

**N.C Department of Environment
and Natural Resources**

Information Technology Plan

For 2014-2016 Biennium

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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

Goal	Objective	Initiative	Description	Funding Mechanism
Continue to maintain and improve water, land and air quality in North Carolina and to protect our state's natural and environmental resources for future generations.	To provide efficient and effective information technology services and enterprise solutions to streamline business operations, utilizing the Innovation Center and the Center of Excellence programs.	Infrastructure Upgrade to Existing Nodes & Node Clients to version 2.0	The Infrastructure project will upgrade existing Exchange Network Nodes, Clients, Data Flows and infrastructure from version 1.1 to version 2.0 of the Exchange Network Web Services specification.	Appropriations

Goal	Objective	Initiative	Description	Funding Mechanism
To instill and achieve excellence in customer service.	To instill and achieve outstanding customer service, acting as a business partner, and executing to the appropriate sense of urgency.	E-Permitting, Payment, and Signature	Development and implementation of technology that supports e permitting, e-payment, application tracking, electronic acknowledgment system, and movement toward all electronic permitting, including application, status, payment and signature.	Appropriations

Goal	Objective	Initiative	Description	Funding Mechanism
<p>Continue to maintain and improve water, land and air quality in North Carolina and to protect our state's natural and environmental resources for future generations.</p>	<p>To provide efficient and effective information technology services and enterprise solutions to streamline business operations, utilizing the Innovation Center and the Center of Excellence programs.</p>	<p>InCLUDE Exchange Network Data</p>	<p>This is a joint EPA grant-funded project with the Eastern Band of Cherokee Indians, the State Land Records Management Office, the NC Property Mappers Association and the NC State Mapping Advisory Committee (as subgroup of the GICC). The purpose is to leverage the EPA exchange network technology to develop an "Integrated Cadastral and Land Use Data Exchange" (InCLUDE) that will allow county property mapping offices to digitally submit parcel GIS files and associated tax assessor database and land use records to a State Exchange Node and transform their individual county formats into a common format approved by the NC SMAC, providing an automated mechanism to assemble a seamless statewide parcels and land use GIS layer for the first time. The project will include a secure data publishing web interface to allow all levels of government users access to the data on a self-serve basis. While many divisions in DENR need Dcurrent parcel and land use data, many other State and Federal Agencies will also benefit from this project, as will the Tribe.</p>	<p>Grant</p>

Goal	Objective	Initiative	Description	Funding Mechanism
To instill and achieve excellence in customer service.	To instill and achieve outstanding customer service, acting as a business partner, and executing to the appropriate sense of urgency.	Ground Water DSS	Development and production of a data management system that DENR programs (DWM and DWQ) can manage groundwater data in a comprehensive and manner that is easily electronically accessible by local/state/federal agencies and a component that allows for public access of data.	Appropriations
To be responsible stewards of our state's tax dollars and to support the growth of North Carolina's economy through collaborative partnerships with North Carolina citizens, governments and businesses.	To be responsible stewards of the state's tax dollars, making sound financial information technology decisions and utilizing the Innovation Center.	Integrated System of Record for EEP	Currently, NC EEP maintains multiple systems of record to manage program initiatives. These systems of records range from an Oracle-based project and asset tracking system to Excel and Access files that serve the purpose of managing financial and debit ledger information.	Receipts

Goal	Objective	Initiative	Description	Funding Mechanism
<p>To provide outstanding educational and recreational opportunities that promote economic growth and environmental literacy, resulting in excellence in stewardship of environmental and natural resources.</p>	<p>To provide efficient and effective information technology services and enterprise solutions to streamline business operations, utilizing the Innovation Center and the Center of Excellence programs.</p>	<p>Replacement of Fisheries Information Network (FIN)</p>	<p>The constituency served by the FIN are state and federal agencies in the Region concerned with conservation and management of marine commercial and recreational fisheries. Primary data users will be the Memorandum of Understanding (MOU) signatories that assess stocks, forecast trends, and monitor fishery regulations. Also benefiting from the FIN information will be other agencies responsible for the conservation and management of living marine resources in the Region.</p> <p>The mission of the FIN is to cooperatively collect, manage, and disseminate marine commercial, recreational and anadromous fishery data and information for the conservation and management of fishery resources in the Southeast Region and to support the development of a national program. The four goals of the FIN are:</p> <ul style="list-style-type: none"> To plan, manage and evaluate commercial and recreational fishery data collection program; To implement a commercial and recreational fishery data collection program; To establish and maintain commercial and recreational fishery data management 	<p>Receipts</p>

Goal	Objective	Initiative	Description	Funding Mechanism
			system; and To support the development and operation of a national program.	

