nance, Deputy Chief Engineer, Division of Highways, NCDOT
- John Sullivan, III, Division Administrator, FHWA
- Michael Yaniero, Chief of Police, Jacksonville Police Department
- Gabriela Zabala, Director, Hispanic/Latino Affairs, NC Office of the Governor

Traffic Records Coordinating Committee

The North Carolina TRCC was established in 2006. The vision of the North Carolina TRCC reads as follows:

> *To improve safety by significantly reducing the number of fatalities and injuries to the citizens and visitors of our state.*

In support of this vision, the mission of the North Carolina TRCC is to:

> *Provide the leadership to establish and maintain a level of coordination, communication and cooperation between agencies and stakeholders to maximize utilization and improve functionality, data accuracy, timeliness and linkages, and to advance electronic data collection, protect privacy, minimize redundancies in traffic records systems and better accomplish individual agencies' goals.*

The specific roles and functions of this group were collectively established by the participating members and consist of the following:

- Provide for coordination, cooperation and collaboration of agency activities that could affect or improve the state traffic safety data or systems, while also ensuring the protection of confidential information.
- Prepare, update and maintain the North Carolina TRCC Traffic Safety Information Systems Strategic Plan and provide a guide for the implementation of traffic safety systems and data improvements.
- Recommend and provide strategies to North Carolina ECHS for endorsement and action.
- Develop inter-agency project teams to create implementation plans for carrying out the objectives of the guide as necessary.
- Provide a forum for review and endorsement of programs, regulations, projects and methodologies to implement the improvements identified in the implementation guide.
- Review programs, regulations, projects and methodologies for alignment with the TRCC's mission, goals and objectives.
- Provide coordination for programs, projects and regulations as they become operational.
- Receive periodic updates from the project teams.
- Endorse and/or implement projects to achieve quality traffic safety data from state traffic records systems.
- Encourage and provide for the sharing of data among all members, owners, users and collectors and collaborate on interagency projects.
- Provide for adequate communication and review between members of all changes or modifications to systems, regulations, collection procedures, or usage and analysis needs.

- Support electronic data collection for all types of data including crash, roadway (including volume and asset management), vehicle, driver, medical, and citation or adjudication data.
- Simplify all data collection wherever possible for any record.
- Increase automation and only collect data necessary from field efforts.
- Encourage and provide for the marketing of traffic safety information to increase public and political awareness of its necessity for decision making, resource allocation and improving quality of life.

TRCC Membership

The North Carolina TRCC consists of a diverse membership that includes representation from the data stewards for each primary data or information system: crash records; vehicle and driver records; roadway inventory and geographic information systems; court, citation and adjudication systems; and medical outcome systems. Several key stakeholder agencies also serve in a membership role on the committee, including state and municipal law enforcement, the NCDOT Traffic Safety Unit, the North Carolina Governor's Highway Safety Program (NCGHSP) and a university research center. The current list of members is provided below.

- Brian Mayhew (NC TRCC Co-chairperson), NCDOT, Traffic Safety Unit
- Eric Rodgman (NC TRCC Co-chairperson), UNC HSRC
- Carter G. Anderson, Cary Police Department
- Jonathon Arnold, NCDOT, Management Systems and Assessments
- Paul Cooper, NC EMS Performance Improvement Center
- Julian Council, NCDOT-DMV
- Alan Dellapenna, NCDPH, Injury and Violence Prevention Branch
- Janet Greene, NCAOC, Technology Services Division
- Frank Hackney (State Traffic Records Coordinator), NCGHSP
- John Ivarsson, NCSHP
- Deborah Radisch, NC DHHS

In addition to the official membership, there are a number of additional stakeholders, including representatives from the Federal Highway Administration (FHWA) and National Highway Traffic Safety Administration (NHTSA), who routinely participate in TRCC meetings. A complete list of active participants is included in Appendix A**.**

NC State Traffic Safety Data Coordinator

One of the members of the North Carolina TRCC is the state traffic safety data coordinator. This individual serves as the primary point of contact for information about traffic safety systems for NHTSA, the state of North Carolina and the North Carolina TRCC. This person is aware of all the primary traffic records systems in North Carolina and maintains communications with the TRCC. This person can report on, or obtain status information on, all projects within the state. Frank Hackney of the NCGHSP serves in this role. His contact information is provided below.

Frank Hackney, Traffic Records Coordinator
NCGHSP
215 East Lane Street
Raleigh, N.C. 27601
Phone: (919) 733-3083
Fax: (919) 733-0604
Email: fhackney@ncdot.gov

Traffic Safety Information System Summaries

Provided in this section of the report are descriptive summaries of the traffic safety information systems that are available in North Carolina. Summaries are included for systems within the following agencies:

- North Carolina Administrative Office of the Courts (NCAOC)
- North Carolina Department of Health and Human Services (NCDHHS)
- North Carolina Department of Transportation (NCDOT)
- North Carolina Office of Emergency Management Systems (NCOEMS)

NC Administrative Office of the Courts

NCAWARE (North Carolina Warrant Repository)
NCAWARE is a custom-developed, web-based system that was designed, developed and implemented by the NCAOC. The system maintains detailed information about criminal processes, such as warrants, magistrate orders, citations that lead to an arrest, criminal summons, orders for arrest, release orders and appearance bonds. It also tracks information and details for all people and businesses involved in such processes. With the implementation of NCAWARE and accompanying legislation which provided for a statewide electronic repository, law enforcement can view and serve any electronic unserved process in the state without having paper in hand. Officers are also able to pre-fill arrest and warrant information prior to appearing before the magistrate and thus decreasing processing time.

All NCAWARE judicial and law enforcement users also have access to the unserved warrants in both the NCAWARE system and the Automated Criminal Infraction System (ACIS) through the Statewide Warrant Search which combines information from both systems. Prior to implementation in each county, the NCAOC worked with local criminal justice and public safety entities to certify the validity of all outstanding processes for the year 2000 and forward prior to converting these processes to NCAWARE. Additionally, the NCAOC staff continues to work with counties to convert paper-based orders for arrest to NCAWARE so that older processes are also available electronically.

NCAWARE is the first point of entry for all arrests, including DWI cases, into the courts databases. Court case information in NCAWARE automatically populates ACIS through real-time XML and MQ interfaces. Demographic driver and vehicle data is automatically pre-populated in NCAWARE through a host-to-host DB2 connection with NCDOT-DMV. The NCAOC is planning a real-time interface between eCitation and NCAWARE to provide for the automatic creation of a process where a traffic citation leads to an arrest – such as DWI, driving while license revoked, and driving with no operator's license.

eCitation

eCitation automates the issuing of cite-and-release citations in North Carolina. Six hundred law enforcement agencies (LEAs) issue more than one million traffic and infraction citations annually. Prior to the implementation of the eCitation system, North Carolina law enforcement officers wrote all citations by hand. Copies of the handwritten citation were given to the recipient, delivered to the local clerk of superior court (CSC) office, and kept on file by both the LEA and CSC involved. This process could be rather cumbersome and lengthy, as it involved entering the same information multiple times in different systems. Additionally, there was a high probability of mistakes being introduced due to illegible handwriting.

eCitation, the first such system in the nation, was conceived and developed as a solution to this manual process. eCitation fully automates the citation process, producing the North Carolina Uniform Citation in an electronic format and reducing data entry to a single iteration. Using existing wireless connections, eCitation allows officers to create citations and schedule court dates electronically from the patrol car. A portable printer produces the copy of the citation for the cited person. After issuance of the eCitation, the officer transmits the data directly to NCAOC where it can be immediately accessed statewide in the ACIS.

eCitation was developed as a joint venture between the NCAOC and the NCSHP. Significant funding was also provided by NCGHSP and the Governor's Crime Commission. During October 1999 through September 2001, a pilot project was conducted in Cumberland County, and after a successful pilot, eCitation was implemented in all 100 counties at no cost to law enforcement agencies.

eCitation includes the following components:

- Officers Component: This component is loaded on the computer in the patrol car for entering and printing eCitations. It is capable of operating with or without communication coverage.
- Records management systems (RMS) Component: This component provides law enforcement agencies with the capability to electronically download eCitation data for use in local law enforcement, thus eliminating dual data entry. It also provides a citation printing function.
- Clerks Component: This is a browser-based component used by county clerk staff to monitor and print judgment copies of the transmitted citations.
- Interface to NCAOC ACIS: This interface receives and stores eCitation data in ACIS, making the information available statewide.
- Interface to NCDOT-DMV: This interface automatically prefills demographic and vehicle data using the driver’s license or vehicle plate number.

Automated Criminal Infraction System (ACIS)

All criminal and infraction court cases in North Carolina are tracked from initiation through disposition in the statewide ACIS. Case initiation processes (warrants, criminal summons, orders for arrest, magistrate orders) are transferred electronically from NCAWARE to ACIS. Infraction

(non-arrestable) cases are electronically transferred to ACIS from eCitation. Clerk of Superior Court staff continue to track all cases through to disposition using ACIS.

ACIS is the primary point of interface to other agencies. All reportable traffic offenses are transmitted nightly to NCDOT-DMV. Charges and convictions for all serious misdemeanor and felony offenses (including death by motor vehicle) are reported nightly to the State Bureau of Investigation which in turn updates ACIS and NCAWARE cases with the state fingerprint identification number. ACIS data is a major data feed to the Criminal Justice Law Enforcement Automated Data Service (CJLEADS). All citation data for the NCSHP is transferred to them nightly.

In March 2012, the NCAOC added the Eastern Band of Cherokee Indians to ACIS, allowing them to process their court cases in the system and providing them with an automated means to report their traffic cases to NCDOT-DMV.

ACIS was implemented statewide in 1987 and contains some cases as far back as 1978. Criminal cases are maintained and accessible online since inception. Infraction cases are purged five years after disposition in accordance with NCDOT-DMV rules of recordkeeping.

Criminal Court Information System – Clerks Component
The Criminal Court Information System-Clerks Component (CCIS-CC) is a web-based criminal case management system which extends and will ultimately replace ACIS. The system currently provides multiple entry functions for court continuances and results, speeding dispositions and monies paid. Functions are also available for online payment status and disposition of cases not requiring sentencing. CCIS-CC includes an interface to NCDOT-DMV for electronic reporting of corrections to cases previously reported. Court staff are also able to process both criminal and infraction cases on the same screen which allows much faster and efficient entry of case data.

payNCticket
payNCticket is a web-based system which allows persons who have received citations for offenses not requiring a court appearance (primarily traffic tickets) to query and pay their tickets online. Prior to payNCticket, citizens had to pay fines and related court costs by going to the courthouse to pay in cash or by mailing a money order or cashier's check. In addition to providing a more convenient payment method for the public, the system also allows for quicker disposition of cases because as payment is received, the citation is also disposed in ACIS. In conjunction with eCitation which allows citations to be transmitted to ACIS immediately, payNCticket can potentially allow for a ticket to be paid and disposed within minutes after it was issued.

Payments made through payNCticket are processed by NIC, an independent payment processing vendor.

payNCticket was piloted in March 2010 and released statewide in June 2010.

Criminal Court Information System – District Attorneys Component (CCIS-DA)
CCIS-DA is a web-based criminal case management system developed specifically for District Attorneys to manage the caseload within their offices. CCIS-DA captures individualized case notes, and tracks and schedules action-oriented events and decision points relevant to the prosecution of each case, including DWI case management.

CCIS-DA interfaces with ACIS to download case data real-time. The system also interfaces with the Discovery Automation System (DAS) which allows uploads of law enforcement discovery documents.

As of October 2011, CCIS-DA was implemented in all 100 counties.

NC Department of Health and Human Services

NC Hospital Patient Discharge System
Prior to 1995, the Medical Database Commission (MDC) collected hospital discharge data. On September 31, 1995, the North Carolina General Assembly eliminated the MDC and set up an alternative system for the reporting of discharge data. Since 1996, hospitals have reported data to Thomson Reuters (formerly Solucient and Thomson Healthcare) as set forth by the Medical Care Data Act of 1995 (Article 11a of Chapter 131E of the North Carolina General Statutes).

Since 1996, the Cecil G. Sheps Center for Health Services Research has worked under contract with the North Carolina Division of Health Service Regulation (DHSR) to store, maintain and analyze the North Carolina Discharge Databases. The data contained in the discharge databases are retrieved claim forms used by facilities to bill payers.

NC Medical Examiner System
The North Carolina Medical Examiner System is a network of over 600 medical doctors throughout North Carolina who voluntarily devote their time, energy, and medical expertise to see that deaths of a suspicious, unusual or unnatural nature are adequately investigated. This resource is maintained by the Office of the Chief Medical Examiner of the state of North Carolina. The OCME is a division of the North Carolina Department of Health and Human Resources. OCME also functions as the Division of Forensic Pathology of the UNC School of Medicine Department of Pathology.

The Medical Examiner's office has detailed data on each death in North Carolina. For the cases that are associated with motor vehicle crashes, these death reports are used to determine the presence of alcohol for the North Carolina crash data driver fatalities and the FARS North Carolina driver fatalities.

NC State Center for Health Statistics
The State Center for Health Statistics (SCHS) is the North Carolina agency responsible for the data collection, health-related research, production of reports, and maintenance of a

comprehensive collection of health statistics. SCHS http://www.schs.state.nc.us/schs/pubs/mailinglist.html provides high quality health information for better informed decisions and effective health policies. The goal is to improve the health of all North Carolinians and their communities.

