Closing the Homework Gap and the Digital Divide

Information Communications Technologies

North Carolina

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Contact: Jeff Sural, Director, NC Broadband Infrastructure Office (919-754-6990, jeff.sural@nc.gov)

"If we are not able to bridge this Homework Gap, our state's children, our future workforce, will not be adequately prepared for the jobs of the 21st century. In addition, expanding broadband access, especially in our rural communities, will help to expand economic opportunities for families across North Carolina."

GEOFF COLTRANE, SENIOR EDUCATION ADVISOR, OFFICE OF THE GOVERNOR

Executive Summary

North Carolina is the ninth largest state in the country with a population of just over 10 million people. Eighty of the state's 100 counties are considered rural. The disparity in connectivity between rural and urban counties contributes to a digital divide between those who are connected and those who are not. In addition, barriers such as the cost of internet service, not owning a computer, and a lack of digital skills prevent many North Carolinians from accessing the internet in both urban and rural areas.

The Department of Information Technology's Broadband Infrastructure Office (NCDIT/BIO) leads stakeholders across Governor Cooper's administration to support local investment and planning efforts, coordinate with digital inclusion leaders across the state, fully leverage federal and other grant resources, and partner with industry and the non-profit sector to identify solutions to the digital divide. They are simultaneously focused on tackling broadband adoption barriers and investing in the expansion of broadband infrastructure to improve broadband access across the state.

In March 2019, Governor Cooper issued an executive order creating the Governor's Task Force on Connecting North Carolina and directing Cabinet agencies to take all available actions across state government to spur investment in broadband infrastructure, eliminate government obstacles to deployment, and close the digital divide and eliminate the homework gap.

There are two main aspects to broadband connectivity: access—the access to the pipes and wires, and adoption—whether a household subscribes to the service. In North Carolina, we recognize that these are equally important factors when addressing the digital divide. We are leveraging grants and creating partnerships to understand these issues better, pilot innovative ideas, and create viable and sustainable solutions. For example:

- The Growing Rural Economies with Access to Technology (GREAT) grant program, designed to expedite the terrestrial deployment of broadband within unserved areas of the 40 most distressed counties, has been instrumental in addressing long-term access issues.
- A partnership with the State Library of North Carolina and the Kramden Institute to work with local school districts and regional libraries in four counties to provide Wi-Fi hotspots, computers, and digital literacy workshops for local families.
- The Homework Help program, which provided $35,000 each to local libraries to purchase equipment such as Wi-Fi hotspots or computers to make available to students or other library patrons for home use.
- A program to install Wi-Fi on school buses so that students could access the internet to work on assignments during their commutes to and from school.

We believe our approach has led to a dramatic increase in the adoption of broadband throughout the state. Between 2013 and 2018 the state's broadband adoption rate increased approximately 49 percent. Our state has made significant progress, and continuing these partnerships between the public and private sectors, at the state, regional, or municipal level is essential to closing the digital divide.

Concept

The digital divide is the gulf between those who have ready access to computers and the Internet, and those who do not. In the education sector, the digital divide manifests itself in what's called the homework gap. The homework gap occurs when students are assigned homework that

North Carolina's homework gap is currently estimated at 197,139 households

requires using the internet, but they don't have access to an internet connection or device at home.

North Carolina's homework gap is currently estimated at 197,139 households and impacts both rural and urban students. Governor Cooper has made it a priority to close this gap. In March 2019, Governor Cooper issued an executive order creating the Governor's Task Force on Connecting North Carolina and directing Cabinet agencies to take all available actions across state government to spur investment in broadband infrastructure, eliminate government obstacles to deployment, and close the digital divide and eliminate the homework gap.

North Carolina is taking multiple approaches, both long- and short-term, to address the homework gap.

Long-term, we are working with internet service providers to expand internet accessibility. NCDIT/BIO established and administered the Growing Rural Economies with Access to Technology (GREAT) grant program, awarding funding to extend broadband infrastructure to our most rural and underserved communities. The GREAT program is designed to expedite the terrestrial deployment of broadband within unserved areas of the 40 most distressed[1] counties, with transmission speeds of at least 10 Mbps download, and at least one Mbps upload. Deployment of speeds of 25/3 Mbps or greater is encouraged. The grant was established in 2018, and to-date $9.9M has been awarded with another $15M forthcoming. Subsequent rounds of funding will fold in an additional 40 counties.

