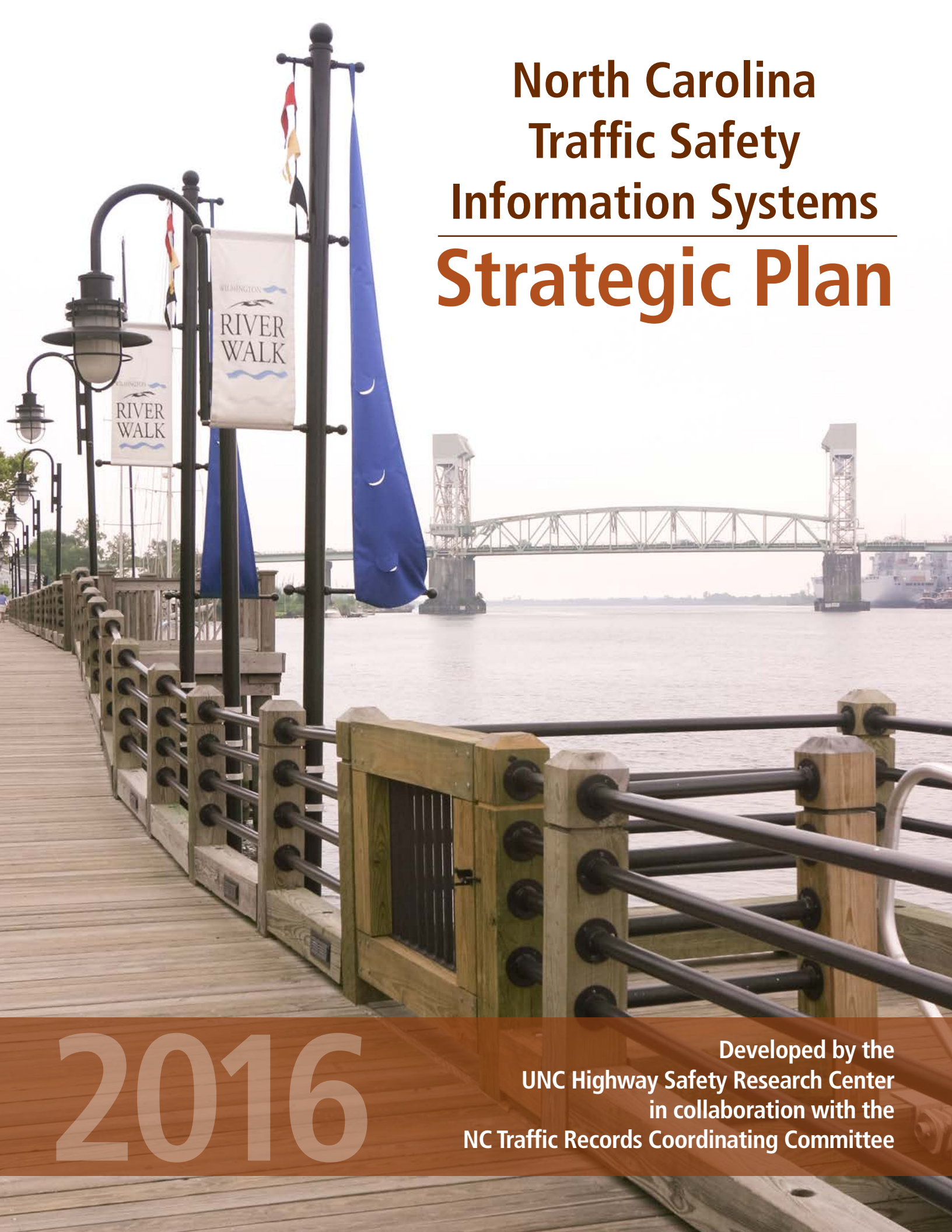

North Carolina Traffic Safety Information Systems

Strategic Plan

2016

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 2016

June 2016

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Commonly Used Abbreviations

AASHTO – American Association of State Highway and Transportation Officials

ACIS – Automated Criminal Infraction System

EMSPIC – Emergency Medical Services Performance Improvement Center

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

NC DHHS – North Carolina Department of Health and Human Services

NC DPS – North Carolina Department of Public Safety

NC ECHS – North Carolina Executive Committee for Highway Safety

NC GHSP – North Carolina Governor's Highway Safety Program

NC TRCC – North Carolina Traffic Records Coordinating Committee

NCAOC – North Carolina Administrative Office of the Courts

NCAWARE – North Carolina Warrant Repository

NCDOT-DMV – North Carolina Department of Transportation Division of Motor Vehicles

NCDOT – North Carolina Department of Transportation

NCDPH – North Carolina Division of Public Health

NCOEMS – North Carolina Office of Emergency Medical Services

NCSHP – North Caroline State Highway Patrol

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

UNC – University of North Carolina

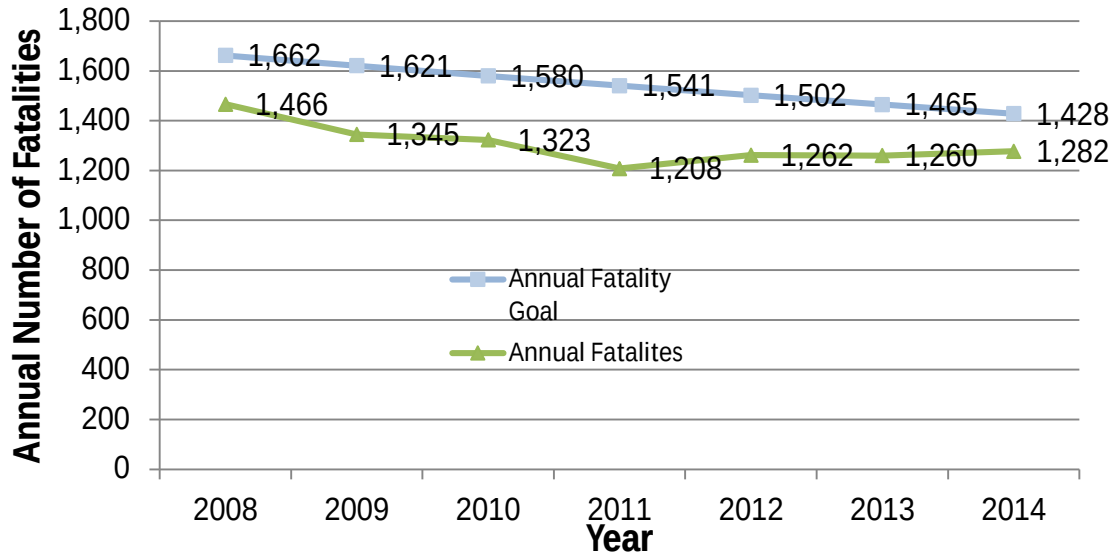
Introduction

Background

While North Carolina 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 2014, there were 252,397 reported crashes on public roads that resulted in 1,282 people killed and 110,624 injured. The economic impact of these crashes is costly, resulting in an estimated annual loss of $23.1 billion to the economy of North Carolina annually (based on a three year average as noted in the NC Traffic Crash Facts Report on page 38).

In 2014, the North Carolina Department of Transportation updated the state's Strategic Highway Safety Plan and officially declared North Carolina a Vision Zero State—with the idea that even one fatality is too many on our roadways. The Plan's vision, mission and goals guide the development and implementation of strategies and actions to achieve Vision Zero. It aims to cut the fatalities and serious injuries in North Carolina in half based on the 2013 figures, reducing the total annual fatalities by 630 fatalities and the total serious injuries by 1,055 serious injuries before 2030. Progress toward this goal will be tracked on the North Carolina Strategic Highway Safety Plan online dashboard, http://ncshsp.org/progress.

Previous efforts by the North Carolina Department of Transportation (NCDOT) to reduce fatalities by 2.5 percent per year from 2007 onward have been successful. As shown in the chart below, the state was ahead of this pace at the end of 2014.



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 (NC 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 with timely and efficient processes. This document records the progress of the NC TRCC's efforts and will serve as the guide for planning and implementing change.

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 NC TRCC membership and a description of safety information projects that have been conducted with specific objectives of improving traffic safety information systems.

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 (NC ECHS) and the NC TRCC. The purpose and role of these groups are described below.

Executive Committee for Highway Safety

The NC 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 NC 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. Implementation of the strategies and directives of the NC 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 NC 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 NC ECHS endorses and supports NC TRCC. NC 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.

NC ECHS Membership

The NC ECHS is chaired by Secretary of Transportation Nicholas J. Tennyson. 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.

- Nicholas J. Tennyson, Secretary of Transportation, NCDOT (Committee Chair)
- William J. Grey, Colonel, NCSHP (Committee Vice Chair)
- Isaac T. Avery, III, Attorney at Law, NC Conference of District Attorneys
- Adam Fischer, Transportation Director, City of Greensboro
- Wayne Goodwin, Commissioner, NC Department of Insurance
- David Harkey, Director, UNC HSRC
- W. A. "Tony" Hayes, President and Chief Executive Officer, Transformative Ideas Calculated Success
- Michael L. Holder, Chief Engineer, NCDOT
- James K. Lacy, State Traffic Engineer, NCDOT
- Jon R. McCormick, Division Administrator, Federal Motor Carrier Safety Administration
- Don Nail, Director, NC GHSP
- LaRonda S. Scott, State Executive Director, Mothers Against Drunk Driving
- Harriett Southerland, State Coordinator, Students Against Destructive Decisions
- John Sullivan, III, Division Administrator, FHWA
- Kelly J. Thomas, Commissioner, NCDOT-DMV

Traffic Records Coordinating Committee

The NC TRCC was established in 2006. The vision of the NC 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 NC 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 NC 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 NC 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 NC 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.