These data include statewide records on all births, deaths, marriages, and divorces. These records have data on the age, race, sex, county, name and key dates, as required by the state.

NC Department of Transportation

Traffic Engineering Accident Analysis System

The Traffic Engineering Accident Analysis System (TEAAS) is the main tool used by the Traffic Engineering and Safety Systems Branch (TESSB) of NCDOT to analyze and report on crashes that occur in the state. TEAAS is often used to help support policies and decisions at the state and federal levels. The TEAAS database is a nightly replication of the crash database maintained by the North Carolina Department of Motor Vehicles (NCDMV). TEAAS was established in 1999 as a product of Y2K preparations, and went online on January 1, 2000. The earliest data on record is from 1990.

Since the TEAAS database is a replication of the NCDMV crash database, TEAAS data are only as timely as the data within the crash database. Crash data that are submitted to the NCDMV on the DMV-349 form are typically available within three months of the date of the crash. Electronic crash data submissions made through the Traffic Records Communications System (TRCS) must be made within 48 hours of the crash, so these data are typically available within ten days of the date of the crash. TEAAS data are updated nightly with any new or changed data. The data are not purged.

In addition, TEAAS is a roadway crash analysis software system downloadable from the Internet and available free of charge to state government personnel, municipalities, law enforcement agencies, planning organizations and research entities. In addition to crash data, TEAAS also contains ordinance information for all state maintained roads and highways.

The crashes are located on the North Carolina crash report form using the street names noted to milepost each crash on the North Carolina Roadway System. Mileposting is the process of determining the location of features on a road, in miles, from the beginning of the road, and is a fundamental requirement of TEAAS necessary for crash studies and analyses, crash rates and ordinance overlap checks. Mileposts are based on information in NCDOT's Linear Referencing System maintained by the Geographic Information Systems Unit, and are used to determine where crashes occurred, or where ordinances are located, in relation to roadway features. Features requiring mileposts are intersections and interchanges, at-grade railroad crossings, mile markers, structures (that carry the road) and political boundaries (municipal, county and state lines). This allows the North Carolina traffic engineers to analyze crashes at each roadway

section or intersection in more detail. The results of these analyses help North Carolina make corrections and improvements to the sites involved.

North Carolina Geographic Information System
The main objectives of the Information and Mapping Unit (IMG) are to provide quality mapping of the existing state-maintained system of highways as well as to produce computer-generated images of proposed NCDOT projects. This information is used in the planning, funding, construction and maintenance of transportation facilities throughout the state, helping to provide an efficient and cost effective state transportation system.

The IMG Unit is divided into three major sections:

- Road Inventory Information Section – generates and maintains database of highway data using various sources of information such as highway construction plans and reports from NCDOT division and district staff.
- Product Development Section – produces cartographic products such as the State Transportation Map, the Coastal Boating Guide, county maintenance maps, and more than 20 other custom map products that are built to customer requirements.
- Product Distribution Section – provides customer support and ensures distribution and delivery of products created by the IMG.

The IMG Unit is a relatively new unit within the NCDOT. Its products are spatially-oriented. Many of those products rely on the geographical framework and analyses provided by the NCDOT GIS Unit. One of the core functions of the GIS Unit is to maintain the linear referencing system for the North Carolina transportation network.

The data and products maintained and distributed by the IMG are updated regularly to provide current and useful information to customers. Some products are updated daily, like the online county maps (in TIF format), while others, such as the State Transportation Map, are updated annually. In addition, a large portion of data is updated at varying intervals as needed to provide reliable information. Most of the products distributed by the IMG indicate the date(s) for which the data are current.

NCDOT Division of Motor Vehicles

North Carolina Crash Data
The NCDMV maintains a database that contains information on all reported crashes in the state. The database was assembled to serve as a single electronic repository for all crash data. One of the main objectives of the crash database is to make records and related data available to the law enforcement community. The current Crash Reporting System (CRS) was established in 1999, and the earliest record dates back to 1990.

Crash data may either be submitted electronically using the NCDMV TRCS application or manually through a written crash report form. The TRCS application enables law enforcement

to electronically complete and submit crash reports directly to the CRS from the field. Written crash reports are received by NCDMV and scanned. Data entry staff key information from the scanned images stored in the database.

Crash report data that are electronically submitted through TRCS are typically available within two days after NCDMV receives the report. Crash data that must be manually entered from the DMV-349 form are usually available within 30 days after the NCDMV receives the report. Updates to the CRS database are made on a daily basis. The data are never purged.

A CRS data dictionary is available upon request. It is updated periodically, as needed or as request by the NCDMV Traffic Records Branch. Business rules are in place to ensure the completeness of the data. Only reportable crash data are typically entered into the CRS database; however, data are entered for all crashes that are reported, even those that may not fit the criteria of a reportable crash. A reportable crash must meet at least one of the following criteria:

- The crash resulted in a human fatality, or
- The crash resulted in a non-fatal personal injury, or
- The crash resulted in greater than $1,000 of total property damage, or
- The crash resulted in property damage of any amount to a seized vehicle.

All law enforcement agencies are required to report crashes that they respond to that meet one or more of the criteria.

Traffic and Criminal Software

The North Carolina Traffic and Criminal Software (TraCS) is the NCDMV's implementation of the national model of the Traffic and Criminal Software TraCS package. TraCS enables law enforcement officers to record and retrieve incident information from the field wherever and whenever an incident occurs. The NCDMV Traffic Records Communications System is an enhancement of the current CRS that enables NCDMV to receive and process crash reports electronically.

NCTraCS and NCDMV TRCS are collectively referred to as TraCS and work together to allow officers to electronically collect and transmit crash information from the field to a central repository (i.e., CRS). TraCS allows an officer to collect and validate information in his or her vehicle using a notebook computer or at a local office using a workstation. TraCS can obtain driver and vehicle information corresponding to a driver license or a vehicle (plate or VIN) from the State Titling and Registration System (STARS) and State Automated Driver License System (SADLS) through the crash database.

The primary objective of TraCS is to maintain a paperless system where creation, validation, and transmission of crash data are performed electronically. In the process of accomplishing this objective, TraCS also helps to reduce the time needed to create a crash report in the field.

This translates to faster submittal of crash reports to DMV, and in turn, expedited public availability of crash data.

Fatality Analysis Reporting System
The Fatality Analysis Reporting System (FARS) contains data for fatal traffic crashes that occur within the 50 states, the District of Columbia and Puerto Rico. To be included in FARS, a crash must involve a motor vehicle traveling on a public roadway and result in the death of a person (including occupant of a vehicle or a non-motorist) within 30 days of the crash.

FARS was developed by the National Center for Statistics and Analysis (NCSA) of the National Highway Transportation Safety Administration in 1975. The main objectives of FARS include: providing an overall measure of highway safety, identifying traffic safety problems and solutions and providing an objective basis to evaluate the effectiveness of motor vehicle safety standards and highway safety initiatives.

NHTSA has a cooperative agreement with an agency in each state's government to provide information on all qualifying crashes in the state. In North Carolina, the NCDMV is the lead agency for FARS reporting. FARS data are obtained solely from the state's existing documents, which include the following: police crash reports, state vehicle registration files, state driver licensing files, state Highway Division data, vital statistics, death certificates, coroner/medical examiner reports, hospital medical reports, emergency medical service reports and other state records.

More than 100 FARS data elements are coded from the documents above. The specific data elements may be modified slightly each year to conform to changing use needs, vehicle characteristics and highway safety emphasis areas. The data included in FARS do not include any personal identifying information such as names, addresses or social security numbers. Thus, data kept in FARS files and made available to the public fully conform to the federal Driver Privacy Protection Act.

Fatal crash data for each state are entered into a local microcomputer data file and daily updates are sent to NHTSA's central computer database. Data are automatically checked when entered for acceptable range values and for consistency. This makes it possible for corrections to be made immediately.

Each year, FARS data are utilized by the NCSA to publish a Traffic Safety Facts report. The report compiles fatal crash data from FARS and non-fatal crash data from the General Estimates System. The purpose of the Traffic Safety Facts report is to present statistics about traffic crashes of all severities.

SAFETYNET – Commercial Motor Vehicle Crash Reporting
SAFETYNET is a computer system utilized by state law enforcement agencies and the Federal Motor Carrier Safety Administration (FMCSA) for the collection and management of commercial

vehicle safety data. Data are collected from all safety inspections and compliance reviews performed in North Carolina and all qualifying crashes that occur on North Carolina highways.

The NCDMV maintains commercial motor vehicle (CMV) crash data in the crash database. The division is responsible for forwarding CMV crash data to the North Carolina State Highway Patrol (NCSHP), who enter the data into SAFETYNET. SAFETYNET data are routinely transferred to the Motor Carrier Management Information System (MCMIS) for analysis by FMCSA and are used to help determine a motor carriers' safety fitness rating. The system also allows for the electronic collection of inspection data from roadside inspection software.

FMCSA's SAFETYNET Crash Module records qualifying vehicles involved in crashes that are motor vehicle traffic crashes as defined in the ANSI D-16 Manual on the Classification of Motor Vehicle Traffic Accidents. To satisfy the definition of a motor vehicle traffic crash, the crash must not be the result of a deliberate act (e.g., suicide, police intervention) or a cataclysm (e.g., hurricane, flood). A crash must also meet the following criteria to be sent to SAFETYNET:

The crash must result in at least one of the following: fatality, injury or towed vehicle.

1. Commercial vehicles must have a gross vehicle weight rating (GVWR) > 10,000 pounds or carry hazardous materials.
2. Non-commercial vehicles must have one of the following vehicle styles: commercial bus, school bus, activity bus, other bus, light truck (carrying nine or more occupants), sport utility vehicle (carrying nine or more occupants) or van (carrying nine or more occupants).

NC Driver License Record System Data

The NCDMV maintains the State Automated Driver's License System (SADLS), which contains North Carolina driving records data. SADLS went into live production on November 24, 1994. The earliest driver license record stored in the system is from October 14, 1966.

Online data are processed in real time as received from various states/agencies via the American Association of Motor Vehicle Administrators Network (AAMVANet) interface. Some data files provided by outside agencies, such as the North Carolina Administrative Office of the Courts (NCAOC), are not received through AAMVANet and are processed by batch each workday.

Updates made to a driver record as the result of the driver turning in his or her North Carolina license and applying for a license in another state are made in real time. In addition, another example of real time updates includes any updates resulting from receipt of customer information from the Social Security Administration.

Overnight data updating is primarily adjudicatory in nature, and involves updating the driving record based on convictions received from the NCAOC. The updated record is then applied against the standards to determine whether a suspension should result. It could also involve

updating the driving record when a suspension ends or updating status information for the recently deceased.

NC Vehicle Registration Record Data
The State Training Accountability and Reporting System (STARS) is a database maintained by the NCDMV that was created to provide automated vehicle titling and registration services. STARS was established in 1996, and contains title records dating back to the year 1900 and registration records dating back to 1975. Data are entered into STARS by authorized employees at NCDMV branches. The data are entered using online STARS screens, which automatically transmit data to the database. In addition to online reporting, data are also reported through batch processes in which data are uploaded into STARS nightly.

Data that are submitted online at NCDMV branches are real time, while registration renewals done via mail and the internet, for example, are input through nightly batch processes. Title data are never purged from STARS. However, registration data older than four years are archived on a monthly basis.

NC Office of Emergency Management Systems

EMSPIC Performance Improvement Center
The EMS Performance Improvement Center (EMSPIC) is located within Department of Emergency Medicine at the University of North Carolina at Chapel Hill. Systems that are currently maintained and supported by the EMSPIC are: credentialing Information System (CIS), EMS Toolkit Project, Prehospital Medical Information System (PreMIS), State Medical Asset Resource Tracking Tool (SMARTT).

The North Carolina Office of EMS (NCOEMS) established a central location where, by regulation, incident data could be collected and maintained from all 101 North Carolina EMS systems/counties. This is accomplished by a contractual agreement in place since 1999. On January 1, 2008, South Carolina Department of Health and Environmental Control (DHEC), Division of EMS and Trauma also entered into a contractual agreement with the EMSPIC to begin utilizing the systems listed above. The EMSPIC is strategically placed to provide a high level of Information Technology support and quality management expertise. The EMSPIC supports state, regional and local EMS service delivery from a patient care, resource allocation, and regulatory perspective.

Prehospital Medical Information System (PreMIS)
The Prehospital Medical Information System (PreMIS) provides a data entry and reporting capability for the evaluation of EMS patient care and system performance. PreMIS follows the NEMSIS standards. The benefits of PreMIS include a standard method of documenting patient care to facilitate tracking of hospital diagnoses and patient outcome information, system comparison across agencies, involvement in public health and injury prevention initiatives, and EMS research, EMS strategic planning on a statewide basis, fiscal

accountability, leadership in developing EMS outcome measurements, links to other state and national data sets for researchers, quality management of patient care, services, and resource tracking, required billing information, offsite data warehousing, feedback on technician procedures for evaluation and certification, and storage of medical device data.

