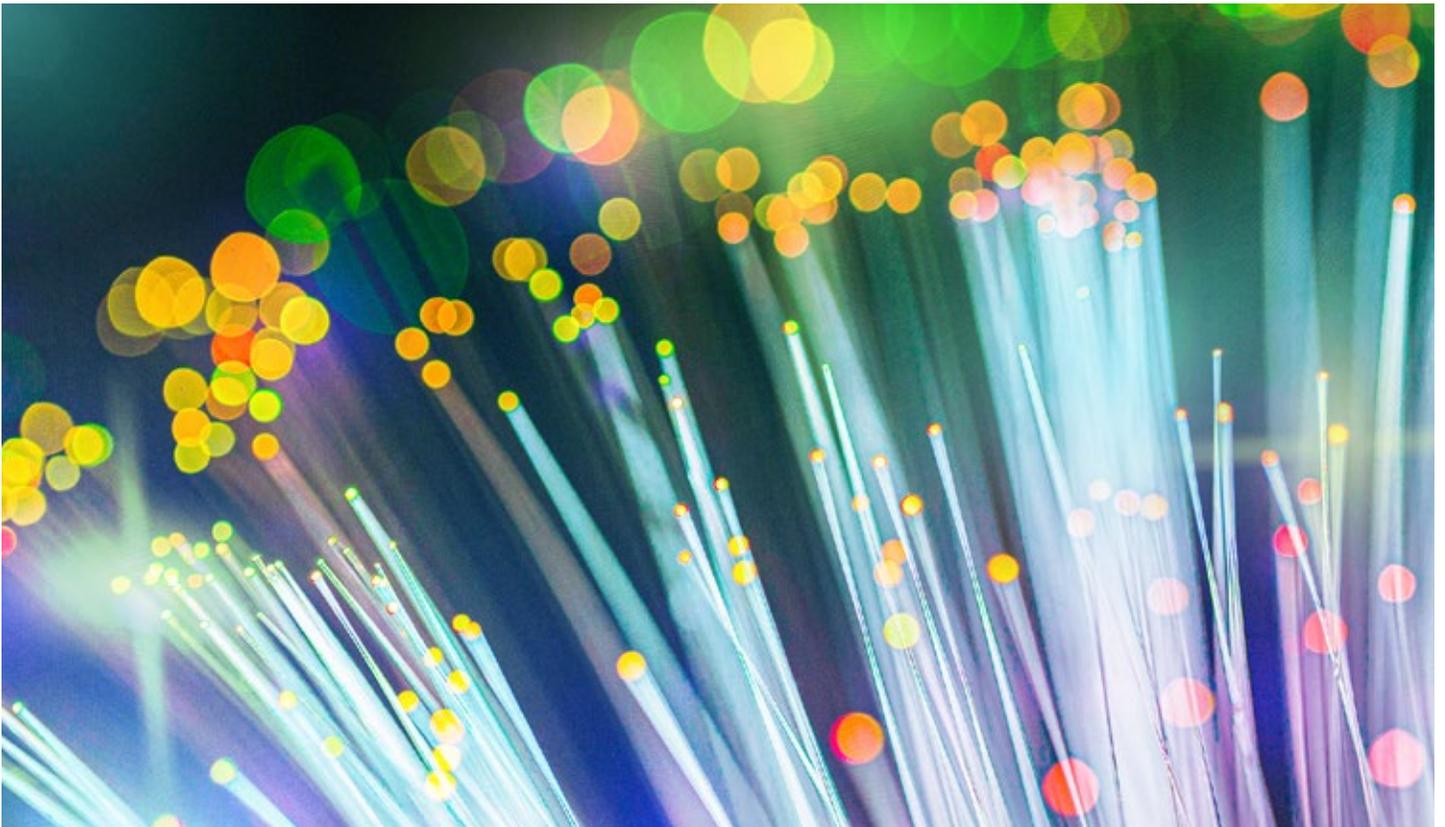

Annual Report

2020/
2021

N.C. Department of
Information Technology



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From the Secretary

The N.C. Department of Information Technology is tasked with providing the state of North Carolina with the necessary information technology tools to help provide taxpayers the services they need to live happy, healthy and prosperous lives.

When I joined NCDIT in March 2021, the department was well on its way to executing on its vision and goals. We were also entering the second year of the COVID-19 pandemic. The pandemic increased demand for business innovations, transparency and digital services. It also put a spotlight on inequities like the digital divide. As with all challenges, the pandemic also brought opportunities. With \$2 billion in dedicated federal and state funding, we now have a once-in-a-generation opportunity to make real and meaningful progress to close the digital divide in North Carolina.

This annual report was created to share with you an overview of our work in state fiscal year 2020-21. I hope you will take the time to read the report and learn more about NCDIT and our talented and dedicated employees who continue to receive both state and national recognition for innovation and leadership.

I look forward to seeing what we can accomplish together in 2022, as we build on this momentum,

Jim Weaver
Secretary and State Chief Information Officer



Jim Weaver
Secretary and State Chief Information Officer

About NCDIT

The N.C. Department of Information Technology oversees IT services for the state of North Carolina and is the primary IT service provider for state government agencies. It also provides services for local governments and educational institutions.

The department was established as a cabinet-level agency in 2015 to consolidate and optimize enterprise information technology functions within the executive branch to meet the needs of residents, businesses and visitors while also realizing efficiencies and cost savings through economies of scale.

The department's primary functions are

statewide strategy, governance, architecture and operations. A full list of the powers and duties of the department can be found in N.C.G.S. 143B, Article 15.

Appointed by the governor, the state chief information officer – also referred to as the secretary of the department – leads NCDIT and its 1,300 employees.

The department is dedicated to transforming the state's shared IT services by adopting modern technology solutions and improving communications and collaboration platforms to meet customers' needs while effectively managing risks and security.



Vision, Mission and Goals

Vision

Our vision is to foster a culture of innovation and operational excellence.

Mission

Our mission is to promote a stronger North Carolina that connects customers, residents, businesses, education and government.

Goals

- Collaboration
- Customer service
- Agility
- Accountability
- Innovation



Enterprise Functions and Divisions

As NCDIT has executed on the consolidation of state IT functions, the agency has grown in both size and responsibilities.

Here is a list of NCDIT's major functions and offices:

- Strategy and governance
- Architecture and design
- Operations and engineering
- Security and risk management
- Data
- Broadband and digital equity
- Statewide IT procurement

Strategy and Governance

NCDIT is responsible for working with state agencies to develop and administer a comprehensive strategic plan to ensure the proper management of the state's information technology resources. This plan is used to

create and maintain a strategically aligned portfolio of IT services and solutions that meets the state's business needs and effectively leverages state resources to service residents, businesses and visitors.

The department is also responsible for establishing a consistent process for planning, maintaining and acquiring the state's IT resources as well as ensuring that state programs and projects align with policies, standards and architecture.

Architecture and Design

NCDIT ensures that solutions – either to be built or procured – align with the goals of the state as well as agencies to support digital transformation, IT growth and modernization.

The department works to proactively identify and implement new solutions based on identified gaps to reduce redundancy of solutions, optimize costs and mitigate risks. In addition, NCDIT works with agencies to apply existing, new and emerging technologies to transform and optimize business and operating models, helping agencies plan, design,

innovate, orchestrate, facilitate, navigate and operationalize the digital enterprise.

