NC Department of Transportation

Information Technology Plan
For 2014-2016 Biennium

Draft

By

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Chief Information Officer
Department of Transportation

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1 Introduction

1.1 Purpose

The purpose of this document is to provide agency data for the Information Technology Plan for the 2014-2016 Biennium to the North Carolina State Chief Information Officer (SCIO) as required by G.S. 147-33.72B. The statute mandates that each agency submit a technology plan to the SCIO by October 1 of each even-numbered year. The State Information Technology Plan (Plan) is required to cover a five-year time period. To properly inform the Plan, agency plans are also required to cover a five-year time period.

1.2 Roadmap

<table>
<thead>
<tr>
<th>Goal</th>
<th>Strategy</th>
<th>Initiative</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Provide state of the art services and solutions in the most cost</td>
<td>1.1 Provide a state of the art</td>
<td>1.1.1 Enterprise Content Management (ECM) solution</td>
<td>Improve document storage, retrieval, retention and destruction, as appropriate, by implementing a state of the art ECM solution along with the associated metadata and business processes.</td>
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<td>effective, highest quality, and most timely manner possible.</td>
<td>collaboration experience</td>
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<td>1.2 3C and Data Services Project</td>
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<td></td>
<td>Upgrade SharePoint 2013 environment along with SOA enabling platforms utilizing SQL MDS and SSIS, BizTalk, InRule, and Optimal (roles based management)</td>
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<td>1.3 Instant Messaging and Video Conferencing</td>
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<td>Expand the use of these communication capabilities to a wider audience in DOT.</td>
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<td>1.4 Electronic Signature</td>
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<td>Implement electronic signature capabilities across a wide variety of business needs, such as standard employee forms, electronic plans, and potentially citizen facing forms.</td>
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<td>1.5 Managed User Authorization Capability</td>
<td></td>
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<td>Provide a mechanism for external business partners to manage individual user access rules through automation.</td>
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<td>1.6 DOT Web Site Redesign &amp; Restructure</td>
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<td></td>
<td>Redesign and restructure the NCDOT.gov web site to meet the modern look and feel requirements.</td>
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<td>1.7 Mobile Platform</td>
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<td>Support mobile web technologies to empower users.</td>
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<td>Goal</td>
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<td>1.2 Provide GIS Technology Leadership</td>
<td>1.2.1 Enterprise Prioritization (Px)</td>
<td>Build a GIS-based prioritization system that bridges the planning, prioritization, and programming processes</td>
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<td>1.2.2 Continued Enterprise LRS Integration</td>
<td>Integrate various business systems into the advanced linear referencing system (LRS)</td>
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<td>1.2.3 Field Spatial Data Collection</td>
<td>Deploy mobile spatial technology to support mobile business processes</td>
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<td>1.3 Improve Employee Mobility</td>
<td>1.3.1 Upgrade Wireless Infrastructure</td>
<td>Replace aging wireless infrastructure with new and expandable capability</td>
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<td>1.3.2 Mobile Construction Inspection</td>
<td>Respond to deployment needs and to the unique support needs of the mobile environment in construction.</td>
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<td>1.3.3 Virtual Private Network</td>
<td>Work with OITS and Verizon to implement use of virtual private network for business unit mobility and security.</td>
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<td>1.4 Improve Infrastructure Efficiency</td>
<td>1.4.1 Desktop Modernization</td>
<td>Replace aging desktop hardware as funding allows</td>
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<td>1.4.2 Windows Deployment</td>
<td>Complete upgrade of all PCs to Windows 7 operating system</td>
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<td>1.4.3 Server Virtualization</td>
<td>Continue server virtualization</td>
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<td>1.4.4 Desktop and Application Virtualization</td>
<td>Investigate opportunities for desktop and application virtualization to improve efficiency and mobility.</td>
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<td>1.4.5 Geospatial Infrastructure</td>
<td>Upgrade technology supporting the geospatial platform to support the NC GIS Consolidation Plan.</td>
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<td>1.4.7 DMV IT Systems Workstation Modernization</td>
<td>Upgrade DMV IT development workstation environment to include modern development environment.</td>
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<td>2. Improve functionality, quality and cost efficiency of legacy systems.</td>
<td>2.1 Application Modernization/Replacement</td>
<td>2.1.1 DMV Modernization Program</td>
<td>Multiple projects with the goal to improve DMV business processes, enhance delivery of services to the citizens, staff and partners. Provide a customer-centric perspective and incorporate Customer Relationship Management while reducing operating and maintenance costs with faster time to market solutions.</td>
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<td>2.1.2 Next Generation Secure Driver License System</td>
<td>Complete implementation of Next Generation Secure Driver License system to provide improved business work flow for Driver License offices and a secure driver license credential</td>
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<td>2.1.3 Complete Implementation of MILES Project</td>
<td>Complete the final phases of the new Inspection Services system.</td>
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<td>2.1.4 Upgrade the Traffic Records System (TRS)</td>
<td>Complete planned upgrades and begin analysis regarding long term modification necessary for TRS to remain business responsive</td>
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<td>2.1.5 Upgrade SPECS</td>
<td>Implement latest version of SPECS to .NET release.</td>
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<td>2.1.6 Road Operations and Management Effort (ROME)</td>
<td>Replace two custom-developed systems (LARS and ARID) with a COTS solution.</td>
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<td>2.2 Legacy Hosting Agreements</td>
<td>2.2.1 SAP/BSIP Hosting Agreement</td>
<td>SAP/BSIP hosting contract expires and a new hosting contract or transition to OITS data centers.</td>
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<td>2.3 Improve the Quality, Efficiency and Reliability of Legacy Applications</td>
<td>2.3.1 Conduct Application Assessments of Legacy Applications</td>
<td>Work with IBM to determine best practices in the development areas that can be improved. This includes implementing modern tools such as IBM’s Rational Developer (RDZ).</td>
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<td>Goal</td>
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<td>2.3.2 Reduce Operational Cost of STARS and SADLS Applications</td>
<td>2.3.2 Reduce Operational Cost of STARS and SADLS Applications</td>
<td>Reduce operational costs by replacement of the SADLS as part of DMV Modernization and legacy application assessment of STARS</td>
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<td>2.3.3 STI / Prioritization 4</td>
<td>2.3.3 STI / Prioritization 4</td>
<td>Implement improvements in SPOT On!ne GIS application.</td>
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<td>2.3.4 EGIS Environment Scaling</td>
<td>2.3.4 EGIS Environment Scaling</td>
<td>Migrate legacy GIS applications to NCDOT GIS enterprise environment</td>
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<td>2.3.5 Implement CAST Analysis software</td>
<td>2.3.5 Implement CAST Analysis software</td>
<td>Implement use of CAST software for analysis of legacy applications and enhancements to increase efficiencies, improve quality and reduce production issues</td>
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<td>2.4 Improve Application Security</td>
<td>2.4 Improve Application Security</td>
<td>2.4.1 Information Security/Data Masking</td>
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<td>3. Deliver outstanding IT services to NC DOT business customers and the citizens of North Carolina</td>
<td>3.1 Simplify end user access to systems</td>
<td>3.1 Simplify end user access to systems</td>
<td>3.1.1 Simplified Sign-on</td>
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<td>3.2 Improve customer service delivery by implementing ITSM best practices</td>
<td>3.2 Improve customer service delivery by implementing ITSM best practices</td>
<td>3.2.1 Implement IT Service Management Best Practice Solution</td>
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<td>3.3 Improve communications with customers</td>
<td>3.3 Improve communications with customers</td>
<td>3.3.1 IT Customer Survey</td>
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<td>3.3.2 IT Communications</td>
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<td>3.4 Empower end users through spatial technology</td>
<td>3.4.1 Expand the Use of Online and Cloud-based Services (GO!NC)</td>
<td>Enable map based information to be more pervasive within NCDOT and enable it to selectively publish those maps and data services to the general public.</td>
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<td>3.4.2 Enable Spatial Technology in End User Workflows</td>
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<td>Incorporate spatial technology in various business workflows to make available to business applications or systems.</td>
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<td>4. Invest in employee professional growth</td>
<td>4.1 Provide formal and informal training</td>
<td>Invest in procurement of formal training classes as part of new software and hardware acquisitions.</td>
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<td>4.1.1 Formal training</td>
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<td>4.1.2 Informal training</td>
<td>Invest in online training licenses and opportunities for on-the-job training and cross training.</td>
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<td>4.2 Lead national efforts in best GIS practices and standards</td>
<td>NCDOT is hosting the 2016 GIS-t Symposium</td>
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<td>4.2.1 GIS-T 2016</td>
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<td>5. Optimize IT governance and processes to maximize organizational productivity</td>
<td>5.1 Continue to enhance IT governance and business alignment</td>
<td>Continue participating and advocacy of the IT Governance Committee.</td>
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<td></td>
<td>5.1.1 IT Governance Committee</td>
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<td></td>
<td>5.1.2 NCDOT State and National GIS Involvements</td>
<td>GIS will continue to be part of several national GIS groups</td>
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<td>5.2 Improve organizational and application productivity</td>
<td>5.2.1 Enterprise Architecture Framework</td>
<td>Continue development and implementation of the Enterprise Architecture framework</td>
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<td>5.2.2 Service Oriented Architecture (SOA)</td>
<td>Implement a SOA management framework within DOT IT. Change the way IT delivers solutions.</td>
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<td>5.3 Improve risk management, protect DOT and customer assets</td>
<td>5.3.1 Disaster Recovery Data Center Location</td>
<td>Implement a disaster recovery data center to support DOT operations.</td>
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<td>5.3.2 Information &amp; Cyber Security</td>
<td>Continue to improve information and cyber security capabilities.</td>
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<td>5.4 Improve IT</td>
<td>5.4.1 IT Process</td>
<td>Use ITIL and SDLC best practices to</td>
<td>Improve existing software development and service delivery processes.</td>
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<td>Organizational</td>
<td>maturity</td>
<td>maturity</td>
<td>improve existing software development and service delivery processes.</td>
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<td>5.4.2 Improved</td>
<td>5.4.2 Improved</td>
<td>Establish single point of contact</td>
<td>Establish single point of contact for IT procurement request development and management.</td>
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<td>contract/RFP</td>
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<td>5.4.3 Improved</td>
<td>5.4.3 Improved</td>
<td>Improve IT financial</td>
<td>Improve IT financial and accountability.</td>
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2 DOT IT Plan Executive Summary

