



STAYING HOME

An Evaluation of North Carolina's
Urgent Repair Program

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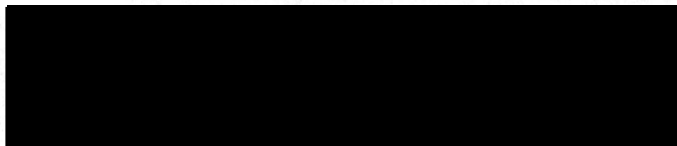
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Executive Summary

Among other programs of the North Carolina Housing Finance Agency (NCHFA), the Urgent Repair Program (URP) finances home repairs and modification for low-income households with special needs. URP aims to improve quality of life and choice for individuals who might otherwise have to endure substandard, unsafe housing conditions or enter institutional care settings.

This evaluation assesses the program's outcomes and impact in three areas: (1) effectiveness, or how well URP prevents displacement and improves quality of life for participants; (2) spatial equity, or how the geographic distribution of URP investment compares to the distribution of need; and (3) cost efficiency, or how the program's public costs compare to its public benefits. Participant surveys, GIS mapping, and cost/benefit analysis were used to evaluate URP's performance in these three areas, respectively.

Findings revealed that URP has largely succeeded at improving participants' quality of life, addressing spatially concentrated need, and creating savings to public health insurance systems:

- Overall satisfaction with URP among surveyed participants was 90.7%;
- URP is highly active in 76% of the counties with high proportions of eligible households; and
- Every \$1 of URP funding could save up to \$19 of Medicaid/Medicare spending.

Recommendations for improving the program include:

- Improving program administration guidelines regarding project monitoring, quality control, and communication among local administrators, applicants/participants, and contractors;
- Increasing outreach to potential local program administrators in six underserved, high-need counties (Alleghany, Ashe, Beaufort, Bladen, Chatham, and Jones); and
- Coordinating with the North Carolina Department of Health and Human Services to enhance the provision of publicly-funded home and community-based long-term care services.

Overall, this study provides evidence of URP's positive statewide impact and fiscal cost effectiveness, supporting the program's popularity and its important role in advancing opportunities for community living and aging in place for North Carolinians.

Contents

Executive Summary	1
Introduction	3
Background	4
Housing Challenges Facing Senior Homeowners	4
Programs to Assist Senior Homeowners	6
Evaluation Metrics and Methods	8
Effectiveness	8
Spatial Equity.....	9
Cost Efficiency.....	10
Findings	11
Effectiveness	11
Equity	14
Cost Efficiency.....	15
Discussion & Recommendations.....	17
Effectiveness	17
Spatial Equity.....	18
Cost Efficiency.....	19
Conclusion	20
References	21
Appendix.....	24

Introduction

The North Carolina Housing Finance Agency (NCHFA) is the state entity responsible for providing affordable housing opportunities for North Carolinians whose housing needs are not met by the private market. One of its best-loved and longest running programs is the Urgent Repair Program (URP), which finances home repairs and modifications for low-income households (that include at least one member who is elderly, disabled, or otherwise suffers severe mobility impairments) so that those households can continue living safely in their homes. The program aims to keep some of the most vulnerable North Carolinians from being forced to leave their homes and enter institutional care. The degree to which URP truly achieves this end, however, is hard to confirm, as the primary evaluation metrics for URP have been intermediary outputs (e.g., number of units repaired) rather than actual outcomes (e.g., number of households who have avoided displacement or experience other quality of life improvements).¹ Some preliminary investigation into the program's potential impacts has been conducted, but more rigorous assessment, better tailored to the context of North Carolina and including data from beneficiaries of the program, is achievable and potentially necessary for the program's continued operation. Over the past decade, the North Carolina General Assembly's appropriations to the state Housing Trust Fund, which funds URP, have decreased by 60%, heightening the need for robust and compelling program evaluation. Program funding is often contingent on perceived value, demonstrated through concrete, measurable outcomes.² Assessing the actual outcomes and impacts of URP could provide firm evidence in support of continued program funding.

This study begins to fill this evaluation gap by examining several measures of the outcomes and fiscal impact URP has had on the state, counties, and people of North Carolina over the past decade. Most program evaluations done by state housing finance agencies are based solely on economic impact. They typically use input-output models, a quantitative method for demonstrating economic interdependencies within a given region. These studies generally highlight programs that stimulate new residential construction or substantial redevelopment, since these activities require the most spending and generate the most wages and jobs.³ Because URP is a relatively low-spending program, this evaluation model is not suited to measuring the program's true impact. In order to provide a more complete picture of the program's performance, it is necessary to move beyond the traditional economic impact approach and examine other aspects of program function and outcomes. Providing evidence from a detailed evaluation of this program may improve the accuracy of its valuation by the General Assembly and demonstrate the need for stable funding. Furthermore, the evaluation methodology used expands the boundaries of traditional economic impact modeling favored by state housing finance agencies and provides a model for evaluating housing programs with hard-to-measure outcome goals.

First, this study explores the context surrounding the housing challenges facing senior and/or disabled homeowners and programs designed to address these challenges. Next, the study describes the evaluation metrics and methods used to assess the outcomes and impacts of North Carolina's Urgent Repair Program. The paper concludes with a presentation of findings and discussion of recommendations for the program moving forward.

¹ Mills-Scofield, 2012

² Cartwright, 2007

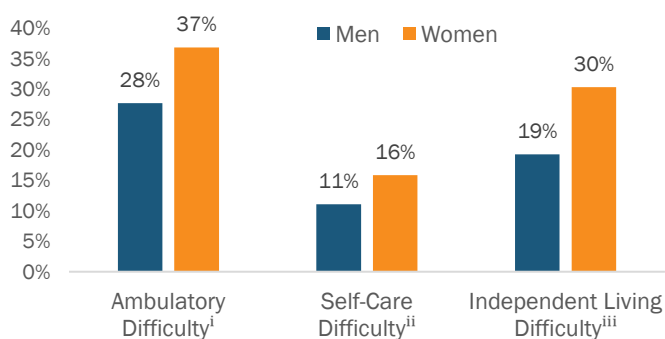
³ Wood, 2012

Background

Housing Challenges Facing Senior Homeowners

The United States housing market does not adequately meet the financial and physical needs of many elderly adults. As a result, many senior homeowners (particularly low- and fixed-income individuals) are unable to remain in their homes for their entire lifespans, and must enter institutional care. Considering that the population segment over age 50 is projected to grow by 20% in the next 15 years, senior housing needs should be a top priority.⁴ More than a third of adults over age 50 are cost-burdened, meaning they pay over 30% of their income on housing expenses, with the heaviest burden falling on adults age 80 and older.⁵ In fact, an increasing percentage of seniors are living in poverty due to accumulation of health issues with age (Fig. 1) and rising medical costs over the past decade.⁶ In other words, most people are both paying for more frequent doctor visits as they age, and paying a higher price per visit—with dollars that could otherwise be put toward housing.

FIGURE 1. Disability rates in adults over 75 in 2015.



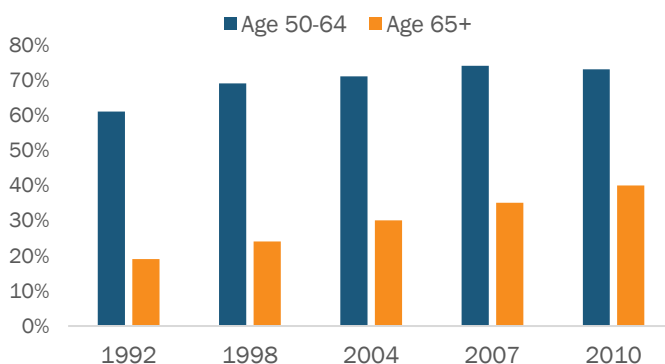
ⁱ Serious difficulty walking or climbing stairs

ⁱⁱ Difficulty bathing or dressing

ⁱⁱⁱ Difficulty doing errands alone due to a physical, mental, or emotional problem

Source: U.S. Census Bureau, 2015

FIGURE 2. Percent of homeowners with mortgage debt.



