

Close to Home

*An Affordable Housing Analysis
of the Triangle's Passenger Rail Corridor*



GoTriangle



Triangle J Council of Governments

April 2021

Rail Corridor Analysis

This is one in a series of reports examining travel, land use, affordable housing and economic development opportunities associated with new commuter rail service within the North Carolina Railroad Corridor (NCRR Corridor) between West Durham and Clayton in Johnston County. The overall rail planning is divided into two main parts:

1. A set of activities that focus on what happens ***within*** the corridor – a **rail service analysis**: the types and numbers and schedules for trains; the locations of station platforms, park-and-ride lots and train maintenance facilities; the ridership that is expected; the infrastructure investments – and their costs – that would be needed to support the service; and a host of operational and environmental considerations required for successful implementation. Called the Greater Triangle Commuter Rail (GTCR) Study, the current phase is the third part of a careful, deliberate step-by-step process to inform the decisions about whether to invest in passenger rail:
 - a. **CRT Major Investment Study (MIS)**. Completed in May 2019, the CRT MIS examined existing conditions in the rail corridor between West Durham and Garner, looked at peer commuter rail systems, developed systems-level guidelines, and evaluated service scenarios based on the guidelines. The conclusion was that there were no fatal flaws in pursuing a passenger rail investment and that a more detailed analysis was warranted.
 - b. **Greater Triangle Commuter Rail – Phase I**. Completed in May 2020, Phase I looked at different corridor lengths (including extending into Orange and Johnston Counties) and operating scenarios to determine general costs and benefits and which, if any, scenarios would be competitive for federal funding. It concluded that scenarios involving 20 daily round-trip trains between West Durham and either eastern Garner or Clayton could be competitive investments. For more detail, visit: <https://www.readyforrailnc.com>.
 - c. **Greater Triangle Commuter Rail – Phase II**. Currently underway, Phase II is identifying additional infrastructure that is needed; analyzing different train technologies, examining station, park-and-ride and maintenance facility locations; developing cost and ridership estimates; and analyzing operational issues associated with adding regional passenger rail service to the freight and intercity trains in the corridor.
2. A set of activities that focus on what happens ***along*** the corridor – a **corridor opportunity analysis**: the travel markets that passenger rail could serve, the land use and development close to the corridor – both today and in the future, the affordable housing that exists and is planned near the rail line and how land use, affordable housing and travel patterns combine to define opportunities.

This rail opportunity analysis about what happens along the corridor recognizes that the key to a successful rail investment is not just about the trains, but what happens outside the windows of the trains – the jobs and households and economic development that trains could serve. It has five parts:

- A ***Real Estate Market Analysis*** and ***Regional Economic Impact Analysis*** prepared by HR&A Advisors, Incorporated;
- A ***Travel Market Analysis*** that looks at travel markets in the region, the rail corridor, and station study areas;
- A ***Land Use Analysis*** that focuses on station study areas and “first-mile-last-mile” locations, along with how community land use plans and standards align with the ***Real Estate Market Analysis***;
- An ***Affordable Housing Analysis*** that addresses both publicly-supported and market-provided affordable housing; and
- An ***Opportunity Analysis*** that combines information from the other reports.

All of the corridor opportunity analysis reports and related technical information are located at:
<https://www.readyforrailnc.com/reports/>.

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Introduction

The idiom “close to home” means “affecting someone in a strong and personal way.” Since housing is typically a household’s largest expense, and transportation the second largest, investing in high quality transit close to affordable housing can affect households of modest means in strong and personal ways.

This report looks at affordable housing that could be served by a passenger rail investment within the North Carolina Railroad (NCRR) Corridor between West Durham and Clayton in Johnston County. It focuses on key components of the region’s housing market:

- Existing Legally Binding, Affordability Restricted (LBAR) housing
- Existing Naturally Occurring Affordable Housing (NOAH)
- Plans and proposals for additions to the stock of LBAR housing
- Potential Affordable Housing Opportunity Sites related to a passenger rail investment in the corridor.

The report is analytical: it looks at the evidence that can help us better understand housing in the corridor, so that decision-makers can weigh this evidence, together with robust community engagement, in making informed decisions about whether to invest in a particular transit project to serve this corridor.

The report is designed to help inform a variety of decision-makers who, working together, will determine how well we align our transit investments with concrete actions to create and preserve affordable housing along these investments: local elected officials, developers and builders, non-profit housing and community development organizations, financial professionals, transportation agencies, and leaders in anchor institutions such as universities and medical centers.

The Big Picture

Easy access to high quality transit helps connect Triangle employers with the workers on which their businesses depend. Better access also increases the number of riders on transit systems, helping transit agencies develop and operate more cost-effectively. Better access helps people get to critical services, from health care to social services to schooling, in addition to providing more opportunities to get and hold jobs without needing to own a vehicle. Increasing the number of people who live near and regularly use transit – especially low- and moderate-income residents who are more likely to depend on and use transit – benefits citizens, economic development, and the cost-effectiveness of public services.

Recognizing this mutually supportive relationship, the Federal Transit Administration includes land use and housing affordability metrics along transit corridors in the process it uses to decide which new transit investments to fund. These metrics reward communities that, through plans and actions, are collaborating on transit investments, land use plans, and affordable housing decisions.

GoTriangle and the region's communities are working together to plan a network of high-quality bus and rail services to connect communities across the Research Triangle Region. The more that people who depend on transit to get to jobs, schools, and everyday needs can have quick and easy access to transit stations, the better they will be able to access these services, and the more riders the system will carry, improving the Triangle's chances to secure the federal funds included in our transportation plans.

Transit can be a pocketbook issue: average transportation costs for households living near transit are 10% lower than for those that live farther away and more households are seeking to lower their transportation costs by living closer to jobs or transit.¹ An accepted affordability benchmark indicates that households should spend less than 45% of their income on combined housing and transportation costs, but moderate income households average more than that in Durham (57% of household income), Wake (56%) and Johnston (53%) counties.²

Finally, as a result of increasing congestion and unpredictable travel times, Triangle employers may increasingly rely on the region's public transit infrastructure to get their employees to work each day; about 40,000 households in the Triangle metro region have no car available.³ High profile companies, Amazon being a recent example, make it clear that they look at a community's quality of transit in making locational decisions. An increase in public transit options in the region may help attract and retain companies seeking more travel choices for their employees.

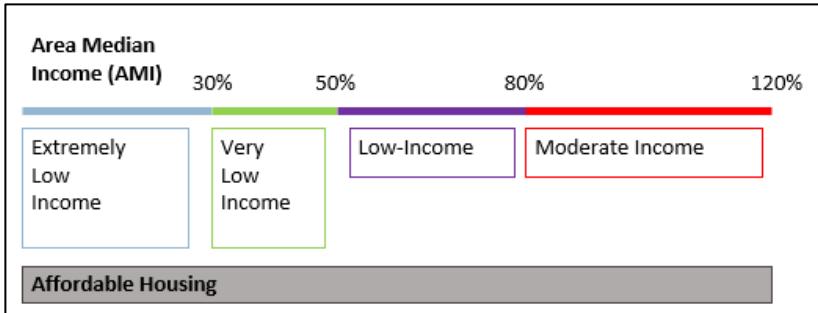
The development of new transit services, including passenger rail, increases the value of land near stations. This is due to improved access to jobs, healthcare, and other necessities that transit provides. While this increase in land value benefits cities, towns and counties along the transit corridors by increasing their tax base, it makes it harder for low- and moderate-income families to afford existing and new homes in or near station areas, further exacerbating the challenge of living in transit-rich areas for lower income households. Since low- and moderate-income families tend to be more dependent on – and heavier users of – transit service, failure to make room for these families in station areas can hurt ridership, making transit service less cost-effective than it could be.



Commuter rail shares tracks with freight rail and intercity passenger rail

Affordable Housing Defined

Figure 1: Affordable Housing Income Limits



Affordable Housing is housing that does not require too large a share of income for households of modest means. There are no hard and fast rules for how much income is too much, or what constitutes modest means, but there are generally accepted rules of thumb that this report uses.

For household income, the most commonly used measure is “area median income” or AMI, the level of income where half of households earn more and half earn less. “Low income” is pegged at 80% of AMI and “moderate income” is typically defined as between 80% and 120% of AMI.

One important point is that “affordable housing” is not just about housing – it is about the relationship of housing to other things we have to spend money on. In short, it is housing for people of modest means that enables them to have income available for other necessities such as food, clothing, transportation, health care and education.

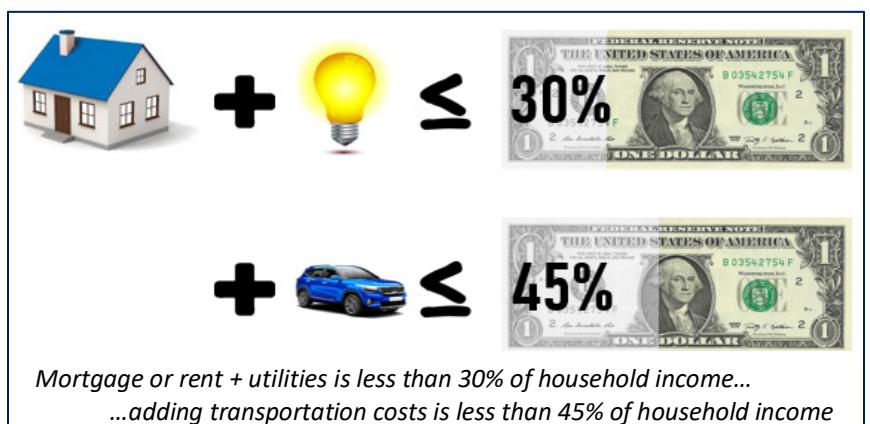
Housing is considered affordable for households if their mortgage or rent and utilities cost less than 30% of household income. By this measure, a little over half (55%) of US neighborhoods are considered “affordable” for the typical household.⁴

However, since transportation is typically the second largest household expense, the housing benchmark for affordability does not take those costs into consideration despite the two being highly correlated. The Housing and Transportation (H+T) Index defines affordable housing as housing where the *combined* cost for housing and transportation is less than 45% of income, since housing that is farther away from jobs and services may cost less, but any savings could be overshadowed by travel costs. According to the H+T Index, when both housing and transportation costs are factored into the equation, affordable units drop to only 26% percent, or a loss of nearly 60,000 neighborhoods nationwide that could be considered affordable.