DOT Information Technology is tasked with ensuring safe, efficient and effective use of the latest computer and automation technologies and to provide a full range of information processing services to the Department of Transportation. These services include new software system development, maintenance of existing systems, support of all computer software and hardware, technology consultation, IT training, and end user and customer service support. Underlying all of these responsibilities is the need to assess our information security and cyber security postures and to elevate them to acceptable levels as determined by federal and state laws, and operating principles of the agency regarding data classification.

In 2011, legislation incorporated the Global TransPark Authority and the State Ports Authority as a Type 2 organization under the Secretary of Transportation. These authorities run separate operations, including IT, but because of the alignment, their plans have been included as appendices to this document. Specific questions related to their content should be addressed to the individual preparer.

The Information Technology organization is tasked with providing technology services to all divisions of the Department of Transportation. This results in a wide variety of initiatives across the spectrum of technical skills and functions.

The emphasis of this plan over the next biennium will be on deploying technology to improve productivity and performance and to address aging legacy systems and infrastructure, optimize process and governance and improve the organization’s operational maturity. Among other activities, there is focus on enterprise services, such as Enterprise Content Management, collaboration enabling tools such as SharePoint, Lync, electronic signature capability, and DMV and Highway systems modernization.

In addition to technology work underway enabling information workers and improving operational agility and Operational expenditure (OpEx) efficiency of the major platforms, there is concurrent work on internal processes which directly relate to how the agency performs this work. The agency is moving towards service oriented architecture (SOA) and associated capabilities to dramatically reduce time to value, or time to compliance, for technology changes.
Additionally, the agency has established an internal process maturity measurement matrix, based on industry standards and has assessed core processes against required maturity levels. Critical gaps are being addressed through work in multiple areas with a current focus on the deployment of an information technology support and services management toolset (ITSSM). This will help address significant gaps in NCDOT processes related to change, issue response, and risk management.

Further, the agency continues to assess its security posture both proactively and reactively. The activities underway within the agency will change as needed to meet threats as they emerge. Recent cyber activities have resulted in a shift in attention to our intelligent transportation systems and associated infrastructure.

The work within NCDOT is dynamic as needs change and priorities are adjusted. The information contained in this plan reflects the work underway at the time of its creation. This plan should be considered, and will be treated, as a living document with updates made as significant business priority changes occur.

3 DOT Vision, Mission and Values

The DOT Vision, Mission and Values can be seen in Appendix: B.

4 DOT IT Vision, Mission and Values

4.1 Vision Overview
The North Carolina Department of Transportation (DOT) employs more than 14,000 people who oversee all modes of transportation in North Carolina, including highways, rail, aviation, ferries, public transit, and bicycle and pedestrian transportation. The department also oversees North Carolina’s Division of Motor Vehicles. The Information Technology mission and goals and strategic plan are in support of the agency’s mission, goals and strategic plan.

4.2 IT Mission
The Information Technology mission is to support the DOT mission of connecting people and places safely and efficiently, with accountability and environmental sensitivity to enhance the economy, health and well-being of North Carolina by delivering innovative, cost effective and reliable technology solutions, services and processes to DOT and to the citizens of North Carolina.

4.3 IT Values
- Integrity – Earn and maintain trust by responsibly meeting the technology needs of the agency, acting ethically and holding ourselves accountable for our actions.
- Teamwork - Value the differences and diversity of others and foster a collaborative work environment.
- Customer Service – Respond to customers in a professional, timely and courteous manner
- Productivity – Deliver the needed services on time with the most efficient combination of people and technology.
- Quality – Pursue excellence in the delivery of IT services.
5 IT Goals and Business Drivers

5.1 IT Goals

1. Provide state of the art technology services and solutions in the most cost effective, highest quality, and most timely manner possible.
2. Improve functionality, quality and cost efficiency of legacy systems.
3. Deliver outstanding IT services to NC DOT business customers and the citizens of North Carolina.
4. Invest in employee professional growth.
5. Optimize IT governance and processes to maximize organizational productivity.

5.2 Key Business Drivers

The key business drivers that help provide IT with its strategic direction are:

- DMV Modernization
- Collaboration
- Geospatial relationships
- Operational efficiency
- Performance management and data driven decision making

6 Agency Goals, Strategies and Initiatives

6.1 Goal 1: Provide State of the Art Technology Services and Solutions in the Most Cost Effective, Highest Quality, and Most Timely Manner Possible.

DOT IT provides a wide range of business services and solutions to meet the growing needs and demands of the Department of Transportation. DOT IT is committed to providing state of the art services and solutions to our customers in a cost effective manner and using best of breed tools and technologies.

