



NORTH CAROLINA
DEPARTMENT OF
INFORMATION
TECHNOLOGY

2024 Climate Strategy Report

N.C. Department of Information Technology

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Introduction

About N.C. Department of Information Technology

The N.C. Department of Information Technology (NCDIT) oversees and provides IT services to state agencies, local governments and educational institutions across North Carolina. The department was established as a cabinet-level agency in 2015 to consolidate enterprise information technology functions within the executive branch. A full list of the powers and duties of the department can be found in General Statute Chapter 143B, Article 15. The department is dedicated to transforming our shared IT services by adopting modern technology solutions and improving communications and collaboration platforms to meet our customers' needs while effectively managing risks and security.

N.C. Department of Information Technology's Vulnerabilities to Climate Change

IT systems are vulnerable to climate changes as weather patterns change, with wind and flooding events already increasing and predicted to keep doing so in the coming years. IT engineers must now take into consideration the possible effects of climate change within their architecture designs, as IT systems not designed within an environment architecture that protects against these new threats can be especially vulnerable to these threats. NCDIT system architecture/cyber engineers continually evaluate the physical and virtual environments of all state IT resources to mitigate climate change impacts on these state assets.

N.C. Department of Information Technology's Approach to Fulfilling the Strategies in the Climate Risk Assessment and Resilience Plan

NCDIT has approached this strategy in two ways. First, internally, we are improving and modernizing our information technology and data center services and increasing their resiliency against weather and climate changes as these threats grow. The second strategy is externally promoting climate risk and resilience information to state and local government agencies. We do so by expanding our documents to include these risks and responsibilities, as well as assigning roles and responsibilities within our organization. As our organization's understanding of roles and responsibilities matures, our internal staff can participate in a more informed way, and we can engage our external partners in these strategies.

NCDIT will continue to develop impactful policies, expand our outreach to external partners, develop future budgets to include strategies for improving our climate change mitigation and build a stronger resilience plan within the next 24 months.

Reducing Energy Use

Tony Brackett, NCDIT workplace services director, has been acting as the energy manager since January 2019 and has been monitoring the Western Data Center's utilities for many years. The accomplishments made under Brackett's leadership include:

2019-21

- Reduced BTUs per square foot by 13% since 2018/19.
- Installed LED lighting in both the Eastern Data Center and the Western Data Center. Added motion sensors.
- Installed plug-and-play T8 bulbs at the Western Data Center and replaced very old fluorescents at the Eastern Data Center with new LED fixtures.
- Reduced generator test run time at both data centers.
- Raised the Western Data Center room temperature from 60 degrees to 68 degrees.
- Assessed conditions at the Western Data Center and identified a number of fans and cooling units that can be shut down and put into a rotation.
- Conducted an electrical study to determine the power needs of the Eastern Data Center. When the project is completed, we will be able to better monitor consumption and locate areas to improve. Phase I is in implementation phase, with Phase II beginning within the next 6-8 months.
- Scheduled off-shift setbacks using the building management system (BMS) to reduce the heating and cooling load.

2022-23

- Reduced water consumption by identifying and capping leaks from aging underground piping.
- Installed new smart power bars in data center additions and replaced old power bars as needed with smart bars.

2023-24

- Executed capital projects listed below in section 1.1 that are in various stages of completion.
- Replaced fluorescent bulbs at our 3900 building with plug and play LEDs.
- Continued installation of smart power bars at the data centers.

NCDIT continues to reduce internal environmental impacts by improving energy efficiency in our Eastern Data Center and Western Data Center facilities and within our Raleigh headquarters. This is being accomplished by implementing additional monitoring tools and augmenting manual processes already in place. Our organization is investing in improving our existing data center monitoring tools, including replacing existing analog reporting systems for our facility reporting activities.

Addressing Environmental Injustices and Inequities

Chief Operating Officer Torre Jessup serves as NCDIT's environmental justice lead. NCDIT aims to expand broadband access and affordability and digital literacy and equity among low- and moderate-income communities, indigenous communities and communities of color through the Division of Broadband and Digital Equity. In particular, the division has promoted local collaborations to increase enrollment in the federal Affordable Connectivity Program, which helped households afford their monthly internet bill and purchase devices until the program wind-down in 2024 necessitated by a lack of federal funding. More than 901,000 households across North Carolina enrolled in the program before the wind-down. If the Affordable Connectivity Program receives additional federal funding, the division will resume its efforts to educate eligible households about the opportunity through collaborative partnerships. While not directly aimed at climate resilience, these programs open up new ways of working and learning that have lesser environmental impacts, such as reducing commuting and paper use.