This report is not prescriptive, meaning it does not recommend what local governments and their partners should do. Rather, it is descriptive, relying on analysis and examples to indicate what seems realistically possible. But what is possible is influenced by the affordable housing strategies that communities put in place. So in addition to defining affordable housing, it helps to understand the types of actions we can take to preserve and create affordable housing. To turn opportunity into achievement, local governments can think of five strategic approaches they can take – outlined in the table below – that frame how local government interacts with private sector, anchor institution, and non-profit partners:

<i>Strategic Approach</i>	<i>Role of Local Government in Strategic Approach</i>
Educate	Strategies that inform partners about actions they can take to increase affordable housing
Facilitate	Strategies that encourage partners to take specific actions.
Stimulate	Strategies that reward partners for actions they take.
Regulate	Strategies that require (or permit) partners to take specific actions.
Allocate	Strategies that acquire public resources and allocate them to specific programs or projects.

Figure 2: Housing and Transportation Costs and Affordability



What Do We Need to Know and Where Do We Get Our Information?

This report focuses on two types of affordable housing:

1. Housing that includes legally-binding agreements to keep it affordable, either permanently or for a set period of time. It is called Legally Binding Affordability Restricted (LBAR) housing and can include both single family houses and apartments, or multi-family housing. Its affordability is tied to its funding source and is only available to households that meet specified income limits.
2. Housing that is affordable to low- and moderate-income households but is not income-restricted, and has no guarantees that it will remain affordable. Called naturally occurring affordable housing (NOAH) or market-rate affordable housing, it is often older, smaller, or has fewer amenities than the general housing stock and thus is less expensive. For this report, only multifamily (apartment) NOAH housing is analyzed.

Legally Binding, Affordability Restricted Housing: Triangle J COG LBAR Database

Income restrictions for this kind of housing are legally-binding, and are often set by the requirements of the funding or financing source used to develop the units. Housing built through Low-Income Housing Tax Credits, HOME Investment Partnerships Program (HOME), Community Development Block Grant (CDBG), or other federal funding sources fall in this category. In addition, homes built or managed by a specific entity, such as a housing authority, Habitat for Humanity affiliate, or a community land trust, often have legally-binding income standards they abide by.



The Triangle J Council of Governments maintains and updates a LBAR dataset for the region, which is used for this analysis. This data was most recently updated for Durham, Wake, Johnston, and Orange counties in August 2020. The primary source for this data comes from the National Housing Preservation Database (NHPD), an address-level inventory of federally assisted rental housing for properties across the United States.⁵ Triangle J COG staff edit the data to correct known deficiencies.

According to the NHPD, data sources for federally assisted rental housing include: the US Department of Housing and Urban Development (HUD) and the US Department of Agriculture (USDA). The NHPD does not include properties that receive state and local subsidies for North Carolina; however, Triangle J COG collects data from local governments and non-profit organizations and cross-references them with the NHPD to create complete inventories of legally-binding affordable housing.⁶

Naturally Occurring Affordable Housing: Co-Star Database – Multifamily Units

As its name implies, Naturally Occurring Affordable Housing (NOAH) is based on market conditions at a particular point in time. These conditions can change, resulting in shifts in the number and location of NOAH units over time. The rent prices that the housing can demand in the unsubsidized private market given the properties' quality, size, or amenities is low enough such that the tenants of these properties, whose income might otherwise qualify them to be a participant in publicly funded housing programs, can reasonably afford them.



The main source for NOAH units is a database maintained by a private vendor, Co-Star, that regularly tracks most market-rate multi-family developments. The Triangle J Council of Governments subscribes to the Co-Star service, from which the data for this report are obtained. Triangle J COG utilizes the real estate information from CoStar to make a determination about whether units would be considered "affordable" to households at various levels of income.

A unit is considered "affordable" if a household could live there and pay no more than 30 percent of their monthly income on rent. Household size is based on the size of the unit – there is an assumption

that two people live in a two-bedroom unit, one person lives in a one-bedroom unit. The inventories Triangle J COG compiles for NOAH units would be "affordable" to households that make 80 percent or below Area Median Income (AMI).

While this method of determining affordability for private market units is useful, the data set is limited to larger multi-family properties. An analysis of property records and/or census household data would be required to determine if smaller multifamily and owner-occupied properties would be considered affordable to households at various income levels. This analysis does not include smaller multifamily rental and owner-occupied housing.

Note that in many areas along the planned passenger rail investment, especially in the central parts of Cary, Durham and Raleigh, and near university campuses and the Research Triangle Park, units affordable to households of modest means will typically be multi-family units. But in some places, especially along the southeastern part of the corridor, owner-occupied and rental single-family units remain affordable.

Future LBAR Housing: Commitments & Plans

This report also shows sites already planned for LBAR units or where LBAR units are being built but are not yet in the database of occupied LBAR projects. Planned sites are primarily properties being redeveloped by the Durham Housing Authority, municipal or county-supported projects where firm plans have been endorsed and other projects awarded Low Income Housing Tax Credits in the three counties along the initial CRT service.^{7,8}

LBAR Opportunity Sites: Local Government Tax Assessor Parcel Databases

In addition to understanding where affordable housing is today and where commitments have been made to supply more, it is important to understand where it could be in the future to help assist with planning for transit investments near transit-dependent households. Using local government tax assessor information, this report shows sites owned by the public or institutions that would be feasible for future affordable housing along the rail line.^{9,10}

Key Terms for housing data sources

LBAR housing: single family homes and apartments with legally binding agreements to keep the housing affordable for a set period of time, sometimes permanently.

NOAH housing: housing in the private market that is affordable due to its age, size, location and condition. For this report, only NOAH apartments are evaluated.

Future LBAR housing: sites that can be reasonably forecast to have a specific number of affordable units in the future due to adopted plans or funding awards.

LBAR Opportunity Sites: Land that is owned by a public agency or institutional partner that does not have plans for LBAR housing, but where the characteristics of the site and proximity to the rail line indicate LBAR housing should be feasible.

Analysis: Legally Binding, Affordability Restricted Housing

It is extremely difficult to build new affordable housing without a subsidy. Legally-binding affordability restricted housing traditionally serves households at different levels of Area Median Income. The Area Median Income (AMI) is the midpoint of a region's income distribution – half of families in a region earn more than the median and half earn less than the median. For housing policy, income thresholds set relative to the area median income—such as 50% of AMI—identify households eligible to live in income-restricted housing units and the affordability of housing units to low-income households. Income limits are based on household size and location. For the Triangle region, there are two sets of income limits that serve Durham, Wake, and Johnston counties; Durham County falls within the Durham-Chapel Hill MSA, while Wake and Johnston counties fall within the Raleigh MSA. Over time, the income limits have increased – even more drastically in recent years. In 2017, 100% AMI for a family of four was 24% lower in the Durham-Chapel Hill MSA and 17% in the Raleigh MSA.

Table 1: HUD 2020 Household Income Limits and Affordable Rents for Raleigh and Durham-Chapel Hill Metropolitan Statistical Areas

Raleigh MSA HUD 2020 Income Limits (\$)					Affordable Rents (\$) (30% of Gross Monthly Household Income)			
	1-person	2-person	3-person	4-person	1-person	2-person	3-person	4-person
30% of Ami	19,800	22,600	25,450	28,250	495	565	636	706
50% of AMI	32,950	37,650	42,350	47,050	824	941	1,059	1,176
60% of AMI	39,540	45,180	50,820	56,460	989	1,130	1,271	1,412
80% of AMI	52,750	60,250	67,800	75,300	1,319	1,506	1,695	1,883
100% of AMI	65,900	75,300	84,700	94,100	1,648	1,883	2,118	2,353
120% of AMI	79,080	90,360	101,640	112,920	1,977	2,259	2,541	2,823
Durham – Chapel Hill MSA HUD 2020 Income Limits (\$)					Affordable Rents (\$) (30% of Gross Monthly Household Income)			
	1-person	2-person	3-person	4-person	1-person	2-person	3-person	4-person
30% of Ami	19,100	21,800	24,550	27,250	478	545	614	681
50% of AMI	31,850	36,400	40,950	45,450	796	910	1,024	1,136
60% of AMI	38,220	43,680	49,140	54,540	956	1,092	1,229	1,364
80% of AMI	50,900	58,200	65,450	72,700	1,273	1,455	1,636	1,818
100% of AMI	63,700	72,800	81,900	90,900	1,593	1,820	2,048	2,273
120% of AMI	76,440	87,360	98,280	109,080	1,911	2,184	2,457	2,727

Source: US Department of Housing and Urban Development Income Limits, 2020

Two specific types of LBAR housing are public housing authority-owned units and units rented with public housing authority vouchers. Public housing units are built or purchased with government subsidies and are owned and operated by the local public housing authority. Public housing authorities generally only serve extremely-low income households, in the less than 30% AMI range, although some new management models are emerging.

There are several public housing authorities that provide housing options within the three counties that comprise the CRT corridor. Housing Authority rental units comprise more than 3,500 units of existing income-restricted affordable housing within the three counties. Many public housing properties are located along the proposed CRT corridor, particularly near Downtown Durham, Downtown Raleigh, and within the Town of Clayton. Tenant-based Section 8 vouchers are also provided by public housing authorities and can be used for any property where the landlord accepts vouchers. This is another way of making market-rate housing affordable to lower income households. With a Section 8 voucher, a household pays 30% of their income towards rent and utilities, and the voucher pays the difference between that amount and the rental rate directly to the landlord. Known primarily as Section 8 vouchers, these are also referred to as Housing Choice Vouchers.¹¹

Table 2: Public Housing Providers within CRT Corridor

County	Housing Assistance Provider	Type of Assistance	Number of Units (if applicable)
Durham County	Durham Housing Authority	Rental units Section 8 vouchers	1,379 units 2,815 Section 8 vouchers
Wake County	Housing Authority of Wake County	Rental units Section 8 vouchers	345 units 523 Section 8 vouchers
	Raleigh Housing Authority	Rental units Section 8 vouchers	1,362 units 3,869 Section 8 vouchers
Johnston County	Benson Housing Authority	Rental units	173 units
	Selma Housing Authority	Rental units	183 units
	Smithfield Housing Authority	Rental units	205 units
	Johnston County Housing Assistance Payment Program	Section 8 vouchers	<i>Data not yet received</i>

*Note that unit and voucher counts collected from 2020 Housing Authority Annual Plans or posted on Johnston County Housing Assistance Payment Program's website.