Source: Joint Center for Housing Studies, 2014

As adults enter old age, and become less physically and financially able to maintain their homes, the burdens of homeownership can start to outweigh the benefits. Although monthly mortgage payments are usually lower than rents for comparable properties, and home equity is an important means of wealth accumulation, the financial responsibilities of paying property taxes, insurance, and maintenance costs can become unsustainable for older adults with fixed incomes. The burden has grown over the past 20 years as more adults have carried mortgage debt into their retirement years (Fig. 2).

Furthermore, most housing in the United States is designed for younger adults, and not suitable for seniors who struggle with mobility and manual dexterity.⁷ Although homebuilding trends are moving toward accessibility, most older homeowners are living in older homes, not new, aging-friendly ones.⁸ These older homes become even less habitable as they age and

⁴ Joint Center for Housing Studies, 2014

⁵ *Ibid.*

⁶ Brandon, 2012

⁷ Badger, 2014

⁸ *Ibid.*

require maintenance, which many senior homeowners are physically and financially unable to handle.

The impacts of these housing challenges are felt in many ways. A 2011 study found that adults who lived in homes they owned, as opposed to those who rent or live in institutional care, reported better mental health—an effect that increased as they aged.⁹ However, owning a home in disrepair without the means to fix it up was identified as a mental health stressor among owner-occupiers.¹⁰ Housing quality affects the physical health of older people as well, because susceptibility to illnesses associated with low temperatures and time spent in the home both increase with age.¹¹ Wealth differences add another layer of impact. In a recent case study, indoor home environments were found to differ more widely between poor and wealthy people than the surrounding neighborhood environment.¹²

Many elderly homeowners become so burdened by the costs of homeownership that they must leave their homes and enter institutional care. This decision often comes at a high price to their health and happiness, and to the public health insurance system. About 89% of adults prefer to age in place, or live in their homes for as long as possible rather than in assisted living facilities or nursing homes.¹³ This trend reflects not only individuals' quality of life preferences, but also financial considerations. Nationally, the cost of living in a long-term care facility averages somewhere between \$41,000 and \$85,000 per year, whereas the cost of in-home care is about \$30,000 per year.¹⁴ One side effect of North Carolina's low wages, particularly for caregiving professions, is an even lower cost of in-home care in the state—about \$22,000 per year.¹⁵ This suggests that allowing elderly and disabled people to stay in their homes longer can accrue cost savings of \$20,000 or more each year.

These savings not only benefit recipients of URP home repairs, but North Carolina taxpayers at large. When seniors enter institutional care, a large share of the cost is paid through Medicaid (40%), Medicare Post-Acute Care (23%) and other public sources (3%).¹⁶ Medicaid also funds in-home services through the Home and Community Based Services waiver, but at about a third of the cost of paying for care in a nursing home.¹⁷

Further adding to taxpayer burdens, there is a high rate of potentially avoidable hospitalizations (PAHs) among older adults living in institutional settings, leading to poor health outcomes and costly care.^{18,19} Many long-term care facilities transfer patients to hospitals in order to access Medicare Post-Acute Care funds, which have a higher reimbursement rate than Medicaid.²⁰ PAHs are particularly likely to occur among dual Medicare/Medicaid enrollees, who are, by definition, low-income seniors or people with disabilities. In 2009, the rate of PAHs was much higher among dual Medicare/Medicaid enrollees living in institutional care than among those living at home—comprising

⁹ Howden-Chapman et al., 2011

¹⁰ *Ibid.*

¹¹ *Ibid.*

¹² Lejeune et al., 2016

¹³ AARP, 2009

¹⁴ Reinhard et al., 2014

¹⁵ Freyer, 2016

¹⁶ Calmus, 2013

¹⁷ AARP, 2009

¹⁸ "Potentially avoidable hospitalizations" are defined as "hospitalizations that could have been avoided because the condition could have been prevented or treated outside of an inpatient hospital setting" (Segal et al., 2014)

¹⁹ Segal et al., 2014

²⁰ Calmus, 2013

almost half of all PAHs—and the average cost per person of a PAH, paid through Medicare/Medicaid, was \$8,783.²¹ Total national spending on long-term supports and services costs taxpayers about \$200 billion each year.²² Considering the increased likelihood of PAHs among the population that URP serves, investment in URP could have a big fiscal impact on Medicare and Medicaid spending.

It is important to acknowledge that avoiding institutionalization of low-income elderly and/or disabled homeowners has potential drawbacks for the workforce productivity and health outcomes of family caregivers. According to the AARP, 88% of long-term care is provided informally by uncompensated family members.²³ In 2009, the average amount of informal care provided per caregiver was 20.4 hours per week for 4.6 years, which add up to a total of 4,880 hours.²⁴ In the same year, median household income was \$45,069, which breaks down to an hourly wage of \$21.67.²⁵ Multiply these numbers, and the opportunity cost to an individual caregiver is estimated at over \$100,000. While family members may consider this cost the lesser of two evils compared to paying for a private nursing home, it is costlier to individuals than using Medicare or Medicaid dollars to pay for institutional care. Furthermore, one in four primary caregivers reports that caregiving negatively impacts their health; this rate is even higher among lower-income caregivers.²⁶ This suggests that some caregivers of elderly and/or disabled homeowners might avoid negative health outcomes if their family members transitioned into institutional care.

Despite the potential drawbacks of aging in place, all people, regardless of income or ability, should have the opportunity to choose between remaining in their homes or transitioning into institutional care. Unfortunately, U.S. housing markets do not often give low-income elderly and disabled homeowners this choice, and many must turn to public sector programs.

Programs to Assist Senior Homeowners

A variety of programs exist to address the financial and physical issues facing senior homeowners, including homeowner education and counseling, property tax payment assistance, intergenerational home sharing, and repair grants and loans.

While homeownership education is typically associated with first-time homebuyers, there are several programs geared toward long-time homeowners, like the National Council on Aging's "Your Home as A Strategic Asset" module, that cover topics like reverse equity mortgages, avoiding foreclosure, getting out of property tax debt, and intergenerational home transfer.^{27,28} In North Carolina, ten of the state's 78 HUD-approved housing counseling agencies offer reverse mortgage counseling.²⁹

Property tax assistance can take several forms, including property tax circuit-breakers and deferrals. In North Carolina, three property tax payment assistance programs exist. The Elderly or Disabled Property Tax Exclusion excludes the greater of the first \$25,000 or 50% of the assessed value of eligible homeowners' primary residences. The Circuit Breaker Tax Deferment Program limits annual property taxes to a percentage of eligible homeowners' incomes. The Disabled Veteran Property Tax

²¹ *Ibid.*

²² Reaves & Musumeci, 2015

²³ Calmus, 2013

²⁴ The SCAN Foundation, 2012

²⁵ U.S. Census Bureau, 2010

²⁶ Weber-Raley & Smith, 2015

²⁷ National Council on Aging, 2015

²⁸ Center for Community Progress, 2016

²⁹ HUD, 2017

Exclusion Program excludes up to the first \$45,000 of the appraised value of honorably discharged veteran homeowners' primary residences.³⁰

Intergenerational home sharing programs augment senior homeowners' incomes with rent from college student boarders, who also benefit from rents that are lower than university housing costs. These arrangements may also reduce social isolation among seniors, either by design or happenstance.³¹ One example of an intergenerational home sharing program is New York University's pilot initiative for fall of 2017 that will match students seeking affordable rents with nearby seniors who are willing to lease a spare room.³² Currently, no formal home sharing programs exist in North Carolina.