NC Trauma Registry System

Since 1987, North Carolina has 14 hospitals submitting data on trauma patients to the North Carolina Trauma Registry (NCTR). Twelve of these facilities are designated trauma centers by the state of North Carolina as level I, II, or III and two are non-designated. The North Carolina Office of Emergency Services (NCOEMS) maintains the NCTR and requires all state designated trauma centers to submit data, achieving the overall mission of collecting information on the injured patients in North Carolina for the purposes of performance improvement, outcomes measurement, resource utilization, injury prevention, and clinical research.

A designated trauma center is a local hospital voluntarily meeting the state's guidelines for care of the injured patient. Currently North Carolina has 13 designated trauma centers across the state. Each of the state's centers has the responsibility of providing care and of developing and supporting a regional trauma system.

NC Disease Event Tracking and Epidemiologic Collection Tool

The North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) is North Carolina's statewide syndromic surveillance system. NC DETECT was created by the North Carolina Division of Public Health (NC DPH) in 2004 in collaboration with the Carolina Center for Health Informatics (CCHI) in the UNC Department of Emergency Medicine to address the need for early event detection and timely public health surveillance in North Carolina using a variety of secondary data sources. Authorized users are currently able to view data from emergency departments, the Carolinas Poison Center, and the Pre-hospital Medical Information System (PreMIS), as well as pilot data from select urgent care centers. NC DETECT is designed, developed and maintained by CCHI staff with funding by the NC DPH. New functionality is added regularly based on end user feedback.

2014 Strategic Plan

Overview

In 2014, the North Carolina TRCC began the process of updating the 2013 Strategic Plan. The UNC Highway Safety Research Center worked with NCGHSP and NCDOT to review relevant materials, gather input from key agencies, and develop a plan to guide improvements to be made in traffic safety information systems over the next five years. Other agencies who participated in the development of this plan included:

- NCDMV
- NCDOT
- NCGHSP
- NCAOC
- NCDHHS
- NCSHP
- UNC-HSRC

Gathering input for the plan began with the initial task of reviewing the following documents:

- *North Carolina Traffic Safety Information Systems Strategic Plan, 2013.* This plan became the benchmark for progress with respect to improvements made over the past year.
- *State of North Carolina Traffic Records Assessment, 2012*. The assessment was completed by a NHTSA Technical Assessment Team in January 2012 and included several recommendations related to traffic safety information systems.
- *North Carolina Governor's Highway Safety Program FY 2013 Highway Safety Plan*. This plan was reviewed for specific recommendations related to traffic safety information systems and for data-related recommendations related to targeted safety strategies.
- *DMV-349 Revision Project, Phase I to Phase II Transition Notes*. This document was reviewed to determine specific needs related to the 58 recommended changes to the crash report content.

The primary source of input to the plan was a strategic planning session with representatives from the agencies listed above. This session was used to review goals and objectives and monitor progress toward performance measures, which were set last year.

The plan that is presented below is intended to address improvements in traffic safety information systems over five years. However, the plan will be reviewed on an annual cycle and modified as necessary to ensure that progress is being made in each of the areas and that new objectives are added to address changes in the state and take advantage of improvements that may lead to better systems. In other words, this is a dynamic plan.

Vision and Mission

Vision

To improve safety by significantly reducing the number of fatalities and injuries to the citizens and visitors of our state.

Mission

Provide the leadership to establish and maintain a level of coordination, communication and cooperation between agencies and stakeholders to maximize utilization and improve functionality, data accuracy, timeliness and linkages, and to advance electronic data collection, protect privacy, minimize redundancies in traffic records systems and better accomplish individual agencies' goals.

Goals and Objectives

Goals are established for the TRCC as an entity and for each of the six primary data systems that are required for addressing traffic safety in the state. For each of these seven goals, specific objectives and performance measures were developed that represent the priorities for each group/system.

Traffic Records Coordinating Committee

Goal – Provide direction and facilitate coordination among the safety data stewards and stakeholders to improve the transportation safety information systems in North Carolina.

Objective	*Performance Measure/Target*	*4/1/2012-3/31/2013*	*4/1/2013-3/31/2014*
Ensure that the membership of the TRCC consists of all key stakeholders, including the owners, stewards and users of the data in NC.	*An annual review of stakeholders and expansion of the TRCC membership as necessary.*		Completed review Feb. 5, 2014 and added two new members.
In collaboration with the North Carolina GHSP, review and improve upon the protocol used in the identification and prioritization of projects.	Annual review and improvement upon the project identification and prioritization process. *(Note: Recommendation is to do this during the fall meeting, following funding decisions from NHTSA but prior to when proposals are due to NCGHSP, for timing and planning purposes.)* A set of guidelines created for use in identifying and prioritizing projects. A prioritized list of recommended		Future effort Future effort Future effort

	projects provided to NCGHSP and other funding sources and agencies that align with the specific objectives of the Strategic Plan.		
Monitor and measure progress on existing goals and objectives.	Annual update of TRCC Strategic Plan. Periodic review of ongoing projects, focusing on progress toward meeting performance measures outlined in the strategic plan. Feedback to ECHS to report on progress made and new strategies proposed by the TRCC. Feedback provided to NC Strategic Highway Safety Plan Data and Emerging Issues Working Group to report on progress made.	Completed (June 2013) Completed	Completed (June 2014) Completed Future effort Completed (May 2014)
Identify gaps in the current traffic records systems and explore new solutions.	Establishment and revision of goals and objectives as part of development of the next strategic plan. (*Note: Explore external funding opportunities. Examples include: 405C, ECHS, FHWA, NHTSA, CDC).*		Completed (May 2014)
Share NC achievements and best practices in traffic safety information systems with other states.	Participation in regional and national conferences and peer-to-peer exchanges.		TRCC members made presentations at the Traffic Records Forum (October 2013) See Appendix A for details.
Monitor and evaluate the achievements and best practices in traffic safety information systems in other states for potential implementation in NC.	Participation in peer-to-peer exchanges. Annual review of promising strategies from other states and sharing back with group.		TRCC members participated in the Traffic Records Forum (October 2013) Future effort

	Monitor national TRCC for ideas for consideration.		Ongoing
Ensure that state highway safety plans include traffic safety information systems as a major component.	Review of NC Strategic Highway Safety Plan. Review of NC State Highway Safety Plan.		N/A (Plan not yet available) Completed (July 2013)

Crash Information Systems

Goal – Maintain the crash data system and expand the capabilities of the system to allow the state to use this data to track crash injury/fatality experience for use in court cases, safety improvement studies and evaluating State driving statues.

Objective	*Performance Measure/Target*	*4/1/2012-3/31/2013*	*4/1/2013-3/31/2014*
Continue to enhance and expand electronic crash reporting by all enforcement agencies in the State.	Number or percentage of law enforcement agencies submitting to the electronic crash reporting system. Number or percentage of reported crashes submitted via the electronic crash reporting system. Integration and use of additional features or options for crash reporting. *(Example: geo-locating.)*	16.10% 67.44%	16.74% 70.41% Future effort
Continue to communicate data collection and data submission protocols and business rules with third-party software vendors of electronic crash submission products to keep them apprised of changes in the North Carolina crash data systems that need to be accommodated in their software applications.	Weekly meetings with third-party vendors to share business rules and communicate changes. Periodic review and validation of third-party vendors' compliance capabilities. Initial review and validation for new third-party vendors.		Biweekly meetings conducted by NCDMV Initial tests by NCDMV, but no periodic review yet Ongoing (1 new vendor in the last year)
Explore the feasibility of LEA-level metrics for improving crash reporting.	Feasibility study on the potential range and use of LEA-specific metrics. *(Note: Report on types of errors made and time period*		Future effort

	for reporting, compared to peers)		
Continue to enhance the integration of crash data systems.	Continuing to correct CRS records on the basis of analysis of TEAAS data. Periodic review of the integration process between the traffic safety unit and DMV.	When error is identified	When error is identified Protocol under development between NCDMV and NCDOT Traffic Safety Unit
Ensure that crash data continue to be submitted accurately and in a timely manner to the CRS.	Average lapsed time between the time of the crash and the time of the submission. Percentage of crash reports submitted in a timely manner. Percentage of crash reports submitted accurately.	20.14 days (print submissions) 3.44 days (electronic submissions) 70.77% submitted within 10 days.	29.74 days (print submissions) 2.79 days (electronic submissions) 67.92% submitted within 10 days. Future effort
Ensure that crash data continue to be accurately recorded and reported to the CRS.	The percentage of crash records that have no errors in the critical data elements. (Must define critical elements, example: crash severity.) The percentage of rejected crash reports. Periodic summary of crash report rejection reasons. Periodic review of business rules to target inaccurate fields.	 5.85% (electronic submission only) Summary report included 1,659 reasons for rejection (electronic submission only)	Future effort 5.04% (electronic submission only) Summary report included 1,415 reasons for rejection (electronic submission only) Future effort
Ensure that crash data continues to be recorded as completely as possible.	Percentage of reports that have no missing critical data elements. *(Note: Must define critical elements.)* Percentage of reports that have no missing data elements.		Future effort Future effort

	Periodic review of business rules to address completeness. Feedback to LEAs with respect to their data quality. Year-to-year comparison of the number of reports received to review for possible missing data.		Future effort Future effort Future effort
Ensure that crash data is recorded uniformly.	Percentage of data elements that are MMUCC compliant. Year-to-year comparison of reportable vs. non-reportable crashes by LEAs.	96% compliance based on the 2012 NC TR Assessment Report (on page 42 for the previous standard). 74.43% reportable	To be re-assessed with the new standard in the future. 74.72% reportable
Ensure that the crash data is accessible to key stakeholders.	Annual survey of crash data accessibility by stakeholder groups, including internal users within the NCDOT and external users such as other state agencies and universities. Potential workshop with stakeholders including IT to discuss accessibility issues.		Future effort Future effort
Enhance law enforcement training that will result in more complete and accurate crash reporting.	Review of alternative training methods, including distance learning and blended training options, and methods used in other fields. *(Note: EMS as an example.)* Number of law enforcement officers who receive training, including a breakdown of standard and more extensive training. Review of the current Basic Law Enforcement Training.		NCSHP have started internal discussions about online training All law enforcement officers receive basic (20 hours) training. NCSHP requires additional training (96 hours). Future effort

Explore the feasibility of creating a statewide streamlined or "limited" data entry protocol for non-injury crashes within the electronic crash reporting system at the time the DMV349 is updated.	Review of the implications on the CRS database. Review of the implications on safety analysis and decision making. *Note: The issues addressed should include data acquisition, compliance with NHTSA data guidance (e.g., MMUCC), legal considerations, and possible degradation in the information being captured in the crash report.*		Future effort Future effort
Develop standards for reporting location information.	Publication of spatial location reporting standards available to third-party vendors for ECRS.		Future effort

Citation/Adjudication Systems

Goal – Maintain and update North Carolina AOC databases and oversee the proper movement of court information and data, while centralizing information and creating citation/sharing procedures for the citation and adjudication records.

Objective	*Performance Measure/Target*	*4/1/2012-3/31/2013*	*4/1/2013-3/31/2014*
Continue to improve electronic citation audit procedures and implement the most promising improvements to ensure citations are tracked from time of issuance to disposition of citations.	Implementation of a tracking system for unused or voided citations.		Future effort
Continue to improve the electronic citation submission statewide.	Length of time for citations to be received at AOC.	80.71% citations received within three days.	84.01% received within three days.
Conduct a feasibility assessment of the value of and most effective means of sharing data across multiple systems within the data collection process, such as	Feasibility study report. *(Note: This is a project that will be addressed in the future, when all stewards are ready.)*		Future effort

crash and citation, for consistency and accuracy of data.			
Increase data capture surrounding the case management of DWI charges and convictions to aide in the analysis and tracking of these cases.	Number of DWI data element fields added to the file.		In progress
Provide an interface between eCitation and NCAWARE for the most frequent arrestable offenses to reduce duplicate data entry.	Percent reduction in number of cases for which there is duplicate data entry.		Future effort
Explore the value and feasibility of capturing detailed location information for citations.	Feasibility study report.		Future effort
Explore the value and the feasibility of developing a centralized database for warning tickets that would be available to law enforcement officers and other stakeholders, such as researchers, in the road safety community.	Feasibility study report. *(Note: This is a low priority issue based on recent discussions with NHTSA and will be discussed at a later time.*		Feasibility report on how to use warning ticket information in the context of safety analysis in a future effort. Currently collecting information about tickets and warning tickets, per state law (noted in NC General Statute 114-10).

Injury Surveillance Systems

Goal – Evaluate the need for and feasibility of a Statewide Surveillance Injury System.

Objective	*Performance Measure/Target*	*4/1/2012-3/31/2013*	*4/1/2013-3/31/2014*
Conduct a demonstration project that links injury surveillance data with crash data to identify issues associated with linkage.	Identification of a project with defined objectives that requires linking injury surveillance data and crash data. Development of a work plan for the demonstration project. Demonstration project report.		Proposed projects now under consideration by GHSP Submitted as part of project proposals Future effort

Roadway Information Systems

Goal – Continue to maintain and expand an up-to-date statewide inventory of all North Carolina roadways that allows the State to track roadway changes and improvements and permits enhanced safety analysis.

