



Connecting Communities.  
Shaping a Shared Future.



# DIX EDGE AREA PLANNING STUDY

RALEIGH, NC

DRAFT: FEBRUARY 2021

**HOW TO USE THIS DOCUMENT:**

This issues and opportunities report is an accounting of the existing built condition of the Dix Edge Study Area, and is the first part of a full report that will be the end result of the study. The report is organized thematically by connectivity, land use, and urban design with attention to the real estate market and the current economics of the area. Future phases of this study will build upon the findings and information in this report. The data outlined in this report regarding gaps in transportation networks, shortages in housing supply, including subsidized affordable housing units, unfulfilled demand in job-creating office and retail markets, will inform policy and regulatory changes for growth and change to advance the goal of the study which is to make a better community for everyone living near the Dorothea Dix Park.

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**NOTE:**

*The following materials were prepared by the RHI Team and Raleigh Urban Design Center for the City of Raleigh Department of Planning and Development*

# 1 BACKGROUND AND SUMMARY OF EXISTING CONDITIONS

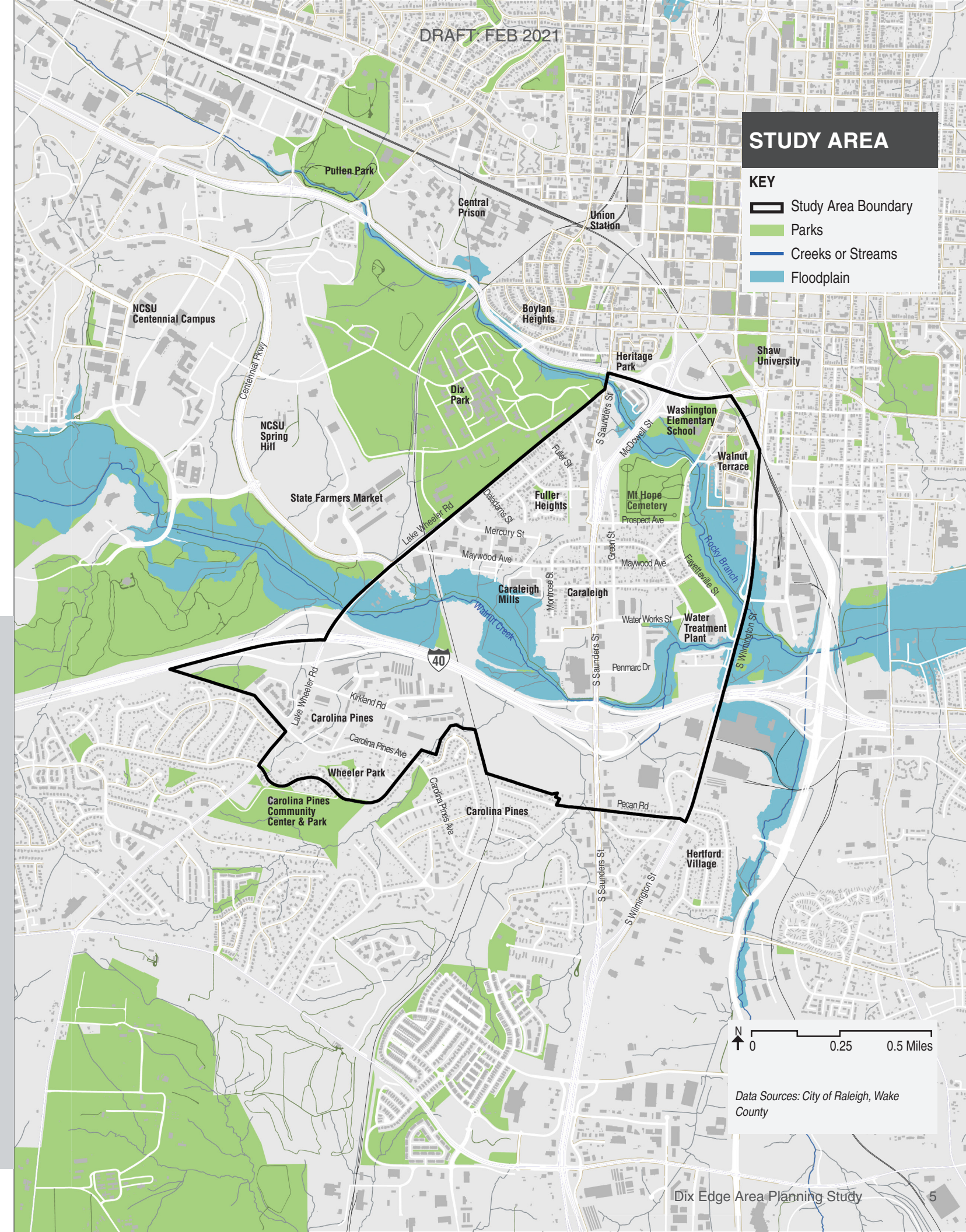
## 1.A INTRODUCTION AND STUDY AREA

The Dix Edge Study is a community-driven plan that will provide a vision, a set of recommendations, and implementable actions to guide the sustainable growth of the area adjacent to, and south of, downtown Raleigh and east of Dorothea Dix Park. The vision will encompass the critical planning elements of land use, built form, building type, connectivity and transportation, housing, economic development, and natural resources.

### THE STUDY AREA

**A number of factors make this Study Area unique:**

- The Caraleigh community's historical origins as a mill town, and its transitioning status from a stable working-class community to one that is now on the edge of change.
- Economic and demographic shifts that are occurring in a variety of socio-economically diverse neighborhoods in the area, including Caraleigh, Fuller Heights, Walnut Terrace and Carolina Pines.
- Proximity to destinations including downtown, Dorothea Dix Park, State Farmer's Market and institutions such as NCSU Centennial Campus and Shaw University --- all which represent the potential for increased pressure for change in the Study Area.
- A large portion of this Study Area was included in the Southern Gateway study, which envisioned the area south of downtown as the next growth area in light of the planned transit investments, including Bus Rapid Transit (BRT).
- Access to various major transportation corridors such as I-40, Western Boulevard/Martin Luther King Jr Boulevard.
- The planned Bus Rapid Transit (BRT) system along Wilmington Road can be used to create enhanced multimodal network in the area, with pedestrian, bicycle and transit. Opportunity to leverage the Wake Transit Plan that provides potential for investing in both fixed routes (backbone of the transit system) and BRT to further the creation of a multimodal environment.
- Availability of open space/natural resource areas including greenways along Rocky Branch and Walnut Creek, neighborhood parks such as Eliza Pool Park and Caraleigh Park, as well as the regionally focused Dorothea Dix Park.
- Significant and sizable development proposals (such as Downtown South) and the additional growth opportunities that these developments will likely spur.



## 1.B MAJOR FINDINGS AND TRENDS

Looking at current development trends—in particular the City’s and State’s recent investments in Dorothea Dix Park, the Farmers Market, and the planned development projects—it is clear that Downtown Raleigh is poised to expand its effective influence up to, and perhaps, into the Study Area. While redevelopment within and around the Study Area is likely, it is important to ensure that existing residents benefit from such redevelopment and it is a major focus of this study.

An existing conditions inventory and analysis has been carried out for the initial phase of this study, based on the following study elements:

- Land Use
- Natural Resource Areas
- Demographics
- Economics and Real Estate
- Connectivity and Transportation
- Utility Infrastructure

Following are the major trends from the existing conditions findings listed under:

1. Community’s Physical Features and Characteristics
2. Demographics
3. Economics
4. Real Estate

### 1. COMMUNITY’S PHYSICAL FEATURES AND CHARACTERISTICS

#### a. A challenge to keep a sustainable balance between existing land uses and proposed growth

The Study Area consists of the diverse neighborhoods of Caraleigh, Fuller Heights, Walnut Terrace and Carolina Pines. These neighborhoods are primarily single family residential, although there are some pockets of multi-family residential, industrial and commercial/mixed-use along the main corridors of S. Saunders Street, Maywood Avenue and Wilmington Street. Large sites are proposed for redevelopment around the northern and southern “book ends” of the Study Area - along the boundaries of Western Boulevard/Martin Luther King Jr Boulevard and along I-40. The redevelopment proposals vary from higher density residential, commercial, retail, mixed-use, hospitality and entertainment-related land uses. This poses a challenge to the preservation and affordability of existing residential.

This challenge is further supported by the fact that the area already contains multiple land holdings by individual property owners/trusts. Future land use policies must be carefully crafted to ensure sustainable growth of the area, provide diversity of housing options, create opportunities to develop equity through such options as well as appropriate jobs, and to protect the communities that have long been home to the area’s residents and businesses.

#### b. Potential to create a model multimodal community south of Downtown

The Study Area is sub-divided by major, auto-focused streets providing strong auto-dependent connection between neighborhoods, destinations and landmark areas. Such destinations include the downtown, Dorothea Dix Park, Farmer’s Market, NCSU Centennial campus and many commercial/retail activity areas primarily along S. Saunders Street and Wilmington Street. The Study Area is served by trails including the Rocky Branch Trail, Walnut Creek Trail, and the Centennial Bikeway Connector. However, there is a general lack of connectivity running east to west across S. Saunders and S. Wilmington streets.

With regard to multimodal options, there is a lack of well-established safe pedestrian and bicycle connectivity throughout the area. Currently, there are four (4) transit routes that primarily serve the Greater Dix Edge Study Area: Route 21 – Caraleigh, Route 7 – S Saunders, Route 7L – Carolina Pines, and Route 11 – Avent Ferry. While the proposed BRT investments will provide much needed transit opportunities, last-mile connectivity improvements should also be explored.

## LAND USE SNAPSHOT



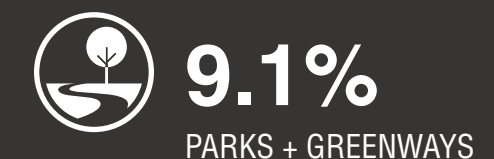
Under the site area’s current land use, single-family residential makes up 11.8% of the occupied land area and 5.5% is multi-family, making residential uses 17.27% of the total.



Commercial uses predominately run along S. Saunders Street with current land use.



Industrial uses make up just over 9% of the Study Area. Ringing the Fuller Heights and south of I-40, the pockets of industrial uses are low density and mostly single story.



Open green space, including parks, greenways, and the Mt. Hope Cemetery, make up 9% of the Study Area.

*The remaining areas consist of Roads and Rights-of-Way.*



Safe neighborhood connections to an expanded greenway system, as well as an enhanced streetscape network intersection improvements, bicycle and pedestrian infrastructure, connections to future transit stations, and coordinated transportation improvements will be important opportunities and considerations for this study. Also, a connected, gridded street network should be explored, especially for the larger, undeveloped areas to the south.

**c. Opportunity to improve analyzed intersections and roadways to provide the Dix Edge Study Area enhanced operational and safety benefits**

A preliminary traffic analysis was initially performed for two intersections: Lake Wheeler Road and Centennial Parkway and Lake Wheeler Road and Maywood Avenue. These intersections were shown to generally operate at acceptable levels of service (LOS). Despite this, there are opportunities for improvements at these intersections that offer potential safety and operational benefits while also encouraging non-vehicular travel. The addition of several development projects (including the addition of the Farmer’s Market entrance and Dorthea Dix Park’s Plaza and Play) will impact traffic operations in this area significantly. Additionally, intersection improvements will be constructed at these locations in the future. These items will be evaluated as part of the future condition’s analysis.

Utilizing crash data from the past five-year period, a crash analysis was conducted for the Lake Wheeler Road, Maywood Avenue, and S. Saunders Street corridors. S. Saunders Street experienced the highest number of crashes (124) followed by Lake Wheeler Road (80) and Maywood Avenue (33). Neither roadway segment reported any fatal crashes. S. Saunders Street recorded the most accidents involving pedestrians and bicyclists (4) followed by Lake Wheeler Road (1) and Maywood Avenue (1). No accidents involving pedestrians and bicyclists involved any fatalities or major injuries (Type A). It should be noted that as the City’s roadways are upgraded (per the Street Map Plan), there will be fewer opportunities for collisions as potential conflict points will be greatly reduced with the proposed median installation for some roadways (as identified in the cross section). For example, the analyzed sections of Lake Wheeler Road and Maywood Avenue have ultimate cross-sections of “Avenue, 2-Lane Divided”. Finally, there are several opportunities for multimodal improvements (including sidewalk connections, trail connections, upgrades to ultimate roadway cross sections, etc.). If these opportunities were realized, more residents in this area would be able to participate in non-vehicular travel.

**d. Opportunity to integrate the variety of natural resource areas to create a strong public realm framework**

From two unique stream corridors of Walnut Creek and Rocky Branch, with their undulating landforms, rich vegetation, and large wetlands - the natural features of the overall Study Area offer many unique opportunities. Future development could utilize landscape-driven approaches to restore and/or enhance these stream corridors and reduce the amount of impervious surface constructed. Proximity to open space and Raleigh’s greenway system is increasingly desirable, offering opportunities for an urban design framework that regulates the floodplain-development interface and considers sloped sites, green stormwater infrastructure, and trail-oriented development best practices. Additional considerations should be given to preserving view corridors, particularly to open spaces such as Dorothea Dix Park and to Downtown Raleigh. Opportunities should also be explored for updated streetscape designs that not only enhance safe pedestrian and bicycle connectivity, but can also create a significant green infrastructure framework with linear green spaces and a more uniform tree canopy.

**e. Availability of adequate utility infrastructure capacity**

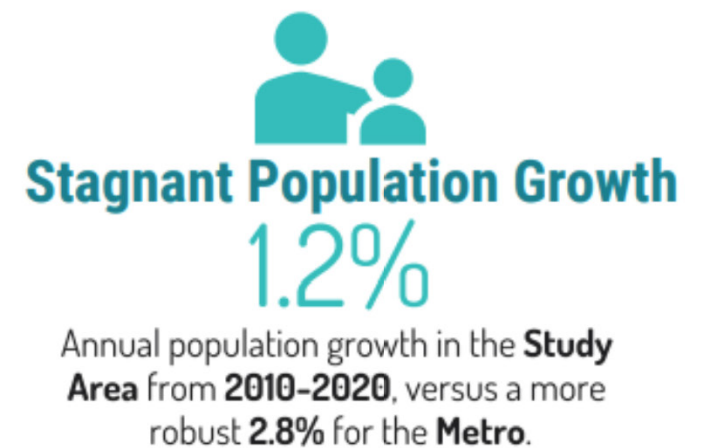
Based on a high-level review of the existing utilities in the vicinity of the Study Area, the City’s utilities in the Study Area include the potable water distribution system, sanitary sewer collection system and the reuse (non-potable) water system. Currently, there are no known capacity concerns regarding the potable water distribution systems or the sanitary sewer collection systems in the area. The availability of reused water may be limited as the City has indicated that the reuse system in the Study Area has limited storage capabilities. Final confirmation of available capacity in this area will need to be completed once an areawide vision and concepts are developed.

**2. DEMOGRAPHICS**

**a. Racial Diversity Defines Dix Edge**

The Dix Edge Study Area has a diverse population, with a stable African American population. There is also a sizeable white population, which has declined slightly since 2010. This racial distribution stands in contrast to the broader City of Raleigh demographics. The percentage of the African American

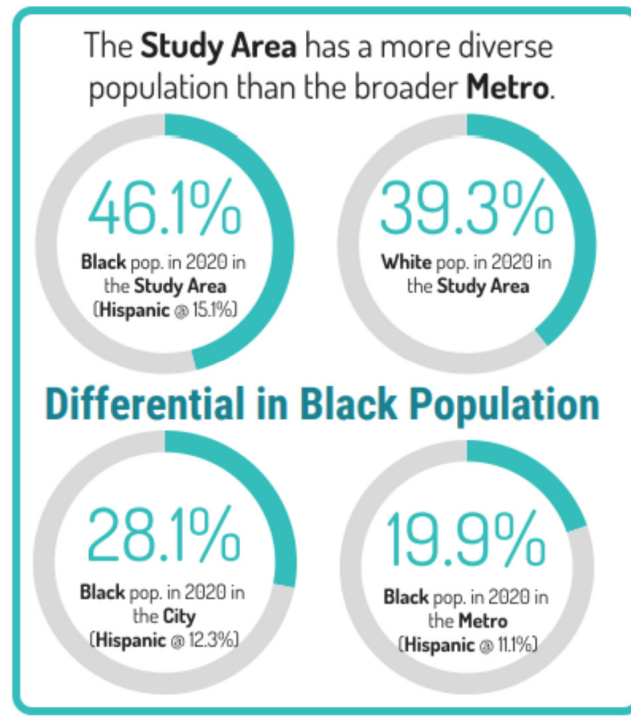
The **Dix Edge Study Area** is poised for change as the **Downtown South** is slated to receive significant investment. As a result, trends in population growth and historical demographics are predicted to be impacted. Along with many challenges, this is also an opportunity to address long-standing inequities.





**\$60,812**  
Income required

A 2020 analysis from HSH noted **\$60,812** as the annual income required to purchase a home in Raleigh. By contrast, the 2020 median incomes are:  
**Study Area = \$39,863**  
**City = \$66,959**  
**Metro = \$76,960**



population is substantially lower in the City and the Metropolitan Statistical Area than in the Study Area. Between 2010 and 2025, the share of Hispanic population is projected to increase from 14% to 16.5%.

**b. Growth Momentum is Building**

Despite slow population growth rates in the Dix Edge Study Area, the City of Raleigh and the region are growing at a rapid pace. The increasing development demand within the region is starting to push more urban-style development further south into that portion of the Dix Edge Study Area known as “Downtown South.” Nearly \$2 billion in private development projects are slated for this area in the future, and they are likely to influence the neighborhoods that surround them.

**c. Dix Edge Area Naturally-Occurring Affordable Housing Could be Threatened Due to Rising Property Values**

Housing in the Study Area is comprised predominantly of renter-occupied units, and the area is still considered affordable in the Raleigh market. But even though the median income gaps are closing between the Study Area and the Metro area, the household

incomes in the Study Area still underperform compared to the City and the MSA, and are currently insufficient on average to make housing affordability and homeownership a realistic option for many households.

**3. ECONOMICS**

**a. The Economic Success of the Region and Downtown Raleigh are Changing the Market of the Dix Edge community**

Employment levels in and around the Dix Edge area have nearly doubled since 2002. Investments in downtown, the growth of the NC State Centennial Campus and the catalytic investments in areas like the Warehouse District have created a new market dynamic for the Dix Edge community. This is most evident in the substantial local resident employment growth since 2010.

**b. Much of the Economic Success Occurring in and Around Dix Edge has not Directly Benefited Legacy Residents**

While the number of Dix Edge employed residents has increased by nearly 50% since 2010, Census data indicate that most community residents must commute beyond the study area to find work. This indicates that people are moving into the area to take advantage

of Dix Edge’s convenient location. Although this influx of residents is not a negative for the community, it most likely will impact legacy household residents if the job/skill mismatch for these new opportunities being created in and around their neighborhood persists.

**4. REAL ESTATE**

**a. A New Wave of Development is Moving Southward**

Downtown Raleigh is in the early stages of a development boom that could remake the City’s core. Based on information obtained from the Downtown Raleigh Alliance, more than 5.9 million SF of office, retail, and institutional uses, as well as 1,584 hotel rooms and over 3,910 residential units are either built, under construction, or proposed between E. Edenton Street in downtown and just south of Interstate 40.

**b. Dix Edge is Continuing to Evolve into A Renter-Occupied Neighborhood**

The Dix Edge Study Area is primarily a renter-occupied neighborhood. What is unique about Dix Edge, but quite common in other urban neighborhoods across the country, is that more than half of the housing units were originally

constructed as traditional ownership housing (i.e., single-family detached and attached). However, over time, this housing stock has evolved from owner-occupancy to renter-occupancy. While common, this can have deleterious effects on the property and the neighborhood if properties are not maintained. Also, a relatively small number of property owners control multiple parcels, which contributes to its rental characteristics. This also suggests that the Study Area is being positioned for future redevelopment.

**c. Rising Prices Pressures Could Cause Displacement in Dix Edge**

Overall, the population projections for Dix Edge may not fully capture the impact of the growth prospects that are inherent in the new development proposals coming before the City’s Planning Commission. The number of new residential units will draw more people downtown into higher density rental housing and townhomes. This will likely draw higher income couples and professionals to these higher price housing options and put price pressure on existing housing and land values.

# 1.C ISSUES AND OPPORTUNITIES FRAMEWORK

Four general themes have emerged that both encapsulate the forces impacting Dix Edge area and outline a path forward for a shared future. These themes are **Retain, Stitch, Grow, and Collaborate**. The Dix Edge area should retain the elements that define its character and spirit; be stitched to the local urban fabric and to the greater city; grow in a responsible and equitable manner that serves both current and future residents and businesses; and collaborate so that a shared vision and trust between the community and external forces are built.

## RETAIN

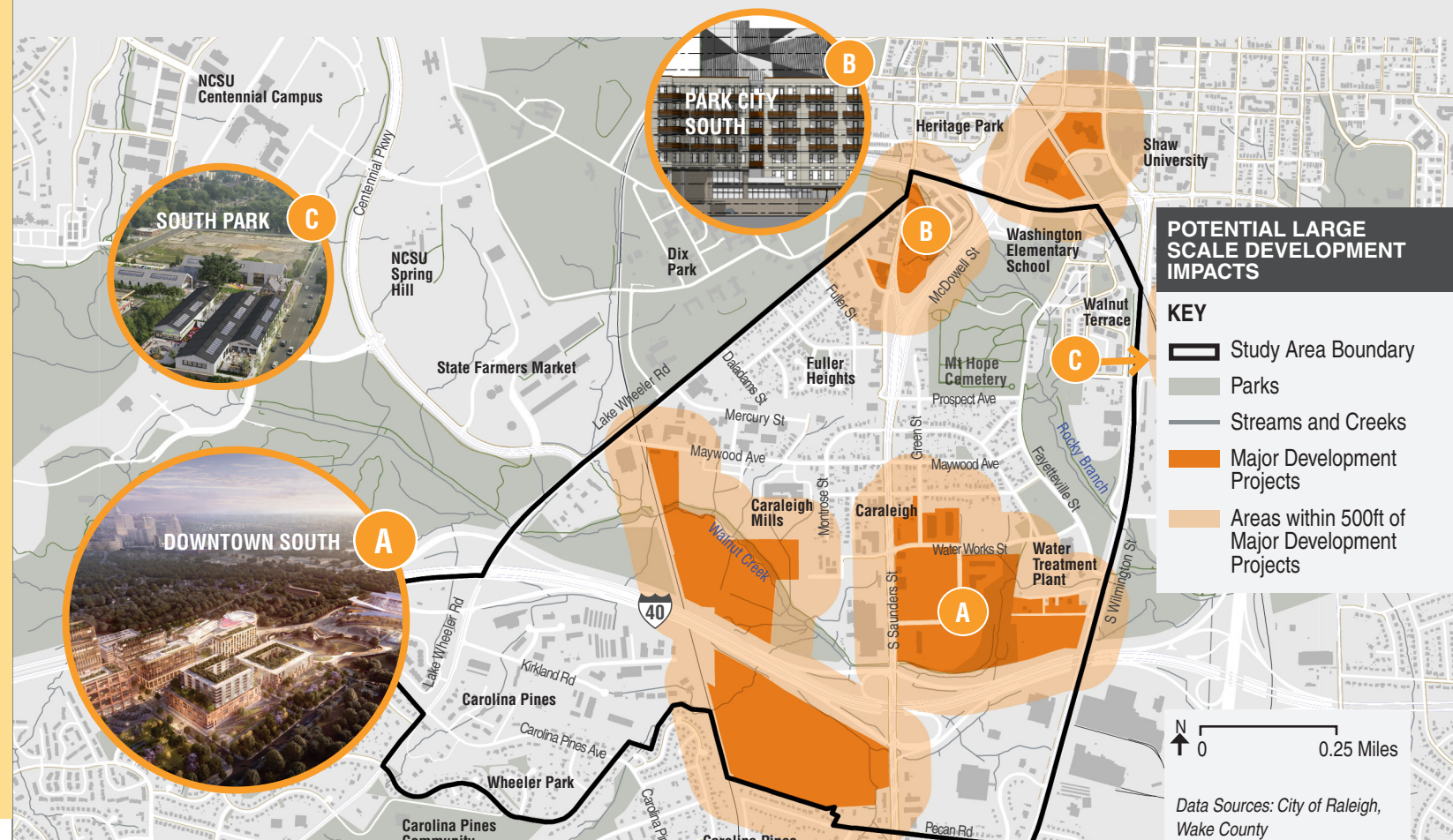
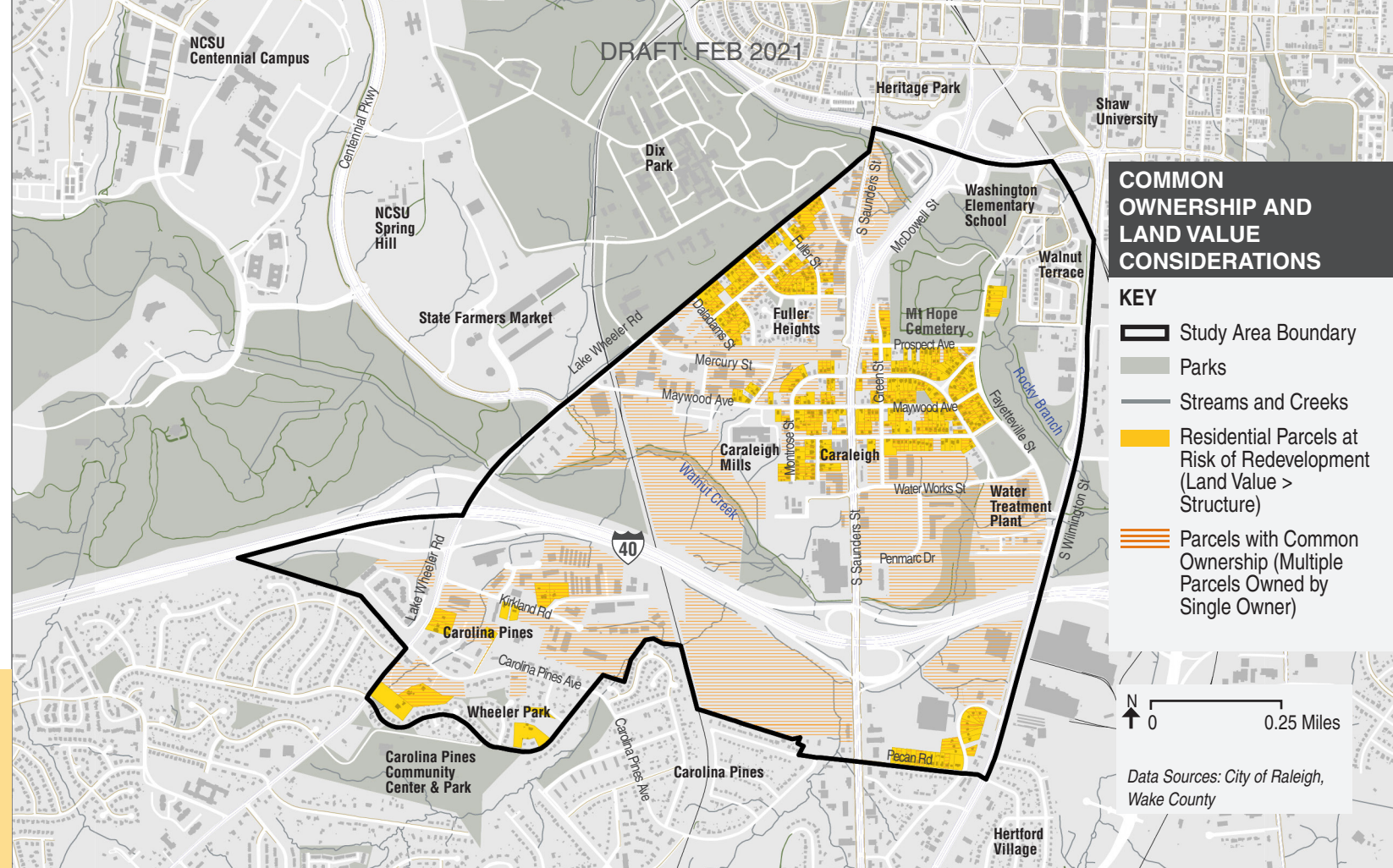
### MAINTAIN THE ELEMENTS AND SPIRIT THAT DEFINE COMMUNITY IN DIX EDGE.

#### Minimize displacement of local residents and businesses.

- Ensure that as Dix Edge area grows, local residents and businesses have the means and ability to stay in the area.
- Build relationships between the community and outside groups that advocate for the retention of the elements and spirit that defines the Dix Edge area.

#### Ensure pathways for intergenerational wealth building and homeownership.

- Explore methods to create intergenerational wealth building and homeownership for existing Dix Edge residents.
- Provide a wealth of housing options and strategies to address the “missing middle housing” crisis, while also advancing affordable housing in new large-scale developments.





# STITCH

## CONNECT THE NEIGHBORHOODS OF DIX EDGE TO EACH OTHER AND TO THE URBAN FABRIC OF GREATER RALEIGH.

### Improve multimodal connectivity in Dix Edge area.

- Create multimodal transportation networks throughout the Dix Edge area to “stitch” together the neighborhood internally and externally.
- Eliminate sidewalk gaps, install bicycle lanes and infrastructure on key streets, and add micro-mobility options to help residents have transportation means and choices to move internally within the Dix Edge area.
- Connect Dix Edge area to greater Raleigh through additional bus routes and potential Bus Rapid Transit lines to provide high frequency and fast travel options to other neighborhood and commercial centers. Prioritize first and last mile connections to transit.

### Ensure “complete” streets and humanize major arterials.

- Ensure “complete” street design in Dix Edge area by creating attractive streetscapes including public art, benches, trees, and green infrastructure. Ensure that the multimodal transportation network is integrated into the street design.