NC TRCC Membership

The NC 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 law enforcement, the NCDOT Traffic Safety Unit, the North Carolina Governor's Highway Safety Program (NC GHSP) 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
- Alan Dellapenna, NCDPH, Injury and Violence Prevention Branch
- Greg Ferrara, ITRE*
- Janet Greene, NCAOC, Technology Services Division
- Pam Guptill, NCDOT-DMV*
- Frank Hackney (State Traffic Records Coordinator), NC GHSP
- Jessica Locklear, DMV L&T*
- Brian Murphy, NC DOT Safety Planning Group*
- Jeff Robertson, EMSPIC*
- Eric Schaberg, NCSHP
- Vish Tharuvesanchi, DOT-IT*
- Anna Waller, UNC Department of Emergency Medicine, Carolina Center for Health Informatics; IPRC*

** The TRCC reviewed its membership as part of the May 2016 strategic planning meeting and added these individuals, expanding key stakeholders who are either data stewards or data users. Several additional new members are yet to be confirmed.*

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 NC TRCC meetings. A complete list of active participants is included in Appendix B**.**

NC State Traffic Safety Data Coordinator

One of the members of the NC 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 NC TRCC. This person is aware of all the primary traffic records systems in North Carolina and maintains communications with the NC TRCC. This person can report on, or obtain status information on, all projects within the state.

Frank Hackney, Traffic Records Coordinator
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Phone: (919) 814-3659
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 (NC DHHS)
- North Carolina Department of Public Safety (NC DPS)
- North Carolina Department of Transportation (NCDOT)
- North Carolina Department of Transportation Division of Motor Vehicles (NCDOT-DMV)
- North Carolina Office of Emergency Medical Services (NCOEMS)

NC Administrative Office of the Courts

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 and magistrate orders) are transferred electronically from the North Carolina Warrant Repository (NCAWARE) to ACIS. Infraction (non-arrestable) cases are electronically transferred to ACIS from eCitation.

ACIS is the primary point of interface to other agencies. All reportable traffic offenses are transmitted nightly to the North Carolina Department of Transportation Division of Motor Vehicles (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, the Criminal Court Information System – Clerks Component (CCIS-CC) 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 North Carolina State Highway Patrol (NCSHP) is transferred to them nightly.

In March 2012, the NCAOC added the Eastern Band of Cherokee Indians (EBCI) 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 the NCDOT-DMV. The data from EBCI to DMV has not yet been implemented. It is currently in progress with DMV.

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

Criminal Court Information System – Clerks Component (CCIS-CC)
CCIS-CC is a robust web based application being developed to record court information for all criminal cases in an efficient and accurate manner. CCIS-CC will incrementally replace existing ACIS screens and functions accessed primarily by clerks of court. Replacement of Court Flow functionality for clerks was completed in 2014. The system is designed to enhance the current work flow by consolidating multiple functions on a single screen to allow for speedy data entry and recovery for users. As replacement components with enhanced capability are built in CCIS-CC, those components are disabled in ACIS.

CCIS-CC is designed to reduce manual processes and streamline the flow of information. The application provides user friendly features such as system calculated and pre-filled fields, search capabilities, calendar lookup and drop-down lists, all of which save time and reduce data entry errors. The system provides multiple entry functions for court continuances and results, speeding dispositions and monies paid. Case disposition with extended DWI data capture is provided in CCIS-CC, along with courtroom generation and electronic storage of judgment forms, and a NCDOT-DMV interface for electronic notification and reporting.

CCIS-CC ensures that data consistency is maintained across the state by providing flexibility to accommodate user preferences while enforcing rules for business. Additionally, CCIS-CC is designed to be intuitive and flexible enough to handle large volumes of data accurately and efficiently while maintaining historical records. The system is scalable to include new features, enhancements and interfaces for future requirements, and is available statewide.

The ECAD rollout began on May 16th, 2016 with Wake County and the new system will be live statewide on July 18th, 2016.

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, which allows uploads of law enforcement discovery documents.

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

Electronic Compliance and Dismissal (ECAD)
ECAD is a web-based system designed to save NC citizens a trip to court by providing them a quick, convenient means of requesting dismissal online for certain traffic offenses if they have complied with the NCDOT-DMV. ECAD also provides an efficient, simple interface to CCIS-DA allowing the district attorney the ability to view and approve or deny requests, as well as a reporting interface to CCIS-CC to assist clerks with the management of case records. ECAD

directly interfaces with NCDMV data to determine whether someone is in compliance before allowing them to submit a request. Once the district attorney approves a request, the case is electronically dismissed with no data entry required by the clerk. There is no cost for the public to request dismissal through ECAD.

eCitation

eCitation automates the issuing of cite-and-release citations in North Carolina. Six hundred law enforcement agencies 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 law enforcement agency (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 accessed immediately statewide in both the ACIS and the CCIS-CC.

eCitation was developed as a joint venture between the NCAOC and the NCSHP. Significant funding was also provided by NC GHSP 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 component: This component provides law enforcement agencies with the capability to electronically download eCitation data for use in local law enforcement records management system, 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. It also allows the clerk to set court schedules and court room limits which the officer can then use to assign a court date to the defendant.
- Interface to NCAOC ACIS: This interface receives and stores eCitation data in ACIS and CCIS-CC, 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.

North Carolina Warrant Repository (NCAWARE)
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 that 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, 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 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. Additionally, as necessary, paper-based orders for arrest may be converted to NCAWARE so they may also be available electronically.

NCAWARE is the first point of entry for all arrests, including DWI cases, into the courts databases. Via a user prompt, demographic driver and vehicle data is pre-populated in NCAWARE through a host-to-host DB2 connection with NCDOT-DMV. Court case information in NCAWARE automatically populates ACIS through real-time XML and MQ interfaces. 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.

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 and CCIS-CC. In conjunction with eCitation, which allows citations to be transmitted to ACIS and CCIS-CC 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.

NC Department of Health and Human Services

NC Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT)
NC DETECT is North Carolina's statewide syndromic surveillance system. NC DETECT was created by the North Carolina Division of Public Health in 2004 in collaboration with the Carolina Center for Health Informatics in the UNC Department of Emergency Medicine to address the need for early event detection and timely public health surveillance using a variety of secondary data sources. Authorized users are currently able to view data from emergency departments, the Carolinas Poison Center and 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 NCDPH. New functionality is added regularly based on end user feedback.

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 alternate system for the reporting of discharge data. Since 1996, hospitals have reported data, currently through Truven Health Analytics, 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 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 (OCME), 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 Fatalities Analysis Reporting System North Carolina driver fatalities.

NC State Center for Health Statistics (SCHS)
The SCHS is the North Carolina agency responsible for data collection, health-related research, production of reports and maintenance of a comprehensive collection of health statistics. SCHS 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 age, race, sex, county, name and key dates, as required by the state.

NC Department of Public Safety

Commercial Vehicle Enforcement Resource Lab (COVERLAB)
The COVERLAB is a university-based program for helping to reduce truck-involved crashes by improving commercial vehicle enforcement effectiveness. Located at North Carolina State University's Institute for Transportation Research and Education (ITRE), COVERLAB provides the Motor Carrier Enforcement (MCE) section of the North Carolina State Highway Patrol with online data-driven analytics, geospatial analysis and web based decision management tools for improving commercial vehicle safety outcomes.

COVERLAB Analytics
COVERLAB Analytics is a web based data visualization and mapping tool for helping to reduce *truck-involved* fatalities and protect federally funded road and bridge infrastructure. COVERLAB Analytics provides MCE supervisors with online scorecards to track crash reduction performance goals, dashboards for in-depth trend and comparison analysis and map analytics to prioritize times and locations for improving enforcement effectiveness.

Geospatial analytics allows users to filter and map commercial motor vehicle crashes, inspections and citations by location, time, contributing circumstance and many other points of information. Patrol supervisors can "see" where crash patterns are located relative to enforcement activities, allowing them to visualize relationship between existing enforcement activities and areas/times where safety concerns are greatest.

GIS Crash Mapping
North Carolina's online crash map provides patrol-reported crashes for five Highway Safety Plan performance measures: speeding, unbelted, motorcycle, alcohol/drug, teen. The purpose of the map is to help prioritize crash reduction countermeasures where they are most needed. Individual crashes are shown, as well as cluster "bubbles." The map is available at http://coverlab.org/shp.

Vision Zero
The purpose of North Carolina's Vision Zero program is to create a unified vision for reducing highway fatalities. North Carolina has aligned the Highway Safety Plan crash reduction goals with NCSHP performance measures.

Vision Zero Analytics
Vision Zero Analytics is a web-based data visualization and mapping tool for helping to reduce *traffic fatalities* in North Carolina. The state's crash reduction goals are visually presented to (and co-tracked by) both patrol supervisors and NC Governor's Highway Safety Program staff. Users can see how well they are performing with "views" specific for their geographic location.

This provides a common version of the truth and the capability to prioritize safety countermeasure activities by using a data-driven approach.

NC Department of Transportation

North Carolina Geographic Information System
The main objectives of the DOT GIS group 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.