6.1.1 Enabling Strategy – Provide a State of the Art Collaboration Experience

DOT initiated several initiatives focused on collaboration that had significant inter-relationships, though each initiative had its own technical and business objectives. To ensure that all the initiatives worked together to meet the common collaboration objectives, they were grouped together and called TRANShare by DOT leadership. These efforts included the Enterprise Content Management program, SharePoint deployment, an electronic plans work group, GIS strategic initiatives (both business and technical), and the redesign and restructuring of the department’s Internet web site.

During the next biennium, these initiatives will continue to expand as the agency addresses the need for improved relationships with external partners, such as construction companies, municipalities and counties, and key public entities. Effective and efficient collaboration with these partners is essential to the productivity of the department. Not only must the department be able to provide static information to these partners but it must be able to provide interactive and responsive communications in a way that is easy, straightforward and seamless with other operations.
6.1.1.1 Initiative: Enterprise Content Management Solution

The Enterprise Content Management (ECM) initiative, via the Content Management Program, will implement an integrated enterprise solution for document storage, retrieval, retention, and workflow management that will improve DOT efficiency in the management of documentation (both structured and unstructured) and implement an integrated search capability using metadata that will allow for cross platform searching. DOT is implementing the SharePoint solution and will be deploying functional components of this solution that will expand the capabilities and flexibility of the content repository. Initial phases have focused on hardware infrastructure, solution module deployment and key business capabilities such as the definition of metadata components, integration with SharePoint and cross-platform search requirements. Ready and rapid access to all this information will save a significant amount of time for DOT users in their day to day business processes and will enable efficiencies in all areas of the business. This is a multi-year initiative that will continue through the next biennium.

6.1.1.2 Initiative: 3C and Data Services Project

3C (Collaboration, Communication and Content Management) and Data Services Project includes SharePoint 2013 upgrade along with SOA enabling platforms utilizing SQL MDS and SSIS, BizTalk, InRule, and Optimal (roles based management). SharePoint 2013 upgrade – Intranet and Collaborative Internet (Inside.ncdot.gov and Connect.ncdot.gov, respectively). SharePoint 2010 will be upgraded to SharePoint 2013. Claims based authentication will be implemented. SharePoint Data Governance will be implemented and content tagged with genre, DOT Content Type and Data Security Classification, initially. SharePoint Data Governance is part of a larger DOT Data Governance initiative. Enhanced capability: enterprise wide search including file system content and metadata augmentation from line of business (LOB) systems. As part of the SharePoint upgrade, content in the OpenText system will be migrated to SharePoint and OpenText will be sunset.

Roles based management, via Optimal, will allow business partners who collaborate with DOT resources on the collaborative internet site, Connect.ncdot.gov, and internal units to assign delegated user administrators to manage their users attached to a particular team site. Delegated user administration will provide efficiencies in the continuing expansion of team sites used with external business partners.

6.1.1.3 Initiative: Instant Messaging and Video Conferencing

In FY 2013-2014, NCDOT continued the expansion of Microsoft Lync as the underlying technology used in the IT instant messaging, presence and video conferencing service. Citrix GoToMeeting has replaced the deprecated Microsoft Live Meeting service and the decommissioned Adobe Connect service offered by OITS for large web broadcast needs. LiveStream has replaced the decommissioned video streaming service from OITS for streaming both NCDOT Board Meetings and bid lettings to the Internet. During the next biennium, the Microsoft Lync based collaboration service will be moved to Microsoft cloud based Office 365 platform where users will gain enhancements such as Lync integration with other enterprise platforms such as Exchange Online and SharePoint Online.
6.1.1.4 Initiative: Electronic Signature

For several years, the engineering units have been investigating the use of electronic signature for “sealing” construction plans. This will allow electronic sharing of plans and significantly improve the time to complete the various steps in the review process while maintaining the integrity of the plans. There are regulatory requirements that dictate what is appropriate for electronically “sealing” plans. We have had representation on the statewide electronic signature work group under OSC in hopes that the solution will support DOT’s engineering needs as well. DOT ran a successful pilot of the electronic signature process on project design plans and expects to expand electronic signature capability for a wide variety of business needs such as forms, contracts and engineering plans.

6.1.1.5 Initiative: Managed User Authorization Capability

As DOT expands the use of SharePoint and other systems to external partners, the number of NCID accounts that must be managed continues to grow exponentially. That growth is expected to continue as DOT expands into more areas of collaboration. DOT desires to implement a capability that would allow for a “user administrator” at each vendor, consulting firm, MPO/RPO, and other business partners, to manage the NCID accounts and access rules for its employees or members. The external partner would be responsible for ensuring that only qualified individuals have access to critical and/or sensitive information and that if someone leaves a position, the administrator would be responsible for removing access as well. These are functions that would be nearly impossible for DOT employees to handle due to volume and lack of direct knowledge of changes in personnel, etc. It is the intent of DOT to continue to use NCID accounts as the primary identifier but to integrate with a COTS product that will provide this external management of roles and responsibilities for SharePoint and other system applications where a number of employees from a single company may need access to a system.

6.1.1.6 Initiative: DOT Web Site Redesign and Restructure

Redesign and restructure the NCDOT.gov web site to meet the demands and expectations of its contemporary visitors by: reorganizing the NCDOT.gov web site from an organizational chart structure to a topic-based, keyword-driven structure; improving the ease of navigation on the site, including improving the search function; streamlining the size and depth of the site; developing criteria for determining what content belongs on the intranet or public facing pages; redesigning the NCDOT.gov web site’s look and feel; and integrating additional new media into the web site.

6.1.1.7 Initiative: Mobile Platform

NCDOT will support mobile web technologies that simplify keeping pace with a rapidly evolving mobile landscape. These technologies must be:

- Device agnostic – compatible with any web-capable mobile device
- Platform independent – usable by applications written in any language and on any environment
- Easy to use – simple to deploy and maintain

Mobile technologies increase access to knowledge resources, foster collaborative interactions and support NC Department of Transportation’s mission to meet the evolving transportation and collaboration needs of the state, nation and world. NCDOT
needs to wholeheartedly support mobile technologies that enable and empower users to access information effectively regardless of device type.


The DOT GIS environment is tightly integrated with the Esri software and DOT IT is working to implement a robust Transportation GIS suite of products. These product and deliverables not only benefit DOT in the short term, it also creates a platform to provide even more ongoing value to the organization through more spatial empowerment over a broader spectrum of the enterprise.

The vision of DOT IT is to provide the technology leadership necessary to enable visual “map” access to all related transportation information.

6.1.2.1 Initiative: Enterprise Prioritization for STI (Px)

For P1.0, P2.0, P3.0, and now P4.0, a new IT project request has been submitted to create/enhance technology that meets the business goals for the Strategic Transportation Investments process. In lieu of continually submitting requests, there is a need to create a long-term plan for building, maintaining, and updating a GIS-based prioritization system that bridges and integrates the planning, prioritization, and programming processes. One system could be created where projects are entered after adoption in long-range plans (Comprehensive Transportation Plans), they are then prioritized, and programmed if selected for funding.

6.1.2.2 Initiative: Continued enterprise LRS integration

Once the ROME Project completes, NCDOT will have implemented a new advanced linear referencing system (LRS) called Roads & Highways from Esri. NCDOT will also have begun integrating various business systems into the LRS. To continue NCDOT’s and the State’s return on investment as well as improve NCDOT services, other business systems will also be integrated into the LRS. This includes business groups such as the Transportation Planning Branch, Right of Way Unit, Aviation Division, Rail Division, and the Safety and Mobility Branch. This would also include external agencies such as the NC911 Board for address maintenance as part of their NextGen effort.