2 NCDENR IT PLAN EXECUTIVE SUMMARY

The NCDENR IT 2014-2016 strategic plan outlines a two-year roadmap for implementing NCDENR's information technology initiatives. It also links the strategic vision, goals, and objectives of NCDENR IT to those of the department and the State to ensure that NCDENR IT meets or exceeds agency business requirements, both now and in the future. This plan also connects NCDENR IT's efforts with statewide initiatives associated with the Office of Information Technology Services, "One IT" effort.

This is a living document and may yet contain additional changes based on budgetary requirements and/or legislative mandates.

The strategies, goals, and objectives identified in this document form the foundation to document specific IT programs and activities to be established or expanded. Goals and objectives are supported by using a business model that utilizes performance objectives, outcome measures, and indicators to judge the effectiveness and efficiency of NCDENR IT's efforts.

3 GUIDANCE

3.1 SCIO GUIDANCE

IT Vision

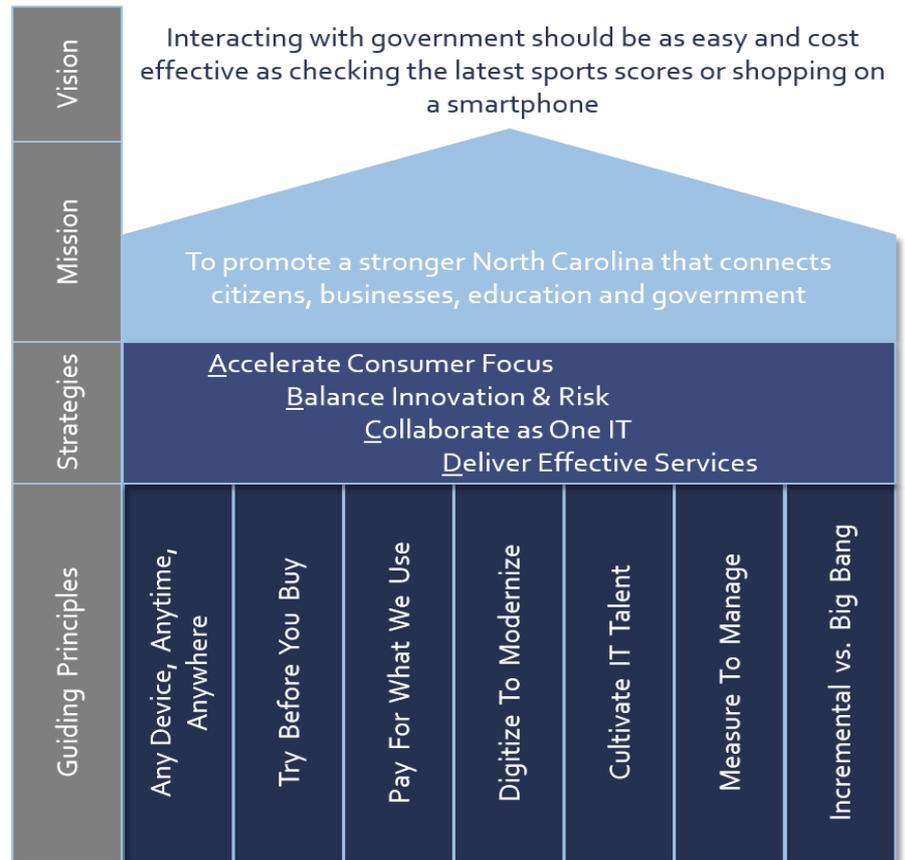
Making government services more accessible and efficient for all consumers is the foundation of the One IT strategy.

IT Mission

Promoting a stronger North Carolina that connects citizens, businesses, education, and government is the mission of IT.

IT Strategies

Strategies focus organizations to achieve complicated goals or objectives. With an eye to the future while sustaining current foundational requirements, the SCIO has adopted the “ABC” strategy to fix and modernize IT.



IT Vision, Mission, and Strategies

Strategy	Intended to:
A. Accelerate Consumer Focus	Embrace the consumerization of IT with a focus on the requirements of the consumer of technology
B. Balance Innovation and Risk	Try newer technologies while managing enterprise risk
C. Collaborate as One IT	Work as a team to accomplish our mission
D. Deliver Effective Operations	Focus on achieving business outcomes through effective and efficient technology delivery

In addition to the seven guiding principles outlined above, the SCIO’s [Cabinet Unite IT Strategy](#) focuses strongly on collaborative IT governance, big data and analytics (to include, but not limited to, work with GDAC and GIS), IT operations, and innovation.

The table below outlines the six IT business capabilities and five IT organizational capabilities highlighted in the Cabinet Unite IT Strategy.