Short-term, we are providing innovative solutions to help students while this infrastructure is established.

In 2018 NCDIT/BIO and the State Library of North Carolina won a $250,000 two-year grant from the Institute of Museum and Library Services (IMLS) to launch a program to address the homework gap. The pilot partnered the local school district and the regional library in Robeson County to provided Wi-Fi hotspots and digital literacy workshops to 34 families. In July 2019, the program expanded to include three additional counties, Caswell, Hyde and Mitchell.

NCDIT/BIO and the N.C. Department of Natural and Cultural Resources, home to the State Library, also partnered with 10 library systems and four municipalities in 15 different counties to implement the Homework Help program as part of Governor Cooper's Hometown Strong initiative. Each library received $35,000 to purchase equipment including Wi-Fi hotspots, computer/hotspot combinations, and bus or bookmobile routers to make available to students or other library patrons for home and community use. Each county determined what to purchase with their funds based on the needs of their

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[1] NC Department of Commerce County Distress Rankings (Tiers) https://www.nccommerce.com/grants-incentives/county-distress-rankings-tiers

community. Counties include Anson, Bertie, Bladen, Chowan, Columbus, Edgecombe, Halifax, Hertford, Northampton, Richmond, Scotland, Tyrrell, Vance, Washington, and Martin.

In addition to these NCDIT/BIO-led programs, several of our counties have installed Wi-Fi on school buses over the past few years so that students can access the internet to work on assignments during their commutes to and from school. In response to the COVID-19 pandemic, NCDIT/BIO worked with the North Carolina Business Committee for Education (NCBCE) to leverage these accomplishments and make this a statewide program by deploying 205 devices to 41 school districts

Significance

The Homework Gap has far-reaching impacts beyond hampering school children in their educational pursuits. It limits the types of jobs they will be qualified for once they enter the workforce. An affordable high-speed internet connection now is essential to living, learning, working, and thriving in the modern economy. In a bi-annual Teacher Working Conditions Survey, 70 percent of high school teachers, 60 percent of middle

Causes for the Homework Gap mirror those that prevent households from adopting broadband in their homes. Research shows that the four major obstacles to broadband adoption are:

1. a lack of digital literacy knowledge
2. the unaffordability of either the internet service or the digital device necessary for utilizing the internet
3. a lack of access to broadband service
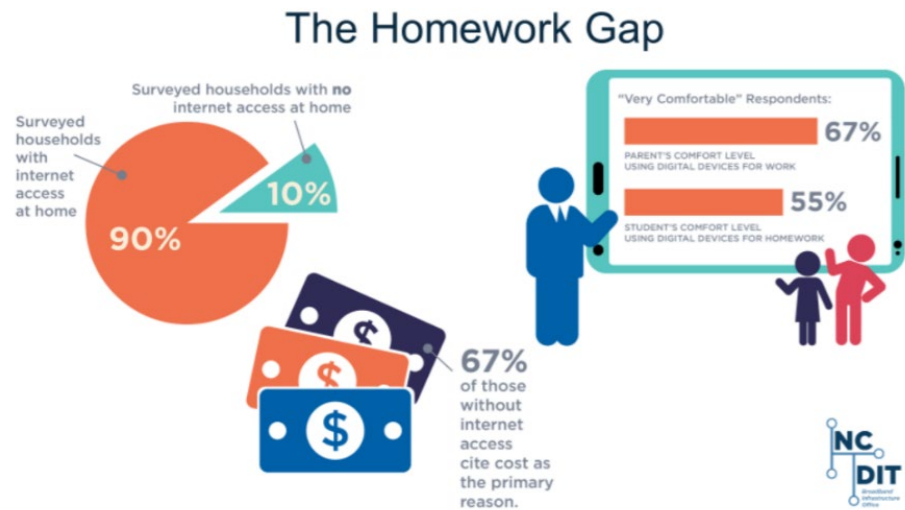4. the lack of understanding how the internet is relevant to a person's life.

school teachers, and 43 percent of elementary school teachers regularly assign homework that requires internet access to complete. Failing to equip students with the necessary tools to thrive in a digital society also limits their ability to contribute to their community's future.

