Baseline Evaluation of the NCCDI’s Hurricane Matthew Recovery Work

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Executive Summary

• This report evaluates disaster recovery efforts by the North Carolina Community Development Initiative (NCCDI, commonly known as ‘the Initiative’) in response to Hurricane Matthew. This work includes providing grants and loans to support rehabilitation and construction of affordable housing in Matthew-affected communities in addition to land banking of affordable housing in Rocky Mount.

• Guiding the evaluation is a logic model that comprises challenges, activities, outputs, and impacts for NCCDI’s Hurricane Matthew recovery work across three domains: housing stability, community resiliency, and economic development. Pertinent to this report, the logic model identifies programmatic outputs and short-term impacts that the baseline evaluation investigates.

• In developing this evaluation, we have relied on data provided by NCCDI in addition to interviews with 44 key stakeholders (including residents of NCCDI-supported housing), spatial analysis of the proximity of NCCDI-supported housing to the floodplain and critical community facilities, and models of economic impacts for the affordable housing supported by NCCDI on surrounding communities.

• As of Summer 2019, NCCDI has supported the construction and redevelopment of 250 affordable housing units in Fayetteville, Lumberton, and Wilson. Of these units, 144 are new construction and 106 are rehabilitated existing units. Eighty-one of the units are reserved for the elderly or disabled while the remaining have no restrictions other than income. NCCDI funding has also supported the acquisition of 57 properties for Rocky Mount land banking.

• Developers and property owners receiving NCCDI support were satisfied with the process of receiving funds, as it was faster and had lower administrative burden than traditional, government-provided disaster recovery funding.

• Residents in NCCDI-supported housing were overwhelmingly satisfied with their living situation. Many believed that having stable housing had improved their mental health and lowered their stress levels, which were previously elevated due to being displaced by Matthew.

• All NCCDI-supported new housing construction is outside of the 100- and 500-year floodplains, which positively contributes to community resilience. Properties acquired for the Rocky Mount land banking are overwhelmingly located outside of the floodplain as well. NCCDI-supported rehabilitated properties are located within the 100- or 500-year floodplains, however.

• Furthermore, much of the housing that NCCDI has supported (both rehabilitation and new construction) is within one mile of critical community facilities, such as schools and emergency shelters. This proximity also positively contributes to community resilience.

• NCCDI-provided data indicate that, as of Summer 2019, the Initiative has provided $1.35 million in grants and loans to support affordable housing rehabilitation and construction against $20.9 million in private capital, resulting in a leverage ratio of $1 : $15.50. This significantly exceeds the NCCDI’s target leverage ratio of $1:$2 as stated in its Memorandum of Agreement.

• Using a model developed by the National Association of Home Builders, we estimate that NCCDI-supported affordable housing construction and rehabilitation will, from deal closing through the first year of occupancy, result in approximately $25 million in increased local income and over $3 million in increased local taxes and fees. Furthermore, it will support nearly 350 local jobs, of which nearly 50 will continue following the first year of occupancy.
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Introduction

Hurricane Matthew impacted eastern North Carolina in early October 2016. Arguably the most devastating hurricane to afflict the state since Floyd in 1999, Matthew resulted in nearly 19 inches of rain falling in some locations. Combined with already-soggy soil, the storm caused both the Lumber and Cape Fear Rivers to crest at their highest recorded levels at some locations. As a sign of the storm’s impact, the name ‘Matthew’ was officially retired as a hurricane name—joining such well-known storms as Andrew, Katrina, and Hugo. Even 18 months after the storm hit, Matthew’s impacts were still clearly felt.

The statistics of Matthew’s impact are sobering. Across North Carolina, 31 deaths were attributed to the storm, nearly 100,000 structures were damaged, and the hurricane’s damage was estimated at $1.5 billion. The North Carolina Department of Public Safety performed 2,336 water rescues and housed 4,071 evacuees in 109 shelters. Those shelters remained open for more than a month after the storm impacted the state.

In response to the devastation, the North Carolina Community Development Initiative (NCCDI, also known as ‘the Initiative’) requested and received $3,000,000 from NC Emergency Management to address the challenges created by Matthew. In a Memorandum of Agreement and a subsequent amendment, the Initiative stated it will utilize these funds to:

- “Provid[e] flexible, low-cost loan funds to finance the rehabilitation and/or construction of affordable rental housing”
- “[Establish] a loan loss or capital fund … that can be used to leverage private capital … to provide flexible, low-cost financing for affordable housing and critical community facilities.”
- “Use a tool called land banking … to acquire vacant, abandoned or distressed housing in communities impacted by … Hurricane Matthew and hold them for redevelopment as high quality affordable housing.”

Overview of the evaluation

In June 2018, researchers at the Center for Urban and Regional Studies (CURS) submitted an evaluation design and logic model to NCCDI pertaining to its Hurricane Matthew recovery work. This document provided background information on NCCDI’s efforts and specified a logic model to guide future evaluations of those efforts. It also included an evaluation design to measure programmatic outputs and short-term community impacts. NCCDI elected to fund that evaluation following submission of the document.

This report provides an evaluation of programmatic outputs and short-term community impacts of NCCDI’s Hurricane Matthew recovery work through Summer 2019. Programmatic outputs primarily consist of NCCDI-reported data, including the number of affordable housing units rehabilitated, types of key public infrastructure assets repaired, and number of low-cost business loans provided. Short-term impacts are those that one would expect to occur as a direct result of the investment, typically within the first year or two. We have divided the findings by the three goals of NCCDI’s work outlined in the logic model: increasing housing stability, enhancing resilience for future disasters, and encouraging economic development in flood-affected communities.

The remainder of this report proceeds as follows. The following section describes the logic model guiding the evaluation. After discussing the methods used, the subsequent three sections outline programmatic outputs and short-term community impacts for each of the three goals of NCCDI’s work. The final section offers summarizing conclusions and recommendations both as NCCDI continues its recovery work and for state officials responding to future disasters.
Logic Model

A logic model provides a linear roadmap that represents “the thinking behind how a particular intervention will bring about results.” Non-profits, policy-makers, and other community stakeholders may find logic models useful as they can link what an intervention (i) seeks to address (challenges), (ii) the intervention itself, and (iii) its expected impacts.

While the specific elements included in logic models vary across programs, all include (i) a specific intervention or interventions to be undertaken and (ii) expected outcomes of those interventions. In developing a logic model for the Initiative’s disaster recovery efforts, we have included four elements: challenges, activities, outputs, and impacts (see Figure 1).

Logic models are closely related to theories of change. Most broadly, theories of change typically describe how an organization intends to effect change organization-wide across multiple programs or interventions. Logic models typically describe how an organization will drive change within a single intervention or family of related interventions. An organization will typically have one theory of change but could have multiple logic models if it conducts different types of interventions.

Challenges are the circumstances created by Hurricane Matthew, including loss of housing—especially affordable housing—and economic disruptions. Importantly, Matthew exacerbated many of the challenges that affected community were already facing, such as an insufficient number of affordable housing units and lack of economic investment.

Activities include NCCDI’s disaster recovery activities implemented to address these challenges.

Outputs are quantifiable indicators that track implementation of the Initiative’s actions.

Impacts are broader effects of the intervention that are produced either directly or indirectly. Impacts can occur at the individual or community level, may be either intended or unintended, and can occur in the short-, medium-, or long-term.