Business Capabilities	Organizational Capabilities
Digital Focus	Collaborative IT Governance
Big Data and Analytics	Strategic Planning and Architecture
Enterprise Resource Planning	IT Program and Project Management
Application and Service Modernization	Innovation
Risk Management and Security	Talent Development and Management
IT Operations	

Please consider these areas, along with the seven guiding principles and your agency-specific goals and objectives when creating agency IT goals and objectives.

4 NCDENR VISION, MISSION, VALUES AND GOALS

4.1 VISION

That a collaborative stewardship among the citizens, government regulators and the business community will maintain and enhance North Carolina's environment and natural resources for the benefit and enjoyment of everyone living in or visiting our great state.

Mission

It is recognized that the N.C. Department of Environment and Natural Resources' primary mission is to protect North Carolina's environment and natural resources. In executing this mission, DENR operates with the broad-based understanding that the following three fundamental principles are integral components of its protective mandate.

Fundamental Philosophy: In its essence, DENR is a service organization. Whether managing parks and zoos or issuing permits, agency personnel, operating within the confines of the regulations, must always be a resource of invaluable public assistance, rather than a bureaucratic obstacle of resistance.

Fundamental Economics: Acknowledging that a traditional cost/benefit analysis is not always fully applicable to matters of the environment and public recreation, the agency will be continually cognizant that an economic cost/benefit analysis is an integral component of DENR's public service endeavor.

Fundamental Science: That all decisions are made with a respect and understanding that environmental science is quite complex, comprised of many components, and most importantly, contains diversity of opinion. In this regard, all public programs and scientific conclusions must be reflective of input from a variety of legitimate, diverse and thoughtful perspectives.

4.2 VALUES

In protecting the state of North Carolina's environment and natural resources, DENR:

- (1) is a resource of public protection and customer service
- (2) is cognizant of costs versus benefits
- (3) treats taxpayer money as if it's our own
- (4) recognizes that science is not political
- (5) does the right thing

4.3 AGENCY GOALS

- 1) Continue to maintain and improve water, land and air quality in North Carolina and to protect our state's natural and environmental resources for future generations.
- 2) To provide outstanding educational and recreational opportunities that promote economic growth and environmental literacy, resulting in excellence in stewardship of environmental and natural resources.
- 3) To instill and achieve excellence in customer service.
- 4) To be responsible stewards of our state's tax dollars and to support the growth of North Carolina's economy through collaborative partnerships with North Carolina citizens, governments and businesses.

5 NCDENR IT VISION, MISSION, AND VALUES

5.1 IT VISION

A technology environment focused on efficient and effective customer-centric services that provides collaborative stewardship among the citizens, government regulators and the business community.

5.2 IT MISSION

To foster an environment of support, collaboration, reliable technical service, customer satisfaction, productivity, efficiency, and transparency to the Department, Business and Citizens.

5.3 IT VALUES

Accountability – Responsible for our decisions and reliable in producing results.

Transparency – We use the expectations of our customers and partners as the focal point for communicating, educating setting priorities, developing programs and executing our business processes and services.

Leadership – Serving as a Departmental model for One IT.

Commitment – Meet the department’s mission and vision and the needs of our customers.

Respect – Treat everyone with dignity and provide consistent services to each other and our customers.

Quality – Effectively and efficiently provide services and products that serve the department’s mission.

Collaboration – We are a valued and integral member of the team of departments that comprise North Carolina state government.

6 NCDENR IT GOALS, OBJECTIVES AND INITIATIVES

Statement of DENR IT Goals:

- 1) To instill and achieve outstanding customer service, acting as a business partner, and executing to the appropriate sense of urgency.
- 2) To provide and encourage an environment of collaborative communications, acting as a business partner, breaking down silos and in alignment with the Office of Information Technology Services. *Note: Several initiatives include a component of this IT Goal. The other three (3) goals were had a stronger correlation with initiatives, and therefore noted as the primary associated goal.*
- 3) To provide efficient and effective information technology services and enterprise solutions to streamline business operations, utilizing the Innovation Center and the Center of Excellence programs.
- 4) To be responsible stewards of the state's tax dollars, making sound financial information technology decisions and utilizing the Innovation Center.

6.1 TO INSTILL AND ACHIEVE EXCELLENCE IN CUSTOMER SERVICE.

Objective

To instill and achieve outstanding customer service, acting as a business partner, and executing to the appropriate sense of urgency.

6.1.1.1 Initiative 1 - E-Permitting, Payment, and Signature

Development and implementation of technology that supports e permitting, e-payment, application tracking, electronic acknowledgment system, and movement toward all electronic permitting, including application, status, payment and signature.