Annette Taylor, director of NCDIT's Office of Digital Equity and Literacy, also served on the Andrea Harris Equity Task Force and advanced issues of digital equity and the digital divide in the task force's work to create economic stability in disadvantaged communities, improve health and wellness in underserved areas and achieve environmental justice.

Public Participation Plan

NCDIT recognizes that all the people of North Carolina have the right to access government services, meaningfully contribute to government decisions and share equitably in the benefits of a prosperous North Carolina. As a state agency, NCDIT plays a central role in fostering a culture that leverages technology for an equitable, prosperous, healthier and educated North Carolina and enables trusted business-driven solutions that meet the needs of the public.

We acknowledge that there is more to be done to reach communities across the state who might be unaware of and underserved by the department's programs. This includes communities of color, Indigenous communities and low- and moderate-income communities. Consequently, it is necessary for these communities to be more meaningfully engaged as partners and stakeholders in government decision-making.

At the same time, building a more inclusive society affects and requires the participation of all North Carolinians. We have developed [a Public Access and Participation Plan](#) to better understand where gaps exist and encourage greater participation across the state in all areas of our programs and operations.

1.0. Reduce greenhouse gas emissions

1.1 Reduce energy consumption per square foot in state-owned buildings by at least 40% from fiscal year 2002-2003 levels

<p>1.1.1 Install a third chiller at the Western Data Center</p> <p>Status: In Progress Expected Completion Date: September 2024</p> <p>A new chiller with a variable speed drive is expected to be 10% more efficient than what we currently have at the Western Data Center. The project is nearing completion. The chiller is onsite and piped in. Final wiring, mechanical, and inspections are left to complete.</p>
<p>1.1.2 Update and expand the Eastern Data Center’s electrical system</p> <p>Status: In Progress Expected Completion Date: Spring / Summer 2025</p> <p>Though not specifically designed for energy efficiency, this project will include energy monitoring and newer, more efficient equipment. The monitoring capabilities will enable better tracking and improve our ability to identify high-use areas. The replacement of obsolete components and equipment will improve reliability and resilience.</p> <p>The first phase of the electrical upgrades is under construction. With the current equipment lead times, we anticipate completing this phase by spring/summer 2025. The second phase is in the planning stages.</p>
<p>1.1.3 Refresh the uninterruptible power supply systems at the Western Data Center</p> <p>Status: Bid Process Expected Completion Date: December 2025</p> <p>While the current uninterruptible power supply (UPS) system units at the Western Data Center are 85% efficient, the new units will be 97% efficient. The project has been funded through repair and renovation (R&R) funds and is in the bid phase. A contract is expected in late October 2024.</p>
<p>1.1.4 Eastern Data Center roof replacement</p> <p>Status: In Progress Expected Completion Date: November 2024</p> <p>The new roof materials and insulation will be brought up to current building codes and the skylights will be better insulated and tinted. This will reduce heat and cooling needs. Construction is expected to start in September 2024.</p>

1.2 Support the use and expansion of energy efficient and clean energy resources

This section is not applicable to NCDIT.

1.3 Increase the number of registered Zero Emission Vehicles to at least 1,250,000 by 2030 so that 50% of in-state sales of new vehicles are zero-emission by 2030

This section is not applicable to NCDIT.

1.4 Prioritize Zero Emission Vehicles (ZEVs) in the purchase or lease of new vehicles and for agency business travel

1.4.1 Install electric vehicle chargers at the Eastern Data Center and Western Data Center

Status: In Progress

Expected Completion Date: September 2024 at the Eastern Data Center

Two electric vehicle chargers have been installed at the Western Data Center, and installation of the chargers for the Eastern Data Center started September 9. The chargers are partially funded through the N.C. Department of Environmental Quality's Volkswagen settlement grant program.