At this time, the DOT GIS group is being reorganized to take full advantage of new and improved GIS technologies and tools to better serve the state and to reorganize the GIS personnel to accommodate the changes. Because this group is in a period of transition and restructuring, the DOT recommended and the TRCC agreed to wait until next year when updating the NC TR Strategic Plan for 2017 to accurately describe and summarize the DOT GIS group.

Traffic Engineering Accident Analysis System (TEAAS)
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 NCDOT-DMV. 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 NCDOT-DMV crash database, TEAAS data are only as timely as the data within the crash database. Crash data that are submitted to the NCDOT-DMV 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.

NCDOT Division of Motor Vehicles

Fatality Analysis Reporting System (FARS)
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 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 NCDOT-DMV 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.

NC Crash Data

The NCDOT-DMV 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 either the NCDOT-DMV TRCS application or NCDOT-DMV Electronic Crash Reporting System (ECRS) and 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. The ECRS application allows the law enforcement to electronically send crash reports in an XML format from the law enforcement repository. Written crash reports are received by NCDOT-DMV 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 NCDOT-DMV receives the report. Crash data that must be manually entered from the DMV-349 form are usually available within 30 days after the NCDOT-DMV 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 NCDOT-DMV 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 fatality, or
- The crash resulted in a non-fatal personal injury, or
- The crash resulted in total property damage amounting to $1,000.00 or more, or
- The crash resulted in property damage of any amount to a vehicle seized, or
- The vehicle has been seized and is subject to forfeiture under G. S. 20-28.3.

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 NCDOT-DMV'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 NCDOT-DMV Traffic Records Communications System is an enhancement of the current CRS that enables NCDOT-DMV to receive and process crash reports electronically.

NCTraCS and NCDOT-DMV 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.

NC Driver License Record System Data

The NCDOT-DMV 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 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 NCDOT-DMV 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 NCDOT-DMV 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.

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 NCDOT-DMV maintains commercial motor vehicle (CMV) crash data in the crash database. The division is responsible for forwarding CMV crash data to the NCSHP, who enter the data into SAFETYNET. SAFETYNET data are routinely transferred to the Motor Carrier Management Information System 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).

North Carolina Office of Emergency Medical Services

EMS Performance Improvement Center (EMSPIC)
The North Carolina 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 the Credentialing Information System (CIS), EMS Toolkit Project, Prehospital Medical Information System (PreMIS) and the State Medical Asset Resource Tracking Tool.

The North Carolina Office of EMS 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. 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.

NC Trauma Registry
Since 1987, all North Carolina trauma centers and several non-trauma center hospitals have submitted data to the North Carolina Trauma Registry. Thirteen of these facilities are designated by the state of North Carolina as level I, II or III trauma centers. The North Carolina Office of Emergency Services maintains the North Carolina Trauma Registry through a contract with the University of North Carolina-Chapel Hill Department of Surgery. All state designated trauma centers are required to submit data 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. Each of the state's centers has the responsibility of providing care and of developing and supporting a regional trauma system.

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.

2016 Strategic Plan

Overview

In 2016, the NC TRCC began the process of updating the 2015 Strategic Plan. The UNC Highway Safety Research Center worked with NC GHSP 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. Agencies who participated in the development of this plan included:

- EMSPIC
- ITRE
- NC DHHS
- NC GHSP
- NCAOC
- NCDOT
- NCDOT-DMV
- 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, 2015.* 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 2016 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, first developed in 2012, was intended to address improvements in traffic safety information systems over five years. However, the plan was and will continue to 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 NC 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.

** Note: The official annual performance period for measuring performance is April to March each year. However, some of the activities described in this section include items undertaken or completed in May or June, as the final plan is delivered at the end of June each year.*

Objective	*Performance Measure/Target*	*4/1/14-3/31/15*	*4/1/15-3/31/16**
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.	Reviewed membership, no new official members added	Reviewed membership, added 6 new members

Objective	*Performance Measure/Target*	*4/1/14-3/31/15*	*4/1/15-3/31/16**
In collaboration with the NC 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: Schedule for the approved protocol will need to align with the GHSP proposal process.)*	Ongoing (To be discussed during October 2015 TRCC meeting.)	Ongoing
	A set of guidelines created for use in identifying and prioritizing projects.	Future effort. Plans for the October 2015 TRCC include reviewing this item.	Sub-committee formed to develop draft protocol; will be presented to full TRCC membership in fall 2016
	A prioritized list of recommended projects provided to NC GHSP and other funding sources and agencies that align with the specific objectives of the Strategic Plan.	Future effort. Plans for the October 2015 TRCC include reviewing this item.	Future effort (may be part of the protocol developed)
Monitor and measure progress on existing goals and objectives.	Annual update of TRCC Strategic Plan.	Completed (June 2015)	Completed (June 2016)
	Periodic review of ongoing projects, focusing on progress toward meeting performance measures outlined in the strategic plan.	Completed	Completed
	Feedback to NC ECHS to report on progress made and new strategies proposed by the TRCC.	As needed for specific purpose/when appropriate	As needed for specific purposes or when requested (plan to ask to be on agenda for fall 2016 meeting)
	Review NHTSA recommendations for TRCC activities to align	This performance measure added May 2015	Completed

Objective	*Performance Measure/Target*	*4/1/14-3/31/15*	*4/1/15-3/31/16**
	our goals with the assessment document focus questions.		
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, NC ECHS, FHWA, NHTSA, CDC).*	Completed (May 2015)	Completed (May 2016)
Explore the value and feasibility of capturing detailed lat/long location information for citations, crashes and asset management (results have implications for multiple data systems).	Feasibility study report.	Future effort	Future effort
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 in St. Louis, MO (October 2014). See Appendix A for details.	TRCC members made presentations at the International Society for Disease Surveillance Conference, the North Carolina Public Health Association Conference, and as a seminar presentation to the EMS Fellows Research Conference for the UNC Department of Emergency Medicine.
Monitor and evaluate the achievements and best practices in traffic safety information systems in other states	Participation in peer-to-peer exchanges.	TRCC members participated in the Traffic Records Forum in St. Louis, MO (October 2014)	Delegation of 7 TRCC members and other NC representatives participated in the Traffic Records

Objective	*Performance Measure/Target*	*4/1/14-3/31/15*	*4/1/15-3/31/16**
for potential implementation in NC.	Review of promising strategies from other states, or items shared w/ other states, and sharing back with group.	Ongoing	Forum in Costa Mesa, CA (October 2015) State experiences with assessment process/spatial mapping of crashes/ emerging technologies
	Monitor USDOT/other state's TRCCs for ideas for consideration.	Ongoing	Ongoing
Ensure that state highway safety plans include traffic safety information systems as a major component.	Review of NC Strategic Highway Safety Plan.	TRCC members participated in development of plan and submitted recommendations. Final plan not yet released.	The final plan was released in the summer of 2015. This review task is completed.
	Review of NC State Highway Safety Plan.	Completed (July 2014)	Completed (July 2015)

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 statutes.

Objective	*Performance Measure/Target*	*4/1/14-3/31/15*	*4/1/15-3/31/16*
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.	17.82%	21.26%
	Number or percentage of reported crashes submitted via the electronic crash reporting system.	70.54%	72.59%

Objective	*Performance Measure/Target*	*4/1/14-3/31/15*	*4/1/15-3/31/16*
	Integration and use of additional features or options for crash reporting. *(Example: geo-locating.)*	Future effort	Future effort (dependent on third party vendor capability and NCDMV requirements)
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.	Periodic 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 Working with all available vendors	Biweekly meeting conducted by NCDMV Initial tests by NCDMV, but no period review yet Currently 4 vendors in place (0 new vendors in the last year). New vendor coming online in FY17.
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 for reporting, compared to peers) Next: Review and see if it can be enhanced or built upon in the future/broadened to include quality.*	Future effort. During 2014, initial crash data submission LEA-specific assessments have been implemented.	Published crash data submission performance and LEA-specific assessments in LEA newsletter as a means of providing peer agency performance results.
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 Protocol under development between NCDMV and NCDOT Traffic Safety Unit	When error is identified Protocol in place between NCDMV and NCDOT Traffic Safety Unit to find and resolve discovered issues.

