

## Cost of Weatherization – Carrboro Homes Owned by Low-Income Households

Ensuring that all homes owned by low-income households in Carrboro are weatherized addresses several of the Town's goals:

- Affordable Housing Goals & Strategies
  - 1.3 Decrease barriers to first-time homeownership and homeowner retention, particularly among seniors
  - 3.6 Reduce utility costs
- Carrboro Connects Comprehensive Plan – Affordable Housing & Climate Action
  - Goal 4. Maintain and improve the quality of Naturally Occurring Affordable Housing and missing middle opportunities
  - Climate Action and Environment
    - Increase energy and water conservation in new construction and rehabilitation to reduce costs to homeowners and renters

The Town of Carrboro is active in the Orange County Home Preservation Coalition (OCHPC) and provides funding to partner nonprofit agencies to repair, rehabilitate and weatherize homes owned by low-income households.

### Methodology

Three data sources were used to estimate the cost of weatherization:

- 2019 American Community Survey - determined the number of low-income homeowners;
- Orange County tax assessment records - determined the age, location, and heating systems of Carrboro homes (only homes built in 2000 or earlier were evaluated);
- 2020 Census data map - identified which homes fell in Qualified Census Tract areas.

The number of identified homes were then sorted by heating/cooling systems which informed the potential cost of weatherization. Costs were estimated based on March 2022 prices by Dan Sargent, Executive Director of Rebuilding Together of the Triangle, and lead partner in the OCHPC. He also raised potential difficulties in the effort to weatherize all homes, based on his and the OCHPC's experience.

### Findings

The 2019 American Community Survey determined that there are 760 low-income homeowners in Carrboro. The work of the OCHPC has highlighted that many homes are owned by low-income African-American families who have owned their homes for decades and would like to age in place. However, the pressures of gentrification, higher taxes, and costs of repairs and modifications pose significant challenges.

Low-Income Carrboro Homeowners (ACS 2019)					
Household Income	Below \$25,000	\$25,000-\$34,999	\$35,000-\$49,999	\$50,000-\$74,999	Total
AMI% Range	below 30%	30-40%	50-58%	~58-87%	Below 87% AMI
<b>Total</b>	<b>49</b>	<b>180</b>	<b>102</b>	<b>429</b>	<b>760</b>

To determine the number of homes that could be eligible for weatherization, only homes that were built before 2000 were considered. Most homes built after this date use HVAC systems for heating and cooling and are less likely to need weatherization due to their younger age.

Using Orange County tax records, the total number of homes built before 2000 was determined to be 2,886.

Home Eligibility (Orange County Tax Assessor 2021)						
By Property Age	1920 and below	1921-1945	1946-1965	1966-1985	1986-2000	Total
<b>Total</b>	<b>18</b>	<b>36</b>	<b>128</b>	<b>676</b>	<b>2028</b>	<b>2886</b>

The table above reflects the number of homes by property age; however, 596 condominiums were removed due to the mixture of property investors and owner-occupied residents sharing one building. The updated total is 2,290.

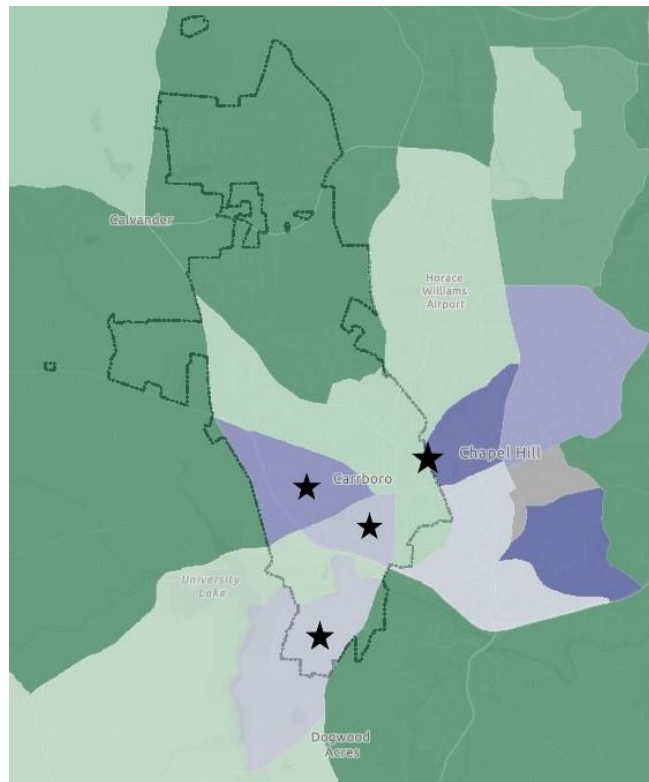
For the purposes of American Rescue Plan Act funds, to show disproportionately impacted communities, this estimation will focus on homes located within the Qualified Census Tracts. Of the 2,290 identified homes, 624 homes are located in Qualified Census Tracts (QCT) 107.7, 107.08, 107.09 in Carrboro (see map to the right). Homes that border Chapel Hill in QCT 113 (the Northside area) are also included.