The most recent report from the American Community Survey puts North Carolina's household adoption rate for all internet speeds at 78.3 percent (the U.S. average is 85.1 percent). That survey also found that 12.6 percent of households do not have a computer of any type and 5.9 percent only use a smartphone to access the internet. This means that 18.5 percent or 726,122 North Carolina households have no access to a meaningful device – a laptop, desktop, or tablet.

In 2019, NCDIT/BIO published "The Homework Gap in North Carolina," a report that provides communities and state and local policymakers with strategies to bridge the homework gap. The report showed that at least 10 percent of the K-12 families surveyed did not have access to the

The Homework Gap

internet at home. Those without access cited cost as the primary reason for not having access. Additionally, those without access were less comfortable helping their kids with digital homework.

This means that too many of our state's children are unable to thrive in school, and many may not be prepared to fully participate in today's workforce simply because they don't have internet or the computer to use it at home.
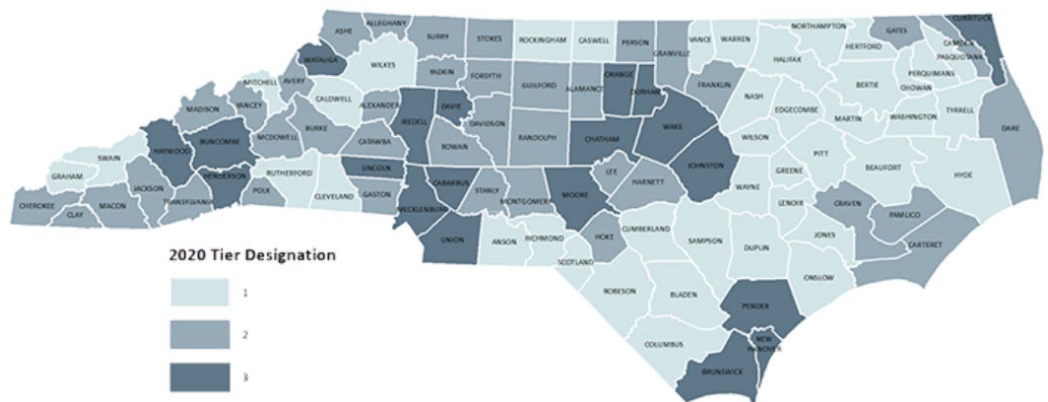
"The homework gap is the cruelest problem we have, but I think it is in our power to fix." – Jessica Rosenworcel, FCC Commissioner

The causes of the homework gap mirror those that prevent households from adopting broadband in their homes. Research shows that the four major obstacles to broadband adoption are 1) a lack of digital literacy knowledge, 2) the unaffordability of either the internet service or the digital device necessary for utilizing the internet, 3) a lack of access to broadband service, and 4) the lack of understanding how the internet is relevant to a person's life. The initiatives outlined below are three parts of a unique, statewide, comprehensive approach to shrinking the digital divide and closing the homework gap.

GREAT Grant Program

The GREAT grant program addresses lack of access to broadband service. By providing grant funds to the private sector to extend their networks and provide last-mile service, we are affording our least-served communities the opportunity to access the internet.

The GREAT grant program will be extended to the 40 Tier 2 counties in fiscal year 2021.

Library Wi-Fi Hotspots and Digital Literacy Workshops

These programs address digital literacy and understanding the relevance of the internet to a person's life and provide a short-term solution to the lack of internet access.

Hotspots: Libraries provide Wi-Fi hotspots for community members to check out and use at home. This is not a permanent solution, as the check-out period is limited to a school year.

Digital literacy: The workshops offered through the IMLS program are designed to improve digital literacy and fundamental understanding of how the internet is relevant to life today, both of which are key contributors to the homework gap.