Challenges

Hurricane Matthew’s devastation created a number of challenges that NCCDI has sought to address. For one, the storm destroyed nearly 100,000 homes in North Carolina, with the vast majority of those in the eastern portion of the state. Those most affected by flooding were often low-income households who had fewer financial resources to fall back upon during the recovery process.

Second, Matthew damaged or impaired access to numerous critical community facilities. The storm resulted in at least 650 roads being closed—at least temporarily—and resulted in approximately 900,000 households losing electricity. Schools in some affected communities remained closed for an extended period after the storm, and a few have decided not to reopen.

Third, and related to the two prior points, Matthew negatively impacted the economies of storm-affected communities. The storm resulted in nearly $5 billion in damages across the state, with most of these concentrated in under resourced communities in eastern North Carolina. Displacement of residents left many businesses without both workers and customers, and damage to roads and other transportation infrastructure left communities isolated from critical community facilities.

Actions

NCCDI’s disaster recovery efforts comprise several interventions to increase housing stability, enhance the resilience of affected communities, and generate economic development. Of those actions, arguably the most important are those that pertain
to maintaining and increasing the supply of affordable housing in storm-affected communities. This includes providing low-cost loans to finance the rehabilitation or construction of affordable housing.

Additionally, the Initiative is land banking flood-damaged properties in Rocky Mount. Per an amendment to its original Memorandum of Agreement with the state Division of Emergency Management, the Initiative will acquire “vacant, abandoned or distressed housing,” and NCCDI has decided to target these efforts in Rocky Mount, one of the larger cities in eastern North Carolina and one that was also affected by flooding from Matthew. Furthermore, land banking affordable housing in Rocky Mount will benefit the community by preserving affordability in areas expected to undergo gentrification pressure in the coming years as a result of the Rocky Mount Mills development.\textsuperscript{12}

Another aspect of NCCDI’s disaster recovery efforts focus on increasing the resiliency of eastern North Carolina to future disasters. Flooding was the primary cause of damages related to Matthew, and many (though not all) of the properties affected by flooding had previously been hit by Hurricane Floyd in 1999.\textsuperscript{13} The Initiative is working to enhance resilience by enhancing access to critical community facilities and facilities while also funding the rehabilitation and construction of affordable housing in less flood-prone areas.

NCCDI’s disaster recovery efforts also relate to stabilizing and growing the economy of flood-affected areas, though this is admittedly a secondary effect of its housing stability and resilience efforts. One notable component of its economic development strategy are efforts to leverage private capital at a ratio of at least $2:$1. Additionally, the development and rehabilitation of affordable housing will have beneficial economic impacts on flood-affected communities by providing construction-related jobs and by expanding housing opportunities for workers.

\textbf{Outputs}

Within the logic model, outputs comprise quantitative measures pertinent to the implementation of funded activities. While these indicators are being collected by the Initiative, they are important to the overall evaluation as they allow us to track NCCDI’s progress toward expending state funds and fulfilling its contract with the Department of Public Safety.

Programmatic outputs collected by NCCDI include the number of affordable housing units developed or rehabbed, number of key public facilities repaired or re-opened, and the dollar amount of loan loss funds expended. Later in the evaluation, we provide greater detail on the programmatic outputs that the Initiative is collecting for all three aspects of its disaster recovery efforts: increasing housing stability, improving resilience, and enhancing economic development.

\textbf{Community impacts}

Community impacts from NCCDI’s recovery efforts relate to three domains: greater housing stability, enhanced resilience for future disasters, and economic development throughout eastern North Carolina. Among others, relevant outcomes for these actions include providing more affordable housing opportunities, ensuring access to critical community facilities, and providing low-cost lending to affordable housing developers and property owners.

We have divided community impacts into three categories: short-, medium-, and long-term. While the dividing line between these is not firm, they collectively map a sequence of how NCCDI’s investments can improve flood-affected communities. For instance, by placing families into affordable housing (short-term impact), those families can then have the economic and psychological wherewithal to improve their economic situation (medium-term impact), and thus have greater economic security (long-term impact).
Figure 1: Logic model. Housing-related topics are in blue, resilience-related are in green, and economic development-related are in orange.

**Challenges**
- Matthew destroyed nearly 100,000 homes state-wide
- Numerous families were displaced by the storm
- Those most affected were primarily low-income families
- Matthew closed more than 660 roads, at least temporarily
- Matthew damaged many critical community facilities
- Matthew resulted in nearly $4.8 billion in damages
- Many businesses were affected by flood damage and by displaced workers

**Activities**
- Providing low-cost loan funds to finance rehab or construction of affordable housing
- Establishing a land bank to acquire abandoned or distressed housing
- Protecting access to critical public infrastructure and critical facilities
- Locating new aff. housing away from the flood plain
- Incorporating hazard mitigation into repair and rehabilitation work
- Establishing a loan-loss fund to leverage capital at a rate of at least 2:1

**Outputs**
- Affordable housing units developed or rehabbed
- Interest rate of affordable housing loans
- Properties acquired for the land bank
- Acreage of properties acquired for land bank
- Number of key public facilities repaired or re-opened
- Locations of affordable housing units developed or rehabilitated
- Dollar amount of loan loss funds expended
- Dollar amount of private capital attracted
- Private-capital ratio of loans

**Community Impacts**

**Short-term**
- Families placed in affordable housing
- Lower housing cost burden of families in aff. housing
- Housing stability of families in aff. housing
- Better mental health of families in aff. housing
- Services are available because key public facilities are accessible and operational
- Stress reduction for relocated families
- Businesses can easily find financing
- Crucial community businesses can remain open
- Businesses can better retain workers

**Medium-term**
- Affordable housing serves as platform for families to improve their economic security and health
- Families have more resources for improving economic situation & leisure activities
- Lower risks & financial costs from natural hazards reduced
- Insurance premiums lowered for units outside floodplain
- Business can expand as needed
- Businesses can better attract workers
- Communities have healthier economies

**Long-term**
- Families have greater economic security
- Families have better physical and mental health
- Communities have greater housing stability as a whole
- Mental and physical health and quality of life improves
- Disaster recovery needs are reduced
- Communities have a healthier and more vibrant economy
- Communities can attract a range of workers to live, work, and play
Methodology

In developing this evaluation, we have drawn on qualitative, spatial, and quantitative methodologies. By utilizing diverse methods, we have attempted to provide the most complete evaluation of NCCDI’s Hurricane Matthew recovery efforts to date.

To understand impacts related to housing stability, CURS staff conducted interviews with 44 key stakeholders. These include developers of NCCDI-supported new construction housing units (Griffin Park and Lafayette Park) and the property owners/managers of NCCDI-supported rehabilitation projects (First Baptist Homes I & II and eight privately-owned units in Fayetteville). In addition, we interviewed 25 current residents of NCCDI rehabilitated properties, 12 residents of newly constructed housing units, and two residents of land-banked properties in Rocky Mount.

With respect to impacts related to resiliency, we have primarily relied on spatial analysis to identify whether housing constructed or rehabilitated in part through NCCDI funds is located in the 100- or 500-year floodplains. We have also evaluated the proximity of NCCDI-supported housing to critical community facilities like police and fire stations, hospitals, and emergency shelters. Data sources for these analyses include NCCDI-provided addresses of newly constructed and rehabilitated housing; Cumberland, Edgecombe, and Robeson County GIS data; and floodplain and community facility data from NC OneMap.