Objective	*Performance Measure/Target*	*4/1/2012-3/31/2013*	*4/1/2013-3/31/2014*
Conduct a data quality assessment of key roadway elements and attributes, assess the feasibility of the enhancement of data where the quality is deemed substandard or there are gaps in the data.	Assessment report. Feasibility report for enhancement.		NCCU selected, quality assessment began May 2014 Future effort
Expand the linear referencing system (foundation for linkage to roadway characteristics) to cover all public roads, state- and locally-owned.	Percentage of NC roadway mileage that is included in the LRS.	75%	75%
Improve the interoperability and linkage between the linear referencing system, road characteristics data, and the crash data system (TEAAS).	Successful implementation of a distributed ownership model for capturing and maintaining roadway data elements. Ability of external customers to add or edit data to the primary roadway characteristics file.		Ownership and stewardship has been defined for most road data elements/attributes Future effort

Conduct a feasibility assessment of the development of supplemental roadway files that may be used in safety analysis. (*Examples include horizontal curves and grades.)*	Feasibility report that includes priorities for the development of supplemental files.		Currently exploring requiring the collection of such data on our primary system through our video log vendor. (Report is a future effort.)
Explore the feasibility of an intersection database.	Feasibility report.		Future effort

Driver Information Systems

Goal – Continue to maintain and update the North Carolina driver license record data to be used in road safety studies and statistical analysis and to track all North Carolina drivers and their driving records according to North Carolina law.

Objective	*Performance Measure/Target*	*4/1/2012-3/31/2013*	*4/1/2013-3/31/2014*
Publish online a basic summary of the number of licensed North Carolina drivers, which includes their age, race, sex and county of residence. *(Note: the publication should include motorcycle endorsements, commercial licenses and learner's permits.)*	Annual online publication as part of NC Crash Facts.		Future effort

Vehicle Information Systems

Goal – Continue to maintain and update all North Carolina vehicle registration record data for the state to be used in road safety studies and statistical analysis and to insure all vehicles are properly licensed according to the laws of NC.

Objective	*Performance Measure/Target*	*4/1/2012-3/31/2013*	*4/1/2013-3/31/2014*
Publish online a summary of the number of NC registered vehicles – by type of vehicle and county.	Annual online publication as part of NC Crash Facts.		Future effort
Explore the value and feasibility of adding vehicle color as a data element. *(Note: This could be accessed from the VIN.)*	Feasibility study report.		Proposed to CJLEADS

Traffic Safety Information System Projects

Provided in this section of the report is a discussion of the process that is currently used by the North Carolina TRCC to provide input to the NCGHSP on the selection of projects to be funded using Section 405(c) funds from NHTSA. At the end of this section is a table showing current traffic safety information system projects that are ongoing in the state, regardless of funding source.

Project Identification

The following section of this report will be dynamic and will reflect the ongoing efforts of the TRCC to effectively identify and prioritize initiatives to reflect its goals. The priorities and projects will change as available resources are identified. This section will also evolve as Traffic Records Assessments are completed and as information, data and opportunities become clearer. In addition, the status of information technology directives or legislative actions can have significant effects on the items in this section.

Projects will primarily be identified by each agency effort to address a deficiency in a traffic records system, the data collection process (accuracy, completeness), achieving necessary compliance, customer service improvements (availability of data) or improving the timeliness of the data. Projects involving the linking of data for improved utilization and establishing partnerships will also be identified and receive full consideration by the TRCC. All projects must fully address all federal and state laws or policies concerning the privacy or protection of information. Formal and informal traffic records assessments will be a significant resource for projects and strategies.

Project Prioritization

All strategies or projects included in this report are considered important to both the short term and long term success of the TRCC, each agency and North Carolina. Each initiative will have measurable benefits. In addition to addressing data systems, data collection, the technical ability to link data or systems or other technical components, some projects may focus on increasing the general knowledge, understanding or marketability of the data. Projects demonstrating the results of a successful TRCC partnership should also be considered.

The TRCC also recognizes that many projects or strategies will be easier to implement and may yield high payoff and have few obstacles to archive relatively quick success. If resources become available to the TRCC, typically in the form of grants or possibly through the ECHS, a process should be in place to select these projects.

Future effort is planned to develop a project prioritization protocol, which would involve the development of specific criteria for ranking projects.

Traffic Safety Information System Projects Listing

The table on the following page includes a list of current traffic safety information system projects, with the projects funded entirely or partially by Section 405(c) funds listed first. Descriptions of these projects, as well as a list and description of past projects is available in Appendix C.

Current projects

Cross Ref. #	Project	Project Number	Coordinating Agency	Budget	Budget Source
	405(c)-funded projects				
1	A Performance-Based Web Analytic Solution for NCSHP Operational Planning Decision Support	K9-14-11-02	NCSU / ITRE	$109,795	GHSP
2	ASU In-car Computer Grant	K9-14-11-06	Appalachian State University	$30,000	GHSP
3	TRACS Upgrade	K9-14-11-03	NCDMV	$43,300	GHSP
	Non 405(c)-funded Projects				
4	Alcohol Facts Web Site 2014	TR-14-10-03	HSRC	40,066	GHSP
5	Automated Criminal Infraction System (ACIS)		NCAOC		NCAOC
6	Criminal Court Information System – Clerk Component (CCIS-CC)		NCAOC	$ 6,301,022	NCAOC
7	Criminal Court Information System – District Attorney Component (CCIS-DA)		NCAOC	$3,333,348.24	NCAOC
8	eCitation Printers	M3DA-14-19-03	NCAOC	$267,500	GHSP
9	Linkage Project		EMSPIC		EMSPIC
10	NC Crash Data Web Site	TR-14-10-02	HSRC	$61,700	GHSP
11	North Carolina Warrant Repository/NCAWARE		NCAOC	$13,000,000	NCAOC

Cross Ref. #	Project	Project Number	Coordinating Agency	Budget	Budget Source
12	payNCticket		NCAOC	$185,459	NCAOC
13	PreMIS migration to NEMSIS v3 Standard		EMSPIC		OEMS
14	Quantifying and Describing EMS Patient Transports following Motor Vehicle Crashes in North Carolina		EMSPIC		EMSPIC
15	Quick Response System	TR-14-10-05	HSRC	$43,874	GHSP
16	SADIP 2011	FM-SAD-003-11-01-00	NCDMV-TR	$872,400	NCDMV- TR, NCSHP
17	TR Strategic Plan	TR-14-10-04	HSRC	$23,199	GHSP
18	Traffic Records Support Position	M3DA-14-20-02	NCDMV	$176,800	GHSP

Presentations by TRCC members in 2013:

Traffic Records Forum - 2013

"A Performance-Based Visual Analytics Platform for Improving Motor Carrier Enforcement Operational Effectiveness" Greg Ferrara, ITRE NCSU and Lt. Eric Jackson, NCSHP)

Poster Session – "Visualizing Data Partnerships: Improving Operational Planning Through Analytics (Andy Belcher, ITRE NCSU)

Best Practices in Traffic Records – "Commercial Vehicle Enforcement Resource Lab - COVERLAB Analytics" - Recognized (NCSHP / ITRE NCSU)

Appendix B – TRCC Participants

Provided below is a list of the active participants in the North Carolina TRCC meetings.

Name	Agency	Email Address
Brian Mayhew (Co-chair)	NCDOT	bmayhew@ncdot.gov
Eric Rodgman (Co-chair)	UNC-HSRC	rodgman@hsrc.unc.edu
Jon Arnold	NCDOT	jonarnold@ncdot.gov
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Julian Council	NCDOT-DMV	jhcouncil@ncdot.gov
Pam Guptill	NCDOT-DMV	pguptill@ncdot.gov
Frank Hackney	NCGHSP	fhackney@ncdot.gov
Don Nail	NCGHSP	dnail@ncdot.gov
Alan Dellapenna	NCDHHS	alan.dellapenna@dhhs.nc.gov
Paul Cooper	NCEMS	pcooper@emspic.org
Derek Traughber	UNC EMS	dtraughber@emspic.org
Janet Greene	NCAOC	janet.greene@nccourts.org
John Ivarsson	NCSHP	John.Ivarsson@ncdps.gov
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Andy Belcher	NCSU-ITRE	cabelch2@ncsu.edu
David Harkey	UNC-HSRC	harkey@hsrc.unc.edu
Patty Harrison	UNC-HSRC	harrison@hsrc.unc.edu
Carol Martell	UNC-HSRC	martell@claire.hsrc.unc.edu

Included in the table below are the historical (completed) traffic safety information system projects.

Completed (historical) projects

Project	Project Number	Coordinating Agency	Budget	Budget Source
408/405(c)-funded Projects				
Administrative Office of the Courts (NCAOC) e-Citation Printers	K9-09-11-04	NCAOC	$328,157	GHSP
Air Cards Technology to Reduce Speed Related Crashes and Increase Seat Belt Use	K9-13-11-02	NCSHP	$608,160	GHSP
Division of Motor Vehicles (DMV) Gap Analysis	K9-09-11-05	DMV	$56,109	GHSP
eCitation Printers	K9-13-11-03	NCAOC	$214,500	GHSP
eCitation/Electronic Crash Reporting	K9-13-11-05	Enfield PD	$8,000	GHSP
ecitation/Electronic Crash Reporting	K9-12-11-15	NCSHP	$46,000	GHSP
eCitation/NCAWARE Arrestables Interface	K9-13-11-06	NCAOC	$133,572	GHSP
Electronic Submission of Crash Reports (DMV-349) from NCSHP	K9-08-11-04	NCSHP	$331,240	GHSP
Geocode Pedestrian Crashes Statewide and Traffic Records Strategic Plan	K9-12-11-04	HSRC	$51,421	GHSP
GIS location of Crashes	K9-11-11-03	ITRE	$15,898	GHSP
Linking EMS, Trauma, Healthcare and Crash Data Systems	K9-10-11-03	EMSPIC		
MDTs to Enable More Officers to Perform Ecitation and Electronic Crash - GPD (Garner)	K9-10-11-11	Garner Police Department	$10,000	GHSP

Project	Project Number	Coordinating Agency	Budget	Budget Source
MDTs to Enable More Officers to Perform eCitation and Electronic Crash - GPD (Gastonia)	K9-10-11-08	Gastonia Police Department	$3,340	GHSP
MDTs to Enable More Officers to Perform eCitation and Electronic Crash - LPD	K9-10-11-04	Lenoir Police Department	$44,000	GHSP
MDTs to Enable More Officers to Perform eCitation and Electronic Crash – MCSO	K9-10-11-05	Macon County Sheriff's Office	$16,000	GHSP
MDTs to Enable More Officers to Perform eCitation and Electronic Crash - N.C. Highway Patrol	K9-10-11-07	N. C. State Highway Patrol	$331,240	GHSP
MDTs to Enable More Officers to Perform eCitation and Electronic Crash – NPD	K9-10-11-12	Norwood Police Department	$4,850	GHSP
MDTs to Enable More Officers to Perform eCitation and Electronic Crash – TPD	K9-10-11-06	Taylorsville Police Department	$11,372	GHSP
NC DOT Traffic Engineering TR Guidebook	K9-09-11-06	DOT	$6,342	GHSP
NC DOT Traffic Engineering TRCC Support	K9-09-11-07	DOT	$33,000	GHSP
NCAOC-Batmobile for purchase of MDTs to Place Aboard Each BAT Units	K9-10-11-09	NCAOC	$10,992	GHSP
NCSHPGIS Decision Support from Motor Carrier Enforcement to Traditional Enforcement	K9-12-11-02	NCSU ITRE	$28,049	GHSP
Purchase of MDTs for Electronic Crash Reporting - MDPS	K9-11-11-06	Morganton Department of Public Safety	$8,000	GHSP
Purchase of MDTs for Electronic Crash Reporting - RMPD	K9-11-11-11	Rocky Mount Police Department	$4,000	GHSP

Project	Project Number	Coordinating Agency	Budget	Budget Source
Purchase of MDTs for Electronic Crash Reporting - SPD	K9-11-11-07	Sylva Police Department	$4,132	GHSP
Purchase of MDTs for Electronic Crash Reporting - WPD	K9-11-11-12	Warrenton Police Department	$5,425	GHSP
Purchase of Printers	K9-10-11-02	NCAOC	$325,000	GHSP
Purchase/Distribution of Printers to Expand the eCitation Program	K9-11-11-02	NCAOC	$325,000	GHSP
Salary and Benefits for a State Traffic Records Coordinator	K9-10-11-01	GHSP-Traffic Records	$67,000	GHSP
State Highway Patrol (SHP) Mobile Data Computers	K9-09-11-03	SHP	$445,639	GHSP
Systems Gap Analysis	K9-10-11-10	N. C. DOT - Division of Motor Vehicles	$117,420	GHSP
Non 408/405(c)-funded Projects				
2013 North Carolina Traffic Safety Information Systems Strategic Plan Update	TR-13-10-03	HSRC	$22,807	GHSP
ACIS/Eastern Band of Cherokee Indians (ECBI)		NCAOC	$67,990	EBCI/NCAOC
E-citation/Electronic Crash Reporting	TR-12-10-06	Roxboro PD	$40,000	GHSP
E-citation/Electronic Crash Reporting	TR-12-10-04	Enfield PD	$16,000	Enfield PD/ GHSP
ECRS Program Manager Position Continuation	K9-11-11-13	NCDMV-TR	$27,400	NCDMV-TR
Local Law Enforcement MDT Projects		Local PD	$19,682	GHSP
NC Crash Data Web-site	TR-12-10-02	HSRC	$51,782	GHSP
Quick Response System	TR-12-10-01	HSRC	$45,537	GHSP

Project	Project Number	Coordinating Agency	Budget	Budget Source
Quick Response System for GHSP Inquiries: A Continuation	TR-13-10-01	HSRC	$44,146	GHSP
SADIP 2009	SD-09-37-G-00000	NCDMV-TR, NCSHP	$562,651	NCDMV- TR, NCSHP
SADIP 2010	SD-10-37-01-000000	NCDMV-TR	$90,218	NCDMV-TR
SADIP 2012	FM-SAD-0022-12-01-00	NCDMV-TR	$946,400	NCDMV-TR
UNC HSRC Crash Web Site Update		HSRC	$48,483	GHSP
Web Site Using NC Crash Data	TR-13-10-02	HSRC	$55,421	GHSP

2014 Traffic Records Current Project Status Reports

See below for project descriptions for current traffic safety information system projects.