6.1.2.3 Initiative: Field Spatial Data Collection

Mobile computing is growing rapidly with the NCDOT enterprise expecting to deploy numerous devices in the next few years, in addition to the hundreds of devices already in the field. The deployment of mobile spatial technology to these devices is critical to many of the mobile workflows. This technology will be needed in support of various projects and efforts such as the Small Pipe Inventory, the ROW Management System, and the Traffic Management System.

6.1.3 Enabling Strategy – Improve Employee Mobility

The work force at DOT has always been highly mobile though many employees have not had the benefit of technology while not in the office environment or, more specifically, at their desk. During the next biennium, greater emphasis will be placed on providing technology in the hands of more employees, regardless of their physical location. This will necessitate a variety of initiatives.
6.1.3.1 Initiative: Upgrade Wireless Infrastructure

In FY 2013-2014, NCDOT refreshed its aging wireless infrastructure with a modern, cloud-managed, scalable wireless offering from Cisco Systems. In addition to a technical refresh of existing wireless coverage areas, IT developed a standard service offering for wireless network services for customers seeking expanded wireless network coverage in single conference rooms as well as entire buildings. This offering also includes a much needed external coverage offering that provide wireless coverage in NCDOT outdoor areas in which technology equipped vehicles may need access to the NCDOT network. This new wireless network infrastructure also provide secure guest wireless access to the Internet to the contractors and visitors to NCDOT facilities. During the next biennium, the NCDOT wireless system will continue to grow in size and utilization.

6.1.3.2 Initiative: Mobile Construction Inspection

In FY12, several DOT business units began exploring the use of current tablet technology for field efforts, such as inspections. A small pilot was undertaken as a joint effort between IT and Division of Highways to investigate what device would physically work best and what device and other software would work to meet the business functional needs. This effort was very successful and proved to have more business and cost benefits than originally anticipated. Currently more devices are being deployed and it is anticipated that as many as 1100 may be deployed by the end of FY 2014.

During the next biennium, IT will focus on the ability to rapidly respond to deployment needs and to the unique support needs of the mobile environment. It is the goal of the department to remain as device agnostic as possible and to not be tied to specific operating systems so that there is maximum flexibility as the industry around mobile devices continues to grow and expand to leverage new capabilities. Many of the applications already used at the desktop are Windows-based and utilization of a state of the art Windows device, when available, that can meet other functional requirements such as processor speed, battery life, etc., will be strongly considered, so that existing applications can more easily be accessed while mobile.

6.1.3.3 Initiative: Virtual Private Network

With the expansion of the mobile work force using devices such as cell phones, tablets and other cellular devices, having secure access to the NCDOT network as easily as possible is critical. NCDOT has worked with OITS and Verizon to implement a virtual private network on the Verizon cellular system that is used by field equipment such as dynamic message signs and fueling stations where there is a need to connect securely to the State network. During the next biennium, NCDOT plans to expand the use of the private network for devices that had historically been connected to the less secure, public cellular data network. This includes technology such as traffic cameras and traffic counters.

6.1.4 Enabling Strategy – Improve Infrastructure Efficiency

6.1.4.1 Initiative: Desktop Modernization

Modernize the desktop by replacing old hardware and upgrading software to current versions. Due to significant budget shortages over the past 3-4 years, the average age of DOT PC equipment is older than desired. A concerted effort will be made in the next biennium to get the age of the equipment to 4 years or less.
6.1.4.2 Initiative: Windows Deployment

Prior to the April 2014 end-of-support date for Microsoft’s Windows XP operating system, NCDOT migrated most of its systems to Windows 7. The remaining XP systems are now covered under an extended custom support agreement that NCDOT established in cooperation with OITS. Remaining XP systems will be fully migrated away from Windows XP prior to the expiration of this service agreement in April 2015.

6.1.4.3 Initiative: Server Virtualization

Virtualizing the servers in the DOT datacenter to gain efficiencies and reduce costs began several years ago. To date, over 700 virtual server instances have been implemented on 50 physical servers. There are an additional 225 physical servers, a large number of which will be virtualized. This effort has continued in concert with mission critical projects and the agency’s network segmentation initiative and will likely continue into FY 2014-2015. Server virtualization is the strategic direction of NCDOT and is utilized whenever feasible.

6.1.4.4 Initiative: Desktop & Application Virtualization

NCDOT anticipates expanding its virtual desktop and virtual application delivery service offerings in the next biennium to help reduce costs, mostly related to support resources, and to provide more mobility for employees.

6.1.4.5 Initiative: Geospatial Infrastructure

In order to support NCDOT’s investment in geospatial technology, new technologies and solutions, as well as improvements to existing technology and infrastructure, will be needed to increase the return and scale of the geospatial platform. This includes deployment of optimization and monitoring software, implementation of Citrix XenDesktop, as well as looking at leveraging State-wide resourcing as part of the NC State GIS Consolidation Plan.

6.1.4.6 Initiative: DMV IT Systems Workstations Modernization

The current workstations for the technical resources in the DMV Systems group need to be upgraded to provide more proficient, multiple platform supportive, and state of the art technical tools and to foster a more modernized technical environment for the technical resources of the legacy applications. A more modernized workstation for these technical resources will facilitate the delivery of the development and maintenance of new and existing automated functionalities and general production support of the DMV Systems applications as well as the interfacing components to these applications which in many instances are distributed application components. Also, a modernized workstation will provide the infrastructure for more agile delivery of products and services for the requested legacy DMV Systems applications.

6.2 Goal 2: Improve Functionality, Quality and Cost Efficiency of Legacy Systems

While we work to deliver state of the art technology and work on the next generation of key applications, we must ensure that legacy applications continue to deliver value to our business customer and to constantly investigate the appropriate replacement of
legacy systems when appropriate in the life cycle of the application and the business functions.

6.2.1 Enabling Strategy – Application Modernization/Replacement
DOT has a large number of existing applications that support a wide variety of business processes. During the next biennium, it will be necessary to make functional enhancements to these systems to meet growing business requirements and potentially to allow for integration with some of the strategic initiatives mentioned herein.

6.2.1.1 Initiative: DMV Modernization Program
In order to modernize DMV’s end-of-life technology, DOT-IT and DMV are embarking on a modernization program that will incrementally deliver value to the organization over a period of years through a series of integrated and synchronized projects. This program aims to simplify business through technology, create and support an enterprise architecture that is adaptable and industry standard, deliver value, and focus on that which is broken first. All of the projects are organized to manage risk and accelerate delivery. Four key efforts (Service Oriented Architecture, Channel Strategy, Business Intelligence, and Product and Service Integration and Interoperability) will establish frameworks, foundational building elements, a common platform and standardized, reusable components and methodologies. No one effort is stand alone; each is intended to deliver a specific part of the overall program in an optimally sequenced and orchestrated manner. The overall result will be an industry standardized, modernized and nimble solution that will allow NCDMV to:

- Improve Customer Service - fast, efficient, pleasant and trusted service, anytime, every time
- Reduce the time it takes to deliver new capabilities and respond to change
- Provide better decision making capabilities
- Introduce services via different technologies such as smartphones, kiosks and tablets
- Enable business users to make business changes without engaging technical staff
- Lower operating and maintenance costs

Presently, there are 14 initiatives underway. Many of the modernization projects will run in parallel to achieve economies of scale and potentially reduce the overall duration. The modernization effort will progress as tracks, delivering incremental functionality and organizational value over time. Functionality will be delivered on a biannual, major release schedule (represented as R1…RN) with minor releases in between, as necessary. Many of the initiatives are listed in Appendix A: List of Projects.