6.1.1.2 Initiative 2 - Ground Water DSS

Development and production of a data management system that DENR programs (DWM and DWQ) can manage groundwater data in a comprehensive and manner that is easily electronically accessible by local/state/federal agencies and a component that allows for public access of data.

6.2 TO PROVIDE OUTSTANDING EDUCATIONAL AND RECREATIONAL OPPORTUNITIES THAT PROMOTE ECONOMIC GROWTH AND ENVIRONMENTAL LITERACY, RESULTING IN EXCELLENCE IN STEWARDSHIP OF ENVIRONMENTAL AND NATURAL RESOURCES.

Objective

To provide efficient and effective information technology services and enterprise solutions to streamline business operations, utilizing the Innovation Center and the Center of Excellence programs

6.2.1.1 Initiative 1 - Replacement of Fisheries Information Network (FIN)

The constituency served by the FIN are state and federal agencies in the Region concerned with conservation and management of marine commercial and recreational fisheries. Primary data users will be the Memorandum of Understanding (MOU) signatories that assess stocks, forecast trends, and monitor fishery regulations. Also benefiting from the FIN information will be other agencies responsible for the conservation and management of living marine resources in the Region.

The mission of the FIN is to cooperatively collect, manage, and disseminate marine commercial, recreational and anadromous fishery data and information for the conservation and management of fishery resources in the Southeast Region and to support the development of a national program. The four goals of the FIN are:

- To plan, manage and evaluate commercial and recreational fishery data collection program;
- To implement a commercial and recreational fishery data collection program;
- To establish and maintain commercial and recreational fishery data management system; and
- To support the development and operation of a national program.

6.2.1.2 Initiative 2 - Infrastructure Upgrade to Existing Nodes & Node Clients to version 2.0

This is a joint EPA grant-funded project with the Eastern Band of Cherokee Indians, the State Land Records Management Office, the NC Property Mappers Association and the NC State Mapping Advisory Committee (as subgroup of the GICC). The purpose is to leverage the EPA exchange network technology to develop an "Integrated Cadastral and Land Use Data Exchange" (InCLUDE) that will allow county property mapping offices to digitally submit parcel GIS files and associated tax assessor database and land use records to a State Exchange Node and transform their individual county formats into a common format approved by the NC SMAC, providing an automated mechanism to assemble a seamless statewide parcels and land use GIS layer for the first time. The project will include a secure data publishing web interface to allow all levels of government users access to the data on a self-serve basis. While many divisions in DENR need Dcurrent parcel and land use data, many other State and Federal Agencies will also benefit from this project, as will the Tribe.

6.3 TO BE RESPONSIBLE STEWARDS OF OUR STATE’S TAX DOLLARS AND TO SUPPORT THE GROWTH OF NORTH CAROLINA’S ECONOMY THROUGH COLLABORATIVE PARTNERSHIPS WITH NORTH CAROLINA CITIZENS, GOVERNMENTS AND BUSINESSES

Objective

To be responsible stewards of the state’s tax dollars, making sound financial information technology decisions and utilizing the Innovation Center.

6.3.1.1 Initiative 1 - Integrated System of Record for EEP

Currently, NC EEP maintains multiple systems of record to manage program initiatives. These systems of records range from an Oracle-based project and asset tracking system to Excel and Access files that serve the purpose of managing financial and debit ledger information.

7 NCDENR IT ORGANIZATIONAL STRUCTURE (REPORTING STRUCTURE)

See attachment A: NCDENR IT Organizational Structure.

8 ADDITIONAL AGENCY REQUIREMENTS

8.1 INNOVATIVE FUNDING SOLUTIONS

Parks and Recreation Reservation System

As part of the Division of Parks and Recreation's 'Centralized Reservation System', a public-private partnership was negotiated without any initial taxpayer expense, the State of North Carolina established a contract for the provision and support of a reservation system, fulfillment and call center including all of the related hardware, software, and telecommunications equipment needed in order to make available a complete, fully functioning "turnkey" system that includes Internet, call-in, mail-in and park walk-in reservation components.

Self-Service Solutions

DENR IT is exploring a potential innovative funding solution related to self-service solutions and ibeacon technologies. DENR IT is exploring potential options related to costing associated with licensing of ibeacon technologies as opposed to value-added revenue generation. Over the next year, DENR IT will determine if value-added revenue generation proves a good fit related to procuring innovative technologies related to self-service and ibeacon technology solutions.

Beacon Technology

DENR IT in conjunction with the Innovation Center is exploring potential Innovative Funding solutions with respect to "beacon" technology. Beacons or ibeacons, have the ability to generate additional revenue above what is traditionally garnered. This situation advances the possibility that an innovative funding solution may create a "win-win" scenario for both the state agency as well as the selected vendor involved in providing the technology solution.