The programs with perhaps the most potential to directly alleviate both physical and financial burdens are repair grants/loans, which address "bricks and mortar" problems that are both physically and financially impossible for many older homeowners to fix. In North Carolina, NCHFA runs the Urgent Repair Program (URP), which finances emergency home repairs and modifications for elderly and/or special needs homeowners with incomes below 50% of area median income (AMI).³³ The program aims to address housing conditions that threaten life or safety and, but for the repairs or modifications, would force occupants to move out of their homes. NCHFA administers URP funds through local government and nonprofit partner agencies, who are responsible for implementing the program. The partners advertise the program (often names other than "Urgent Repair Program"), receive applications from interested homeowners, determine applicant eligibility, and contract for and supervise the work. Once applicants are approved, they receive a loan of up to \$8,000 to pay for the necessary repairs or modifications, which is deferred and forgiven at \$1,000 per year.

³⁰ OVMFinancial, Inc., 2015

³¹ Altus & Mathews, 2000

³² Smeltz, 2016

³³ NCHFA, 2017, Urgent Repair Program

Evaluation Metrics and Methods

Program evaluations may be grouped broadly into three types: process evaluations, which assess the degree to which a program is implemented as intended; outcome evaluations, which assess the degree to which a program achieves its intended effects on a target population; and impact evaluations, which assess a program’s overall effects and progress toward its ultimate goals.³⁴ This evaluation assesses the outcome and impact dimensions of URP’s function (Fig. 3).³⁵

FIGURE 3. Evaluation criteria used to assess URP’s outcomes and impacts.

	Criteria	Description
<i>Outcomes</i>	Effectiveness	How well does the program prevent displacement and improve quality of life of low-income elderly and/or disabled homeowners?
	Spatial Equity	How does the spatial distribution of program activity compare to the distribution of need?
<i>Impact</i>	Cost Efficiency	How do the program’s costs compare to its benefits?

Adapted from the National Collaborating Centre for Healthy Public Policy, 2012

Effectiveness (how well URP improves homeowners’ quality of life and prevents displacement from their homes) and spatial equity (how well program activity is distributed to meet the need) were examined to evaluate the program’s outcomes. Cost efficiency was analyzed to measure URP’s economic and fiscal impacts. The methods used to evaluate these metrics are described below.

Effectiveness

The purpose of URP is to address housing conditions that pose an imminent threat—to life, to safety, or of displacement—to elderly and/or disabled owner households by funding home repairs or accessibility modifications. The degree to which the program achieves this purpose, or its effectiveness, can be assessed by determining how well URP removes those threats. While NCHFA tracks URP projects in its database, the numbers reported (such as number of units repaired) are outputs, and do not necessarily translate directly into outcomes about housing condition improvement and displacement prevention.

To gain insight into these outcomes, a survey was developed and distributed to a random sample of 300 households who participated in URP between 2005 and 2015 (Appendix A).³⁶ The survey includes questions on demographics (gender, age, race/ethnicity, and disability status) and health insurance information; the effects of receiving URP repairs on participants’ and their loved ones’ daily lives; satisfaction with the program’s processes and outcomes (rated on a five-point Likert scale); and information on participants’ counties of residence and length of tenure in their homes.

³⁴ CDC, n.d.

³⁵ National Collaborating Centre for Healthy Public Policy, 2012

³⁶ Originally, the sample contained 200 URP participants; however, after two mailings of the survey yielded less than 30 responses, another 100 participants were added to the sample. In an effort to increase the response rate of the additional 100 households, each participant was vetted through voter records, White Pages, and other online resources to ensure that they were still living and that the address in NCHFA’s database was still correct. In cases where the participant was deceased, a new participant was randomly selected; when the participant’s address had changed, the survey was sent to their new address.

The 2005 to 2015 timeframe was selected to include some historical data, while recognizing that because most participating homeowners are elderly, many of those who received repairs more than ten years ago may have passed away. Cover letters and self-addressed prepaid envelopes for returning completed surveys were sent out with each survey (Appendix B), and contacts at local partner agencies were notified by email of NCHFA's outreach to homeowners for program evaluation purposes (Appendix C).

To measure effectiveness, quantitative data on participant satisfaction with the program were analyzed using descriptive statistics. Open-ended, written comments from survey responses were thematically coded using the qualitative data analysis software ATLAS.ti. Because participants' responses did not always correlate most closely with the survey questions to which they were responding, all written comments from a given participant were grouped as one unit (rather than broken out by question), and each participant's aggregated comments were analyzed to parse out themes.

Spatial Equity

Spatial equity, or how a program affects people differently across geographies, is increasingly used to evaluate programs and interventions through the use of geographic information systems (GIS) analysis.³⁷ For instance, the Piedmont Triad Regional Council of Governments in North Carolina has mapped income and housing stock data to identify neighborhoods for targeted marketing of a local single-family home rehabilitation program.³⁸ Spatial analysis can also reveal whether programs funded at the state (or higher) government level are effective across implementing localities.³⁹

In this study, NCHFA's geographic data on URP participants from 2005 to 2015 (i.e., the counties in which each repaired unit was located) were compared to public data from the American Community Survey⁴⁰ to analyze the degree to which actual URP activity aligned with theoretical targeting based on the spatial distribution of relevant demographic categories. Since URP eligibility is based on income, age and/or disability, and homeownership, these were the four demographic characteristics used to develop geographic targeting maps.

To be eligible for URP, households must be owner-occupied and earn less than 50% of the area median income (AMI) of the county in which they reside, as defined by the U.S. Department of Housing and Urban Development (HUD). Data on the number of owner-occupied households in each county earning less than 50% of AMI from HUD's Comprehensive Housing Affordability Strategy (CHAS) were used to identify counties that could be targeted for outreach and marketing of URP based on these criteria.⁴¹ URP eligibility criteria also require that households contain a member with special needs (i.e., age 62 or older, handicapped or disabled, a single parent, a child with elevated blood levels of lead, or large households of five or more). Because URP funds are most often used to assist elderly and/or disabled individuals, county-level data on the number of elderly and disabled residents were used to simplify targeting based on special needs criteria.^{42,43}

³⁷ Dalton et al., 2013; Clark & Maantay, 2006; Miranda et al., 2002

³⁸ Malinda Ford, workshop presentation, 2016, November 4.

³⁹ Koschinsky, 2013

⁴⁰ U.S. Census Bureau, 2016

⁴¹ HUD, 2016

⁴² U.S. Census Bureau, 2010, Decennial Census; U.S. Census Bureau, 2010, ACS

⁴³ Data on the total population and the population over age 65 in each county came from the 2010 Decennial Census, rather than more recent American Community Survey (ACS) 5-Year Estimate datasets, as those datasets did not have

Target counties were defined as those with (1) a greater proportion of owner-occupied households earning under 50% AMI than the median proportion for the state, (2) a greater proportion of owner-occupied householders over age 65 than the state median, or (3) a greater proportion of residents with disabilities than the state median.⁴⁴ Target counties were then ranked by the number of qualifying conditions they had, with highest priority counties being those meeting all three targeting conditions. ArcMap 10 was used to visualize the concentration of URP-funded units (from 2005 to 2015) within counties overlaid on the target county map in order to assess the degree to which URP activity matched up with geographic targeting based on demographics.

Cost Efficiency

Cost efficiency can be assessed through cost-benefit analysis, or comparison of a program's total costs with its benefits in quantifiable and monetized terms. In this study, costs and benefits were assessed using published data on cost of care and life expectancy, as well as information from survey responses from URP participants. Data from Genworth on the costs of long-term care, including home/community-based care (homemaker services, home health aides, and adult day health care) and institutional care (assisted living facilities and nursing homes), in different regions of the state were used to estimate potential public long-term care expenditures for URP participants.⁴⁵ Based on the counties of residence and health insurance type (e.g., Medicare, Medicaid, both) reported by survey respondents, long-term home and institutional care costs, and coverage of those costs by public health insurance systems, were estimated for each respondent. To estimate the length of care required, respondents' self-reported ages were compared to life expectancy data for their county, adjusted for sex and race (Appendix D).⁴⁶

Estimated Medicare/Medicaid costs of care from the survey sample were derived by multiplying the average per-person cost over an individual's projected lifetime (which was estimated by averaging the remaining life expectancies of sampled participants) by the number of homeowners who participated in URP between 2005 and 2015. This cost estimate was compared against NCHFA's spending on URP over the same period to determine the program's cost savings to Medicare/Medicaid. Details about the assumptions and calculations underlying the cost-benefit analysis are described in Appendix D.

complete information for all counties. Data on the population with disabilities came from 2010 3-Year ACS Estimates, due to a lack of data in more recent ACS datasets and the 2010 Decennial Census.