Existing LBAR Housing

Income-restricted units play a critical role in meeting the affordable housing need due to their long-term periods of affordability. For example, properties developed with Low-Income Housing Tax Credits or other federal funding sources have a 15-30 year affordability period. Maintaining an inventory of legally-binding units helps communities be proactive about preserving this housing, as tracking a property's affordability restrictions allows local stakeholders to make decisions about the property before the restriction expires.

Within one mile of the proposed CRT corridor, there are more than 6,000 income-restricted housing units that serve households at 80% AMI or below within the three counties that make up the corridor. This includes both single- and multifamily property types and both rental and owner-occupied units.

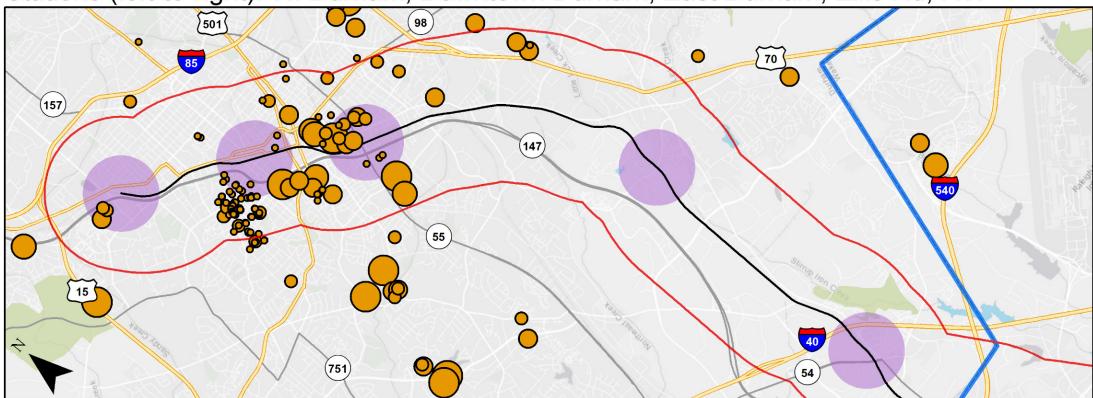
Table 3: LBAR Units in CRT Corridor by County

County	LBAR Units CRT Corridor	% of LBAR Corridor/ LBAR County
Durham	2,758	37% (of 7,425)
Johnston	202	8% (of 2,446)
Wake	3,321	25% (of 13,211)
TOTAL	6,281	27% (of 23,082)

The maps on the next page show the distribution of existing Legally-Binding, Affordability-Restricted units along the corridor, by corridor segment.

Figure 2: LBAR Housing within CRT Corridor

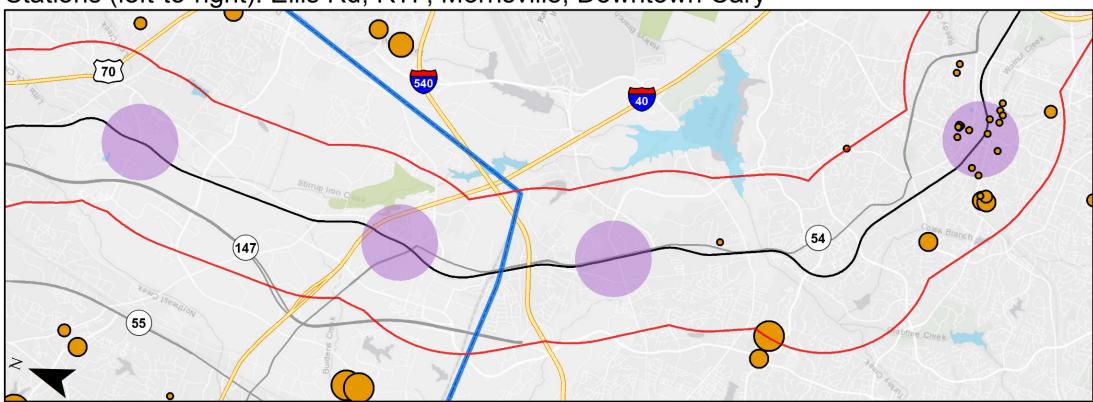
Stations (left-to-right): W. Durham, Downtown Durham, East Durham, Ellis Rd, RTP



Legally-Binding Affordable Housing Units

- 10 or less
- 11 - 50
- 51 - 100
- 101 - 150
- 151 or more

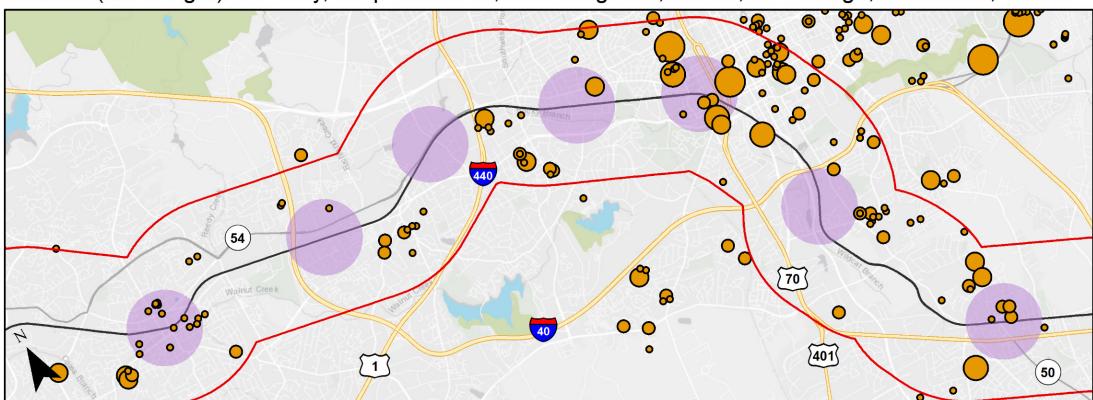
Stations (left-to-right): Ellis Rd, RTP, Morrisville, Downtown Cary



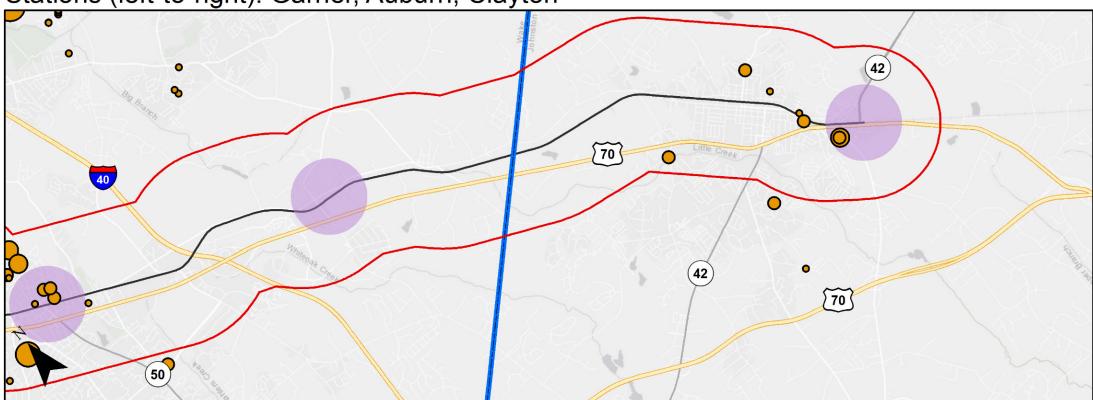
Map Symbols:

- Railroad track alignment
- Corridor boundary (1 mile from tracks)
- Station Study Area (1/2 mile radius circle)
- County boundary

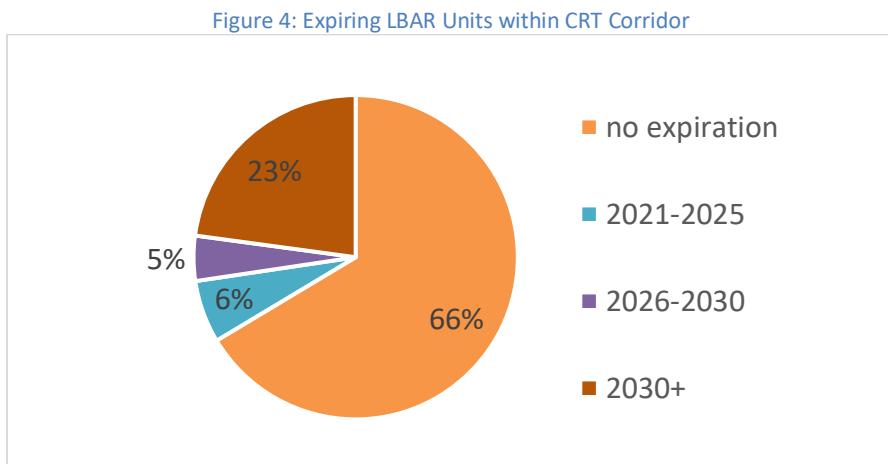
Stations (left-to-right): DT Cary, Corp Center Dr, Blue Ridge Rd, NCSU, DT Raleigh, Hammond, Garner



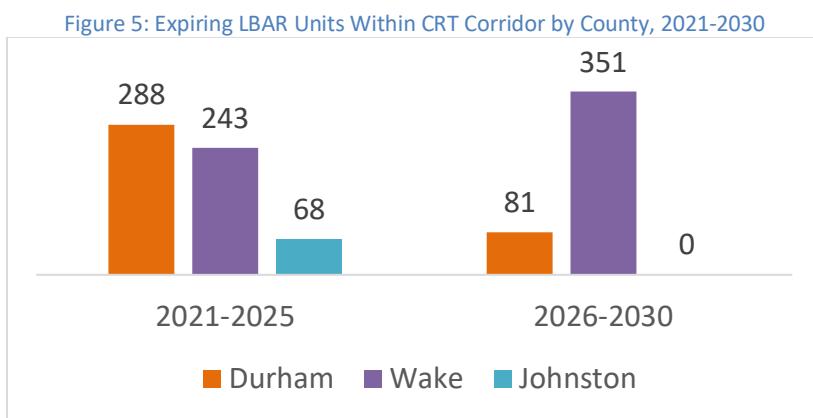
Stations (left-to-right): Garner, Auburn, Clayton



Of the more than 6,000 LBAR units located within the proposed CRT corridor, nearly half have permanent affordability restrictions, as part of units within a property owned and managed by a local housing authority, or that are part of Durham Habitat for Humanity, Durham Community Land Trust, or Wake County Habitat for Humanity. Approximately 15% of the existing units within the corridor have affordability restrictions that will expire by 2030 without further intervention.