Operations and Engineering

With a few legislative exceptions, NCDIT provides all IT support for consolidated or optimized agencies. The department partners with other state agencies, local governments and educational entities to provide reliable, cost-effective services that meet current and future requirements, service levels and budgets. NCDIT also centralizes partners' services, as necessary, for ease of use, security, optimal cost and efficiencies.

Security and Risk Management

NCDIT provides leadership in the development, delivery and maintenance of a whole-of-state cybersecurity program that safeguards North Carolina's information and supporting infrastructure against unauthorized use, disclosure, modification, damage or loss.

The department works with the N.C. Department of Public Safety to manage statewide response to significant cybersecurity incidents. It also helps executive branch agencies comply with legal and regulatory requirements as well as technical architecture and industry best practices.

Data

NCDIT provides the infrastructure to host state projects, services, data and applications. The department also manages and coordinates enterprise data integration efforts through the Government Data Analytics Center (GDAC). Currently, GDAC integrates data and develops analytics to support business needs associated with criminal justice, child safety, fraud, compliance, health care and longitudinal and performance analysis.

Four technical environments support the GDAC:

- Criminal Justice Law Enforcement Automated Data System, known as CJLEADS
- North Carolina Financial Accountability and Compliance Technology System, known as NC FACTS
- NC HealthConnex, a modernized health information exchange that brings added value to conversations happening at all levels in the health care industry. By breaking down information silos between providers, it helps achieve greater medical outcomes for patients and creates efficiencies in state-funded health care programs. Providers who receive state funds (e.g., Medicaid, State Health Plan) are required by N.C.G.S. 90-414.4 to connect to NC HealthConnex to receive payments for services they provide.
- NC OneMap, the geospatial backbone supporting North Carolina data users

Broadband and Digital Equity

NCDIT serves as a statewide resource for broadband access, digital inclusion and digital literacy initiatives that the state leads. To elevate Governor Roy Cooper's priority to close the digital divide in North Carolina, the Office of Digital Equity and Literacy was established in 2021 as the first office of its kind in the nation.

NCDIT is working to deliver digital equity to North Carolina by leveraging data to identify and understand community needs, expanding broadband access, increasing digital literacy and enabling more North Carolinians to afford high-speed internet.

Statewide IT Procurement

NCDIT is responsible for procuring IT goods and services for agencies whose IT resources have been consolidated, or optimized, and



approving IT procurements for separate agencies to ensure they meet current technology standards, are not duplicative, meet business objectives, are cost-effective and are adequately funded.

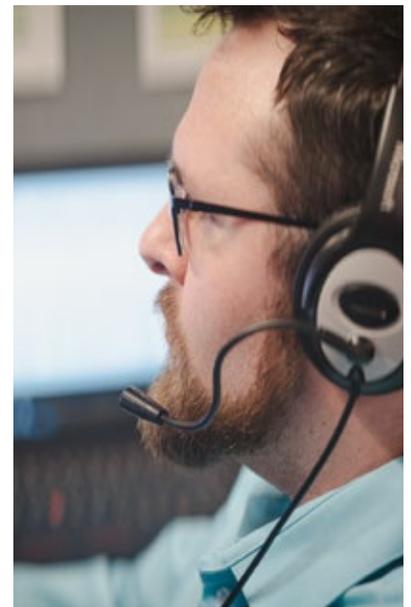
The department establishes processes, specifications and standards for IT products and services that are purchased, licensed or leased by state agencies and educational entities.

Optimized Agencies

As directed in general statute, NCDIT is working to consolidate IT functions of executive agencies under the department. This allows agency IT divisions to better leverage resources and knowledge among other agencies for better solution outcomes and to ultimately reduce costs.

To date, the following agencies IT operations have been consolidated:

- N.C. Department of Administration
- N.C. Department of Environmental Quality
- N.C. Department of Military and Veterans Affairs
- N.C. Department of Natural and Cultural Resources
- N.C. Department of Public Safety
- N.C. Department of Transportation
- N.C. Office of State Budget and Management
- N.C. Office of State Human Resources



Boards and Commissions

Criminal Justice Information Network Governing Board

The Criminal Justice Information Network Governing Board operates the state's Criminal Justice Information Network.

The network provides the governmental and technical information systems infrastructure for law enforcement, judicial and corrections agencies across the state to efficiently share criminal justice and juvenile justice information.

The board is made up of 21 members appointed by the governor, N.C. General Assembly, attorney general, state chief justice, state chief information officer and the president of the North Carolina Chapter of the Association of Public Communications Officials International.

Information Technology Strategy Board

The Information Technology Strategy Board plays a critical role in defining and planning North Carolina's enterprise technology projects. It also advises on the prioritization of those projects and identifies areas where funding adjustments might be needed. The board also uses industry best practices to guide the Statewide IT Strategic Plan.

The state chief information officer serves as

the chair of this 12-person board, which also includes the state budget officer, the president of the University of North Carolina System, president of the N.C. Community College System, secretary of administration and the state auditor as a non-voting member. It also includes six North Carolina residents – with backgrounds and familiarity with business system technology, information systems or telecommunications – who are appointed by the governor and leadership of the N.C. General Assembly.

N.C. 911 Board

The N.C. 911 Board was created to consolidate the state's enhanced 911 system under a single board with a uniform 911 service charge to integrate the state's 911 system, enhance efficiency and accountability and create a level competitive playing field among voice communication technologies.

The 17-member board plays an integral role in ensuring adequate funding to maintain and expand 911 capabilities across the state.

The state chief information officer (or the CIO's designee) serves as chair. Eight members represent vendors, including three commercial mobile radio service providers, four local exchange carriers and one voice over internet protocol provider. Eight members are local

officials representing:

- North Carolina League of Municipalities
- North Carolina Association of County Commissioners
- Sheriff's offices and police departments
- N.C. Association of Public Safety Communication Officials
- National Emergency Number Association
- North Carolina Firemen's Association
- North Carolina Association of Rescue and Emergency Medical Services

N.C. Geographic Information Coordinating Council

The N.C. Geographic Information Coordinating Council develops policies regarding geographic information, geographic information systems and related technologies. It also advises the governor and the N.C. General Assembly on responsibilities and funding for geographic information management and use.

The council consists of volunteers from the public and private sector who:

- Collaborate in geographic information and systems with state, federal and local government agencies as well as academic institutions, private organizations

and individuals

- Improve the quality, access, cost and use of geographic information and resources
- Promote geographic information as a strategic resource
- Efficiently collect, develop and use geographic information through the voluntary exchange and sharing of data and technical know-how
- Provide a framework for developing standards, strategic planning, resolving policy and technical issues as well as providing central direction and oversight

N.C. Health Information Exchange Authority Advisory Board

The legislatively appointed 11-member advisory board consults the N.C. Health Information Exchange Authority on the advancement and operation of NC HealthConnex, the state's designated health information exchange.

The secretaries for NCDIT and the N.C. Department of Health and Human Services – as well as the directors of NCDIT's Government Data and Analytics Center and the State Health Plan – serve as ex-officio members of the advisory board.