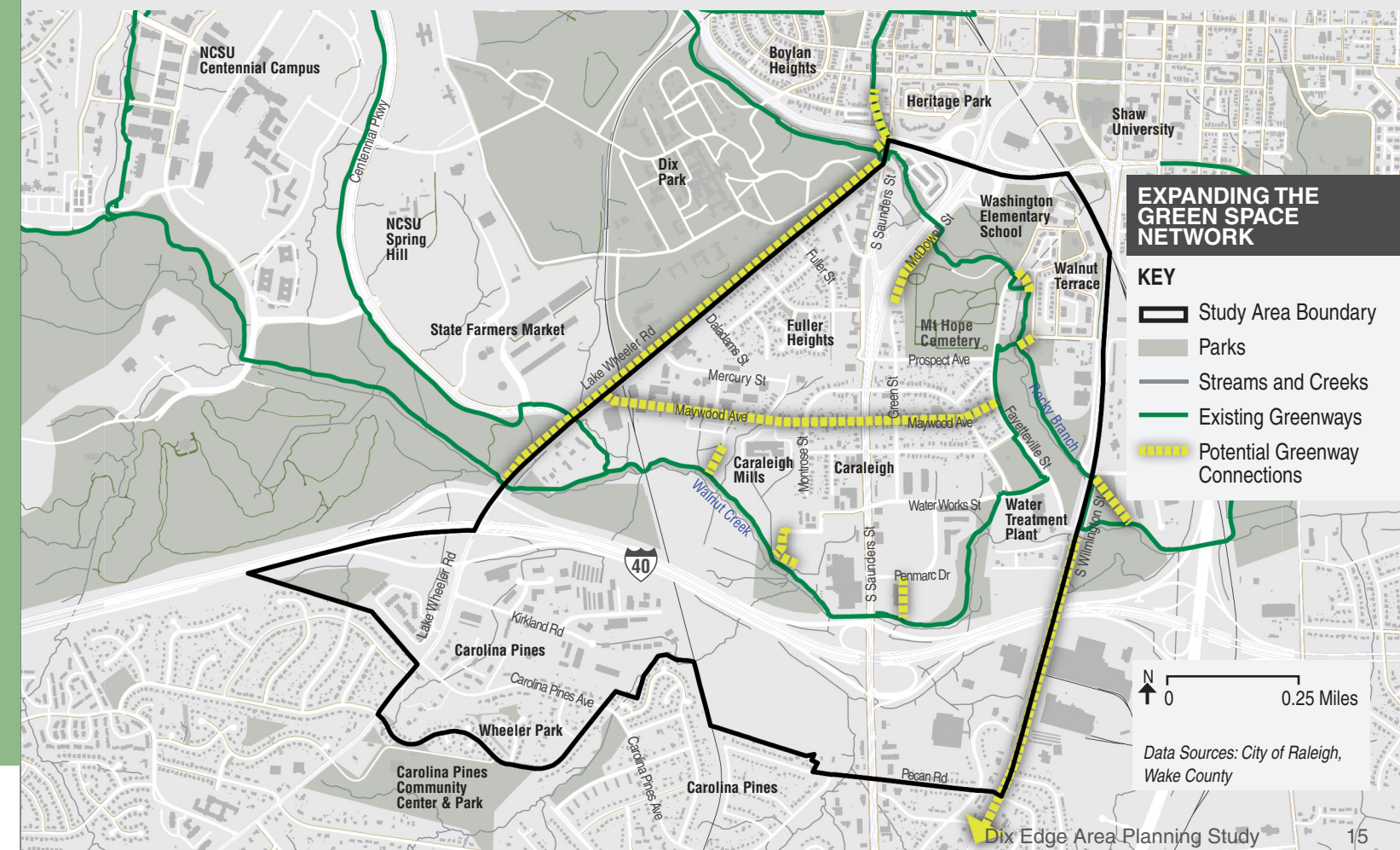
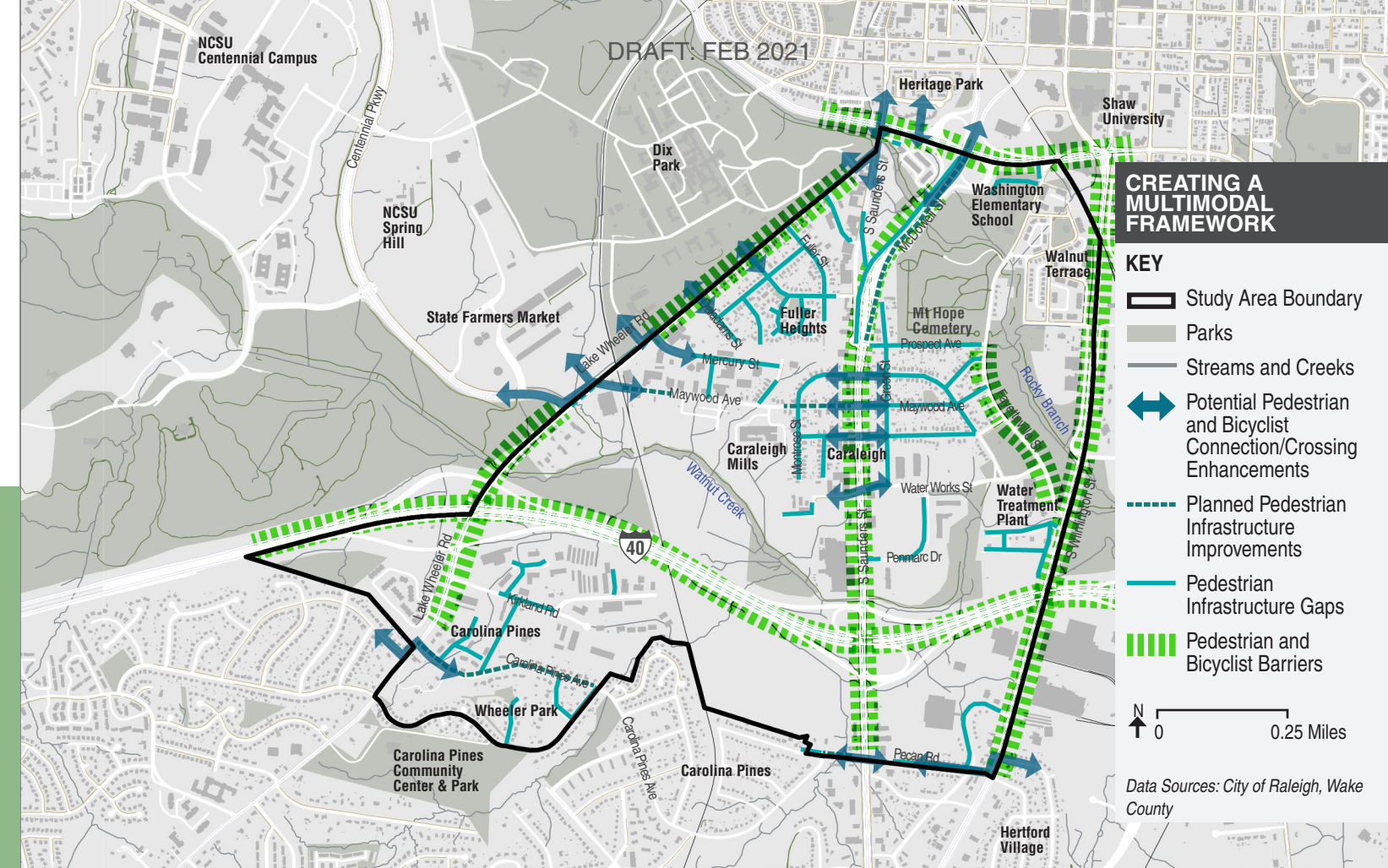
- Humanize major arterial roadways in order to make roadways more attractive, visually compelling, safer, and accessible to individuals through people-level design.

### Expand open space in Dix Edge area and connect to the greenway network.

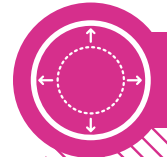
- Promote open spaces within Dix Edge area to provide options for community gatherings, events, and other activities.
- Connect and expand the greenway network in Dix Edge area to leverage the area’s natural elements for use by residents and to provide greater recreational, educational, health benefits, and transportation options.

### Ensure transportation access and safety.

- Ensure that all residents have access to new transportation networks. Provide enhanced streetscapes and infrastructure that are designed to keep residents and users safe.







## GROW

### BUILD A STRONGER DIX EDGE AREA THROUGH DESIGN, COMMUNITY, AND EQUITY.

#### Ensure site sensitive development.

- Grow in a responsible, contextual, and equitable manner that will inspire the style and design of existing development, while also respecting the history of the place.
- Explore opportunities, such as design pattern books and guidelines, to encourage new development that follows the style of architecture already found in the area, while also utilizing good design to add visual flair, uniqueness, and respect for historical development.
- Explore opportunities to create transition areas between existing neighborhoods and new/planned developments. Such transition areas should be carefully planned to include landscaping buffer, intermediate densities as well architectural techniques including building mass step backs and building height stepdowns.

#### Utilize Transit Oriented Development and clustered development.

- Direct new growth and development around transit nodes to create walkable and site sensitive developments.

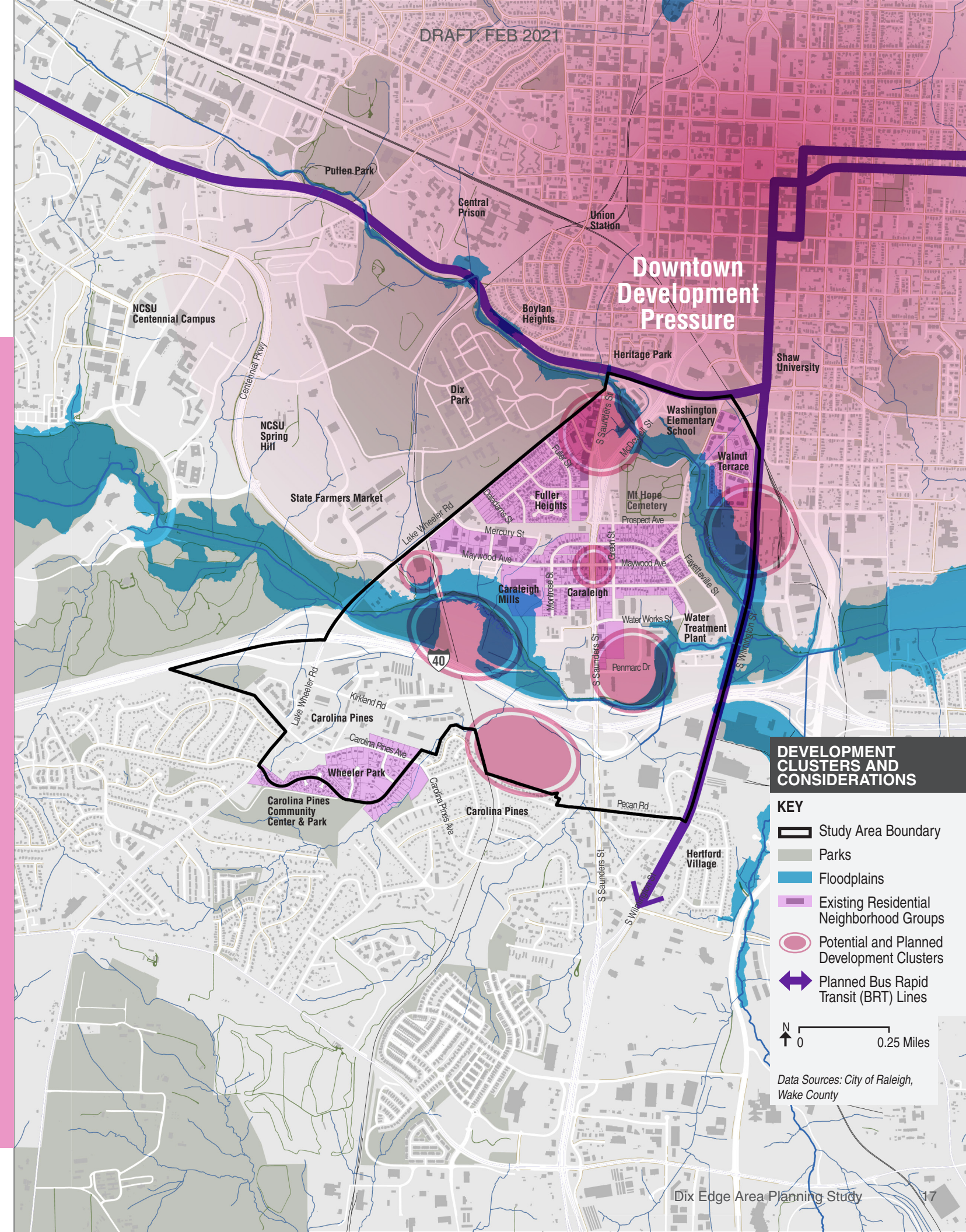
- Utilize clustered development to create interesting and exciting spaces, while also preserving the existing fabric of the Dix Edge area.

#### Create community “3rd” spaces.

- Work with the existing open spaces, natural elements, and topography in Dix Edge area to create community “3rd” spaces that residents and visitors can utilize for rest, relaxation, and activity.
- Understand environmental constraints to create contextual green community spaces.

#### Create diverse and equitable housing options.

- Ensure that affordable housing options are incorporated into new developments in Dix Edge area.
- Explore new housing strategies, such as missing middle housing opportunities, to create diverse and varied housing options to help existing residents to remain in Dix Edge area and to build wealth.
- Ensure that new development is directed to appropriate areas so that existing residents can remain in the Dix Edge area.



# Downtown



## COLLABORATE

### CREATE CONSENSUS AROUND A SHARED VISION FOR THE FUTURE OF DIX EDGE AREA.

#### Ensure transparency in the planning process.

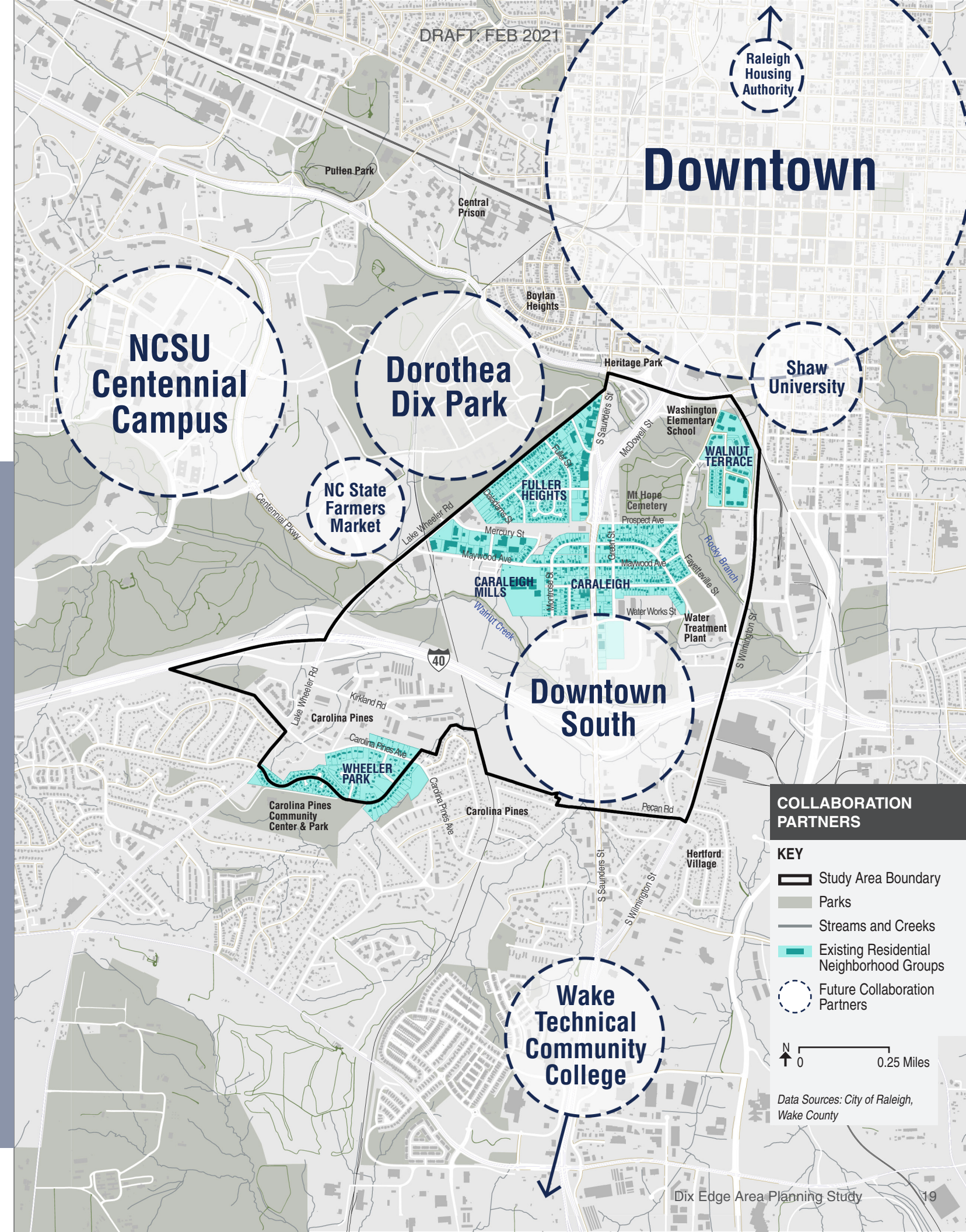
- Educate local residents and businesses on the planning processes and empower local groups to get involved in the planning process.

#### Ensure that local voices in Dix Edge area are heard.

- Engage with local residents, business owners, and community groups to collect and understand their needs, desires, and opinions on the Dix Edge area.
- Work to build a shared vision for the future of Dix Edge area that works for existing residents and groups and future area residents.

#### Build trust and working relationships between residents and external entities .

- Build social capital among local residents and external groups to ensure a collaborative and trusting working relationship.
- Ensure community engagement for new development and construction to ensure residents have a voice in the future of the Dix Edge area.



### COLLABORATION PARTNERS

- KEY**
- Study Area Boundary
  - Parks
  - Streams and Creeks
  - Existing Residential Neighborhood Groups
  - Future Collaboration Partners

N 0 0.25 Miles

Data Sources: City of Raleigh, Wake County

## 2 THE STUDY AREA TODAY

### 2.A CONNECTIVITY

This section is based on extensive review of the transportation conditions in the Dix Edge area including the street network, multimodal networks, crash and traffic analyses, as well as phasing for the Southern Gateway Corridor Study. This chapter encompasses existing conditions, issues, opportunities, and potential improvements for the transportation network in the Dix Edge area.

#### TRANSPORTATION OVERVIEW

The Dix Edge Study Area currently serves a variety of users including residents, North Carolina State University (NCSU) students, commuters to Downtown Raleigh, North Carolina State Farmers Market patrons, Dorothea Dix Park visitors, and travelers to various other attractions (commercial, retail, and industrial developments). The transportation network is bordered and centrally divided by auto-centric corridors. The larger primary routes serve through traffic while the smaller local routes provide access to the various communities within the Study Area. Alternative modes of transportation are also available through means of sidewalks, bicycle amenities, trail systems, and bus transit (*GoRaleigh* and *GoTriangle*).

Analyzed Study Area intersections were shown to generally operate at an acceptable vehicular level of service (LOS). This calculated LOS is a measure of traffic management effectiveness based on the average delay experienced per vehicle. In spite of the acceptable LOS, there are

opportunities for additional improvements at these intersections that would offer potential safety and operational benefits to these locations and to the network as a whole. Observations of existing geometric conditions revealed that both intersections were partially lacking several multimodal facilities (including sidewalks, crosswalks, bicycle lanes, etc.). These lack of multimodal facilities discourage non-vehicular travel. This was evident as existing counts revealed minimal pedestrian or bicycle activity during any of the analyzed peak hours.

The study area network was constructed to move more vehicles as quickly and efficiently as possible; however, there is a lack of east-west connectivity. Implementation of additional east-west connections could alleviate congestion at major intersections.

*GoRaleigh* provides regular transit service to the majority of the Study Area, and the Village Green apartments provide shuttle services to and from NCSU. There are planned Bus Rapid Transit (BRT) corridors along Western Boulevard (to the north)

and South Wilmington Street (to the east). Additionally, McDowell Street has been identified as part of *GoRaleigh's* future frequent transit network.

The area includes several major greenway trails, sidewalks, and bicycle facilities; however, the networks are incomplete. There are several critical gaps in the multimodal network that need to be completed in order to fully accommodate people walking and biking. Completing these critical connections will be key to increasing multimodal travel in the Dix Edge area, thus reducing vehicular travel demand. Special consideration should be provided for connections to future transit stops.

The project team looked at the existing network conditions within the Study Area. Observations revealed several opportunities for improvements that would offer substantial safety benefits to the community. It is suggested that roadway components in the area, such as horizontal and vertical curves, sight distance, and cross-sectional elements be upgraded to meet the latest City of Raleigh street design guidelines. As the Dix Edge Study Area continues to develop, it is imperative that the transportation infrastructure network is sufficient to accommodate the projected increase in all modes of traffic.

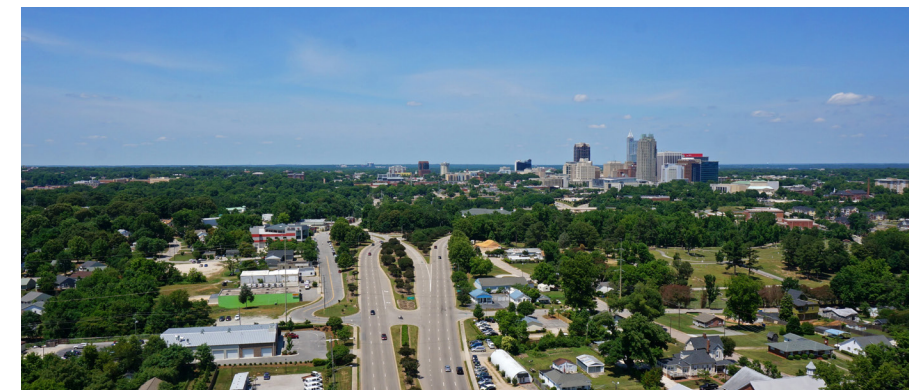
#### STREET NETWORK

The Dix Edge Study Area focuses on a multifaceted transportation infrastructure network. This evaluation includes the review and visual analysis of existing roadway conditions spanning from Lake Wheeler Road to South Wilmington Street -- specifically, geometric assessments, cross sectional elements and safety issues. This analysis will be the first step in providing equitable solutions to potential transportation improvements in the Study Area.

The evaluation of the existing conditions within the Study Area is based on site visits, field observations, and reference to the City of Raleigh Street Design Manual (COR-SDM).

#### Roadway and Intersections Overview

The Dix Edge Study Area is comprised of nearly 60 interconnected roads that include "Sensitive Area", "Local", "Mixed Use", "Major", and "Industrial", as defined in the Street Design Manual. Due to urbanization and industrial sprawl, most of this network is comprised of Local and Major streets. Local streets are defined as relatively short low speed facilities. Local streets provide access to individual residential lots and accommodate pedestrians, bicyclists, and automobiles.



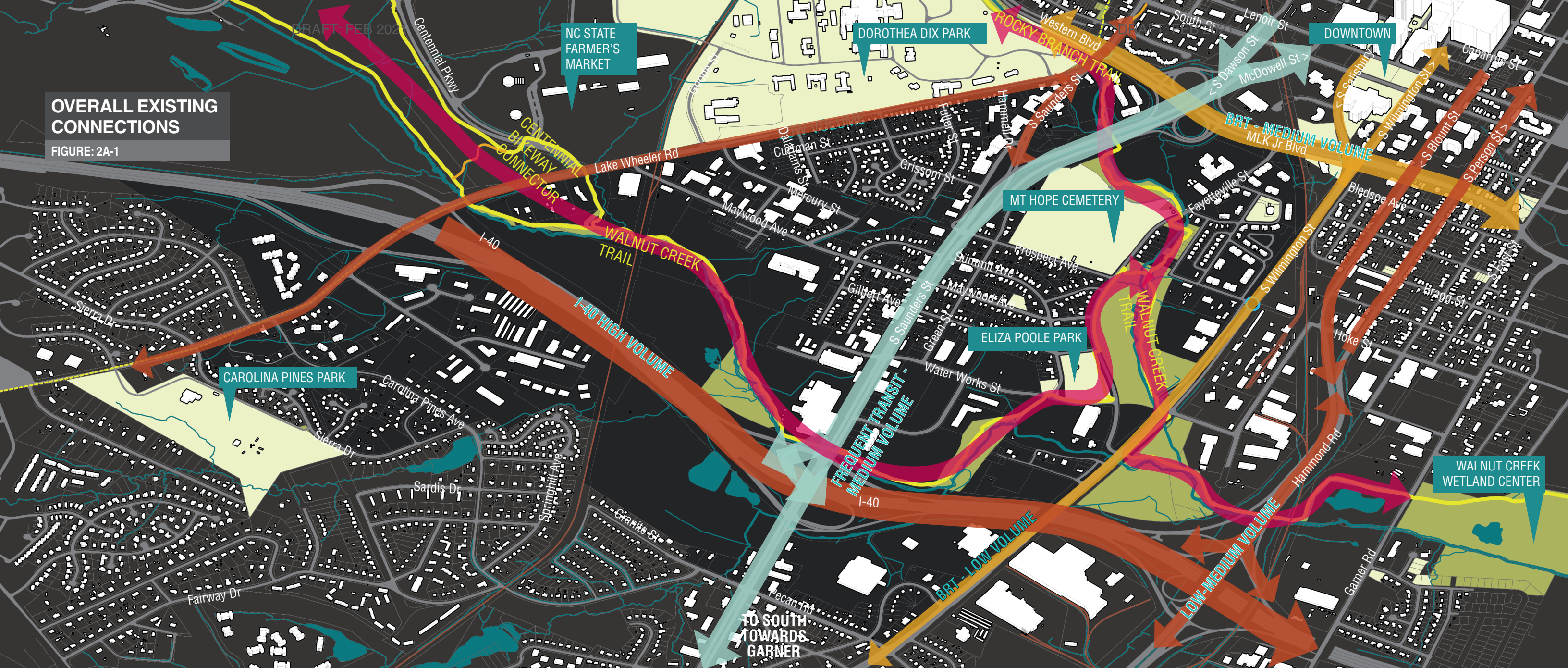
The auto-focused corridor of S. Saunders/McDowell Street is a major N-S connection between downtown Raleigh and I-40, and is currently served by a high frequency fixed-route bus service. This service will complement the future Bus Rapid Transit route on Wilmington Street.



Lacking multimodal infrastructure - this stretch of S. Saunders Street connects Lake Wheeler Road to McDowell Street and is adjacent to future redevelopment

**OVERALL EXISTING CONNECTIONS**

FIGURE: 2A-1



Major streets are defined as Avenues (with four or more lanes) and Boulevards. Major streets are designed to serve a significant amount of traffic. Major streets support multiple travel modes (i.e. vehicular, transit, pedestrians, bicyclists, etc.).

An assessment based on the analysis of existing conditions and field observations was used to best categorize each roadway functional classification.

This Study Area has five “major arteries” that provide connectivity in and around the Dix Edge Study Area:

- Lake Wheeler Road
- S. Saunders Street

- S. Wilmington Street
- Martin Luther King Jr Boulevard
- Raleigh Beltline (Interstate 40)

Descriptions of the major corridors that pertain to this study are found below. Though not considered a “major artery”, Maywood Avenue, Carolina Pines Avenue, and Fayetteville Street are key routes in this Study Area. As such, their descriptions were also included.

**Lake Wheeler Road** has a cross-section that varies from two-lane undivided to four-lane median divided within the project study limits. The facility runs approximately northeast-southwest and has a posted

speed limit of 35-mph. Per the Raleigh Street Plan, Lake Wheeler Road is classified as “Avenue 4-Lane, Divided” south of Maywood Avenue and “Avenue 2-Lane, Divided” north of Maywood Avenue. Sidewalks are present along portions of the facility. Lake Wheeler Road primarily serves commuter traffic as it provides access to Downtown Raleigh, Dorothea Dix Park, and North Carolina State University’s Centennial campus. Per 2019 NCDOT AADT maps, the facility carries 6,700 vehicles per day (VPD) north of Hammell Drive.

**Maywood Avenue** is a two-lane undivided facility. The facility runs approximately east-west and has an assumed speed limit of 35-

mph. Per the Raleigh Street Plan, Maywood Avenue is classified as “Avenue 2-Lane, Divided”. Sidewalks and dedicated bicycle lanes are present on the facility west of S Saunders Street. Maywood Avenue primarily serves residential and commuter traffic. It is possible that the facility is being used as a “cut-through” for those drivers wishing to access North Carolina State’s Centennial campus and southern / western Downtown Raleigh and its adjacent properties. Per 2015 NCDOT AADT maps, the facility carries 4,200 VPD west of S. Saunders Street. The Maywood Avenue Sidewalk Improvement Project will fill in the existing sidewalk gaps from S Saunders Street to Lake Wheeler Road.

**S. Saunders Street** is a 6-lane median divided facility. The facility runs approximately north-south and has a 35-mph speed limit. Per the Raleigh Street Plan, S. Saunders Street is classified as “Avenue 6-lane, Divided”. Dedicated sidewalks exist along both sides of the facility up until Prospect Avenue. S. Saunders Street serves

commuter traffic, residential developments, commercial developments, industrial developments, as well as several other regional attractions (NCSU, Dorothea Dix Park, etc.). Per the 2019 NCDOT AADT maps, the facility carries 44,500 VPD north of I-40.

**Carolina Pines Avenue** is a two-lane undivided roadway. The facility runs approximately east-west and has an assumed 35-mph speed limit within the project Study Area. Per the Raleigh Street Plan, Carolina Pines Avenue is classified as “Avenue 2-Lane, Undivided”. Carolina Pines Avenue primarily serves residential neighborhoods. Per the 2019 NCDOT AADT maps, the facility carries 5,000 VPD west of S. Saunders Street. The Carolina Pines Avenue Improvement Project will provide several upgrades to this facility.

**Fayetteville Street** is a two-lane undivided roadway. The facility runs approximately north-south and has a 35-mph speed limit (25-mph during school hours). Per the Raleigh Street Plan, Fayetteville Street is classified as “Avenue 2-Lane, Undivided,” primarily serving residential and educational land uses. Per the 2017 NCDOT AADT maps, the facility carries 1,500 VPD north of Prospect Avenue.

**S. Wilmington Street** is a four-lane median divide roadway along the majority of the Study Area. The facility runs approximately north-south and has a 35-mph speed limit. Per the Raleigh Street Plan, Wilmington Street is classified as “Avenue 4-Lane, Divided”. The street serves primarily residential, commercial, and commuter traffic. Per the 2019 NCDOT AADT Maps, the facility carries 11,000 VPD south of Martin Luther King Boulevard.

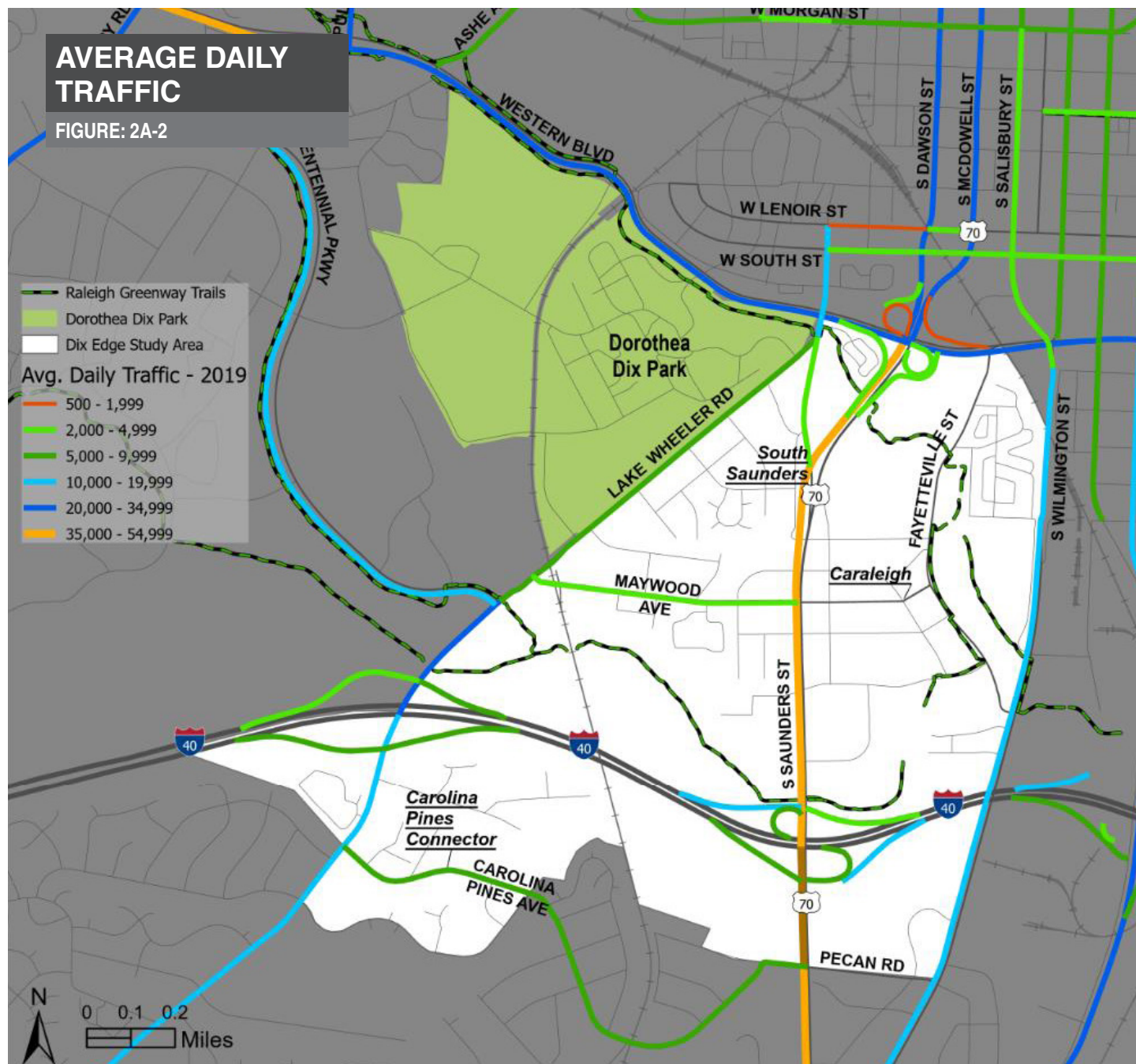
**I-40** is an 8-lane divided interstate that runs east-west through the project Study Area. The facility provides regional access to the Dix Edge Study Area as well as to Raleigh as a whole.