Wi-Fi in School Buses

Many of our rural students not only lack internet access at home, but also spend significant portions of their day commuting on a bus. Over the last few years several counties installed Wi-Fi hotspots in school buses to provide students access to the internet during their commutes to and from school, allowing them to work on assignments that require internet access. This program laid the foundation for an additional Wi-Fi provision during the COVID-19 pandemic, when NCDIT/BIO worked with the NCBCE to roll out a statewide bus Wi-Fi program.

Impact

In North Carolina, we have found that partnerships between the public and private sectors, particularly at the municipal or regional level, that work to address the specific causes of the digital divide and resulting homework gap their communities face are the only way we will eliminate this inequity. This comprehensive approach has led to a dramatic increase in the adoption of broadband throughout the state. Between 2014 and 2019, the state's broadband adoption rate increased approximately 44 percent.

GREAT Grant Program

The state appropriated $10M in FY2018 and $15M in FY2019 to the GREAT grant program with the understanding that the program will continue. This is especially true considering the issues presented by the COVID-19 pandemic.

$9.9M was awarded in 20 counties and will connect more than 10,000 homes, businesses, community anchor institutions, and agricultural operations.

Based on the success of the GREAT program so far, NCDIT/BIO is requesting funds to increase the next round of the GREAT Grant to $135M and will amend grant proposal evaluation criteria to specifically fund areas not funded through federal programs. There are some areas of the state where deploying wired infrastructure is cost-prohibitive. NCDIT/BIO is working with the General Assembly to find ways to support low-orbit satellite service and subsidies to rural homeowners for the equipment to extend access to residents in those areas.

Library Wi-Fi Hotspots and Digital Literacy Workshops

For this project, 140 hotspots were purchased through Kajeet. Each partner library received 35 hotspots, access to digital literacy curricula, and training on delivering the curricula to the program participants.

The program participants received the hotspots from the partner libraries for the duration of the school year and monthly workshops for one adult and the middle school student participating in the program. The schools sent home school-owned laptops with the students during the program, and families that completed six of the eight workshops received a free desktop computer from the Kramden Institute, a non-profit computer refurbisher.

Through the Homework Help program, libraries in 15 counties were able to purchase and deploy 296 Wi-Fi hotspots, 169 Chromebook/hotspot combinations, and 46 bus or bookmobile routers.

Both of these programs provide temporary access to the internet, working to close the digital divide while the longer-term broadband implementation projects are underway.

Wi-Fi in School Buses

The initial use case for Wi-Fi in school buses was to provide students access to the internet during their commutes to and from school. When the COVID-19 pandemic forced all schools to operate

31% of families responding to the Homework Gap survey who did not have internet at home said they used Wi-Fi in libraries to access the internet.

remotely, the state expanded this program as an innovative solution to provide access to children who otherwise would not be able to keep up with school online. With donations from AT&T, Google, and the Duke Energy Foundation, 205 school buses were equipped with Wi-Fi. The first 179 devices were delivered in early May 2020 to communities in 36 school districts across the state, and the rest were delivered in the beginning of June to an additional 5 school districts.

The buses travel to underserved areas in school districts and park in designated locations, such as a school nutrition meal distribution site or a grocery store, so students can use this temporary access to turn in assignments, download materials and connect with teachers while exercising appropriate social distancing precautions.

NCDIT/BIO used data from the Federal Communication Commission and NCDPI's school survey to identify counties with the most households unserved and underserved by high-speed internet. Working with partners at NCDPI, they then cross-referenced that information with counties using school buses to deliver meals to students, as well as information about cellular coverage, to determine where school bus Wi-Fi hot spots can be most useful.

Creating partnerships with the public and private sector, regional and local governments has allowed us to make significant progress toward closing the homework gap. While we know there is much more to do, we are very proud of the progress made to date.

Unlike other intractable issues that impact educational outcomes such as hunger, homelessness, or generational poverty, the homework gap is a solvable issue. Continuing our efforts to expand access to and adoption of high-speed internet in our most rural and underserved communities will begin to shrink the Homework Gap in North Carolina, thus increasing a generation of North Carolinians' ability to fully participate and thrive in today's society.