⁴⁴ Age 65 was used rather than 62 (as specified in URP eligibility requirements) due to the way age data are aggregated in the ACS (i.e., age categories are broken down 55 to 64; 65 to 74; 75 to 84; etc.)

⁴⁵ Genworth, 2016

⁴⁶ IHME, 2010; Arias, 2015

Findings

Effectiveness

Of the 300 surveys distributed, 80 (26.7%) were returned as undeliverable—many because the recipient was deceased, and some for other reasons, such as no mail receptacle was available outside the home. Adding an additional 100 participants to the original sample of 200, and looking up the added individuals prior to mailing the surveys (to correct changed addresses and replace individuals who were known to be deceased), improved the response rate of the third mailing. Ultimately, however, only 54 surveys (24.6% of those delivered) were returned with responses. Demographically, respondents were somewhat representative of the whole sample (Table 1). In both cases, black females made up the majority of the group, followed by white females, black males, and white males; however, the proportions of each age/sex group differed somewhat between the respondents and the sample. Also, a higher percentage of respondents indicated having a disability than the sample as a whole would suggest. However, no common definition of disability was used, which may explain some of this discrepancy.

TABLE 1. Demographics of survey sample (N = 300) and respondents (N = 54).

	Sample	Respondents
Black Females	40.8%	42.6%
White Females	31.1%	37.0%
Black Males	12.0%	5.6%
White Males	11.4%	7.4%
Females of Other Race	1.0%	3.7%
Males of Other Race	0.7%	0.0%
Race and Gender Unknown	0.0%	3.7%
Physically Disabled	56.7%	64.2%
Average Age	(no data)	71.5

Survey responses suggest that URP has been successful in keeping many participants in their homes. All but one respondent indicated that they still live in the homes that had received URP repairs, and respondents' average length of tenure in those homes was just under 30 years, which speaks to the program's value in preserving family assets. However, while many responses discussed various quality of life improvements resulting from URP repairs, none directly stated that URP prevented individuals from leaving their homes and entering institutional care.

Participant satisfaction with URP was high, with the vast majority of responses on each metric being somewhat or highly satisfied and an overall satisfaction rate of 90.7% (Table 2). Thirty of the 54 respondents (55.6%) indicated that receiving URP repairs had improved aspects of their daily lives, including comfort, health, mobility, and finances (Table 3). Seventeen respondents reported "other" effects; accompanying comments were qualitatively analyzed and, when

appropriate, reclassified under existing categories. Nine "Other" comments could be classified under existing categories (three under "Finances", three under "Stress", one under "Comfort", one under "Mobility – Within home", and one under "Mobility – In/out of home"). Three comments could be classified under existing categories, but they reinforced comments the respondents had already listed under those categories (one under "Health" and two under "Mobility – In/out of home"); to avoid duplication, these were not reclassified. Eight comments were left in the "Other" category: five described repairs performed without discussing their impacts, and three described negative experiences with URP.

TABLE 2. Participant satisfaction ratings, where 1 = Highly Dissatisfied, 2 = Somewhat Dissatisfied, 3 = Somewhat Satisfied, and 4 = Highly Satisfied (N = total count for each column).

	Program Outreach	Application Process	Relationship with Local Administrator	Repair Quality	Approval Promptness	Repair Promptness
Average	3.53	3.56	3.53	3.39	3.38	3.48
Median	4	4	4	4	4	4
Response Counts						
1	1 (2.1%)	2 (4.0%)	2 (4.1%)	4 (7.8%)	3 (6.0%)	2 (3.8%)
2	3 (6.4%)	3 (6.0%)	2 (4.1%)	4 (7.8%)	3 (6.0%)	5 (9.6%)
3	13 (27.7%)	10 (20.0%)	13 (26.5%)	10 (19.6%)	16 (32.0%)	10 (19.2%)
4	30 (63.8%)	35 (70.0%)	32 (65.3%)	33 (64.7%)	28 (56.0%)	35 (67.3%)
Total Count	47	50	49	51	50	52

TABLE 3. Areas of impact on homeowners' and loved ones' lives from URP repairs (N = 54).

	Mobility		Health	Safety	Comfort	Finances	Stress	Other
	Within home	In/out of home						
<u>Self-Reported</u>								
Count	7 (13.2%)	12 (22.6%)	14 (26.4%)	13 (24.5%)	16 (30.2%)	8 (15.1%)	6 (11.3%)	17 (32.1%)
<u>Additional Inferred from "Other" Category</u>								
Count	1	1			1	3	3	
Total Count	8 (15.1%)	13 (24.5%)	14 (26.4%)	12 (22.6%)	17 (32.1%)	11 (20.8%)	9 (17.0%)	8 (15.1%)

Participants' written responses described three primary areas of their lives that were positively impacted by URP repairs: (1) physical health, safety, and comfort; (2) financial security, and (3) mental health. Thirty-four of the 49 written responses described benefits of URP related to their households' physical health (e.g., patching roof leaks), safety (e.g., fixing faulty wiring), or comfort (e.g., making front steps easier to climb for people with knee problems).

"My knee has gotten worse and [without the repairs] I would really be having difficulties getting in and out of the house."

Sixteen responses described benefits related to financial security, such as having more money to spend on food, reducing their utility bills through window replacement, and protecting their physical assets by leak-proofing the house.

"Our home was going down bad... it sure did help a lot because I could not have done it financially."

Seven responses described benefits related to stress reduction. Two of these responses convey general peace of mind from having repairs addressed, two describe reduced anxiety surrounding financial and asset protection matters, and three describe reduced fear concerning physical safety in the home.

"Peace of mind knowing [my] home will not be destroyed. My only child, knowing he will always have a home."

Not all survey respondents were satisfied with URP, however. Thirteen participants reported being somewhat or highly dissatisfied with one or more of the six metrics on the Likert scale. Written comments detailing their experiences described dissatisfaction with the process of applying for and receiving assistance through the program and/or the quality of repairs. Some participants reported receiving repairs that did not sufficiently address the intended problems, or even exacerbated them, including failing to caulk around a newly installed window (forcing the homeowner to cover the window in plastic to keep out the cold), faulty repair of a heating unit resulting in high energy bills, and installing a new toilet incorrectly, resulting in water and mold damage to carpet and sheetrock. One participant even reported having to leave her mobile home and move in with a relative due to damage from poorly executed repairs. Another reported a fire resulting from faulty electrical work.

One respondent suggested that homeowners should be involved in selecting contractors "that we know would do a great job" and who would have greater accountability. Frustration with accountability was echoed by another respondent, who was unable to contact the HVAC technician who installed a new unit as part URP-funded repairs; when that unit malfunctioned, she had to hire someone else to fix it, at a very high price. Inconsistency in contractor quality was also echoed by another respondent, who had two separate contractors working on her home—one of which, she had a very negative experience with, and the other, a very positive one.

Some responses also expressed frustration with the process leading up to actual repairs, including year-long waitlists and non-responsive administrative staff and contractors. One participant wrote, "My heating unit went out last December. I applied for help. I haven't heard anything yet. I went the whole winter with no heat on the first floor." The comment went on to express understanding of program administrators' limited capacity, but suggested that administrators should better communicate expected wait times to applicants.