**Analyzed Intersections:**

The **Lake Wheeler Road** and **Centennial Parkway** intersection is currently signalized. The north and southbound Lake Wheeler Road approaches consist of exclusive left-turn lanes, a through lane, and a shared through / right-turn lane. The eastbound Centennial Parkway approach consists of a shared left-turn / through lane and an exclusive right-turn lane. The westbound commercial driveway approach consists of an exclusive left-turn lane and a shared through/right-turn lane. There are pedestrian accommodations (crosswalk and pedestrian signals) along the east and southbound approaches. Additionally, sidewalks are also located along the east and northbound approaches. Intersection improvements are planned for this location, including restriping and signal phasing updates.

**Lake Wheeler Road** and **Maywood Avenue** is an unsignalized T-intersection. Vehicles approaching the intersection from Maywood Avenue encounter a posted stop sign. Conversely, vehicles approaching the intersection from the both directions of Lake Wheeler Road encounter free-flow conditions. The westbound Maywood Avenue approach consists of exclusive left and right-turn lanes. The northbound Lake Wheeler Road approach consists of a through lane and a shared through / right-turn lane. The southbound Lake Wheeler Road approach consists of an exclusive left-turn lane and a through lane. Bicycle lanes and sidewalks are present along the westbound approach. The Maywood Avenue Sidewalk Improvement Project will add much needed pedestrian upgrades at this intersection, including sidewalk construction and the striping of a new crosswalk along Maywood Avenue.

Additionally, the Farmer’s Market will be constructing its new entrance at this intersection. Following the construction of this new entrance, traffic operations at this intersection will change significantly.



Additional turning movements will be added to the intersection. With the introduction of sidewalks along the driveway into the Farmer's Market entrance, pedestrian activity at this intersection (particularly to/ from Maywood Avenue) is likely to increase. To facilitate future traffic volumes, additional improvements to this intersection may be needed (i.e. signalization and a pedestrian crossing to Maywood Avenue).

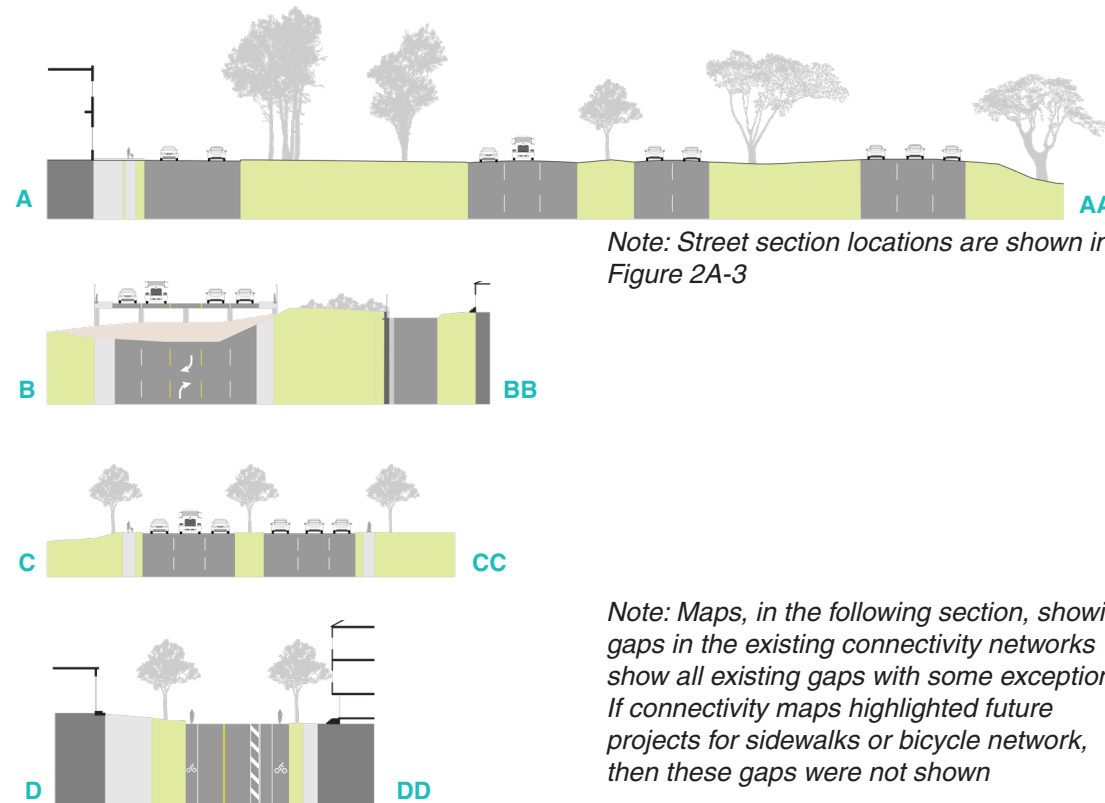
**Geometric Assessment**

Vehicular traffic tends to funnel through the Raleigh Beltline and S. Saunders Street interchange making S. Saunders Street a critical north-south connection. Meanwhile limited connectivity spanning east/west means that most vehicular traffic must navigate through the neighborhood local streets when trying to reach Lake

Wheeler Road or S. Wilmington Street. An interconnected grid type street approach is suggested using undeveloped areas in the south quadrant of the Study Area. Any new streets will have the added benefit of providing bike/pedestrian connectivity as the City has adopted a Complete Streets policy.

Horizontal and vertical existing geometry were evaluated based on the minimum COR-SDM requirements. With the exception of the multimodal design elements (including sidewalks, bicycle lanes, etc.), most streets met the remaining design standards (including sight distance, horizontal, and vertical curves, etc.). Improved horizontal and vertical features provide a safe environment for both motorists and pedestrians. Upgrading these features will reduce the number of crashes and enhance stopping and intersection sight distance.

**EXISTING STREET SECTIONS**



Note: Street section locations are shown in Figure 2A-3

Note: Maps, in the following section, showing gaps in the existing connectivity networks show all existing gaps with some exceptions. If connectivity maps highlighted future projects for sidewalks or bicycle network, then these gaps were not shown

**EXISTING AND PLANNED STREETS**

FIGURE: 2A-3

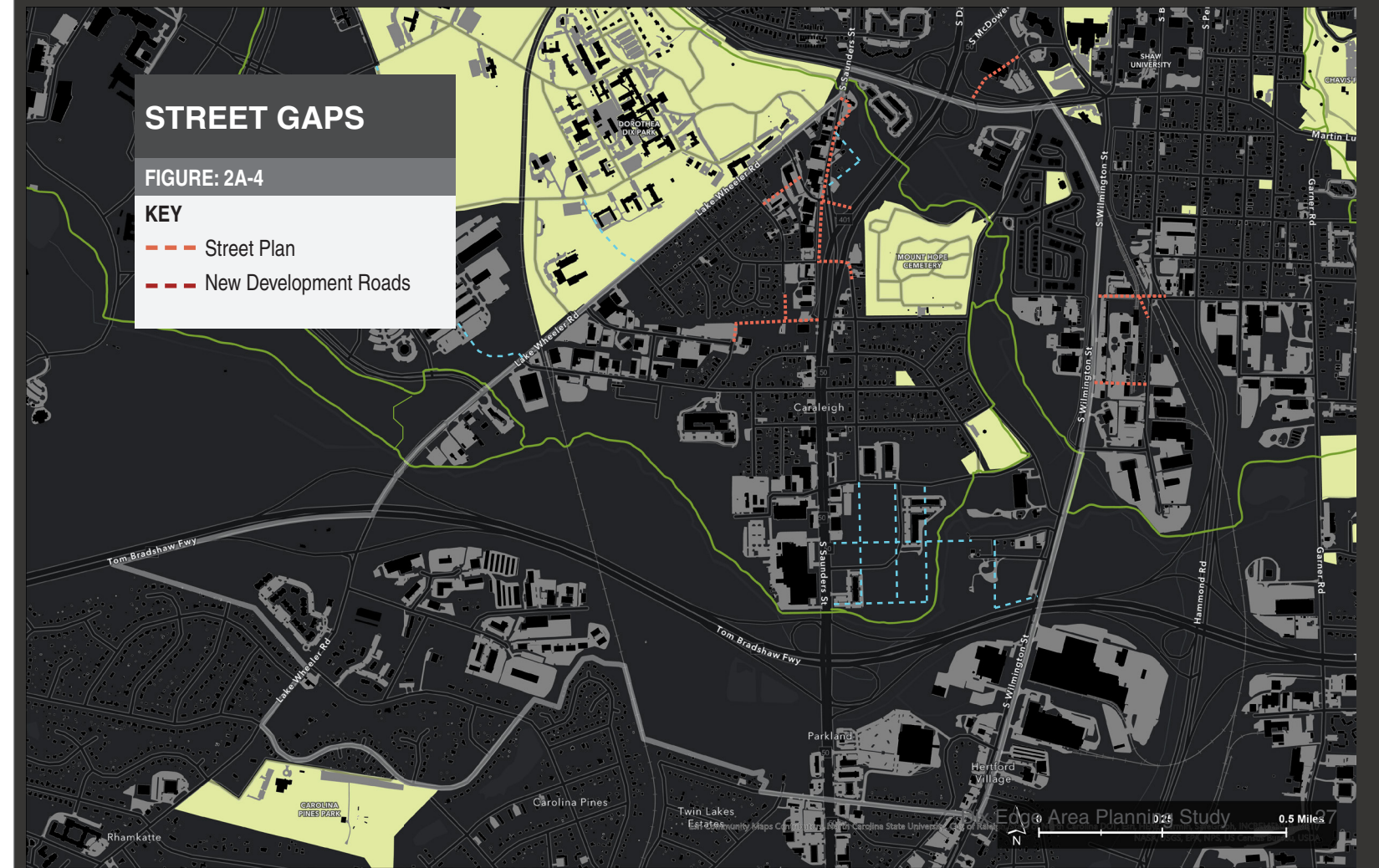
- Proposed BRT Stations
- Proposed Greenway Trails
- Greenway Trails
- Dix Park Entrances
- Parks Property
- Greenway Property
- MultiUsePaths
- Street Plan Existing
- - - Street Plan Planned



**STREET GAPS**

FIGURE: 2A-4

- KEY**
- - - Street Plan
  - - - New Development Roads



Number of lanes, lane widths, on-street parking, sidewalks, pedestrian crossings and transit stops were some of the key features that were evaluated during this study. “Major Streets” have the largest number of lanes and “Sensitive Area Streets” (typically within neighborhoods) have the fewest number of lanes. Lane widths mostly varied between 10 to 11 feet with Local neighborhood streets extending to 15 to 16 feet with available on-street parking. Existing painted and signed bike lanes span along Maywood Avenue from Lake Wheeler Road to S. Saunders Street. Lake Wheeler Road currently has no sidewalks north of Centennial Parkway, Maywood Avenue is missing sidewalks along portions of the facility, and S Saunders Street sidewalks end at Prospect Avenue creating a disconnection between the study area and Downtown. Minimal sidewalk improvements were observed in either adjacent neighborhoods or local streets. It is suggested that Local streets begin to incorporate pedestrian improvements to keep walkers and joggers out of the roadway. Marked crosswalks were found at nearly every major roadway crossing; however many of these are deteriorating causing a reduction in directional visibility for both pedestrians and vehicles. Multiple bus stop locations with concrete pad amenities are located on major streets. In some areas marked crossings were lacking. This can lead to pedestrians crossing where marked crossings do not exist which can present a safety hazard. The multimodal elements (including sidewalks, biked facilities, transit, greenways and existing trail systems found in the Study Area) are discussed in greater detail in the Multimodal Infrastructure Evaluation Section of this document.

The streets in the older residential communities have established a comfortable network that slowly disconnects on the east and west borders. East-to-west network

breaks down at Lake Wheeler Road and Fayetteville Street.

- North and south network is limited at Western/MLK Boulevard and along Interstate 40.
- North and south travel is severely limited on western edge of the Study Area south of Maywood Drive.
- New developments of Dorothea Dix Park, Farmers Market, South Park Development, and Downtown South will improve the street network in the area.

**Safety**

With growing traffic needs and ongoing redevelopment opportunities, it is critical to emphasize vehicular and pedestrian traffic safety. Stopping and intersection sight distance were evaluated at most locations throughout the Study Area. Most sight distance issues are related to existing foliage or the location of connector street alignments. These issues can be mitigated by removing vegetation or obstructions within existing right of ways or, as a more costly option, making improvements to the existing geometry. Access management strategies can also be implemented to minimize the number of entrances and conflict points along a corridor.

**Prospective Improvements**

The City of Raleigh has adopted the *2030 Comprehensive Transportation Plan (CTP)*. This plan stresses the importance of street improvements while balancing multi-modal transportation enhancements by minimizing impacts to neighborhood communities and the environment. This plan is also incorporated into the *2045 North Carolina Capital Area Metropolitan Planning Organization (NCAMPO) Plan* as well as the *NCDOT 2020-2029 STIP Map*. The following prospective projects within the Dix

Edge Study Area are highlighted in these comprehensive transportation plans:

- S. Wilmington Street – BRT (bus rapid transit) service
- Lake Wheeler Road – sidewalk and corridor widening to 4 lanes; interstate ramp realignments from Lake Wheeler onto Centennial Parkway
- Hammell Drive – upgrade to Industrial Street cross-sectional design
- Mercury Street – upgrade to Neighborhood Street cross sectional design; extension to Prospect Avenue and Fuller Street
- Maywood Avenue – sidewalk and intersection improvements; new Farmer’s Market entrance; upgrade to 2-lane undivided cross-sectional design
- Water Works Street – upgrade to Industrial Street cross sectional design
- Keeter Center Drive – upgrade to Neighborhood Street cross sectional design
- Carolina Pines Avenue – curb and gutter upgrades, bike lanes, streetlights, and landscape corridor beautification
- Raleigh Beltline (Interstate 40) – corridor widening to 10 lanes

Supporting documentation can be found in the Transportation Infrastructure Appendix to this document.

**Future Infrastructure Considerations**

Custom streetscapes could be considered for Lake Wheeler Road (the edge of Dorothea Dix Park) and for Maywood Avenue (an important east-west connector) as these streets connect major public amenities and services. Careful consideration should be given to development frontage and their interaction along these streets.

Lake Wheeler Road will require careful coordination as it has multiple transportation and development projects in the works. These include: a new entry to the State’s Farmer’s Market, pedestrian upgrades through the Maywood Avenue Sidewalk Improvement Project, and intersection improvements at Centennial Parkway.

Though currently unfunded, there is potential that the I-40 on/off ramps could be realigned from Lake Wheeler Road to Centennial Parkway.

**MULTIMODAL INFRASTRUCTURE EVALUATION**

Multimodal accommodations are found throughout the Dix Edge Study Area and provide essential alternative modes of transportation for the community. While these alternative modes of transportation are an important component to mobility in the area, a lack of critical connections significantly limit the ability to access destinations both within and outside of the study area without the use of a motor vehicle. These lack of connections result in some of the area’s available pedestrian and bicycle facilities being utilized primarily for recreational activities rather than for destination travel.

Citizens within the Study Area have expressed safety concerns for pedestrian and bicyclists due to rising levels of automobile traffic as a result of continued

development in the area. Addressing existing multimodal infrastructure deficiencies will increase use of these facilities, ultimately reducing the amount of vehicular traffic in and through the area. Additionally, a comprehensive connectivity network offers significant health, financial, and environmental benefits to the community as a whole.

**Sidewalks**

- Existing
  - a. Multiple segments of sidewalk are available for pedestrians to utilize when traveling within or through the Dix Edge Study Area. Currently, the majority of sidewalks are located along the area’s primary north-south routes while limited pedestrian facilities are present on local east-west routes. The lack of sidewalk connectivity between the major routes hinders pedestrian movements by increasing travel times and safety concerns. Where sidewalks do exist, on both primary and local routes, numerous gaps are present between segments resulting in the absence of continuity and reduction of safety. Further exacerbating connectivity and safety issues are the absence of designated pedestrian crossings and the excessive driveway curb cuts along roadway facilities that experience high traffic volumes traveling at high speeds.
  - b. In commercial areas where some sidewalks exist, infrastructure is either substandard or includes potential tripping hazards (i.e. structural sidewalk deficiencies).
- Planned
  - a. There are currently two publicly funded sidewalk improvement projects underway within the Dix Edge Study Area. The first project

involves the addition of sidewalk and pedestrian crossings on Maywood Avenue between Lake Wheeler Road and S. Saunders Street. This project will also construct a segment of sidewalk on Lake Wheeler Road south of Maywood Avenue. This planned sidewalk will establish a direct and continuous east-west connection from S. Saunders Street to Lake Wheeler Road.

- b. The second sidewalk improvement project is incorporated under the Carolina Pines Avenue Street improvement project. This project involves the construction of a continuous sidewalk path, as well as a continuous multi-use path on the north and south sides of Carolina Pines Avenue, respectively. These paths will provide a valuable east-west connection between S. Saunders Street and Lake Wheeler Road.

- Improvement Opportunities

Several additional improvements to the area’s sidewalk network will enhance safe and effective pedestrian movements throughout the area. See area map in the Transportation Infrastructure Appendix for potential locations to implement the following recommendations. Key recommended improvement strategies are shown below:

- a. Increase area connectivity through construction of sidewalk on local east-west routes. Routes should be prioritized based on potential use and proximity to areas of interest such as shops, parks, and transit stops.
- b. Provide continuous pedestrian paths by reducing the existing gaps in sidewalk segments.



- c. Improve connectivity and safety by installation of marked pedestrian crossings. Pedestrian refuge islands and mid-block crossings should be installed at locations where roadway width hinders pedestrian movements.
- d. Promote access and safety for all users by ensuring all sidewalk and pedestrian facilities are ADA compliant. All sidewalks should be accessible through means of adequate grading or curb ramps.

- e. Enhance ease of use by installing clear and conveniently placed wayfinding signs. These signs may help pedestrians better locate areas of interest, potentially resulting in increased use of multimodal transportation options.
- f. Improve safety by reducing locations where potential pedestrian and vehicle conflicts exist. This can be achieved by implementing more restrictive vehicular control of access on primary roadways.



For example, adjacent businesses may share the same driveway entrance instead of each having one, therefore reducing the overall number of curb cuts.

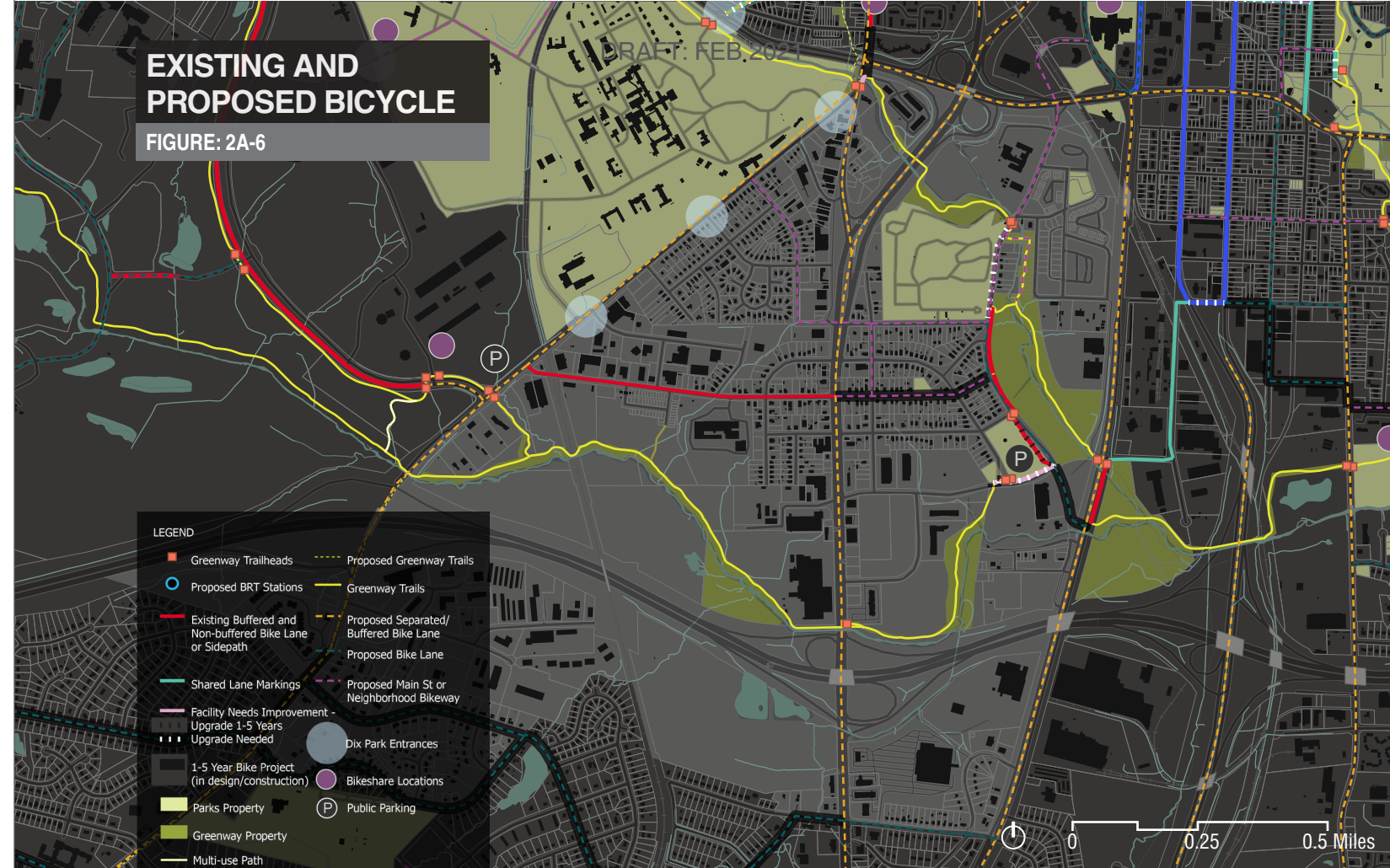
**Bicycle**

In order to provide a robust network for bicycle travel, bicycle infrastructure must be designed in a way that incorporates the entire transportation network including road network facilities and greenway trails. However, obstacles to connectivity exist in areas where bicycles have non-existent or difficult connections to the road network or where gaps in the greenway trail system are present.

- Existing
  - a. No dedicated bike lanes or sharrows (shared, marked road/bike streets) exist on any of the study area facilities so bicyclists are not separated from vehicular traffic. This lack of separation can lead to safety concerns as the likelihood for potential conflict between bicyclists

and vehicles is increased. The only segment of bike lane present within the Study Area is on Maywood Avenue west of S. Saunders Street. This bike lane provides separation from vehicular traffic and assists with the east-west connection between S. Saunders Street and Lake Wheeler Road. However, no bicycle amenities exist on any of the area's primary roadways; leaving potential bicyclists to share these facilities with high traffic volumes traveling at high speeds.

- b. A major bicycle connectivity gap exists between the Study Area and Downtown. Limited access and hazardous road conditions for bicycle travel encourages riders to take a more circuitous route to Downtown through Fayetteville Street. However, even on this route there are multiple areas that bicyclists have to use caution.
- c. The City of Raleigh has a strong bicycle plan. In addition to creating new routes, the City has implemented a bikeshare program.



**LEFT**  
Sidewalk facing northbound on S. Wilmington Street at City Farm Road



**RIGHT**  
Bike lane facing westbound on Maywood Avenue at Herring Street



The bikeshare program has several stations just outside the Study Area. These stations should also be considered when studying opportunities to improve the network connectivity.

- Planned
  - a. Several bicycle improvement projects are currently planned within the Dix Edge Study Area.
  - b. Bicycle improvements are incorporated under the Carolina Pines Avenue Street Improvement Project. This project proposes the construction of a continuous multi-use path on the south side of Carolina Pines Avenue (from Lake Wheeler Road to S Saunders Street).
  - c. Future multimodal improvements to Lake Wheeler Road, Maywood Avenue, and Carolina Pines Avenue will help to increase east-west bike connections.

- Improvement Opportunities
 

Several additional improvement opportunities within the area's network are recommended to increase bicycle usage and relieve existing safety concerns. (See area map in the Transportation Infrastructure Appendix for potential locations to implement the following recommendations.)

- a. Provide safer bicycle routes by means of separation between bicyclist and vehicle traffic. Where right-of-way is available, construct shared-use paths or bike lanes alongside the area's primary and local routes. Where right-of-way

is not available, install sharrow markings to indicate that drivers will be required to share the roadway.

- b. Enhance bicyclist safety and experience by providing wayfinding signage indicating where preferred bike routes and bike lanes are available.
- c. Provide additional connections to Raleigh's Capital Area Greenway System where available. Connections to the trails can supplement the bike system until other proposed connection projects become implemented.
- d. Investigate opportunities for additional bikeshare stations in the Study Area in order to serve the projected increase in ridership demand (including untapped existing demand) as a result of the continued development of the area.

**Trails**

- Existing
  - a. Three trails from Raleigh's Capital Area Greenway System currently run through the Dix Edge Study Area:
    1. Centennial Bikeway Connector
    2. Rocky Branch Trail
    3. Walnut Creek Trail

These trails are of great importance to the area, providing access to several regional / local attractions both within and outside the Dix Edge Study Area. Additionally, these trails offer recreational benefits while preserving the land's natural attributes. There is, however, a lack of wayfinding and trail head signage,

**AREA CONDITIONS**



Maywood and South Saunders has a very busy intersection.



Most residential communities in Study Area have no sidewalks.



Portions of the greenway trails go under major roads to avoid conflicts with traffic.



Commercial areas have poor sidewalk conditions.

specifically at locations where trail paths intersect and follow alongside roadways in the area. While the greenway system is a great asset for the City (providing strong east-west connectivity), residents of some adjoining neighborhoods as well as those from south of I-40 lack access to this facility.

- b. The Centennial Bikeway Connector is a paved trail over two (2) miles in length originating on North Carolina

State University's Centennial Campus. The facility parallels Centennial Parkway approaching Lake Wheeler Road from the west. Once east of Lake Wheeler Road, the trail connects and merges with Walnut Creek Trail. The Centennial Bikeway Connector provides access to attractions such as North Carolina State's Centennial Campus and North Carolina State Farmers Public Market.

Above  
Site Tour Images  
Credit: UDC

- c. The Rocky Branch trail is paved and is just under four (4) miles in length originating at Pullen Park on Western Boulevard. The facility continues southeast crossing under S. Saunders Street towards Fayetteville Street. Once reaching Fayetteville Street, the trail connects and merges with Walnut Creek Trail. The Rocky Branch trail provides access to attractions such as Pullen Park and North Carolina State's Main Campus.
- d. The Walnut Creek Trail is primarily paved and over fifteen (15) miles in length stretching from Lake Johnson eastward to the Neuse River Trail. In the Dix Edge Study Area, the facility crosses Lake Wheeler Road just north of I-40 and continues east to cross S. Wilmington Street. The facility provides access to several attractions including: Lake Johnson Nature Preserve, North Carolina State's Centennial Campus, North

- Carolina State Farmers Public Market, Eliza Pool Park, and Lake Raleigh.
  - e. There are current gaps in the greenway trail network. The Capital Area Greenway Master Plan has identified several future connections in the Study Area. However, the timeframe for implementation of such improvements is not clear.
  - f. Just outside the Study Area there are additional trails that either connect to the downtown bicycle network or bridge gaps to the existing greenway trails.
  - g. Flooding and associated damages caused by storm events have also prohibited the usage of greenway trails in certain portions of the Study Area.
- Planned
    - a. There is currently only one trail project planned within the Study Area – the expansion of the Raleigh's Capital Area Greenway System. This project is called the Rosengarten Greenway and it is intended to include multi-use paths on S. Saunders Street and adjacent roadways north of Lake Wheeler Road. This project is anticipated to improve access to areas of interest north of the Dix Edge Study Area. In addition to this project, Raleigh has adopted trail and greenway policies under the *2030 Comprehensive Plan* and the *Greenway Master Plan*.
  - Improvement Opportunities
    - a. The proposed 6-10 year bicycle projects should be prioritized as well as identifying more areas to connect to the greenway system. Connections to trails can supplement the bicycle system until other proposed connections

BELOW  
Walnut Creek Trailhead on Lake Wheeler Road across from Centennial Parkway

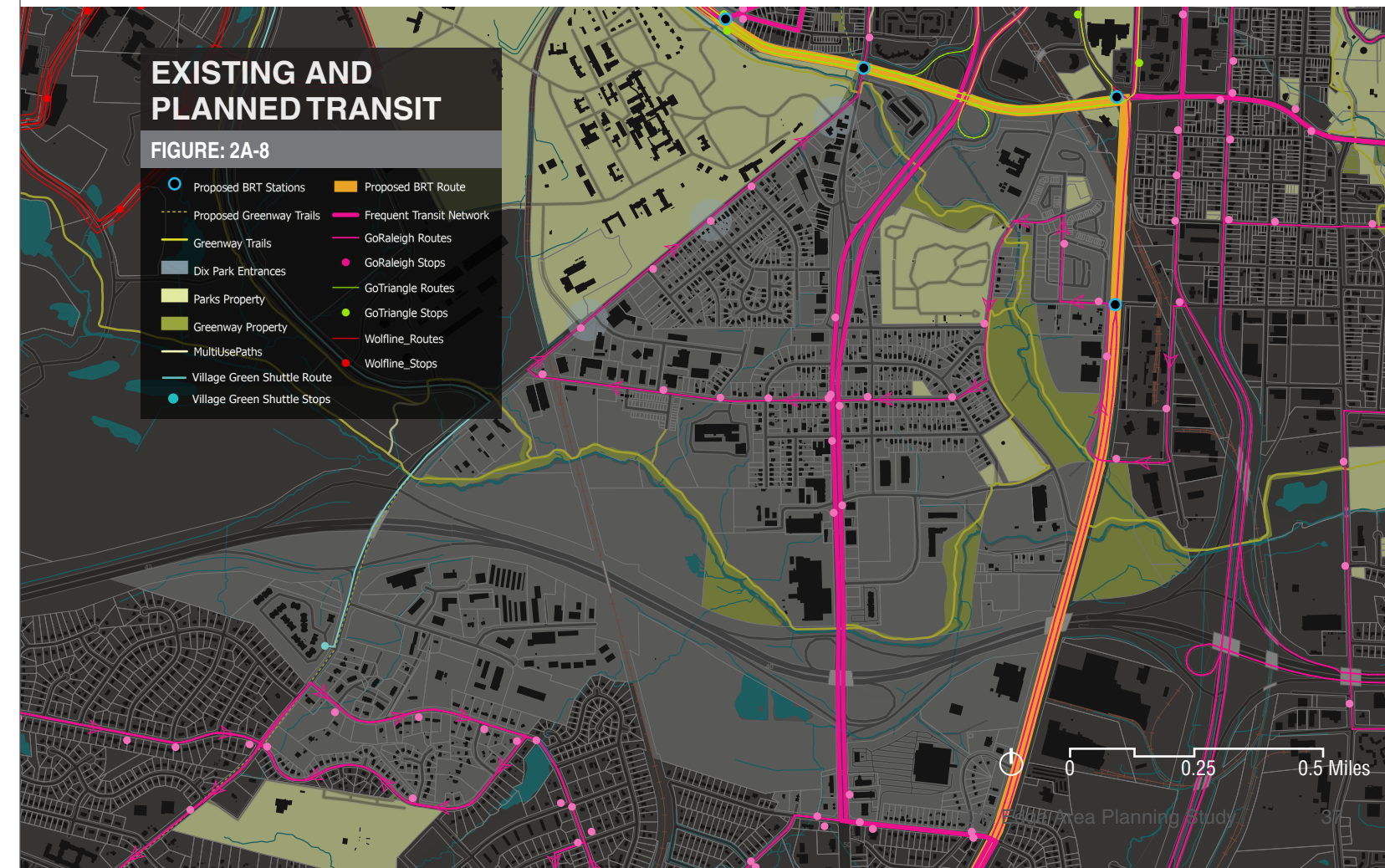


- become adopted projects for the city. Bicycle connections should also be increased north and south of Maywood Avenue for local east-west connectivity.
- b. A significant improvement to the area's trail network would include the addition of wayfinding signs leading to trail paths and other areas of interest, by increasing area signage and by ensuring trailheads are correctly placed with clear messaging. Areas of focus should be located where trails intersect and follow alongside roadways. See area map in the Transportation Infrastructure Appendix for potential locations.