Wake County along the CRT corridor, there are 20 properties with nearly 600 units that have affordability restrictions that will expire by 2030. In Durham, 19 properties with 369 units are set to expire by 2030 – close to 13% of the legally-binding units along the CRT corridor in Durham currently. If these units do not receive additional public subsidy to both repair the units and extend their affordability periods, the properties could leave the market and either fall into disrepair or experience rent increases – both of which would cause a loss of affordable housing, and would be more difficult to do as property values increase along the proposed corridor.



Federal Transit Administration Ratings and LBAR Housing

The Federal Transit Administration (FTA) provides discretionary funding for fixed guideway investments, such as the proposed CRT corridor, through the Capital Investment Grants (CIG) Program, which includes New Starts, Small Starts, and Core Capacity grants. The proposed CRT project would be considered a New Starts application, given that the total project cost is more than \$300 million and the total funding sought from the FTA is over \$100 million. The project is also a new fixed guideway system.

Applications for the CIG program are competitive and must be evaluated, rated, and go through an approval process. Projects are evaluated on both Project Justification criteria, such as cost effectiveness, environmental benefits, economic

development effects, and land use effects. Projects are also rated based on Local Financial Commitment criteria. All criteria are rated based on a five-point system, from low to high. The presence of affordable housing within the proposed transit corridor is key to receiving a high rating within the land use effects evaluation criteria.

Projects are required to calculate the proportion of legally binding affordable housing within the corridor as compared to the proportion across the county overall, for all counties that are along the proposed transit corridor.¹² The project corridor is defined as within one-half mile of individual station study areas throughout the corridor. Breakpoints from low to high for the land use rating criteria related to affordable housing are listed below. The proposed CRT corridor rated as medium-high on this scale, with a score of 2.29.

Table 4: Affordable Housing Criteria Rating for Capital Improvement Grants Program

Rating	Proportion of legally binding affordability restricted housing in the project corridor compared to the proportion in the counties through which the project runs
High	>2.50
Medium-High	2.25 – 2.49
Medium	1.50 – 2.24
Medium-Low	1.10 – 1.49
Low	<1.10

Overall, within the three counties of the proposed CRT corridor, 7.82% of dwelling units within station study areas are considered LBAR. The proportion of LBAR units to the total number of dwelling units throughout the three counties is 3.42%. Therefore, there is 2.29 times the number of LBAR units within station study areas along the corridor than the proportion that exists within the three counties overall (Table 3). Currently, if the project were to be submitted to the FTA with the proposed existing station study areas, the project would receive a score of 2.29, or medium-high rating on a scale of low to high, for the affordable housing land use effects rating criteria. A rating of medium or higher is generally considered positive for reviews for FTA's CIG Program.

Table 5: Proportion of LBAR Units within CRT Station Area Compared to Counties Overall

County	Proportion of LBAR to Total Units in Station Study Areas			Proportion of LBAR to Total Units in County Overall			Proportion LBAR in Station Study Areas/Proportion LBAR in County Overall
	LBAR Units within Station Study Areas	Units within Station Study Areas	% LBAR/Units in Station Study Areas	Total LBAR Units within County	Total Units within County	% LBAR/Total Units in County	
Durham	801	8,710	9.20%	7,425	141,796	5.24%	1.76
Johnston	104	1,140	9.12%	2,446	84,151	2.91%	3.14
Wake	743	11,232	6.62%	13,211	448,931	2.94%	2.25
TOTAL	1,648	21,082	7.82%	23,082	674,878	3.42%	2.29

Plans and Proposals for Future LBAR Housing

Triangle J COG created an inventory of future legally binding affordable housing units to better understand how the proposed corridor may score once the properties were built. This also assists in determining whether additional or re-located station study areas may be useful to better serve low- and moderate-income households with access to transit. The inventory of future LBAR units was primarily created using the list of awarded projects through the Low Income Housing Tax Credit (LIHTC) Program, administered in North Carolina by the NC Housing Finance Agency. Additionally, planned renovations and new construction as part of the Downtown Durham Redevelopment Plan were included.

These additional properties are only a fraction of the units that will be developed in the near term, both inside and outside the station study areas. However, if the additional LBAR units identified were the *only* units to be built and were included in the scoring for the FTA New Starts application, the project would score 2.87, or the highest rating on the rating scale. A subsequent version of this calculation will be made using the region's CommunityViz growth allocation tool to project the location of market rate units to get a sense of how corridor affordable housing may trend in the future.

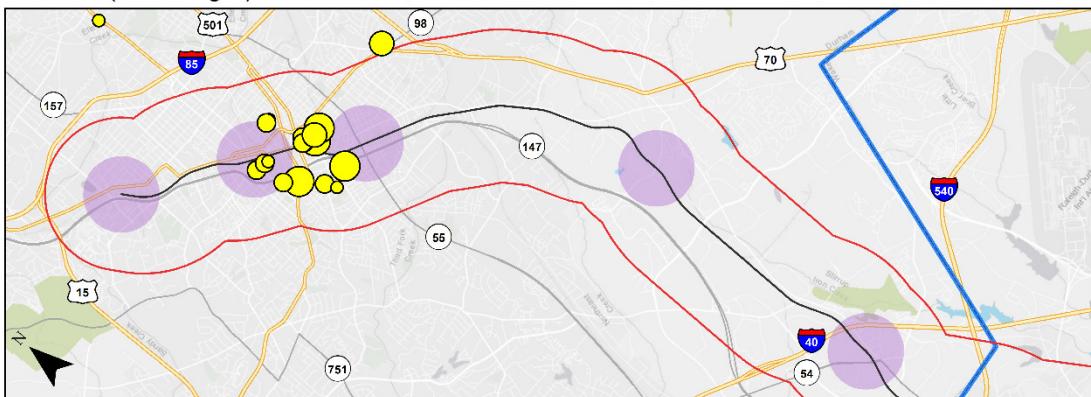
Table 6: Existing and Future Proportion of LBAR Units within CRT Station Area Compared to Counties Overall

County	Proportion of LBAR to Total Units in Station Study Areas			Proportion of LBAR to Total Units in County Overall			Proportion LBAR in Station Study Areas/Proportion LBAR in County Overall
	LBAR Units within Station Study Areas	Units within Station Study Areas	% LBAR/Units in Station Study Areas	Total LBAR Units within County	Total Units within County	% LBAR/Total Units in County	
Durham	1,533	8,710	17.60%	9,625	141,796	6.79%	2.59
Johnston	104	1,140	9.12%	2,496	84,151	2.97%	3.07
Wake	743	11,232	6.62%	14,411	448,931	3.21%	2.06
TOTAL	2,380	21,082	11.29%	26,532	674,878	3.93%	2.87

The maps on the next page show the distribution of future LBAR units along the corridor, based on known plans and funding commitments. As additional plans are endorsed and funding commitments secured, the database and maps will be updated.

Figure 6: Future LBAR Units within Corridor

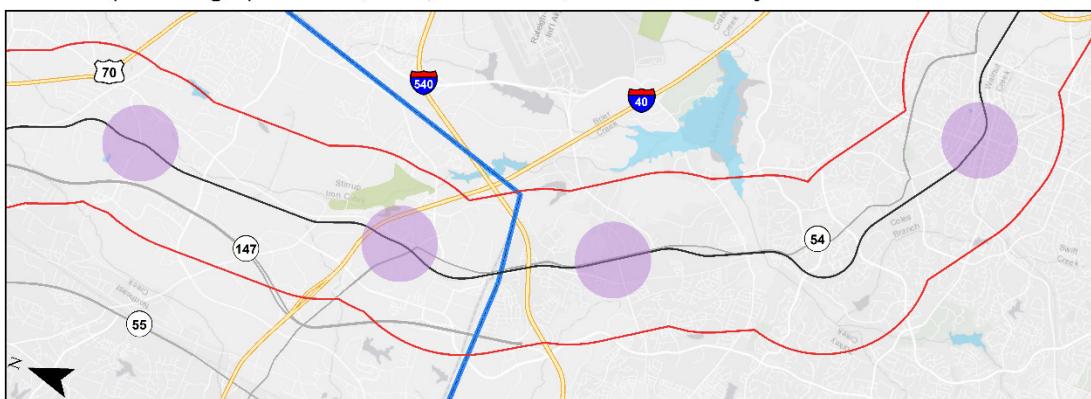
Stations (left-to-right): W. Durham, Downtown Durham, East Durham, Ellis Rd, RTP



Future Legally-Binding Affordable Housing

- 10 or less
- 11 - 50
- 51 - 100
- 101 - 150
- 151 or more

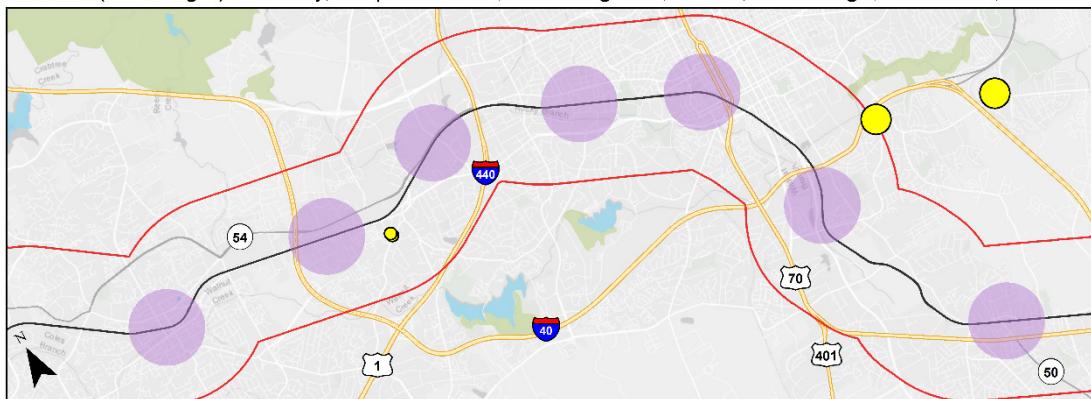
Stations (left-to-right): Ellis Rd, RTP, Morrisville, Downtown Cary