1.4.2 Replace internal combustion engine vehicles with electric vehicles where feasible

Status: Planning

Expected Completion Date: Beginning December 2024

The current vehicle fleet and vehicle use are being evaluated for possible replacement with electric vehicles.

NCDIT plans to replace the existing mail van with an electric vehicle after chargers are installed at the Eastern Data Center.

1.5 Initiate other initiatives to decarbonize the transportation sector

1.5.1 Use hybrid vehicles where electric vehicles are not currently feasible

Status: In Progress

Expected Completion Date: Ongoing as vehicles are replaced

As vehicles are replaced, we are emphasizing the need to use hybrid vehicles if electric vehicles are not feasible. We are up to four hybrids in a fleet of 13 vehicles.

1.6 Initiate other projects aimed at reducing statewide greenhouse emissions

1.6.1 Develop increased use of cutting-edge information and communication technologies (ICT) to reduce annual greenhouse gas emissions

Status: Planning

Expected Completion Date: To be determined

The Organization for Economic Co-operation and Development (OECD) Climate Group recommends the use of information and communication technologies (ICT) in smart buildings, smart electricity grids and smart transport and logistics, which can reduce greenhouse gas emissions by 15%. We are identifying possible initiatives based on the available funding and in collaboration with other state agencies that could benefit by increasing ICT use.

We will continue to investigate opportunities to increase the use of ICT and identify possibilities to do so in coordination with other state agencies over the next 12 months.

1.6.2 Reduction in commuting miles

Status: Ongoing

Expected Completion Date: Ongoing

NCDIT maintains a robust remote work program, with 59% of the workforce working fully remote and 21% in hybrid arrangements. Based on a survey conducted in July 2022, NCDIT's remote work program has resulted in a 79.3% reduction in weekly commuting miles of state employees working for the agency. Prior to the implementation of our current remote work program, NCDIT employees were commuting approximately 191,972 miles weekly. It is estimated that NCDIT employees continue to commute 39,762 miles weekly. Our approach to remote work has allowed us to surpass the 20% goal set forth by the Air Quality Improvement Act without an adverse impact on our agency's work productivity.

1.6.3 Reduce paper processing and printing

Status: Ongoing

Expected Completion Date: Ongoing

NCDIT has successfully reduced paper processing by promoting electronic reporting and distribution to state agencies. After meeting with state agencies about their individual paper reporting requirements, NCDIT continues to work assisting with digital solutions to reduce paper production for those agencies.

2.0. Increase statewide resilience to the impacts of climate change

2.1 Evaluate the impacts of climate change on [Name of Agency/Department]'s programs and operations

2.1.1 Prevent center outages due to weather and other natural disasters

Status: Ongoing

Expected Completion Date: Ongoing

We maintain all the critical data center infrastructure, generators, uninterruptible power supply (UPS), heating, ventilation and air conditioning (HVAC) and fire systems to the manufacturers' recommended standards.

Electrical upgrades at the Eastern Data Center, along with new uninterruptible power supply (UPS) systems and chillers at the Western Data Center, will add redundancy and capacity that will increase our resiliency in all types of weather conditions. The Phase I electrical switch gear replacement supporting our entire 3700/3900 campus is in process at the Eastern Data Center, and we are reviewing the proposal for Phase II electrical power distribution. We anticipate this second phase will start in 2025.

2.1.2 Add an emergency water supply reservoir for the Eastern Data Center cooling towers

Status: Planning

Expected Completion Date: To be determined

A loss of city water for 6-8 hours at the Eastern Data Center would cause a complete shutdown of the cooling system. A 20,000 gallon or larger reservoir would sustain the Eastern Data Center for several days.

We will determine the cost of the reservoir and find funding.

2.1.3 Develop Construction Standards in reference to EO 266 in protecting Information Technology Systems against climate impacts

Status: Planning

Expected Completion Date: To be determined

We plan to develop specific state construction guidelines and standards for design and placement of information technology systems in support of state, county and tribal areas. This would be an additional requirement with respect to the EO 266 to ensure funding can assist in addressing new construction requirements, as well addressing placement and modification of existing information technology systems.