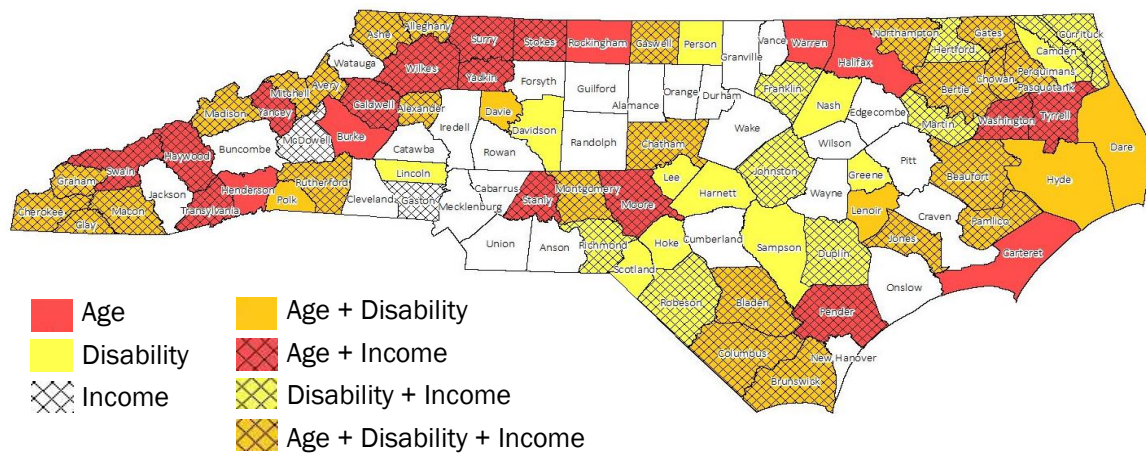
It is worth noting that most participants who reported negative experiences still expressed appreciation for being part of the program. One participant wrote, “It took a little time, but I am very pleased with what the guys have done in order for me to get in and out of my house a lot easier.” Another was happy with the roof repairs she received, but disappointed that the local program administrators ran out of funds before they could fix her floors as well.

Consistent with written feedback from respondents, the “Repair Quality” metric on the Likert scale had the highest count of dissatisfied ratings (Table 2). Similarly, the two “Promptness” metrics had the second-highest counts of dissatisfied ratings. Of the 11 respondents who described dissatisfaction in written comments, four reported dissatisfaction with only one aspect of their experience on the Likert scale (repair quality for two individuals, repair promptness for one, and program advertisement for another). Three were dissatisfied with two metrics (repair quality and repair promptness), another with three metrics (repair quality, approval promptness, and repair promptness), and two with all (or all but one) metrics.

Equity

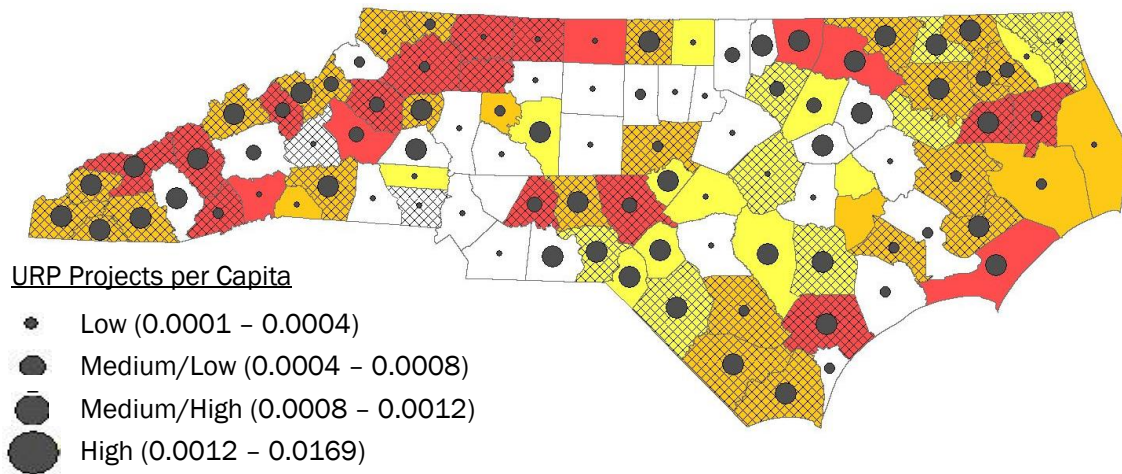
Spatial analysis revealed 25 counties that could be considered high targeting priorities for URP outreach based on their demographics. Figure 4 shows counties with median values above those of the state on three indicators: homeowners earning less than 50% of AMI, homeowners age 65 and older, and persons with disabilities, as well as combinations of these three criteria. The 25 counties with high proportions of all three criteria are primarily in the far western part of the state (Alexander, Alleghany, Ashe, Avery, Cherokee, Clay, Graham, Macon, Madison, Mitchell, and Rutherford) and the eastern part (Beaufort, Bertie, Bladen, Brunswick, Chowan, Columbus, Gates, Jones, Northampton, Pamlico, and Perquimans), with a few scattered in between (Caswell, Chatham, and Montgomery).

FIGURE 4. Counties with high need for URP projects based on age, disability, and income.



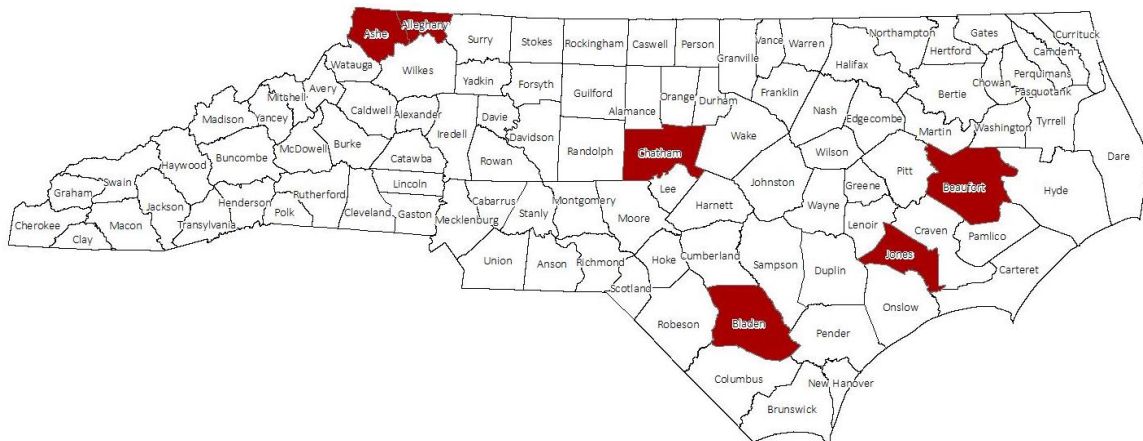
The spatial distribution of demographics indicating need for URP projects was overlaid with actual URP investment data from 2005 to 2015 (Fig. 5). The dark circles in Figure 5 represent the number of URP projects in each county during that timeframe, normalized by the county’s population; for example, Wake County had 236 URP projects and an estimated population of 900,993, so the county had 0.00026 projects per capita. These proportions were grouped into four categories—low, medium/low, medium/high, and high—based on the distribution of the data.

FIGURE 5. County URP need overlaid with actual URP projects per capita, 2005 - 2015.



Nineteen (76%) of the 25 high-priority counties identified in the targeting spatial analysis have had high or medium/high URP investment since 2005, indicating that the program is meeting much of spatially-concentrated need highlighted by demographic data. Six high-priority counties had low or medium/low scores: Ashe (which had the only low score), Alleghany, Beaufort, Bladen, Chatham, and Jones (all of which scored medium/low). These six counties could be prime places to increase marketing of URP (Fig. 6).

FIGURE 6. Potential counties in which to increase URP marketing and outreach.



Cost Efficiency

Between 2005 and 2015, URP provided an estimated cost savings of about \$550 million to the public health care system (Table 4). This cost savings was calculated by totaling program expenditures, or cost, during that period (\$28,698,962) compared to avoided public costs, or benefit (\$580,526,702). Subtracting cost from benefit yields a savings of \$551,827,740 (Table 4).