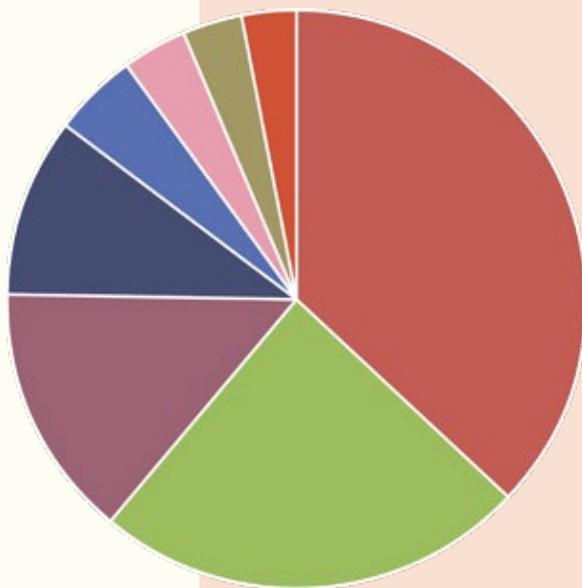
Additional membership is comprised of representatives from the health care community and the State Health Plan.



Financial Information

NCDIT funding supports specific programs and activities across multiple divisions. Primary programs and activities, as of June 30, 2021, that comprise the department's \$648.4 million budget are:

Budget Expenditures as of June 30, 2021



\$240.8 million

Computing and telecommunications services provided to state agencies and other public-sector entities across North Carolina



\$155.6 million

Support of 911 communication activities across North Carolina



\$92.4 million

IT staffing for optimized executive branch agencies



\$64.8 million*

Data Analytics Center



\$30.4 million

Agency administration and statewide IT procurement



\$24 million

Cybersecurity response and risk management



\$21 million

IT projects and strategic services



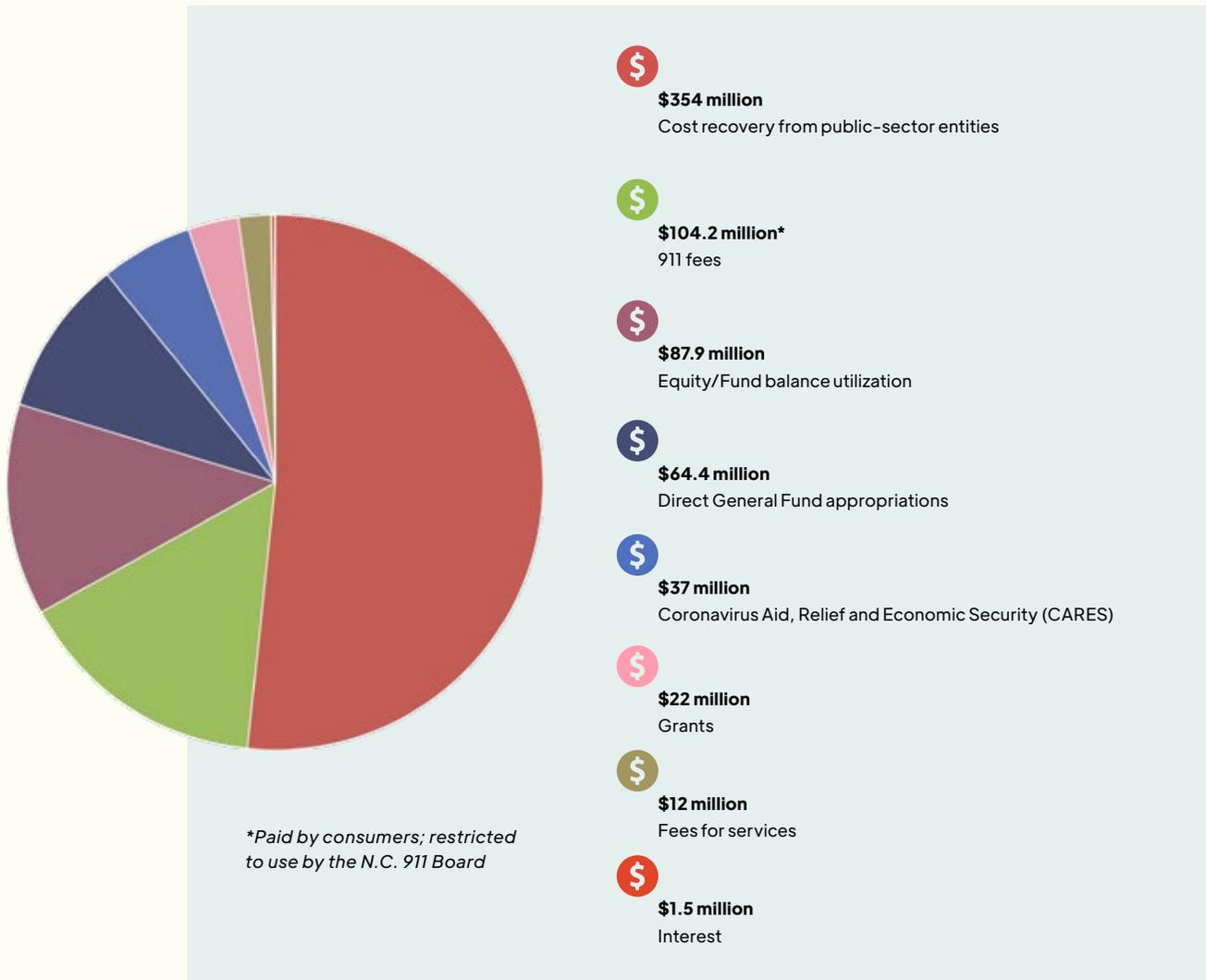
\$19.4 million

Broadband expansion activities

**Includes the N.C. Health Information Exchange Authority, Center for Geographic Information & Analysis, Criminal Justice Law Enforcement Automated Data Services, North Carolina Financial Accountability and Compliance Technology System and Criminal Justice Information Network*

NCDIT is supported financially by several primary funding sources, including cost recovery from state agencies and local governments for IT staffing and services, 911 fees from telecom vendors and direct general fund appropriations.

Budget Funding Sources as of June 30, 2021



Priorities and Goals

Priorities

- Broadband expansion
- Cybersecurity
- Digital transformation
- State and local government collaboration
- Workforce development, recruitment and retention

Goals

- **Secure IT systems and infrastructure.** Provide a resilient infrastructure that mitigates risk, supports business continuity, provides security and privacy of the state's and citizens' data and supports secure collaboration and information sharing.
- **Deepen trusted partnerships.** Support and empower the business of state government by improving processes, enhancing cross-agency collaboration and cooperation and establishing and managing IT standards.
- **Improve the management and transparency of IT.** Better utilize the state's IT resources and data, increasing visibility into what the state has, what it costs and how the state uses it.
- **Cultivate our IT workforce.** Attract and develop a diverse, engaged community of IT professionals.
- **Empower our citizens through technology.** Provide transparent, easy-to-use and customer-focused government and student services.
- **Modernize and centralize IT operations.** Modernize and centralize technology operations to effectively support a 21st century government.