- c. In order to improve safety along trails, it is encouraged to look for opportunities to improve visibility (i.e., increased lighting, removal of excess foliage, etc.).

**Transit**

- Existing
  - a. Currently there are four (4) GoRaleigh transit routes that serve the Greater Dix Edge Study Area:
    1. Route 21 - Caraleigh
    2. Route 7 – S. Saunders
    3. Route 7L – Carolina Pines
    4. Route 11 – Avent Ferry



- b. These transit routes provide multiple stops throughout the area, providing access to areas of interest both inside and outside the Dix Edge Study Area. The majority of these transit stops consist of only a sign with no further amenities available. Absence of amenities such as sidewalks and landing pads may result in a decrease in ridership as potential riders are unable to properly access the stop location. Lack of these facilities may also result in riders having to wait in the roadway causing unfavorable safety conditions. Absence of shelters may further reduce ridership during unfavorable weather conditions as these stops may not appeal to potential riders. An inventory of amenities for each transit stop within the Study Area is available in the Transportation Infrastructure Appendix.
- c. *GoRaleigh* Route 21 serves the Study Area connecting Lake Wheeler Road to downtown Raleigh. The route runs in a clockwise loop.

**BELOW**  
GoRaleigh Route 21 Stop  
8835 on Lake Wheeler  
Road at Goode Street



- The majority of this route's stops are located along Maywood Avenue and Lake Wheeler Road, along with several stops in the Walnut Terrace community. This route provides access to several areas of interest such as: North Carolina State Farmers Public Market, Walnut Terrace, South Wilmington Street Center, Oak City Cares, Wake County Men's Shelter, Love Wins Community Engagement Center, Healing Transition's Men's Campus, Shaw University, and downtown Raleigh. Route 21 currently serves the majority of transit users within the Study Area with an average of 223 riders a day boarding / alighting at area stops. The most heavily used area stop on this route is located on Keeter Center Drive at the Oak City Cares facility.
- d. *GoRaleigh* Route 7 travels north-south through the Study Area connecting Garner Station Road to Downtown Raleigh via S. Saunders Street. Transit stops for this route within the Study Area are located on both sides of S. Saunders Street and on Pecan Road. This route provides access to several areas of interest such as: Chapanoke Square Shopping Center, Tryon Hills, Gateway Plaza, the Stations Shopping Center, Carlie C's, and the Shoppes at Garner. Route 7 is a high-frequency fixed-route service with strong ridership. It currently has the second highest ridership within the Study Area with an average of 139 riders a day boarding / alighting at area stops. The most heavily used area stop on this route is located on S. Saunders Street at Maywood Avenue.
- e. *GoRaleigh* Route 7L travels east-west through the area connecting Trailwood Hills Drive to Rock Quarry Road. This route serves as a connector route, allowing for

- riders to easily transfer to and from *GoRaleigh* Route 7. Transit stops for this route within the Study Area are located throughout the Carolina Pines neighborhood and on Pecan Road. This route provides access to several areas of interest such as: Trailwood Hills, Carolina Pines Community Center – Park & Ride, Southgate Plaza, and Southeast Raleigh High School. Route 7L currently has the third highest ridership within the Study Area with an average of 55 riders a day boarding / alighting at area stops. The most heavily used area stop on this route is located on Carolina Pines Avenue at Springhill Avenue.
- f. *GoRaleigh* Route 11 serves the area just north of Dix Edge connecting Trailwood Hills to Downtown Raleigh. By utilizing other modes of transportation, potential riders in the Study Area can easily access this transit route. The two closest transit stops to the Study Area are located on S. Boylan Avenue just north of Western Boulevard. These two stops experience minimal ridership with a combined average of 6 riders a day boarding / alighting. This route provides access to several areas of interest including: Boylan Heights, Pullen Park, North Carolina State University, Mission Valley Shopping Center, and Avent Ferry Shopping Center. Additionally, Route 11 provides regional transit access via *GoTriangle* services.
- g. In addition to the *GoRaleigh* transit routes, one shuttle service currently serves the area. This shuttle provides transportation to residents of the Village Green apartments and comprises three stops: one to the apartment complex, one to North Carolina State University Main Campus, and one to North Carolina State University Centennial Campus.

- Planned
  - a. Multiple enhancements to the area's fixed-route transit system through the Wake Transit Plan will benefit the Study Area over the next several years. These improvements will include route re-designs for efficiency, improved on-time-performance, expanded coverage, increased frequency, additional connections, and enhanced transit stop amenities. In addition to these improvements, Raleigh has adopted transit policies under the 2030 Comprehensive Plan.
  - b. *GoRaleigh* Route 21 – Caraleigh was enhanced (frequency and span of transit stops) in order to provide faster and expanded services.
  - c. *GoRaleigh* Route 7 – S. Saunders Street is planned to be enhanced by the Southern Corridor Bus Rapid Transit (BRT) system. This system, currently in the planning and design phases, will provide enhanced bus transit service throughout southern Wake county.
  - d. *GoRaleigh* Route 31 – Southwest is a newly planned transit route to the city's transit system. This route is planned to provide east-west connections throughout the southern portion of the Dix Edge Study Area. Route 31 is currently intended to replace all, or portions of, Route 7L- Carolina Pines and Route 11L - Buck Jones Connector. This new route will provide additional transfer connections to existing or planned transit routes such as: Route 9 –Hillsborough, Route 11 – Avent Ferry, Route 27 – Blue Ridge, and Western Boulevard BRT.
- Improvement Opportunities
  - Several improvements within the Dix Edge Study Area are available to increase transit ridership and comfort levels. See area map in the

Transportation Infrastructure Appendix for potential locations to implement the following recommendations.

- a. Ensure safe access is available to all transit stops through the installation of sidewalks and lighting with accompanying crosswalks, ADA compliant curb ramps, and landing pads. These amenities will enhance existing transit stops by providing safe access to the stop as well as a safe area to wait away from traveling vehicles.
- b. Enhance rider comfort by providing shelters, benches, trash receptacles, and adequate lighting at each transit stop. Increased rider comfort levels will likely correlate with increased ridership throughout the area. Consider providing these increased amenities at heavily utilized transit stops.
- c. Increase safety of passengers and vehicular traffic through the installation of curb cut outs for buses to utilize when stopped at a transit stop.
- d. Increase access to destinations outside of the Study Area through the creation of crosstown travel or transfer routes. Potential riders may not be utilizing available transit options due to their desired destinations being outside of the available routes.
- e. Provide access to the proposed BRT stations when and where available. Safe and effective access to these stations should be available to pedestrians and bicyclists alike. Connections to these stations via amenities such as sidewalks or multi use paths are important to link the various communities within the Dix Edge area potentially increasing ridership. Additionally, provide on-site pedestrian and bicycle facilities - such amenities may include comfort

station, water fountain, bikeshare program stalls, secure bicycle lockers, etc. The proposed station at S. Saunders Street is located in a particularly critical area, where Rocky Branch greenway access and entry to Dorothea Dix Park overlap. The stop will also be located in close proximity to an existing affordable housing development.

Safe connections and public amenities should be carefully considered at this spot. Additionally, bridging the station on Wilmington Street to existing networks to the east and west would provide a vital link for neighborhoods east of Wilmington Street to Dorothea Dix Park. A multi-modal link to the proposed BRT station on Wilmington Street will be very important as this station is also close to affordable housing units.

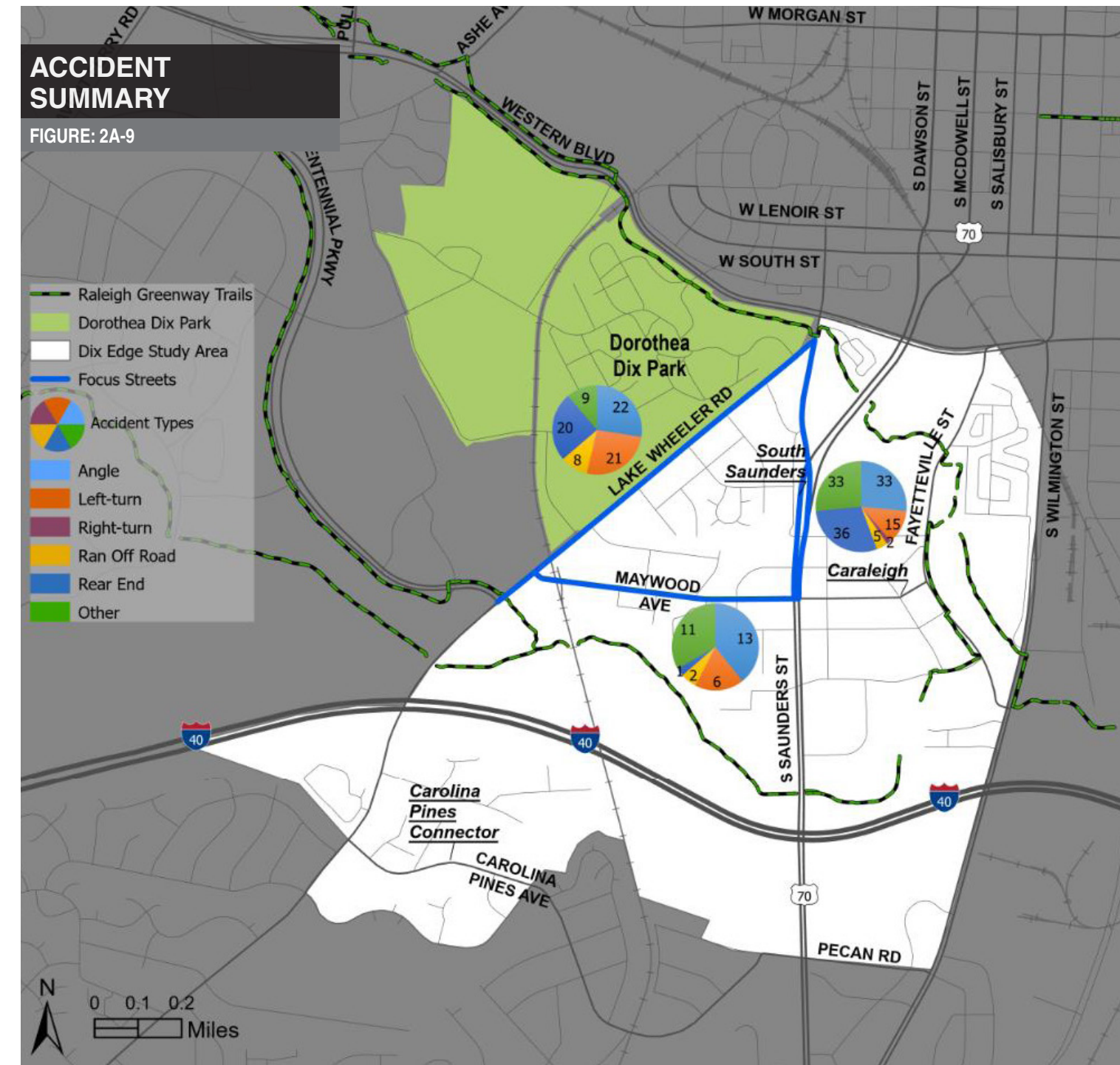
### CRASH ANALYSIS

A crash analysis along the Lake Wheeler Road, Maywood Avenue, and S. Saunders Street segments was performed using NCDOT records for the past five-year period. The analysis included combining the total number of crashes along each segment and computing several measurable factors such as crash frequency, severity index, and equivalent property damage only (EPDO) at the chosen roadway segments. The analysis shows the highest number of accidents was experienced along the S. Saunders Street road segment (124) followed by the Lake Wheeler Road (80) and Maywood Avenue (33) road segments. The highest crash severity location was the Lake Wheeler Road segment. No fatalities were reported.

The major crash types common among the roadway segments were angle, left turn, and rear end. A significant portion of crashes experienced along the S. Saunders Street road segment were involved in sideswipes as well.

Though crashes along the analyzed segments (particularly Lake Wheeler Road and Maywood Avenue) were not exceptionally high, any crash can result in high costs, bodily harm, reduction in roadway capacity, and increases to the overall traffic congestion and delay experienced by the network. Crashes

involving pedestrians and bicyclists are of particular importance as risk of serious bodily harm (or even death) is greatly increased regardless of vehicle speeds. S Saunders Street recorded the most accidents involving pedestrians and bicyclists (4) followed by Lake Wheeler Road (1) and Maywood Avenue (1). No fatalities or



major injuries (Type A) were reported. There were 3 accidents where minor injuries were reported (Types B or C). Type A injuries are considered disabling and can prevent the injured person from performing normal activities for at least a day (including broken bones, massive loss of blood, etc.). Type B injuries are described as injuries that are obvious other than fatalities or Type A (including bruises, swelling, limping, etc.). Type C injuries are non-visible injuries (including complaints of pain). It should be noted that, as the Study Area develops, there could potentially be an increase in the number of pedestrians / bicyclists involved traffic collisions as both multimodal and vehicular activity is expected to increase significantly in this area.

The number of vehicular accidents experienced on roadways is proportional to the number of vehicles traversing those roadways. As vehicle miles traveled increases so does the number of vehicular accidents. Though today's cars offer more safety features (i.e., driver assist features, semi-automation, etc.), these technologies alone will not result in the complete elimination of accidents. Ultimately, a significant decrease in total vehicle miles traveled (i.e. reduction of vehicles on a roadway) will be required to achieve the desired result. This can partly be accomplished through careful and thorough infrastructure planning.

There are several opportunities in the Dix Edge Study Area for multimodal improvements (including sidewalk connections, trail connections, roadway upgrades, etc.). If these potential opportunities were realized, residents in this area would be less reliant on cars as they would have access to viable alternatives for reaching destinations. Additionally, as the City's roadways are upgraded (per the Street Map Plan) significant safety benefits are anticipated. For instance, Lake Wheeler Road and Maywood Avenue are planned to be "Avenue 2-Lane, Divided" in the future. Once those roadways are converted,

multimodal connections will be improved as upgrading the street will add pedestrian and bicycle infrastructure (as identified in the cross section). This will encourage non-vehicular travel. The implementation of the Western and Southern BRT Corridors should offer area residents additional opportunities to participate in non-vehicular travel.

Additionally, as the City's roadways are upgraded (per the Street Map Plan), there will be fewer opportunities for vehicular collisions as potential conflict points will be greatly reduced with the proposed median installation for some roadways (as identified in the cross section).

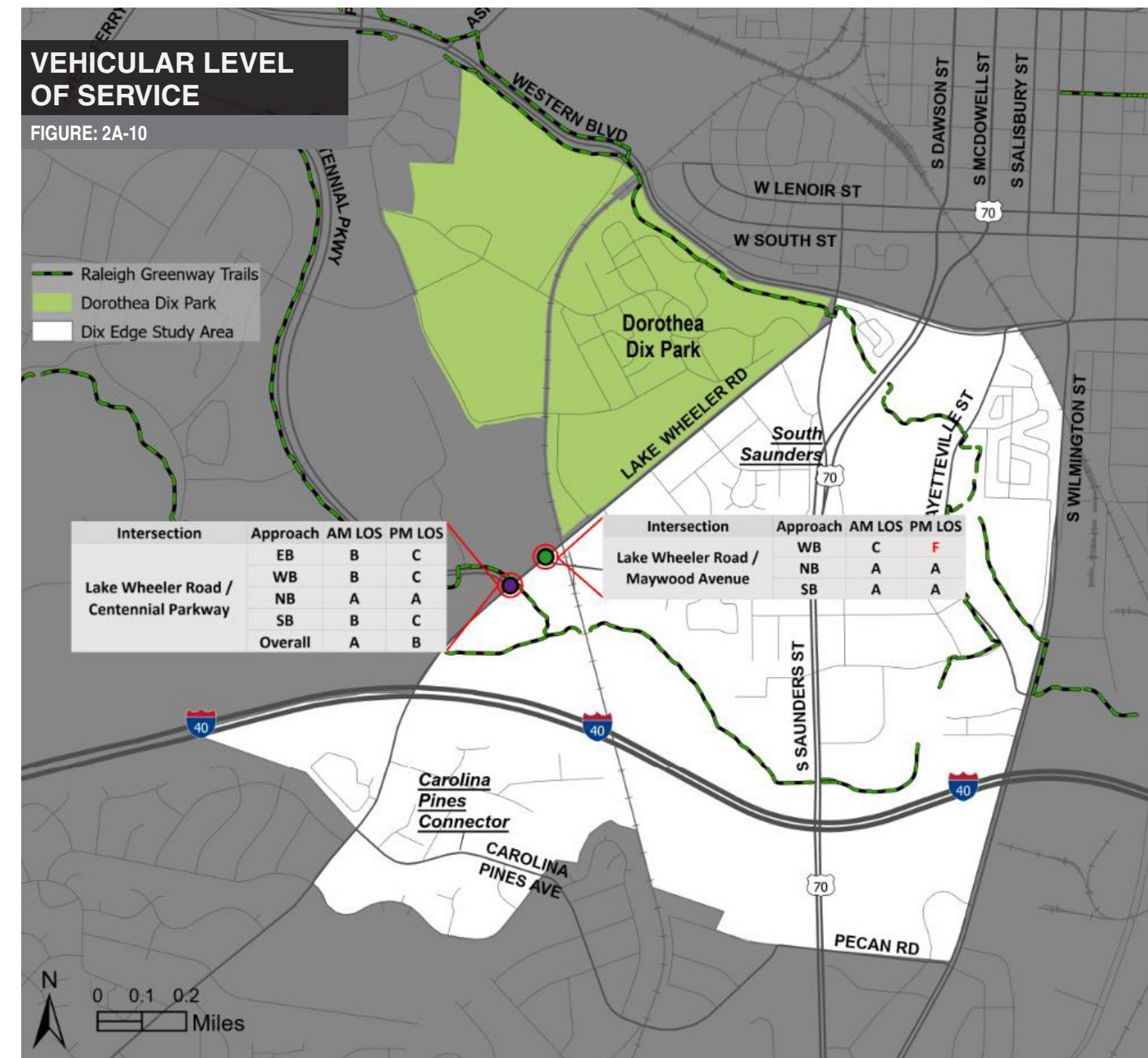
### TRAFFIC ANALYSES

An analysis of existing traffic was performed for the intersections of Lake Wheeler Road and Maywood Avenue and Lake Wheeler Road and Centennial Parkway. Analysis results are based on existing signal data / timing values found in the traffic signal plans and the collected 2020 traffic volumes.

The westbound approach at the unsignalized intersection of Lake Wheeler Road and Maywood Avenue currently operates at a Level of Service (LOS) F during the PM peak hour. All other intersection approaches are currently operating at a LOS C or better during both peak hours. All approaches currently have a pedestrian Levels of Service (LOS) of D or better during both peak hours.\* The AM peak hour currently meets the City of Raleigh's acceptable standard (LOS E or better); however, the PM peak hour currently violates the City's standard. No pedestrians or bicyclists were noted at this intersection during data collection, but it is anticipated that multimodal activity will increase as the surrounding area continues to develop (i.e. the Farmer's Market New Entrance Project and Dorothea Dix Park's Plaza and Play). Construction of the Maywood Avenue Sidewalk Improvement Project should provide some pedestrian safety benefits.

Based on existing traffic volumes, it is unlikely that a signal is warranted, but there is opportunity for signalization in the future. Construction modifications that allow for high visibility crosswalks across Lake Wheeler Road would provide an additional safety benefit to pedestrians wishing to access Dorothea Dix Park and the N.C. Farmer's Market.

The signalized intersection of Lake Wheeler Road and Centennial Parkway currently operates at an LOS A and LOS B during the AM and PM peak hours, respectively. All approaches currently have a pedestrian and bicycle LOS of D or better during both peak hours.\* The intersection currently meets the City of Raleigh's acceptable standards during both peak hours. There are several



intersection improvements scheduled for construction at this intersection. Once in place, traffic operations should improve significantly. There is an opportunity to optimize cycle lengths at this intersection and along the Lake Wheeler Road corridor as a whole. Additionally, the inclusion of Leading Pedestrian Intervals (LPIs) at this intersection would provide additional safety benefits for pedestrians.

*\*The multimodal LOS reported above reflects the overall experience of a pedestrian and/or biker. Similar to automobile LOS, a multimodal LOS D or better reflects “acceptable” traffic conditions (i.e. adequate gaps in vehicular flow). As the LOS approaches E and F, gaps in vehicular flow are greatly reduced and the multimodal user is more prone to entering the intersection with smaller gap acceptance, which may result in an unsafe condition. It should be noted that the reported multimodal LOS ratings are approximations of the multimodal users experience if the user were present at the intersection. Counts revealed no pedestrian or biker activity during the analyzed peak hours.*

**TABLE: 2A-1**

**PEDESTRIAN DELAY LEVEL OF SERVICE SUMMARY - 2020 TRAFFIC VOLUMES**

Location	2020 EXISTING	
	AM	PM
<b>Lake Wheeler Road / Maywood Avenue</b>		
NB	B (8.4)^	D (20.6)^
SB	C (15.8)^	C (12.4)^
<b>Lake Wheeler Road / Centennial Parkway / Commercial Driveway</b>		
EB	B (2.44)*	B (2.49)*
WB	B (1.99)*	B (1.99)*
NB	C (2.67)*	C (2.76)*
SB	C (2.56)*	C (2.65)*

<sup>^</sup>Intersection delay expressed in seconds per pedestrian per Synchro for unsignalized intersections

\*Pedestrian Crosswalk LOS / Score reported per Synchro for signalized intersections

**TABLE: 2A-2**

**BICYCLE LEVEL OF SERVICE SUMMARY - 2020 TRAFFIC VOLUMES**

Location	2020 EXISTING	
	AM	PM
<b>Lake Wheeler Road / Centennial Parkway / Commercial Driveway</b>		
EB	C (2.90)	D (3.70)
WB	C (2.58)	C (2.61)
NB	C (3.02)	C (2.58)
SB	C (2.74)	C (3.19)

Bicycle LOS / Score reported per Synchro for signalized intersections

**Washington Elementary School**

Washington Elementary School, located off Fayetteville Street, serves the greater Dix Edge Study Area and surrounding areas. School officials have expressed concerns regarding traffic circulation at the school. Primary concerns include: 1) queue spill back onto Martin Luther King Jr. Boulevard, 2) bus and parent vehicle interactions at the intersection of Martin Luther King Jr. Boulevard and Fayetteville Street, and 3) pedestrian crossing safety. Future discussions should be held between the City of Raleigh, Wake County Public School System (WCPSS), and NCDOT’s Municipal School Transportation Assistance (MSTA) section for further analysis and determination of potential capacity and safety improvement recommendations.

**SOUTHERN GATEWAY CORRIDOR STUDY – IMPROVEMENT PHASING**

A portion of the City of Raleigh’s Southern Gateway Study, adopted on February 7, 2017, is immediately adjacent to the Dix Edge Study Area. The Southern Gateway Study focused on the corridors of S. Saunders Street and S. Wilmington Street (south of I-40). Of the nine guiding report principles, the focus of this section is to “identify strategic infrastructure investments” as these relate to the S. Saunders Street corridor from Dawson / McDowell Streets to I-40.

To help improve area connectivity, the Southern Gateway Study recommended several improvements to both the S. Saunders Street and S. Wilmington Street corridors. Per the study, the primary function of S. Saunders Street should be vehicular mobility, whereas the primary function of S. Wilmington Street should be on local commuter trips as well as pedestrian and bicycle mobility. North of Dawson / McDowell Streets, the S. Saunders Street corridor ultimately changes character and functions less as a commuter facility and more as an area that services more local businesses and residences. To help improve functionality and character, the Southern Gateway Study ultimately made several recommendations for the S. Saunders Street corridor (see Figure 2A-12) including:

- S. Saunders Street / Lake Wheeler Road
  1. Realignment
  2. Signalization Improvements

- 3. Bike / Pedestrian Improvements
- S. Saunders Street / Hammell Drive
  1. Realignment
- S. Saunders Street / Dawson Street / McDowell Street
  1. Signalization Improvements
  2. Bike / Pedestrian Improvements

To help traffic flow and safety, it is recommended that the implementation of improvements occur in several steps:

- Realignment of the S. Saunders Street / Dawson Street / McDowell Street intersection
  1. Convert to a three-phase signalized intersection with S. Saunders Street intersecting at a 90-degree angle
- Realignment of S. Saunders Street / Hammell Drive
  1. S. Saunders Street to continue south away from Dawson Street / McDowell Street
  2. Hammell Drive to intersect S. Saunders Street at a 90-degree angle

- Realignment of S. Saunders Street / Lake Wheeler Road
  1. Realign to make Lake Wheeler Road the primary intersection movement
  2. Realign S. Saunders Street to intersect Lake Wheeler Road at a 90-degree angle
  3. Update traffic signal phasing to accommodate realigned movements
  4. Add bicycle and pedestrian accommodations to all cardinal directions

Once the intersection improvements occur at Dawson / McDowell Street, less commuter traffic will utilize S. Saunders Street and traffic volumes along S. Saunders Street will decrease. This decrease will make it safer to accommodate construction activities as well as pedestrian and bicycle movements along the corridor. Following this improvement, the S. Saunders corridor and its intersection with Hammell Drive can be realigned to a more traditional four-legged configuration. Pedestrian crosswalks can be added to all four intersection approaches. Following this, the realignment of the Lake Wheeler Road / S. Saunders Street intersection can occur. Lake Wheeler Road can be converted to the primary movement and S. Saunders Street can "T" into Lake Wheeler Road at a 90-degree angle. Accommodations for pedestrians and bicycles can be added to this newly realigned intersection to improve intersection safety.

## SOUTHERN GATEWAY CORRIDOR STUDY

FIGURE: 2A-11  
CREDIT: CITY OF RALEIGH





### CONNECTIVITY BARRIERS

Natural and man-made barriers restrict connections to areas inside and at the boundaries of the Study Area. While most opportunities for enhancing pedestrian and bicycle accessibility involve elimination of gaps in the network, there is a larger challenge to overcome physical barriers. In the Dix Edge Study Area, there are many physical barriers, such as major roads and rail lines and natural barriers including streams and floodplains. Additionally, lack of safe pedestrian crossings at South Saunders Street at the intersections of Western/MLK Boulevard and Interstate 40 create barriers to connectivity. Primary barriers and related characteristics are listed below (reference the list with Figure 2A-13).

1. The southwest portion of the Study Area (north of I-40) is underutilized and in a flood zone. This section lacks existing pedestrian paths, bicycle routes, or local roads that can bridge I-40. This area north of I-40 is physically segregated to the Carolina Pines community to the south. The Walnut Creek Trail provides east-west connections but access to the trail in this area is very limited.
2. Fuller Heights neighborhood and Lake Wheeler Road currently does not

have existing bicycle infrastructure or sidewalks. While there is plan to implement “complete street” on Lake Wheeler Road, the improvements could take up to five years to design and construct. Connectivity from this area to the west of Lake Wheeler Road also does not exist until design and construction of Dorothea Dix Park’s Phase 1 (Plaza and Play) is complete.

3. South Saunders Street, South McDowell Street and South Dawson Street intersection restricts easy east-west connections for pedestrians, bicyclists and automobiles. High traffic speed, traffic volumes and terrain impede safe pedestrian crossings. Limited access to the Rocky Branch Trail in this area also prevents connections north and south for pedestrians and bicyclists as well as connections to downtown area across Western/MLK Boulevard.
4. East-west connections are non-existent in this area between Western/MLK Boulevard and Keeter Center Drive/City Farm Road on Wilmington Street. A floodzone and undeveloped City of Raleigh property to the west of Wilmington Street create a barrier between Caraleigh and Walnut Terrace neighborhoods.

**BOTTOM**  
Guiding principles to use for future considerations to improve connectivity in the Study Area.

#### SOUTHERN GATEWAY

- Incorporate Southern Gateway plan’s recommendations into this study.
- Prioritize proposed new streets within implementation timeline for Dix Edge study items.

#### TRAIL CONNECTIONS

- Coordinate with the City of Raleigh Greenway study initiatives.
- Encourage new developments to build new connections to existing trails.
- Improve safety and access.
- Explore ways to connect the trails to Downtown and to areas north and south of Study Area.

#### BUS RAPID TRANSIT

- Along with regular service routes, explore opportunities to improve connections to future BRT Stations.
- Multimodal access needs to be considered near stations along with parking facilities for automobiles and bicycles.

### BARRIERS & OPPORTUNITIES

FIGURE: 2A-12

#### KEY

- ← East -West Connection
- Current Connection Barriers
- Improvement Areas
- Transit Stops
- Proposed BRT Station



### OPPORTUNITY AREAS

Following opportunity areas and their characteristics will assist to improve connections in and around the Study Area:

1. Create connections north and south that may allow pedestrian and bike access to the Walnut Creek Trail.
  - a. Explore opportunities to connect Carolina Pines neighborhood to Walnut Creek Trail between Lake Wheeler Road and South Saunders Street.
  - b. New development/s north of I-40 have the potential to create additional greenway connector trails.
2. Identify quick fixes and pilot project opportunities that will provide pedestrian and bicycle safety until improved future improvements can be implemented.