6.2.1.2 Initiative: DMV Next Generation Secure Driver License System
The recently re-organized NGSDLS effort will deliver a modernized replacement system for the Statewide Automated Driver License System (SADLS). The effort is has three (3) phases:

- **Phase 1** – Upgrade existing capabilities, deploy a new and secure process and produce a secure credential. The timeframe for delivery of Phase 1 is May 2015.
- **Phase 2** – Provide additional application enhancements, upgrade existing facial recognition capabilities, disaster recovery and introduce new product and service
channels such as kiosks and portable units. The timeframe for delivery of Phase 2 is June through November 2015.

- **Phase 3** – Implement a completely new and modernized Driver 360 (D360) and Motor Vehicle Administration 360 (MVA360) capability built upon commercially available products and services that are standardized, easier to maintain, will enable quicker time to delivery, allow for extensive reuse, and that will drive operations and maintenance costs significantly lower. The estimated timeframe for delivery of Phase 3 is the fourth quarter of 2017. The D360 and MVA360 capabilities will provide a framework that may allow NCDMV to realize further modernization benefits such as the replacement of the Statewide Titling And Registration System (STARS).

**6.2.1.3 Initiative: Complete Implementation of MILES Project**

The majority of the functionality required for the new inspection services system (MILES) will be completed during FY 2012-2013. However, based upon the success of the initial phases and the timing of the subsequent deployments, this project has been extended into FY 2014-2015. This system is being provided by Opus (formerly Systech) as a COTS solution and will provide a modern platform hosted by DOT to support the inspection (safety and emission) program, thereby eliminating the need for the VerizonBusiness hosted solution and the recurring fees paid to VerizonBusiness for their service. This increases the revenues to the department and provides greater flexibility of the business to implement. The implementation will also provide greater platform flexibility for inspection station owners. Today stations must purchase expensive analyzer hardware, but when completed, the new system will operate on any web based device including tablets, greatly improving flexibility and reducing costs for the stations.

**6.2.1.4 Initiative: Upgrade of the Traffic Records System**

The TRACS system has been upgraded with the latest release of software, TRACS10 and is based on the TraCS from the National Model, found at www.tracsinfo.us. Additionally, this system has many separate and disjointed parts. During the next biennium, as the strategy for mainframe application replacement is addressed, how the department receives and manages traffic record data is likely to be transformed. The owners of the system (DMV and the DOH Traffic Safety) are currently gathering high level requirements for the development of a project request.

**6.2.1.5 Initiative: Upgrade SPECS**

The current deployment of the Specifications Proposals Contract Systems (SPECS) uses older technology. There is an upgrade available that utilizes .NET and is more closely compliant with DOT’s enterprise architecture technologies. The products that support the system are acquired from the American Association of State Highway and Transportation Officials (AASHTO) - https://www.infotechfl.com/products/trns-port.php. The SPECS system is a mission critical application that is used for bidding on road construction projects. The planning and preparation for the upgrade is underway and it is anticipated that the project will be completed before the end of FY 2014-2015.
6.2.1.6 Initiative: Road Operations and Management Effort (ROME)
The ROME Project will replace two custom-developed systems (LARS and ARID) with a COTS solution, empower end users to perform online editing and maintenance of their own data, integrate multiple systems that currently support asset management, streamline Federal reporting and implement an enterprise GIS solution with a common architecture, scalable and leverages DOT investments in GIS technology. This project is expected to complete in 2015. The project is a joint initiative with Esri, leveraging the state Esri contract.

6.2.2 Enabling Strategy – Legacy Hosting Agreements

6.2.2.1 Initiative: SAP/BSIP Hosting Agreement
Project ITP-00226 Hosting Project is currently in Planning and Design phase to bring the hosting environments to NC data centers owned by OITS. An outsourcing hosting contract for DOT’s SAP/BSIP environment has been in place for over 10 years with Xerox/ACS.

6.2.3 Enabling Strategy – Improve the Quality Efficiency & Reliability of Legacy Applications

6.2.3.1 Initiative: Conduct application assessment of legacy applications
Most of our Legacy Applications run on IBM mainframe platforms hosted at OITS. We have been working with IBM to determine areas that can be improved. We have established that using tools such as IBM’s Rational Developer (RDZ), could enhance our ability to deliver changes to these systems in a more time and cost effective manner. We are currently planning to use RDZ as part of our development platform this fiscal year. We are also planning a proof of concept (POC) to see if we can run some of our Oracle non-mainframe applications on the mainframe. In addition, there is an effort underway to use Cast, to determine in-line coding efficiencies that may be gained by determining vulnerabilities within the code.

6.2.3.2 Initiative: Reduce Operational Cost of STARS and SADLS Applications
The Executive Management of DOT has requested the assessment and reduction, where appropriate, of the operational cost of the STARS and SADLS applications. Currently, the operational cost for STARS and SADLS constitutes over 50% of the DOT IT cost from the Office of Information Technology Services (ITS). A reduction in the operational cost of these applications is crucial to provide a viable funding source for some of the other identified improvements for the legacy DMV applications. Also, this initiative is related to the other work efforts to improve the performance and efficiency of these applications; as performance and efficiency opportunities are identified, the associated solutions may also provide cost reduction options.

6.2.3.3 Initiative: STI / Prioritization 4
The Prioritization 3.0 IT project led to the successful implementation of SPOT On!ine, the web-based GIS application for entering, editing, and submitting project requests and local input points. Prioritization 4.0 is needed to build on this success and implement
needed improvements resulting from the use of SPOT On!ine in P3.0 (lessons learned) and other needed improvements that couldn’t be incorporated into the initial version of SPOT On!ine due to the STI implementation schedule

6.2.3.4 Initiative: EGIS Environment Scaling
NCDOT continues to evaluate and migrate legacy GIS applications and systems, from various lines of business to the current NCDOT GIS enterprise environment. This includes such systems as the Environmental Sensitivity Map application and the NC Ports Authority online map viewer.

6.2.3.5 Initiative: Implement CAST Analysis Software
In FY 2013-14, DOT IT purchased CAST Software to identify and expose weaknesses in complex multi-tier software systems by identifying the high severity engineering flaws undetectable by functional, system, and user testing. CAST Software will help prevent and manage software risk, improve code quality by identifying critical defects, measure application productivity and help identify improvements to improve application execution efficiency.

6.2.4 Enabling Strategy – Improve Application Security

6.2.4.1 Initiative: Information Security/Data Masking initiative
Optim data masking ensures sensitive data in non-production environments is masked. The non-production environments are sometimes shared with 3rd parties. Data masking addresses key information security vulnerability by reducing the risk of data loss. The database team is developing the data masking solution, and implementing the solution will significantly impact the application development teams. In addition to verifying that sensitive data is masked and data relationships remain intact, the application development teams will have to adapt to testing with obfuscated data.

6.3 Goal 3: Deliver outstanding IT services to DOT Business Customers and the Citizens of North Carolina

6.3.1 Enabling Strategy: Simplified End User Access to Systems

6.3.1.1 Initiative: Implement Simplified Sign-On
One of the primary issues reported by NCDOT users is the need to manage multiple user IDs. While NCID is used widely for our external applications, internal applications that have been in place for some time have disparate sign-on criteria. There are inhibitors to having a single sign-on, but collapsing the IDs so that they are consistent and can be used across, all NCDOT- access applications, is the goal.