8.2 OPPORTUNITIES FOR STATEWIDE INITIATIVES

Three key opportunities currently in flight or being reviewed as proof of concept projects via N.C Innovation Center are described below:

- e-permitting (multi-agency *active projects*)
- self-service solutions (multi-agency *proof of concept*)
- ibeacon (multi-agency *proof of concept*)

Both of the above "Innovative Funding Solution" possibilities also serve as opportunities for statewide initiatives. Self-service solution technologies have been explored via the Innovation Center. DENR IT spearheaded the effort in conjunction with the Innovation Center. A wide array of agencies including Department of Agriculture, Department of Transportation, Department of Environment and Natural Resources, Department of Commerce as well as Department of Human and Health Services expressed interest and met in the Innovation Center to discuss self-service solution possibilities. As an emerging technology "beacons" have the potential to enhance various verticals. Several agencies

across the state are meeting to discuss the potential impact “beacon” technology may have as a statewide effort.

NCDENR will continue its participation and lead involvement with the statewide unified look and feel initiative. Additionally, NCDENR is working towards migrating to the newly selected Enterprise Content Management system. This statewide opportunity benefits several agencies including NCDENR.

Additionally, other possibilities for statewide initiatives include, but are not limited to:

- Common Payment systems
- Point of Sale systems
- Grants Management
- Business Process Management
- Geographical Information Systems (DENR Developing Department GIS Strategic Plan)

Appendix A: List of Major IT Projects

This purpose of this section is to provide list of major IT projects and applications (>\$250,000) that are in progress or planned in this biennium. The table below maps each project to overall goals and strategies.

Project Name	Short Description	Related Goals and Objectives	Summary of Anticipated Benefits	Project Name
Groundwater Public Portal	Public access to integrated groundwater data.	DENR was able to identify two basic functions that DENR and external stakeholders felt were the highest priority and that DENR believes are achievable using existing database systems: <ul style="list-style-type: none"> • Geographic query and display for “groundwater sites” near a location • Geographic query for groundwater quality data around a location 	DENR is in the process of implementing the Groundwater Decision Support System (GWDSS), a database and collection of software tools which will integrate groundwater information from all DENR programs that collect and manage groundwater data. For DENR staff and management, the integration of groundwater data in a central repository will enhance decision-making for groundwater protection and restoration by making groundwater data from every part of DENR readily accessible across all of DENR. Public access to the data in the GWDSS via the web has always been planned, but was not included at the time the initial contract for the GWDSS was awarded due to cost.	Groundwater Public Portal
EEP Integrated System of	Currently, NC EEP maintains multiple	The scope of work will include 1) the development and	Currently, NC EEP maintains multiple systems of record to manage program	EEP Integrated System of