1.) A Performance-Based Web Analytic Solution for NCSHP Operational Planning Decision Support

Number(s): K9-14-11-02
Agency(ies): NCSU / ITRE
Project Leader(s): Greg Ferrara
Performance Period: 10/1/13 – 9/30/14
Description: This is a continuation of work that was originally funded by FHWA for the NCSHP. The goals include aligning NCSHP performance to the GHSP Highway Safety Plan and providing both GHSP and NCSHP with a common performance measure online "scorecard" for monitoring and tracking shared crash reduction performance goals. GHSP would be able to continuously monitor HSP performance measures online as well as view the relative performance of NCSHP against those measures. Conversely, the NCSHP would be able to see their performance relative to GHSP HSP statewide goals. An interactive dashboard will provide at-a-glance visualization for exposing trends while providing additional drill-down analytic capabilities for crashes and enforcement.

A secondary goal is to expand the data coverage to all law enforcement agencies in North Carolina as well as develop an interactive "map analytics" application for filtering, mapping and prioritizing enforcement activities. This will be a multi-year project with incorporation cooperation between state agencies and local agencies.
Performance Areas: Integration, Accessibility
Performance Measures: ITRE will monitor and track site and page usage statistics for measuring accessibility. Unique user credentials will also be tracked (i.e. Troop Districts, GHSP, etc.) for analyzing user stats.

Status: This project is approximately halfway through development and on track for initial release in October 2014. A secondary goal of branding the platform name to align with a "vision zero deaths" philosophy is currently under review and subject to outcomes of the SHSP deliverable.
Sponsoring Agency 1: GHSP ($109,795)
Total budget: $109,795
For more information, contact: Greg Ferrara, 919-515-8656, gpferrar@ncsu.edu

2.) ASU In-car Computer Grant
Number(s): K9-14-11-06
Agency(ies): Appalachian State University
Project Leader(s): Sgt. Eric Miller
Performance Period: 10/01/13 – 09/30/14
Description: Appalachian State University (ASU) Police Department has no in-car computer set-ups in any vehicles. Citations are hand-written and crash reports are brought back to the department to process. This grant will assist in purchasing 10 in-car computer systems with the e-Citation and TRaCs programs.
Performance Areas: Accuracy, Timeliness
Performance Measures: A reduction in the amount of time that officers spend writing citations and completing crash reports and an increase the accuracy in which the reports are done.
Status: In progress and will continue.
Sponsoring Agency 1: GHSP ($30,000)
Sponsoring Agency 2: ASU ($30,000)
Total budget: $60,000
For more information, contact: Frank Hackney, 919-733-3083, fhackney@ncdot.gov

3.) TRACS Upgrade
Number(s): K9-14-11-03
Agency(ies): NCDMV
Project Leader(s): Pam Guptill
Performance Period: 10/01/13 – 09/30/14
Description: The NCDMV's goal is for 85 percent of law enforcement agencies to electronically submit traffic crash data in lieu of paper-based forms. Currently, TRACS 7.3 is available to law enforcement agencies at no cost. The division planned to implement TRACS 10 by December 2013. This upgrade is being funded by the 2011 SaDIP Grant, which is scheduled to close September 2013.

- There are 78 law enforcement agencies currently submitting crash reports electronically to the Division. Of those, 68 are using TRACS and will require training to use TRACS 10.
- The collection of accurate and detailed crash data has a direct correlation to the State's initiative to reduce the number of fatalities and to increase the usage of seat belts. The information on a crash report is directly used by highway safety statisticians and law enforcement agencies in North Carolina to determine which safety programs should be emphasized in what area of North Carolina and how successful the initiatives were when completed. As a result, the collection of crash data electronically, our upgrade to TRACS

10 and the efficient and effective implementation of the train-the-trainer module is paramount.

- One technical writer, training materials and a train-the-trainer initiative are a major component for a successful and timely implementation of TRACS 10. There will be a three-month gap with no funding for this position, materials and training. This funding will be used as a stop gap.

Performance Areas: Accuracy, Completeness, Integration, Timeliness, Uniformity, Accessibility
Performance Measures:

- Incorporate a more comprehensive crash reporting curriculum at law enforcement academies and implement the state's train-the-trainer module.
- Educate all organizations involved in crash data collection on investigating and reporting accurate and detailed crash reports with an emphasis on their role in the process and the standards to be clearly defined by DMV.

Status: This project is ongoing in 2014 and is currently being activated in the field.
Sponsoring Agency 1: GHSP ($43,300)
Total budget: $43,300
For more information, contact: Frank Hackney, 919-733-3083, fhackney@ncdot.gov

4.) Alcohol Facts Web Site 2014
Number(s): TR-14-10-03
Agency(ies): UNC HSRC
Project Leader(s): Natalie O'Brien
Performance Period: 10/01/13 – 09/30/14
Description: Updates to the Alcohol Facts website to include 2012 and 2013 crash and conviction data as soon as they become available, and screening, formatting and analysis of the data. In addition, the user interface will be re-configured to make these data accessible to the public, along with existing data from 2000 through 2013. Graphic illustrations of county-specific information on the web site will also be updated to represent the most recent information on DWI and alcohol-related crashes.
Performance Areas: Accessibility
Performance Measures: Overall crash and fatality rates, as well as speed-related fatalities, motorcyclist fatalities, unbelted fatalities in addition to alcohol-related fatalities specifically are influenced by drinking-driving. Alcohol use is uncommon among crash-involved 16- and 17-year-old drivers, but it increase sharply for 18- and especially 19-year-olds. The proposed activity is meant to support all activities of all groups, organizations and institutions in North Carolina. These include judicial, law enforcement, educational and awareness-promoting efforts.
Status: In progress and will continue until all upgrades are made.
Sponsoring Agency 1: GHSP ($40,066)
Total budget: $40,066
For more information, contact: Frank Hackney, 919-733-3083, fhackney@ncdot.gov

5.) Automated Criminal Infraction System (ACIS)
Number(s): n/a
Agency(ies): NCAOC
Project Leader(s): Wanda Thomas
Performance Period: 01/01/2013 – 12/31/2013
Description: ACIS is an automated, statewide system which provides direct operational support to the Clerk of Superior Court Offices in the areas of district and superior court criminal case processing. The system is comprised of two major components:

- Criminal Module: Criminal case data is entered from case initiating documents such as warrants for arrest, orders for arrest or bills of indictment or data is received electronically from NCAWARE. Cases are tracked from initiation through disposition, with some post-disposition entries such as probation violation. If appealed, notations are made including results of appeal.
- Infraction Module: The majority of infraction data is electronically transmitted from the eCitation system with less than 20 percent of data entered from paper processes. Infraction cases are also tracked from initiation through disposition in the system.

Performance Areas: Accuracy, Completeness, Integration, Timeliness, Uniformity, Accessibility
Performance measures:

- Accuracy: All data, except some free text offenses (offenses used less often where no standardized code and language has been established) and clerk notes/special conditions are rigorously validated and data integrity is ensured. ACIS data is shared with all other state criminal justice agencies, the DOT/DMV, many federal agencies, special interest groups and the public in general. Data about an individual's court record must be accurate.
- Completeness: All criminal and infraction cases are tracked within ACIS. It contains a comprehensive repository of all cases. Infraction cases are purged from the system five years after their disposition date.
- Integration:
    - Division of Motor Vehicles (DMV): transmittal of charge and disposition data for motor vehicle offenses
    - State Bureau of Investigation (SBI): transmittal of charged and disposition data; match occurs with SBI records to retrieve the state identification number (SID) or fingerprint number.
    - State Highway Patrol (SHP): transmittal of all SHP trooper issued citation data
    - Department of Correction (DOC): transmittal of charge and disposition data for defendants sentenced to active prison time or supervised probation
- Timeliness: With the implementation of eCitation in 1999 and NCAWARE in 2008, most of the case initiation data in ACIS is received electronically in real-time. Results of case trials/hearings are often entered by clerk staff the day of court but not during court. Court proceedings still rely on paper files or shucks during the trial.
- Uniformity: All 100 counties track all court cases in ACIS. North Carolina has a uniform court system with standardized, uniform forms. The same data is captured the same way in ACIS in all 100 counties.

- Accessibility: ACIS is available 24 hours a day except for scheduled semi-monthly maintenance (generally one hour on a Sunday) to court personnel, law enforcement, all criminal justice agencies, the DOT/DMV, federal criminal justice agencies such as ICE, DHHS and to the public through contracted public access vendors.

Status:

- January 2013 – Incorporated Mecklenburg NCAWARE transactions.
- May 2013 – Implemented interpreter use information to disposition screens.

Sponsoring Agency 1: NCAOC
Total budget:
For more information, contact: Janet Greene, 919-890-2041, Janet.greene@nccourts.org

6.) Criminal Court Information System – Clerk Component (CCIS-CC)
Number(s): n/a
Agency(ies): NCAOC
Project Leader(s): Mark Prakke
Performance Period: 01/01/2013 – 12/31/2013
Description: CCIS-CC is a web-based criminal case management system which will ultimately replace the Automated Criminal Infraction System (ACIS). Functionality is being delivered incrementally and as functions are delivered in CCIS-CC, the corresponding functions are "turned off" in ACIS.
Performance Areas: Accuracy, Completeness, Integration, Timeliness, Uniformity, Accessibility
Performance measures:

- Accuracy: All data, except some free text offenses (offenses used less often where no standardized code and language has been established) is rigorously validated and data integrity is ensured.
- Completeness: All criminal and infraction cases are tracked within ACIS or CCIS-CC. Data for both systems is stored on the same physical database and accessed by both systems. Along with ACIS, CCIS-CC contains a comprehensive repository of all cases. Infraction cases are purged from the system 5 years after their disposition date.
- Integration: Existing ACIS interfaces.
- Timeliness: With the implementation of eCitation in 1999 and NCAWARE in 2008, most of the case initiation data in CCIS-CC and ACIS is received electronically, real-time. Results of case trials/hearings are often entered by clerk staff the day of court but not during court. Court proceedings still rely on paper files or shucks during the trial.
- Uniformity: All 100 counties track all court cases in ACIS and CCIS-CC. North Carolina has a uniform court system with standardized, uniform forms. The same data is captured the same way in ACIS and CCIS-CC in all 100 counties.
- Accessibility: CCIS-CC is available 24 hours a day except for scheduled semi-monthly maintenance (generally one hour on a Sunday) to court personnel.

Status:

- May 2013 – Added interpreter use information
- To Be Released Summer 2014 – Redesign of ACIS disposition functionality for CCIS-CC to provide new capabilities for entering judgment details, transfers, appeals, withdrawals,

and remands. The team will also replace the functionality of CourtFlow and will add the initial data elements identified by the Sentencing Commission group for the Justice Reinvestment Act (JRA).

Sponsoring Agency 1: NCAOC ($6,301,022)
Total Budget: $6,301,022
For more information, contact: Janet Greene, 919-890-2041, Janet.greene@nccourts.org

7.) Criminal Court Information System – District Attorney Component (CCIS-DA)
Number(s): n/a
Agency(ies): NCAOC
Project Leader(s): Sanjay Bhojani
Performance Period: 01/01/2013 – 12/31/2013
Description: CCIS-DA is a web-based criminal case management system developed specifically for District Attorneys to manage the caseload within their offices. CCIS-DA captures individualized case notes, and tracks and schedules action-oriented events and decision points relevant to the prosecution of each case, including DWI case management.
Performance Areas: Accuracy, Completeness, Integration, Timeliness, Uniformity, Accessibility
Performance Measures:

- Accuracy: All data, except some free text offenses (offenses used less often where no standardized code and language has been established) is rigorously validated and data integrity is ensured.
- Completeness: All district and superior cases assigned to the District Attorney offices may be downloaded from ACIS and managed by each local office.
- Integration: Interfaces with ACIS to download case data real-time. Also interfaces with the Discovery Automation System (DAS) which allows uploads of law enforcement discovery.
- Timeliness: Cases may be selected and downloaded real-time from ACIS.
- Uniformity: CCIS-DA is implemented in all 100 counties. North Carolina has a uniform court system with standardized, uniform forms, and offense charging language.
- Accessibility: CCIS-DA is available 24 hours a day except for scheduled semi-monthly maintenance (generally one hour on a Sunday) to District Attorney staff.

Status:

- May 2013 – Added alcohol content to case history summary screen.
- November 2013 – Implemented Calendar Dashboard to enable automatic scheduling in prosecutor's Outlook calendar. The Dashboard also integrates with Discovery Automation System to provide prosecutor with case documents while in court.