3. Increase connectivity to Rocky Branch Trail and improve east-west connections.
  - a. Study potential north and south connector trails on either side of South Saunders.
  - b. Explore trail improvements at the underpass area to increase safety measures.
  - c. Incorporate relevant recommendations from the Southern Gateway plan into this study.
4. Create strong east-west connections to Wilmington Street from neighborhoods east of Study Area boundary.
  - a. Identify development opportunities east of Fayetteville Street.
  - b. Explore potential for new street and trail connections to allow travel to the future Wilmington Street BRT Station from Caraleigh and Walnut Terrace neighborhoods.

## 2.B UTILITY INFRASTRUCTURE

With the assistance of Raleigh Water staff (formally City of Raleigh Public Utilities Department), a high-level review of the existing utilities in the vicinity of the Dix Edge Study Area was conducted. The City's utilities around the Park and Study Area include the potable water distribution system, sanitary sewer collection system and the reuse (non-potable) water system. The purpose of this review was to understand existing capacity and future demand based on the development proposed in the area.

### POTABLE WATER DISTRIBUTION SYSTEM

The drinking water for the City is supplied by the E.M. Johnson Water Treatment Plant on the north side of the City, and by the Dempsey E. Benton Water Treatment Plant to the south, located in the Town of Garner. The two treatment plants convey water throughout the City via a network of primary transmission mains (16-inch diameter and larger) and a vast network of smaller distribution mains (less than 16-inches in diameter).

Due to the changes in elevation across the City, the City's water distribution system is separated into multiple pressure zones to balance the pressures seen by its customers. A series of tanks and pumps store and move water across pressure zone boundaries. The Study Area and eastern portion of the Dorothea Dix Park are within the 495 Pressure Zone and the western portion is within the 595 Pressure Zone. The boundary between the pressure zones closely follows the railroad track that parallels Hunt Drive but continues south beyond Umstead Drive to split the Park.

The primary water supply line to the Study Area is a transmission line known as the West Raleigh Transmission Main that follows Western Boulevard. This line was last rehabilitated in the 1970's but is believed to be in good condition. It is believed the City system is currently able to deliver water efficiently and effectively to the Study Area. Therefore, there are currently no concerns over storage capacity or flow rate. The City will continue to monitor ongoing water system capacity through its master planning efforts and City policies will require each future development to study and verify available water capacity at the time of development.

To bolster overall water system reliability in the area, the City is planning to construct a 36-inch transmission main from the E.B. Bain Pump Station to the Pullen Park Pump Station. The addition of this main will ensure that the 495 Pressure Zone has an adequate supply of water should the supply from the E.M. Johnson Water Treatment Plant be interrupted. The Pullen-to-Bain transmission main is scheduled to be constructed during the winter of 2021.

### SANITARY SEWER COLLECTION SYSTEM

The City has a well-developed gravity sewer collection system in and around the Study Area. The portion of the Area to the north of I-40 is served by a series of smaller gravity sewers that are collected by either the Walnut Creek Interceptor (gravity sewer) or the Rocky Branch Interceptor. The Rocky Branch Interceptor is located between S Wilmington St and Fayetteville St and ultimately conveys flow south to the Walnut Creek Interceptor. The Walnut Creek Interceptor conveys flows from much of the southern portion of the City east to the Neuse River Resource Recovery Facility.

The City currently has projects planned for both Rocky Branch and the Walnut Creek interceptors to address both condition and capacity issues. The timing and sizing of these projects will continue be evaluated as part of the sanitary sewer capacity study to ensure adequate future capacity in these major interceptors.

For portions of the Area south of I-40, the smaller gravity collection mains may have limited capacity available for higher density redevelopments. The City will continue to monitor ongoing sewer system capacity through its master planning efforts and City policies will require each future development to study and verify available sewer capacity at the time of development.

### REUSE WATER SYSTEM

The City's reuse water system provides water for non-potable uses such as irrigation, toilet flushing for high efficiency building design (LEED), and cooling water for industrial customers. There is a 16-inch reuse water main within the Area that runs east-west along Maywood Ave, across Lake Wheeler Rd, and along Centennial Pkwy.

If the City is interested in utilizing reuse water within the area, it would be possible to extend a new reuse main north to Dorothea Dix Park with relative ease. It should be noted, however, that the availability of reuse water may be limited as the City has indicated that the reuse system in this area has limited storage capabilities. Depending on the amount of reuse water desired for the area and the anticipated peak demands, additional reuse water storage tanks may be necessary. Further study is required to determine the current daily and peak hourly limitations of the City's reuse system in this area.

## 2.C DEMOGRAPHICS, ECONOMIC BASE & REAL ESTATE ANALYSIS

### 2.C.i DEMOGRAPHIC ANALYSIS

The demographic trend and projection analysis provides the metrics to better understand the Dix Edge community, its economy, and how the community may change over the next 10 to 20 years. The recent demographic trends for the Dix Edge Study Area, the City of Raleigh, and Raleigh-Cary Metropolitan Statistical Area (MSA) were analyzed.

This analysis produced a series of findings that identify potential opportunities and constraints that the community and the City must address as it moves forward. These emerging market demand pressures can reshape the development patterns of the Dix Edge Area and these findings establish a framework for future programs and policies that will help guide public investments and future land use and zoning decisions. It is hoped that future decisions will also move the City towards a neighborhood preservation and affordable housing strategy that makes it possible for legacy households to remain a part of the community.

#### MAJOR FINDINGS

- **Momentum is Building** – The increasing development demand within the region is starting to push more urban-style development further south of downtown into the Dix Edge Study Area. Nearly \$2 billion in private development projects are slated for this area in the future, and they are likely to influence the traditional mill-style neighborhoods that surround them.

- **Changing Trends** – Given the nature and size of the new mixed-use developments proposed in the Dix Edge area, population increases in the Dix Edge Area could far exceed the established historical pace over the next decade.
- **Distinct Characteristics** – The data suggests that there are more family households in the Metro area, whereas Dix Edge and the City are attracting a higher percentage of college-aged student households or single person households (primarily seniors).
- **Rising Prices** – Overall, the population projections for Dix Edge may be undervaluing the growth prospects that are inherent in the new development proposals coming before the City's Planning Commission. The number of new residential units will draw more people downtown into higher density rental housing and townhomes. This will likely draw higher income couples and professionals to these higher price housing options, which could impact consumer retail demand and spending metrics in the Study Area.

- **Dix Edge Area Naturally-Occurring Affordable Housing Could be Threatened Due to Rising Property Values** – Housing in the Study Area is predominantly renter-occupied units and the area is still considered affordable in the Raleigh market. But even though the median income gaps are closing between the Study Area and the Metro area, the household incomes in the Study Area still underperform compared to the City and the MSA and are currently insufficient on average to make housing affordability and homeownership a realistic option for many households.
- **Racially Diverse Population** – The Dix Edge Study Area has a diverse population, with a stable African American population. There is also a sizeable White population, which has declined slightly since 2010. This racial distribution stands in contrast to the broader City of Raleigh demographic in that the percentage of the African American population in the City and MSA are substantially lower than the Study Area.

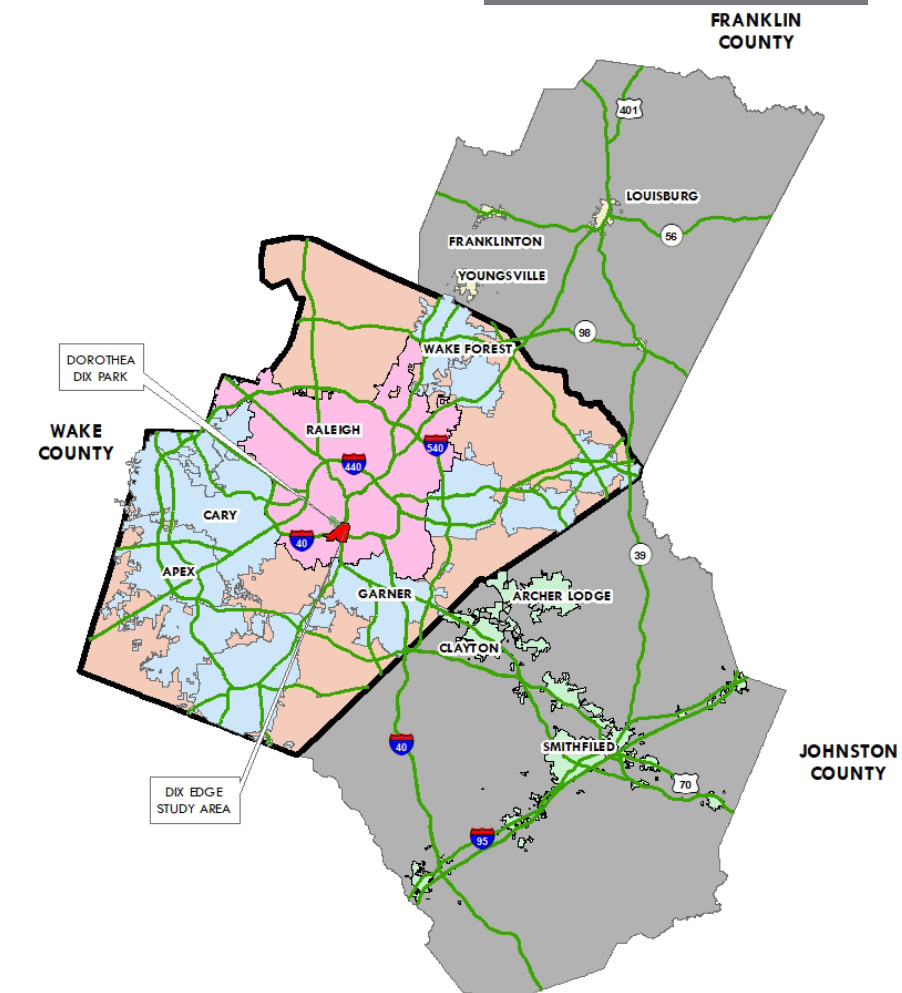
The broader MSA also offers a context for evaluating the demographic changes that are likely to influence and reshape the Study Area over time. For example, the increasing development demand within the region is starting to push downtown development further south into the Dix Edge Study Area. Nearly \$2 billion in private development projects are slated for this area in the future and they are likely to influence the neighborhoods that surround them.

#### METHODOLOGY

RKG conducted its analysis, highlighting the recognized Dix Edge Study Area boundaries identified by the City of Raleigh's Planning and Development Department - specifically the neighborhoods of Caraleigh, Carolina Pines, Fuller Heights, Gateway Park, Walnut Terrace, Wheeler Crossing, and the adjoining areas east of Dorothea Dix Park and south of downtown (Figure 2C-2). To produce comparative metrics, the City of Raleigh and the Raleigh-Cary MSA were also analyzed and are shown in Figure 2C-1. This expanded regional analysis provides a comparative measuring stick for evaluating the existing conditions and recent trends in the Study Area.

### RALEIGH-CARY MSA

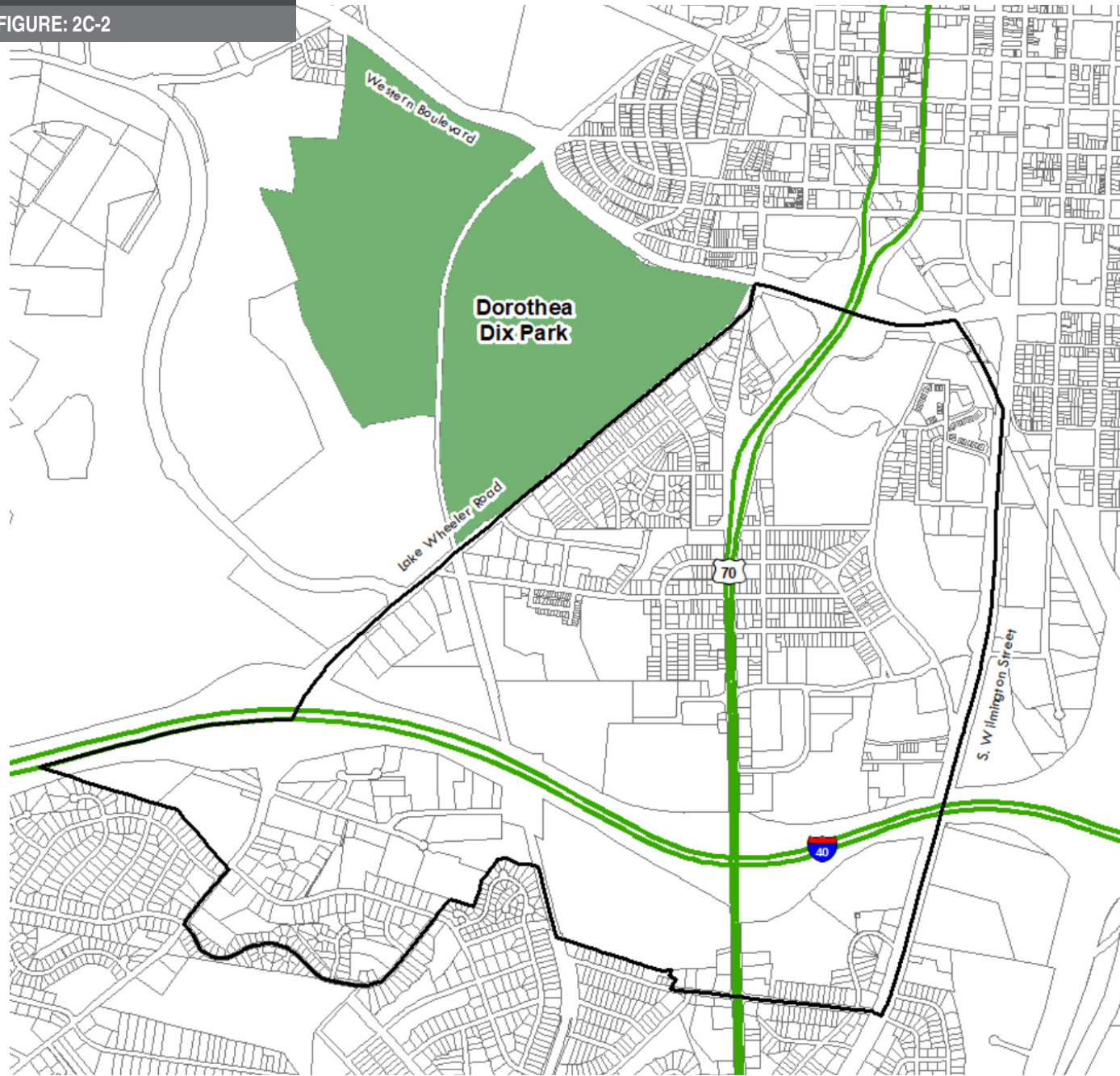
FIGURE: 2C-1



Map showing the boundaries of Dix Edge, City of Raleigh, and the Metropolitan Area. Credit: RKG Associates

**DIX EDGE STUDY AREA**

FIGURE: 2C-2



Source: RKG Associates, Inc., 2020

**DATA SOURCES**

Primary data sources used for this study include demographic information from the U.S. Census Bureau and current estimates and projections from ESRI. This company is a nationally recognized third-party data provider that uses U.S. Census data to

generate estimates and projections of socioeconomic variables for a range of geographic areas. A customized summary of the Study Area and the regional markets was performed for this analysis.

**POPULATION TRENDS (2000-2025)**

The City of Raleigh has seen its population grow by 3.6% and 2% respectively over the past two decades. The population stood at 298,147 in 2000 based on ESRI estimates and has reached 477,476 in 2020. Growth is projected to reach 524,448 residents by 2025, continuing at a 2% annual population growth rate (Figure 2C-3).

The Dix Edge Study Area has experienced much different population trends since 2000. Between 2000 and 2010, the Study Area experienced a slight decline (-0.3%), with the loss of 164 residents (Figure 2C-4). This was a period of rapid growth for the rest of the MSA, which increased by an average annual rate of 4.2% during the same period. It should be noted that the Great Recession of 2008-09 led to a deep economic decline and financial crisis that curtailed growth and dampened private development activity throughout much of the U.S. for several years. It was not until 2010 that recovery started to occur in many places.

However, over the past ten years, the Dix Edge Study Area has experienced modest population growth, starting with 5,814 people in 2010 and increasing to 6,454 in 2020. This has resulted in a net change of 533 new residents or an average annual growth rate of 0.4%. While this nominal growth rate has not kept pace with the City or the region, it demonstrates a certain resiliency, and the Study Area is projected to sustain that growth rate out to 2025. Given the nature and size of new mixed-use developments proposed in the Downtown South area, population increases in the Dix Edge Area could far exceed this pace over the next decade.

FIGURE: 2C-3

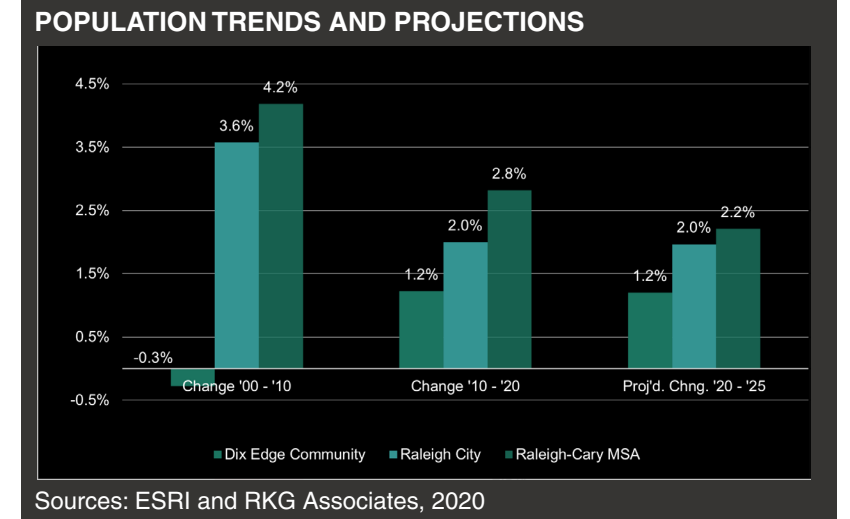


FIGURE: 2C-4

**DIX EDGE STUDY AREA DEMOGRAPHICS**

The **Dix Edge Study Area** is poised for change as the **Downtown South** is slated to receive significant investment. As a result, trends in population growth and historical demographics are predicted to be impacted. Along with many challenges, this is also an opportunity to address long-standing inequities.

**Stagnant Population Growth**  
1.2%

Annual population growth in the **Study Area** from 2010-2020, versus a more robust 2.8% for the **Metro**.

**\$60,812**  
Income required

A 2020 analysis from HSH noted **\$60,812** as the annual income required to purchase a home in Raleigh. By contrast, the 2020 median incomes are:  
**Study Area = \$39,863**  
**City = \$66,959**  
**Metro = \$76,960**

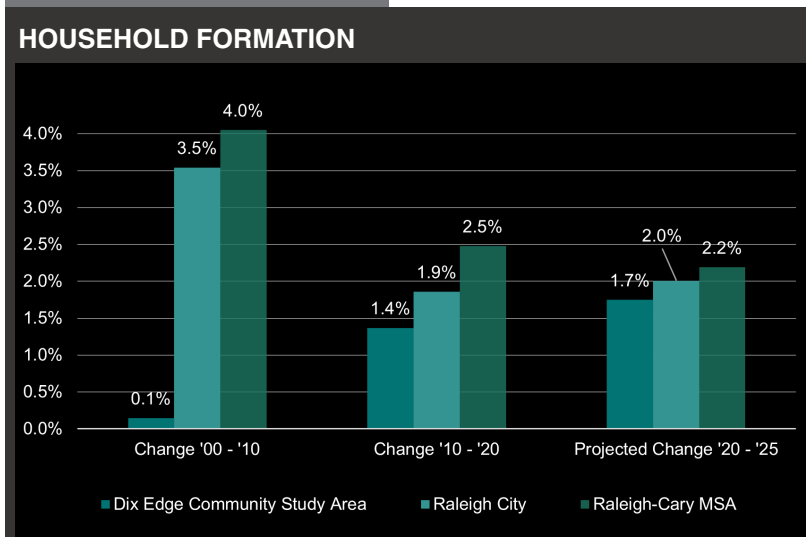
The **Study Area** has a more diverse population than the broader **Metro**.

46.1% Black pop. in 2020 in the Study Area (Hispanic @ 15.1%)	39.3% White pop. in 2020 in the Study Area
28.1% Black pop. in 2020 in the City (Hispanic @ 12.3%)	19.9% Black pop. in 2020 in the Metro (Hispanic @ 11.1%)

**Differential in Black Population**

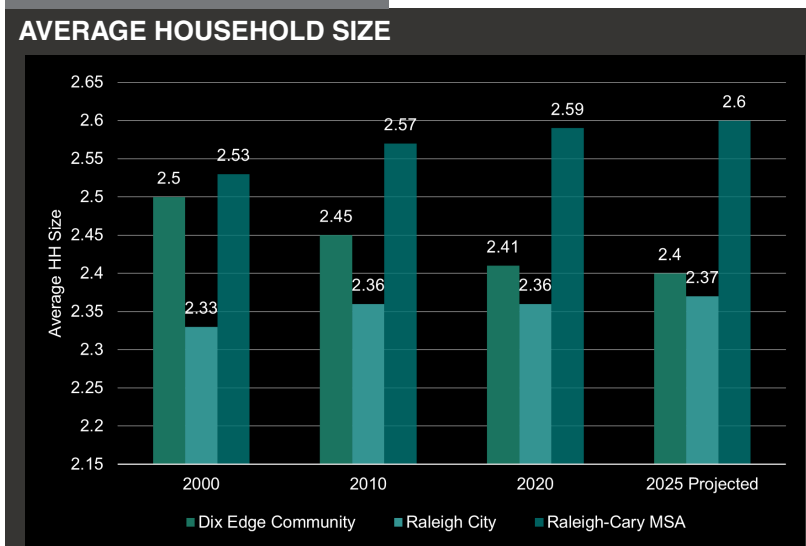
Source: RKG Associates, Inc., 2020

FIGURE: 2C-5



Sources: ESRI and RKG Associates, 2020

FIGURE: 2C-6



Sources: ESRI and RKG Associates, 2020

**HOUSEHOLD TRENDS**

The rate of household formation in the Dix Edge Study Area was flat from 2000 to 2010 (0.1%), then trending upward in the subsequent decade by 1.4%. This trend mirrored the change in population during the same period, but the number of households did not actually decline during the early 2000s (Figure 2C-5). Over the next five years, all three areas are projected to increase in households, with the Dix Edge Study Area growing at 1.7% annually – roughly 0.5% faster than population.

The average household size of 2.41 persons in Dix Edge is larger than the in City (2.36 persons) and significantly below the MSA at 2.59 persons in 2020 (Figure 2C-6). This suggests that there are more family households in the Metro area, whereas Dix Edge and the City are attracting more single person households. In general, the Dix Edge Study Area has twice the percentage of non-family households with unrelated persons than the MSA and a much higher percentage of single parent households (26.3%) than in the MSA (11.7%).

While households in the City and MSA are projected to stabilize or increase in size, the opposite is true in the Study Area, which has seen household size drop from 2.50 persons in 2000 to a projected 2.40 persons in 2025. These population and household trends seem to suggest that Dix Edge will continue to see the growth of households outpace new population, which is largely attributable to declining households' size. That could point to a rising senior population with single-person households or an increase in younger-aged households in rental properties.

Overall, the population projections for Dix Edge may be underestimating the growth prospects that are inherent in the new development proposals coming before the City's Planning Commission. The number of new residential units will draw more people downtown into higher density rental housing and townhomes. This will likely draw higher income couples and professionals to these higher price housing options.

**POPULATION BY AGE**

The Dix Edge population is very similar to the City and MSA population, with some slight differences. The median age of the Study Area population is the lowest at 33.3 in 2020, as compared to the City (33.9) and the MSA, which is much older at 36.4 (Table 2C-1). Roughly 68% of the Dix Edge population is in the 15-to-54-year age range, down from almost 71% in 2010. While these family formation age cohorts are adding population, they are lagging behind the older age cohorts of those over 55 years, which are growing at a faster rate of 5% annually since 2010. This is an

interesting finding, since people age 55 and older make up only 15.9% of the Study Area population, which is much less than the City (22.0%) and the MSA (24.1%). This may indicate that the Dix Edge Study Area has not been a very popular location for older household historically, perhaps due in part to an inadequate supply of desirable housing alternatives, but that may be starting to change.

Another interesting characteristic of the Dix Edge Study Area is the percentage of persons age 15-34, which includes young people in high school through undergraduate and graduate school in some cases. While this segment of the population has declined in its share of the total population since

2010, it is considerably larger (37.1%) than either the City (33.7%) or the MSA (27.7%) in 2020. This may suggest that the Study Area has become a popular location for student-age population, either through an increase in young family households, including college student households. The Dix Edge area is located very close to the North Carolina State University Centennial Campus along Centennial Parkway. While field research did confirm over 400 college students at the Village Green Apartments, the neighborhood's general affordability may be attracting students even more broadly to this location. The housing in the Study Area is predominantly renter-occupied housing units and the area is still considered affordable in the Raleigh market.

TABLE: 2C-1

POPULATION BY AGE  
Dix Edge Study Area, City of Raleigh and Raleigh-Cary, NC MSA (2010-2025)

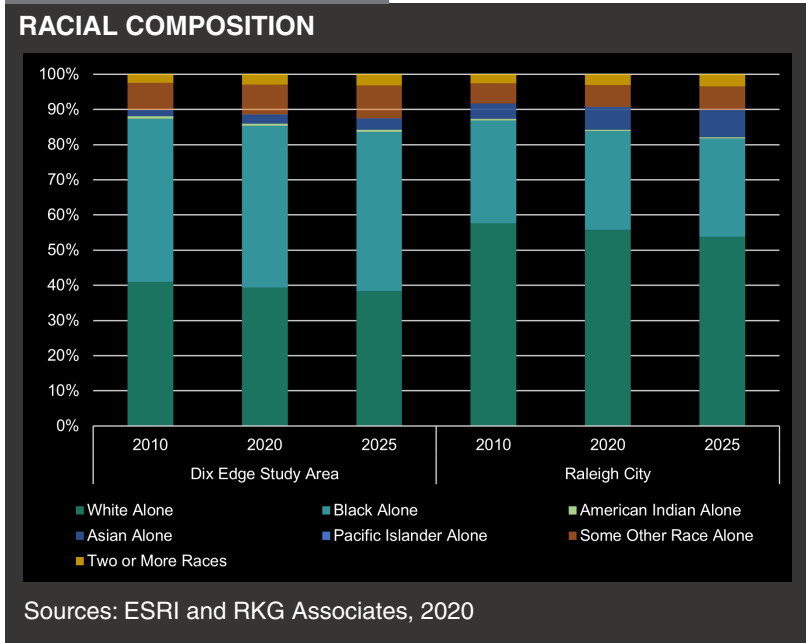
	Dix Edge Study Area			Raleigh City			Raleigh-Cary MSA		
	2010	2020	2025	2010	2020	2025	2010	2020	2025
0-4 years	390	374	404	29,138	29,126	32,516	82,526	90,702	102,288
5-9 years	331	342	356	26,305	28,648	30,418	85,917	96,370	103,861
10-14 years	285	323	328	23,877	28,648	29,894	81,395	99,205	105,435
15-24 years	1,058	1,188	1,225	70,012	81,648	88,107	151,486	195,575	210,870
25-34 years	1,175	1,207	1,279	74,463	79,261	90,730	165,052	196,993	232,901
35-44 years	1,070	1,110	1,142	61,513	68,279	72,374	183,139	199,827	215,591
45-54 years	820	891	917	50,182	57,297	60,312	165,052	195,575	199,854
55-64 years	419	587	623	36,018	49,657	51,920	115,310	168,648	180,971
65-74 years	151	290	376	17,806	32,946	38,809	59,916	109,125	133,761
75-84 years	76	103	157	10,522	15,279	20,978	30,523	46,768	67,667
85+ years	41	45	48	4,856	7,162	7,867	11,305	17,007	20,458
<b>Total Population</b>	<b>5,815</b>	<b>6,455</b>	<b>6,841</b>	<b>404,692</b>	<b>477,473</b>	<b>524,448</b>	<b>1,130,490</b>	<b>1,417,213</b>	<b>1,573,657</b>
<b>Median Age</b>	<b>32.2</b>	<b>33.3</b>	<b>33.7</b>	<b>31.9</b>	<b>33.9</b>	<b>33.8</b>	<b>34.9</b>	<b>36.4</b>	<b>36.4</b>

**Percent Distribution**

	2010	2020	2025	2010	2020	2025	2010	2020	2025
0-4 years	6.7%	5.8%	5.9%	7.2%	6.1%	6.2%	7.3%	6.4%	6.5%
5-9 years	5.7%	5.3%	5.2%	6.5%	6.0%	5.8%	7.6%	6.8%	6.6%
10-14 years	4.9%	5.0%	4.8%	5.9%	6.0%	5.7%	7.2%	7.0%	6.7%
15-24 years	18.2%	18.4%	17.9%	17.3%	17.1%	16.8%	13.4%	13.8%	13.4%
25-34 years	20.2%	18.7%	18.7%	18.4%	16.6%	17.3%	14.6%	13.9%	14.8%
35-44 years	18.4%	17.2%	16.7%	15.2%	14.3%	13.8%	16.2%	14.1%	13.7%
45-54 years	14.1%	13.8%	13.4%	12.4%	12.0%	11.5%	14.6%	13.8%	12.7%
55-64 years	7.2%	9.1%	9.1%	8.9%	10.4%	9.9%	10.2%	11.9%	11.5%
65--74 years	2.6%	4.5%	5.5%	4.4%	6.9%	7.4%	5.3%	7.7%	8.5%
75-84 years	1.3%	1.6%	2.3%	2.6%	3.2%	4.0%	2.7%	3.3%	4.3%
85+ years	0.7%	0.7%	0.7%	1.2%	1.5%	1.5%	1.0%	1.2%	1.3%

Source: ESRI and RKG Associates, Inc., 2020

FIGURE: 2C-7



RACE AND ETHNICITY

The Dix Edge Study Area has a diverse population, with a stable African American population making up 46.4% of total residents in 2010 and 46.1% in 2020. There is also a sizeable White population, which has declined slightly since 2010, from 41% to 39.3% in 2020. The distribution of African Americans residents is projected to remain relatively flat through 2025 with only a slight decline of 1.1% from 2010 (45.3%) (Figure 2C-7).

The Study Area racial distribution stands in contrast to the broader City of Raleigh demographic in that the percentage of the African American population in the City and MSA is approximately 28.1% and 19.9% respectively, substantially lower than the Study Area in 2020. At the same time, the percentage of people of Hispanic origins was 15.1% in the Dix Edge Study Area compared with 12.3% in the City and 11.1% in the MSA (Table 2C-2). People of Hispanic heritage are not classified by their race but rather their ethnicity. Hispanic populations have many different places of origin and can represent more than one racial group.