Objective	*Performance Measure/Target*	*4/1/14-3/31/15*	*4/1/15-3/31/16*
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.	27.26 days (print submissions) 4.62 days (electronic submissions)	21.89 days (print submissions) 3.82 days (electronic submissions)
	Percentage of crash reports submitted within 10 days. (GS 20-166.1 indicates that a law enforcement agency who receives an accident report must forward it to the NCDMV within 10 days after receiving the report.)	64.6%	70.76%
	Percentage of crash reports submitted accurately.	Future effort (including discussion about defining accuracy)	Future effort (including discussion about defining "accuracy")
Ensure that crash data continue to be accurately recorded and reported to the CRS.	The percentage of rejected crash reports. (Note: no reports are accepted to the CRS until the errors in mandated data elements are corrected.)	5.44% (electronic submission only)	4.74% (electronic submission only)
	Periodic summary of crash report rejection reasons.	1,219 reasons for rejection (electronic submission only). Summary report on file.	1,324 reasons for rejection (electronic submission only). Summary report on file. (may become part of the LEA newsletter to help inform training)
	Periodic review of business rules to target inaccurate fields.	Future effort	Future effort
	The percentage of crash records that have no errors in the critical data	Future effort	Future effort

Objective	*Performance Measure/Target*	*4/1/14-3/31/15*	*4/1/15-3/31/16*
	elements. (*Must define critical elements; would have to include elements beyond those that are mandated per the note below.*)		
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; see notes under prior objective.)*	Future effort	Future effort (non-mandated elements to be reviewed as potential critical data elements)
	Periodic review of business rules to address completeness.	Future effort	Addressed business rule completeness as a result of vehicle style addition and moped definition change.
	Feedback to LEAs with respect to their data quality.	Future effort	Query is run every 6 months regarding alcohol level and injury status updated. LEAs are contacted as a result of the query.
	Year-to-year comparison of the number of reports received to review for possible missing data.	Future effort	Query run comparing crash report submission 2014 to 2015. LEAs contacted and submission discussed.
Ensure that crash data is recorded uniformly.	Percentage of data elements that are MMUCC compliant.	To be re-assessed with the new standard in the future.	67.5% Crash Mapping Score, 55.3% Vehicle Mapping Score, 73.8% Person Mapping Score according to online

Objective	*Performance Measure/Target*	*4/1/14-3/31/15*	*4/1/15-3/31/16*
			MMUCC compliance scoring program
	Year-to-year comparison of reportable vs. non-reportable crashes by LEAs.	74.69% reportable 25.31% non- reportable	75.22% reportable 24.78% non-reportable
Ensure that the crash data are 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.	Future effort	New Department of Information Technology rules and protocols requires review of this objective in the coming year, as IT within all state agencies is in a state of transition.
	Potential workshop with stakeholders including IT to discuss accessibility issues.	Future effort	Future effort (same as above)
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.)*	Computer Based Training developed to be available to officers next year. Promotes online individualized training for officers on an as needed basis for TraCS10.	Computer Based Training developed and still being utilized. Bomgar Training sessions used as needed to promote on-hands training assistance for TraCS10 and ECRS LEAs.
	Number of law enforcement officers who receive training, including a breakdown of standard and more extensive training.	Trained 96 law enforcement train-the-trainer officers between April 1, 2014 and Jan 30, 2015 from 41 agencies using NISR training materials and materials developed by DMV TR training staff.	Trained 72 law enforcement train-the-trainer officers between April 1, 2015 and March 11, 2016 from 35 agencies using NISR training materials and materials developed by DMV TR training staff

Objective	*Performance Measure/Target*	*4/1/14-3/31/15*	*4/1/15-3/31/16*
	Review of the current Basic Law Enforcement Training.	Future effort	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	Future effort (when new forms are developed that include data element/attribute changes) Future effort (same as above)
Develop standards for reporting location information.	Publication of spatial location reporting standards available to third-party vendors for ECRS.	Future effort	Reporting standards provided to third-party vendors
Draft model legislation to mandate the use of electronic crash reporting by all LEAs and submit during next legislative session.	Model legislation to TRCC for review in Fall 2016.	---	Added May 2016

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*	*4/1/14-3/31/15*	*4/1/15-3/31/16*
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 citations.	Software upgrade in progress	Software upgrade in progress
Continue to improve the electronic citation submission statewide.	Length of time for citations to be received at AOC.	84.63% received within 3 days *(NOTE: the 2015 Strategic Plan erroneously reported 91.71%; this data has been corrected)*	86.36% received within 3 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 crash and citation, for consistency and accuracy of data.	Feasibility study report. *(Note: This is a project that will be addressed in the future, when all stewards are ready and funding is available to support the study.)*	Future effort	Future effort
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.	All missing DWI elements added, and as a result NCAOC is in the process of creating 18 reports that show DWI charges, convictions, monies collected and assessed and are sorted by judge, District Attorney, Defense Attorney and clerk. First 4 reports are being reviewed by judicial officials.	In process. AOC communicating with legislature regarding reporting requirements.

Objective	*Performance Measure/Target*	*4/1/14-3/31/15*	*4/1/15-3/31/16*
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. Must happen *after* e-citation upgrade.	Future effort. Expect effort to begin in October 2016.
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.)*	Future effort	Future effort
Capture and store large video as evidence in a secure location in data center.	Expand discovery automation system to handle remote blob storage.	In progress (this is a new performance measure added in 2015)	In progress
Paperless process in court room with workflow between district attorney, judges and clerks.	Design and develop automated workflow process for citation in the courtroom.	In progress (this is a new performance measure added in 2015)	In progress, awaiting development of e-courts strategic plan (expected completion of the strategic plan by October 2016)

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

Objective	*Performance Measure/Target*	*4/1/14-3/31/15*	*4/1/15-3/31/16*
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.	Wake Co 2013 pilot study has started. EMS Statewide Linkage Project on hold awaiting results of pilot study. Completed and activated Future effort	Ongoing Expansion project to initiate October 2016. Interim reports have been and are still being submitted. Final report expected September 2016

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*	*4/1/14-3/31/15*	*4/1/15-3/31/16*
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.	Scheduled to be completed in summer 2015.	Re-scheduled to be completed in summer 2016.
Improve the interoperability and linkage between the linear referencing system, road characteristics data, and	Successful implementation of a distributed ownership model for capturing and maintaining roadway data elements.	In progress	In progress. Will be implemented with the Road Operations and Management Effort (ROME) project

Objective	*Performance Measure/Target*	*4/1/14-3/31/15*	*4/1/15-3/31/16*
the crash data system (TEAAS).	Ability of external customers to add or edit data to the primary roadway characteristics file. Ability to integrate crashes from non-system roadways into the statewide LRS.	Future effort ---	(ESRI Roads and Highways project) Future effort (long-term goal for municipalities to enter data) Future effort (dependent on ROME implementation)
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 collecting information for primary highways.	Currently collecting information for primary highways.
Explore the feasibility of an intersection database (in support of FHWA Fundamental Data Elements (FDE)).	Feasibility report.	Future effort	Future effort (starting FY17)

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*	*4/1/14-3/31/15*	*4/1/15-3/31/16*
Provide online a basic summary of the number of licensed North Carolina drivers, which includes their age, race, sex and county of residence. *(Note: the*	Annual online publication as part of NC Crash Facts.	Future effort	Update expected at fall 2016 TRCC meeting.

Objective	Performance Measure/Target	4/1/14-3/31/15	4/1/15-3/31/16
publication should include motorcycle endorsements, commercial licenses and learner's permits.)			

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	4/1/14-3/31/15	4/1/15-3/31/16
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	Update expected at fall 2016 TRCC meeting.
Explore the value and feasibility of adding vehicle color as a data element. *(Note: This could be accessed from the VIN.)*	Feasibility study report.	Nothing new to report	DMV to explore, will report at fall 2016 TRCC meeting.

Traffic Safety Information System Projects

Provided in this section of the report is a discussion of the process that is currently used by the NC TRCC to provide input to the NC GHSP 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 NC 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 NC 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 NC 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 NC TRCC partnership should also be considered.

The NC 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 NC TRCC, typically in the form of grants or possibly through the NC 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	eCitation Upgrade	M3DA-16-14-01	NCAOC	$288,104	NC GHSP
2	NC Crash Data Website	M3DA-16-14-04	HSRC	$61,222	NC GHSP
3	NC Traffic Safety Information Systems Strategic Plan Update	M3DA-16-16-03	HSRC	$90,843	NC GHSP
4	Quick Response System	M3DA-16-14-02	HSRC	$43,841	NC GHSP
5	Vision Zero- North Carolinas Fatality Reduction Program	M3DA-16-14-06	ITRE	$299,863	NC GHSP
	Non 405(c)-funded projects				
6	A Performance-Based Web Analytic Solution for NCSHP Operational Planning Decision Support - PHASE II		ITRE	$142,909	NC GHSP
7	Alcohol Facts Website 2016	TR-16-07-03	HSRC	$40,030	NC GHSP
8	Automated Criminal Infraction System (ACIS)		NCAOC		NCAOC
9	Criminal Court Information System – Clerk Component (CCIS-CC)		NCAOC	$6,301,022	NCAOC
10	Criminal Court Information System –		NCAOC	$3,333,348	NCAOC

Cross Ref. #	Project	Project Number	Coordinating Agency	Budget	Budget Source
	District Attorney Component (CCIS-DA)				
11	eCitation		NCAOC	$963,309	NCAOC
12	Electronic Compliance and Dismissal (ECAD)		NCAOC	$338,000	NCAOC
13	EMS PIC Linkage Project		EMSPIC		GHSP, NCDOT, AOC, NCSHP, etc.
14	Ignition Interlock Management System		NCDOT	$1,308,089	NTSA, NCDOT
15	Motor Vehicle Crash Injuries in Wake County, NC: Exploring available data sources and potential data linkages	TR-16-07-02	IPRC	$136,474	NC GHSP
16	North Carolina Warrant Repository/NCAWARE		NCAOC	$13,000,000	NCAOC
17	payNCticket		NCAOC	$185,459	NCAOC
18	Traffic Records (coordinator position and TRCC conferences)	TR-16-07-01	NC GHSP	$69,000	NC GHSP
19	Truck Crash Geocoding		ITRE/NCSU	$69,000	NCSHP

Presentations by NC TRCC members

"Motor Vehicle Crash (MVC) Case Definitions and How They Impact MVC Surveillance." Presented by Anna Waller at the International Society for Disease Surveillance Conference in Denver, CO, December 2015.

"Secondary Data Sources Available to Examine Motor Vehicle Crash (MVC) Injuries in NC." Presented by Jennifer Jones at the North Caroline Public Health Association Conference in Winston Salem, NC, September 2015.