Finally, we have evaluated short-term economic development impacts by adopting models developed by the National Association of Home Builders (NAHB). Originally created to assess the impacts of Low-Income Housing Tax Credit program, these models are used nationwide to estimate the economic impacts of affordable housing construction and rehabilitation. Two NAHB models are used to differentiate the economic impact of housing constructed for families (or non-elderly residents) and elderly residents.

Outside newly-rehabbed First Baptist Homes I & II - Robeson County, NC
Housing Stability

The first goal of NCCDI’s recovery work is to increase housing stability in areas affected by Hurricane Matthew and prone to future disasters. Given that Matthew destroyed or damaged nearly 100,000 homes, significant efforts are needed to both maintain and expand the supply of affordable housing in affected communities throughout eastern North Carolina. As of Summer 2019, NCCDI has supported the rehabilitation and construction of housing in Fayetteville, Lumberton, and Wilson in addition to the land banking of affordable housing in Rocky Mount.

Programmatic outputs

Based on information provided by NCCDI, we report the following programmatic outputs related to housing stability:

NCCDI has supported the rehabilitation/redevelopment of 106 units and construction of 144 units for a total of 250 units (see Figure 2).

- Regarding the geographic distribution of these units, 154 are located in Lumberton (Robeson County), 80 are located in Fayetteville (Cumberland County), and 16 of these are in Wilson (Wilson County).

- While 81 of these units are reserved for elderly or disabled tenants, the remainder have no age or other restrictions (see Figure 3).

Assisted with NCCDI funds, the Rocky Mount Housing and Revitalization Initiative (RMHRI) acquired 58 properties (10.06 acres) between November 2017 and March 2019 (see Figure 4).

- Thirteen of these properties are vacant lots.

- The remaining 45 properties are residential and comprise 64 housing units.

- Ten RMHRI properties are currently occupied and these comprise 26 housing units.

- Utilizing NCCDI funding, RMHRI conducted rehabilitation on seven properties (23 housing units).

- Eighteen of these properties were donated to the land bank, and the remaining 39 were purchased for an average price of $33,372.
New construction units

NCCDI funding has been used to support the new construction of two affordable apartment complexes, one of which is located in Lumberton and another of which is located in Fayetteville.

Griffin Park is a newly constructed 72-unit affordable apartment complex located in Lumberton. Its construction was funded by a combination of a $300,000 investment ($150,000 loan and $150,000 grant) from NCCDI, Low-Income Housing Tax Credits (LIHTC), and developer funds. It offers eight one-bedroom/one bath, 34 two-bedroom/two bath, and 30 three-bedroom/two bath units and houses approximately 140 residents. The development also hosts an onsite property management office, laundry space, and central playground. As of Summer 2019, the lease-up process at Griffin Park was nearly completion.

Lafayette Park is a new 72-unit, affordable housing LIHTC apartment development currently under construction in Fayetteville. It will include one bed/one bath, two bed/one bath, and three bed/two bath units ranging in size from 700–1,150 square feet. Once completed, the development will house a community building with maintenance, property management, a multi-purpose space, laundry facilities, mailboxes, and a computer lab for residents. The development will also provide recreational space and a playground for children. The Lafayette Park site is located across the street from K-12 schools and in nearby daily shopping needs and medical services. As of Summer 2019, construction was scheduled to be complete in November 2019.

Rehabilitated housing units

NCCDI has leveraged funding to rehabilitate or redevelop three housing complexes in flood-affected communities. These complexes are located in Lumberton (Robeson County), Fayetteville (Cumberland County), and Wilson (Wilson County), and collectively total 106 units.

First Baptist Homes I & II is an 81-unit elderly and disabled affordable apartment community located in Lumberton, North Carolina. Phase I of the development was originally constructed in 1985 and consists of 40 units, and phase II was added in 1995 and consists of 41 units. The development includes four buildings, with two buildings dedicated to elderly residents and two to disabled residents. All units are one bedroom/one bath units and are designed for single occupancy. Rents are on a sliding scale based on 30% of residents’ adjusted gross income, and residents have an annual household income of between $3,000 and $17,000. All buildings sustained major flood damage from Hurricane Matthew in October 2016. Following renovations, residents began to move into the complex starting in October 2017.

Creeks Edge Townhomes comprises two quadruplexes (eight units total) that sustained significant flood damage related to Matthew. NCCDI helped fund their rehabilitation through a grant to the property owner, who owns a small number of units in eastern North Carolina. The Creeks Edge Townhomes consist of four two-bed/two-bath and four one-bed/one-bath units.

Buchanan is a privately-owned single-family home in Lumberton. It was rehabilitated using NCCDI funds and is rented to tenants earning 80% or less than the area median income (AMI).

St. Johns is the redevelopment of a rental housing complex in Wilson, NC. As they only closed in Summer 2019, we were unable to conduct any interviews pertaining to it, though we would hope to evaluate its impacts in a future report.
Rocky Mount land banking

Assisted with NCCDI funds, the Rocky Mount Housing and Revitalization Initiative (RMHRI) acquired 57 properties between November 2017 and March 2019 for the purpose of land banking. The properties include 64 units and 13 vacant lots. 18 of these properties were donated to the land bank, and the remaining 39 were purchased for an average price of $33,372 each. Approximately 15 of these units were occupied at the time of acquisition, and 23 units were occupied as of July 2019. Modest improvements have been made to bring some of these units up to code.

The goal of this purchase was to rehabilitate vacant and distressed properties and ensure long-term affordable housing in the Rocky Mount area. The two acquisition target areas are near multiple new developments, namely the recently rehabilitated Rocky Mount Mill and the newly constructed Rocky Mount Event Center. These recent developments led to concerns about gentrification and rising housing prices in the surrounding neighborhoods.

RMHRI is considering multiple options to ensure long-term housing stability and affordability, including forming or partnering with a land trust, using restrictive covenants, and deed restrictions. In surveys of neighborhood residents, RMHRI found residents wanted more opportunities for home ownership and for a larger percentage of homes to be occupied by owners. Ultimately, RMHRI’s goal is to control 20–30 percent of the properties in the target areas to maintain future affordability.
Figure 4: Retrofitted and non-retrofitted Rocky Mount land bank properties (Edgecombe and Nash counties)
Short-term community impacts

Short-term community impacts related to housing stability can be divided between impacts on developers or property owners and impacts on residents. After interviewing developers and property owners, we found they used NCCDI funding in varying ways, including for construction, gap financing during construction delays, and to cover mortgage payments while rehabilitating units. In speaking with residents, we determined that NCCDI’s recovery work has positively impacted their housing stability in three main ways: (i) high levels of housing satisfaction, (ii) reduced stress levels, and (iii) a positive sense of community.

Developer and owner impacts

Interviews were conducted with developers of NCCDI-supported new construction housing units (Griffin Park and Lafayette Park) the property owner of an NCCDI-supported rehabilitation project in Fayetteville, and the property manager of First Baptist Homes (who was in this role prior to Matthew and following those units’ rehabilitation). The developers of Lafayette Park and Griffin Park are established LITHC housing builders in North Carolina. The property owners/managers we spoke with have owned and/or managed affordable housing units in eastern North Carolina for multiple years.

Developers and property owners learned about NCCDI funding opportunities through different means, including personal and professional networks, FEMA, and promotional materials like door hangers following hurricane Matthew. They also used NCCDI support in differing ways—some developers used it as gap funding during construction delays, while for others it served as bulk financing. Property owners reported using funds to cover mortgage payments while the units were uninhabitable and to supplement other disaster recovery funding and insurance payouts.