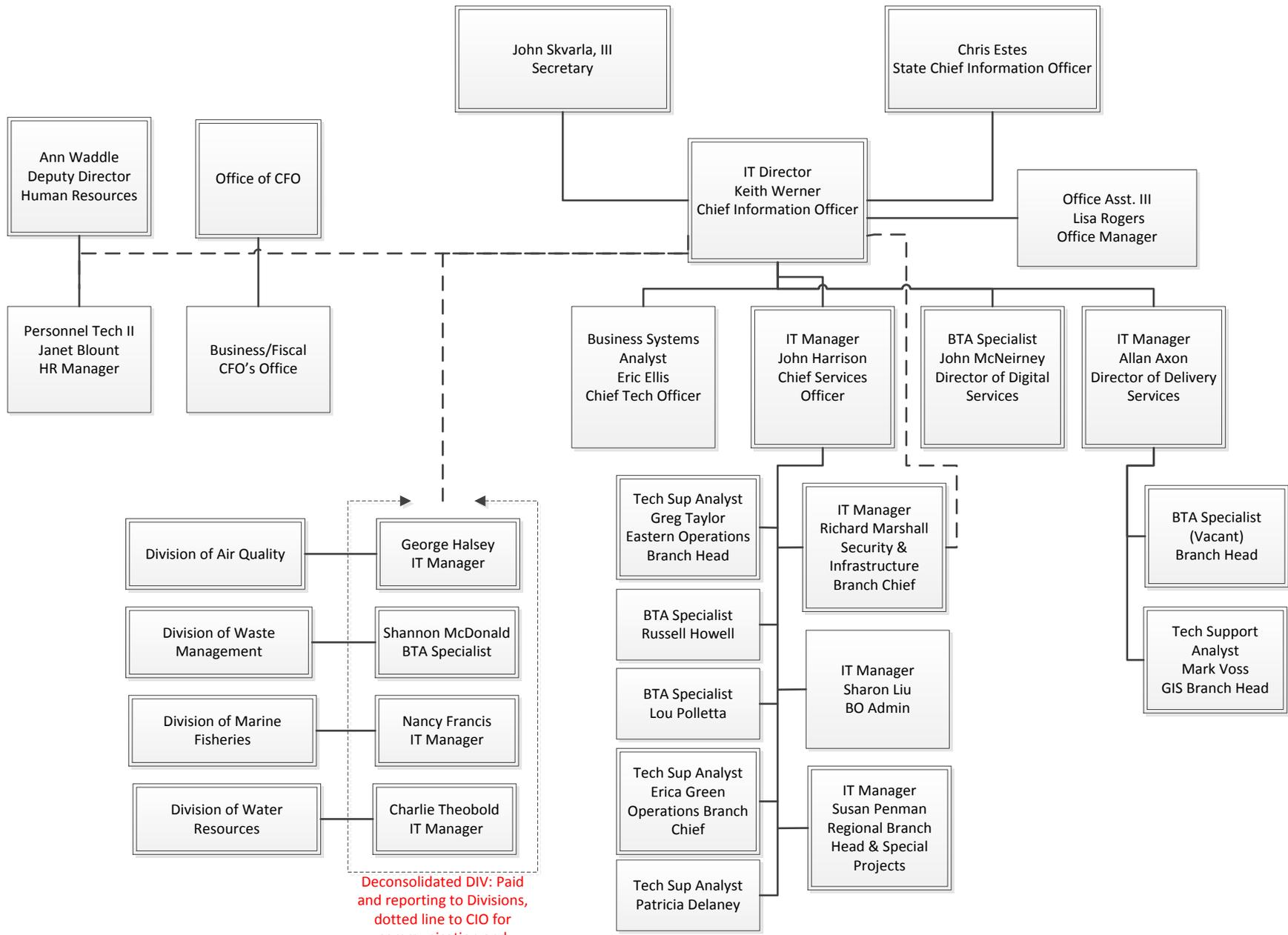
Project Name	Short Description	Related Goals and Objectives	Summary of Anticipated Benefits	Project Name
Record	systems of record to manage program initiatives. These systems of records range from an Oracle-based project and asset tracking system to Excel and Access files that serve the purpose of managing financial and debit ledger information.	execution of a project plan for implementation of the ISR; 2) working with NC Ecosystem Enhancement Program (EEP) staff subject matter experts (SMEs) to identify and refine user requirements and business processes; and 3) provide user training on the new ISR. The awarded Vendor will propose, manage and provide hosting for the solution with the necessary configuration. This request is for a contract between the awarded Vendor and the State to furnish a hosted software solution for the Ecosystem Enhancement	<p>initiatives. These systems of records range from an Oracle-based project and asset tracking system to Excel and Access files that serve the purpose of managing financial and debit ledger information.</p> <p>In the existing environment, the greatest challenge for EEP leadership and staff is the program's lack of a single synthesized dashboard based on integration of the multiple systems of record. Due to limitations in reporting, staff currently enters data into multiple locations. There are also limitations with the ability to share synthesized information due to an inability to leverage web-enabled data.</p>	Record
RCRAInfo	Implement National Environmental Information Exchange Network Data flow and integrate with Division of Waste Management, Hazardous Waste Section systems.	Integration of EPA RCRAInfo system with NC DENR systems	Retirement of IBEAM HW facility module and integration of EPA RCRAInfo with IBEAM HW Fees module	RCRAInfo
DWR Tar River Basin	The basic model will run on a daily time step and	Develop historical municipal, industrial, and agricultural	The Division will use the standard hydrologic modeling for three purposes:	DWR Tar River Basin

Project Name	Short Description	Related Goals and Objectives	Summary of Anticipated Benefits	Project Name
Hydrologic Model	have all the features and functionality of the recently-completed Neuse River Hydrologic Model, including the capability to generate and use statistical hydrologic forecasts for drought management purposes.	demand data for the period of record (1930 through 2011). These data will be used to develop a data set of daily historical, unregulated inflows at selected points in the system for the same period of record. With this set of unregulated flows, the user can simulate the operation of the basin for any set of actual or proposed facilities and operating policies.	<ol style="list-style-type: none"> 1. To support long range water supply plans for each major river basin in North Carolina. This is the Division's top priority and will provide local governments and other water users a reliable, quantitative framework for planning long range, sustainable water supplies. 2. To assist state and federal agencies and local governments in evaluating proposed new water withdrawals. Instead of having to develop a costly new model to evaluate each project, both project application and review agencies can use a reliable basin-wide model. This approach will result in large cost savings and better quality agency reviews. 3. To support river basin management during droughts. The standard model will facilitate better understanding of drought problems and help identify solutions. 	Hydrologic Model
DWR Roanoke River Basin Hydrologic Model Update	The basic model will run on a daily time step and have all the features and functionality of the recently-completed	Develop historical municipal, industrial, and agricultural demand data for the period of record (1930 through 2011). These data will be used to	<p>The Division will use the standard hydrologic modeling for three purposes:</p> <ol style="list-style-type: none"> 1. To support long range water supply plans for each major river basin in North 	DWR Roanoke River Basin Hydrologic Model Update