"Using Syndromic Surveillance Data for Public Health Surveillance and Research: The NC DETECT Experience." Seminar presentation by Anna Waller to the EMS Fellows Research Conference for the UNC Department of Emergency Medicine, Chapel Hill, NC, January 2016.

Appendix B – NC TRCC Participants

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

Name	Agency	Email Address
Brian Mayhew (Co-chair)	NCDOT	bmayhew@ncdot.gov
Eric Rodgman (Co-chair)	UNC-HSRC	rodgman@hsrc.unc.edu
Jeff Robertson	EMSPIC	jrobertson@emspic.org
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Cameron Taylor	NCSHP	cameron.taylor@ncshp.org
Greg Ferrara	NCSU-ITRE	gpferrar@ncsu.edu
David Harkey	UNC-HSRC	harkey@hsrc.unc.edu
Patty Harrison	UNC-HSRC	harrison@hsrc.unc.edu

Jennifer Jones	UNC IPRC	jjones86@live.unc.edu
Sharon Schiro	UNC School of Medicine	sharon_schiro@med.unc.edu
Anna Waller	UNC School of Medicine	anna_waller@med.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				
Air Cards Technology to Reduce Speed Related Crashes and Increase Seat Belt Use	K9-13-11-02	NCSHP	$608,160	GHSP
ASU In-car Computer Grant	K9-14-11-06	Appalachian State University	$30,000	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 Printers	M3DA-15-16-05	NCAOC	$303,050	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
eCitation Upgrade	M3DA-15-16-03	NCAOC	$282,804	NC 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		

Project	Project Number	Coordinating Agency	Budget	Budget Source
MDTs to Enable More Officers to Perform Ecitation and Electronic Crash - GPD (Garner)	K9-10-11-11	Garner Police Department	$10,000	GHSP
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
NC Traffic Safety Information Systems Strategic Plan Update	M3DA-15-16-04	HSRC	$39,263	NC 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	K9-12-11-02	NCSU ITRE	$28,049	GHSP

Project	Project Number	Coordinating Agency	Budget	Budget Source
Carrier Enforcement to Traditional Enforcement				
Performance-based Web Analytic Solution for NCSHP	M3DA-15-16-06	NCSU / ITRE	$135,648	NC 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
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
TRACS Upgrade	K9-14-11-03	NCDMV	$43,300	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

Project	Project Number	Coordinating Agency	Budget	Budget Source
Administrative Office of the Courts (NCAOC) e-Citation Printers	K9-09-11-04	NCAOC	$328,157	GHSP
Alcohol Facts Web Site 2014	TR-14-10-03	HSRC	40,066	GHSP
Automated Criminal Infraction System (ACIS)		NCAOC		NCAOC
Criminal Court Information System – Clerk Component (CCIS-CC)		NCAOC	$ 6,301,022	NCAOC
Criminal Court Information System – District Attorney Component (CCIS-DA)		NCAOC	$3,333,348	NCAOC
eCitation		NCAOC	2,001,616	NC GHSP/Governor's Crime Commission
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
Linkage Project		EMSPIC		EMSPIC
Motor Vehicle Crash Injuries in Wake County, NC: Exploring available data sources and potential data linkages	TR-15-14-02	Carolina Center for Health Informatics and the UNC Injury Prevention Research Center	$135,430	NC GHSP
NC Crash Data Web-site	TR-12-10-02	HSRC	$51,782	GHSP
NC Crash Data Web Site	K9-15-15-03	HSRC	$59,656	NC GHSP

Project	Project Number	Coordinating Agency	Budget	Budget Source
North Carolina Warrant Repository/NCAWARE		NCAOC	$13,000,000	NCAOC
payNCticket		NCAOC	$185,459	NCAOC
PreMIS migration to NEMSIS v3 Standard		EMSPIC		OEMS
Quantifying and Describing EMS Patient Transports following Motor Vehicle Crashes in North Carolina		EMSPIC		EMSPIC
Quick Response System	K9-15-15-02	HSRC	$44,640	NC GHSP
Quick Response System	TR-12-10-01	HSRC	$45,537	GHSP
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 2011	FM-SAD-003-11-01-00	NCDMV-TR	$872,400	NCDMV- TR, NCSHP
SADIP 2012	FM-SAD-0022-12-01-00	NCDMV-TR	$946,400	NCDMV-TR
Traffic Records Support Position	M3DA-14-20-02	NCDMV	$176,800	GHSP
UNC HSRC Crash Web Site Update		HSRC	$48,483	GHSP
Weldon Electronics Enhancement	TR-15-14-03	Weldon PD	$18,000	NC GHSP
Web Site Using NC Crash Data	TR-13-10-02	HSRC	$55,421	GHSP

2016 Traffic Records Current Project Status Reports

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

1.) eCitation Upgrade

Number(s): M3DA-16-14-01
Agency(ies): NCAOC
Project Leader(s): Janet Greene
Performance Period: 10/01/2015 – 09/30/2016
Project Description: eCitation is a very successful system which generates over 90% of citations electronically. The system's technological platform is no longer supported. In order to be responsive to the needs of the judiciary and law enforcement and to allow for mobile technologies, the system must be upgraded using more modern and robust technologies.
Performance Areas: Accuracy, Completeness, Integration, Timeliness, Uniformity, Accessibility
Performance Measures: The developed code will be tested against the requirements and design documents to ensure that all business rules are functioning properly in the system.
Status: RFPs were posted and a contract programmer and contract analyst were hired to assist in documenting requirements, developing, and testing the eCitation upgrade. Development is more than 75% completed, preliminary user inspection of the upgrade was completed, and User Acceptance Testing phase one has been scheduled. The upgrade is on track to be piloted with North Carolina Highway Patrol in the third quarter of 2016.
Sponsoring Agency: NC GHSP ($288,104)
Total budget: $288,104
For more information, contact: Janet H. Greene, 919-890-2041, Janet.H.Greene@nccourts.org

2.) NC Crash Data Website

Number(s): M3DA-16-14-04
Agency(ies): UNC HSRC
Project Leader(s): Robert Foss
Performance Period: 10/01/2015 – 09/30/2016
Description: The website will be enhanced with upgrades and continuing maintenance. We will add 2015 crash data, beginning in the spring of 2016. This will be completed in the late summer of 2016. 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 website by adding data from 2015.* NC crash data for 2015 will be obtained. The data will be configured to fit the website specifications. This includes matching formats for 2001-2014 with the 2015 year and correcting extraneous values. The website will also have to be re-programmed to accept the 2015 "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 website and correct identified problems.* Periodic checks will be made to ensure that the website 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 website 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: GHSP ($61,222)
Total budget: $61,222
For more information, contact: Frank Hackney, 919-814-3659, fhackney@ncdot.gov

3.) NC Traffic Safety Information Systems Strategic Plan Update
Number(s): M3DA-16-16-03
Agency(ies): UNC HSRC
Project Leader(s): David Harkey
Performance Period: 10/01/2015 – 09/30/2016
Description: The objective of this project is to update the 2015 North Carolina Strategic Plan for Traffic Safety Information Systems. The plan will be updated in consultation with the Governor's Highway Safety Program and will be completed in time for submission of the plan with the 2017 grant application for Section 405(c) funds from the National Highway Traffic Safety Administration. The vision, mission, goals and objectives in the current plan will serve as a starting point for updating strategic goals and objectives to be carried out by the committee and the agencies working on projects related to the mission of the TRCC. Performance

measures will be established for each objective that will serve as a means of establishing baselines and assessing progress.
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 March 2016, and delivered to GHSP and the TRCC members for review. The final plan will be submitted at the end of May 2016, and will incorporate the recommended changes. These dates may have to be adjusted to meet any deadlines established by NHTSA for delivery of final plans and reports.
Status: In progress and will continue.
Sponsoring Agency: NC GHSP ($90,843)
Total budget: $90,843
For more information, contact: Frank Hackney, 919-814-3659, fhackney@ncdot.gov

4.) Quick Response System
Number(s): M3DA-16-14-02
Agency(ies): HSRC
Project Leader(s): Eric Rodgman
Performance Period: 10/01/2015 – 09/30/2016
Description: NC 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 NC 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 mail).
Performance Areas: Accessibility
Performance Measures: Continuing to provide quick response resources. This includes information stored at HSRC in the form of available data (selected and formatted on request usually by county or city), published material on specific topics and safety information, and up-to-date information on important personal contacts, computer websites, and agencies which can usually help. As in the last several years, HSRC plans to dedicate the necessary database

analyst and traffic safety consulting support to address all the needs of our North Carolina citizens.
Status: In progress and will continue.
Sponsoring Agency: NC GHSP ($43,841)
Total budget: $43,841
For more information, contact: Frank Hackney, 919-814-3659, fhackney@ncdot.gov

5.) Vision Zero- North Carolinas Fatality Reduction Program
Number(s): M3DA-16-14-06
Agency(ies): NCSU ITRE
Project Leader(s): Greg Ferrara
Performance Period: 10/01/2015 – 09/30/2016
Description: Each year, North Carolina's Governor's Highway Safety Program (NC GSHP) establishes performance measures for meeting traffic safety goals. Most of these traffic safety goals are focused on crash reduction. The North Carolina State Highway Patrol (NCSHP) is the primary safety enforcement mechanism for reducing crashes on state-maintained highways. As such, the NCSHP's mission closely mirrors NC GHSP's crash reduction mission. However, NC GHSP and NCSHP crash reduction performance goals are not currently aligned or co-tracked by either agency.