Following Hurricane Matthew (whose impacts were, in some cases, later exacerbated by Hurricane Florence), developers reported construction delays caused by wet weather, labor shortages that led to increased costs, and lower permitting capacity at local governments. Developers agreed that NCCDI funding allowed their projects to be completed with fewer delays and at less of a financial loss. One interviewee noted that without NCCDI funding, their firm would have foregone all developer fees and likely ended the project with at a net loss—thus negatively impacting their ability to develop affordable housing in the future.

In the end, developers had differing opinions on whether they would have been able to complete their projects without assistance from NCCDI. One believed the project would have not been completed. The other said the project would likely be completed eventually but would have faced even more significant delays.

Developers and property owners agreed working with NCCDI was expedient and came with low administrative burden. One interviewee noted the benefits of funds flowing directly through NCCDI and not having to go through a government agency, which they associated with bureaucratic headaches and delays. They said this expedited the process for them and posited that it allowed local governments to focus resources on more urgent needs following hurricane Matthew.

Resident impacts

Housing satisfaction. The overwhelming majority of residents interviewed were happy and satisfied with their current housing situation in housing units whose construction or rehabilitation had resulted from NCCDI-leveraged funds. Most interviewees are long-term residents of eastern North Carolina and many had been personally impacted by other hurricanes in addition to Matthew throughout their lives. In fact, many of the residents of rehabilitated units had lived in those complexes prior to Matthew.
Griffin Park residents frequently mentioned the benefits of living in a newly constructed building. Nearly all interviewees appreciated that the units were clean and sanitary and that the appliances and major systems worked well. Residents also valued how close the development is to daily shopping needs and medical services. Residents with children appreciated the playground at the center of the development, and those interviewees who were long-term Lumberton residents were relieved that their children would be able to attend their same school.

Most First Baptist Homes residents were happy with their rehabilitated units. Roughly half of those we spoke with were former residents who returned when renovation concluded. New and returning residents valued that the complex was peaceful, quiet, and included lots of outdoor green spaces. Several mentioned that it was close to medical services, stores and churches. Others appreciated the kindness of the property manager and assistance from local church and school groups, including helping obtain furniture since many residents’ belongings were destroyed by flooding.

Among all residents we interviewed, all but one said they would recommend living in their NCCDI-supported developments to family or friends. In fact, when asked this question many replied they already had already done so, and a few at least were able to identify some of their neighbors whom they had convinced to move into their complexes.

In the case of land banked properties in Rocky Mount, RMHRI has conducted rehabilitation work for many of the properties it has acquired to benefit current residents. While not directly affected by Hurricane Matthew, residents we spoke with appreciated the modest improvements to their properties, and the fact that their rents were affordable.

Reduced stress levels and improved mental and physical health. A large proportion of the residents interviewed had been displaced by Hurricane Matthew—including some who were homeowners before the storm — and unsurprisingly many of them reported facing significant levels of stress and other health issues while being displaced. Nearly all resident interviewees agreed that, since moving into housing supported by NCCDI funding, their stress levels had decreased, and their overall physical and mental health had improved.

After Matthew and the subsequent flooding, many interviewees were displaced from their homes for months. Several reported sheltering during and immediately after the hurricane at local public schools and churches. In the following months, many were either placed in motels or moved in with friends or family until they were able to return to or secure a housing unit. Several residents were moved to multiple shelter locations in the weeks and months following hurricane Matthew, and one resident we spoke with said they were homeless until they were able to move in to First Baptist Homes post-rehabilitation.

Several residents had serious concerns about their health and safety while sheltering in motels, noting high levels of crime and unsanitary conditions. These concerns were especially heightened for elderly residents and those with children. Older interviewees feared they might be considered easy crime targets, while some parents were concerned about adolescents and teenagers being negatively influenced by crime they witnessed there. Many also noted it was difficult to manage activities of daily life—like storing groceries and preparing food—while living in motels.

The majority of interviewees reported decreased stress levels after securing stable housing in NCCDI funded units. This was especially true for older residents and those with children. For many, this decrease in stress manifested in increased satisfaction with their housing and, more broadly, in a greater quality of life. In fact, one of the most com-
mon responses we heard from interviewees after describing stress faced while being displaced was ‘I’m happy here,’ referring to both their satisfaction with their current housing and their overall improved mental health.

**Sense of community.** Most of the residents interviewed are long-term residents of eastern North Carolina and have developed, over the course of their lifetimes, deep connections to both their neighbors and their broader communities. Being displaced by Matthew severed many of those networks. However, for many interviewees, being able to return to their communities following the storm allowed them to rebuild their networks. Having a greater sense of community, in turn, can have beneficial impacts on both health and overall life satisfaction.

Roughly half of First Baptist Homes residents interviewed lived in the complex prior to Matthew and chose to return after being displaced. Residents overwhelmingly expressed positive feelings about the development and the surrounding area, and many value greatly that the development is very quiet and feels safe. Several mentioned that the neighbors are thoughtful, good people, and that there is a good sense of community within the development.

Elderly residents were especially likely to be happy with the community at First Baptist Homes. One of the most noted aspects was the positive impact of being surrounded by people of similar ages and the sense of community that brings. Some mentioned the community meetings that take place at the development, while others valued that there were security measures in places (such as locked doors after 6:00 PM) and having a property manager on site. One resident specifically mentioned that he suffered from depression when he moved into his apartment and credited support from their neighbors and the community at First Baptist as a major factor in helping to improve his mental health.

As discussed above, the vast majority of interviewees said they would recommend living in their housing to friends or family. While residents reported different rationales for these recommendations, the consensus was these developments provide a sense of community, safety, and security for those who live there—something that many did not have immediately following Matthew.

**Conclusion**

Hurricane Matthew caused devastating damage to housing across eastern North Carolina and exacerbated an already-present shortage of affordable units. NCCDI funds have helped to rehabilitate 106 units and construct 144 units for a total of 250 affordable housing units across Robeson, Cumberland, and Wilson counties. NCCDI also helped to acquire 57 properties in Rocky Mount with the intent of ensuring long-term affordable housing in the area.

Developers and property owners have used NCCDI funding to support various aspects of the development and construction process. Those interviewed agreed that working with NCCDI was expedient, efficient, and came with low administrative burden. Additionally, residents report high levels of satisfaction with the housing that has been rehabilitated or constructed with NCCDI support. They value the safety and stability of their housing—especially elderly residents and families with children. Interviewees overwhelmingly have lower self-reported stress levels after securing stable housing, are appreciative of the sense of community in their complexes and broader communities and would recommend living in their developments to family and friends.
Community Resiliency

Community resilience is generally considered to be the ability to withstand and quickly recover from disruptions and adversity. Resilience comes in many forms—social, structural, economic, physical and psychological to name a few. In North Carolina, where we face numerous threats to resilience from natural hazards, investments outside the floodplain are important ways of increasing community and personal resilience. Because flooding is such a common occurrence, minimizing flood impacts saves valuable economic resources (both household and community), reduces emergency response needs, and lessens disruptions and negative health effects. To achieve the greatest improvements in resilience, recovery investments should be made outside the floodplain or support retrofitting structures remaining in the floodplain.