Public cost savings was calculated by estimating Medicare/Medicaid expenditures on long-term institutional care for each URP participant (\$118,878) and subtracting the corresponding public cost per person of long-term home/community-based care, which may be needed to replace institutional care (\$42,764), yielding a total cost of \$76,115 per person (Table 4). Per-person costs of long-term institutional and home care were derived by discounting the average annual Medicare/Medicaid

expenditures per person (\$24,272 for institutional care and \$8,914 for home care) by 0.6% (per federal guidelines) over 4.68 years, the average life expectancy of URP participants (Appendix D).^{47,48}

TABLE 4. URP cost savings analysis.

Public Cost Estimates		
<i>Institutional Care</i>		
A	Average Annual Medicare/Medicaid Cost of Care per Person	\$24,272 ⁴⁹
B	Average Life Expectancy	4.88
C	Cost per Person over Life (Line A x Line B x 0.6% Discount Rate)	\$118,878
<i>Home/Community-Based Care</i>		
D	Average Annual Medicare/Medicaid Cost of Care per Person	\$8,914
E	Cost per Person over Life (Line D x Line B x 0.6% Discount Rate)	\$42,764
<i>Total Public Cost</i>		
F	Total Cost per Person over Life (Line C – Line E)	\$76,115
G	Total Cost of All URP Participants over Life, 2005-2015 (Line F x Line H)	\$580,526,702
URP Funding Data		
H	Total Number of Units Repaired, 2005-2015	7,627
I	Total URP Program Costs, 2005-2015	\$28,698,962
J	Total Estimated Cost Savings over 6 Years (Line G – Line I)	\$551,827,740

It is important to note the limitations of the above methodology. While this analysis captures the trade-off of keeping elderly and/or disabled homeowners in their homes by estimating Medicaid/Medicare coverage of professional home care to replace institutional care, it does not capture private costs to URP participants. The average annual private cost of home care among survey respondents is \$23,485, which would total \$114,663 over their average 4.88-year life expectancy. If friends or family provided home care informally rather than paid professionals, the opportunity cost to those caregivers over the same period would be about \$49,000.⁵⁰

⁴⁷ The averaged difference between survey respondents' age and the life expectancy for their county of residence, adjusted by sex and race (IHME, 2010).

⁴⁸ OMB, 2016

⁴⁹ This number is higher during the first year of care (\$26,730), as Medicaid contributes to the payment of institutional care costs for the first 100 days of care.

⁵⁰ This number was derived by: (1) estimating the average income of URP participants' caregivers (50% of the average median household income in the counties represented by survey respondents; 50% is used because URP guidelines limit participants to households earning under 50% of AMI); (2) deriving an hourly wage from that figure (\$9.48); (3) multiplying

Discussion & Recommendations

Effectiveness

The survey about URP's impacts on participants' lives did not explicitly ask whether the program prevented individuals from leaving their homes and entering institutional care, making it difficult to confirm whether URP has achieved that outcome goal. This explicit question was considered too leading and was avoided. Unfortunately, however, this leaves us unable to conclusively determine URP's effectiveness at preventing homeowner displacement.

While this study did not definitively capture how effectively URP achieved its ultimate outcome goal of keeping elderly and/or disabled homeowners out of institutional care, survey responses indicate that URP has largely been effective at mitigating threats to life and safety caused by poor housing conditions. Furthermore, several respondents reported secondary quality of life benefits, including alleviating financial burdens of home maintenance and reducing associated stress. However, 25% of survey responses indicated dissatisfaction with one or more aspects of the program—particularly repair quality and promptness of completion. The variation among participants' experiences with the program that was reflected in their written feedback, as well as the variation *within* the experiences of some participants (such as the individual who reported satisfaction with one contractor and dissatisfaction with another), suggests that URP could benefit from including more detailed guidelines for managing contractors' responsibilities and homeowners' expectations.

However, program policies are already very thorough, requiring work write-ups for every project and preconstruction conferences with the local program administrator, homeowner, and contractor to discuss the proposed repairs/modifications. The administrator's manual also requires that a signed record of the conference be maintained by administrators, and suggest that work write-ups and accompanying notes detailing cost estimates be maintained as well.⁵¹

One area that could be enhanced is monitoring by local program administrators. Currently, administrators must monitor and approve the performance of contractors to ensure compliance with work specifications, licensing and insurance requirements, and schedules.⁵² Including in this guideline a specific timeframe for monitoring, and one that is long enough to ensure program administrators catch problems with repairs or installations (e.g., check-ins at three and six months after repair completion), could improve quality control of contractor work, and perhaps prevent some of the negative experiences described by survey respondents. For even greater oversight, URP policy could require contractors to provide one-year warranties, or have local administrator maintain a system for rating contractors in which those who perform substandard work are penalized in future bids. To help ensure clear communication between administrators and homeowners, program assistance procedures could require that administrators provide applicants with a reasonable estimate of the timeframe between application approval, repair commencement, and repair completion.

the wage by 20.4 hours, which is the average amount of weekly informal care (The SCAN Foundation, 2012) and by 52 weeks to get an annual wage; then (4) multiplying the annual wage by the average life expectancy of survey respondents (4.88 years). The derived opportunity cost is \$49,097.

⁵¹ NCHFA, 2016, p. 19-20

⁵² *Ibid.*, p. 14

Spatial Equity

GIS analysis revealed that URP is currently highly active in most of the counties (76%) with the greatest concentration of eligible households. However, six counties (Alleghany, Ashe, Beaufort, Bladen, Chatham, and Jones) have a high concentration of need but below-average investment, and could benefit from increased marketing of the program to potential partner organizations by NCHFA, and increased outreach by those partners to eligible households.

Three of these counties (Chatham, Bladen, and Jones) are currently served by a local program administrator.⁵³ In both Chatham and Bladen counties, the local partner organization covers a large geographic area with significant population density and relies on volunteer labor to complete repairs.⁵⁴ As such, these organizations have limited capacity, which may explain the potential gap in services in the counties. In Jones County, the most recent URP projects were completed in 2005 by Coastal Community Action, a community action agency (CAA) in Newport, North Carolina. In recent years, the organization appears to have concentrated efforts in Carteret, Duplin, and Onslow counties, and may no longer serve Jones.⁵⁵ Likewise, the remaining three counties (Ashe, Alleghany, and Beaufort) do not currently have any local partner agencies administering URP.⁵⁶

Unfortunately, lack of institutional capacity among local program administrators severely limits the practicality of those organizations increasing their outreach to eligible households, as they likely cannot handle a greater work load. However, NCHFA could reach out to other organizations in the six target counties—both those that have historically received URP funding and potential new partners—to gauge interest in reactivating or initiating partnerships (Table 5).

TABLE 5. Potential URP partner organizations in target counties (light text indicates organizations that have participated in URP in the past, and bold text indicates those that have not).

Alleghany	Ashe	Beaufort	Bladen	Chatham	Jones
<ul style="list-style-type: none"> • Alleghany County • Blue Ridge Opportunity Commission (BROC) • High Country Council of Governments (COG) • Wilkes Habitat for Humanity (HfH) 	<ul style="list-style-type: none"> • Ashe County • Ashe County HfH • BROC • High Country COG 	<ul style="list-style-type: none"> • Beaufort County • HfH of Beaufort County • Metropolitan Low Income Housing CDC • Mid-East Commission • Mid-East Development Corporation • Pantego Area Community Developers • Southside Alliance for Neighborhood Empowerment 	<ul style="list-style-type: none"> • Bladen County • Bladen HfH • Cape Fear Regional CDC • Four-County Community Services • Town of Bladenboro 	<ul style="list-style-type: none"> • Chatham County • Joint Orange-Chatham Community Action • Triangle J COG 	<ul style="list-style-type: none"> • Eastern Carolina COG • HfH of Jones County • Jones County • Twin Rivers Opportunities

⁵³ NCHFA, 2017, Current Community Partners

⁵⁴ Rebuilding Together of the Triangle, 2017; Wilmington Area Rebuilding Ministry, Inc., 2017

⁵⁵ Coastal Community Action, Inc., 2017

⁵⁶ NCHFA, 2017, Current Community Partners

Cost Efficiency

Assuming URP does, in fact, prevent recipients from entering institutional care, the program provides huge potential savings to the Medicaid and Medicare programs—every \$1 of URP funding could save up to \$44 of public health insurance.