In 2012, NCDOT IT began an effort to simplify the user IDs used throughout the department. The first step is the alignment of the employee Active Directory (AD) accounts with their NCID account. NCDOT and OITS have agreed to and are working
on an integration that will allow the AD and NCID password synchronization to occur when the password for either ID is changed. NCDOT is also pursuing the implementation of an SAP tool that will allow for the use of the employee’s NCID account to sign into BSIP without losing the integrity of the internal SAP ID already in use. Significant progress has been made to date but additional work will occur into FY 2014-2016 to complete this initiative.

The simplified sign-on approach capability will reduce the lost productivity due to forgotten IDs and passwords and reduce the number of calls to the DOT service desk for password resets. This issue was one of the most prevalent comments received in the most recent IT Customer Survey.

6.3.2 Enabling Strategy: Improve Customer Service Delivery by Implementing IT Service Management Best Practices

6.3.2.1 Initiative: Implement IT Service Management Best Practice Solution

The DOT IT is seeking to provide and implement an Information Technical Service Management (ITSM) tool suite to support DOT IT’s approximately 400 Information Technology (IT) professionals who support over 9,500 knowledge workers in DOT. This procurement will replace the current ITSM tool implementations (i.e. HEAT, Serena, etc.) The tool suite selected will be required to meet the ease of use requirements for the IT users and the DOT Business users. In addition, the selected tool suite will be evaluated on the shortest time to value. This initiative is targeted to implement industry best practices for service management and service delivery based on the Information Technology Infrastructure Library (ITIL) process framework.

6.3.2.2 Expand Use of ITSM Solution to Include Business Process Implementations

Once the initial implementation of the ITSM tool suite is in place and stable, further deployment for use in appropriate key business processes such as the DMV STARS help desk, DMV SADLS help desk, DMV call center, and HR electronic Governance, Risk and Compliance (eGRC) processes.

6.3.3 Enabling Strategy: Improve Communications with Customers

6.3.3.1 Initiative: IT Customer Survey

In early FY 2012-2013, IT issued a survey to all DOT users requesting feedback on the services provided and recommendations for improvement. The results were positive but some constructive suggestions were provided. Several of the initiatives in this strategic plan are in direct alignment with the survey results, such as replacing aging computers, upgrading operating systems, and providing convenient mobility. Also consistent with the survey results are the improvements anticipated by the implementation of an ITSM tool suite. The goal would be to provide improved IT service to the end user. IT will issue another survey in early FY 2014-2015.
6.3.3.2 Initiative: IT Communications

During the next biennium, IT will continue to work to improve communications to end users and business units. This includes communication of events that may have an impact on daily operations, such as network outages, as well as personal communications regarding specific end user incidents. While there is a great deal of communications occurring, there is still a need for greater emphasis to ensure that information is getting to all layers of the organization. It was also clear from the survey comments that not all users know what services are being provided by IT. There will be an improved effort during the next biennium to utilize SharePoint and team sites to improve the information available to DOT employees.

6.3.4 Enabling Strategy: Empower End Users through Spatial Technology

6.3.4.1 Initiative: Expand the Use of Online and Cloud-based Services (GO!NC)

GO!NC gives NCDOT the capability to turn information into web-accessible maps. This enables map based information to be more pervasive, within NCDOT and enables it to selectively publish those maps and data services to the general public. Some examples of this include, information that was either not readily available or widely known to exist (such as Wetland Mitigation Sites or Transportation Improvement Project locations), that is now widely available to the world through your desktop computer or mobile device. In addition, imagery acquired by NCDOT after an emergency event can now be made available to the world within 24 hours, versus the three to five days it took to publish the information in the past.

6.3.4.2 Initiative: Enable Spatial Technology in End User Workflows

This includes the incorporation of spatial technology in various business workflows to include applications or other systems. Projects utilizing spatial technology as part of their implementations include the Traffic Management Systems and the ROW Management System.

6.4 Goal 4: Invest in Employee Professional Growth

The ability of IT to deliver quality service is solely dependent on the quality of the employees within the IT divisions. While DOT has an excellent technical staff, it is important that the department continues to invest in the technical and professional growth of the employees, especially as the economy strengthens and more opportunities external to DOT become available.

6.4.1 Enabling Strategy – Provide Formal and Informal Training

Training is an essential component of employee success and satisfaction. Finding opportunities to provide both formal and informal training is critical to continued growth of the organization. In 2012, DOT implemented a formalized training plan for all employees and both formal and informal training are included in the plans for IT employees.
6.4.1.1 Initiative: Formal Training
A focus will be placed on identifying and purchasing formal training as part of the purchase of software products and hardware appliances. This is an excellent opportunity to obtain the skills necessary to successfully implement the new technology and the training services can often be obtained on site and on the job when the products/appliances are being installed…and at a more cost effective price. Depending on funds availability, formal classroom training both off site and on site will be provided for key skills. Where feasible, onsite training that provides opportunities for more employees at a reduced cost will be obtained.

6.4.1.2 Initiative: Informal Training
During the current biennium, DOT has invested in online training licenses (approximately 25%) of its employees. These licenses are good for a full year and employees are able to consume as many training course and related materials as they desire. Managers are encouraged, when feasible, to provide work hours for employees to take advantages of this opportunity and to work with the employees to determine which courses are most advantageous for career growth. Use of the online training service, SkillSoft, will continue into the next biennium. On-the-job training is a key opportunity for all DOT employees. As opportunities for growth are identified, employees are assigned new responsibilities and encouraged to expand their technical knowledge by working with fellow employees to develop new skills.

6.4.2 Enabling Strategy – Lead National Efforts in GIS Best Practices and Standards
6.4.2.1 Initiative: GIS-T 2016
NCDOT is slated to host the 2016 GIS-T Symposium. The Symposium provides a forum for transportation professionals interested in the design and use of Geographic Information Systems for Transportation purposes. It brings together individuals from education, the private sector, and all levels of government.

6.5 Goal 5: Optimize IT Governance and Processes to Maximize Organizational Productivity.
Faced with an environment that has budget and staffing reductions and a continual increasing demand from the business to invest in new projects to support business growth, IT must ensure the budget is being spent to meet the strategic needs of the business. IT also must improve the time to deliver projects and initiatives. To help meet this goal, IT created the application Enterprise Architecture initiative and is working with the business to improve governance and communications.
6.5.1 Enabling Strategy – Continue to Enhance IT Governance and Business Alignment

See the initiatives below which support the strategy to improve governance and business alignment.

6.5.1.1 Initiative: IT Governance Committee

The IT Governance Committee is a joint partnership between the business and IT. The committee is made up of key business leaders and the DOT CIO. The focus of this committee is to foster management communication and provide governance and prioritization of IT policies, projects and initiatives.

6.5.1.2 Initiative: NC DOT State and National GIS Involvements

NCDOT continues to be part of, and participate in the following national groups:

- NC Geographic Coordinating Council
  - NC Management and Operations Committee
  - NC State GIS User Committee
- NC State Mapping Advisory Committee
  - NC Technical Advisory Committee
  - Workgroup for Seamless Parcels
  - Workgroup for Roads and Transportation
  - Workgroup for Metadata Standards
- Ad-Hoc Committee’s to advise the Federal Highway Administration on the National All Roads Network.
- AASHTO Technology Improvement Group

6.5.2 Enabling Strategy – Improve Organizational and Application Productivity

Define and implement an Enterprise Architecture (EA) process.