2.2 Integrate climate change adaptation practices and resiliency planning into N.C. Department of Information Technology's policies and operations

2.2.1 Develop internal presentations to inform and educate IT leaders on minimizing climate change impacts

Status: Planning

Expected Completion Date: Ongoing, 2022-2025

This initiative involves collaborating on ideas and solutions to assist NCDIT leaders in evaluating possible solutions to minimize climate change impacts on their IT systems and to ensure that their IT resources are available when needed, including when exposed to weather events and other possible vulnerabilities.

NCDIT has provided informational updates during internal meetings as well as meetings and town halls with local and county governments over the last 12 months and will continue to share information related to climate change impacts on IT systems and programs.

2.3 Assist the communities served by N.C. Department of Information Technology to implement climate change adaptation practices and resiliency planning

2.3.1 Send teams to meet with county, city and town IT leaders to brainstorm ideas for improving and adapting resiliency planning ideas

Status: In Progress

Expected Completion Date: Ongoing

This initiative focuses on building climate resilience into IT infrastructure across counties, cities, and local government agencies within North Carolina, with a completion timeline from 2022 to 2025. The project involves a collaborative approach to assist local IT leaders in evaluating and implementing solutions that reduce climate change impacts on their systems, ensuring the availability of resources during extreme weather and other vulnerabilities.

Key components of the initiative include:

1. **Business Relationship Management:** NCDIT has integrated a dedicated business relationship manager to act as a point of contact for local governments. This role involves working with them to identify and address business needs and solutions related to climate resilience.
2. **Local Government Engagement:**
 - NCDIT hosts **quarterly town halls** to provide information, address concerns and collaborate with local and county governments on IT and climate resiliency issues.
 - Staff actively participate in the biannual meetings of the **N.C. Local Government Information Systems Association (NCLGISA)** to engage counties interested in joining this initiative.

3. **Broadband Equity, Access, and Deployment Program:** NCDIT submitted an **Initial Proposal** to secure \$1.53 billion in federal funding from the **Broadband Equity, Access, and Deployment program**. The proposal outlines climate assessments and environmental hazards for different regions of the state, ensuring broadband infrastructure deployments consider these factors.
4. **Climate Resiliency Planning for ISPs:** Volume 2 of the Initial Proposal requires **internet service providers (ISPs)** applying for funding to submit a **Climate Resiliency Plan**, including:
 - Identification of climate hazards common in the project area.
 - Plans for protecting network infrastructure from these hazards.
 - Strategies for addressing customer service disruptions during climate events.
 - An explanation of how the resiliency plan impacts the project's total costs.
 - A signed attestation that the plan aligns with the network design of the proposed project.

Applicants who provide detailed climate resilience strategies will receive additional consideration during the project evaluation process. This initiative underscores the importance of integrating climate adaptation into technology planning, aiming to protect communities from environmental risks while ensuring ongoing IT functionality.

2.4 [Help complete initiatives in the Natural and Working Lands Action Plan and Executive Order 305, An Order to Protect and Restore North Carolina’s Critical Natural and Working Lands](#)

This section is not applicable to NCDIT.

3.0. Address the public health impacts of climate change

3.1 Increase understanding and awareness of the health impacts of climate change

This section is not applicable to NCDIT.

3.2 Advance health equity

The N.C. Health Information Exchange Authority, part of NCDIT's Data Division, enables secure access to a web-based clinical viewer to participate with providers statewide, no matter their location or their technology. This means that providers who have completed the necessary governance process with the State of North Carolina and have internet access can view a patient's longitudinal health record across disparate care settings, providing they have a treatment relationship with that patient. The number of portal accounts has grown to 10,348, an increase of almost 3,000 users in the past year. NC HIEA has also completed a pilot program connecting the first four pharmacies to NC Health Connex, which enables sharing patient medication records between pharmacists and other health care providers. This secure access supports the state's efforts to improve data sharing for citizens and can help improve the quality of care and ultimately lower the cost of care when costly duplicative tests and procedures can be reduced. The NC HIEA, along with 40 full participants, has also joined as the data partner for the five-year Accountability for Care through Undoing Racism and Equity (ACURE4Moms) study conducted by the University of North Carolina at Chapel Hill, funded by the Patient-Centered Outcomes Research Institute. The ACURE4Moms study aims to improve the morbidity and mortality outcomes for Black mothers and infants.