Goal Highlights

Secure IT systems and infrastructure

As cybersecurity risks and threats increase in line with the digitization of government and society, NCDIT has taken steps to strengthen its security posture while offering robust services that facilitate collaboration and ease of use for both government agencies and citizens. The agency has monitored and improved its own systems to ensure their resilience, and this internal focus, in turn, has served the state and local agencies using NCDIT's services.



Internal Security

NCDIT's security operations center routinely processed and reviewed internet traffic across all state agencies for potentially malicious activity. In addition, NCDIT implemented a cloud-based email filtering service that supplies anti-virus, anti-spam filtering, content polices and targeted attack protection services email. This cloud-based email solution reduced spam by 50% for the 138 email domains registered by state and local agencies.



Threat Protection

NCDIT developed services and offerings measures to aid its partners in defending themselves against cybersecurity threats and handling any cybersecurity incidents:

- As the lead agency in the N.C. Joint Cybersecurity Task Force, NCDIT provided security consulting for more than 100 state, local and academic institutions. It also supported response and recovery efforts for 29 cybersecurity incidents, such as ransomware, supply chain compromises and denial-of-service attacks against voice services.
- The N.C. Joint Cybersecurity Task Force, under the technical leadership of NCDIT, extended intrusion detection and prevention services to 42 county governments, school districts and community colleges, adding iSensors to augment local governments' existing security controls and abilities to defend themselves against cyberthreats.
- With funding from the 2021 Coronavirus Aid, Relief and Economic Security Act, NCDIT created a cost-effective package of email and productivity tools for local governments that fall victim to ransomware. Deployed within five days of an attack and available for six months afterward, the solution allows for vital staff to communicate securely on Microsoft's Office 365 Government GCC environment instead of free services not protected by NCDIT.
- NCDIT completed cybersecurity assessments for all 127 public safety answering points in North Carolina, helping them to identify their vulnerabilities and improve the security of the state's 911 network.

Partner Education

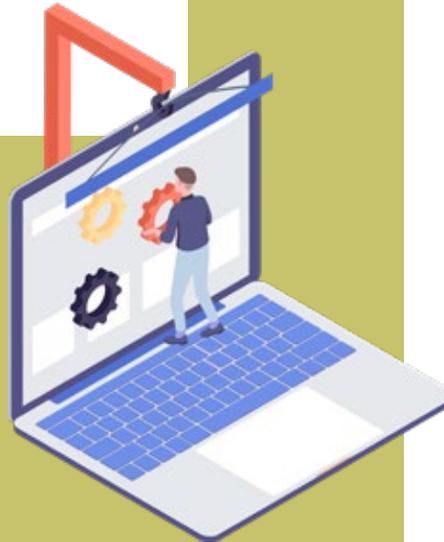
NCDIT sought to educate its partners about current and emerging threats and tools and the solutions to mitigate them. In October 2020, NCDIT's fully virtual, two-day annual N.C. Cybersecurity Awareness Symposium gathered leading industry cyber partners who shared with 549 participants from 193 federal, state and local governments, K-12 entities and higher-education institutions.

Constituent Services

Recognizing that the web is often the first point of contact for the public to access the government services they need, NCDIT continued a multi-year effort to upgrade state websites on its Digital Commons platform to a more secure and robust content management system. Agencies also benefit from improved accessibility features, accelerated website performance and more efficient upgrades and rollouts of new site features to communicate important information to the public.

NCDIT migrated or built 48 websites on the upgraded platform and expected to migrate another 12 sites by mid-2022. NCDIT also built new websites on the upgraded platform for six state agencies:

- [N.C. State Ethics Commission](#)
- [N.C. Division of Broadband and Digital Equity](#)
- [N.C. Office of State Fire Marshal](#)
- [N.C. State Board of Elections](#)
- [Safety and Health Review Commission of North Carolina](#)
- [Office of Lieutenant Governor](#)



Deepen trusted partners

NCDIT has aimed to serve as a vital partner empowering state and local agencies as they conduct the business of government. Through establishing and continually strengthening these partnerships, NCDIT can apply technical solutions to agencies' core missions, improving the lives of the residents served and increasing efficiencies and costs savings for agencies.

Public Safety

NCDIT's partnerships with public safety answering points (PSAPs), commonly referred to as emergency call centers, enabled the expansion of the Next Generation 911 call system across the state. This system more accurately identifies a 911 caller's location and provides backup capabilities to transfer emergency calls among PSAPs when events, such as natural disasters, might overload them with calls. Along with sharing technical assistance, NCDIT aided PSAPs by providing funding and sharing expertise:

- Awarded nearly \$8.5 million in grants for 12 PSAPs to build and approve facilities as well as to upgrade equipment
- Created the Priority One Collaboration Grant, with \$5 million in funding, to encourage PSAP collaboration through consolidation, co-location and primary backup capabilities
- Created and ran a public service announcement to help PSAPs with 911 telecommunicator recruitment
- Disbursed \$6 million in grants for three statewide projects in orthoimagery, data analytics and interpretive services to benefit all PSAPs

Health Care

NCDIT's partnerships extended beyond government to include other community, educational and professional groups involved in health care. NCDIT continued to implement the Healthy and Connected Workforce Initiative, funded by a telehealth grant from the Appalachian Regional Commission and Dogwood Health Trust, in partnership with the N.C. Department of Health and Human Services, Digital Charlotte, Knight School of Communication at Queens College and Friday Institute for Educational Innovation at NC State University. The initiative, which runs into 2022, consists of three major components:

- Developing a comprehensive telehealth technical assistance model for health care sites to address the unique needs of residents in the North Carolina's 20 Appalachian counties most affected by the coal industry
- Piloting telehealth programs tailored to the economic and health needs of Macon, Madison and Mitchell counties
- Designing a digital and health literacy program and curricula for workers enrolled in the pilot telehealth programs, providing participants with computers, digital and health literacy skills training and half a monthly internet service subscription fee to help encourage broadband adoption and use

NC HealthConnex, the state-designated health information exchange housed within NCDIT, expanded key health care partnerships as more medical facilities and providers connected. The exchange of electronic medical records through the HIE equipped participants to deliver better and more efficient care. The HIE covers:

- 125 hospitals
- 7,100 health care facilities
- 5,000 health care facilities in onboarding
- 60,000 health care providers
- 79% of state health care providers participating in the U.S. Centers for Medicare and Medicaid Services' Meaningful Use/Promoting Interoperability program
- 84% of Medicaid-eligible patients
- 92% of State Health Plan patients

Improve the management and transparency of IT

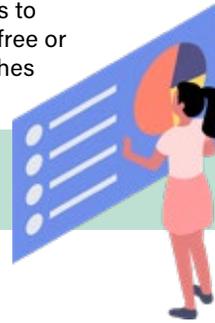
NCDIT's data services allow state agencies to better understand what IT resources they have and how these resources can serve citizens.

NCDIT provides agencies with data-based tools to better manage their own resources and processes, improve resident outcomes and create efficiencies.