Sponsoring Agency 1: NCAOC ($3,333,348.24)
Total budget: $3,333,348.24
For more information, contact: Janet Greene, 919-890-2041, Janet.greene@nccourts.org

8.) eCitation Printers
Number(s): M3DA-14-19-03
Agency(ies): NCAOC
Project Leader(s): Kimberly Gibney
Performance Period: 01/01/2013 – 12/31/2013
Description: eCitation®, using existing wireless connections, allows the law enforcement officer to create and issue citations from the patrol car. All generated citations are transmitted to the Automated Criminal Infraction System (ACIS) where the citation and case information can be accessed immediately. The system is available statewide and is in use by over 17,800 law enforcement officers and all 100 counties Clerk of Superior Court Offices.
Performance Areas: Accuracy, Completeness, Integration, Timeliness, Uniformity, Accessibility
Performance Measures:

- Accuracy: All data is rigorously validated and data integrity is ensured.
- Completeness: Any traffic citation with non-arrestable offenses may be generated through eCitation®: More than 88.8% of all citations are generated through eCitation®.
- Integration: eCitation® directly interfaces with ACIS via the transmittal of the citation from the officer's client component. ACIS in turn transmits the citation information to both DMV and the NC State Highway Patrol. The eCitation® officer component also directly interfaces with DMV's license and registration systems to pre-fill demographic and vehicle data on the citation.
- Timeliness: The citation may be automatically transmitted to ACIS at time of issuance or the officer may choose to override this function and transmit later for reasons such as being out of wireless coverage range. Interfaces to DMV and SHP are overnight.
- Uniformity: eCitation® is operational in all 100 counties. North Carolina has a unified court system and all forms including the citation form are uniform throughout the state
- Accessibility: The system is available, free of charge, to any law enforcement officer with a computer and a printer in the patrol car.

Status:

- Purchased 708 printers with grant monies.
- Distributed 645 printers to law enforcement as of December 31, 2013.
- Currently undertaking major endeavor to replace eCitation with a system using a new technical platform and interfacing eCitation to NCAWARE for arrests which begin on a citation. Officers anticipate that the arrestables interface will save them up to three hours per DWI stop.

Sponsoring Agency 1: GHSP (initial funding for project) ($500,000)
GHSP (grants to purchase printers for law enforcement) ($1,280,741)
Sponsoring Agency 2: Governor's Crime Commission (printers) ($220,875)
Total budget: $2,001,616
For more information, contact: Janet Greene, 919-890-2041, Janet.greene@nccourts.org

9.) Linkage Project

Agency(ies): EMSPIC

Project Leader(s): Derek Traughber

Performance Period: Ongoing

Description: The purpose of this project is to maintain ongoing linkages with the following data sources: EMS, trauma, crash, emergency department, hospital discharge, stroke and RACE, and to maintain and continue creation of an online reporting system that includes reports of the linked data. Currently, these are developed on an as-needed basis. We also plan to create security levels for various stakeholders, including the TRCC members.

NOTE #1: EMSPIC does not maintain current linkages with Hospital Discharge or RACE at this time.

NOTE #2: We also download and link against the AOC database every night to crosscheck EMS personnel (with existing certifications or seeking new certifications) against known violations.

NOTE #3: We added a new type of linkage, linking EMS records to other EMS records. This is needed to track the entire continuum of care for a patient when patient care is transferred between different EMS unit(s) for the same event.

Performance Areas: Accuracy, Completeness, Timeliness

Performance Measures:

- Maintain Linkages when available for EMS-to: 1) Trauma Registry, 2) Crash, 3) 24-hour Emergency Department, 4) Stroke Registry, 5) PCRToPCR, 6) AOC
- Maintain ability to provide linkages as requested and approved by Offices of EMS and associated linkage data providers.
- For each category above, attempt to achieve a linkage percentage >= 40% for linkable records, and >=10% for 24ED visits. Linkable records are those having all fields completed facilitating a linkage attempt for that record.

Status: EMS maintains linkages to Trauma (on demand), Crash (yearly), 24-hour ED (daily), Stroke Registry (daily), PCRToPCR (daily), and AOC (daily). All linkages mentioned are current except for 2012 Crash. This dataset was missed when the project transitioned from Chad Lohmeier to Derek Traughber. We are preparing a request to obtain the 2012 Crash data from DMV.

EMSPIC serves a significant number of research requests that include linkages, from independent researchers (both non-profit and for profit), internal EMS state offices and agencies, educational institutions, and grant funders. We have not tracked historical counts in these categories. As of April 2014, all linkage related contract requests/agreements have been fulfilled except one request still pending approval.

- EMS-to-Trauma Registry (43.4% linkage with EMS): Note that the NC Trauma Registry began transitioning to a new software version of the Trauma Registry developed by Digital Innovation, Inc. in 2013. We are building a completely new linkage process to run against both version 4 and version 5 of the Trauma Registry together. We do not have current linkage percentages for version 5 to report at this time but we can report we obtained a 43.4% linkage against the version 4 Trauma Registry in 2013.
- EMS-to-Crash (46.3% linkage with EMS in 2011): both 2012 and 2013 crash data has not been obtained by the EMSPIC so we can't provide linkage results at this time. For 2011 we obtained a 46.3% linkage with EMS records.

- EMS-to-24HourED (13.6% linkage with EMS): We typically expect about 10% of all ED visits to arrive by EMS transport, so we expect the linkage percentages to also be around 10% in general (due to very high number of walk-ins). In 2013 we obtained a 13.6% linkage with EMS.
- EMS-to-Stroke Registry (80.6% linkage with EMS): The EMSPIC wrote and maintains the Stroke Registry application for NC. We are very pleased to obtain an 80.6% linkage to EMS. We were expecting numbers to be similar to the Trauma Registry but were very pleased with the results. One possible explanation is that stroke events may be more frequently transported by EMS than Trauma with the assumption that stroke patients likely do not walk or drive to the ER. This could also be a data completeness phenomenon; we can only guess at this point.
- PCR-to-PCR: We have not determined an accurate way to measure the success of PCR-to-PCR linkages at this time. We will update this once we determine a metric.
- AOC-to-EMS: We do not have an accurate way to measure the success of AOC linkages to EMS. This is because not all EMS folks will be found in the AOC database.

Sponsoring Agency 1:
Total budget:
For more information, contact: Derek Traughber, 919-843-0201, dtraughber@emspic.org

10.) NC Crash Data Web Site
Number(s): TR-14-10-02
Agency(ies): UNC HSRC
Project Leader(s): Robert Foss
Performance Period: 10/01/13 – 09/30/14
Description: The website will be enhanced with upgrades and continuing maintenance. We will add 2013 crash data, beginning in the spring of 2014. This will be completed in the late summer of 2014. As in past projects, the upgrades and data additions will be beta tested and any problems corrected.

Each data year will continue to appear as both a subset option and as a variable in a selection list. Additional subset options can be incorporated, if needed by users, while maintaining the simple table queries that are currently available. Troubleshooting and maintenance will also be carried out over the course of the year, including conversion of the data and programs to the latest version of SAS. As use increases, questions will increase and be handled by staff. The increased use may also identify problems with certain data or variables and may result in recommendations for how to improve the output, as has been the case in past years. Problems will be corrected and enhancements made, if possible, or noted for future activity. We continue to streamline the operation of the system to accommodate the ever-increasing volume, taking advantage of any new system and programming options that become available as new software versions are released. The function and performance of the system will be monitored for any forward-compatibility issues created by new browser releases.
Performance Areas: Accessibility
Performance Measures: These objectives will be accomplished through the following project tasks:

- Task 1: Upgrade the web site by adding data from 2013. NC crash data for 2013 will be obtained. The data will be configured to fit the web site specifications. This includes matching formats for 2001-2012 with the 2013 year and correcting extraneous values. The web site will also have to be re-programmed to accept the 2013 "year" as a variable and a determination made as to how best to output data by year. Instructions for using the "year" variable will be modified and incorporated.
- Task 2: Maintain the web site and correct identified problems. Periodic checks will be made to ensure that the web site is functioning correctly. This includes troubleshooting any problems with the application server and the data server. Some users may also have a problem with their web browser that may call for a remedy. In addition, users of the web site may periodically identify problems with the data. These will be discussed among staff and, if necessary, with DMV and NCDOT Traffic Engineering Branch. Needed corrections will be made. Some users may also have problems interpreting the data; staff will help with the interpretation.
- Task 3: Conduct a beta test of the system and make needed revisions. There will continue to be a wide variety of users of this system. A feedback mechanism has been created to solicit comments on problems and suggestions for possible improvements to the site. Suggested improvements that are within the project scope and budget will be made.
- All of the above project activity will be documented in Quarterly Progress Reports and the Final Accomplishment Report.

Status: In progress and will continue.
Sponsoring Agency 1: GHSP ($61,700)
Total budget: $61,700
For more information, contact: Frank Hackney, 919-733-3083, fhackney@ncdot.gov

11.) North Carolina Warrant Repository/NCAWARE
Number(s): n/a
Agency(ies): NCAOC
Project Leader(s): Stephanie Taborn
Performance Period: 01/01/2013 – 12/31/2013
Description: NCAWARE is a custom developed, web-based system that maintains and tracks unserved criminal processes such as warrants for arrest, orders for arrest and criminal summons. With the implementation of NCAWARE and accompanying legislation which provided for a statewide electronic warrant repository, officers can view and serve any electronic unserved process in the state without having paper in hand. Officers are also able to pre-fill arrest and warrant information prior to appearing before the magistrate and thus decreasing processing time. NCAWARE currently has over 5.1 million processes and over 40,000 court and law enforcement users.
Performance Areas: Accuracy, Completeness, Integration, Timeliness, Uniformity, Accessibility
Performance Measures:

- Accuracy: All data, except some free text offenses (offenses used less often where no standardized code and language has been established) and officer notes is rigorously

validated and data integrity is ensured. It is critical that data be accurate to prevent re-arrest of individuals and to ensure service of processes.

- Completeness: As of December 2013, NCAWARE is operational in 99 counties. The Statewide Warrant Search feature pulls all processes in NCAWARE and any non-converted cases (including those cases from Buncombe which have not been implemented yet) from ACIS to give a comprehensive view of all outstanding processes for an individual. All data is housed in a relational DB2 criminal enterprise database. NOTE: Buncombe County went live on February 4, 2014.
- Integration:
  - Division of Motor Vehicles (DMV) – pre-fill of both driver and vehicle data.
  - ACIS – immediate transmittal through messaging of all case/process activity.
- Timeliness: All data is captured at the point of entry and is transferred to ACIS real-time. All data from Mecklenburg County CJIS is transmitted immediately to NCAWARE and then to ACIS real-time.
- Uniformity: Currently 99 of 100 counties track all processes in NCAWARE. North Carolina has a uniform court system with standardized, uniform forms. The same data is captured the same way in NCAWARE in all counties. NOTE: Buncombe County went live February 4, 2014 making all 100 counties live as of that date.
- Accessibility: NCAWARE is available 24 hours a day except for scheduled semi-monthly maintenance (generally one hour on a Sunday) to court personnel, law enforcement, all criminal justice agencies, the DOT/DMV, federal criminal justice agencies such as ICE.

Status:

- NCAWARE integration with Mecklenburg County CJIS went live in January 2013.
- Added the CR271 Implied Consent Offense Notice for DWI offenses
- Buncombe County is scheduled to go-live on February 4, 2014.
- 1,392,996 processes were entered in NCAWARE in 2013.

Sponsoring Agency 1: NCAOC ($13,000,000)
Total budget: $13,000,000
For more information, contact: Janet Greene, 919-890-2041, Janet.greene@nccourts.org

12.) PayNCticket
Number(s): n/a
Agency(ies): NCAOC
Project Leader(s): Wanda Thomas
Performance Period: 1/01/2013 – 12/31/2013
Description: payNCticket allows the public to go online and pay their waivable traffic citations using either a credit or debit card. The system automatically disposes of the case in the Automated Criminal Infraction System (ACIS) once the payment is made. The system provides custom front end pages which allow the cited person to search and select his/her citation for payment. The vendor, NIC, provides card verification and processing services.
Performance Areas: Accuracy, Completeness, Integration, Timeliness, Uniformity, Accessibility
Performance Measures:

- Accuracy: All data is rigorously validated and data integrity is ensured.

- Completeness: Any citation with waivable only offenses may be paid and disposed using payNCticket.
- Integration: payNCticket directly interfaces with ACIS and the Financial Management System (FMS) to immediately mark the case paid and disposed. In turn ACIS will transmit the data to both DMV and the NC State Highway Patrol (SHP) systems.
- Timeliness: Case disposition in ACIS is real-time. Interfaces with DMV and SHP are overnight.
- Uniformity: payNCticket is operational in all 100 counties.
- Accessibility: payNCticket is available 24 hours a day except for scheduled semi-monthly maintenance (generally one hour on a Sunday) to the public.