Although the American Community Survey data identified 720 homeowners, it is important to note that homes may fall outside the QCTs.

It is also very likely that not all 624 homes identified through this methodology are owned by low-income owners or are owner-occupied.

Using Orange County tax records, it was feasible to sort the 624 homes by the type of heating fuel. This information was then shared with Executive Director of Rebuilding Together of the Triangle, Dan Sargent, to estimate the nature of work that could be expected based on the existing heating and cooling source. He then provided estimated costs for typical work conducted on a 1500 square foot home.

The following tables provide the estimated costs for work typically done during a weatherization project, based on a 1500 square foot home, and an estimation of costs required to weatherize the identified 624 homes. Cost estimation for the 624 homes was based on likely work that would need to be done on a home utilizing a particular heat type. For example, homes that currently use baseboard heating would require duct work, a HVAC system, and weatherization in the attic and crawl spaces. The home would not need electrical upgrades. The estimated cost for the projected work on a home using baseboard heat is



\$17,850. There are an estimated 6 homes owned by low-income homeowners. The total estimate for the 6 homes is \$107,100.

<b>Est. Costs for 1500 sq. ft. Home</b>	
Attic Weatherization	\$3,750
Crawl Space Weatherization	\$4,500
HVAC system (electric)	\$6,600
Duct Work	\$3,000
Electrical	\$2,500
<b>Total</b>	<b>\$20,350</b>

The majority of 624 homes have an existing HVAC system; however, the age, functionality, and fuel type of the units will vary and therefore effect actual cost.

In addition, 33 homes indicate no heat, or possibly space heater usage. Due to the severity of the situation, homes have been included whether they are found inside or outside of the QCTs. If possible, an owner-occupied home that lacks heat should be addressed, regardless of QCT status.

Heat Type	Electrical \$2,500	Duct Work \$3,000	HVAC \$6,600	Attic \$3,750	Crawl \$4,500	Per Unit Cost	Estimated # Low-Income Units	Estimated Total Cost	Notes
Baseboard		X	X	X	X	\$17,850	6	\$107,100	
Combo H&C				X	X	\$8,250	524	\$4,323,000	% will need HAVC and duct work; variable by system age and fuel type
Electric	X	X	X	X	X	\$20,350	7	\$142,450	Required either to upgrade system or transition from gas
Floor/Wall Furnace	X	X	X	X	X	\$20,350	15	\$305,250	
Forced Air	X	X	X	X	X	\$20,350	38	\$773,300	
Non/SP Heat	X	X	X	X	X	\$20,350	31	\$630,850	
None	X	X	X	X	X	\$20,350	2	\$40,700	
Solar							0	\$0	
SteamHot Water						\$0	0	\$0	Custom built
Unknown						\$0	1	\$0	Unable to estimate
<b>Total</b>							<b>624</b>	<b>\$6,215,550</b>	

The estimated cost for 624 homes is \$6,215,550 (\$1,243,110/year for 5 years), including replacement or new installation of HVAC systems. To perform wrap weatherization only on all 624 homes is estimated to cost \$5,148,000. Serving only the 62 homes without Combo Heating and Cooling is estimated to cost \$1,261,700 (weatherization including HVAC).

#### Difficulties in Determining Cost and Implementation

To more accurately estimate the total number of eligible homes and the total funding this project requires, each home would need a full assessment that includes many variables:

- Owner-occupied (Rental properties are excluded)
- Eligible income (OCHPC serves households earning 60% AMI or less.)
- Desire of the homeowner to weatherize
- Residency (owner must reside in the home at least three years after work is completed.)
- Condition of home
- Size of the home
- Crawl space or slab
- Other critical repairs needed
- Individualized work scope based on the home's condition

#### Other Considerations

- Homes in very poor condition may require significant repairs and present a situation of “diminishing returns,” i.e., the cost of repairs could easily surpass the value of the home.
- Expect that many homeowners will not want this service.
- Set a realistic goal of 60% of homes initially and determine interest.
- Perform work going “block by block.”
- Hire a contractor to manage this project.
- Expect the unexpected – new issues will come to light as the work gets underway.