Second, but equally important, the NCSHP does not have a patrol-wide web-based decision support analytic system for operational enforcement planning. Currently, only the Motor Carrier Enforcement (MCE) section of the Patrol has such a performance-based, spatially-enabled web analytic system. Transitioning these mission-critical technologies to the "traditional," non-MCE side of the Patrol is essential to developing flexible and effective enforcement planning strategies, and in particular, aligning these strategies with HSP and SHSP coordinated safety improvement efforts across the state.

Background: In 2012, an initial effort began to map non-CMV crashes for the non-MCE section of the Patrol as part of a grant from the NC GHSP. The intent was to provide a visual reference for increasing enforcement effectiveness to geographically target high crash locations, and as a first step towards such a spatially-enabled decision support system.

What's Missing? While a centrally accessible web map for visualizing crash patterns helps increase the Patrol's ability to prioritize enforcement activities and focus resources where they are most needed, it is only part of the solution. When put into the context of the "big picture," there is a need to both align the performance measurement needs of the Patrol with NC GHSP's Highway Safety Plan, as well as build and deploy a comprehensive performance measurement decision support analytic suite to improve the Patrol's enforcement effectiveness and subsequently reduce crashes and improve safety.

The Vision: The primary goal of the NCSHP is to "reduce collisions and make the highways of North Carolina as safe as possible." As such, the Patrol has a mandate for increasing the

efficiency and effectiveness of its enforcement activities to make North Carolina a leader in meeting state and national crash reduction performance goals.

Wrapping up these tools into a centrally accessible online "NCSHP Analytic Center" will provide NCSHP command staff, NCSHP field supervisors and GHSP planning staff with views specific for their needs will be a major milestone for increasing operational efficiency of each agencies shared crash reduction objectives. Ultimately, the bottom line goal for this project is to have an NCSHP patrol-wide version of the existing MCE analytic center.

This 'operational planning' analytic solution fits into a larger operations model called a Common Operating Picture (COP). This COP serves as a framework for NCSHP's overall strategic technology plan, where smart strategic and tactical planning capabilities are crucial for effectively carrying out the NCSHP enforcement mission and efficiently managing mission critical resources.

Online Analytics: The NCSHP enforcement performance is currently being tracked and reported manually using Excel spreadsheets. While using spreadsheets is convenient at the desktop level, distribution of these spreadsheets and Troop-wide tracking is cumbersome and complex. Significant improvements in timeliness, accuracy and accessibility can be gained by migrating each of the four existing reports to appropriately tagged new technologies.

Online analytics provide NCSHP MCE with online scorecards to track performance for meeting operational goals, dashboards for in-depth trend and comparison analysis, dynamic reports to streamline and simplify reporting requirements, and geospatial analytics to prioritize times and locations for prioritized enforcement. These technologies include web-based scorecard performance tracking, interactive reporting, dashboard visualization, and map analytics. Figure 4 below shows an example of these analytic tools and their respective purpose.

These technologies are already being utilized by the MCE section of the Patrol for tracking and optimizing operational enforcement planning activities. An extension of these solutions to the non-MCE "traditional" side of the Patrol would leverage existing IT infrastructure that is already in place, providing significant cost savings while increasing operational efficiency.
Performance Areas: Completeness, Timeliness, Accessibility
Performance Measures: Provide both GSHP 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. ITRE will request and integrate crash data from NCDOT and enforcement data from NCSHP into the scorecard. Updates will be requested monthly for continuous monitoring.

This scorecard will be part of an NCSHP Analytic Center. Just like the NCSHP MCE section uses COVERLAB Analytics for MCE operational planning, a non-MCE NCSHP analytics center would be a developed for the traditional side. This analytic center is a single web portal that contains all analytic capabilities in one place: performance measure scorecard, dashboards, reports and maps.
Status: In progress and will continue
Sponsoring Agency: GHSP ($299,863)
Total Budget: $299,863
For more information, contact: Frank Hackney, 919-814-3659, fhackney@ncdot.gov

6.) A Performance-Based Web Analytic Solution for NCSHP Operational Planning Decision Support - PHASE II
Number(s): M3DA-15-16-06
Agency(ies): NCSU / ITRE
Project Leader(s): Greg Ferrara
Performance Period: 10/1/2014 – 9/30/2015
Description:

1. Public Map Analytics -- Develop a map analytic application to help the public identify high crash locations for exposing awareness of traffic fatalities to the driving public using an interactive visual tool. Users will be able to filter for crash attributes to interactively visualize the results on both the map, graphs and data table. Filtered results can be shown as a heat map to expose spatial patterns. This first year, ITRE will:
    - Define requirements and audiences for application
    - Adapt data holdings to service VANTAGE for NCVisionZero
    - Adapt existing design to requirements
    - Build a prototype based on existing VANTAGE for MCE
    - Test application
    - Release application
2. Vision Zero Analytics Improvements — ITRE will develop functional improvements and maintain the existing scorecard, dashboard and reports.
    - Align improvements with NCSHP MCE's COVERLAB Analytics improvements.
    - Maintain existing data updates, security and architecture necessary to support both applications.

Performance Areas: Integration, Uniformity, Accessibility
Performance Measures: Number of distinct website hits. Number of times website accessed.
Status:
This project has two components:

1. Public Crash Map Analytics – Technology options and design have been completed. Initial development begins in May. First version delivered in September 2015.
2. Vision Zero Analytics Updates / Improvements – Trained ~400 NCSHP supervisors and civilian trainers. Embedded VZA into NCSHP reporting regime in the Strategic Leadership Forum. Identified Law Enforcement Liasons as additional user group. Identified technology option for embedding the map into the dashboard views.

Sponsoring Agency 1: NC GHSP ($142,909)
Total budget: $142,909
For more information, contact: Greg Ferrara, 919-515-8656, gpferrar@ncsu.edu

7.) Alcohol Facts Website 2016
Number(s): TR-16-07-03
Agency(ies): UNC HSRC
Project Leader: Natalie O'Brien
Performance Period: 10/01/15 – 09/30/16
Description: We propose to update this site to include 2014 and 2015 crash and conviction data as soon as they become available for the screening, formatting and analysis needed to include the information on the web site. We will add these two additional years' data to the current site and will re-configure the user interface to make these data accessible to the public along with existing data from 2000 through 2015. 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: GHSP ($40,030)
Total Budget: $40,030
For more information, contact: Frank Hackney, 919-814-3659, fhackney@ncdot.gov

8.) Automated Criminal Infraction System (ACIS)
Number(s): n/a
Agency(ies): NCAOC
Project Leader(s): Audie Dale
Performance Period: January 2015 – December 2015
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% 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 is 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 6 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 real-time. Results of case trials/hearings are often entered by clerk staff the day of 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 unified court system with standardized 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, the Department of Health and Human Services, and to the public through contracted public access vendors.

Status: In progress and will continue.
Sponsoring Agency: NCAOC
For more information, contact: Janet Greene, 919-890-2041, Janet.greene@nccourts.org

9.) Criminal Court Information System – Clerk Component (CCIS-CC)
Agency(ies): NCAOC
Project Leader(s): Mark Prakke
Performance Period: 01/01/2015 – 12/31/2015

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: Throughout 2015 the following accomplishments were achieved:

- Implemented Pending Judge Signature List screen
- DMV notification changes to address return to district with Resentencing and Appellate details
- Updated enterprise case disposition details for payNCticket & Batch Waivers as part of eWaivers project
- Implemented legislative form changes
- Implemented changes resulting from legislative action effecting: Forms, Offense Codes, Court Costs, Failure to pay fine, fee or costs within a specified time

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

10.) Criminal Court Information System – District Attorney Component (CCIS-DA)
Number(s): n/a
Agency(ies): NCAOC
Project Leader(s): Jeff McEntire
Performance Period: 01/01/2015 – 12/31/2015
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: 1,468 users in district attorneys' office, 392,601 active cases, 7,892,501 closed cases
Sponsoring Agency: NCAOC
Total Budget: $3,333,348
For more information, contact: Janet Greene, 919-890-2041, Janet.greene@nccourts.org

11.) ecitation
Project Leader(s): Jennifer Barbour
Performance Period: 01/2015 – 12/2015
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 20,909 law enforcement officers from 448 agencies and all 100 county 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®. Over 90% 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: The current project to upgrade eCitation using a new technical platform is underway.
Sponsoring Agency: NCAOC
Total budget: $963,309
For more information, contact: Janet Greene, 919-890-2041, Janet.greene@nccourts.org

12.) Electronic Compliance and Dismissal (ECAD)
Agency(ies): NCAOC
Project Leader(s): Jeff McEntire
Performance Period: 10/01/2014 – 09/30/2016
Description: Electronic Compliance and Dismissal (ECAD) will provide North Carolina citizens a fast, convenient means of requesting dismissal online for certain traffic violations, provided they have complied with the NC Department of Motor Vehicles (NCDMV). ECAD automatically validated compliance with the NCDMV before allowing a request to be submitted. ECAD also provides district attorneys a simple interface to view requests and approve or deny them. When a request is approved, the case is dismissed electronically with no data entry required by the clerk. Finally, ECAD provides a report screen for clerks to view and print a list of cases dismissed through ECAD.
Performance Areas: Accuracy, Integration, Uniformity, Completeness, Timeliness, Accessibility
Performance Measures:

- Accuracy: Data entry errors are reduced because clerks do not have to manually key in ECAD cases to CCIS-CC to dismiss/dispose them.
- Integration: ECAD is fully integrated with existing NCAOC systems to ensure that data is current and accurate and transactions are secure.
- Uniformity: Because the system electronically updates the case records and disposes cases, these are completed in a uniform way, according to existing business rules and statues.
- Completeness: System updates ensure that all necessary data is captured, logged, and stored in appropriate systems.
- Timeliness: ECAD has built in time-out periods to ensure that requests are submitted far enough in advance of court and to ensure that district attorneys address requests in a timely fashion.
- Accessibility: ECAD components are readily available to the public through the NCAOC Online Services page, to district attorneys through CCIS-DA, and to Clerks through CCIS-CC. Citations statewide have new language directing citizens to the Online Services page.