Status:

- 356 citation payments made per day
- $83,287.28 collected per day
- 419,981 total citation payments
- $91,296,648.00 total collected
- 19,249 hours saved by clerks of court
- Nearly 27.6 percent of waived offenses paid using payNCticket

Sponsoring Agency 1: NCAOC ($185,459.00)
Total budget: $185,459.00
For more information, contact: Janet Greene, 919-890-2041, Janet.greene@nccourts.org

13.) PreMIS migration to NEMSIS v3 Standard
Number(s): n/a
Agency(ies): EMSPIC / OEMS
Project Leader(s): Paul Cooper, David Yoshikawa
Performance Period: Ongoing
Description: To move the state EMS data system from version 2.2.1 to NEMSIS v3, we will meet with stakeholders to discuss the common descriptions of elements and to decide what NC will require to collect. Develop a disconnected application that will run on any Desktop, Tablet or smart phone. The application will communicate and deliver data through web services. Business rules will be implemented for data validity and accuracy.
Performance Areas: Completeness, Integration, Accessibility
Performance Measures:

- Completing the application and being able to successfully import vendor electronic Patient Care Records via a web service, and be able to enter a local electronic Patient Care Record via the web application.
- Business rules are successfully implemented to identify substandard data.
- The full NEMSIS v3 data set can be imported and collected.

Status: We have completed work with the EMS stakeholders to determine what NEMSIS data elements should be collected we have completed defining the business rules. The NEMSIS v3 standard is final, however minor changes continue to occur with the XSD schema (NEMSIS updates the schema yearly). The EMSPIC has postponed work on the disconnected PreMIS application, in favor of a web-based solution. A new data warehouse and transaction database

have been designed and implemented for the v3 implementation. The web-based application is within 30 days of going into pilot status, as the EMSPIC development team has had to rewrite our entire business framework to be compatible with current open-source Java standards (the existing application is based on a proprietary and currently unsupported framework). Data import will be via a web service, and data entry will be via the multi-page web-based application.
Sponsoring Agency 1: OEMS
Total budget:
For more information, contact: Paul Cooper, 919-843-0202, pcooper@emspic.org

14.) Quantifying and Describing EMS Patient Transports following Motor Vehicle Crashes in North Carolina
Number(s): N/A
Agency(ies): EMSPIC
Project Leader(s): Antonio R. Fernandez
Performance Period: Ongoing
Description: There is a paucity of literature examining the relationship between motor vehicle crashes (MVC) and transport of crash victims to emergency departments by EMS. Therefore, we are seeking to utilize data from the North Carolina EMS Data System, in conjunction with data obtained from the North Carolina Division of Motor Vehicles Crash Database, to address our two study objectives. We will first estimate the percentage of individuals who experienced an MVC and were transported by EMS to an emergency department for evaluation. Further, we will determine if the rate of EMS transport after MVC increases with increasing age of the crash victim.
Performance Areas: Integration, uniformity, accessibility, accuracy
Status: This project is complete. The manuscript has been accepted for publication by the Journal of Trauma.
Sponsoring Agency 1: EMSPIC
Total budget:
For more information, contact: Antonio R. Fernandez, 919-843-0201, afernandez@emspic.org

15.) Quick Response System
Number(s): TR-14-10-05
Agency(ies): HSRC
Project Leader(s): Eric Rodgman
Performance Period: 10/01/13 – 09/30/14
Description: GHSP, North Carolina law enforcement agents, and citizens of the state continue to request the most up-to-date and accurate data and information on a wide variety of motor vehicle safety issues using the NC DMV 349 Crash Report data, the NC AOC DWI Conviction Summary Report data, the NC driver license record data, and the NC vehicle registration data. The information varies from summary counts of young drivers (ages 15-19) in crashes in a selected county to the number of DWI convictions in a county for all drivers in a particular year. For years HSRC has provided personnel resources and time to help GHSP be responsive to the citizens of the state. There are typically about 100 calls / contacts per year about crashes,

various vehicle types, and the ethnicity and injury to persons involved in crashes. These usually involve calls where the information and/or summary counts are defined for the time period (e.g., 1-3 years), the location (e.g., the entire state, a specific county or city), and the summary counts of interest (e.g., counts of all reportable crashes, the number of pedestrians, the number of underage drinking aged drivers ages 15-20 driving passenger vehicles). Once a request has been specified, HSRC provides the data analyst/data management skills to write the query and then run the query on the NC DOT Oracle crash data at HSRC to summarize the data as requested. The data is checked and sent out in the form requested by the user (mostly as an email attachment, but sometimes as a fax document, or, in rare instances, printed and sent via US Mail).
Performance Areas: Accessibility
Status: In progress and will continue.
Sponsoring Agency 1: GHSP ($43,874)
Total budget: $43,874
For more information, contact: Frank Hackney, 919-733-3083, fhackney@ncdot.gov

16.) SADIP 2011
Number(s): FM-SAD-003-11-01-00
Agency(ies): NCDMV-TR
Project Leader(s): Michael Bryant, Julian H. Council, Michael Thomas
Performance Period: 09/01/2011 – extended to 03/01/2015
Description: SaDIP 2011 – Electronic Crash Reporting System Rollout. This grant was initially for a two-year time frame to expire September 2013. An extension was requested due to the unforeseen resignation of two technical staff members and resource replacement delays as a result of a statewide hiring freeze.
Performance Areas: Accuracy, Completeness, Integration, Timeliness, Uniformity, Accessibility
Performance Measures:

- Safety Net performance measures of timeliness, completeness and accuracy measure the receipt of the submitted crash reports and improve the quality of the crash data repository.
- Crash Data is readily available within a 48 hour timeframe of the crash, for input into analytical systems making highway safety improvements at the state and federal level a marked accessibility and uniformity improvement measure.
- NCDOT Organizational Performance Measures emphasize accuracy, completeness, timeliness, accessibility and uniformity of data and integrates crash data into aspects of many different types of transportation and highway safety.

Status: In Progress. These funds are being used for training of staff and train-the-trainer users of TraCS program for implementation of TraCS 10. We successfully began receiving electronic crash reports from Stallings, Police Department and Union County Sheriff's Department. We have 12 successful completed deployments in all.
Sponsoring Agency 1: NCDMV- TR ($500,000)
Sponsoring Agency 2: NCSHP ($372,400)
Total Budget $872,400
For more information, contact:

17.) TR Strategic Plan
Number(s): TR-14-10-04
Agency(ies): UNC HSRC
Project Leader(s): David Harkey
Performance Period: 10/01/13 – 09/30/14
Description: The North Carolina Strategic Plan for Traffic Safety Information Systems is currently being updated for 2014. The plan documents the roles of the ECHS and the TRCC, provides strategic direction for improving transportation data systems in the state and progress reports on ongoing safety data projects and includes status information about the various traffic records systems in North Carolina.
Performance Areas:
Performance Measures: The draft strategic plan will be developed using the input from the TRCC membership planning sessions and the review of the existing materials. A draft plan will be developed by the end of June 2014, and delivered to GHSP and the TRCC members for review. The final plan will be submitted in July 2014, and will incorporate the recommended changes.
Status: In progress and will continue.
Sponsoring Agency 1: GHSP ($23,199)
Total budget: $23,199
For more information, contact: Frank Hackney, 919-733-3083, fhackney@ncdot.gov

18.) Traffic Records Support Position
Number(s): M3DA-14-20-02
Agency(ies): NCDMV
Project Leader(s): Pamela S Guptill
Performance Period: 01/01/2014 – 03/31/2014
Description: Due to resource constraints, the Traffic Records Systems application support team has not been able to keep up with system changes requested by the business owners and law enforcement users, specifically as it relates to Traffic Records Communication System (TRCS). These constraints have led to a backlog of changes that have not been performed. As a result, some law enforcement agencies have stopped using TRCS and have reverted back to the submission of paper reports, thus delaying the submission of crash data to the DMV, Safetynet and the availability of the data to the motoring public.

Objectives:

- Improve support of the TRCS, the Crash Reporting System (CRS), and the Electronic Crash Reporting System (ECRS) applications.
- Reduce of the backlog of outstanding system changes to the applications.
- Improve the electronic collection of crash data allowing the of crash data to be received electronically and subsequently available within 48 to 72 hours of the crash.
- Improve the data quality as well as timeliness of data. Data would be readily available for input into analytical systems making highway safety improvements at the state and federal level.
- Reduce the percentage of paper reports being submitted.

Performance Areas: Accuracy, Timeliness, Accessibility
Performance Measures: This work will provide additional search capabilities from the Crash Web site. This will reduce workload on the Crash Reporting unit which has to receive crash report requests via mail/fax and manually fulfil them. With the new search capability, users can directly query the system with relevant information and can identify the required reports and access them immediately. This will increase accessibility, timeliness, and accuracy of the requests.
Status: Completed the hiring process -- consultant started on 2/10/2014 and has been cross trained and assigned to Change Request CR2013-33 to allow additional search capabilities in Crash-Web. The development of this capability is in progress.
Sponsoring Agency 1: GHSP ($176,800)
Total budget: $176,800
For more information, contact: Pamela S Guptill, 919-861-3689, pguptill@ncdot.gov

Traffic Records Coordinating Committee Certification

The following North Carolina TRCC members have electronically certified this document:

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STATE
OF
NORTH CAROLINA

TRAFFIC RECORDS ASSESSMENT

January 08 – 13, 2012

National Highway Traffic
Safety Administration
Technical Assessment Team

Sergeant Christopher D. Corea
Michael J. McDonald
Tracy Joyce Smith, MBA
Langston A. Spell
John J. Zogby

EXECUTIVE SUMMARY

The National Highway Traffic Safety Administration (NHTSA), in response to a request by the Governor's Highway Safety Program of North Carolina, assembled a team to conduct a traffic records assessment. The Governor's Highway Safety Program carried out the logistical and administrative steps necessary for an onsite assessment. A team of professionals with backgrounds and expertise in the various traffic records data systems (crash, driver, vehicle, roadway, citation and adjudication, and EMS/injury surveillance) conducted the assessment January 8th through 13th, 2012.

The scope of this assessment included all of the components of a traffic records system. The purpose was to determine whether the traffic records system in North Carolina is capable of supporting management's needs to identify the State's highway safety problems, to manage the counter-measures applied in attempts to reduce or eliminate those problems, and to evaluate those efforts for their effectiveness.

Background

North Carolina underwent a traffic records assessment in 2007, during which deficiencies were identified that were the basis for recommendations enumerated in that report. During this assessment, the State has demonstrated notable progress in its traffic records system that has resulted from implementation of some of the recommendations for improvement and the State's own initiative in identifying and seeking solutions.

At the time of the 2007 assessment, the State reported that most of the nearly 300,000 crash reports it received annually were paper reports, though a small percentage of reports were being received electronically. Five years later, the timeliness of the data has improved substantially as the percentage of electronic crash submissions has grown. Data entry of paper reports is timely. Fifty-five percent of crash reports are now received electronically by the Division of Motor Vehicles. Another 30 percent of the total volume of reports is completed using field data collection software, but they are not yet transmitted to the Crash Records Section at DMV in the electronic format. They are, instead, data entered by DMV personnel. Once the interface is complete for these remaining electronic reports, 85 percent of crashes will be automatically uploaded into the State crash file.

Driver licensing has taken a number of steps toward compliance with the Real ID Act. Using facial recognition and document authentication technology, they are working to ensure that each applicant for a driver license or state ID card is well-vetted and properly enrolled into the driver license database. Their future plans involve re-configuration of the office process flow to include taking the applicant's photograph at the beginning of the process, in order to aid in fraud investigations should an applicant leave after having given counterfeit identity documents or fraudulent information, but before completion of the application and issuance process.

Though electronic citations have been used in North Carolina for over a decade, the Highway Patrol estimates that 80 percent of its citations are now electronically generated. Because of the drop-down menus for roadway names, automated fine calculations, and the ability to cut and paste information on the mobile data computers from the DMV databases into the citation

form, accuracy of the citation data has been improved. Due to the fact that data re-entry of handwritten citations is not required, introduction of errors into the system is lessened as well.

Injury Surveillance data is strengthened by the fact that North Carolina has enacted legislation to mandate emergency medical system data and trauma data transmission to the State.

At this time, however, some issues and deficiencies remain and continue to impact the ability of the present traffic records system to optimally support North Carolina's management of its highway safety programs. These are discussed in the summary below and the full report that follows.

Crash Records

The NCDOT, Division of Motor Vehicles (DMV) is the official custodian of the State's crash file. The current crash file was implemented in 1999 and there has not been a major re-write of the database since its inception. The crash report is documented in North Carolina in two formats. The paper form DMV-349 is still in use and accounts for approximately 45 percent of the annual volume of crash reports submitted. Electronic crash reports account for the balance and are generated from two sources; an e-crash field reporting module from third-party vendors and North Carolina TraCS which was developed by the NCDOT Information Technology (IT) staff and is provided free of charge to local, tribal, and state law enforcement. Both electronic versions follow the approved NCDOT format and contain over 300 data fields and perform validation edit routines of State mandated business rules for accuracy and completeness.

Because electronic reports generated by third-party vendor systems must first be printed and submitted in hard copy to the DMV, NCDOT IT staff recently completed a pilot with three local agencies who use the same Records Management System (RMS) vendor to enable their system to submit completed and successfully validated e-crash reports electronically using XML exchange. This pilot was successful and the NCDOT is poised to address the other vendors who supply RMS software. NCDOT estimated that 30 percent of the total crash volume annually is submitted by printed reports from RMS vendors' systems that capture crash reports electronically. Addressing these additional vendor systems as quickly as possible will improve the timeliness of the crash database and eliminate the redundant data entry currently imposed on the data capture staff.