Data Matching

NCDIT's Enterprise Entity Resolution Platform, which matches records across systems at 99.2% accuracy, was used by various agencies to:

- Direct supplemental pandemic funding for school lunches by matching EBT cards to students receiving free or reduced-price lunches
- Match public health records with personal records in the state-designated health information exchange, NC HealthConnex
- Follow up with people and businesses with a liability to the state by linking their records to N.C. Department of Revenue tax addresses



Leveraging IT Resources for Better Decision Making

NCDIT's work to help agencies better leverage their IT resources to drive improved decision making in diverse areas:

- Implemented an automated unemployment fraud review into the N.C. Division of Employment Security's system workflow to stop processing and avoid potential overpayments in cases of potential fraud
- Developed the Historically Underutilized Business Spending Report System, in partnership with the N.C. Department of Administration, for state agencies to promote the use of historically underutilized businesses in goods and services procurement
- Partnered with the N.C. Criminal Justice Analytics Center to build a centralized criminal justice reporting system, integrating state and national sources to inform policy and decision making
- Built the N.C. Longitudinal Data System to aggregate data on education from early childhood to college to understand workforce outcomes and promote work force development
- Supported 911 PSAPs by completing collection of geographic data from the coastal region in the orthoimagery program and expanded collection to the eastern Piedmont
- Built an inspection reporting tool for inspectors to record all aspects of an asphalt surface treatment on iPads, even when working in remote

environments without a cellular signal. Using this flexible tool, an inspector can record the details needed at each point of the operation and review an easy-to-navigate summary from the entire day and prior day.

- Implemented an iPhone app to collect traffic data and priority pass usage on the N.C. Department of Transportation Ferry Division's non-tolled ferry routes
- Built an in-house system to manage all the NCDOT-owned cellular modems around the state, saving tens of thousands of dollars by replacing a contract with a vendor who charged NCDOT per device, per month
- Designed and built a travel management system to take raw traffic speed data and push travel times to message signs along highways. Replaced an inefficient, costly system that resulted in a lot of downtime.
- Automated time-intensive steps for reimbursing disaster recovery funds from the Federal Emergency Management Administration and the Federal Highway Administration, advancing submittal by months
- Built, in collaboration with the vendor partner, a solution to scan and extract out-of-state traffic citations from eight high-volume border/near-border states to process and adjudicate drivers
- Upgraded the N.C. Department of Natural and Cultural Resources'

ArcGIS geographic information system to provide faster rendering response by separating the data into a segmented environment, resulting in a more effective search and reducing response time. The upgrade also provided a new security structure that helped administrators better manage group permissions and license structure.

- Developed a fully automated grants management solution to consolidate and streamline the federal grant process for various divisions of the N.C. Department of Public Instruction
- Implemented a new storage solution that saved N.C. Department of Environmental Quality \$600,000 annually on storage costs and provided more robust capabilities
- Integrated NC-JOIN, N.C. Department of Public Safety's Juvenile Justice section's case management system, with the Youth Assessment and Screening Instrument, which measures risk, needs and protective factors for at-risk and juvenile justice-involved youth. As part of the CaseWorks application, YASI helps case workers build comprehensive treatment plans for youth while working in NC-JOIN.
- Created a new point-of-sale system for the N.C. Transportation Museum that provides an integrated reporting of the ticket sales used for visitation and fee reporting requirements

Cultivate our IT workforce

NCDIT recognizes that continued success and innovation in delivering high-quality services throughout North Carolina requires developing a workforce as diverse as the state it serves. NCDIT has expanded the ways it seeks to recruit engaged IT professionals at various levels of career development:

- Restructured its recruitment office to support a year-round internship program and hired a coordinator to oversee the effort
- Worked directly with historically black colleges or universities to establish an internship pipeline in which students can be placed at NCDIT once they graduate
- Participated in military job fairs to help veterans transition into civilian life with rewarding employment

NCDIT has also made substantial improvements in its workforce development initiatives to provide training and career paths. Current employees can access an online learning platform with 175,000 courses ranging from software to personal development.

Constituent Portal

NCDIT created a cross-agency constituent portal steering committee to redesign the NC.gov website into a user-focused, easy-to-navigate web portal for all government services for the 6.6 million residents, businesses and visitors using the site each year.

The new NC.gov website will serve as a one-stop hub for the public to quickly and confidently get the information they need and to access state

government services.

Work has focused on the design and implementation of key constituent services, leveraging a new information architecture, modern design theme, improved searching and filtering capabilities and a “How-to” webpage template to guides site visitors step-by-step to obtain state government services. The new site theme and features will be available to other state agencies in 2022.

New Applications

In a rapidly changing world demanding that governments become ever-more nimble to meet residents' evolving needs and desires, NCDIT has collaborated with state agencies to better equip the public to get what it needs from government.

Innovations and projects NCDIT undertook with state agencies to improve residents' experiences using government services include:

- Upgraded state museums' collections management software by segmenting large archive and image databases to reduce response times for customers conducting artifact and image searches. A mobile-friendly front end and updated security technology also were added.
- Implemented online timed ticketing reservations to manage visitor numbers at the N.C. Zoo, N.C. Aquariums and USS Battleship North Carolina, as well as an online payment solution for Tryon Palace to offer virtual tours to the public
- Developed a simple, mobile-friendly Swat-A-Litterbug app, as a key component of the N.C. Department of Transportation's litter cleanup campaign, for users to easily report someone littering
- Built a mobile-first, public-facing request system for the N.C. Division of Motor Vehicles' License and Theft Bureau, transforming its operations with more than 10,000 submissions in the first nine months of operations
- Procured equipment and designed a system to equip state-operated ferries with Wi-Fi
- Built a submission tool for residents and firms to apply for street and driveway access permits, making it easier for NCDOT reviewers to monitor the status of each application and ensure timely determination
- Implemented contactless debit and credit card payments using Apple Pay, Android Pay and Samsung Pay at all driver license and vehicle registration offices in the state
- Created means for license plate agencies to issue 30-day dealer temporary license plates, per Senate Bill 488, so dealers no longer have to visit NCDMV headquarters
- Implemented a new document management system for the public to search for N.C. Department of Environmental Quality records
- Automated the annual process that oyster, clam and scallop dealers must complete to get licenses and certifications from NCDEQ
- Created an online map for NCDEQ to show open and closed areas for fishing and the applicable rules for each area permits, improving efficiency and saving \$1 million annually

Empower our citizens through technology

NCDIT is focused on providing easy-to-use services and tools for North Carolina's residents, businesses and visitors. While partnering with state and local governments and educational systems, NCDIT has sought to enhance the digital experience of the customer and create solutions for agencies to better serve residents.

Accessibility Enhancements

NCDIT has aimed to make its solutions and tools accessible to North Carolinians with all levels of abilities and digital skills. Designed to reduce barriers for visitors with disabilities, state agencies' websites built on NCDIT's Digital Commons platform implement requirements to allow an inclusive, accessible online experience for people using assistive technology.

Building on progress of previous years to enhance federal accessibility standards and improve usability across state agency websites, NCDIT added an accessibility checker to its content management system. The accessibility checker highlights potential issues for content creators, indicates their severity, explains why they can be problematic and offers advice on how to fix them.

NCDIT also developed an online accessibility guide for creating content across all platforms, from websites to PDFs and IT applications. Accessibility topics were also integrated into NCDIT's training curriculum for state agencies' website managers and contributors.

Modernize and centralize IT operations

In a digital society, the public expects to reach their government agencies and access the services and information they need in the virtual space they inhabit.