If the State is interested leveraging URP funds even further, incorporating a local match requirement into the program could be a good strategy. For example, the Tennessee Housing Development Agency's Emergency Repair Program requires a 50% match, which may be provided by the homeowner, local groups or agencies, donated labor or materials, federal funds, or a funding pool from local lenders to the Development District.⁵⁷ However, considering the low financial capacity of URP participants, and of many of the small local government and nonprofit partners that administer the funding, such a requirement would likely diminish the program's use.

While the evidence of URP's fiscal cost efficiency is compelling, the program's economic impacts on the unpaid caregivers of low-income elderly and/or disabled homeowners is unclear. Although many participants indicated in their survey responses that the program alleviated financial burdens from their households, it is possible that by diverting homeowners from entering institutional care, URP increases the real and opportunity costs to their informal caregivers. Because so much of long-term care is provided by uncompensated family members, particularly in low-income families, extending the duration of informal home care rather than utilizing public health insurance coverage of institutional care may be the costlier option for some families.⁵⁸

Though perhaps outside the scope of this program, NCHFA could consider ways of partnering with the Department of Health and Human Services (DHHS) to enhance the provision of public home/community-based long-term care services, and lower the real and opportunity costs of aging in place to low-income individuals and families. The State currently offers two Medicaid waiver programs that facilitate provision of home and community-based services to adults. The NC Innovations Waiver helps individuals with intellectual or developmental disabilities receive services outside of institutional settings and live more independently.⁵⁹ The Community Alternatives Program for Disabled Adults helps individuals access services and supports to meet their medical, psychosocial, and functional needs that are beyond those they can attain through other formal or informal caregivers.⁶⁰ Coordinating with DHHS to link URP participants and other eligible households with these programs could be a valuable long-term investment in the future of community-based living and care in North Carolina.

⁵⁷ Tennessee Housing Development Agency, 2017

⁵⁸ Calmus, 2013; Weber-Raley & Smith, 2015

⁵⁹ NC DHHS, 2017, NC Innovations Waiver

⁶⁰ NC DHHS, 2017, CAP/DA

Conclusion

NCHFA's Urgent Repair Program finances home repairs and modification for low-income households with special needs, so that families can continue living safely in their homes. URP aims to improve quality of life and choice for individuals who might otherwise be forced to endure substandard, unsafe housing conditions or enter institutional care settings.

This evaluation assesses the program's outcomes and impact in three areas. The first area, effectiveness, examined how well URP prevents displacement and improve quality of life of participants through analysis of participant surveys. Spatial equity, or how the geographic distribution of URP investment compares to the distribution of need, was analyzed and mapped using GIS. Finally, URP's fiscal cost efficiency, or how the program's public costs compare to its public benefits, was determined through cost/benefit analysis.

Findings reveal that URP has largely succeeded at improving participants' quality of life, addressing spatially concentrated need, and creating savings for the public health insurance system:

- Overall satisfaction with URP among surveyed participants was 90.7%
- URP is currently highly active in 76% of the counties with the greatest concentration of eligible households
- Every \$1 of URP funding could save up to \$19 of Medicaid/Medicare spending

Of course, potential for program improvement still exists. Incorporating some of the following recommendations may further improve URP's performance in the three areas evaluated:

- Effectiveness
 - Specify in the administrators' manual a timeframe for monitoring repair work to ensure program administrators can catch and address issues with repairs or installations.
 - Require contractors to provide one-year warranties and/or require local program administrators to maintain a system for rating contractors based on performance.
 - Require administrators to provide applicants with a reasonable estimate of the timeframe between application approval, repair commencement, and repair completion.
- Spatial Equity
 - Reach out to historic partner organizations to gauge interest in reactivating local administration of URP and increase investment in underserved, high-need counties (Alleghany, Ashe, Beaufort, Bladen, Chatham, and Jones).
 - Reach out to potential new partner organizations in those six counties, such as county governments, Regional Councils of Government, and Habitat for Humanity affiliates.
- Cost Efficiency
 - Incorporate a local match requirement, which may be provided by the homeowner, donations or nonprofit organizations, or federal or local funds. However, this requirement would likely diminish the program's use, which could cause a net decrease in cost efficiency.
 - Partner with NC DHHS to enhance the provision of publicly-funded home and community-based long-term care services.

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Appendix

Appendix A. Survey distributed to URP homeowners.

<p style="text-align: center;">Urgent Repair Program Evaluation: Participant Survey</p> <p>This survey asks people who have received home repairs funded by the North Carolina Housing Finance Agency's Urgent Repair Program about their experience receiving repairs.</p> <p>Your responses will help us evaluate and improve the program for future homeowners in need of home repairs.</p> <p style="text-align: center;">THANK YOU FOR YOUR HELP!</p>  <p style="text-align: center;">North Carolina Housing Finance Agency 3508 Bush Street Raleigh, NC 27609</p>	<p style="text-align: center;">About You</p> <p>1. Gender: <input type="radio"/> Female <input type="radio"/> Male</p> <p>2. Age: _____</p> <p>3. Race/ethnicity (optional):</p> <p><input type="radio"/> Black <input type="radio"/> White <input type="radio"/> Asian</p> <p><input type="radio"/> Hispanic/Latino <input type="radio"/> Other: _____</p> <p>4. Disability status (optional):</p> <p><input type="radio"/> Disabled <input type="radio"/> Not disabled</p> <p>5. Do you have health insurance?</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Yes → What type of insurance do you have?</p> <p><input type="radio"/> Private health insurance</p> <p><input type="radio"/> Medicaid</p> <p><input type="radio"/> Medicare</p> <p><input type="radio"/> Both Medicaid and Medicare</p> <p><input type="radio"/> Other: _____</p> <p style="text-align: center;">1</p>
<p style="text-align: center;">About Your Experience with Home Repairs</p> <p>1. Did receiving home repairs affect your daily life?</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Yes → Which aspects were affected?</p> <p><input type="radio"/> Ability to move around inside the home</p> <p><input type="radio"/> Ability to get in and out of the home</p> <p><input type="radio"/> Health (describe): _____</p> <p>_____</p> <p><input type="radio"/> Safety (describe): _____</p> <p>_____</p> <p><input type="radio"/> Comfort (describe): _____</p> <p>_____</p> <p><input type="radio"/> Other: _____</p> <p>_____</p> <p>_____</p> <p style="text-align: center;">2</p>	<p>2. Did receiving home repairs affect anyone else in your life (e.g., family members or caregivers)?</p> <p><input type="radio"/> No</p> <p><input type="radio"/> Yes → Which aspects were affected?</p> <p><input type="radio"/> Finances (describe): _____</p> <p>_____</p> <p><input type="radio"/> Daily schedule (describe): _____</p> <p>_____</p> <p><input type="radio"/> Stress levels (describe): _____</p> <p>_____</p> <p><input type="radio"/> Comfort or safety (describe): _____</p> <p>_____</p> <p><input type="radio"/> Other: _____</p> <p>_____</p> <p>_____</p> <p>_____</p> <p style="text-align: center;">3</p>

3. Please rate your satisfaction with each of the following elements of your home repair experience.

	Highly Dissatisfied	Somewhat Dissatisfied	Somewhat Satisfied	Highly Satisfied
Advertisement of program	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Program application process	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Relationship with local program staff	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality of home repairs	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promptness of approval (Length of time from applying to program to beginning repairs)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Promptness of repair completion (Length of time from beginning repairs to completion)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Comments:

4

4. Do you think your life would be very different if you had not received home repairs?

No

Yes (describe): _____

About Your Home

1. What county do you live in? _____

2. Do you currently live in the same home that received repairs?

Yes → How long have you lived in the home?