Project Name	Short Description	Related Goals and Objectives	Summary of Anticipated Benefits	Project Name
	<p>Neuse River Hydrologic Model, including the capability to generate and use statistical hydrologic forecasts for drought management purposes. It will also incorporate the hourly hydropower operations for the Kerr/Philpott-Gaston-Rapids system. Because Smith Mountain and Leeville projects are pumpstorage, only the operations affecting downstream flows (e.g., low flow protocols) will be captured in the model.</p>	<p>develop a data set of daily historical, unregulated inflows at selected points in the system for the same period of record. With this set of unregulated flows, the user can simulate the operation of the basin for any set of actual or proposed facilities and operating policies.</p>	<p>Carolina. This is the Division's top priority and will provide local governments and other water users a reliable, quantitative framework for planning long range, sustainable water supplies.</p> <p>2. To assist state and federal agencies and local governments in evaluating proposed new water withdrawals. Instead of having to develop a costly new model to evaluate each project, both project application and review agencies can use a reliable basin-wide model. This approach will result in large cost savings and better quality agency reviews.</p> <p>3. To support river basin management during droughts. The standard model will facilitate better understanding of drought problems and help identify solutions.</p>	

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Attachment A: NCDENR IT Organizational Structure

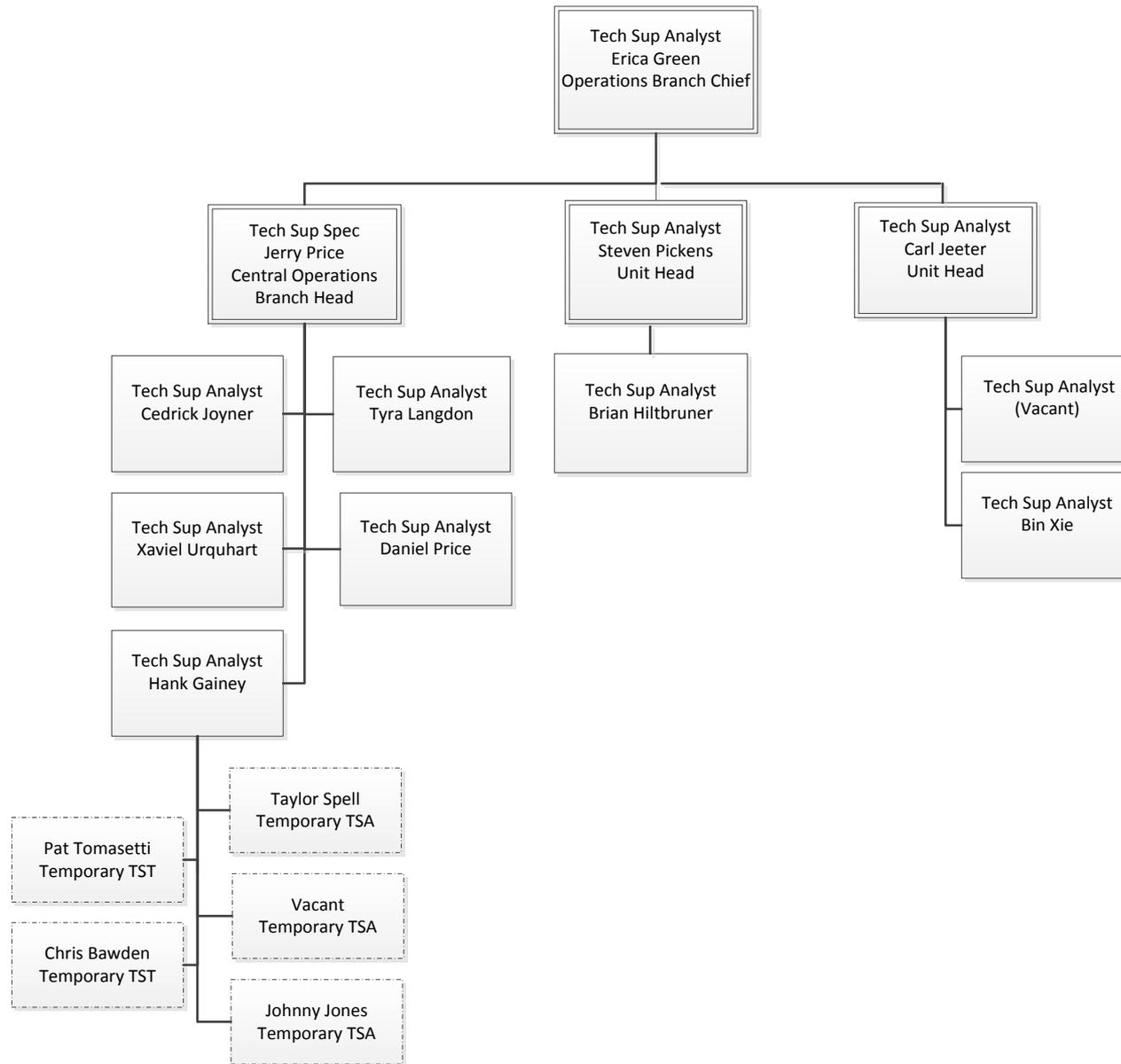


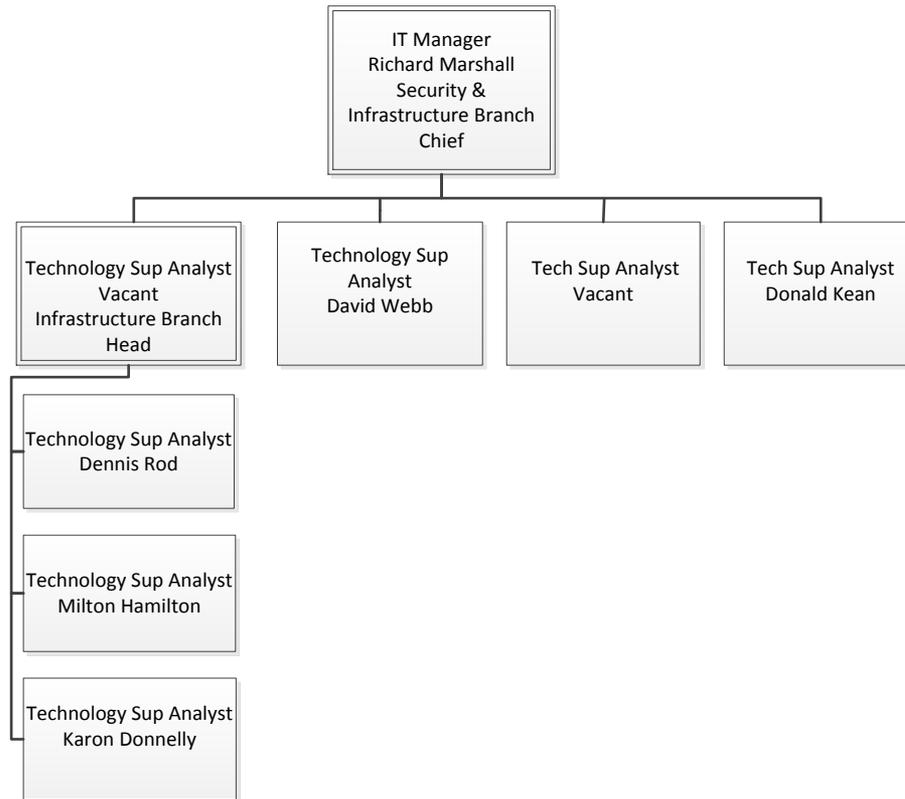
Deconsolidated DIV: Paid and reporting to Divisions, dotted line to CIO for communication and enterprise coordination

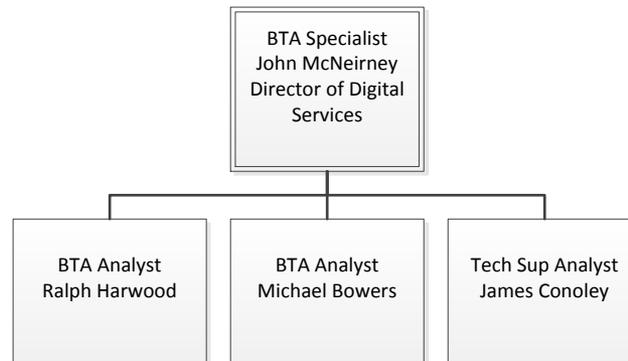
DENR/ITS (Werner)
4/10/2014



**Technical Services
Leadership**







IT Manager
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