NCDIT has aimed to guide state and local governments in modernizing and centralizing technology

operations to support a 21st-century government.

While embracing new technologies to better deliver its own services, NCDIT has collaborated with state agencies to develop new technological solutions and streamline their own operations.

Modernizing State Government's Web Presence

To improve the user experience of visitors to state websites, NCDIT introduced to its Digital Commons website platform new web components and templates that allows them to more easily engage with online government services.

- The catalog feature organizes web content in searchable, filterable ways, allowing users to more easily find service and navigate other content collections on desktop and mobile devices.
- The "How to" content template helps agencies present information about the public services they provide in a structured, step-by-step, user-friendly format. Examples range from applying for food and nutrition services to getting a recreational fishing license.



First Responder Emerging Technologies Program

The First Responder Emerging Technologies program, which helps public safety agencies test and stay connected to the latest technology, launched several solutions to assist first responders with their life-saving missions.

- Created a custom Amazon Polly-based program that formats text to speech for first responders' radio systems, streamlines the creation of audio files used in two-way radios and saves time in emergency call response
- Helped conceptualize a new emergency digital paging system via public television, which resulted in the award of a \$1 million U.S. Department of Homeland Security Small Business Innovation Research grant to a North Carolina company
- Worked closely with the First Responder Network Authority, the federal agency that delivers the Nationwide Public Safety Broadband Network, to provide priority connectivity to North Carolina urban and rural responders
- Partnering with PBS North Carolina, NCDPS Emergency Management, Civil Air Patrol and the N.C. State Highway Patrol on an aircraft video delivery system, saving thousands of dollars by leveraging existing state systems

Expansion of NextGen 911 Completed

NCDIT reached the final stages of a three-year effort to connect emergency call systems to Next Generation 911, enabling residents to reach 911 services no matter where they are or what device they use. NextGen 911 uses an internet protocol-based system to accurately route 911 calls by location and transfer calls among PSAPs during major events, such as natural disasters.

Despite pandemic-related delays, all PSAPs were expected to migrate to NextGen 911 by early 2022. The expansion has covered:

- 81% of North Carolina residents
- 78% of the state's land area (38,926 square miles)

All 100 counties now upload data to the NextGen911 Geographic Information System, which maps 911 callers' locations.

Innovated New Technology Adopted to Aid Other State Agencies

NCDIT innovated with new technologies to equip state agencies to more efficiently accomplish their missions and objectives while cutting costs and delivering high-quality public services.

- Replaced the N.C. Office of the State Controller's legacy financial system
- Expanded NCDEQ's drone program to 60 pilots and 22 drones for mapping and surveying, resulting in significant time savings and cost avoidances and reducing potential hazards for employees surveying risky geographical areas
- Developed a fully automated grants management solution to consolidate and streamline the federal grant process for various divisions of the N.C. Department of Public Instruction
- Implemented a new storage solution that saved NCDEQ \$600,000 annually on storage costs and provided more robust capabilities
- Enhanced NCDEQ's Division of Air Quality's permit system to conduct mandatory facility inspections virtually keeping employees, residents and business owners
- Created a new point-of-sale system for the N.C. Transportation Museum that provides integrated reporting of ticket sales used for visitation and fee reporting requirements

Closing the Digital Divide

More than 1 million North Carolina residents lack access to a high-speed internet connection, cannot afford internet service, do not have an adequate device or do not have the digital skills needed to use the devices to work, learn, access telehealth and engage with the digital economy. Closing this gap, known as the digital divide, is a priority of Governor Roy Cooper.

NCDIT has intensified its efforts to expand affordable, high-speed internet to every North Carolinian, and help ensure they have the digital skills, tools and financial ability to equitably participate in an increasingly digital society.

GREAT Grant Program

The Broadband Infrastructure Office contracted more than \$30 million in new Growing Rural Economies with Access to Technology (GREAT)

Grant awards to expand last-mile broadband service to more than 16,000 households and businesses. Another \$26 million in earlier GREAT Grant projects were also under construction in 2021.

Fiber Access to Rural Communities

NCDIT, along with other agencies, gained the opportunity to provide fiber access to underserved rural communities as part of the I-95, U.S. 70 and U.S. 74 Broadband Infrastructure Project. A private contractor selected by the N.C. Department of Transportation will install broadband fiber along I-95 from the South Carolina state line to the Virginia state line and along U.S. 70 from I-40 in Garner to the Port of Morehead City. NCDIT will partner with N.C. Department of Transportation to expand the network to areas that hold little commercial potential for the private sector.

1M+

Residents lack access to high-speed connection, cannot afford the internet, do not have a device or do not know how to use it

\$30M+

Contracted to expand last-mile broadband service to 16,000 households and business

\$26M+

Previous GREAT Grant projects currently under construction in 2021



Satellite Internet Technologies for Student Connectivity Pilot

Collaborating with the Friday Institute for Educational Innovation at NC State University, NCDIT launched pilot programs with selected school districts that allow students in unserved areas to access and test service from Space Exploration Technologies Corporation's (SpaceX) Starlink internet service.

Dig-Once, Open-Trench Opportunities

NCDIT and NCDOT developed a policy for internet service providers to use open-trench excavations alongside state-maintained, non-National Highway System roadways. The policy established mechanisms to notify internet service providers of opportunities to install broadband during conventional, open-trench construction. This policy reduced the need for repeated excavations to install broadband.

N.C. Broadband Survey

In partnership with the Friday Institute for Educational Innovation at NC State University, NCDIT collected more than 40,000 responses to the N.C. Broadband Survey about household and business internet service availability and speed test data. The collected data provided a better picture of each community's unique challenges and needs for digital equity.

Digital Inclusion Planning

With the National Telecommunications and Information Administration's Broadband USA program, NCDIT released the Digital Inclusion Plan Template and Guide, while simplifies the process for communities to create a digital inclusion plan and expedite the implementation of digital inclusion activities. The plan includes

a template with recommended structure and categories for consideration and a guide with questions and tips to help community members create and customize the plan.

Digital Readiness, Homework Gap and Library Assistance

With the State Library of North Carolina's digital inclusion librarian, NCDIT developed a model for public libraries to address the K-12 homework gap in their communities. The Toolkit for Digital Readiness deliverable includes guidance for designing and implementing a holistic digital inclusion program for K-12 families in remote, in-person or hybrid settings.

The office also supported the library's launch of the Digital Navigator Helpline pilot, providing digital equity assistance to library patrons in 11 counties. NCDIT also collaborated in the library's Fiber Friday webinar series to build a common understanding of broadband options, impacts and digital inclusion opportunities among public library directors and staff.

BAND-NC Grants (Digital Inclusion Funding for Communities)

NCDIT continued its partnership with NC State University's Institute for Emerging Issues to award 32 Building a New Digital Economy (BAND-NC) rapid-response, community innovation mini-grants for planning of local digital inclusion projects in communities across the state.

The NCDIT partnership directly funded 14 grants and helped support the development of 20 county-wide digital inclusion and equity plans.