4.0. Invest in historically underserved communities

4.1 Increase affordability for low- and moderate-income households

4.1.1 Provide technology assets to Kramden Institute and E2D to help bridge the digital divide

Status: Ongoing

Expected Completion Date: Ongoing

NCDIT partners with two nonprofit digital device refurbishers: Kramden Institute in Durham and Eliminate the Digital Divide (E2D) in Charlotte. Kramden Institute has offered educational programs since 2003 to help North Carolinians learn basic computer literacy skills and support the skills of youth in the Triangle region through numerous STEAM camps and after-school programs. Since 2013, E2D has helped families find upward mobility paths through technology access for education, workforce development and critical community connections. NCDIT provides staff volunteers and used information technology equipment to both organizations to be refurbished through e-waste recycling services and distributed to individuals across the state. During the next 12 months, NCDIT will continue to support these organizations that have already provided deserving students and families devices and digital skills in 83 of 100 counties (Kramden Institute) and in 167 Charlotte-Mecklenburg area schools (E2D).

In June 2024, NCDIT announced digital champion grants awarded to E2D and Kramden for \$1.5 million each to work toward developing a devices network that will serve all 100 counties of the state and reduce the number of households without a device in the state.

4.1.2 Promote the Affordable Connectivity Program

Status: Ongoing

Expected Completion Date: Ongoing

NCDIT promoted the federal Affordable Connectivity Program to make access to internet services affordable for families with incomes at or below 200% of federal poverty guidelines. This included families in certain assistance programs including SNAP, Medicaid, Federal Public Housing Assistance, SSI, WIC and Lifeline. This program, which ended in May 2024, provided \$30 a month on internet services, up to \$75 a month for households on tribal lands and a \$100 discount for laptops, computers or tablets bought through participating providers.

NCDIT will promote this program through outreach with local partners if the program receives additional federal funding and resumes operation.

4.2 Create jobs and economic growth

Governor Cooper’s plan to close the state’s digital divide, as detailed in North Carolina’s Broadband Equity, Access, and Deployment (BEAD) Five-Year Plan, seeks to achieve reliable, affordable universal access to broadband and to significantly increase adoption rates by dedicating nearly \$1 billion in federal American Rescue Plan Act (ARPA) funds and more than \$1.5 billion in Infrastructure Investment and Jobs Act BEAD program funds to achieve the following goals:

- Investing \$971 million to build critical infrastructure to deliver internet speeds of 100/20 Mbps to 98% of unserved households with the ability to handle future speeds of 100/100 Mbps.
- Investing BEAD funding to build infrastructure to deliver internet speeds of 100/20 Mbps to the remaining unserved households and 100% of all underserved households, locations in high-cost areas, and community anchor institutions, with remaining funds dedicated to affordability programs.
- Investing \$50 million to create awareness and support digital literacy and skills training to enable the state’s workforce to participate in the digital economy.
- Deploying \$1.415 million of Digital Equity Act funding plus other funds that may be available from ARPA, BEAD, and other programs to increase high-speed internet adoption by raising percentages of subscriptions as shown below:
 - Raising the percentage of North Carolina households with high-speed internet subscriptions from 73% to 87%.
 - Raising the percentage of North Carolina households with children with high-speed internet subscriptions from 81% to 100%.
 - Increasing adoption rates to 80% across racial subgroups.

Pursuit of each of these goals, and improvements in access to adoption and use of high-speed internet service, will support economic growth, enhance job creation and provide opportunities for residents to prosper across the state.

4.3 Alert residents and businesses, particularly those in underserved communities, of state and federal grant opportunities

NCDIT educated organizations about availability of the Digital Equity Competitive Grant program available from the National Telecommunications and Information Administration in 2024. Applications are due to NTIA on Sept. 23, 2024, and NCDIT staff assisted interested applicants in developing collaborative partnerships and producing competitive grant applications for consideration.

Additional Information

Our leadership team is actively promoting IT resiliency through engagement with organizations like National Association of State Technology Directors (NASTD) and North Carolina Local Government Information Systems Association (NCLGISA), and through collaboration with local government agencies. This approach not only strengthens partnerships but also deepens awareness of critical issues, such as the impact of climate on IT infrastructure. Ensuring that governmental IT programs remain reliable and accessible to North Carolina's citizens through these efforts is essential for fostering trust and continuity in public services.