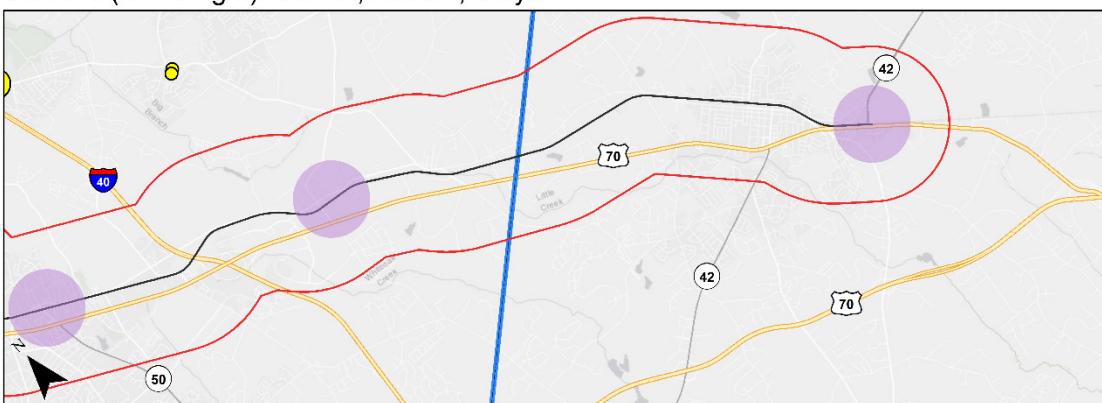
Map Symbols:

- Railroad track alignment
- Corridor boundary (1 mile from tracks)
- Station Study Area (1/2 mile radius circle)
- County boundary

Stations (left-to-right): DT Cary, Corp Center Dr, Blue Ridge Rd, NCSU, DT Raleigh, Hammond, Garner



Stations (left-to-right): Garner, Auburn, Clayton



Analysis: Naturally Occurring Affordable Housing

Also known as market-rate affordable housing, this is housing that is affordable based on its price on the private market, and it is not restricted to occupancy by low-income households. Naturally-Occurring Affordable Housing (NOAH) properties tend to be older, lack amenities, and may be of substandard quality. For purposes of this report, properties are considered NOAH if their rental rates are affordable to households at or below 80% AMI based on the number of bedrooms and household size, although further breakdown of units that are affordable to households at or below 60% AMI can be found in the appendix.

Naturally Occurring Affordable Housing Apartment Inventory

It is important to track information on NOAH as part of an overall affordable housing inventory, particularly to focus in on where changes in the market – potentially influenced by the proposed transit investment – may increase rents and cause the loss of NOAH units. For the purposes of this inventory, NOAH units do not include homeownership properties due to data limitations around calculating and tracking the affordability of owner-occupied units. Data comes from CoStar, a company that collects information on multifamily residential buildings, typically with 20 units or more.

Throughout the three counties along the initial CRT alignment, there are more than 22,000 NOAH units that serve households at 80% AMI or below. Compared to LBAR units, NOAH units make up nearly 20% of the market-rate affordable units within the three counties. Overall, the majority of NOAH units within the corridor serve households between 61-80% AMI, the higher end of the affordable housing scale. As Table 7 shows, NOAH units are more concentrated along the CRT Corridor in Johnston County than they are in Wake and Durham Counties. Nevertheless, the bulk of NOAH units along the corridor are in Wake and Durham Counties.

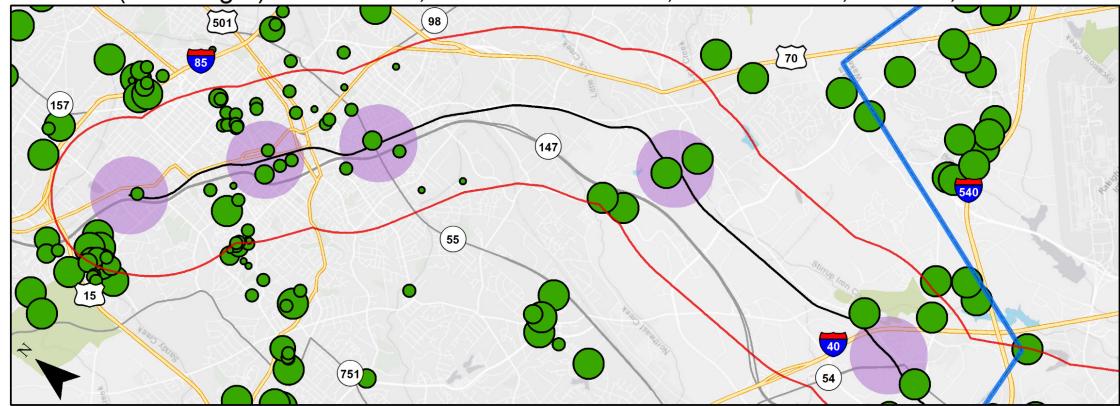
Table 7: NOAH Units in CRT Corridor by County

County	NOAH Units CRT Corridor	Total NOAH Units	% of County NOAH in Corridor
Durham	5,648	30,607	19%
Johnston	976	2,188	45%
Wake	15,420	88,591	17%
TOTAL	22,044	121,386	18%

The series of maps on the next page show the distribution of NOAH multi-family units along the corridor

Figure 7: NOAH Units within CRT Corridor

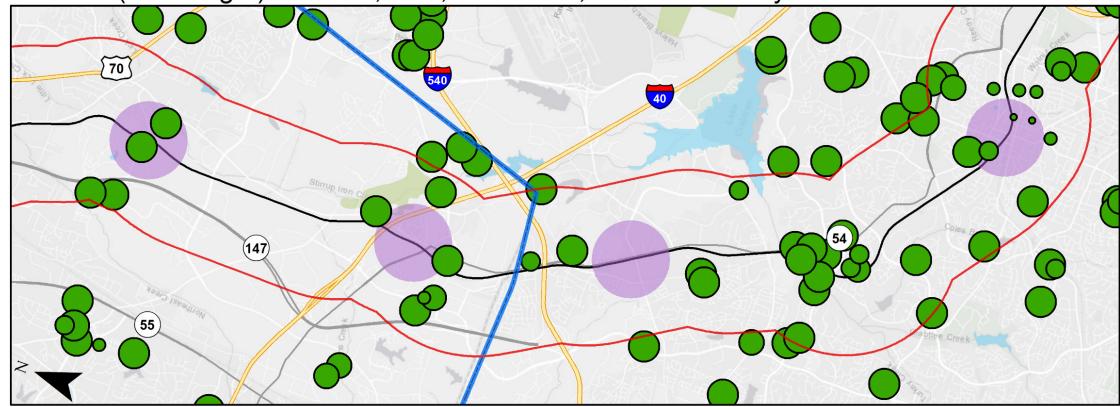
Stations (left-to-right): W. Durham, Downtown Durham, East Durham, Ellis Rd, RTP



Naturally Occurring Affordable Housing Multifamily Units

- 10 or less
- 11 - 50
- 51 - 100
- 101 - 150
- 151 or more

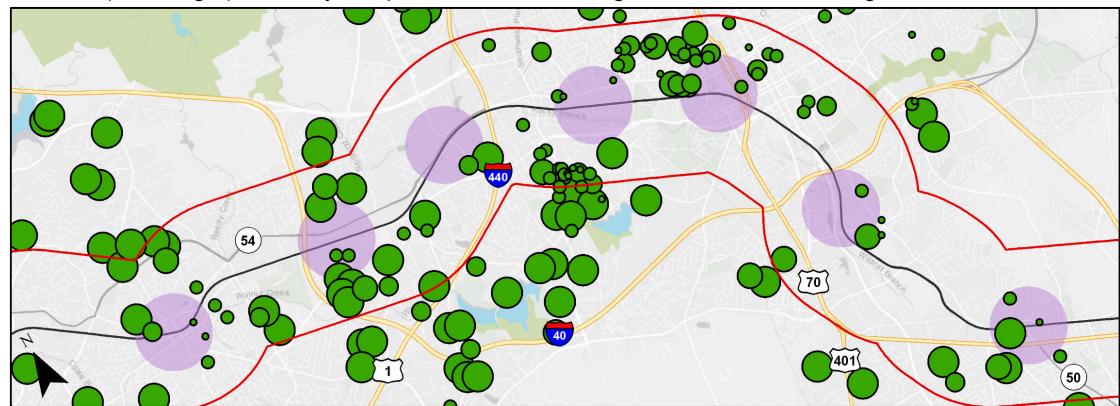
Stations (left-to-right): Ellis Rd, RTP, Morrisville, Downtown Cary



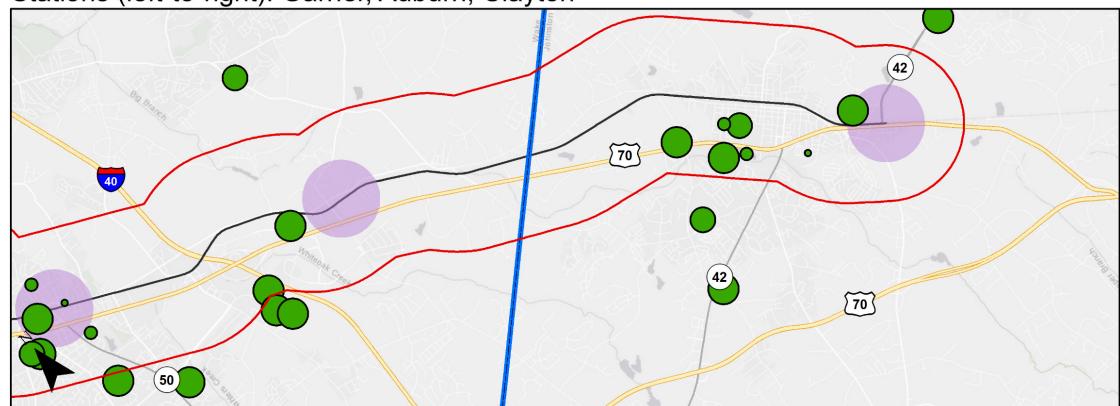
Map Symbols:

- Railroad track alignment
- Corridor boundary (1 mile from tracks)
- Station Study Area (1/2 mile radius circle)
- County boundary

Stations (left-to-right): DT Cary, Corp Center Dr, Blue Ridge Rd, NCSU, DT Raleigh, Hammond, Garner



Stations (left-to-right): Garner, Auburn, Clayton



Opportunity Sites and Segments

Unlike the previous analysis, the examination of opportunity sites and segments is more speculative. Opportunity sites are publicly-owned parcels that could be worthy locations for affordable housing based on their characteristics and proximity to the rail line. Opportunity segments are locations along the rail line that could be worthy locations for additional stations, based on their proximity to affordable housing. A GIS-based analysis of publicly-owned parcels along the initial rail alignment was performed to identify housing-feasible parcels. Criteria, including ownership status and acreage, was used to identify the parcels; parcels were excluded if they were in flood zones, considered parks or open space, or would likely be unbuildable. Parcels that fit these criteria along the CRT corridor are displayed below.

These opportunity sites may be further analyzed to determine their suitability for specific affordable housing projects. Criteria for a further analysis could include site characteristics such as mixed-use zoning by right, land value per square foot, existing access to water and sewer and proximity to services and amenities like sidewalks, grocery stores, shopping, and pharmacies – specifically if the analysis is intended to identify parcels suitable for Low Income Housing Tax Credit (LIHTC) projects – a primary funding source for affordable housing in North Carolina and nationwide.

Table 8: Publicly Owned Parcel Analysis Criteria

1. Ownership Status

Category/Criteria	Score
Local Government, School Board, Housing Authority	1
<i>GIS field: OWNSCOR</i>	
<hr/>	

2. Parcel Size

Category/Criteria	Score
Greater than 1.0 acres	1
<i>GIS field: PARSZSCOR</i>	
<hr/>	

3. Flood Zone

Category/Criteria	Score
Center of parcel in Zone AE, A, or shaded X	1
<i>GIS field: FLOODSCOR</i>	
<hr/>	

4. Parks and Open Space

Category/Criteria	Score
Not park or open space	1
<i>GIS field: PARKSCOR</i>	
<hr/>	

5. Parcel Shape

Category/Criteria	Score
Parcel shape factor <= 35	1
<i>GIS field: PARSHPSCOR Parcel shape factor = (Parcel perimeter²/Area)</i>	
<hr/>	

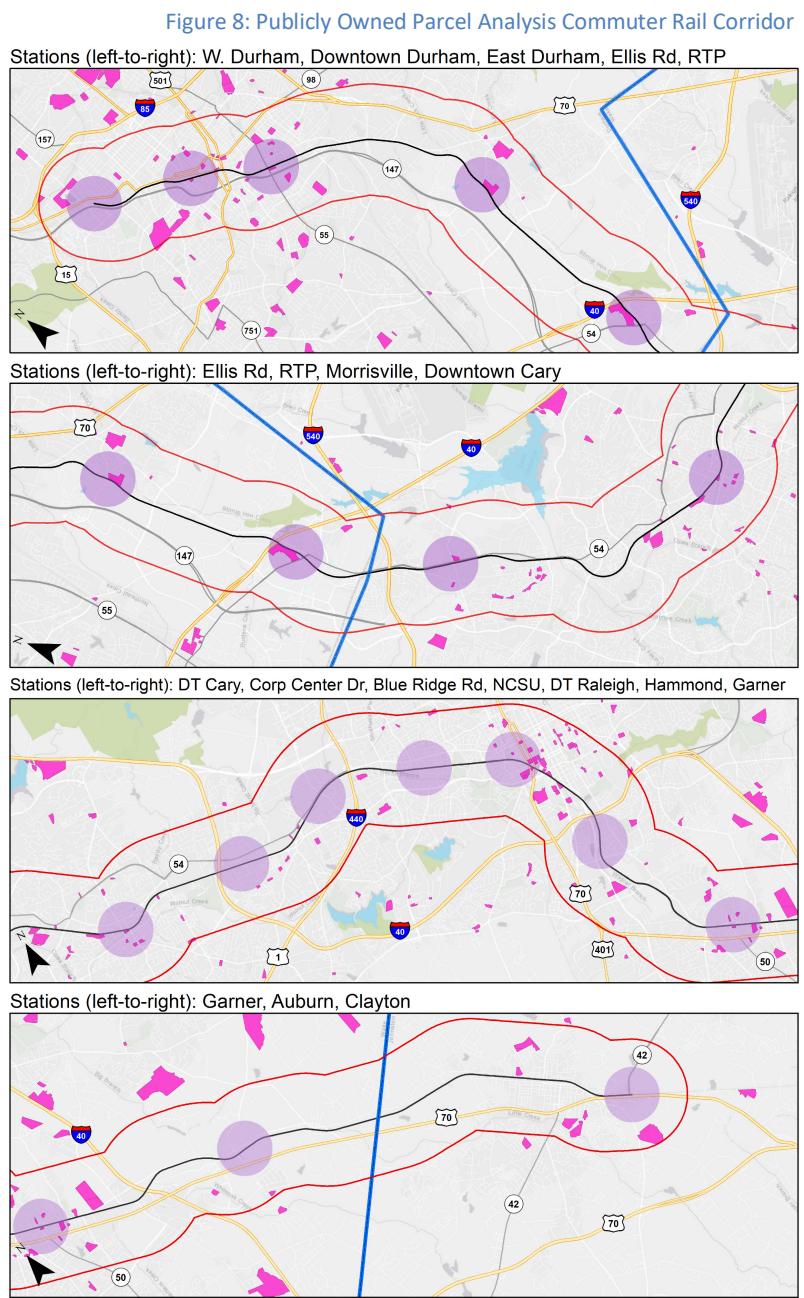


Table 9: Publicly Owned Parcels Suitable for Affordable Housing Development within CRT Corridor

	Wake County	Durham County	Johnston County
Total Parcels (within 1mi Corridor)	36,029 parcels	19,504 parcels	5,842 parcels
Total Acreage	35,352 acres	16,278 acres	8,718 acres
Publicly-owned parcels*	159 parcels	79 parcels	16 parcels
Publicly-owned acreage	1,065 acres (3% of corridor)	336 acres (2.1% of corridor)	162 acres (1.9% of corridor)

*Includes only publicly-owned parcels suitable for affordable housing, meaning they were greater than one acre, not located within a flood zone or considered parks or open space, and that the parcel shape was feasible for development, as defined in the above criteria "5. Parcel Shape".

The importance of locating affordable housing near transit in order to score highly on the LIHTC application cannot be underestimated. According to the NC Housing Finance Agency's Qualified Allocation Plan, which outlines the scoring criteria that projects must meet to score competitively, "A bus/transit stop qualifies for 6 points, not to exceed the total for subsection (ii), if it is: 1) in service as of the preliminary application date, 2) at a fixed location and has a covered waiting area, 3) served by a public transportation system six days a week, including for 12 consecutive hours on weekdays, and 4) within 0.25 miles walking distance of the proposed project site entrance using existing continuous sidewalks (excluding the proposed project site) and crosswalks." Any potential station along the CRT corridor would meet the criterion for being at a fixed location with a covered waiting area. Service would need to be extended through Saturday to qualify for this section of points on the application.

Opportunity segments are locations along the corridor where either additional or relocated stations could be considered, based on the amount and location of existing and planned LBAR housing, existing NOAH housing, and/or opportunity sites.

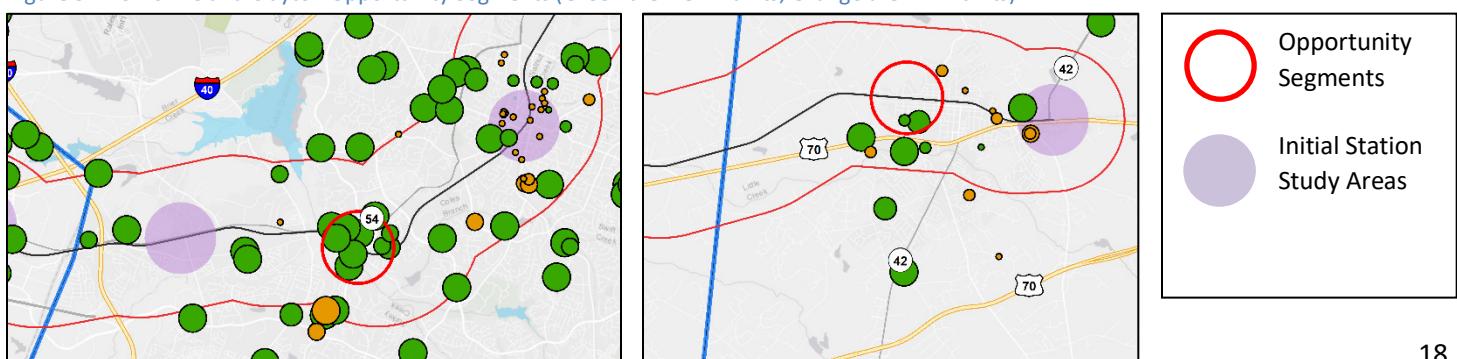
An initial review suggests two areas may warrant attention; interestingly enough along the two segments with the greatest distance between initial station study areas. Shown below, the first is near Morrisville Parkway, where there is a substantial amount of market-rate multifamily affordable housing today – likely near the 80%-of-AMI end of the income spectrum. The 2045 Metropolitan Transportation Plan includes a rail station here and, although it may not become part of the initial investment, design and engineering might benefit from planning for this possible addition.