6.5.2.1 Initiative: Enterprise Architecture Framework

The goal of Enterprise Architecture (EA) is to simplify application and technology portfolios, facilitate reuse to gain efficiencies and economies of scale and to participate in solution designs to ensure support, maintainability and conformance to enterprise standards. Enterprise domain architecture focuses on specific domains of expertise such as data, applications, business and technology. It establishes strategies, standards, blueprints and roadmaps in each domain. Solution architecture focuses on the definition of a particular solution design. During FY 2011-2013, a great deal of work was completed in both Domain and Solution Architectures. The Enterprise Technology Architecture (ETA) was established and blueprints have been adopted and are in use for the following areas:

- Platform and Infrastructure
- Integration, Interface, and Interoperability
- Components Blueprint
- Access and Delivery Blueprint
An Architecture Assurance Life Cycle (AALC) has been implemented under which the ETA is maintained. The Enterprise Business Architecture (EBA) was drafted and capability maps were documented for the following areas:

- Customer Services
- Core Services
- Enterprise Services

The modal transportation units have reviewed and adopted areas of the EBA related to the capabilities they provide. Much focus over the last year has been on: 1) incorporating solution architects into project teams to assist in design and delivery of new technologies in alignment with the Enterprise architecture; and, 2) defining an approach for introducing a Service Oriented Architecture (SOA) pattern to NCDOT.

During the next biennium, the emphasis for EA will be on:

- Working with the Division of Motor Vehicles (DMV) to validate capabilities within the NCDOT EBA in support of the DMV Modernization effort and the vision, mission and goals of that program.
- Defining an Enterprise Data Architecture (EDA) to guide integration, quality enhancement and successful data delivery across NCDOT.
- Operationalizing, the SOA architecture pattern recently introduced and as described in the next section.

6.5.2.2 Initiative: Service Oriented Architecture (SOA)

The NCDOT Service Oriented Architecture (SOA) is an architecture pattern introduced at the enterprise level to support the following goals:

- Better alignment of IT with business operations
- Employment of best practice methodologies in delivering IT solutions
- Increased operational efficiencies
- Empowered decision makers at all levels through better management of data and processes

Over the last year, NCDOT established a SOA Center which serves as both a “knowledge center” and an operational unit incorporating the integration of existing platforms, introduction of new platforms and new IT disciplines to support the above goals. SOA is changing the way NCDOT IT delivers solutions in terms of people, process and technology. Staff has been named to lead the introduction of each of the following new IT disciplines:

- Services Development
- Data Management
- Business Process Management
- Business Rules Management
- Customer Relationship Management
- Identity and Access Management

Immediate tactical benefits of the SOA Center are focused on improving data quality and business efficiency in targeted areas and definition of a repeatable and reliable SOA Solution delivery process. During the next biennium, the SOA Center will begin to mature SOA Governance processes which include SOA Change Management, SOA
Release Management and SOA Asset Life Cycle Management. The SOA Center will also define specific processes and procedures for each discipline to include service delivery, service support and introduction of new sub-disciplines like data governance, user self-registration, profile management, rules cataloging and service discovery.

6.5.3 Enabling Strategy – Improve Risk Management, Protect DOT and Customer Assets

The current IT datacenter does not have a verifiable or testable disaster recovery plan. This enabling strategy will protect DOT assets in the event of disaster requiring relocation of datacenter services. In addition, in FY 2011-2013, DOT implemented Cyber security initiatives, such as an improved PCI compliant environment to support financial payment processing. The next biennium will require expansion of the PCI environment as more services will be delivered which take credit or debit card payments.

6.5.3.1 Initiative: Disaster Recovery Data Center Location

NCDOT has maintained a data center operation for several years in one of the NCDOT facilities in Raleigh, NC. This facility has had several audit review and maintains a secure, robust environment for most of the distributed processing system used by NCDOT. This environment has UPS, generator backup, required security and appropriate redundancy to ensure stable delivery of services.

In FY 2013-2014, NCDOT procured collocated space within the State’s western data center (WDC) that now serves as NCDOT’s disaster recover data center site. Over the next biennium, NCDOT will work towards establishing the State’s eastern data center (EDC) and appropriate cloud hosting services at the agency’s primary environments on which IT workloads are hosted. NCDOT has also begun working with OITS on a private cloud Infrastructure as a Service (IaaS) offering and expects this to be available during FY 2013-2014.

6.5.3.2 Initiative: Information and Cyber Security

NCDOT continues to improve its security posture and has several initiatives underway to enhance both information and cyber security capabilities. Work in these areas include, but are not limited to data classification, sensitive data masking, Payment Card Industry (PCI) Compliance, risk management, traffic management and traffic operations security, and user training and awareness.

NCDOT has worked with the North Carolina National Guard’s Cyber Defense team on several initiatives and plans future engagements with this team as well as other strategic initiatives.
6.5.4 Enabling Strategy – Improving IT Organizational Maturity

6.5.4.1 Initiative: Improve IT Process Maturity

DOT IT will use the Information Technology Infrastructure Library (ITIL) and Systems Development Lifecycle (SDLC) best practices to improve existing software development and service delivery processes. This initiative will improve systems’ quality, reduce development risk, improve customer service and address compliance issues identified in recent IT audits. See appendix C for an overview of the SDLC and IT Service Management (ITSM) processes targeted for improvement. Appendix C also contains DOT IT’s internal assessment of the process maturity for each of the SDLC & ITIL processes and highlights the need to address improvements in these areas.

6.5.4.2 Initiative: Improved Contract/RFP management

In order to deliver IT services quicker to meet business requirements, we have reviewed all our processes and procedures. Contract management and development and approval of procurement documentation are areas we will address and improve over the next biennium. Currently these are being performed by a variety of groups within IT and often led by contracted short term staff who takes any lesson learned with them when leaving DOT IT. By working with DOT Procurement, we are implementing a single source for the development and submission of RFPs, RFIs and RFQs. This will improve the quality as well as provide a consistency enabling IT staff to more quickly provide business requirements and standards as well as provide a single point to make changes to templates and processes as statutes are revised by legislation and/or guidelines by procurement. The oversight and tracking of contracts will be managed by this same group. This will provide feedback and lessons learned to existing contracts execution. In addition, information gained through review and approvals of procurement documents by State Procurement will be applied quickly and consistently on subsequent requests. In addition, DOT IT will include structural quality measurement requirements for all vendor software contracts. This requirement will be placed on the interim software deliverables as well as the final deliverable. This will improve the quality of the software deliverables and identify problems and risk early in the vendor relationship and delivery cycle.

6.5.4.3 Initiative: Improve IT Financial Management

DOT has begun an overall division review of expenditures and in is focusing responsibilities to each Director for accountability. The CIO has requested each Director to look at possible reductions in operating costs to either give back to the business or utilize to increase investments in efficiencies within the IT organization.
7 DOT IT Organizational Structure
8 Additional Agency Requirements

8.1 Significant Unmet Needs
There are no significant unmet needs at the time this plan was created. However, there are a number of initiatives that must be delayed or are not able to be completed as rapidly as would be ideal because of limited financial and personnel resources. In addition, there are always new projects from the business that have a high priority and mandates from the NC legislature that cannot be planned for or anticipated by this plan.

8.2 Opportunities for Statewide Initiatives
TBD.
## Appendix A: List of Major IT Projects

The table below lists the major projects that are greater than $250,000 and maps each project to overall goals and strategies.