No → When did you move? _____

Please briefly describe why you moved:

5

Follow Up

1. May we contact you later for a brief follow-up interview by phone?

Yes, my phone number is: _____

No

2. Is there anything else you would like to tell us about your experience receiving urgent repairs? If so, please use the space below or on the back cover for that purpose.

Thank you very much for completing this survey!

Please return it in the pre-paid envelope provided.

Your responses will help the North Carolina Housing Finance Agency measure the impact of urgent home repairs in the state.

6

Is there anything else that you would like to tell us about your experience receiving urgent home repairs? If so, please use this space for that purpose.

Your contribution to this effort is greatly appreciated.

Appendix B. Cover letter mailed with each survey distributed to URP homeowners.

November 9, 2016

Greetings,

The North Carolina Housing Finance Agency is assessing the impact of the Urgent Repair Program, which provides funding to local governments and nonprofits to repair the homes of local residents. We are writing you because you have received home repairs that were funded through this program.

We would like you to complete a survey about your experience receiving home repairs, which will be used to improve the program for future participants. **All responses will be anonymous.** The survey does not ask for your name or address, and you should not put your name or address on the enclosed envelope in which to return the survey. Published results will summarize survey responses, but will not contain any identifiable personal information about you.

Participation in this survey is completely voluntary and will not affect your relationship with any nonprofit or government agency. Please understand that your responses will be used for **impact assessment purposes only** and that we are unable to directly assist you regarding any feedback you may provide.

If you agree to participate, please complete the enclosed survey, which should take no more than 10 minutes. Once you have completed the survey, please return it to the North Carolina Housing Finance Agency using the enclosed self-addressed, pre-paid envelope.

Thank you for your time and consideration. Your feedback is highly valued, and we look forward to hearing about your experience. If you have any questions, please contact me at (919) 981-5046.

Sincerely,



Erika Brandt, Support Analyst
(919) 981-5046
ecbrandt@nchfa.com

Appendix C. Email template sent to local partner agency contacts.

Good morning _____,

I am writing to let you know that the North Carolina Housing Finance Agency is conducting an impact assessment of our Urgent Repair Program (URP). As part of this assessment, we have mailed surveys to a random sample of 200 people who have received home repairs through URP since 2010. One or more of these people fall within your service area (your organization is the administrator of the local repair program). I wanted you to be aware that this study is happening, but it should not directly impact your agency or operations.

Additionally, if you or anyone else at your organization has relevant feedback on the implementation of URP in your service area, either data-driven or story-driven, I would love to hear it. Your experiences with the successes and challenges of administering the program will provide valuable information for the impact assessment. If you have feedback you would like to share, please give me a call at 919-981-5046 or email me at this address.

Thank you!

Appendix D. Cost-benefit analysis assumptions and calculations.

Life Expectancy

County life expectancies for each sex were adjusted by race multipliers that were derived from national life expectancies by sex and race.⁶¹ For example, the national life expectancy for black females was 78.2, while the national life expectancy for all females was 80.8, so the black female multiplier was 0.968 (78.2 divided by 80.8); to calculate the life expectancy for black females in Alamance County, the life expectancy for all females in Alamance (80.2) would be multiplied by 0.986 to get 77.6.

Medicaid Coverage of Long-Term Care Costs

Medicaid covers the cost of up to 80 hours of home/community-based care per month, or 960 hours of care per year, so public coverage of home care for survey respondents who reported Medicaid as their primary health insurance (including those who receive both Medicaid and Medicare) was estimated by multiplying the annual Genworth Cost of Care estimate for home care by 960.⁶²

Medicaid covers the cost of assisted living facilities up to \$14,184 per year, so public coverage of that cost was assumed to be the lesser of \$14,184 or the annual Genworth Cost of Care estimate.⁶³ The cost of nursing home care may also be covered by Medicaid, when it is deemed medically necessary. Medicaid reimbursement rates for North Carolina nursing facilities for 2017 were aggregated by region, and public coverage of nursing home costs for survey respondents with Medicaid (including those with both Medicaid and Medicare) was assumed to be the annualized reimbursement rate in their county of residence.⁶⁴

Medicare Coverage of Long-Term Care Costs

Medicare coverage of long-term care is limited to medically-necessary care. Of the types of long-term care included in the Genworth Cost of Care estimates, only nursing homes could typically qualify as medically necessary, and even then, only under certain conditions and for a limited time.⁶⁵ Medicare covers the full cost of skilled nursing facilities for the first 20 days of care, and the cost of care minus a daily copay of \$164.50 for days 21 through 100.⁶⁶ As such, the public cost of long-term care for survey respondents who reported Medicare as their primary health insurance was assumed to be \$0 for all types of care except nursing home care. Public coverage of nursing home care was estimated using the formula below, where G equals the annual Genworth Cost of Care estimate:

$$((G/365) \times 20) + (((G/365) - 164.5) \times 80)$$

Because of Medicare's time-limited coverage of nursing home care, it was assumed that survey respondents with Medicare as their primary health insurance would not receive any public cost coverage for nursing home care after Year 1 (2017) of the 4.88-year life expectancy period over which total public expenditure was estimated.

⁶¹ IHME, 2010; Arias, 2015

⁶² Dickey, 2017

⁶³ *Ibid.*

⁶⁴ NC DMA, 2017

⁶⁵ U.S. Centers for Medicare & Medicaid Services, 2017

⁶⁶ *Ibid.*

Average Annual Costs of Care

The average annual cost of institutional care per person during the first year of care is a weighted average of the annual costs of two of the three different types of institutional care included in the Genworth study (i.e., assisted living facility and nursing home semi-private room). The “nursing home private room” category was omitted under the assumption that Medicaid and Medicare would likely require beneficiaries to stay in semi-private rather than private rooms for cost saving purposes. The average was weighted by the rates of assisted living facility and nursing home residence among North Carolinians over age 65. The NC DHHS Division of Aging and Adult Services reports that about 36.5 per 1,000 persons over 65 were in assisted living facilities in 2000 and 42.2 per 1,000 were in nursing homes.⁶⁷ Thus, 46.4% of adults in either type of care were in assisted living facilities and 53.6% were in nursing homes. The following formula was used to obtain the average annual cost of institutional care per person, where *A* is the average annual cost of assisted living facility care per person and *N* is the average annual cost of nursing home care per person:

$$(A \times 0.464) + (N \times 0.536)$$

The average annual cost of institutional care per person reported in Table 4, Line A is the average cost *after* the first year of care (for Years 2 through 4.88). This figure is slightly lower than the average annual cost in Year 1, because Medicare costs were removed. Because of Medicare’s time-limited coverage of nursing home care, it was assumed that survey respondents with Medicare as their primary health insurance would not receive any public cost coverage after Year 1 (2017) of the 4.88-year period over which the total public expenditures over participants’ projected life expectancies was estimated. To remove Medicare-dependent respondents from the sample, their public costs were summed and subtracted from the total sum of public costs for all respondents. The remaining number was divided by 54 (the sample size of survey respondents) to calculate an average public cost of care for Years 2 through 4 (2017 to 2020). The cost of care in Year 4.88 (2021) was assumed to be 88% of the Year 2 average public cost.

The average annual cost of home care per person used in this analysis (Table 4, Line D) is a simple average of the annual costs of the three different types of home care included in the Genworth study (i.e., homemaker services, home health aides, and adult day health care).

Net Present Value of Public Costs over Life Expectancy

To remove Medicare-dependent respondents from the sample, their public costs were summed and subtracted from the total sum of public costs for all respondents. The remaining number was divided by 54 (the sample size of survey respondents) to calculate an average public cost of care for Years 2 through 4 (2017 to 2020). The cost of care in Year 4.88 (2021) was assumed to be 68% of the Year 2 average public cost.

The average annual cost of care estimates were discounted at 0.6% per year to yield a net present value of \$118,878 for institutional care and \$42,764 for home/community-based care.⁶⁸

⁶⁷ Matula, 2009

⁶⁸ OMB, 2016