The second segment is in the vicinity of the terminal location in Clayton, where more study may be worthwhile from both a housing and economic development perspective. The database indicates more market rate multifamily NOAH west of the initial station study area; moving the terminal station farther east towards Grifols and NovoNordisk could have both housing and job access benefits, if it allows for an appropriately spaced station in central Clayton to capture both economic activity and market rate affordable housing closer to the town center.

Table 10: NOAH and LBAR Units Within ½ mile of Possible Added Station in Opportunity Segments

CRT Segment	NOAH Units	LBAR Units
Morrisville	2,547	0
Clayton	179	0
TOTAL	2,726	0

Figure 9: Morrisville and Clayton Opportunity Segments (Green are NOAH units; Orange are LBAR units)



The Affordable Housing Opportunity

As the Triangle grows and new investment and transit opportunities materialize, preserving housing affordability is a key to ensuring safe, healthy, and equitable housing for people of modest means. There is a strong base from which to begin: more than 28,000 affordable housing units within the proposed CRT corridor can serve households at or below 80% of AMI. Many of the units are either affordable through the market, known as NOAH, or have expiring affordability restrictions, so the preservation challenge is both real and near-term.

Local governments, private market actors, and anchor institutions, such as university and hospital systems, can play key roles in securing housing affordability for the future. No single effort is likely to move the needle: a variety of strategies to preserve and create affordable housing will be required to have a meaningful impact. There are many examples of best practices for some of these strategies in place across our region already, including:

- Local governments, such as Wake County, the City of Raleigh and Durham County creating inventories of publicly owned land that might be suitable for affordable housing and subsequently conveying it to a developer for a below-market price in order to reduce the cost of development in exchange for housing that meets the priorities of the community,
- Raleigh's effort to specifically focus on strategies that promote equitable Transit Oriented Development (eTOD), through its Guidebook, published in July 2020. The Guidebook helps educate the public on what eTOD is, outlines the design principles for corridor development, identifies station area types, and proposes a policy toolkit and action plan.
- The partnership between the City of Durham, Duke University, Self Help Credit Union, Truist, and the NC Community Development Initiative to create the Durham Affordable Housing Loan Fund. The fund aims to help create more affordable housing in Durham to assist non-profit developers and housing authorities in providing funds for quick acquisition of affordable housing properties at risk for becoming unaffordability in a competitive market¹³.

Strategies such as these – those that involve partnerships between a diverse set of stakeholders and opportunities to leverage public assets for additional private investment – can be a foundation for an effective strategy to bolster affordable housing opportunities within the corridor. As NOAH units age, they can be targeted for redevelopment by private investors. And as affordability restrictions of some LBAR units begin to expire, these strategies, as well as ones we might learn from peer regions, can be critical in preserving what we already have while we also work on increasing the supply. Acting during the current period of planning, prior to the completion of the transit investment, can make equitable TOD investments most cost-effective. With the examples of best practices already in place in portions of the Triangle, there is the opportunity to extend their reach and supplement them with tools from other places to create a diverse array of techniques and funding mechanisms to support affordable housing along proposed transit investments.

Measuring Performance

Tracking Data to Achieve Goals and Outcomes

Passenger rail investments are long-lived assets that can shape and serve development over decades. If serving people of modest means and providing affordable housing along the rail corridor are valued, then tracking changes in housing and socioeconomic characteristics over time are critical to being able to adjust strategies as warranted. The metrics below are some that can help decision-makers understand how conditions are changing and guide the evolution of housing strategy.

Table 11: Commuter Rail Corridor and Affordable Housing Baseline Metrics

Topic	Metric	Data Source	Geography of Analysis
Population Characteristics	1. Population 2. Population density (per square mile) 3. % White alone 4. % African American alone 5. % Other races or multiracial 6. % Hispanic/Latino (of any race)	American Community Survey, most recent 5 year estimates	Census block groups within station study areas
Household Characteristics	1. Number of households 2. % Family households	American Community Survey, most recent 5 year estimates	Census block groups within station study areas
Resident Economic Characteristics	1. Median household income 2. Median household income: owner occupied unit 3. Median household income: renter occupied unit 4. % of renter households below 80% AMI who are housing cost-burdened	American Community Survey, most recent 5 year estimates	Census tracts within station study areas
	5. % families with income below poverty level 6. Number and proportion of zero car households	American Community Survey, most recent 5 year estimates	Census block groups within station study areas
	7. % of income spent on housing and transportation costs for households less than 80% AMI (a household is considered cost-burdened if they spend more than 4% of income on combined costs)	H+T Index	Census block groups within station study areas
Housing Supply Characteristics	1. Number of housing units 2. % owner-occupied units 3. % renter-occupied units 4. Median gross rent 5. Median owner-occupied house value 6. Median gross rent as a % of household income 7. Median owner costs as a % of household income (with mortgage)	American Community Survey, most recent 5 year estimates	Census block groups within station study areas
	8. % single-family properties 9. % small multifamily properties (<20 units) 10. % large multifamily properties (>20 units)	American Community Survey, most recent 5 year estimates	Census tracts within station study areas

Table 12: Performance Metrics to Achieve Affordable Housing Goals

Goals	Outcomes	Metrics & Desired Trend	Data Source	Geography of Analysis
1. Preserve Legally-Binding (LBAR) and Naturally Occurring Affordable Housing (NOAH) Units	1.1 Maintain the number of existing LBAR units	1.1.1 Number of LBAR units that have reverted to market-rate within the last year (→)	TJCOG-maintained affordable housing inventories	Station study areas
	1.2 Prevent displacement of low- and moderate-income renters and homeowners	1.2.1 Number of homeowners provided with financial assistance to rehab their homes (↗)	Durham, Wake, and Johnston home repair partners.	Station study areas
		1.2.2 Number of homeowners who receive property tax assistance (↗)	Durham, Wake, and Johnston Counties	Station study areas
		1.2.3 Proportion of residential properties that are 10+ years old that have sold within the last year (→)	County property records	Station study areas
	1.3 Maintain the number of naturally occurring affordable housing units	1.3.1 Number of multifamily NOAH units (→)	TJCOG-maintained affordable housing inventories	Station study areas
	1.4 Increase availability of healthy, safe, and affordable places for renters	1.4.1 Number and proportion of rental properties considered to be in poor, very poor, or unsound condition by the tax assessor (↘)	Durham, Wake, and Johnston County Tax Assessors	Station study areas
2. Create New Legally-Binding Affordability Restricted (LBAR) Units	2.1 Increase in number of LBAR units	2.1.1 Number of LBAR units (↗)	TJCOG-maintained affordable housing inventories	Station study areas
		2.1.2 Proportion of legally-binding units within 1/2 mile station area vs. proportion of total legally-binding units in the county in which station is located (↗)	TJCOG-maintained affordable housing inventories	1/2 mile station area and Durham, Wake, and Johnston Counties
	2.2 Increase the availability of market-rate units with a range of sizes	2.2.1 Difference between number of units by bedroom size compared to the number of households by household size (↘)	American Community Survey, 2014-2018 5 year estimates	Census block groups within station study areas
3. Encourage Transit-Oriented Development	3.1 Increase employment opportunities near affordable housing and public transportation	3.1.1 Number of employees (↗)	LEHD OnTheMap database	Census block groups within station study areas
	3.2 Increase population densities near public transportation	3.2.1 Number of people who live and work within the transit corridor (↗)	LEHD OnTheMap database	Census block groups within station study areas
	3.3 Increase mixed-use transit-oriented development communities	3.3.1 Square feet of office, multi-family, industrial, hospitality, retail, health care, and sports & entertainment properties (↗)	CoStar database	Station study areas

Desired Trend Outcomes
↗ Metric increases over time
→ Metric remains the same over time
↘ Metric decreases over time

Next Steps

Communities in the Triangle Region do not have deep pockets relative to larger and more prosperous regions that are investing significant public resources to address land use, economic development and affordable housing along transit corridors. And they are often hampered by state restrictions from applying innovative tools used successfully elsewhere. In the passenger rail corridor itself, actions by major anchor institutions – universities and medical centers – can significantly influence success. In order to be successful, people of good will must collaborate voluntarily to do their part.

In a word: Partnerships. Sustained, systematic partnerships will be needed if meaningful results are to be achieved.

The analysis and metrics in this report can help inform decisions about economic development, land use and affordable housing. For strategies to achieve their full potential, partnerships among interdisciplinary stakeholders can be created where they do not yet exist, and nurtured and strengthened where they do.

Two initial partnerships – one already existing and the other with a precedent in the region – can serve as cornerstones for collaboration:

- *The Triangle Housing Practitioners Group* – Made up of stakeholders from the public, private and civic sectors who fund, build, manage or regulate affordable housing, the practitioners group was created in 2017 and is convened by the Triangle J Council of Governments to examine techniques, learn about emerging opportunities, and share effective practices.
- A *Land Use-Housing-Transit Partnership* that can bring together expertise from different “silos” for a laser-like focus on the inter-related decisions that communities make on land use regulation, transit investment, and housing programs. An analogous group was created by Triangle J COG to look at passenger rail, bus rapid transit, and frequent bus service corridors in the Wake Transit Plan. Transitioning this group to a regional group and sustaining it over time could be a productive collaboration.

These partnerships can support efforts not just in the passenger rail corridor, but along other public transit investments planned in the region.

In addition to partnerships, three other next steps can form a framework to pursue strategies that align economic development, land use and affordable housing with transit investments:

1. Monitoring, Evaluation, and Reporting. An annual report and dashboard that tracks progress on creating and maintaining affordable housing near transit.
2. Policy Priorities. A set of periodically updated housing policy priorities that align with state legislative sessions and leverage federal opportunities.
3. Annual Development & Transit Investment Summit. Building on the work of the partnerships and the monitoring and evaluation effort, an annual summit can showcase what communities along the major transit investment corridors are doing to meet their economic development, land use and affordable housing goals and introduce fresh ideas from people in the Triangle and experts from peer regions. A summit or similar event can be a way to partner with organizations with similar interests, such as the Urban Land Institute, and engage regional stakeholders.

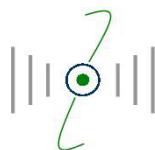
Taking full advantage of opportunities near transit will not happen by accident. Our solutions must be intentional and strategic, so that over time, we can look back and know we have done what we could to increase the chances for success.