TABLE: 2C-2

RACIAL & ETHNIC COMPOSITION  
Dix Edge Study Area, City of Raleigh and Raleigh-Cary, NC MSA (2010-2025)

Racial/Ethnic Group	Dix Edge Study Area			Raleigh City			Raleigh-Cary MSA		
	2010	2020	2025	2010	2020	2025	2010	2020	2025
White Alone	2,384	2,537	2,620	233,103	266,432	282,153	763,081	914,102	980,388
Black Alone	2,698	2,976	3,099	118,575	134,171	146,321	228,359	282,025	311,584
American Indian Alone	41	39	41	2,023	1,910	2,098	5,652	7,086	7,868
Asian Alone	93	161	219	17,402	30,081	40,382	49,742	94,953	127,466
Pacific Islander Alone	6	6	7	0	477	524	0	1,417	1,574
Some Other Race Alone	454	549	636	23,067	29,604	35,138	56,525	76,530	92,846
Two or More Races	140	187	219	10,522	14,802	17,831	27,132	42,516	51,931
Hispanic Origin	814	975	1,129	45,730	58,730	69,752	114,179	157,311	188,839
<b>Total Population</b>	<b>5,815</b>	<b>6,455</b>	<b>6,841</b>	<b>404,692</b>	<b>477,476</b>	<b>524,448</b>	<b>1,130,490</b>	<b>1,417,213</b>	<b>1,573,657</b>

Percent Distribution									
White Alone	41.0%	39.3%	38.3%	57.6%	55.8%	53.8%	67.5%	64.5%	62.3%
Black Alone	46.4%	46.1%	45.3%	29.3%	28.1%	27.9%	20.2%	19.9%	19.8%
American Indian Alone	0.7%	0.6%	0.6%	0.5%	0.4%	0.4%	0.5%	0.5%	0.5%
Asian Alone	1.6%	2.5%	3.2%	4.3%	6.3%	7.7%	4.4%	6.7%	8.1%
Pacific Islander Alone	0.1%	0.1%	0.1%	0.0%	0.1%	0.1%	0.0%	0.1%	0.1%
Some Other Race Alone	7.8%	8.5%	9.3%	5.7%	6.2%	6.7%	5.0%	5.4%	5.9%
Two or More Races	2.4%	2.9%	3.2%	2.6%	3.1%	3.4%	2.4%	3.0%	3.3%
Hispanic Origin	14.0%	15.1%	16.5%	11.3%	12.3%	13.3%	10.1%	11.1%	12.0%

Source: ESRI and RKG Associates, Inc., 2020

MEDIAN HOUSEHOLD INCOME

Historically, the Study Area's income metrics have lagged behind the broader City and MSA level. In 2020, the median household income in Dix Edge was \$39,863, which was 60% of the City median (\$66,959) and 51.8% of the MSA median income (\$76,960) (Table 2C-3/2C-4/Figure 2C-8). Nationally, the median household income was \$68,400 with "middle class" defined as households with incomes ranging between \$34,200 (half the U.S. median income) to \$136,800 (twice the U.S. median income).

Approximately 58.8% of households in Dix Edge had 2020 incomes under \$50,000 per year, versus only 31.0% in the MSA. Approximately 74% of the households in Dix Edge had incomes under \$75,000 while the City of Raleigh and the MSA's shares were 54.5% and 48.7%, respectively. The percentages for incomes over \$100K per year for the Study Area were 17.1% in Dix

Edge compared to 32.4% in the City while the MSA was considerably higher at 37.9%. The percentage of 2020 household incomes in the Study Area at \$200,000 and above (4.5%), is less than half the percentages of the City (9.9%) and MSA (11.0%), as shown in Table 2C-3. For context, an August 2018 online article in the Raleigh News & Observer indicated that a salary of \$61,806 was required to afford the median home in Raleigh. Even though the median income gaps are closing, the household incomes in the Study Area still underperform compared to the City and the MSA and are currently insufficient on average to make housing affordability and homeownership a realistic option for many households.

The steady (if not shrinking) population and the lower incomes highlight a clear divide between the Study Area residents and the surrounding communities. However, the 8.3% projected median household income growth for the Study Area could outpace the City of Raleigh and the MSA over the next five years (Table 2C-4).

TABLE: 2C-3

DISTRIBUTION OF HOUSEHOLD INCOME (2020)  
Dix Edge Study Area, City of Raleigh and Raleigh-Cary, NC MSA

Household Income	Dix Edge Study Area		Raleigh City		Raleigh-Cary MSA	
	Count	% of Total	Count	% of Total	Count	% of Total
<\$15,000	298	14.7%	14,525	7.5%	32,237	6.0%
\$15,000 - \$24,999	296	14.6%	13,750	7.1%	32,774	6.1%
\$25,000 - \$34,999	302	14.9%	15,493	8.0%	39,222	7.3%
\$35,000 - \$49,999	296	14.6%	26,338	13.6%	62,325	11.6%
\$50,000 - \$74,999	308	15.2%	35,440	18.3%	95,099	17.7%
\$75,000 - \$99,999	180	8.9%	25,176	13.0%	72,533	13.5%
\$100,000 - \$149,999	154	7.6%	30,211	15.6%	98,860	18.4%
\$150,000 - \$199,999	101	5.0%	13,363	6.9%	45,669	8.5%
\$200,000+	91	4.5%	19,172	9.9%	59,101	11.0%
<b>Total Household</b>	<b>2,025</b>	<b>100.0%</b>	<b>193,661</b>	<b>100.0%</b>	<b>537,282</b>	<b>100.0%</b>

Under \$50,000/yr.	1,191	58.8%	70,105	36.2%	166,557	31.0%
\$100,000 +/yr.	346	17.1%	62,746	32.4%	203,630	37.9%
Median Household Income	\$39,863	N/A	\$66,959	N/A	\$76,960	N/A

Source: ESRI and RKG Associates, Inc., 2020

TABLE: 2C-4

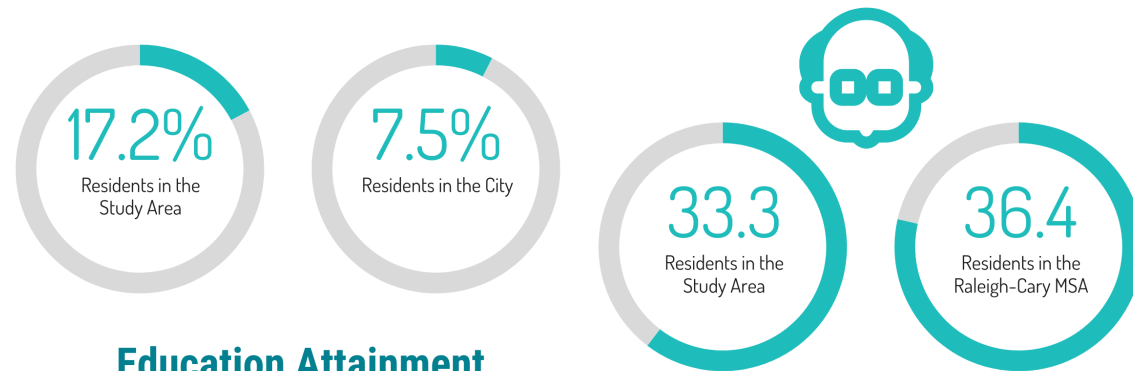
MEDIAN HOUSEHOLD INCOME PROJECTIONS (2020-2025)  
Dix Edge Study Area, City of Raleigh and Raleigh-Cary, NC MSA

	2020	2025	Chg. '20-'25	% Chg.
Dix Edge	\$39,863	\$43,158	\$3,295	8.3%
Raleigh	\$66,959	\$72,112	\$5,153	7.7%
Raleigh-Carey MSA	\$76,960	\$82,167	\$5,207	6.8%

Sources: ESRI and RKG Associates, Inc. 2020

FIGURE: 2C-8

DIX EDGE STUDY AREA DEMOGRAPHICS



**Education Attainment**

The percentage of residents with less than high school, or no school in 2020.

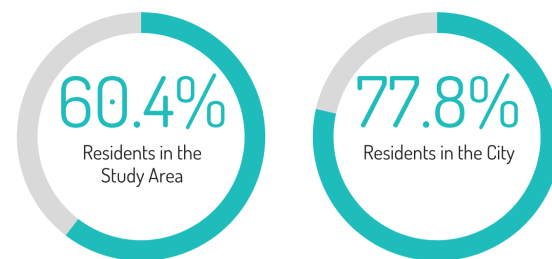
**Median Age**

The median age metric may give a different view of the eligible student population (including adult education).

**Dix Edge    Raleigh**



\$39,863      \$66,959



**Education Attainment**

The percentage of residents with some college, or higher in 2020.

Source: RKG Associates, Inc., 2020

**EDUCATIONAL ATTAINMENT**

The percentage of Dix Edge residents with some college or higher degrees lags the broader MSA, 60.4% locally versus 75.0% regionally, or a gap of approximately 15 percentage points (Figure 2-9). The percentage with no high school diploma also exceeds the broader area by almost 10 percentage points (17.2% versus 7.6%). However, it should be noted that approximately 38% of the population in the Study Area have at least associate degrees or higher, which is 5 percentage points above the U.S. average. This reinforces the presence of college students, or perhaps graduate students, are occupying housing broadly throughout the Dix Edge Study Area.

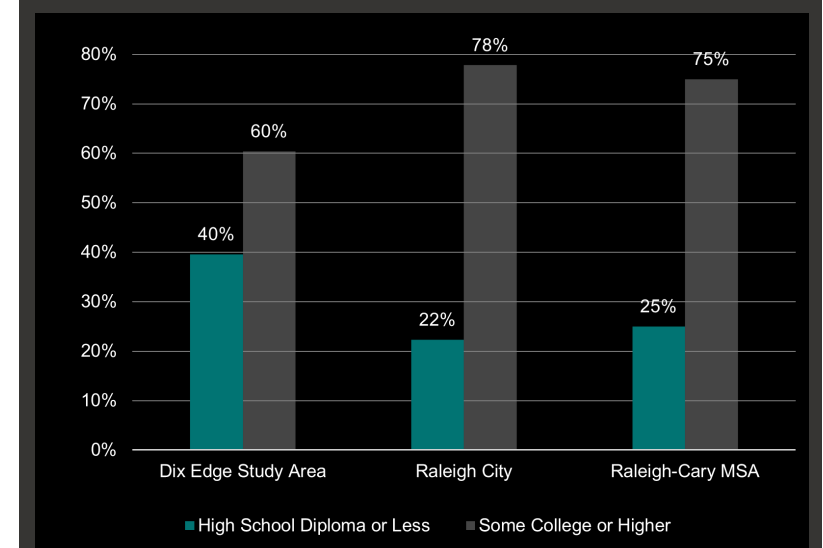
**DEMOGRAPHIC IMPLICATIONS**

The Raleigh-Cary MSA has long been a vibrant market in the southeastern United States. In contrast, the collection of communities that are situated south of the downtown have historically been disenfranchised and underserved. This dynamic is set to change as several significant mixed-use development proposals have been presented to the City Planning Commission which may drastically reshape the Study Area and effectively extend the recognized borders of the downtown southward. In consideration of these pressures, the City of Raleigh has commissioned this report to gather the data and recommendations necessary to protect and preserve these legacy communities in the face of a changing market.

In many respects, the Dix Edge Study Area stands in contrast to the broader Metro area, specifically the downtown. The Study Area is more racially diverse, it is primarily a rental neighborhood, it is home to naturally occurring affordable housing, and it has a higher population of seniors and college-aged/student-led households. All these factors must be considered as new policies and budget priorities are considered by City leadership as they seek to balance the pending growth with the needs of the existing residents. While it may not be possible to completely offset all displacement and other associated socio-economic factors, a well-crafted housing strategy should aim to strike a balance between embracing market-driven growth while also promoting both the preservation of some of the existing affordable housing stock and the meaningful creation of as many new affordable units as possible.

FIGURE: 2C-9

EDUCATIONAL ATTAINMENT



Sources: ESRI and RKG Associates, 2020

## 2.C.ii ECONOMIC BASE ANALYSIS

The economic base analysis chapter details trends and projections of jobs and working residents within the Dix Edge neighborhood, and how those relate to the City as a whole and the region. More specifically, the analysis focuses on labor force data (i.e., unemployment rates) and employment data (i.e., jobs that exist in the neighborhood) to understand the economic climate and how the Dix Edge community has been influenced by local and regional changes.

This chapter frames recommendations for actions and initiatives to ensure the Dix Edge community and its residents can capture their ‘fair share’ of the opportunities created in the Raleigh-Durham region.

### MAJOR FINDINGS

- **The economic success of the region and Downtown Raleigh are changing the market within the Dix Edge community.** Employment levels in and around Dix Edge have nearly doubled since 2002. Investments in downtown, the growth of the NC State Centennial Campus and the catalytic investments in areas like the Warehouse District have created a new market dynamic for the Dix Edge community. This is most evident in the substantial local resident employment growth since 2010.
- **Almost all of the economic success occurring in and around Dix Edge has not directly benefited long-term residents.** While the number of Dix Edge residents employed increased by nearly 50% since 2010, Census data indicate that very few community residents are employed in the jobs within the community. This indicates

that people are moving into the area to take advantage of Dix Edge’s convenient location. Although this influx of residents is not a negative for the community, it most likely will impact long-term residents who are not able to participate in the economic opportunities being created in and around their neighborhood.

- **The continued economic growth of the region, the City, and specifically downtown and the Dix Edge community could substantially change the neighborhood.** Development pipeline information (detailed in the Real Estate Chapter) indicate that downtown and Dix Edge are both likely to capture their fair share of this development. There are millions of square feet of commercial space and thousands of housing units in the development pipeline for downtown. Further, the Park City South and Downtown South projects immediately adjacent to Dix Edge would add more than 4 million square feet of commercial space and thousands of additional housing units over the next few decades. While change is inevitable, the City

could—and should—take measures to preserve the culture and nature of the Dix Edge community and provide pathways for existing residents to share in the success and opportunities coming into their neighborhood.

### METHODOLOGY

A variety of data sources were used to analyze the economic base for the City’s local and regional market. Like the Demographic Analysis, much of the data are provided by ESRI, a supplier of geographic information, and the U.S. Census Bureau. Information about regional employment trends and projections are from EMSI, a global data vendor of employment trends and projections. The U.S. Bureau of Labor Statistics and the North Carolina Department of Labor provided insight into labor market characteristics, labor force data, and occupational skill levels. Labor migration patterns were explored and graphically represented using the U.S. Census OnTheMap mapping and reporting database. Any additional data sources not included above will be noted when appropriate throughout the chapter.

Labor force characteristics (the total of people employed and unemployed who are available for work) historically have varied from the City of Raleigh as a whole. The following section details specific labor force characteristics of the Dix Edge neighborhood as it compares to the City as a whole.

### LABOR FORCE CHARACTERISTICS

#### – LABOR FORCE PARTICIPATION

Working-age residents of Dix Edge are more likely to be in the labor force. More than 86% of persons in Dix Edge over 16 years-old are either employed or are actively seeking employment (Figure 2C-10). This total is substantially higher than the City of Raleigh as a whole (70.3%). The higher participation rate is consistent with median household income levels (detailed in the Demographic Chapter), as the Dix Edge community has a substantially lower median household income. It is common for lower-earning households to have multiple earners, oftentimes working more than one job.

#### – LABOR FORCE BY OCCUPATION

The Dix Edge workforce is more diverse than the City of Raleigh workforce. Employed persons living in the Dix Edge community are almost equally split between white-collar and service/blue-collar jobs. Approximately 56% of Dix Edge residents work in white-collar jobs, with the largest concentration in professional roles (Table 2C-5). Local residents working outside the white-collar occupations are concentrated in service jobs (20.0%), production/manufacturing (9.5%) and construction (8.1%) occupations.

In comparison, more than 71% of Raleigh residents work in white-collar occupations. The rest of Raleigh workers tend to be more highly concentrated in management/business occupations (19.3% compared to 12.7%) and professional occupations (28.3% compared to 23.1%). Similarly, the Dix Edge community has more residents working in production occupations (9.5% locally to 2.9% citywide) and construction (8.1% locally to 4.7% citywide).

While this disparity has long existed, the number of Dix Edge residents employed in traditional white-collar industries has been increasing rapidly in recent years (detailed later in this chapter). Recent redevelopment investments occurring in and around Dix Edge (i.e., the Warehouse District) and proposed new developments in and around the neighborhood (i.e., Downtown South) are attracting new residents to the area with different education and employment histories.

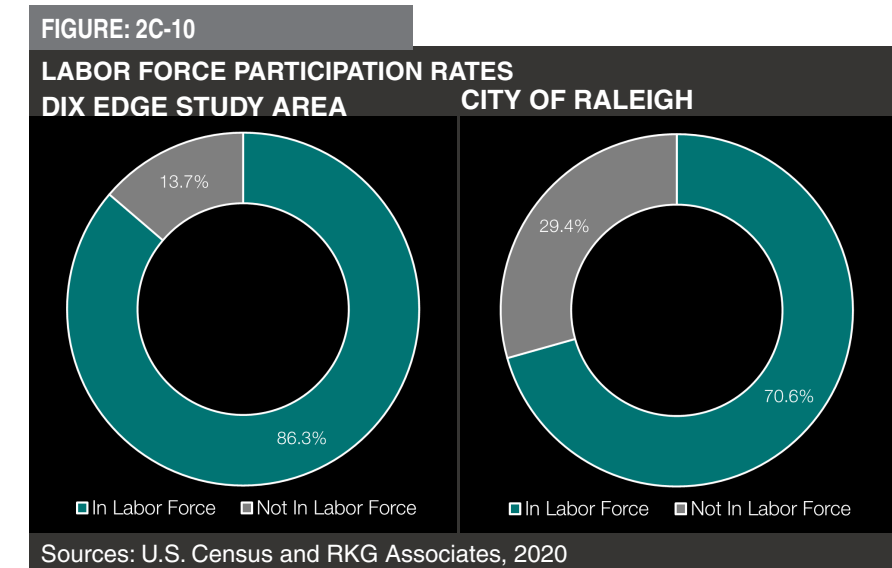




TABLE: 2C-5

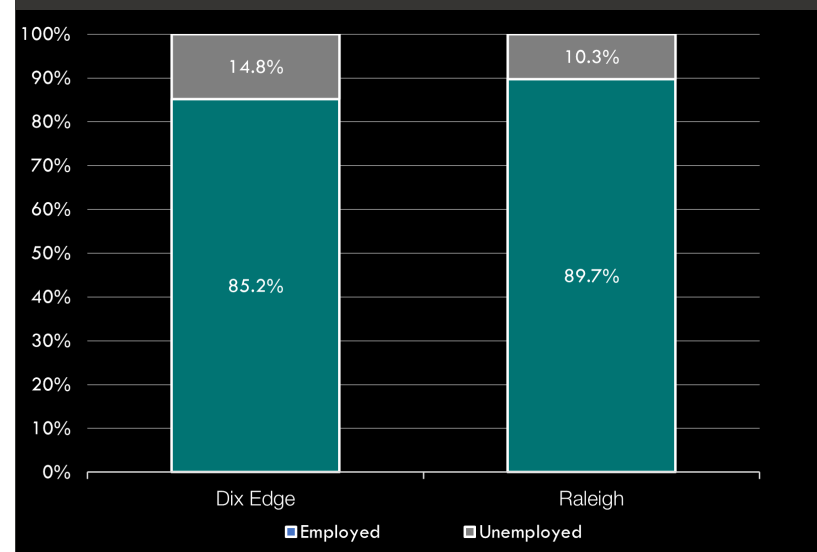
EMPLOYED POPULATION 16+ BY OCCUPATION  
Dix Edge Study Area and City of Raleigh, NC

Category	Dix Edge Study Area	City of Raleigh
<b>All Occupations</b>	<b>2,530</b>	<b>244,332</b>
<i>White Collar</i>	55.5%	71.1%
Management/Business/Financial	12.7%	19.3%
Professional	23.1%	28.3%
Sales	9.8%	11.1%
Administrative Support	9.8%	12.4%
<i>Services</i>	20.0%	15.0%
<i>Blue Collar</i>	24.6%	13.9%
Farming/Forestry/Fishing	1.4%	0.1%
Construction/Extraction	8.1%	4.7%
Installation/Maintenance/Repair	1.4%	1.7%
Production	9.5%	2.9%
Transportation/Material Moving	4.2%	4.3%

Source: U.S. Census and RKG Associates, 2020

FIGURE: 2C-11

2020 UNEMPLOYMENT RATES



Sources: U.S. Census and RKG Associates, 2020

UNEMPLOYMENT RATE

The COVID-19 health pandemic has adversely impacted employment throughout the U.S. Dix Edge and the City of Raleigh were not impervious to the economic disruption, and subsequent impact on people's employment. Current year unemployment estimates for Dix Edge (14.8%) and the City of Raleigh (10.3%) both are over the 10% mark (Figure 2C-11), much higher than recent trends (Wake County's overall unemployment rate was 3.3% in 2019). The higher unemployment rate for the Dix Edge community is not surprising, as a higher percentage of local workers are employed in the service, retail, and blue-collar occupations (i.e., construction). While recovery from COVID-19 likely will reverse some or most of these jobs, the impact of higher unemployment will create housing disruption for Dix Edge residents. Rental households are the most at-risk, but there are resources in the County to assist renter households.

COMMUTING PATTERNS

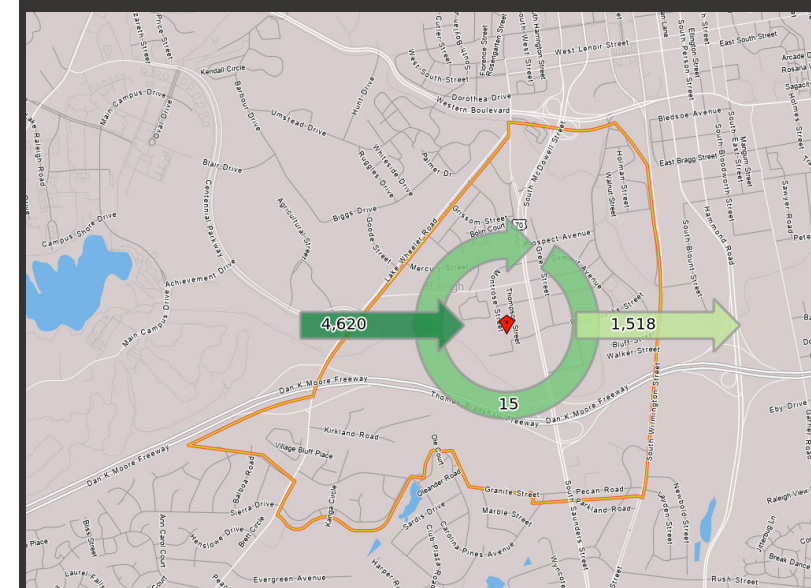
The Dix Edge neighborhood, like the City of Raleigh is a net importer of labor. Census estimates for 2018 indicate there are 4,635 primary employment jobs within the Dix Edge community, compared with 1,533 working residents. While it is important to note that the job count likely is capturing some of the immediately adjacent activity (i.e., the Warehouse District and NC State's Centennial Campus) due to limitations in how the Census tracks data for very small areas, this finding is consistent with the City as a whole, with approximately 348,000 primary employment jobs and 205,000 working residents. More to the point, the Dix Edge neighborhood is part of the larger employment activity center of Raleigh's central business district.

That said, the Census data indicate that Dix Edge residents are not employed in jobs within their community. Only 15 of the 1,533 local residents are employed within the Study Area (Figure 2C-12). At a base level it indicates that jobs that exist and are being created locally are not accessible/ attractive to residents of the neighborhood. While the Study Area's small size likely is affecting this finding, the lack of connection between residents and workers indicates an opportunity for employment programs targeted to help local residents get jobs within walking distance of their homes.

The data for persons that commute in or out of the Study Area for work indicate that the Dix Edge residents tend to work within Wake County. Almost 7 out of every 10 resident works within the County, with most working somewhere in Raleigh (44.6%) or Cary (10.4%). Only 6.7% of Dix Edge workers commute into Durham County for work, only slightly higher than those commuting to Charlotte/Mecklenburg County (5.3%). This finding further supports the potential to create job training programs to connect local residents with local jobs. In contrast, the Dix Edge employment base attracts workers for a broader geography. Only 46.0% of local

FIGURE: 2C-12

INFLOW-OUTFLOW COMMUTING PATTERNS  
DIX EDGE STUDY AREA



Sources: OnTheMap

jobs are Wake County residents. Johnston County, Harnett County, and Durham County account for 17.5% collectively. What does appear clear is that there may be a mismatch between the jobs that are located near Dix Edge and the skill sets of Dix Edge residents. This is evidenced by the number of residents that out-commute to their jobs every day.

**EMPLOYMENT TRENDS**

Despite the COVID-19 pandemic impacts, the greater Raleigh-Durham region has experienced consistent employment growth since 2010. Employment data indicate that the Dix Edge Study Area benefited from this growth as well. As noted in the previous section, this job growth has not resulted in additional employment opportunities for local residents. The following analysis compares job growth in Dix Edge and Raleigh with the employment status of local workers.

**Employment Trends – Jobs in the City of Raleigh**

Employment growth in Raleigh has been strong since 2002. The City experienced a net increase of 112,407 jobs between 2002 and 2018, totaling a 47.7% increase (Table 2C-7). The healthcare and social assistance industry sector growth was the most dynamic, leading both net growth (25,498 jobs) and percentage growth (107.2%). The professional, technical, and scientific services (16,857 jobs) sector also experienced strong net growth in jobs during this study period. Only four industry sectors experienced a net decline in jobs, led by manufacturing (-3,201 jobs). While employment growth occurred throughout the City, specific growth concentrations occurred in downtown Raleigh, near Duke Raleigh Hospital along Interstate 440, and near WakeMed Raleigh and UNC Health at the intersection of Interstates 440 and 87. The growth in downtown Raleigh is most relevant to this study, as Dix Edge abuts downtown to the south.

**Employment Trends in Dix Edge Study Area**

The continued economic success of downtown Raleigh and several catalytic investments (i.e., the Warehouse District) have increased job totals in and around Dix Edge. According to Census data, the number of jobs in the Dix Edge Study Area increased by 74% between 2002 and 2018 (Table 2C-6), increasing to 4,635 jobs. Net growth was strongest in construction (627 jobs) and professional, technical, and scientific services (540 jobs). Four industry sectors experienced a net gain of more than 300% including real estate rental and leasing (1,250%), transportation and warehousing (922%), professional, technical, and scientific services (575%), and health care and social assistance (322%). As noted earlier, these jobs may be on the periphery of Dix Edge and included in this analysis due to limitations in data collection at small geographies.

Unfortunately, the economic success in and around Dix Edge has not translated into direct benefits for local residents. As noted in the commuting analysis, Census data indicate very few neighborhood residents are employed locally. Further, this increased economic activity is impacting existing Dix Edge residents indirectly. The job growth is increasing the desirability of the neighborhood as a place to live. Given these jobs are not targeting existing residents, demand from individuals from outside the neighborhood likely will increase cost of living. The success of these recent projects is attracting interest for further investment—and redevelopment—that could materially change the neighborhood.

**TABLE: 2C-6**

Trends in Employment by Job  
Dix Edge Study Area, NC

Industry Sector	2002	2010	2018	Net Change			Percent Change		
				'02-'10	'10-'18	'02-'18	'02-'10	'10-'18	'02-'18
<b>TOTAL</b>	<b>235,472</b>	<b>312,361</b>	<b>347,879</b>	<b>76,889</b>	<b>35,518</b>	<b>112,407</b>	<b>32.7%</b>	<b>11.4%</b>	<b>47.7%</b>
Agriculture	753	583	799	(170)	216	46	-22.6%	37.0%	6.1%
Mining, Quarrying, and Extraction	745	72	51	(673)	(21)	(694)	-90.3%	-29.2%	-93.2%
Utilities	1,386	289	1,263	(1,097)	974	(123)	-79.1%	337.0%	-8.9%
Construction	12,287	11,773	17,185	(514)	5,412	4,898	-4.2%	46.0%	39.9%
Manufacturing	10,720	8,314	7,519	(2,406)	(795)	(3,201)	-22.4%	-9.6%	-29.9%
Wholesale Trade	10,918	12,258	15,130	1,340	2,872	4,212	12.3%	23.4%	38.6%
Retail Trade	23,581	24,639	30,468	1,058	5,829	6,887	4.5%	23.7%	29.2%
Transportation and Warehousing	3,692	4,187	6,237	495	2,050	2,545	13.4%	49.0%	68.9%
Information	6,962	5,774	6,585	(1,188)	811	(377)	-17.1%	14.0%	-5.4%
Finance and Insurance	13,411	13,512	16,143	101	2,631	2,732	0.8%	19.5%	20.4%
Real Estate and Rental and Leasing	4,225	5,288	6,634	1,063	1,346	2,409	25.2%	25.5%	57.0%
Professional, Scientific, and Technical Services	19,409	22,375	36,266	2,966	13,891	16,857	15.3%	62.1%	86.9%
Management of Companies and Enterprises	6,894	10,204	8,544	3,310	(1,660)	1,650	48.0%	-16.3%	23.9%
Admin. Support and Waste Management	14,154	20,847	27,303	6,693	6,456	13,149	47.3%	31.0%	92.9%
Educational Services	21,793	24,343	30,250	2,550	5,907	8,457	11.7%	24.3%	38.8%
Health Care and Social Assistance	23,792	40,317	49,290	16,525	8,973	25,498	69.5%	22.3%	107.2%
Arts, Entertainment, and Recreation	2,984	3,467	5,152	483	1,685	2,168	16.2%	48.6%	72.7%
Accommodation and Food Services	14,173	17,283	24,059	3,110	6,776	9,886	21.9%	39.2%	69.8%
Other Services	7,620	7,916	10,141	296	2,225	2,521	3.9%	28.1%	33.1%
Public Administration	35,973	78,920	48,860	42,947	(30,060)	12,887	119.4%	-38.1%	35.8%

Source: U.S. Census and RKG Associates, 2020

**TABLE: 2C-7**  
Trends in Employment by Job  
City of Raleigh, NC

Industry Sector	2002	2010	2018	Net Change			Percent Change		
				'02-'10	'10-'18	'02-'18	'02-'10	'10-'18	'02-'18
<b>TOTAL</b>	<b>2,660</b>	<b>3,186</b>	<b>4,635</b>	<b>526</b>	<b>1,449</b>	<b>1,975</b>	<b>19.8%</b>	<b>45.5%</b>	<b>74.2%</b>
Agriculture	0	0	1	0	1	1	N/A	N/A	N/A
Mining, Quarrying, and Extraction	0	0	0	0	0	0	N/A	N/A	N/A
Utilities	0	0	0	0	0	0	N/A	N/A	N/A
Construction	568	989	1,195	421	206	627	74.1%	20.8%	110.4%
Manufacturing	549	415	410	(134)	(5)	(139)	-24.4%	-1.2%	-25.3%
Wholesale Trade	498	615	446	117	(169)	(52)	23.5%	-27.5%	-10.4%
Retail Trade	238	247	481	9	234	243	3.8%	94.7%	102.1%
Transportation and Warehousing	37	10	378	(27)	368	341	-73.0%	3680.0%	921.6%
Information	193	46	154	(147)	108	(39)	-76.2%	234.8%	-20.2%
Finance and Insurance	11	29	15	18	(14)	4	163.6%	-48.3%	36.4%
Real Estate and Rental and Leasing	12	3	162	(9)	159	150	-75.0%	5300.0%	1250.0%
Professional, Scientific, and Technical Services	94	68	634	(26)	566	540	-27.7%	832.4%	574.5%
Management of Companies and Enterprises	7	9	15	2	6	8	28.6%	66.7%	114.3%
Admin. Support and Waste Management	238	506	378	268	(128)	140	112.6%	-25.3%	58.8%
Educational Services	90	86	90	(4)	4	0	-4.4%	4.7%	0.0%
Health Care and Social Assistance	9	25	38	16	13	29	177.8%	52.0%	322.2%
Arts, Entertainment, and Recreation	0	5	15	5	10	15	N/A	200.0%	N/A
Accommodation and Food Services	66	71	126	5	55	60	7.6%	77.5%	90.9%
Other Services	40	55	67	15	12	27	37.5%	21.8%	67.5%
Public Administration	10	7	30	(3)	23	20	-30.0%	328.6%	200.0%

Source: U.S. Census and RKG Associates, 2020

**TABLE: 2C-8**  
Trends in Employment by Employed Residents  
Dix Edge Study Area, NC

Industry Sector	2002	2010	2018	Net Change			Percent Change		
				'02-'10	'10-'18	'02-'18	'02-'10	'10-'18	'02-'18
<b>TOTAL</b>	<b>1,084</b>	<b>1,025</b>	<b>1,533</b>	<b>(59)</b>	<b>508</b>	<b>449</b>	<b>-5.4%</b>	<b>49.6%</b>	<b>41.4%</b>
Agriculture	4	2	1	(2)	(1)	(3)	-50.0%	-50.0%	-75.0%
Mining, Quarrying, and Extraction	1	0	0	(1)	0	(1)	-100.0%	N/A	-100.0%
Utilities	3	4	8	1	4	5	33.3%	100.0%	166.7%
Construction	63	47	80	(16)	33	17	-25.4%	70.2%	27.0%
Manufacturing	105	63	79	(42)	16	(26)	-40.0%	25.4%	-24.8%
Wholesale Trade	65	60	76	(5)	16	11	-7.7%	26.7%	16.9%
Retail Trade	132	119	156	(13)	37	24	-9.8%	31.1%	18.2%
Transportation and Warehousing	31	24	39	(7)	15	8	-22.6%	62.5%	25.8%
Information	34	27	57	(7)	30	23	-20.6%	111.1%	67.6%
Finance and Insurance	48	34	71	(14)	37	23	-29.2%	108.8%	47.9%
Real Estate and Rental and Leasing	15	16	31	1	15	16	6.7%	93.8%	106.7%
Professional, Scientific, and Technical Services	69	72	188	3	116	119	4.3%	161.1%	172.5%
Management of Companies and Enterprises	27	29	29	2	0	2	7.4%	0.0%	7.4%
Admin. Support and Waste Management	75	81	119	6	38	44	8.0%	46.9%	58.7%
Educational Services	97	112	131	15	19	34	15.5%	17.0%	35.1%
Health Care and Social Assistance	89	113	167	24	54	78	27.0%	47.8%	87.6%
Arts, Entertainment, and Recreation	14	16	13	2	(3)	(1)	14.3%	-18.8%	-7.1%
Accommodation and Food Services	82	103	169	21	66	87	25.6%	64.1%	106.1%
Other Services	38	22	40	(16)	18	2	-42.1%	81.8%	5.3%
Public Administration	92	81	79	(11)	(2)	(13)	-12.0%	-2.5%	-14.1%

Source: U.S. Census and RKG Associates, 2020

**Employment Trends of Dix Edge Residents**

Trends in employment for residents in Dix Edge indicate local job growth is attracting new residents to the area. The Census employment data indicate that the number of working residents increased by 41%

between 2002 and 2018 to approximately 1,533 workers. However, this increase in workers occurred from 2010 to 2018, with the net number of workers actually declining between 2002 and 2010 (Table 2C-8). Given the high labor force participation for the Study Area, the substantial job growth is most likely attracting new residents to the

area. This is most evident in the net change in persons working in the professional, technical, and scientific services industry sector, increasing from 69 persons in 2002 to 188 in 2018 (a 173% increase). Another indicator is the increase in persons working in educational services (97 in 2002 to 131 in 2018), most likely employees at the Centennial Campus.