NCCDI’s disaster recovery work goes beyond merely helping communities’ recovery from Hurricane Matthew but contributes to a greater resilience in the affected communities. In the context of NCCDI’s work, we will consider how its efforts positively impact resilience in Lumberton, Fayetteville, and Rocky Mount and more specifically the resilience of residents living in NCCDI-supported housing. We should be clear that there are limitations to how much the construction or rehabilitation of affordable housing can impact community resilience. However, housing that is well-located, safe, and affordable is an important component of community and individual resilience.

_Newly-constructed Griffin Park apartments - Robeson County, NC_
Programmatic outputs

Many resilience-related impacts can only be measured in the longer term and after disruptions and adversity affect communities. Since this evaluation was conducted soon after NCCDI-supported projects were completed, the scope of our assessment is limited. Nonetheless, there are several programmatic outputs related to resilience that we consider here. Because these are site-specific, we will look at each of these outputs on a development by development basis.

- **Access/proximity to critical community facilities** (police, fire, schools, shelters, transit, groceries, and medical facilities).

- Number and percentage of affordable units rehabilitated outside the 100-year and 500-year floodplains.

- Number and percentage of affordable units developed outside the 100-year and 500-year floodplains.

- Number and percentage of affordable units that are retrofitted to reduce the impact of hazards through elevating structures, flood-proofing, or structural retrofits (such as strengthening roofs, doors, or windows or installing hurricane shutters).

- Amount and percentage of land acquired for land banking outside the 100-year and 500-year floodplains.

Access/proximity to critical community facilities

Access to medical facilities, schools, shelters, transit, groceries and proximity to police and fire departments greatly affect household resiliency. The easier it is to access these critical facilities, the less disruption families will face if impacted by a disaster. Time saved getting groceries, kids to school, or to a medical appointment can save money, reduce stress and minimize time off from work. The ability to walk to an emergency shelter makes it more likely people will utilize the shelter and be in a safe place rather than in harm’s way.

For the purposes of this report, we consider something to be within walking distance if it would take no more than 20 minutes to walk there. Mobility planners generally assume it takes 20 minutes to walk a mile. Low-income families—who may have limited transportation options—will have much great resiliency if they can access food, education, shelter, and medical facilities if they can walk there without great difficulty. Lumberton doesn’t have public bus service, so walkability is even more critical there for households without cars.

To identify the proximity of NCCDI-supported housing to critical community facilities, we obtained mapping shapefiles of these facilities from the NC OneMap geospatial portal\(^{18}\) for both Robeson and Cumberland County (see Figure 5 for Fayetteville and Figure 6 for Lumberton). We then mapped five types of critical community facilities,\(^{19}\) identified the closest one for each for all of NCCDI-supported housing, and then calculated the walking distance to each (see Figure 7 for the distance from each housing investment to the closest critical community facility).
Regarding NCCDI’s housing investments in Fayetteville, we find that (see map in Figure 5):

**Lafayette Park** is well-located for families with school-aged children as it is less than \( \frac{1}{3} \) of a mile from three public schools. It is also a ½-mile from a bus stop and a grocery store. It is not situated near medical facilities or a potential emergency shelter. The nearest fire station is 1.3 miles away, close enough for a quick response.

**Creeks Edge Townhomes** is 0.6 miles from an elementary school that also serves as an emergency shelter. Otherwise, it is not particularly well-located. It is almost a mile to the nearest bus stop, but no other critical facilities are within walking distance.

**Buchanan** is not well located from a walkability standpoint. However, the closest police and fire stations are 1.5 miles from Buchanan, enabling quick response times. There is a grocery store 1.1 miles away and the elementary school that also serves as an emergency shelter is 1.8 miles walking. The nearest high school, middle school and medical facility are not within walking distance.

Regarding NCCDI’s housing investments in Lumberton, we find that (see map in Figure 6):

**First Baptist Homes** provides affordable housing for individuals over the age of 62. As a result, proximity to schools is less important. It is important that the middle school which serves as an emergency shelter is 0.3 miles away. There is a grocery store 0.7 miles and an elementary school and police station 0.6 miles from the site. Medical services are 2 miles away.

**Griffin Park** has a grocery store nearby (0.5 miles). A number of critical facilities are just over a mile away, including an emergency shelter (1.2 miles) and a medical facility (1.1). The nearest fire station is 4.1 miles away.

**Affordable units developed outside flood zones**

Programs supporting both affordable housing and improving resilience should build new units outside of flood hazard areas. Doing so limits the potential damage from flooding, offers renters reduced flood insurance rates, and reduces the need to evacuate. NCCDI funds supported new construction in Fayetteville at Lafayette Park and in Lumberton at Griffin Park (see Figure 8 for a map of the Lumberton floodplain and Figure 9 for a map of the Fayetteville floodplain).

**Lafayette Park** was built outside of but adjacent to a 500-year flood zone. Access to the complex is outside the flood zone. There does not appear to be any additional features beyond the local building code that provide increased resilience to the structures or the property.

**Griffin Park** was built outside of but adjacent to a 100-year flood zone. Access to the complex is outside the flood zone but part of the parking area is in the flood zone. There does not appear to be any additional features beyond the local building code that provide increased resilience to the structures or the property.

**Affordable units rehabilitated outside flood zones**

Rehabilitation of existing units is a little more complicated. Many affordable housing units in North Carolina are in flood hazard areas because that is where the cheapest land can often be found. Ideally, if funding allows, rehabilitation of affordable housing units will include measures to increase resilience and provide better protection from hazards. Activities could include elevating the structure and/or heating and air conditioning systems and duct work, floodproofing, and construction techniques that strengthen the structural integrity of the building. These activities, particularly elevating the structure, would significantly delay occupancy of the units. Since one of the goals of this
Figure 5: Proximity to critical community facilities (Fayetteville)
Figure 6: Proximity to critical community facilities (Lumberton)
Figure 7: Distance from each NCCDI-supported housing investment to closest critical community facility. Green cells indicate facility is within a reasonable walking distance.

<table>
<thead>
<tr>
<th>Community facility:</th>
<th>Fayetteville</th>
<th>Lumberton</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Lafayette Park</td>
<td>Creeks Edge</td>
</tr>
<tr>
<td>High school</td>
<td>0.3</td>
<td>2</td>
</tr>
<tr>
<td>Middle school</td>
<td>0.2</td>
<td>3.3</td>
</tr>
<tr>
<td>Elementary school</td>
<td>0.3</td>
<td>0.6</td>
</tr>
<tr>
<td>Fire station</td>
<td>1.3</td>
<td>2.3</td>
</tr>
<tr>
<td>Police station</td>
<td>5.3</td>
<td>4.5</td>
</tr>
<tr>
<td>Hospital</td>
<td>5.1</td>
<td>4.3</td>
</tr>
<tr>
<td>Emergency shelter</td>
<td>1.8</td>
<td>0.6</td>
</tr>
<tr>
<td>Transit station</td>
<td>0.5</td>
<td>0.9</td>
</tr>
<tr>
<td>Grocery store</td>
<td>0.5</td>
<td>1.8</td>
</tr>
</tbody>
</table>
program was quickly making affordable housing available to disaster victims, elevation was not a viable option.

**First Baptist Homes** comprises four buildings. Two of the buildings are in the 100-year flood zone and two are in the 500-year flood zone. The size of the buildings and the slab on grade construction make it cost prohibitive to elevate the structures. There does not appear to be any additional features beyond the local building code that provide increased resilience to the structures or the property.