<table>
<thead>
<tr>
<th>Agency Project ID</th>
<th>Project Name</th>
<th>Division</th>
<th>Workflow Status</th>
<th>Project Class</th>
<th>Project Revised Budget Project Costs</th>
<th>Project Revised Budget O&amp;M Costs</th>
<th>Project Revised Budget Total Investment Costs</th>
<th>Actual Start Date</th>
<th>End Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>ITP.00163</td>
<td>DOT EIPT (Telephony) System Upgrade Phase I</td>
<td>IS</td>
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<td>2,274,130</td>
<td>4,263,966</td>
<td>6,538,096</td>
<td>04/05/2010</td>
<td>12/31/2014</td>
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<tr>
<td>ITP.00186</td>
<td>NCDOT Ferry Ticketing and Reservation System</td>
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<td>719,431</td>
<td>112,941</td>
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</tr>
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<td>PROG.0003 / ITP.00200</td>
<td>Next Generation Secure Driver License System</td>
<td>DMV</td>
<td>Execution &amp; Build</td>
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<td>10,447,850</td>
<td>97,088,000</td>
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<tr>
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<td>NCDOT Web Site Redesign and Restructuring</td>
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<td>3,226,620</td>
<td>700,000</td>
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<td>ITP.00216</td>
<td>Pay Line Service Replacement</td>
<td>DMV</td>
<td>On Hold</td>
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<td>04/01/2014</td>
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<td>ITP.00221</td>
<td>Road Operations and Management Effort</td>
<td>ETS</td>
<td>Planning &amp; Design</td>
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<td>5,683,543</td>
<td>140,500</td>
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<td>ITP.00223</td>
<td>Prioritization 3.0 (SPOT3)</td>
<td>ETS</td>
<td>Implementation</td>
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<td>2,365,389</td>
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<td>ITP.00226</td>
<td>SAP Hosting</td>
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<td>Planning &amp; Design</td>
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<td>LITES Audit - Long Term Solution</td>
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<td>Building Automation Systems Server</td>
<td>IS</td>
<td>Registered</td>
<td>$100,000 - $500,000</td>
<td>88,600</td>
<td>225,000</td>
<td>318,350</td>
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<td>Planning &amp; Design</td>
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<td>175,000</td>
<td>1,170,450</td>
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<td>ITP.00234</td>
<td>Ignition Interlock Management System</td>
<td>DMV</td>
<td>Initiation</td>
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<td>0</td>
<td>0</td>
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<td>PROG.0008 / ITP.00235</td>
<td>DOTCM - Transportation Systems Administration Content</td>
<td>IT</td>
<td>Planning &amp; Design</td>
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<td>Division</td>
<td>Workflow Status</td>
<td>Project Class</td>
<td>Project Revised Budget Project Costs</td>
<td>Project Revised Budget O&amp;M Costs</td>
<td>Project Revised Budget Total Investment Costs</td>
<td>Actual Start Date</td>
<td>End Date</td>
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<td>PROG.0008 / ITP.00237</td>
<td>DOTCM - 3C and Data Services Framework</td>
<td>IT</td>
<td>Planning &amp; Design</td>
<td>&gt; $3,000,000</td>
<td>8,610,317</td>
<td>15,225,231</td>
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<td>PROG.0009 / ITP.00238</td>
<td>DMV Modernization Assessment and Planning</td>
<td>DMV</td>
<td>Planning &amp; Design</td>
<td>$500,000 - $3,000,000</td>
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<td>NCDOT Rail WiFi Implementation</td>
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<td>06/19/2015</td>
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<td>Electronic Lien and Titling</td>
<td>DMV</td>
<td>Planning &amp; Design</td>
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<td>ITP.00242</td>
<td>PDEA Tracking Upgrade</td>
<td>DOH</td>
<td>Planning &amp; Design</td>
<td>$500,000 - $3,000,000</td>
<td>1,837,346</td>
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<td>2,383,346</td>
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<td>Right of Way Management System Project</td>
<td>ETS</td>
<td>Planning &amp; Design</td>
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<td>2,392,500</td>
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<td>PROG.0009 / ITP.00243</td>
<td>MyDMV Portal (PROG.0009, ITP.00243, DMV)</td>
<td>DMV</td>
<td>Planning &amp; Design</td>
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<td>2,525,970</td>
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<td>PROG.0009 / ITP.00246</td>
<td>DMV Queuing (PROG.0009, ITP.00246, DMV)</td>
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<td>$500,000 - $3,000,000</td>
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<td>PROG.0009 / ITP.00247</td>
<td>DMV Business Intelligence</td>
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<td>Initiation</td>
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<td>ITP.00248</td>
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<td>IS</td>
<td>Initiation</td>
<td>$500,000 - $3,000,000</td>
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<td>Initiation</td>
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<td>PROG.0009 / ITP.00255</td>
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<td>0</td>
<td>0</td>
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<td>Initiation</td>
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<td>0</td>
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<td>0</td>
<td>0</td>
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<td>PROG.0008 / ITP.00261</td>
<td>District Road Files and Encroachments</td>
<td>DOH</td>
<td>Initiation</td>
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<td>0</td>
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<td>PROG.0008 / ITP.00262</td>
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<td>0</td>
<td>3,616,614</td>
<td>08/21/2014</td>
<td>05/04/2015</td>
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</table>
Appendix B: DOT Mission, Goals and Values

NCDOT

OUR MISSION
Connecting people and places safely and efficiently, with accountability and environmental sensitivity to enhance the economy, health and well-being of North Carolina.

OUR GOALS
- Make our transportation network safer
- Make our transportation network move people and goods more efficiently
- Make our infrastructure last longer
- Make our organization a place that works well
- Make our organization a great place to work
NCDOT
OUR VALUES

- **SAFETY** - We strive for safety throughout our transportation networks as well as in our work and our daily lives.

- **CUSTOMER SERVICE** - We respond to our customers, both internal and external, in an open, professional and timely manner.

- **INTEGRITY** - We earn and maintain trust by responsibly managing the states assets, acting ethically, and holding ourselves accountable for our actions.

- **DIVERSITY** - We draw strength from our differences and work together in a spirit of teamwork and mutual respect.

- **QUALITY** - We pursue excellence in delivering our projects, programs, services and initiatives.
Appendix C: Standardized Work Processes Maturity

Manage Business Engagement

Create & Sustain Business Value

- System Delivery Framework
  - Project Initiation
  - Architecture & Design
  - Verification & Validation
  - Project Management
  - Training Development
  - Security & Compliance
    - Security Management
    - Risk Compliance & Audit Management

- Service Delivery Framework
  - Planning & Requirements
  - Build
  - Deploy & Release
  - Warranty & Project Closeout
  - Agile Development
  - Application Change Request

Manage Architecture & Standards

- Incident Management
- Change Management
- Release & Deployment Management
- Service Level Management
- Capacity Management
- Event Management
- Operations Management
- Knowledge Management
- Training Delivery

Manage Business Results

Strategic Planning

- Architecture Management
- Standards Management

Management Enablers

- Contract Management
  - Contract Planning
  - Contract Governance & Issue Management
  - Request Fulfillment

- Supplier Management
  - Acquisition Management
  - Contract Performance Management
  - Supplier Relationship Management

Finance Management

- Lease Management
- Asset Management
- Cost Management
- Budget & Forecast Management
- Appropriation Management

Human Resource Management

Communications Management

Implemented with System Development Life Cycle Process

Implemented with ITSM, Implementation phase, blank implies no plan in place

Maturity Rating Red/Yellow/Green
Appendix D: Global TransPark Authority Strategic Plan

TBD
Appendix E: State Ports Authority Strategic Plan

TBD