Additional Resources

- TJCOC Housing – <https://www.tjcog.org/focus-areas/housing>
- GoTriangle Commuter Rail Website - <https://www.readyforrailnc.com>
- Enterprise Community Partners – www.enterprisecommunity.com
- HUD Evidence Matters – www.huduser.org/portal/evidence.html
- HUD Income Limits - <https://www.huduser.gov/portal/datasets/il.html>
- Center for Transit Oriented Development – www.ctod.org
- Reconnecting America – www.reconnectingamerica.org
- TJCOC Affordable Housing Glossary - <https://bit.ly/2tml3o0>
- Missing Middle Housing – www.missingmiddlehousing.com
- NC Housing Finance Agency – <https://www.nchfa.com/>
- National Housing Preservation Database - <https://preservationdatabase.org/>
- National Low Income Housing Coalition - <https://nlihc.org/>
- Durham Housing Authority Downtown and Neighborhood Planning -
<https://www.durhamhousingauthority.org/development/ddnp/>

This report was prepared by Erika Brown, John Hodges-Copple and Jenna Kolling of the Triangle J Council of Governments. Special thanks to Katharine Eggleston, Jay Heikes and Meg Scully of GoTriangle for their input to and review of this report. For questions or comments, please contact Erika Brown at ebrown@tjcog.org or Jenna Kolling at jkolling@tjcog.org. Copies of this report, along with supplementary material and additional mapping, are available for download from the GoTriangle Commuter Rail website at <https://www.readyforrailnc.com/reports/>.

Funding support for this report came from county transit tax revenues from Wake and Durham Counties.



Appendices

Appendix 1: Data Methods and Sources

Naturally Occurring Affordable Housing Inventory

The naturally occurring affordable housing inventory includes data from CoStar, a real estate database. CoStar provides data on rental rates and unit size, which are used to determine if a unit is considered affordable – meaning a household pays no more than 30% of its gross monthly income on housing. Therefore, affordable rents are calculated as no more than 30% of a household's gross monthly income, calculated as 1/12 of HUD's annual income limits for each AMI level. Assuming every bedroom is being occupied by one-person – such that a studio and a 1-bedroom unit is being occupied by a one-person household, a two bedroom unit is being occupied by a two bedroom household, and so on. Units are not double counted; if a unit is considered affordable at 60% of AMI, that unit is not recounted as a unit affordable to a household at 80% of AMI.

Data downloaded from CoStar changes as rental rates change, as often as daily. Only units with rental rates that were calculated as affordable are included in the NOAH inventory – meaning some properties may have some units that are considered NOAH, while others are not. CoStar's database traditionally only includes rental housing in properties with five or more units; therefore, smaller rental properties, mobile homes, and single-family rental and homeownership units are not included in the NOAH inventories. The data included in the NOAH inventories for this report was downloaded from CoStar in August 2020 and calculated using HUD's 2020 income limits for the Durham-Chapel Hill MSA for Durham County and the Raleigh MSA for Wake and Johnston counties.

Legally Binding Affordability Restricted Housing Inventory

Triangle J COG's LBAR inventory uses data from the National Housing Preservation Database, which includes address-level inventory of federally assisted rental housing, though does not contain information on affordable units supported only by state and local programs. The NHPD data is supplemented using data from local affordable housing providers, dependent on the county – such as non-profit affordable housing organizations, local housing authorities, or local governments.

Public housing units owned and operated by local housing authorities were assumed to serve households at or below 60% of AMI as were 4% and 9% Low Income Housing Tax Credit properties and inventories provided by Durham Habitat for Humanity, Durham Community Land Trust, CASA, and Wake County Habitat for Humanity. Properties developed through some federal other funding streams can traditionally serve families up to 80% of AMI, such as the HOME Investment Partnerships (HOME) Program, the Community Development Block Grant (CDBG) Program, and properties funded through Section 202 (senior housing), Section 811 (housing for people with disabilities), US Department of Agriculture (USDA), Federal Housing Administration (FHA) or other federal housing production loan programs. The data included in the LBAR inventories for this report was downloaded from NHPD in August 2020. Updates from local government and non-profit providers was received in the summer of 2019.

Future Legally Binding Affordability Restricted Housing Inventory

The inventory for future legally binding affordable housing includes Low Income Housing Tax Credit (LIHTC) projects awarded during the 2020 funding cycle. Additionally, given the large scale redevelopment of Durham Housing Authority properties through the DHA Downtown and Neighborhood Plan that preserves and develops over 2,400 mixed-income units to serve residents at various Area Median Incomes (AMI) in apartment complexes with bedroom sizes ranging from studios to three-bedrooms. Given that many of the redevelopment sites are located within or near proposed CRT station study areas, these units were included in the inventory. Exact dates of when the units will be placed in service has not been included. When calculating the potential FTA LBAR calculation (Table 5), no changes were made to the existing number of residential dwelling units throughout the three counties. Only proposed LBAR properties were included as part of the analysis.

Federal Transit Administration Capital Improvement Grant Program Affordable Housing Calculation

The Federal Transit Administration (FTA) requires that applications for Capital Improvement Grant funds submit data about the amount of affordable housing within the proposed transit corridor. The calculation of the proportion of affordable housing is the proportion of affordable housing to total housing units within a half-mile buffer of the proposed stations compared to the proportion of affordable housing compared to total housing units within the county where the stations are located.

While FTA notes that gathering local data about existing affordable housing units within the area, they will accept statistics that can be found through the National Housing Preservation Database (NHPD). The FTA notes that residential housing units should come from the American Community Survey (ACS) five year estimates at the County and Census Tract levels. For purposes of this calculation, residential housing units for counties come from ACS 5-year estimates from 2014-2018 and station study area residential dwelling counts come from county-maintained parcel level data. Station areas are defined as one-half mile surrounding proposed stations along the corridor.

Opportunity Sites Analysis

Using parcel data from Durham County, Wake County, and Johnston County GIS, a set of criteria was developed to evaluate ownership status, development status, parcel size, and remove parcels that were located within a flood zone, considered parks or open space or whose parcel shape was considered less developable. Johnston County parcel level data did not include required information for the analysis; therefore, the County's address point shapefile was joined to the parcel-level data to complete the analysis.

Parcels were considered to be publicly owned if they were owned by any of the following: local government (including municipal and county-level governments), local housing authorities, or school boards. If the parcel was publicly owned, it received a score of one. If a parcel was identified as vacant, it received a score of one for development status. However, the analysis for Wake County indicated there were no parcels that met the other criteria for a desirable affordable housing site that were vacant, therefore development status was not included in the final analysis for any of the three counties. Parcels were removed from consideration if they were less than one acre in size. Additionally, any parcel that was located within a flood zone (Zone AE, A, or shaded X) or that was considered parks and open space was removed. Finally, to determine whether the parcel was a suitable shape for development, parcels were removed from consideration if their "parcel shape factor," equal to the perimeter of the parcel squared divided by the parcel's area was greater than 35.

Appendix 2: Station Study Area-Level Affordable Housing Data

Station Study Areas	Total DUs	2020 Total AH	% Affordable ≤80% AMI	2020 LBAR	2020 NOAH	<60% AMI	60-80% AMI
						NOAH	NOAH

Durham County

West Durham	2,292
Downtown Durham	2,947
East Durham	1,509
Ellis Road	1,105
Research Triangle Park	857

148	6%	134	14	14	0
356	12%	213	143	0	143
541	36%	454	87	87	0
669	61%	0	669	0	669
256	30%	0	256	0	256

Wake County

Morrisville	565
Downtown Cary	1,103
Corp Center Drive	1,552
Blue Ridge Road	449
NC State University	2,365
Raleigh	3,785
Hammond	464
Garner	847
Auburn	102

0	0%	0	0	0	0
107	10%	39	68	68	0
759	49%	3	756	44	712
97	22%	0	97	97	0
109	5%	72	37	6	31
767	20%	518	249	0	249
44	9%	0	44	44	0
312	37%	111	201	201	0
0	0%	0	0	0	0

Johnston County

Clayton NC-42	531
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296	56%	104	192		192
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Endnotes

- ² Housing and Transportation Index. <https://htaindex.cnt.org/>. The latest index is the 2017 update, which uses 2015 ACS data (presumably 2011-15 5-year data) and 2014 LEHD data as inputs.
- ³ 2019 American Community Survey 1-year Estimates for the Raleigh-Durham-Cary Combined Statistical Area.
- ⁴ Housing + Transportation Index. <https://htaindex.cnt.org/about/>
- ⁵ National Housing Preservation Database (NHPD). <https://preservationdatabase.org/>
- ⁶ Local data sources for the counties included in this report include: Wake County Department of Housing Affordability and Community Revitalization, Wake County Habitat for Humanity, Durham County Habitat for Humanity, and Durham Community Land Trust.
- ⁷ Durham Housing Authority, Downtown and Neighborhood Planning Final Report.
<http://www.durhamhousingauthority.org/development/ddnp/ddnp-documents/>
- ⁸ NC Housing Finance Agency, 2019 Low Income Housing Tax Credit Awarded Projects. <https://www.nchfa.com/rental-housing-partners/rental-developers/find-awarded-projects>
- ⁹ Durham Housing Authority, Downtown and Neighborhood Planning Final Report.
<http://www.durhamhousingauthority.org/development/ddnp/ddnp-documents/>
- ¹⁰ NC Housing Finance Agency, 2019 Low Income Housing Tax Credit Awarded Projects. <https://www.nchfa.com/rental-housing-partners/rental-developers/find-awarded-projects>
- ¹¹ Housing Choice Vouchers were not included in the inventory or mapping of LBAR housing, due to data limitations. Note that in some cases, Housing Choice Vouchers may be used in coordination with a LBAR property.
- ¹² New and Small Starts Evaluation and Rating Process Final Policy Guidance. August 2013. https://www.apta.com/wp-content/uploads/Resources/gap/fedreg/Documents/NS-SS_Final_PolicyGuidance_August_2013.pdf
- ¹³ Durham Affordable Housing Loan Fund. <https://www.self-help.org/business/loans/all-business-loans/durham-affordable-housing-loan-fund>