**Creeks Edge Townhomes** are in the 100-year flood zone. Two buildings with four units each were rehabilitated. The size of the buildings make it cost prohibitive to fully elevate the structures; however, the property owner reported all HVAC systems were placed on new platforms to elevate them above the flood line. Otherwise, there does not appear to be any additional features beyond the local building code that provide increased resilience to the structures or the property.

**The Buchanan home** is a single-family home located in the 500-year flood zone. There does not appear to be any additional features beyond the local building code that provide increased resilience to the structures or the property.

**Land acquired for land banking outside flood zone**

Of the 58 parcels acquired for land banking, two were partially located within the 100-year flood zone and six were partially located within the 500-year flood zone (see Figure 10). Thus, 86 percent of the parcels were located completely outside the floodplain. Ten of the 58 properties (with a total of 26 housing units) were retrofitted and/or inhabited by tenants. None of these 10 properties are in a flood hazard area. Maintaining social networks in communities is an important part of resiliency, especially for low-income households who rely on neighbors and family for support and assistance. The land banking should help stabilize two neighborhoods in Rocky Mount that are susceptible to gentrification and neighborhood change that could disrupt these networks and compromise resiliency.

**Community Impacts**

As discussed above, evaluating the impacts of efforts to increase resiliency are difficult in the short run, as many of the benefits of increasing resiliency are only visible following a subsequent disaster. However, in a potential future evaluation of NCCDI’s Hurricane Matthew recovery work, we would hope to evaluate short- and medium-term impacts of efforts to improve resiliency.

Some short-term impacts like making key public facilities less vulnerable to natural hazards and accessible and operational quickly after a disaster will positively impact resiliency but are outside the scope of these NCCDI projects. However, increasing the number of affordable housing units in a community or reducing stress through residents feeling less vulnerable to flooding and hurricanes will have an immediate effect.

In the medium-term, households relocated outside the floodplain will be at lower risk from flooding. There are a host of benefits from living outside the floodplain, particularly for low-income families. Benefits include health and safety improvements and fewer disruptions (including financial costs) related to flooded property or missing work due to property damages. In addition, relocated households should pay lower premiums for flood insurance.

If fewer low-income households live in the floodplain, long-term community impacts will include reduced disaster recovery needs and expenses as well as improvements to mental and physical health and overall quality of life. If fewer residents are impacted by disasters, communities will recover faster and with less costs.
Figure 8: Location of housing relative to floodplain (Lumberton)
Figure 9: Location of housing relative to floodplain (Fayetteville)

Lafayette Park
72 Units
New Construction

Creeks Edge Townhomes
8 Units
Renovated
Figure 10: Location of Rocky Mount land bank properties relative to floodplain
**Conclusions**

As noted previously, at this early stage it is impossible to know the medium- or long-term impacts of NCCDI’s work. Overall, NCCDI’s efforts positively contribute to increased community resilience in Lumberton, Fayetteville and Rocky Mount by increasing the number of affordable housing options located outside the floodplain and within walking distance of some critical facilities. In the short term, the availability of 144 new affordable housing units outside the floodplain provides safe and healthy accommodations to many disaster victims and low-income households, helping them recover more quickly from the impacts of Hurricanes Matthew and Florence. The newly constructed units are located close to some critical facilities that will make it easier for the residents if a disaster were to impact their community.

By increasing these residents’ ability to access important services, the communities can direct their efforts and resources towards other more pressing needs and the residents can spend less time getting to critical locations like school, medical appointments or the grocery store.

In the medium- to longer-term, residents will benefit from living outside the floodplain in several ways:

- Reduced risks and financial costs from natural hazards will result in improved economic and health outcomes. Low-income households typically have a hard time meeting their financial obligations on a monthly basis and the financial impact from having to replace property damaged from flooding is devastating for many. Some people must take time off from work to deal with flood damage and for low-income people, this almost always results in lost wages and in some cases, they may lose their jobs.

- Flood insurance premiums are lower for units outside the floodplain. Although low-income households are less likely to have flood insurance, if they want to get coverage, premiums are much lower if you live outside the floodplain.

- Reduced risk will lead to lower stress levels which improve mental and physical health. Many studies have documented the negative impact disaster related stress has on people, both in terms of mental and physical health. Lower stress levels from living in a safer, more affordable housing will translate into better health outcomes.

- Living outside the floodplain will reduce the impacts of any flooding that may occur. These reduced impacts will contribute to improved living conditions. Housing be less likely to contain mold or contaminants, or creatures brought in with the floodwaters. Households will be much less likely to lose living space to flood damages as well, which means they can continue to use all the rooms in a home, reducing overcrowding and potential problems associated with overcrowding.

- For children, disasters often negatively impact their education. The stability of housing outside the floodplain or being within walking distance of school provides a more resilient environment for children and their families.
Economic Development

The third goal of NCCDI’s disaster recovery work is to promote economic development in communities affected by Hurricane Matthew. To do so, it has leveraged funding from the North Carolina Emergency Management against private capital to construct and rehabilitate affordable housing in affected communities. Leveraging funding can help NCCDI both stabilize the economies of affected communities and generate future economic growth.

This penultimate section of the report evaluates NCCDI’s Hurricane Matthew recovery work in light of its economic development impacts. We first review programmatic outputs provided by NCCDI before turning our attention to estimating the economic impact of NCCDI-supported housing on their respective surrounding communities.
Programmatic outputs

Based on figures provided by NCCDI, we report the following programmatic outputs related to economic development (see Table 1):

- NCCDI has expended $1,350,050 in funding to support the rehabilitation, redevelopment, and new construction of affordable housing in flood-affected communities. Of that figure, $830,050 are grants to affordable housing and $520,000 are loans. The total figure represents approximately $5,400 invested by NCCDI per unit.

- Grants and loans provided by NCCDI have been leveraged against $20,920,170 in private-capital investments.

- Given these figures, NCCDI has leveraged state funds at a $15:$1 ratio against private investment. That is, for every $1 that NCCDI has contributed to grants or loans for a project, $15 in private investment has been spent.

Short-term community impacts

The construction of affordable housing has economic impacts that extend beyond dollars spent on construction. Analyzing these impacts is often done through ‘input/output’ models, which use ‘inputs’ like investments to measure ‘outputs’ like economic development.

The idea behind input/output models is that investments—for instance, building affordable housing—have economic impacts beyond the dollars invested. So, for instance, if a developer builds 100 affordable housing units using $10 million in funding, the economic benefits will extend beyond that $10 million.

What are those economic benefits? For one, the developer will have to pay taxes and fees to local governments, which can then be used to support other public functions. More importantly, though, some of the construction funding will be paid to local construction workers. The construction workers will then spend some of their earnings at local stores and restaurants. Those businesses, in turn, will have greater earnings that they can use to invest in themselves, hire additional workers, or utilize for some other purpose. Ultimately, this can lead a virtuous cycle of economic development for local communities.