While these findings alone are not an indication of change or challenge for the Dix Edge community, it does reinforce the opportunity for a more concerted effort to enable existing residents to participate in the economic success occurring in and around Dix Edge. For example, the net number of construction jobs in the area increased by 627 between 2002 and 2018, however, local employment in construction only increased by 17.

Creating an apprenticeship/certification program for local residents could create opportunities for these residents to work closer to home in well-paying jobs.

**Employment Projections (Raleigh-Cary, NC MSA)**

Employment projection data indicate that the Raleigh-Cary MSA region will continue to experience substantial employment growth coming out of this COVID-19 pandemic. EMSI projects the MSA will experience a 43.8% increase in jobs between 2019 and 2029, totaling more than 236,000 net new jobs (Table 2C-9). Projections closely follow historic growth trends, with professional, technical, and scientific services (44,118 jobs) and healthcare and social assistance (32,205 jobs) experiencing the largest net gain. Accommodation and food services are projected to rebound from the impacts of COVID-19, with a net increase of more than 27,000 by 2029.

The continued economic growth of the region, the City, and specifically downtown and the Dix Edge community could substantially change the neighborhood. Development pipeline information (detailed in the Real Estate Chapter) indicate that downtown and Dix Edge are both likely to capture their fair share of this development. Currently, there is more than 4 million square feet of office space and thousands of housing units in the development pipeline for Downtown. Further, the mixed-use Park City South project near Dorothea Dix Park and the Downtown South project immediately adjacent to Dix Edge would add more than 4 million square feet of commercial space and thousands of additional housing units over the next few decades. These are two very large, mixed-use developments that will take decades to build-out, but will reshape parts of the Study Area. While change is inevitable, the City could—and should—take measures to preserve the culture and nature of the Dix Edge community and provide pathways for existing residents to share in the success and opportunities coming into their neighborhood.

**TABLE: 2C-9**

**Employment Projections by Job  
Raleigh-Cary Metropolitan Statistical Area**

Industry Sector	2010	2019	2029	Net Change			Percent Change		
				'10-'19	'19-'29	'10-'29	'10-'19	'19-'29	'10-'29
<b>TOTAL</b>	<b>539,928</b>	<b>704,157</b>	<b>776,302</b>	<b>164,229</b>	<b>72,144</b>	<b>236,373</b>	<b>30.4%</b>	<b>10.2%</b>	<b>43.8%</b>
Agriculture	2,920	2,715	2,557	(205)	(158)	(363)	-7.0%	-5.8%	-12.4%
Mining, Quarrying, and Extraction	355	310	336	(45)	26	(19)	-12.7%	8.4%	-5.4%
Utilities	1,484	2,422	2,351	938	(71)	867	63.2%	-2.9%	58.4%
Construction	34,835	48,894	55,003	14,060	6,109	20,169	40.4%	12.5%	57.9%
Manufacturing	27,932	37,705	36,474	9,773	(1,231)	8,542	35.0%	-3.3%	30.6%
Wholesale Trade	21,171	27,166	28,605	5,995	1,438	7,434	28.3%	5.3%	35.1%
Retail Trade	59,358	73,583	77,074	14,226	3,490	17,716	24.0%	4.7%	29.8%
Transportation and Warehousing	10,380	14,608	17,327	4,229	2,719	6,948	40.7%	18.6%	66.9%
Information	17,097	23,175	24,366	6,079	1,190	7,269	35.6%	5.1%	42.5%
Finance and Insurance	19,623	25,707	28,540	6,084	2,834	8,918	31.0%	11.0%	45.4%
Real Estate and Rental and Leasing	10,313	13,101	14,307	2,787	1,206	3,993	27.0%	9.2%	38.7%
Professional, Scientific, and Technical Services	44,454	72,478	88,572	28,024	16,094	44,118	63.0%	22.2%	99.2%
Management of Companies and Enterprises	9,798	11,193	11,562	1,395	369	1,764	14.2%	3.3%	18.0%
Admin. Support and Waste Management	40,144	51,757	53,619	11,614	1,862	13,475	28.9%	3.6%	33.6%
Educational Services	11,287	14,308	16,652	3,021	2,345	5,366	26.8%	16.4%	47.5%
Health Care and Social Assistance	53,819	72,052	86,025	18,233	13,973	32,205	33.9%	19.4%	59.8%
Arts, Entertainment, and Recreation	10,399	14,772	17,592	4,373	2,820	7,194	42.1%	19.1%	69.2%
Accommodation and Food Services	42,112	61,101	69,189	18,989	8,089	27,078	45.1%	13.2%	64.3%
Other Services	27,780	35,453	40,391	7,672	4,938	12,610	27.6%	13.9%	45.4%
Public Administration	94,669	101,659	105,760	6,990	4,101	11,091	7.4%	4.0%	11.7%

Source: EMSI and RKG Associates, 2020

### 2.C.iii REAL ESTATE ANALYSIS

The City of Raleigh and the greater metropolitan region has long established itself as one of the most dynamic and technology-driven economies in the country. The region is currently experiencing strong growth on several levels, both residentially and non-residential. In Downtown Raleigh, there is a surge of new development interest that will drive the next generation of employment growth, new business attraction, higher density residential development and new mixed-use development and entertainment.

While this development surge moves through the City’s planning review and rezoning approval process, the Dix Edge Study Area is at a critical crossroads. Dix Edge is located just south of downtown in an area that has historically been overlooked as a new development location, but all indications suggest that is changing. And in addition to the anticipation surrounding the master planning of Dorothea Dix Park, this area is garnering attention from large developer proposals that could reshape the Study Area – with potentially positive and negative outcomes.

The following section puts the Dix Edge Study Area into a larger downtown and regional real estate context to assess its prospects for the future. For those long-time residents of Dix Edge, there will be new development pressures and proposed changes to the neighborhood’s scale and density. However, there are steps that can be taken today in preparation for the future that aim to preserve the diversity and affordability of Dix Edge and make it possible for residents to evolve with the neighborhood.

#### MAJOR FINDINGS

- **A New Wave of Development is Moving South of Downtown.** Downtown Raleigh is in the early stages of a development boom that could remake the City’s core. Based on information obtained from the Downtown Raleigh Alliance, more than 5.9 million SF of office, retail, and institutional uses, as well as 1,584 hotel rooms and over 3,910 residential units are either built, under construction, or proposed between E. Edenton Street in the downtown and an area just south of Interstate 40.
- **The Next Generation of Growth is Being Positioned.** Two new generational developments are positing for the future and include Downtown South, which envisions the construction of 3,400 apartment units, 750 hotel rooms, 3 million SF of office and 240,000 SF of retail. The second project, Park City South, is proposing 1 million SF of office space, 312,500 SF of retail, 382 hotel rooms and 950 apartments. Atlas Stark has also proposed a significant commercial proposal, but its rezoning is pending.

- **Raleigh is Attracting Greater Opportunities for Downtown Living.** The apartment/condominium market in the Raleigh-Durham area has experienced very strong growth since 2015 and is expected to continue growing over the next decade. The number of new apartments proposed in the south of Downtown Raleigh (north of Dix Edge) is projected at 1,910 units by 2024, and another 1,990 condominiums are planned during the same period. With rapid growth there will be an increase in apartment rents as demand is strong. However, over-building could soften rents if too many units are delivered to the market at the same time. Developers would be forced to lower prices as too many units would be competing with too fewer renters.
- **Affordable Housing is in High Demand, but the Supply is Limited.** The Wake County affordable housing submarket, which includes Downtown Raleigh, contains 125 properties identified as being affordable. RKG has identified 22 properties that are within five miles of the Study Area and are south of Downtown Raleigh. These properties total 2,029 units of affordable housing. Over the past 15 years, the local supply has increased by 1,336 units or 66%, but more is needed.
- **Future Downtown Area Retail Supply Could Out-strip Demand.** Based on the number of projected new households in the development pipeline (3,910 apartments/condominiums), these households could generate future retail demand of \$73.1 million, which could support more than 200,000 SF of new retail space. Given the proposed 1 million SF of new retail space being proposed by 2025, the actual new retail space could exceed local demand, unless this future retail space is positioned to attract sales from outside the 5-mile radius. This does not include the Downtown South and Park City South developments that are proposing an additional 552,000 SF beyond 2025.
- **Dix Edge is Continuing to Evolve into A Renter-Occupied Neighborhood.** The Dix Edge Study Area is primarily a renter-occupied neighborhood, by virtue of the fact that 60.7% of the housing units are renter-occupied. What is unique about Dix Edge, but quite common in other urban neighborhoods across the country, is that more than half of the housing units were originally constructed as traditional ownership housing (i.e., single-family detached and attached). However, over time, this housing stock has evolved from owner-occupancy to renter-occupancy. While common, this can have deleterious effects on the property values and the neighborhood if properties are not maintained.
- **Owner-Occupied Housing Experiencing a Steady Decline in Dix Edge.** Since 2000, the percentage of owner-occupied housing units has continued to decline, starting at 34% in 2000 and dropping to 27.4% in 2020, even though the number of housing units has increased by 405 units. This equates to about a 1% annual growth rate in new housing over the past 20 years, which is about one-third the growth rate in the City.
- **Median Home Values in Dix Edge on Par with the City and MSA.** The 2020 median home value in the Study Area is estimated at \$243,182, as compared to the City with its median home value of \$261,209 and the MSA at \$260,622. These values put the Dix Edge Study Area at 93% of the City median home value, which is a very positive indicator that the neighborhood is on par with the greater region. However, the median value of owner-occupied housing in Dix Edge is \$263,792, which means that non-owner-occupied housing units are suppressing Dix Edge median home values.

- **Potential for New Development Wave to Change Dix Edge Area Without City Intervention.** The Raleigh-Durham real estate market is in full growth mode as it gains population and employment at a rapid rate. The City is poised to attract over 10 million SF of new office, retail, and institutional uses south of downtown over the next generation. This will draw more residents, employers, workers, and visitors to the city center, which will increase real estate values and change the built environment. With the eventual addition of bus rapid transit, the neighborhoods surrounding downtown Raleigh, including Dix Edge, will be under intense pressure to change and will be right in the path of this growth. To avoid wholesale changes in the character of the neighborhood, affirmative actions are needed today to forestall the most impactful changes that could result in the displacement of legacy households and modest income residents and businesses that would like to remain in this part of the City.

**METHODOLOGY**

The data used for the non-residential market analysis was gathered from several sources. Current land use patterns for the non-residential properties came from the Wake County property assessment database. The consultants analyzed this source for relevant information and used averages to estimate when data was missing. Therefore, while the real property data used for this analysis is not a complete accounting of all non-residential property within the City of Raleigh, it is the most accurate information available and the most relevant to the Study Area.

For the larger market analysis, information on a variety of market metrics (vacancy, absorption, rental rates) and current market inventory data was obtained from REIS/Moody's Analytics, an industry-leading third-party real estate data provider. Retail property within the City of Raleigh was also evaluated based on supportable square footage determined by an analysis of retail supply and demand data provided by ESRI, a national purveyor of demographic and economic data.

**DOWNTOWN DEVELOPMENT ACTIVITY**

- **DOWNTOWN DEVELOPMENT PIPELINE**

Downtown Raleigh is in the early stages of a development boom that could remake the City's core. Based on information obtained from the Downtown Raleigh Alliance, more than 5.9 million SF of office, retail, and institutional uses, as well as 1,584 hotel rooms and over 3,910 residential units are either built, under construction, or proposed between E. Edenton Street in the downtown and an area just south of Interstate 40 (Table 2C-10).

In addition to this list, there are two large projects that are not included in Table 2C-10 that could take decades to reach buildout but are proposing millions of additional square feet of new commercial and residential space. Those include Downtown South, which envisions the construction of 3,400 apartment units, 750 hotel rooms, 3 million SF of office and 240,000 SF of retail. The second project, Park City South, is proposing 1 million SF of office space, 312,500 SF of retail, 382 hotel rooms and 950 apartments. The total of all future construction could equal 10.5 million SF of office, retail, and institutional space, 8,260 apartment units, and 2,716 new hotel rooms (Table 2C-11).

**TABLE: 2C-10**

**Downtown Raleigh Development Activity (2017-2024) By Year and Land Use Type**

Land Use Type	Completed or Under Construction			Under Construction, Planned or Proposed					Total
	2017	2018	2019	2020	2021	2022	2023	2024	
Residential - Multi-Family	21	-	249	861	-	-	573	4,375	6,079
Residential - Condo	-	354	15	42	56	469	483	571	1,990
Hospitality (Hotel Rooms) [1]	175	-	-	126	-	1,082	150	1,132	2,665
Office [2]	-	332,001	192,000	1,034,177	424,791	1,688,255	667,240	4,331,861	8,670,325
Institutional	75,000	37,473	-	123,000	-	52,672	24,614	-	312,759
Retail [3]	-	61,139	11,010	500,229	31,267	102,598	285,684	566,806	1,558,733
Total Building SF (Office, Institutional, Retail)	75,000	430,613	203,010	1,657,406	456,058	1,843,525	977,538	4,898,667	10,541,817

Source: Raleigh Downtown Alliance and RKG Associates, Inc., (2020)

Notes:

[1] Contains 750 hotel rooms as part of long-term Downtown South entitlement

[2] Contains 240,000 square feet of retail space as part of long-term Downtown South entitlement

[3] Contains 3 million square feet of office as part of long-term Downtown South entitlement

**TABLE: 2C-11**

**Proposed Development Program Downtown South and Park City South Projects**

Land Use Type	Downtown South	Park City South	Totals
Office Space (SF)	3,000,000	1,042,600	4,042,600
Retail Space (SF)	240,000	312,500	552,500
Hotel Rooms (Keys)	750	382	1,132
Apartments (Units)	3,400	950	4,350

Source: Kane Realty, 2020

– **RECENT DOWNTOWN DEVELOPMENT ACTIVITY**

Significant recent development has occurred in the Warehouse District in the southwestern part of Downtown Raleigh, directly north of the Dix Edge Study Area. The following projects are representative of some of the infill development that could be expected in Dix Edge:

- **Junction West** - New \$4.2 million project with 9,473 SF event space and a bar.
- **Morgan Street Food Hall** - This \$2.2 million building renovation provides 22,000 SF of eateries and retail shops.
- **The Dillon** - A \$150 million project with an 18-story, 210,000 SF office tower with, 271 residential condominium units, and 52,000 SF of retail space.
- **The L** - A \$17 million new apartment complex with studios, 1- and 2-bedroom floor plans in the Warehouse District. The project includes 100,000 SF of office, 83 residential condominiums, and 9,139 SF of retail.

– **PLANNED AND PROPOSED DOWNTOWN DEVELOPMENT ACTIVITY**

There are some proposed real estate development projects in the pipeline that are capable of significantly impacting the entire neighborhood and ushering a transformation of the area. In fact, the scope of the proposals could shift market across the entire City. The most immediate proposals are listed below:

- **Downtown South** – This large-scale project recently had its rezoning application approved for a 55-acre district that includes a multi-purpose, 20,000-seat open-air sports & entertainment stadium, plus an additional 240,000 SF of

retail, 3 million SF of office space, 750 hotel rooms, and 3,400 housing units. Full buildout of this site could take three to four decades to complete.

- **Park City South** - A 9-acre development with zoning that will allow a total of 1 million SF of office space; 312,000 SF of retail space; 975 residential units, and 382 hotel rooms. The rezoning will allow heights of up to 20 stories.

**REAL ESTATE MARKET PERFORMANCE OVERVIEW**

The following section presents the historical trends and projections of the real estate market segments in the submarket areas influencing the Dix Edge Study Area. The consultants studied the recent trends over the past decade and the most recent five- and one-half-year period between 2015 and Q2 2020. The data used for this analysis was obtained from several sources, including the primary source, REIS Real Estate Solutions, a division of Moody's Analytics, and a purveyor of real estate market data. REIS relies on local real estate brokers to track and report annual market changes. This section summarizes the most important market factors that set the stage for future redevelopment opportunities in the Study Area. Because urban redevelopment often takes years, if not decades to implement, readers should understand that recent historical trends and current market conditions cannot predict the future potential for an area. However, they can provide insight into the opportunities and constraints that might exist in the future if the market continues its current path. Another unknown factor relates to what steps the City of Raleigh might take to change the Study Area's dynamics, including future funding and strategic infrastructure investments (e.g., introduction of a bus rapid transit system). Those change can occur through rezoning decisions, site-specific redevelopment initiatives, new funding programs, or any number of actions that induce a private sector response through new investments.

**MARKET TREND DIRECTION**

The following section summarizes the recent trends in the Raleigh submarket which influences the Dix Edge Study Area. The trend periods for different market segments vary based on the reporting sources, but most sources cover the 2015 to Q2 2020 period, but the most current data is not always updated to Q2 2020. To aid the reader, RKG has provided simple icons to denote the recent trend directions over the past several years. The icons (on the right) represent the respective conditions.

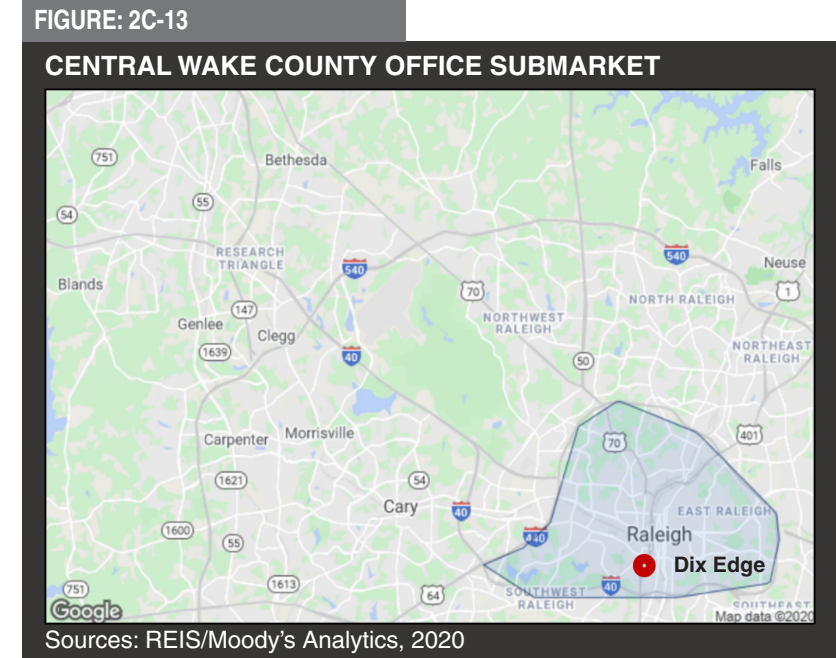
– **OFFICE MARKET PERFORMANCE**

REIS/Moody's Analytics report real estate market data for thousands of metropolitan submarkets through the U.S. in several different market segments. REIS/Moody's reports on twelve different submarkets within the Raleigh-Durham area. The Dix Edge Study Area is located on the southern edge of the Central Wake County submarket (Figure 2C-13). This submarket, which includes Downtown Raleigh, contains approximately 3.3 million SF of office space, or roughly 7.6% of the metro area's total office inventory.



**a. Inventory**

The Central Wake County office submarket contained approximately 3.3 million square feet (SF) as of Q1 2020. The total inventory has grown by 7.2% (222,000 SF) since Q1 2015. The Class A office inventory (1.8 million SF), which is generally the newest, highest quality and highest priced office product in the best locations, is responsible for the entire increase of new office space in this inventory and has increased by 14%. As a share of the total inventory, Class



A office space has increased from 51% of the total office inventory in 2015 to over 54% in 2020.

For a regional context, the Central Wake County office submarket accounts for only 7.6% of the Raleigh-Durham office market supply (43.3 million SF) and only 6.9% of the Class A supply (26.2 million). Class A office supply has grown by 22.4% since 2015 in the regional market.



**b. Vacancy Rates**

Office vacancy rates in the submarket have fluctuated since 2015, from a low of 9.3% in Q1 2019 to 12.9% in Q1 2020. In March 2020, the vacancy rate was reported at 11.1%. In the Class A market, vacancy rates have been rising since 2018 and were 11.7% in Q1 2020. Since the demand for Class A office is likely to gravitate to Downtown Raleigh in the future, rising vacancy rates are not considered favorable, but they are consistent with the submarket as a whole. In the Raleigh-Durham office market, vacancy rates have been higher on average, above 14% for most of the study period. Class A vacancy has remained within the 10% to 11.5% range for the period. Due to the Covid-19 Pandemic, many office brokers are projecting lower demand for office space in the future. This is primarily due to office employers investigating reduced space needs and operating expenses in an environment where employees prefer to work from home 1 or 2 days per week.



**c. Net Absorption**

Net annual office absorption in the Central Wake County submarket has equaled only 35,000 SF since 2015, with 29,000 SF being absorbed by Class A buildings. That includes two years where absorption was negative. Net Absorption is the net change in physically occupied space between the current measurement period and the last measurement period taking into consideration

office space vacated and newly constructed office space in the same area during the same period. The Raleigh-Durham office market has experience over 1 million SF of net absorption, with nearly all the absorption occurring in Class A buildings.



**d. Lease Rates**

Lease rates are typically reported as “asking rents” and “effective rents.” Asking rents reflect the stated lease rate before any concessions or free rent. Effective rents are what the space rents for once rent concessions and free rent are factored into the deal. In the submarket, effective rents have run approximately 85% of asking rents. In Q1 2020, effective rents for all office space (regardless of class) were \$19.40/SF and have increased by 8% since 2015. Historically, Class A rents have run 10% above the submarket average, given the higher quality space and better locations. In Q1 2020, Class A space in the submarket had an asking price of \$24.91/SF. Rising rent levels are generally a positive indicator for real estate investors. In Q1 2020, asking rents were roughly 5% higher in the Raleigh-Durham Market as compared to the submarket.

**e. Office Market Conclusions**

While the recent office market trends have not been spectacular over the past five years, they have been steady and have shown growth. By 2024, the Raleigh Downtown Alliance is tracking the approval and delivery of millions of square feet of newly entitled office space in 29 different projects.

While many of these projects will not achieve buildout during that period, they set the stage for decades of new office development south of Downtown Raleigh in the decades to come.

**– RETAIL MARKET PERFORMANCE**

REIS/Moody’s Analytics data defines five distinct geographic submarkets for the Raleigh-Durham market. The Study Area requires the use of two of these submarkets because the Dix Edge Study Area sits in between the two of them. The first is the Cary/Southwest Raleigh Submarket and the second is the Southeast Raleigh Submarket (Figures 2C-14 and 2C-15).



**a. Inventory**

The Cary/Southwest Raleigh submarket includes roughly 6.7 million square feet, or 22.1% of the Raleigh-Durham retail market inventory of neighborhood and community shopping center space. The Southeast Raleigh submarket accounts 6.6 million SF or roughly 21% of the regional market of over 30.4 million SF. Since Q2 2015, the combined submarkets have added 283,000 SF or 4.4% to their retail supply (Table 2C-12). In the Raleigh-Durham Market, 951,000 SF or 3.1% have been added between Q2 2015 and Q2 2020.

FIGURE: 2C-14

**CARY/SOUTHWEST RALEIGH RETAIL SUBMARKET**



Sources: REIS/Moody’s Analytics, 2020

FIGURE: 2C-15

**SOUTHEAST RALEIGH RETAIL SUBMARKET**



Sources: REIS/Moody’s Analytics, 2020



TABLE: 2C-12

Shopping Center Inventory and Performance Metrics (2015-2020)  
Cary/Southwest Raleigh Submarket, Southwest Raleigh Submarket, Raleigh-Durham Market

Shopping Center Type	No. of Bldgs.	% of Reg'l Market	Est. Bldg. SF (6/2020)	SF added to Market	Vac. Rate (6/2020)	Net Absorp ('15-'20)	Eff. Rent (6/2020)
<b>Cary/Southwest Raleigh Submarket</b>	<b>103</b>	<b>20.3%</b>	<b>6,727,000</b>	<b>283,000</b>	<b>7.30%</b>	<b>24,000</b>	<b>\$16.95</b>
Community Center	--	--	3,021,000	-	8.30%	6,000	\$16.42
Neighborhood Center	--	--	3,706,000	283,000	6.40%	18,000	\$17.38
<b>Southeast Raleigh Submarket</b>	<b>112</b>	<b>22.0%</b>	<b>6,590,000</b>	<b>-</b>	<b>5.40%</b>	<b>28,000</b>	<b>\$17.69</b>
Community Center	--	--	3,623,000	-	5.3%	21,000	\$20.65
Neighborhood Center	--	--	2,967,000	-	5.5%	7,000	\$14.08
<b>Raleigh-Durham Market</b>	<b>508</b>	<b>100.0%</b>	<b>30,456,000</b>	<b>951,000</b>	<b>7.10%</b>	<b>52,000</b>	<b>\$17.26</b>
Community Center	--	--	14,125,000	284,000	7.2%	2,000	\$18.37
Neighborhood Center	--	--	16,331,000	667,000	7.0%	50,000	\$16.29

Source: REIS/Moody's Analytics and RKG Associates, Inc., 2020



**b. Vacancy Rates**

The Southeast Raleigh submarket is performing better in terms of building vacancy (5.4%) than the Cary/Southwest Raleigh submarket (7.3%) or the region as a whole (7.1%). In all three market areas, vacancy rates have been declining since 2015.



**c. Net Absorption**

Net absorption in the two Raleigh submarkets has been similar, combining for 52,000 SF over the five- and one-half-year study period for an average of 8,666 SF per year. While this level of absorption is not that significant, it is equal to the larger market, which is three times the size in terms of gross building square feet.



**d. Lease Rates**

Retail lease rates have risen in all three market areas, with the strongest increase occurring in Cary/Southwest Raleigh submarket that increased 15% between Q2 2015 and Q2 2020. That exceeded the 6% increase in the Southeast Raleigh submarket of the 10% gains experienced in the Raleigh-Durham regional market.

**e. Retail Market Conclusions**

The retail submarkets serving the Dix Edge Study Area have exhibited steady performance metrics over the past five and one-half years. The wave of retail growth in the submarket is projected to add 1 million SF by 2024.

TABLE: 2C-13

Apartment Inventory and Performance Metrics (2015-2020)  
Central Raleigh Apartment Submarket and Raleigh-Durham Market

Shopping Center Type	No. of Units (Q2 2020)	% of Reg'l Market	Est. Bldg. SF (Q2 2020)	Units added to Market (2015-Q2 2020)	Vac. Rate (Q2 2020)	Net Absorp ('15-Q2 '20)	Eff. Rent (Q2 2020)
<b>Central Raleigh Apartment Submarket</b>							
All Apartments	10,335	7.4%	55	4,472	10.2%	4,269	\$1,145
Class A Apartments	7,478	8.2%	--	4,472	6.4%	4,442	--
<b>Raleigh-Durham Market</b>							
All Apartments	140,268	100.0%	656	21,741	6.2%	25,240	\$1,113
Class A Apartments	90,702	64.7%	--	20,856	7.0%	22,715	--

Source: REIS/Moody's Analytics and RKG Associates, Inc., 2020

[--] Data Not Available

**MULTI-FAMILY MARKET PERFORMANCE**



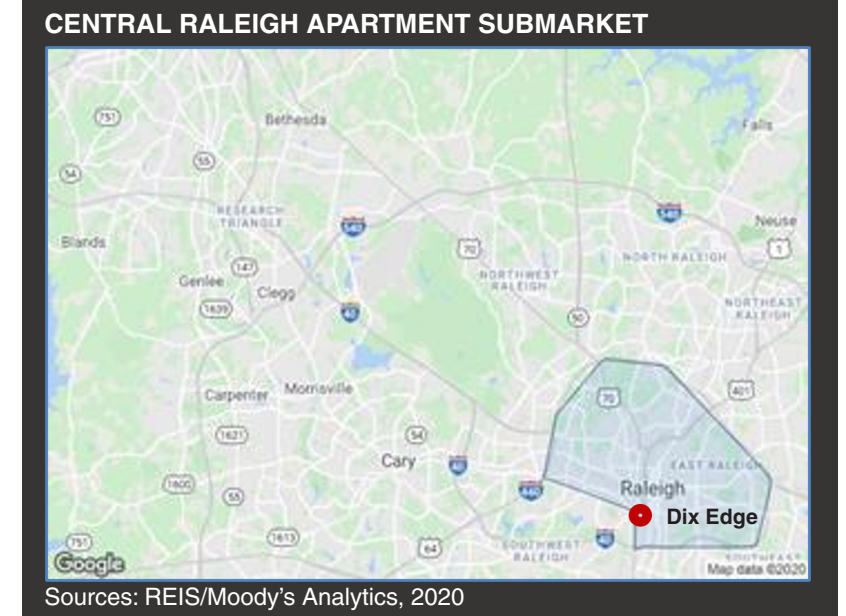
**a. Inventory**

The inventory of market rate apartments in the Central Raleigh submarket was approximately 10,335 in 55 buildings in Q2 2020. The submarket accounts for only 7.4% of the Raleigh-Durham market of 140,268 units (Table 2C-13).