North Carolina has an impressive business process that results in a high degree of confidence and accuracy in its crash file. The system is governed by an excellent Quality Control process. Broader data quality metrics should be developed to provide a more comprehensive view of the entire data collection process.

Roadway Component Records

The State has made significant improvements in the highway safety information environment since the last traffic records assessment. Two issues noted in that report were location referencing and status of the Geographic Information System. Because the electronic collection of traffic crashes has increased appreciably the ability to locate the crash occurrence on the

public road system has also increased appreciably. This was due to a software routine built into the automated system that aids in the location process. The North Carolina Department of Transportation has also made great progress in the development and implementation of the Arc Geographic Information System (GIS) used to house and display roadway characteristics data on the State road system. The information systems used in roadway safety programming are fundamentally sound and are meeting the needs of the roadway safety community.

Driver and Vehicle Records

The DMV was not able to implement a total rewrite of the State Automated Driver License System (SADLS) and the State Title and Registration System (STARS) that was anticipated for 2008. Nonetheless, the over-the-counter driver license process was changed to central issuance with improved control over the validation of personal identification of applicants. Use of the Systematic Alien Verification for Entitlements (SAVE) file was initiated in 2007. Also, registration of vehicles and processing of title applications has been extended to qualified auto dealerships.

The DMV is poised to complete the rewrite of their driver and vehicle systems and has the changes defined for tightening the control in order to counter attempts to obtain a driver license under fraudulent conditions. No recommendations were needed to enable North Carolina to satisfy the requirements of the traffic records system *Advisory*.

Statewide Injury Surveillance System (SWISS) Records

North Carolina's injury surveillance data are captured in two disparate systems. One system resides within the Office of Emergency Medical Services. This system is reported to include all data components recommended by the *Advisory*.

A second injury surveillance system resides within the Injury Epidemiology Unit of the Division of Public Health, Injury and Violence Prevention Branch. This injury surveillance system is comprised of emergency department, hospital discharge, and vital statistics (death) data.

EMS agencies transmit data to the State either via commercial software (90 percent) or using an on-line state-supplied application at no cost (10 percent). EMS data are linked to emergency department data on a daily basis. Aggregate information is available about the number of agencies and personnel in the State and agency level reports address response time, call volume and disposition.

Hospital discharge and emergency department data processing is contracted to an outside vendor that compiles reports and responds to requests for data. Ninety-seven percent of emergency departments in the State post to the North Carolina Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT) with the remaining three percent due to begin reporting within the year. De-identified discharge sets are shared with the State Center for Health Statistics.

Twelve designated trauma centers and two non-designated hospitals submit data to the National Trauma Data Bank. Trauma records are linked to EMS reports.

Mortality data is reported to the local registrar within five days of death. The registrar prepares death certificates and forwards them to Vital Records and on to the National Center for Health Statistics. This process would benefit from the development of an electronic registration system in terms of timeliness of the records.

The existence and use of two different injury surveillance systems introduces the opportunity for conflicting reports and statistics. Efforts should be made to develop a single comprehensive injury surveillance system for the State.

Citation and Adjudication Records

North Carolina led the nation in its efforts to develop the electronic citation, which it began in 1999 with a pilot program with the Highway Patrol. That program has grown and is embraced by law enforcement agencies throughout the State to the point that 82.3 percent of the traffic citations issued annually are completed and transmitted electronically. The Administrative Office of the Courts has taken an active role in this process, working to purchase printers for law enforcement officers, to enable agencies to implement electronic citations.

Because of the volume of electronic citations and the fact that paper citations are added to the electronic database through data entry by court staff, there is virtually a complete database of enforcement actions within the State. One missing element that should be considered for inclusion into the dataset is warning citations. This information is vital to law enforcement in terms of learning about subsequent behavior of a warned versus a cited violator. Such data should be made a part of the citation database.

Although this rich enforcement data source exists, it is unclear whether it is being used to its fullest capacity. The Traffic Records Coordinating Committee should market the available traffic safety data within the state, such as citation and adjudication data. Once the locations on citations and crash reports are harmonized, it will be possible to review the effect of various enforcement countermeasures on crash incidence and severity in North Carolina.

Traffic Records Coordinating Committee (TRCC)

North Carolina has a long-standing Traffic Records Coordinating Committee which has been meeting regularly for the last decade. The State's size has tended to limit attendance for some local level members due to the time commitment required to travel to meetings.

The Executive Committee for Highway Safety acts as the TRCCs executive level committee members. The heads of the State Departments that are responsible for the record systems that comprise the North Carolina traffic records system comprise the executive level. The Injury Surveillance System has not had consistent recent involvement and the Director of the Administrative Office of the Courts is not a member. Efforts should be made to secure full involvement of the NCAOC and Public Health executives.

Strategic Planning

The 2007 strategic plan was based on the recommendations of the 2007 Traffic Records Assessment. The TRCC helped in developing the original strategic plan, and is instrumental in its continuation and revisions. They were supported in this effort by the Executive Committee for Highway Safety (ECHS) which is comprised of executive members of the major State safety stakeholder agencies and operates as the de-facto TRCC executive committee. The TRCC members provide project input to the TRCC and these projects are incorporated into the Plan. Stakeholder agencies are actively involved with the implementation of the Plan's strategies and projects.

A workshop should be scheduled for members of the TRCC to develop a new strategic plan under the guidance of a facilitator. The facilitator would lead the strategic planning process, especially encouraging TRCC members to define problems and develop solutions. The TRCC should secure the commitment of personnel and resources to address multiyear data systems planning across different state agencies. The TRCC-driven planning process should result in a statewide data improvement program that assures coordination of efforts and sharing of data between the various safety data systems. The stated intent of the TRCC to contract the services of the Highway Safety Research Center should satisfy this purpose.

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

- ❑ Expand the capability as soon as possible to allow the remaining third-party vendors to electronically submit e-crash reports generated from their software. **(Section 2-A)**

- ❑ Study the case for accepting non-reportable crash data into the crash file and work with the Traffic Records Coordinating Committee to develop a short form crash report to address crashes that can easily be handled without a full DMV-349 report. If developed, carefully implement and market the short form crash report to ensure there is no intentional degradation in the reportable crash experience. **(Section 2-A)**

- ❑ Provide for a specific structured field to document citation numbers on all versions of the crash report and include this field in both the data entry process and the Oracle database crash file. **(Section 2-A)**

- ❑ Develop and implement a broader and more specific data quality metric report that can leverage the validation error logs and share them regularly with the law enforcement community. Such an effort will more clearly indicate the level of training required to use and understand the crash report. **(Section 2-A)**

Citation and Adjudication Records

- ❑ Develop a centralized database for warning tickets that is available to law enforcement officers and others in the traffic records community. **(Section 2-E)**

- ❑ Create electronic citation audit procedures to ensure citations are tracked from time of issuance to disposition of citations. **(Section 2-E)**

- ❑ Develop an effective way of sharing data across multiple systems within the data collection process, such as crash and citation, for consistency and accuracy of data. **(Section 2-E)**

Traffic Records Coordinating Committee (TRCC)

- ❑ Add representation to the Traffic Records Coordinating Committee including local law enforcement and local engineers. **(Section 1-A)**

- ❑ Add representation to the Executive Committee for Highway Safety from the Division of Public Health to represent EMS, Trauma and Injury and Violence Prevention sections. **(Section 1-A)**

- ❑ Develop meaningful data quality metrics and measures following the guidelines in NHTSA's *Model Performance Measures for State Traffic Records Systems*. **(Section 1-A)**

Statewide Injury Surveillance System (SWISS)

- ❑ Develop one comprehensive, inclusive of all components, injury surveillance system. **(Section 2-F)**

    - ○ Employ the services of the North Carolina Institute of Medicine whose mission, according to their website, is "To seek constructive solutions to statewide problems that impede the improvement of health and efficient and effective delivery of healthcare for all North Carolina citizens."

    Or

    - ○ Form a subcommittee of the Traffic Records Coordinating Committee, including representation from all components of the injury surveillance system. The subcommittee would be charged with:

        - ▪ Developing policies and procedures to govern the integrated data.

        - ▪ Identifying obstacles to data linkage for each component and solutions to overcome said obstacles.

- Identifying gaps in the components' data and solutions to close those gaps.

- Determining the best agency or entity to perform the linkage, house, and maintain the data. The agency or entity would be responsible for analyzing and/or releasing the linked data only. Data owners and/or custodians would remain responsible for any requests for their respective component. The best type of agency or entity would be one that is HIPAA compliant whether as a covered entity or business associate.

- Other tasks as necessary to realize an injury surveillance system.

Roadway Information

❑ Perform a benefit/cost analysis of collecting the subset of fundamental data elements of MIRE for use in enhanced safety analyses. **(Section 2-B)**

Strategic Planning

❑ Charge the TRCC with the development of a new Traffic Safety Information Systems Strategic Plan addressing the recommendations in this traffic records assessment. Identify deficiencies apart from those noted in the traffic records assessment by canvassing each TRCC member and especially each traffic records system component custodian for their input. **(Section 1-B)**

❑ Assure that all TRCC members participate in the development of the Traffic Safety Information Systems Strategic Plan and the selection and priority setting of the projects in the Plan. It is advisable to acquire the skills of a facilitator to conduct workshops for the Plan development. **(Section 1-B)**

Model Minimum Uniform Crash Criteria

The TRCC recognizes the Model Minimum Uniform Crash Criteria (MMUCC) and recommends continuing adherence and implementation of standardized data elements to promote comparability of data within the highway safety community. The use of standardized data elements provides the necessary foundation for North Carolina's crash data system.

The crash report form (DMV-349) was last revised in the year 2000 and has been in use since January 1, 2000. The form was revised in a collaborative effort involving numerous agencies, law enforcement, research interests, medical outcome interests, as well as outside input from MMUCC expert panel members, and others. In 2010, the form was reviewed and decisions were made regarding updating form elements and attributes. However, due to the State fiscal crisis, the effort to implement these changes was postponed.

Plans are to update and modify the North Carolina crash report form in 2013. When this is initiated, effort will be made to increase compliance on the crash report form and in the data dictionaries. The goal would be to adopt the MMUCC elements and attribute recommendations as much as possible and document the reasoning for any deviations from MMUSS. The current 96% compliance on the crash report form demonstrates this intent.

A summary of N.C.'s MMUSS compliance can be found in the table below.

N.C.'s MMUCC Compliance can be summarized as follows:

The State of North Carolina certifies that it will undertake projects as part of the Traffic Safety Information System Improvement Program which will endeavor to collect the missing data elements and attributes as soon as practical. The North Carolina TRCC will review the 2012 MMUCC Guideline (4th Edition) when it is released.

National EMS Information System NEMSIS

North Carolina's emergency medical data system is the PreHospital Medical Information System (PreMIS). PreMIS is technically located within the North Carolina Office of EMS, but it is administered through the University of North Carolina, Department of Emergency Medicine, EMS Performance Improvement Center in Chapel Hill. North Carolina has been one of the founding states involved with the NEMSIS and Greg Mears, MD was the principal investigator for NEMSIS for NHTSA's Office of Emergency Medical Services.

N.C. is one of the initial five states to begin submitting data into the National EMS Database. North Carolina collects all of the NEMSIS "national elements" with the exception of the two outcome data elements, Emergency Department Disposition and Hospital Disposition. The information required for these two data elements is not known at the time of an EMS event and therefore is not currently collected by EMS Systems across the state. Linkage has been done with hospital, trauma registry and plans for linking the medical examiner data sources to obtain the required information for these two elements. These two data elements would also be extremely valuable to highway safety as well as traffic records, which could be linked to EMS records containing this outcome information. It is a goal of the TRCC to obtain funding to work on this linkage.

A summary of N.C.'s NEMSIS compliance can be found in the table below.

N.C.'s NEMSIS Compliance can be summarized as follows:

- The State of North Carolina ***does*** maintain a state EMS pre-hospital database.
- The database currently collects all of the national data elements with the exception of the outcome data elements, E22_01 (Emergency Department Disposition) and E22_02 (Hospital Disposition) currently defined in NEMSIS.
- The system currently collects data per the NEMSIS standard from all 100 EMS Systems within N.C.
- The state of North Carolina certifies that it currently ***is*** capable of exporting data to the NHTSA EMS data repository.
- The State of North Carolina certifies that it will undertake project as part of the State Traffic Safety Information System Improvement Program which will establish a NEMSIS compliant, state EMS pre-hospital database to collect the missing national data elements and attributes; and to be able to export data to the NHTSA EMS data repository as soon as practical.

Model Inventory of Roadway Elements (MIRE)

The North Carolina Department of Transportation has reviewed the MIRE, 1st Edition, data elements as well as the Fundamental Data Elements (a subset of MIRE). Both of these documents were produced by the FHWA. MIRE includes 202 unique data elements and the FDE includes 38 data elements that are included in a number of safety analysis tools and seen as critical for safety analysis.

In 2011, North Carolina began integrating their roadway inventory data into a geographic information system (GIS). The result of this migration was the ability to assess the quality of the roadway inventory data throughout the almost 80,000 miles of roads in the network. The short-term strategy for the department is to enhance the quality of the data that currently exist and fill gaps in the inventory by completing missing information for elements that already exist. Future efforts will focus on a more detailed review of MIRE and FDE and whether there is the need and the resources available to add any of the elements or attributes in these guidance documents.