Status: The project is on scheduled to develop the system and go-live in one pilot county (Wake County) on May 16th, 2016. The second and third phases of the deployment will be a group of six additional counties on June 20th, followed by the statewide release on July 18th.
Sponsoring Agency: NCAOC

Total Budget: $338,000
For more information, contact: Jeff McEntire, (919) 890-2016, Jeff.a.mcentire@nccourts.org

13.) EMS PIC Linkage Project
Agency(ies): EMSPIC
Project Leader(s): Jeff Robertson
Performance Period: 01/2015 – 12/2015
Description: To maintain ongoing linkages with the following data sources: EMS, Trauma, Crash, Emergency Department, Hospital Discharge, Stroke and RACE. 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. Create security levels for various stakeholders, including the NC TRCC members.
NOTE #1: EMSPIC does not maintain current linkages with 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 do not have current crash data or Hospital Discharge data. Once received and loaded we will update the status for their associated linkages.
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) EMS to EMS, 6) AOC, 7) Hospital Discharge.
- 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), Hospital Discharge (Quarterly), EMSToEMS (Daily), AOC (Daily). All linkages mentioned are current except for Hospital Discharge.

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.

EMS-to-Trauma Registry (56% linkage with EMS on average): 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. At present we have a 1) 51.5% linkage between EMS and version 4 Trauma Registry records, 1) 61.4% linkage between EMS and version 5 Trauma Registry records.

EMS-to-Crash (46.3% linkage with EMS in 2011): Year 2012-2015 crash data has just been obtained by the EMSPIC, and linkage results are not yet available at this time.

EMS-to-24HourED (14.4% linkage with EMS): We typically expect about 10% of all ED visits to arrive by EMS transport (due to very high number of walk-ins). In 2015 we had a 14% linkage.

EMS-to-Stroke Registry (53.1% linkage with EMS in 2014): The EMSPIC wrote and maintains the Stroke Registry application for NC. 83.1% linkage with EMS in 2015.

EMS-to-EMS: We have not determined an accurate way to measure the success of EMS-to-EMS 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 linkages between AOC (Office of the Courts) and EMS. This is because not all EMS folks will be found in the AOC database.

Hospital Discharge: We just obtained historical Hospital Discharge data, no report on status for this item until it is loaded and linked.
For more information, contact: Jeff Robertson, 919-843-0201, jrobertson@emspic.org

14.) Ignition Interlock Management System
Agency(ies): NCDOT
Project Leader(s): Ken Bagnal
Performance Period: 10/1/2014 – 09/30/2016
Description: The primary objective of the project is to automate the receipt and processing of data from the ignition interlock vendors. The current system involves labor intensive, manual processes. Data is manually entered into SADLS and Excel with paper copies being filed and transferred to Field Hearing Officers when required. This project will provide an alternative solution which will eliminate or significantly reduce the manual processing and paper handling currently being undertaken.

- Functional Requirements – Efficient, secure access for DMV Ignition Interlock Hearings and Driver License staff to the submitted data; provide standard reporting on participant compliance with ad hoc reporting capabilities; secure access for vendors to validate installation information.
- Process Improvements – To provide a solution in which data can be imported and analyzed to automatically update participant records; to streamline the manual review of device logs for violations and errors; 25% reduction in the number of man hours required to manage and evaluate participant data; to standardize format of the data submitted to DMV.
- Operational Objectives - To increase the efficiency and accuracy of the data through automation, resulting in a 20% improvement in audit capabilities for participant compliance.
- Business Goals – To reduce consumable usage by 75% (currently 100 or more cases of paper per year, 25 or more toners per year); to provide the capacity to manage

additional vendors; to provide the capacity to manage additional Ignition Interlock program participants without adding additional staff.

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

Performance Measures:

- Accuracy: In the As-is state, all data is manually entered into the SADLS database. In doing so, there is strong possibility of errors that cause re-work and waste in time and efficiencies. To-be state leverages Web Services to automatically take data directly from the vendors and load the data directly into SADLS without human inte3rvention. Humans are only involved in the case of errors or a decision around violations must be handled.
- Integration: Leveraging Web Services through BizTalk simplifies transactional information from vendors directly with the SADLS database; thus, eliminating the need for human data entry of installations, de-installations, changeover vehicles or changeover devices for Ignition Interlock Devices.
- Uniformity: Currently, the three vendors submit information in different formats that are not consistent; however, leveraging the new system will require the vendors to submit data in a consistent and uniform manner that will prevent re-work and data failure. Should automated validation detect an error in the submitted data, the vendor is immediately notified and corrective action can be taken by the vendor.
- Completeness: Using BizTalk, all data is validated and confirmed automatically by comparing information with the SADLS database. If any data is not complete, the vendor is notified and requested to provide the required information. If the data is erroneous, and IIMS employee is notified to take action to resolve the error(s).
- Timeliness: In the non-automated state, most vendors submit a report every 30 days; however, due to the current manual nature of data entry, it can take anywhere from 60 to 120 or more days to take action on a violation. In the new state, timeliness can be tracked automatically from the time a violation occurs and the time the Field Hearing officer takes action as all interactions are captured by the IIMS system. Time can be tracked from data arrival to action. Case loads can be measured as well as accuracy of data. Even appeals can be tracked as needed.
- Accessibility: In the current state, all information is managed using a paper intensive process where files are scanned and attached to data in SADLS. So accessibility is time limited based on the speed at which information can be manually entered into the system. In the automated environment being produced. Information is automated transmitted and pushed into the SADLS database. Violations are automatically routed to the appropriate Field Hearing Officer for action based on business rules handled by In-Rule, the rules engine chosen for this project. Using this method, only the appropriate Field Hearing Officer is engaged; however, should the appropriate Field Hearing Officer not be available, a supervisor can reassign the violation to a substitute.

Status: The project has re-planned and slotted for delivery no later than September 30th, 2016. At present the project is Green trending Green with a potential better than expected release date. A number of last minute changes during the Execution and Build phase were introduced;

however, there is little or no impact to schedule or budget. This is being achieved via iterative development that was started in February 2016 when a new Project manager was assigned.

IIMS is currently in the Integration environment and testing has begun. Anticipated entry into QC is July 6th, 2016. The possibility of moving into the production environment early is a real possibility. This will enable comparative analysis prior to a go-live date of September 30th, 2016.
Sponsoring Agency 1: NTSA ($885,920)
Sponsoring Agency 2: NCDOT ($422,169)
Total Budget: $1,308,089
For more information, contact: Jackie S. Mitchell, 919-861-3557, jsmitchell@ncdot.gov

15.) Motor Vehicle Crash Injuries in Wake County, NC: Exploring available data sources and potential data linkages
Number(s): TR-16-07-02
Agency(ies): Carolina Center for Health Informatics and the UNC Injury Prevention Research Center
Project Leader(s): Anna Waller
Performance Period: 10/01/15 – 09/30/16
Description: This project will describe motor vehicle traffic crash (MVTC) injury in Wake County during calendar year 2013 using several different data sources. We obtained crash data from crash reports, emergency departments (EDs), and emergency medical services (EMS). In year one, we described the picture of MVTC injury presented from each data source separately. Additionally, we linked EMS and crash report data in year one. In year two, we are using deterministic linkage methods to link all three MVTC data sources.

The goals and objectives that are relevant to Year Two are below:

1. Develop detailed plan of data linkage process for each recommended linkage.
2. Based on Year 1 recommendations, attempt data linkage between data sets.
3. After attempting data linkage between various data sources, following Year 1 recommendations, prepare brief reports on each attempt.

Performance Areas: Completeness, Timeliness
Performance Measures: We are required to submit quarterly progress reports to GHSP updating them on our progress of completing our quarterly goals. If we are unable to meet one of the goals for that quarter, we are required to list the reasoning for why we have failed to complete one of the pre-assigned goals.
Status: We are working on linking the three MVC data sources: crash reports, EMS data, and ED data. We are using exact deterministic methods to link the data sources on the following variables: event date, event time, patient gender, patient date of birth. Currently, we linked the crash report and EMS data and the ED data to the matched crash report-EMS data. Next, we are going to attempt to link the crash report data to the ED data.

We are also working on developing a manuscript to submit to the NC Medical Journal describing the impact MVC case definition has on MVC injury surveillance when using ED data.

Below is a summary of the linkage results:

- We were able to successfully link 62% of the EMS records for motor vehicle crash injury to crash reports.
    - Matched records had 91% agreement on patient race and 97% agreement on patient transfer when we compared crash reports and EMS data.
    - At first we attempted to use age vs. date of birth to link the data; however this resulted in duplicated records since multiple people the same age and gender were often involved in a crash. Using exact date of birth was important for linkage.
    - We tried alternating the time window of the event linkage and found that a 30 minute window provided the best yield without limiting the data quality.
- We were able to successfully link 32% of the ED visits for motor vehicle crash injury to the matched crash report-EMS data when using a subset of the ED data that was most likely to match (e.g. patients that arrived to the ED via EMS transport or with transportation mode to the hospital missing.)