Table 1: Financial figures for NCCDI-supported housing

<table>
<thead>
<tr>
<th>Name of Project</th>
<th>Location</th>
<th>Units</th>
<th>Grant Amount</th>
<th>Loan Amount</th>
<th>Leverage Amount</th>
<th>Leverage Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Baptist Homes I and II</td>
<td>Lumberton</td>
<td>81</td>
<td>$430,050</td>
<td>$0</td>
<td>$1,872,405</td>
<td>$1 : $4.35</td>
</tr>
<tr>
<td>Griffin Park</td>
<td>Lumberton</td>
<td>72</td>
<td>$150,000</td>
<td>$150,000</td>
<td>$8,922,573</td>
<td>$1 : $29.74</td>
</tr>
<tr>
<td>Smith-Osbourse</td>
<td>Fayetteville</td>
<td>8</td>
<td>$47,500</td>
<td>$47,500</td>
<td>$14,854</td>
<td>$1 : $0.16</td>
</tr>
<tr>
<td>Buchanan</td>
<td>Lumberton</td>
<td>1</td>
<td>$22,500</td>
<td>$22,500</td>
<td>$10,000</td>
<td>$1 : $0.22</td>
</tr>
<tr>
<td>Lafayette Park</td>
<td>Fayetteville</td>
<td>72</td>
<td>$150,000</td>
<td>$300,000</td>
<td>$8,551,214</td>
<td>$1 : $19</td>
</tr>
<tr>
<td>St. Johns</td>
<td>Wilson</td>
<td>16</td>
<td>$30,000</td>
<td>$0</td>
<td>$1,549,124</td>
<td>$1 : $51.64</td>
</tr>
<tr>
<td>Total</td>
<td>-</td>
<td>250</td>
<td>$830,050</td>
<td>$520,000</td>
<td>$20,920,170</td>
<td>$1 : $15.5</td>
</tr>
</tbody>
</table>
**Measuring short-term impacts**

When measuring the economic impacts of affordable housing construction and rehabilitation, we can divide the effects into three ‘phases.’ Phase I comprises the construction process, including the hiring and employment of construction workers and the payment of permit and utility access fees. Phase II includes the impacts of spending related to the economic impacts of Phase I; i.e., construction workers using their earnings to take their families to local restaurants. Phase III comprises the economic impacts once families have moved into the newly constructed or rehabilitated housing.

Broadly, affordable housing construction can have four types of employment impacts on a community:

**Phase I:** Jobs created directly by the construction or rehabilitation of housing, primarily in construction (direct effects).

**Phase II:** Jobs created by spending of wages earned through the direct effects—for example, a construction working taking his family out to eat.

**Phase III:** Jobs supported by the families that reside in the newly constructed or rehabilitated housing. For example, the residents who occupy that housing will patronize local businesses.

Affordable-housing construction and rehabilitation also has three types of impacts on local government revenues:

**Phase I:** Construction-related fees paid for permitting and utility access (one-time fiscal benefit).

**Phase II:** Taxes paid by those whose jobs were created by the construction (one-time fiscal benefit).

**Phase III:** Taxes paid by families that reside in the newly constructed or rehabilitated housing (ongoing fiscal benefit).

**Estimating short-term impacts**

The National Association of Home Builders (NAHB) has developed two models for estimating the economic impacts of constructing affordable housing through the Low-Income Housing Tax Credit program. These models apply to housing constructed for families (i.e., the non-elderly) and for elderly residents\(^{20}\) and have been used nationwide to estimate the impact of affordable housing construction.

The NAHB identifies the following types of economic benefits produced by affordable housing construction:

- **Local income** (which includes business owners’ income and local wages and salaries)
- **Local taxes**
- **Local jobs supported**

For this analysis, we apply the NAHB’s methodology to the affordable housing units whose construction or rehabilitation was funded, at least in part, through NCCDI funding. The period covered by our estimates extends from the time the permitting process begins to one year after the housing is occupied.

As with all estimates, in creating these we make several assumptions. For one, we estimate that the economic impacts of rehabilitated housing are the same as new construction. Given the devastation of much of the housing whose rehabilitation was funded by NCCDI, we find this assumption plausible, though it’s possible we overestimate the economic impacts in Phases I and II. It’s also possible that the taxes and fees paid for rehabilitated housing are less than those paid for new construction.

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\(^{20}\) The reason for the two models? Elderly housing units tend to be smaller, which reduces construction costs and the number of laborers required to build the housing. But after the housing is built, elderly individuals tend to spend more money locally, especially in terms of medical care (and their spending in medical care is augmented by Medicare payments into the community).
The second assumption we make is that, absent NCCDI funding, the projects it funded would not have been completed. Developers used NCCDI funding for different purposes; for some it comprised the bulk of funding while for others it was used as gap financing to cover delays in construction. Thus, we are unable to know whether the projects would have been completed without NCCDI funding, and we assume that all the projects would not have been completed.

Using the NAHB models, we find that, from the time the permitting process begins to one year after the housing is occupied, projects funded by NCCDI in Robeson County have generated an additional $15 million in local income and supported a total of 206 jobs. Among those jobs, 24 will be supported into the future. Housing construction and rehabilitation supported by NCCDI also contributed over $1.8 million in taxes and fees to local and state governments.

We find that housing construction and rehabilitation supported by NCCDI in Cumberland County amounts to, after one year, over $8.2 million in additional local income, including nearly $5.5 million in additional local wages and salaries. Construction and rehabilitation activity will support 122 jobs in the county, of which 24 will continue into the future. Finally, the construction and rehabilitation will add over $1 million in tax revenue to local jurisdictions’ coffers.

In Summer 2019, a property against which NCCDI leveraged funding in Wilson closed that will offer 16 units of housing (without any restrictions for the elderly). Given how recently this transaction closed, we were unable to complete any interviews with residents or developers, but we are able to project its economic impacts in Wilson County. To that end, we estimate that it will result in over $1.5 million in local income through the first year of occupancy, and $186,000 in local taxes and fees. Furthermore, it will contribute 19 jobs to the local economy.

Summing up the impacts in Robeson, Cumberland, and Wilson Counties, NCCDI-supported affordable housing construction and rehabilitation will result in over $8.2 million in increased local income through the first year of occupancy, including $16.7 million in increased local wages and salaries and over $3 million in local taxes. It will also lead to 346 jobs created, of which 49 will continue beyond the first year of occupancy.

Of course, as with all estimates, we have made several assumptions in developing them. For one, we assume that the economic benefits of new construction and rehabilitation are the same. It is possible that the local income and taxes generated from rehabilitation are less than that of new construction. Second, we have assumed that the projects supported with NCCDI funding would not have been built without such funding.
### Table 2: Robeson County economic impacts from NCCDI-supported affordable housing construction and rehabilitation

<table>
<thead>
<tr>
<th>Robeson County impacts</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local income</td>
<td>$7,876,938</td>
<td>$3,809,369</td>
<td>$3,569,925</td>
<td>$15,256,232</td>
</tr>
<tr>
<td>Local business owners' income</td>
<td>$2,148,882</td>
<td>$1,259,728</td>
<td>$1,580,906</td>
<td>$4,989,516</td>
</tr>
<tr>
<td>Local wages and salaries</td>
<td>$5,727,999</td>
<td>$2,549,803</td>
<td>$1,988,954</td>
<td>$10,266,756</td>
</tr>
<tr>
<td>Local taxes</td>
<td>$742,931</td>
<td>$481,870</td>
<td>$641,880</td>
<td>$1,866,681</td>
</tr>
<tr>
<td>Local jobs supported</td>
<td>119</td>
<td>62</td>
<td>24</td>
<td>206</td>
</tr>
</tbody>
</table>