40,000

Responses to broadband survey

11

Counties in Digital Navigator Helpline Pilot Program supported by NCDIT

32

Mini grants awarded by NCDIT in partnership with NC State's Institute for Emerging Issues

14

Grants awarded by the same partnership to support 20 county-wide digital and equity plans



Creating COVIDSafeNC

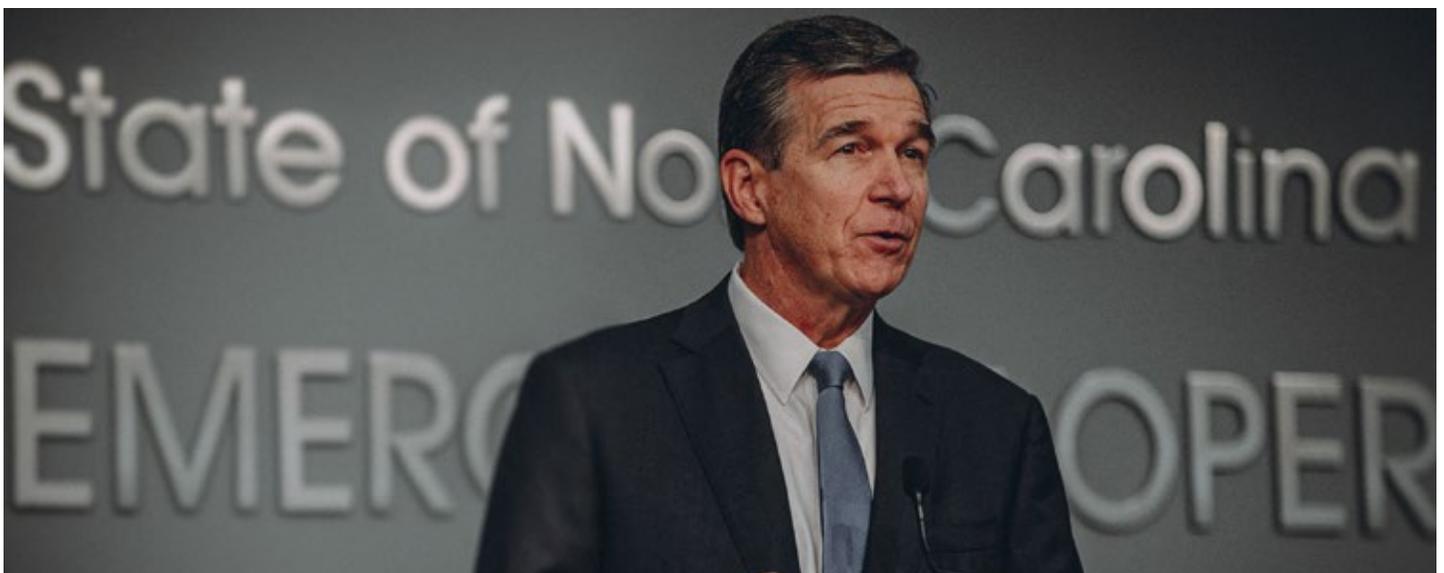
When Governor Roy Cooper issued a return-to-work policy for employees of cabinet agencies, it was one of the first such executive orders in the country. As such, there was no roadmap for how to accomplish some of the provisions in the order.

For example, though the order encouraged vaccination, it allowed for certain exceptions and reasonable accommodations, including regular testing, under the Americans with Disabilities Act and Title VII of the Civil Rights Act of 1964.

"NCDIT supports so many critical state efforts, and this work has never been more important

than over the past two years as we grappled with the impacts of the pandemic," said Jim Weaver, NCDIT secretary and state CIO. "To implement Executive Order 224, we needed a solution that simultaneously met the needs of state employees, leveraged our existing investments in identity management and cloud and advanced North Carolina's application modernization objectives."

That meant a system capable of supporting more than 60,000 employees, each one of whom had to be able to securely log in, validate their information, generate and sign an attestation of compliance with the policy and provide supporting documentation.



This could include a photo of a vaccination card, or weekly COVID-19 test uploads. But tracking all those elements wouldn't be easy.

The new system also had to handle potentially thousands of simultaneous users submitting their information and securely routing that information to the human resources office at each state agency. It also needed to provide information in a format that enabled HR staff to review and certify the status of every employee easily and efficiently.

That meant a system with modern tools to view, process and approve or reject employee attestations. It also meant multiple methods of communicating with employees and reporting capabilities to provide digestible status updates. The system also had to be built and implemented quickly.

Red Hat's enterprise open-source technology

gave the state of North Carolina the capabilities it needed to speed up production and meet the mission needs quickly. Red Hat supplied expertise not only for the software but also for the workflows and back-end business processes needed to successfully deliver the new system promptly.

Together, the vendor and NCDIT built a continuous integration/continuous deployment software factor pipeline to design, develop and deploy the initial capabilities in less than one month. In addition, they laid the foundation for agile principles, enabling them to prioritize updates and rapidly deploy user interface updates with no customer downtime.

The final product was a working solution called COVIDSafeNC.gov, a cloud-native, customizable approach that can be tailored to any agency or organization required to comply with return-to-work policies, verify vaccination and track COVID-19 tests.



NCDIT Goes Virtual with Webinar Series

As NCDIT, in late spring 2021, settled into what many have called “the new normal” amid COVID-19, the department’s Service Delivery Division faced a challenge. How, on a broader level, could it reach IT decisionmakers in state and local governments about the many services NCDIT provides?

More than a year earlier, the division’s plans for a daylong showcase of NCDIT’s service portfolio in downtown Raleigh had been cut short when the coronavirus prompted unprecedented shutdowns and drastically changed how people work and conduct business.

By May 2021, it was still too soon to resume plans for an in-person event.

“The pandemic pushed us to rethink how we reach our customers,” said Srinivas Sunkara, director of Enterprise Applications.

Born was the NCDIT Summer Webinar Series. Using a web conferencing tool already in place, the department strategically highlighted 10 new, popular and lesser-known services in a weekly 30-minute virtual, live format.

Each Tuesday, beginning in June 2021, service owners and subject matter experts shared highlights of their services, provided demos and took questions from more than 600 virtual attendees from state agencies, school systems, colleges and universities and local governments across North Carolina.

For those who were interested but could not join, the webinars were recorded and posted on NCDIT’s service catalog website.

Services ranged from software, such as Microsoft 365 and Tableau, to solutions such as Boomi and Next-Generation Enterprise IP telephony. Professional services – enterprise endpoint management, solutions architecture, business analysis, project management, software quality and testing as well as process improvement – also were featured.

“The webinar series was very effective, as we were able to reach a broader set audience in state and local governments,” Sunkara said. “They were well received and enabled direct conversations between the customer and the service owners.”



Awards and Recognition

NC Tech Honors Glenn Mack

Glenn Mack, the chief information officer of NCDIT's Public Safety Division, won a 2021 NC Tech Award for his outstanding leadership through the COVID-19



Glenn Mack

pandemic. He guided the agency through optimization challenges within a partially optimized agency with limited authority.

Mack also led the effort to provide for telemedicine and televisits within the North Carolina prison system that otherwise would have left thousands without the ability to effectively communicate.

<https://www.nctech.org/events/signature-events/nc-tech-awards-individual-winners.html>.