When we expanded the linkage to all ED visits for motor vehicle crash injury regardless of transport mode to the hospital we were only able to link 17% of ED visits to the crash-report-EMS linked data.

Sponsoring Agency: NC GHSP
Total Budget: $136,474
For more information, contact: Anna Waller or Jennifer Jones, 919- 843-2361 or 678-793-7141 anna_waller@med.unc.edu or jjones86@live.unc.edu

16.) North Carolina Warrant Repository/NCAWARE

Number(s): n/a
Agency(ies): NCAOC
Project Leader(s): Christa Martin
Performance Period: 01/2015 – 12/2015
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 8.7 million processes and over 45,179 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 February 2014, NCAWARE was operational in all 100 counties. The Statewide Warrant Search feature pulls all processes in NCAWARE and any non-

converted cases 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.

- 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 all 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.
- 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, and federal criminal justice agencies such as ICE.
- Status: 1,358,641 processes were entered in NCAWARE in 2015.

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

17.) PayNCticket
Agency(ies): NCAOC
Project Leader(s): Audie Dale
Performance Period: 01/2015 – 12/2015
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:
On average in 2015:

- 386 citation payments made per day
- $88,960.88 collected per day

As of December 31, 2015:

- 701,908 citations have been paid online;
- $156,318,844.00 in payments have been collected;
- 32171 hours have been saved by court staff;
- 30.6% of waived offenses have been paid with payNCticket

Sponsoring Agency: NCAOC
Total budget: $185,459
For more information, contact: Janet Greene, 919-890-2041, Janet.greene@nccourts.org

18.) Truck Crash Geocoding
Agency(ies): ITRC/NCSU
Project Leader(s): Greg Ferrara/Burke Foley
Performance Period: 2001-present
Description: ITRE, in partnership with the Motor Carrier Enforcement (MCE) section of the North Carolina State Highway Patrol, have been developing a geospatial database of truck crashes in North Carolina since 2001. Approximately 98 percent of all commercial motor vehicle (CMV) crashes have been geo-located. This project is part of an NCSHP-sponsored technical assistance program in support of FMCSA's Motor Carrier Safety Assistance Program. The intent is to provide accessibility to truck crash locations for enforcement personnel to help increase enforcement effectiveness.
Performance Areas: Accessibility
Performance Measures: MCE planning staff are provided access to CMV crash locations through an online application called COVERLAB Analytics. Accessibility is measured with page hits and site login frequencies.
Sponsoring Agency: NCHSP
Status: This project is being continuously updated annually, and dependent on sponsorship funding. Currently, the holdings are from 2001-2015, with 2016 in progress.

19.) eCitation Upgrade
Number(s): M3DA-16-14-01
Agency(ies): NCAOC
Project Leader(s): Janet Greene
Performance Period: 10/01/2015 – 09/30/2016
Project Description: eCitation is a very successful system which generates over 90% of citations electronically. The system's technological platform is no longer supported. In order to be responsive to the needs of the judiciary and law enforcement and to allow for mobile technologies, the system must be upgraded using more modern and robust technologies.
Performance Areas: Accuracy, Completeness, Integration, Timeliness, Uniformity, Accessibility
Performance Measures: The developed code will be tested against the requirements and design documents to ensure that all business rules are functioning properly in the system.

Status: RFPs were posted and a contract programmer and contract analyst were hired to assist in documenting requirements, developing, and testing the eCitation upgrade. Development is more than 75% completed, preliminary user inspection of the upgrade was completed, and User Acceptance Testing phase one has been scheduled. The upgrade is on track to be piloted with North Carolina Highway Patrol in the third quarter of 2016.
Sponsoring Agency: NC GHSP ($288,104)
Total budget: $$288,104
For more information, contact: Janet H. Greene, 919-890-2041, Janet.H.Greene@nccourts.org

Traffic Records Coordinating Committee Certification

The following NC TRCC members have electronically certified this document:

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**on behalf of Janet Greene, NCAOC, Janet.H.Greene@nccourts.org*

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 NCDMV 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 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. NCDOT 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 NCDMV 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 NCDMV 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 NC TRCC 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 TRCC 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 North Carolina Executive Committee for Highway Safety (NC 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

- q Develop a centralized database for warning tickets that is available to law enforcement officers and others in the traffic records community. **(Section 2-E)**
- q Create electronic citation audit procedures to ensure citations are tracked from time of issuance to disposition of citations. **(Section 2-E)**
- q 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)

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

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

  - o 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

- q 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

- q 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)**
- q 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 the future when funding is available to revise the form and associated databases and IT systems. 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 MMUCC. The current 96% compliance on the crash report form demonstrates this intent.

A summary of N.C.'s MMUCC 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 2016 MMUCC Guideline (5th 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.

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION

PAT MCCRORY
GOVERNOR

ANTHONY J. TATA
SECRETARY

2015 North Carolina Traffic Records Coordinating Committee Charter

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.

Goal

The NC TRCC will provide direction and facilitate coordination among the safety data stewards and stakeholders to improve the transportation safety information systems in North Carolina. The functions (directly from the MAP-21 bill) of the NC Traffic Records Coordinating Committee shall:

(i) Have authority to review any of the State's highway safety data and traffic records systems and any changes to such systems before the changes are implemented;

(ii) Consider and coordinate the views of organizations in the State that are involved in the collection, administration, and use of highway safety data and traffic records systems, and represent those views to outside organizations;

(iii) Review and evaluate new technologies to keep the highway safety data and traffic records system current; and

(iv) Approve annually the membership of the TRCC, the TRCC coordinator, any change to the State's multi-year Strategic Plan required under paragraph (c) of this section, and performance measures to be used to demonstrate quantitative progress in the accuracy, completeness, timeliness, uniformity, accessibility or integration of a core highway safety database.

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FAX: 919-733-0604

WWW.NCDOT.ORG/PROGRAMS/GHSP/

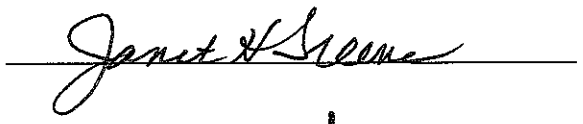
LOCATION:
215 EAST LANE STREET
RALEIGH NC

Objectives:

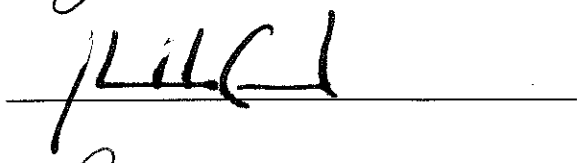
- Provide for coordination, cooperation, and collaboration of agency activities that could affect or improve the state traffic safety data or systems while ensuring the protection of confidential information.
- Prepare, update, and maintain NC's TRCC Strategic Plan for the implementation of traffic safety systems and data improvements.
- Recommend and provide strategies to NC's Executive Committee for Highway Safety for endorsement and action.
- Develop interagency project teams to develop implementation plans for carrying out the objectives of the strategic plan as necessary.
- Provide a forum for review and endorsement of programs, regulations, projects and methodologies to implement the improvements identified in the strategic plan.
- Review programs, regulations, projects, and methodologies for agreement with the TRCC's mission and goals.
- 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 amongst 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 whenever 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 importance in improving quality of life.

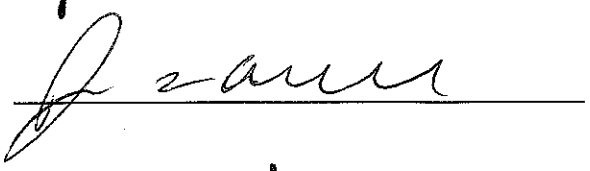
NC TRCC Member Signatures Endorsing the NC TRCC Charter as noted:



NC AOC Janet Greene



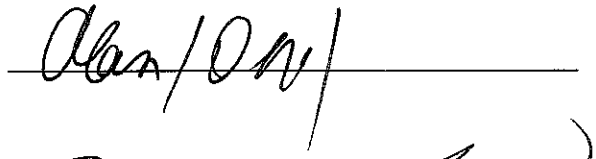
NC DMV TR Julian Council



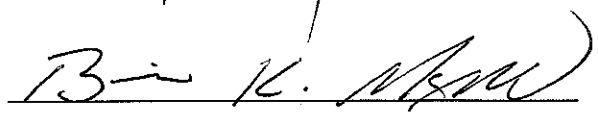
NC DOT GIS Jon Arnold

NC EMSPIC Derek Traughber

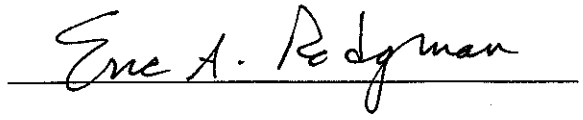
NC SHP ~~John Ivarrson~~ Eric Schaberg



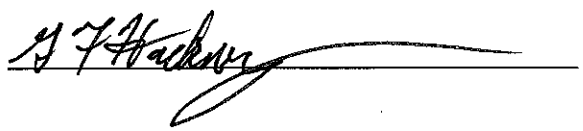
NC DHHS Alan Dellapenna



NC TRCC Co-chair Brian Mayhew



NC TRCC Co-chair Eric Rodgman



NC Data Coordinator Frank Hackney

Traffic Records Coordinating Committee Charter Certification