### Table 3: Cumberland County economic impacts from NCCDI-supported affordable housing construction and rehabilitation

<table>
<thead>
<tr>
<th>Cumberland County impacts</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local income</td>
<td>$4,254,000</td>
<td>$2,057,200</td>
<td>$1,908,240</td>
<td>$8,219,440</td>
</tr>
<tr>
<td>Local business owners' income</td>
<td>$1,160,400</td>
<td>$680,240</td>
<td>$917,440</td>
<td>$2,758,080</td>
</tr>
<tr>
<td>Local wages and salaries</td>
<td>$3,093,360</td>
<td>$1,376,960</td>
<td>$990,640</td>
<td>$5,460,960</td>
</tr>
<tr>
<td>Local taxes</td>
<td>$400,960</td>
<td>$260,000</td>
<td>$352,800</td>
<td>$1,013,760</td>
</tr>
<tr>
<td>Local jobs supported</td>
<td>64</td>
<td>34</td>
<td>24</td>
<td>122</td>
</tr>
</tbody>
</table>

### Table 4: Wilson County economic impacts from NCCDI-supported affordable housing construction and rehabilitation

<table>
<thead>
<tr>
<th>Wilson County impacts</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local income</td>
<td>$789,168</td>
<td>$381,664</td>
<td>$361,216</td>
<td>$1,532,048</td>
</tr>
<tr>
<td>Local business owners' income</td>
<td>$215,312</td>
<td>$126,224</td>
<td>$146,912</td>
<td>$488,448</td>
</tr>
<tr>
<td>Local wages and salaries</td>
<td>$573,888</td>
<td>$255,472</td>
<td>$214,320</td>
<td>$1,043,680</td>
</tr>
<tr>
<td>Local taxes</td>
<td>$74,480</td>
<td>$48,320</td>
<td>$63,200</td>
<td>$186,000</td>
</tr>
<tr>
<td>Local jobs supported</td>
<td>12</td>
<td>6</td>
<td>1</td>
<td>19</td>
</tr>
</tbody>
</table>

### Table 5: Combined Robeson, Cumberland, and Wilson County economic impacts from NCCDI-supported affordable housing construction and rehabilitation

<table>
<thead>
<tr>
<th>Total</th>
<th>Phase I</th>
<th>Phase II</th>
<th>Phase III</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local income</td>
<td>$12,920,106</td>
<td>$6,248,233</td>
<td>$5,839,381</td>
<td>$25,007,720</td>
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<tr>
<td>Local business owners' income</td>
<td>$3,524,594</td>
<td>$2,066,192</td>
<td>$2,645,258</td>
<td>$8,236,044</td>
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<tr>
<td>Local wages and salaries</td>
<td>$9,395,247</td>
<td>$4,182,235</td>
<td>$3,193,914</td>
<td>$16,771,396</td>
</tr>
<tr>
<td>Local taxes</td>
<td>$1,218,371</td>
<td>$790,190</td>
<td>$1,057,880</td>
<td>$3,066,441</td>
</tr>
<tr>
<td>Local jobs supported</td>
<td>195</td>
<td>102</td>
<td>49</td>
<td>346</td>
</tr>
</tbody>
</table>
Conclusion

Affordable housing construction and rehabilitation has numerous economic impacts on a community both during and after the construction/rehabilitation period. During construction, the economic benefits stem from taxes and fees paid to support the construction as well as through wages paid to construction workers. Those workers then take their earnings and invest them into the local economy by buying goods and services from local businesses. After the units are occupied, residents will continue to support local businesses, thus providing economic benefits many years into the future.

Using models developed by the National Association of Home Builders, we have estimated that the construction and rehabilitation of affordable housing supported by NCCDI will result in over $25 million in increased local income and $3 million in taxes and fees paid through the first year of occupancy. Furthermore, the construction and rehabilitation activity will support 346 jobs in Robeson, Cumberland, and Wilson Counties, of which 49 will continue beyond the first year of occupancy.

Rocky Mount Mills
Conclusions and Recommendations

This report has provided a baseline evaluation of programmatic outputs and short-term community impacts for the NCCDI’s Hurricane Matthew recovery efforts. The evaluation itself is grounded on a logic model that identifies three domains that NCCDI’s work will impact: housing stability, community resiliency, and economic development. In developing the evaluation, we have relied on analysis of NCCDI-provided data, interviews with key stakeholders including developers and residents of NCCDI-supported properties, spatial analysis of the proximity of NCCDI-supported housing to critical community facilities and the floodplain, and projections related to the economic impact of affordable housing in affected communities.

We find that NCCDI recovery efforts have positively impacted the stability of affordable housing across five eastern North Carolina counties. In the short term, the construction and rehabilitation of 250 affordable housing units has increased the safety, stability, and quality of life of many eastern North Carolina residents. In the longer term, acquisition of 57 land-banked properties in Rocky Mount will help to ensure affordable housing stability as development increases in the area. Developers and property owners agree that working with NCCDI was expedient and came with low administrative burden while many were facing significant funding and construction issues following Hurricane Matthew. Ultimately, NCCDI efforts have helped create and restore housing communities that residents overwhelmingly would recommend to their friends and families.

We also find that NCCDI’s efforts have positively contributed to increased community resilience in storm-affected communities by increasing affordable housing options located outside the floodplain and within walking distance of some critical community facilities. In the short term, the availability of 144 new affordable housing units outside the floodplain will provide safe and healthy accommodations to low-income households—including many displaced by Matthew—thus speeding their recovery. Furthermore, the newly constructed units are located close to some critical facilities that will facilitate access for residents without access to a reliable vehicle and will make it easier for residents if a disaster were to impact their community.

Utilizing a model developed by the National Association of Home Builders (NAHB), we find that the housing in which NCCDI has invested has and will generate significant economic returns to flood-affected communities through the construction process and into the first year of occupancy. Collectively, we estimate that the rehabilitation and construction of affordable housing will result in over $25 million in local income, of which approximately $17 million will accrue to workers and $8 million will accrue to business owners. We estimate that housing investments will also generate over $3 million in taxes and fees to local governments and create 346 jobs, of which 49 will continue beyond the first year of occupancy.
While the primary goal of this project has been to evaluate the NCCDI’s Hurricane Matthew recovery work to date, we have generated the following recommendations and best practices not only for NCCDI as it continues its work, but for state officials as they respond to future disasters:

- NCCDI should continue to focus efforts on increasing affordable housing stability in disaster-prone areas of North Carolina. This includes supporting the construction and rehabilitation of safe, well-constructed housing units that allow residents to create communities and increase their quality of life.

- NCCDI should increase the marketing of its lending programs so that they are more commonly known to developers and property owners. While developers and owners we interviewed greatly appreciated funding from NCCDI, some of them only heard of it through a chance encounter. Given the stated benefits of obtaining funding from NCCDI, the availability of such funding should be widely marketed.

- While not always feasible, NCCDI should prioritize investing in housing that is located outside the floodplain and within a mile of critical community facilities like police and fire stations, schools, hospitals, and potential emergency shelters.

- Given the significant economic impacts of investing in affordable housing, NCCDI and the state should continue efforts to rebuild and develop new affordable housing as soon as possible following a disaster. Furthermore, those efforts should be spread broadly throughout affected areas so that many places are able to reap the benefits of affordable housing construction.

Notes and Citations

1. https://www.weather.gov/ilm/matthew
4. NCCDI Memorandum of Agreement with North Carolina Department of Public Safety
5. While we have not independently verified these figures, we have reviewed them and find them all plausible.
14. NCEM Hurricane Matthew Resilient Recovery Plan
15. NCEM presentation
16. Nash and Edgecombe County Real Estate Records
19. Fire stations, schools, emergency shelters, hospitals, and police stations