CIO Ware Receives Governor's Award for Excellence

Michael Ware, chief information officer for NCDIT's Environmental Quality division, was honored with a Governor's Award for Excellence in the category of Efficiency and Innovation.

Ware has shown exceptional leadership by introducing innovative business processes, performance-enhancing, cost-cutting measures and fostering a work culture that encourages staff to perform at a high level.

<https://www.youtube.com/watch?v=QP-c5T-pm54>

NCDPS Recieve Governor's Awards for Excellence

The N.C. Department of Public Safety's Adult Correction section received the 2021 Governor's Awards for Excellence in recognition for its implementation of a telemedicine solution for the state's offender population.

The need was prompted by an effort to lower health care costs but also improve the overall quality of health care for offenders, who are at higher risk of COVID-19 and other conditions due to congregate living. Another goal of the project was to increase safety for correctional officers and the public.

<https://youtu.be/H2jO22eWopY>

This innovative solution is now part of the daily medical processes and protocols. The result includes better and safer health care for offenders, real cost savings for the state of North Carolina and the NCDPS mission of public safety.

StateScoop Recognizes Thompson and Correllus for Public Service Contributions

NCDIT's Maria Thompson and Jon Correllus were among IT leaders in the United States to receive top honors in June 2021 by StateScoop for their contributions and achievements in public service and the government IT industry.

Thompson, a retired Marine who joined NCDIT in 2015 to become North Carolina's first state chief risk officer, received the State Cybersecurity Leader of the Year Award for her work in integrating a statewide framework to manage information risk, including operations, security and data protection.

Correllus received the Golden Gov: State Executive of the Year Award for his work overseeing NCDIT's Data Division as chief data officer.

More about awards [here](#).

Each year, StateScoop, which reports on news and events affecting technology decisions in state and local government, recognizes outstanding leaders in state government from across the country while celebrating their accomplishments and impact on their communities.

NC HIEA's Data Services Power State COVID-19 Response

As the COVID-19 pandemic gripped the state, the N.C. Health Information Exchange Authority found new ways to deliver vital data on cases, vaccines, patients and hot spots to hospitals, medical providers and state agencies.

Supporting its public health partners at the N.C. Department of Health and Human Services, NC HIEA set up bidirectional data exchanges for COVID-19 immunization, via the COVID Vaccine Management System, and sent alerts about laboratory test results to primary care providers. The automated vaccine reporting from providers saved an estimated \$3.3 million and 100,000 person-hours.

To enable this service, NC HIEA leveraged NC HealthConnex, the state-designated health information exchange. NC HealthConnex is very effective at combining multiple data sets at the patient level, and the data becomes more accurate as more sources are added. This capability has generated insights about race, ethnicity and comorbidities during the pandemic and can assist in evaluating treatments and vaccines.

To aid NCDHHS's COVID-19 response, NC HIEA also:

- Enabled syndromic surveillance by forwarding patient registration data from urgent and primary care, hospital and telehealth visits
- Expanded the system from 140 emergency departments to thousands of health care settings across the state
- Aggregated Medicaid patient data into business intelligence reports on geographic breakouts and disease progression groups
- Matched patients with their records in public health data sets for immunization, lab results and contact tracing
- Matched 50 million patient profiles in NC HealthConnex to 14 million enterprise records



NG911 Nabs National Awards

The N.C. 911 Board's received two national awards for its innovation and leadership in Next Generation 911, which uses IP infrastructure and geospatial data to improve the accuracy and reliability of emergency calling.

"We know what a valuable service this is to the people of North Carolina, but to have our project recognized nationally only validates the investment of time and money," said N.C. 911 Board Executive Director Pokey Harris.

NextGen 911 received the Enterprise IT Management Initiative award from the National Association of State Chief Information Officers' State IT Recognition Awards, which honor transformative technology projects by state governments.

<https://www.nascio.org/press-releases/nascio-announces-recipients-for-2021-nascio-state-it-recognition-awards/>

The National States Geographic Information Council gave a Geospatial Excellence Award: Catalyst to NextGen 911 for leveraging geospatial technology to improve public service and promote its adoption by government.

"These awards highlight the work local governments across the state have been putting into the creation and maintenance of critical geospatial data over the past few decades," said Matt McLamb, assistant director of the N.C. Center for Geographic Information and Analysis.



NCDIT's Innovations Honored With NASCIO Award

NCDIT's support of the N.C. Department of Health and Human Services response to COVID-19 earned national recognition from awards for innovative technology solutions used by state governments.

From the National Association of State Chief Information Officers' State IT Recognition Awards, NCDIT and NCDHHS received the Data Management, Analytics and Visualization Award for its Business Intelligence Data Platform: "Bridging the Data Divide and Bringing Health Equity."

Looking Ahead

Secretary Weaver is committed to supporting the governor's vision for an equitable, prosperous, healthier and educated North Carolina.

NCDIT has an integral role in supporting these efforts and is focused on enabling trusted business-driven solutions that meet the needs of North Carolinians. To ensure alignment, the secretary has adopted the goals and priorities he set for IT statewide as the goals and priorities for the department.

The below goals and priorities have been established for the 2021-2023 biennium:

Goals

- Foster a connected North Carolina to improve opportunities and outcomes for residents
- Promote an inclusive and innovative workforce
- Optimize and secure the state's IT and applications portfolios
- Leverage data assets and analytics to further advance a data-driven government
- Transform the delivery of services

Priorities

- Broadband and connectivity
- Cybersecurity and privacy
- Digital transformation

The state budget approved by the General Assembly and signed by Governor Cooper for State Fiscal Year 2022-23, along with federal funding, will allow NCDIT to make significant strides, particularly in the areas of cybersecurity and closing the digital divide.

With nearly \$1 billion from the Federal Infrastructure Investment and Jobs Act to help close the digital divide and nearly \$1 billion from state funds to build digital equity, the department has a once-in-a-generation opportunity to help every household in North Carolina have an affordable, high-speed internet connection to fully participate in the digital economy.

The combination of state and federal funding offers a unique opportunity to be able to provide long-term solutions in a short time, provide infrastructure solutions that work well into the future and set North Carolina to rank in the top five states for high-speed internet adoption by 2025.

To better meet the challenge for closing the digital divide, NCDIT established the Division of Broadband and Digital

Equity. The division is comprised of the Office of Broadband Infrastructure and a new Office of Digital Equity and Literacy.

As more people are connected and more services and information available online, cybersecurity and privacy are more important than ever. The N.C. General Assembly approved \$7.5 million in recurring funding for cybersecurity and risk management in the 2021-2023 state budget that will enable the state to strengthen its cyber defense and enhance the whole-of-state approach to cybersecurity.

In addition, NCDIT hired the state's first chief privacy officer to allow for stronger authority for making privacy decisions and protecting the public's interests. The state's chief privacy officer also is tasked with managing risk related to information privacy laws and compliance regulations.

As the agency looks ahead, it will continue to build on its progress to meet its goals and deliver citizen-centric solutions for North Carolina's residents, businesses and visitors.

With nearly \$1 billion from the infrastructure package to help close the digital divide and nearly \$1 billion from state funds to build digital equity, the department has a once in a generation opportunity to help every household in North Carolina have an affordable, high-speed internet connection to fully participate in the digital economy.