Class A apartments account for roughly 72% of the local submarket, meaning the balance consists of older Class B/C apartments. In the larger market, Class A apartments account for 64.6% of the inventory.

Since the end of 2015, approximately 3,266 new units have been added to the inventory of all units in the Central Raleigh submarket, for an annual increase of 8.4%. This growth in apartments exceeds the larger market, which grew by an annual rate of 3.7%. Most of all new units in the submarket and the Raleigh-Durham market have been Class A apartments.

FIGURE: 2C-16



**b. Vacancy Rates**

Vacancy rates in Class A apartments in the Central Raleigh submarket were almost 4 percentage points lower (6.4%) than all apartments (10.2%) in Q2 2020. This was not the case at the regional level, where the overall market vacancy was lower (6.2%) than the Class A vacancy (7.0%).

Since 2015, the vacancy rate has dropped significantly; when the overall apartment market was over 28% vacant and the Class A market was over 18%.



**c. Net Absorption**

Net absorption on units has been positive since 2015 at 4,269 units. Class A units have been even greater, which indicates that the absorption of **Class B/C units has been negative during the study period.**



**d. Lease Rates**

Average apartment rents in the Central Raleigh submarket were reported as \$1,145/month in Q2 2020, which was roughly 2% higher than the Raleigh-Durham market. Since the end of 2015, rents have increased by 9.1% annually in the submarket and 4.9% annually in the regional market.

**e. Apartment Market Conclusions**

The apartment market in the Raleigh-Durham area has experienced very strong growth since 2015 and is expected to continue growing over the next decade. The number of new apartments proposed for development south of Downtown Raleigh is projected at 1,910 units by 2024, and another 1,990 condominiums are planned during the same period. With rapid growth there will be an increase in apartment rents as demand is strong. However, over-building could soften rents if too many units are delivered to the market at the same time

**AFFORDABLE HOUSING MARKET PERFORMANCE**

REIS/Moody's Analytics identifies the borders of Wake County as a submarket for affordable housing. The Dix Edge Study Area is centrally located within the county. To select similar properties for analysis, the consultant selected representative properties that were south of E. Edenton Street and the heart of downtown, with the limit extending just to the south of Interstate 40.



**a. Inventory**

The Wake County submarket, which includes Downtown Raleigh, contains 125 properties identified as being affordable. For this study, the consultant has identified 22 properties that are within five miles of the Study Area and are south of Downtown Raleigh. These 22 properties total 2,029 units of affordable housing. Over the past 15 years, the local supply has increased by 1,336 units or 66% (Table 2C-14).

In addition to the apartments identified in the REIS data, the City of Raleigh also provided an expanded list of affordable housing projects to consider. This new list included both privately owned and publicly owned units. For example, the Carolina Terrace is a 28-unit property that was built in 1968. It completed a city-funded renovation in 1994. Heritage Park is a Raleigh Housing Authority (RHA) property of 122 units that was completed in 1975. The Carriage House (1980) is another RHA property, providing 101 units. It was remodeled in 2007. The RHA also operates Walnut Terrace as a mixed-income community, composed of 142 public housing units and 150 market rate units. Gateway Park

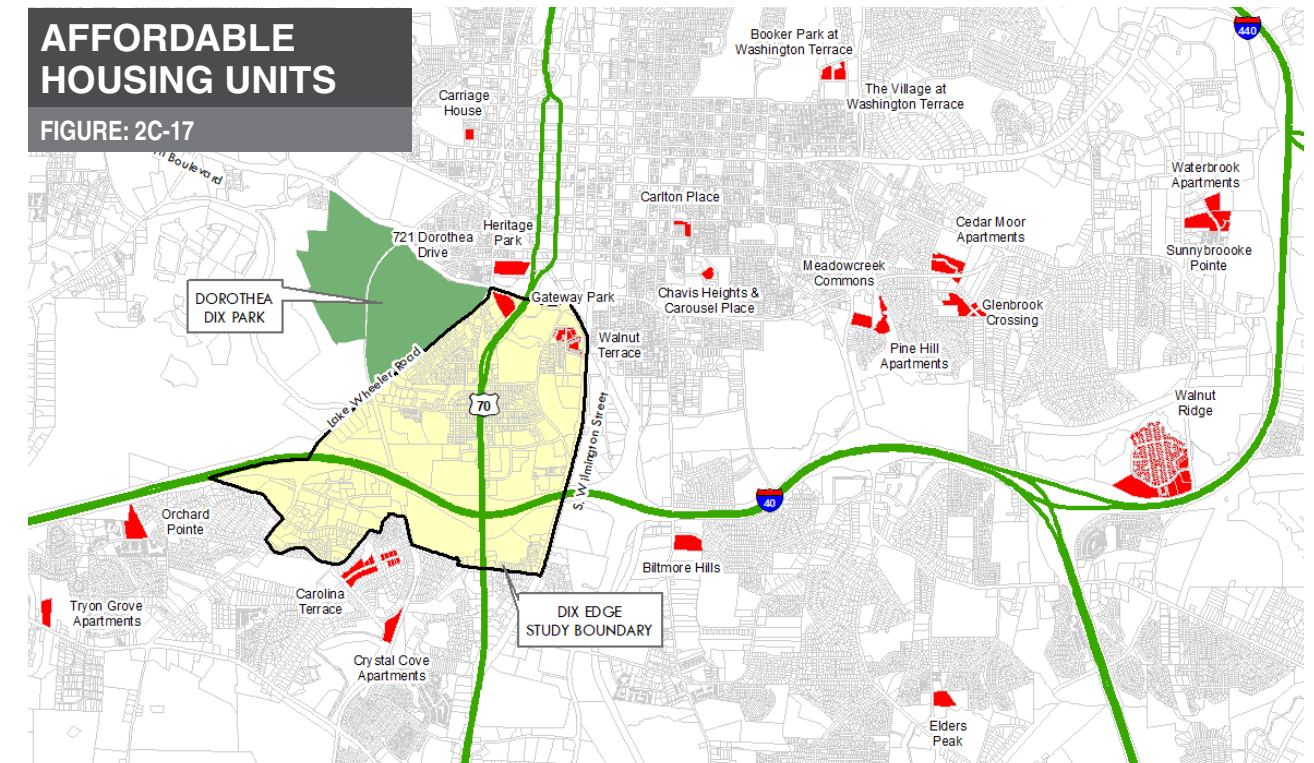
TABLE: 2C-14

Affordable Housing Inventory (2020) - Within Proximity to the Dix Edge Study Area

Property Name	Type (Family or Senior Housing)	Year Built	No of Units	Avg. Asking Rent	Vacancy Rate
Glenbrook Crossing Apartments	Family	1964	63	\$503.00	0.00%
Carolina Terrace	Family	1968	28	--	--
Biltmore Hills Apartments	Family	1972	50	\$694.00	0.00%
Heritage Park	Family	1975	122	--	--
Carriage House	Family	1980	101	--	--
Cedar Moor Apartments	Family	1980	81	\$786.00	0.00%
Crystal Cove Apartments	Family	1981	49	\$939.00	6.12%
721 Dorothea Drive	Family	1985	4	--	--
Tryon Grove Apartments	Family	1992	48	\$732.00	0.00%
Orchard Point Townhomes	Family	1996	99	\$1,245.00	10.10%
Pine Hills Apartments	Family	2000	48	\$720.00	0.00%
Walnut Ridge	Family	2002	180	\$1,088.00	7.78%
Elders Peak Apartments	Family	2005	48	\$542.00	2.08%
Gateway Park	Family	2005	84	\$1,173.00	--
Carlton Place (80 total units)	Family	2006	64	\$650.00	0.00%
Waterbrook Apartments	Family	2007	64	\$522.00	0.00%
Meadowcreek Commons	Family	2011	48	\$570.00	0.00%
Walnut Terrace	Family	2014	293	\$955.00	--
The Village at Washington Terrace	Family	2015	162	\$750.00	--
Chavis Heights/Carousel Place	Family/Senior	2019	141	\$705.00	0.00%
Booker Park at Washington Terrace	Senior	2019	72	\$630.00	--
Sunnybrook Pointe	Family	2020	180	\$997.53	18.33%
Total Units			2,029	\$788.97	3.17%
Average Units Per Project			92		

Source: REIS/Moody's Analytics and RKG, 2020

[--] Data not available



is a privately owned property of 84 units, built in 2005, that has a 30-year affordability term, but has been facing development pressure to be bought out. Finally, the City of Raleigh owns a quadruplex at 721 Dorothea Drive which is affordable.



**b. Vacancy Rates**

While high vacancy rates are typically a sign of a declining market, for affordable housing, a low vacancy rate is a constrained market that does not have adequate supply to accommodate demand. The affordable rental vacancy rate for the Wake County submarket climbed from a low of 1.2% in 2015 up to a peak of 2.6% in 2019 and was 2.1% in Q3 2020. The rate for Raleigh-Durham has mirrored a similar trend with a 2013 low of 1.3%, up to a high of 2.3% in 2019, and then experiencing a similar drop to 1.9% in Q3 2020. These trends illustrate how tight the market is for affordable housing in the region. For the 15 affordable housing projects near Dix Edge, the average Q3 2020 vacancy rate was higher, but still low at only 3%. By contrast, projected vacancy rates are expected to stabilize by 2023 for both Wake County and Raleigh-Durham at 1.8%.



**c. Lease Rates**

Rising lease rates are a negative indicator as it relates to affordable housing. The asking rents in the Wake County submarket for Q3 2020 were \$794/month, and the Raleigh-Durham asking rents were \$798 for the same period. Both submarkets saw respective gains from \$709/month and \$713/month

in 2015. **The asking rents are projected to see rent increases up to \$871/month for Wake County and \$876/month for Raleigh-Durham by 2025.** By way of comparison, the average asking rent across our 15 representative properties was \$759/month in Q3 2020. However, this average included properties with rents as high as \$1,245/month (including 3-bed units) but also several units that were lower than \$600/month. To further verify the levels of affordability, this figure should be compared against the established Wake County affordable rents of \$1,163/month for a 2 Bed unit at 60% of the Area Median Income (AMI) and \$1,482/month for a 3 bedroom unit at 60% of the AMI. The units identified in the REIS data have respective average unit sizes of 850 SF and 1,305 SF.

**d. Affordable Housing Market Conclusions**

By way of comparison to the MSA and the AMI guidelines, the Study Area does currently have access to affordable housing units, but the available properties are being strained due to rising rent pressures. As noted, there were several properties that were close to, or exceeded, the \$1,000/month rent. The added factor of low vacancy could be putting upward pressure on rents due to the constrained supply of affordable units which are in high demand. This is further supported by the fact that several affordable housing developments with lower rents have vacancy rates of 0.0%. Subsequent phases of this study will review the impact of losing affordable units due to lapsed compliance periods, as some of the units are potentially threatened.

**RETAIL MARKET GAP ANALYSIS**

This section presents an overview of trends and market indicators for the retail sector for selected radii around the Dix Edge Study Area. The analysis examines retail spending demand (among households) and the reported sales of existing retailers, by merchandise line. In this manner an estimate of the unmet spending demand, relative to realized sales, suggests retail sectors where additional building square feet may be warranted and supported. It also identifies opportunities for existing retailers to increase their market share via changes in their merchandising mix, hours of operation or other business adaptations.

**COMPETITIVE RETAIL ENVIRONMENT**

Shopping center information, provided by ESRI, indicates that within the greater City of Raleigh market area there are more than 20 major shopping centers with an approximate 8.48 million SF of leasable area. Characteristics of the centers within a proximate five-mile radius of the Dix Edge study building space (Table 2C-15). These six centers total nearly 3.07 million SF or about 36% of the City's market area total. These centers have 390 stores, averaging 65 stores per shopping center. The average size of these centers is approximately 511,100 SF and range from 271,200 SF to 800,000 SF. Many of these centers are anchored by grocers or "big-box" retailers.

**TABLE: 2C-15**

**Competitive Shopping Centers (2020)**  
Within 5-Mile Radius of Dix Edge Study Area, Raleigh, NC

Shopping Center Name	Distance in Miles	5-Mile Radius			
		Anchor	Other Anchors	Total Bldg. SF	Open Stores*
Totals - Building SF and Stores				3,066,465	390
Cameron Village	1.65 NW	Harris Teeter	Crunch Fitness	557,942	98
North South Station	3.02 SW	Belk	Big Lots	309,965	38
Shoppes at Garner	3.39 SW	Walmart		271,202	22
Garner Towne Square	3.77 SE	Target	Home Depot	458,847	36
North Hills	4.78 NE	Target	Harris Teeter	800,000	125
Crossroads Plaza	4.89 SW	Dick's Sporting Goods	Best Buy	668,509	71
Average Size per Shopping Center				511,078	65

Source: ESRI, Dun & Bradstreet and RKG Associates, Inc., 2020

Note: (\*) Open store count before COVID-19 Pandemic

– **RETAIL DEMAND AND SALES**

RKG next reviewed ESRI metrics regarding retail demand and sales among households within the selected radii of Dix Edge Study Area. The annual demand is compared against the estimated annual sales of existing merchants to develop an estimate of sales leakage, or the gap. This is a measure of how well merchants are capturing the spending demand of existing households. It is generally unlikely that in any given market area there would be a perfect match between demand and sales. Often markets serve as destination draws, garnering sales from a broader geographic region, which may be influenced by in-commuters, visitor or tourism sales that are not directly associated with the households in that market area. On the other hand, a level of sales in a market area may fall short of existing household spending demand as consumers shop outside their immediate home area for several

reasons (i.e., price, selection and brand loyalty) or via e-commerce. In this latter situation, when there is sales leakage, a gap is identified. A potential recapture of some portion of this sales leakage may be realized by existing merchants through changes in their marketing, operational measures, or a broadening of their product mix.

**a. 1-Mile Radius**

RKG collected from a 1-, 3- and 5-mile radius around the Dix Edge Study Area (Figure 2C-18). There are 4,065 households within a one-mile radius with an average annual consumer demand of nearly \$15,135/year for selected retail merchandise lines. These households have \$61.5 million in spending demand. The estimated sales exceed \$125.3 million indicating an overall import of \$64.1 million or approximately 104% of demand. Using industry averages of sales/SF metrics indicates approximately 350,525 SF of retail (among these merchandise lines) within the one-mile radius, equating to 34.8 SF/capita, well above the national average of around 23.5 SF per capita.

In other words, estimated sales exceed demand and suggest that consumers are coming from a much broader area than the one-mile radius. **There is sales leakage (an importation of sales, or the gap) for several retail sectors notably including building materials stores, grocers, clothing stores and general merchandise stores.** The estimated sales of dining and drinking establishments far exceeds the local demand by \$57.6 million indicating an attraction of customers.

**b. 3-Mile Radius**

At the three-mile radius the household count totals nearly 41,170 with an average per household annual spending demand of nearly \$19,450/year. This equates to a total three-mile demand of \$800.6 million, while estimated sales total \$912.1 million, further indicating a net import of \$111.6 million in retail sales or approximately 14% of demand. Using industry averages of sales/SF metrics indicates approximately 2.2 million SF of retail (among these merchandise lines) within the three-mile radius, equating to 20.1 SF/capita, much closer to the national average of around 23.5 SF/capita.

Sales leakage is still prevalent in building materials stores, clothing stores and general merchandise stores, although not among grocers. Sales among dining and drinking establishments (in total) continue to exceed the local demand by more than \$153.1 million.

**c. 5-Mile Radius**

At the five-mile radius there are nearly 83,350 households with an average per household annual spending demand of \$21,540/year. This equates to a total five-mile demand of \$1.8 billion, while estimated sales total \$2.5 billion, resulting in a net import of \$713.6 million in retail sales or approximately 40% of demand. Using industry averages of sales per SF metrics, the analysis indicates approximately 6.5 million SF of retail within the five-mile

radius, equate to 30.6 SF/capita, which is well above the national average of around 23.5 SF/capita.

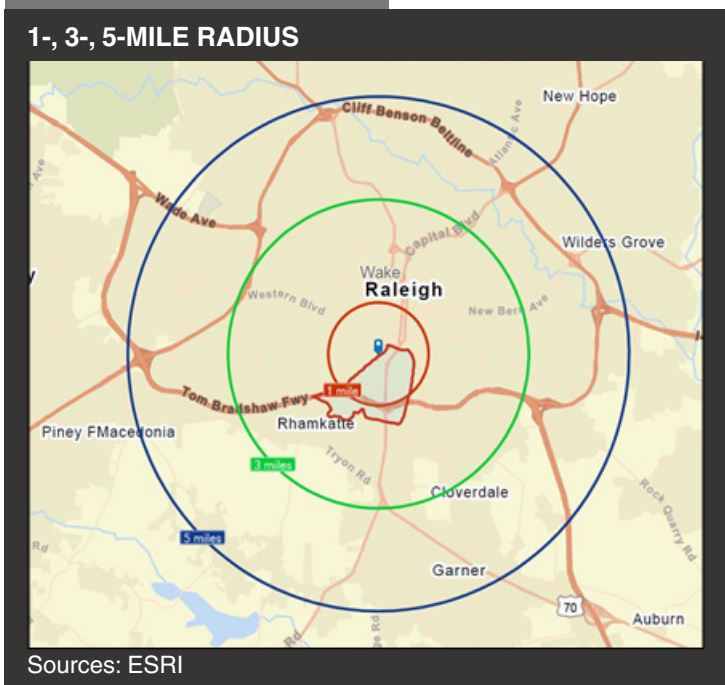
Sales leakage is still prevalent at the five-mile radius but less so and among fewer merchandise lines, notably including department stores. Sales among dining and drinking establishments continue to exceed the local demand by nearly \$244.7 million.

– **POTENTIAL SUPPORTABLE RETAIL DEVELOPMENT**

Based strictly on an estimate of recaptured sales leakage as a measure of additional retail development (SF) the opportunities are rather limited within the five-mile radius in total – to beer, wine and liquor stores, jewelry stores and department stores. Conversely, most retail merchandise lines are net importers of sales suggesting that additional retail development could add to the strength within the five-mile radius, furthering enhancing its destination draw as a place for retail. This is particularly so with dining and drinking establishments, capitalizing on the proximity of North Carolina State University. Further, the introduction of additional residential and office development within the five-mile radius will serve to increase the consumer spending demand and possibly create opportunities for additional retail development.

Table 2C-16 reflects RKG's estimates of supportable demand (retail SF) by merchandise line per 100 new households. While it is likely that a good portion of demand from new households may be met by existing establishments, some demand may

FIGURE: 2C-18



result in new development. First, RKG averaged the per household spending demand, at each of the radii, to develop a per household spending demand of nearly \$18,710 per year. Second, RKG estimated capture rates of 25%, 35%

and 50% resulting in total supportable demand of 1,150 SF to 2,300 SF per 100 new households.

Based on the number of projected new households in the development pipeline presented earlier in the section

TABLE: 2C-16

Estimated Consumer Retail Spending Demand per 100 New Households with Potential Supportable Retail Development (SF)

Merchandise Category	NAICS Code	Demand/HH	Demand per 100 NEW Households	Estimated Supportable SF - 25% capture	Estimated Supportable SF - 35% capture	Estimated Supportable SF - 50% capture
<b>Total - Sales (Export/Import)</b>		<b>\$18,707</b>	<b>\$1,870,743</b>	<b>1,146</b>	<b>1,605</b>	<b>2,292</b>
<b>Furniture &amp; Home Furnishings Stores</b>	<b>442</b>	<b>\$943</b>	<b>\$94,254</b>	<b>94</b>	<b>132</b>	<b>188</b>
Furniture Stores	4421	\$600	\$59,964	50	70	100
Home Furnishings Stores	4422	\$343	\$34,290	44	62	88
<b>Electronics &amp; Appliance Stores</b>	<b>443</b>	<b>\$761</b>	<b>\$76,144</b>	<b>54</b>	<b>76</b>	<b>109</b>
<b>Bldg Materials, Garden Equip. &amp; Supply Stores</b>	<b>444</b>	<b>\$1,459</b>	<b>\$145,853</b>	<b>96</b>	<b>135</b>	<b>192</b>
Bldg Material & Supplies Dealers	4441	\$1,370	\$137,040	86	120	171
Lawn & Garden Equip & Supply Stores	4442	\$88	\$8,812	10	15	21
<b>Food &amp; Beverage Stores</b>	<b>445</b>	<b>\$4,315</b>	<b>\$431,486</b>	<b>193</b>	<b>271</b>	<b>387</b>
Grocery Stores	4451	\$4,000	\$399,993	182	255	364
Specialty Food Stores	4452	\$158	\$15,762	8	11	16
Beer, Wine & Liquor Stores	4453	\$157	\$15,731	4	5	7
<b>Health &amp; Personal Care Stores</b>	<b>446,4461</b>	<b>\$1,442</b>	<b>\$144,204</b>	<b>55</b>	<b>78</b>	<b>111</b>
<b>Clothing &amp; Clothing Accessories Stores</b>	<b>448</b>	<b>\$1,228</b>	<b>\$122,763</b>	<b>93</b>	<b>130</b>	<b>186</b>
Clothing Stores	4481	\$799	\$79,948	73	102	145
Shoe Stores	4482	\$192	\$19,231	15	20	29
Jewelry, Luggage & Leather Goods Stores	4483	\$236	\$23,583	6	8	11

TABLE: 2C-16 (CONTINUED)

Merchandise Category	NAICS Code	Demand/HH	Demand per 100 NEW Households	Estimated Supportable SF - 25% capture	Estimated Supportable SF - 35% capture	Estimated Supportable SF - 50% capture
<b>Sporting Goods, Hobby, Book &amp; Music Stores</b>	<b>451</b>	<b>\$661</b>	<b>\$66,058</b>	<b>70</b>	<b>99</b>	<b>141</b>
Sporting Goods/Hobby/Musical Instr Stores	4511	\$547	\$54,704	61	85	122
Book, Periodical & Music Stores	4512	\$114	\$11,354	10	13	19
<b>General Merchandise Stores</b>	<b>452</b>	<b>\$4,127</b>	<b>\$412,680</b>	<b>223</b>	<b>312</b>	<b>446</b>
Department Stores Excluding Leased Depts.	4521	\$2,996	\$299,607	148	208	297
Other General Merchandise Stores	4529	\$1,104	\$110,383	75	104	149
<b>Miscellaneous Store Retailers</b>	<b>453</b>	<b>\$1,033</b>	<b>\$103,298</b>	<b>108</b>	<b>151</b>	<b>216</b>
Florists	4531	\$32	\$3,158	3	4	5
Office Supplies, Stationery & Gift Stores	4532	\$223	\$22,336	25	36	51
Used Merchandise Stores	4533	\$131	\$13,111	12	17	25
Other Miscellaneous Store Retailers	4539	\$647	\$64,693	67	94	135
<b>Food Services &amp; Drinking Places</b>	<b>722</b>	<b>\$2,740</b>	<b>\$274,003</b>	<b>159</b>	<b>222</b>	<b>318</b>
Restaurants	7221	\$2,527	\$252,681	145	203	290
Special Food Services	7223	\$24	\$2,399	2	3	4
Drinking Places - Alcoholic Beverages	7224	\$189	\$18,923	12	17	24

Source: ESRI, Dun & Bradstreet and RKG (2020)

in Table 2C-10 (3,910 apartments/condominiums), could generate future retail demand of \$73.1 million, which could support more than 200,000 SF of new retail space. **Given the proposed 1 million SF of new retail space being proposed by 2025, the actual new retail space could exceed local demand,** unless this future retail

space is positioned to attract sales from outside the 5-mile radius. This does not include the Downtown South and Park City South developments that are proposing an additional 552,000 SF beyond 2025.

**DIX EDGE HOUSING ANALYSIS**

**– HOUSING SUPPLY BY TYPE**

The ESRI data allows for a more targeted analysis of the specific Study Area boundaries in relation to the broader City of Raleigh. The percentage of single-family houses (detached and attached) within the Dix Edge community is under 55%, as compared to the City of Raleigh at over 60% (Table 2C-17). The balance of units are duplexes or multi-unit buildings, mostly providing rental housing opportunities. The City of Raleigh has a greater share (24.9%) of apartment units in buildings with 10 or more units. These tend to be professionally-managed apartment communities, with at least 150 to 200 units – many of them investment grade properties. This is not the situation in Dix Edge, which tends to have older apartments, many of them under 10 units. Attached single-family units in this context typically refers to townhomes with a common wall connecting multiple units, and duplexes are with 2 to 4 units.

**– HOUSING TENURE**

Housing tenure refers to the occupancy status of housing in a given area. The census bureau estimates the number of units that are owner-occupied, renter-occupied, or vacant at the time of the survey. The Dix Edge Study Area is primarily a renter-occupied neighborhood, by virtue of the fact that 60.7% of the housing units are renter-occupied (Table 2C-18).

What is unique about Dix Edge, but quite common in other urban neighborhoods across the country, is that more than half of the housing units were originally constructed as traditional ownership housing (i.e., single-family detached and attached). However, over time, this housing stock has evolved from owner-occupancy to renter-occupancy. This is often due to the owners' perceptions about the neighborhood - its safety, declining property values or changing demographics. Property owners'

**TABLE: 2C-17**

Housing Stock by Unit Type  
Dix Edge Community Study Area and Raleigh City, NC (ACS 2014-2018 Estimates)

Unit Count	Dix Edge Study Area		Raleigh City	
	Count	Percent	Count	Percent
Single-Family (Detached)	996	49.7%	92,089	46.2%
Single-Family (Attached)	103	5.1%	27,760	13.9%
2 to 4 Units (incl. Duplexes)	329	16.4%	11,485	5.8%
5 to 9 Units	171	8.5%	14,879	7.5%
10 or More Units	396	19.8%	49,666	24.9%
Mobile Home/Other	9	0.4%	3,335	1.7%
<b>Total</b>	<b>2,004</b>	<b>100.0%</b>	<b>199,214</b>	<b>100.0%</b>

Source: ESRI and RKG Associates, Inc., 2020

**HOUSING TYPES**



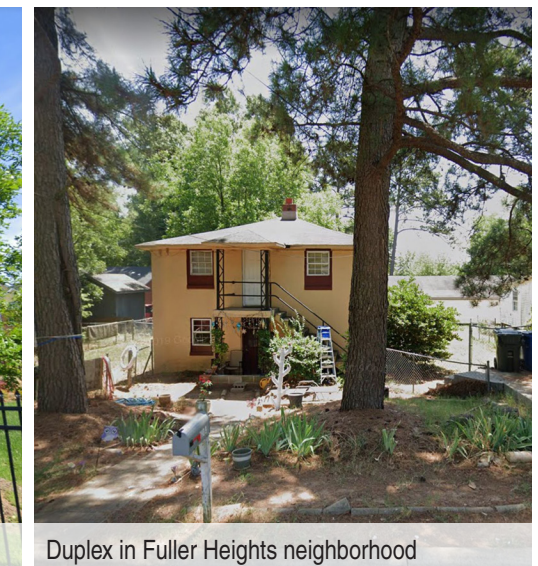
Single-family houses in the Caraleigh neighborhood



Houses on a cul-de-sac in Carolina Pines neighborhood



Walnut Terrace apartments



Duplex in Fuller Heights neighborhood

**TOP**  
Examples of the different types of housing stock across the site area  
Credit: Googlemaps, Raleigh UDC

TABLE: 2C-18

Changes in Housing Tenure (2000-2020)  
Dix Edge Study Area and Raleigh City, NC (2020)

Year	Dix Edge Study Area		Raleigh City	
	Count	Percent	Count	Percent
<b>2000</b>				
Owner-Occupied Units	644	34.0%	65,636	50.9%
Renter-Occupied Units	1,111	58.7%	54,933	42.6%
Total Occupied Units	1,755	92.7%	120,569	93.5%
Vacant Units	138	7.3%	8,382	6.5%
<b>Total Units</b>	<b>1,893</b>	<b>100.0%</b>	<b>128,951</b>	<b>100.0%</b>
<b>2010</b>				
Owner-Occupied Units	635	31.6%	87,527	49.6%
Renter-Occupied Units	1,145	57.0%	75,703	42.9%
Total Occupied Units	1,780	88.6%	163,230	92.5%
Vacant Units	227	11.3%	13,235	7.5%
<b>Total Units</b>	<b>2,009</b>	<b>100.0%</b>	<b>176,465</b>	<b>100.0%</b>
<b>2020</b>				
Owner-Occupied Units	630	27.4%	95,782	45.8%
Renter-Occupied Units	1,395	60.7%	97,873	46.8%
Total Occupied Units	2,025	88.1%	193,654	92.6%
Vacant Units	273	11.9%	15,476	7.4%
<b>Total Units</b>	<b>2,298</b>	<b>100.0%</b>	<b>209,130</b>	<b>100.0%</b>

Source: ESRI and RKG Associates, Inc., 2020

willingness to sell often attracts small property investors who acquire the home, make modest repairs, and put it back on the market as a rental property. While common, this can have deleterious effects on the property and the neighborhood. Rental properties of this type are not always well-managed, and the maintenance is often deferred as the lower rents do not support regular reinvestments in the property. Since 2000, the percentage of owner-occupied housing units has continued to decline, starting at 34% in 2000 and dropping to 27.4% in 2020, despite the fact that the number of housing units has increased by 405 units. This equates to about a 1% annual growth rate in new housing over the past 20 years, which is about one-third the rate in the City.

Figure 2C-19 shows the lots large enough to accommodate the construction of an Accessory Dwelling Unit, or ADU and Figure 2C-20 shows

the relative age of the housing stock. Most of the lots across the site would be large enough to comfortably fit an ADU structure, which could increase dwelling units and provide more affordable options.

In the Caraleigh neighborhood, the housing stock is mostly older than 1920, whereas Fuller Heights, Carolina Pines, and Hartford Village all have much more recent housing stock, ranging from the 1940s to early 2000s. Walnut Terrace and Maywood Avenue (west of South Saunders Street) represent the newest housing in the site area.

**AGE OF HOUSING STOCK**

With roughly 56% of the housing stock in the Dix Edge Study Area being built before 1980 (56.1%), there is the potential for housing to deteriorate over time unless owners and landlords reinvest in their properties (Table 2C-19). For example, a typical 30-year

Dix Edges Area Study  
Lots That Can Accommodate ADUs

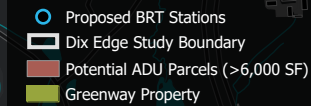
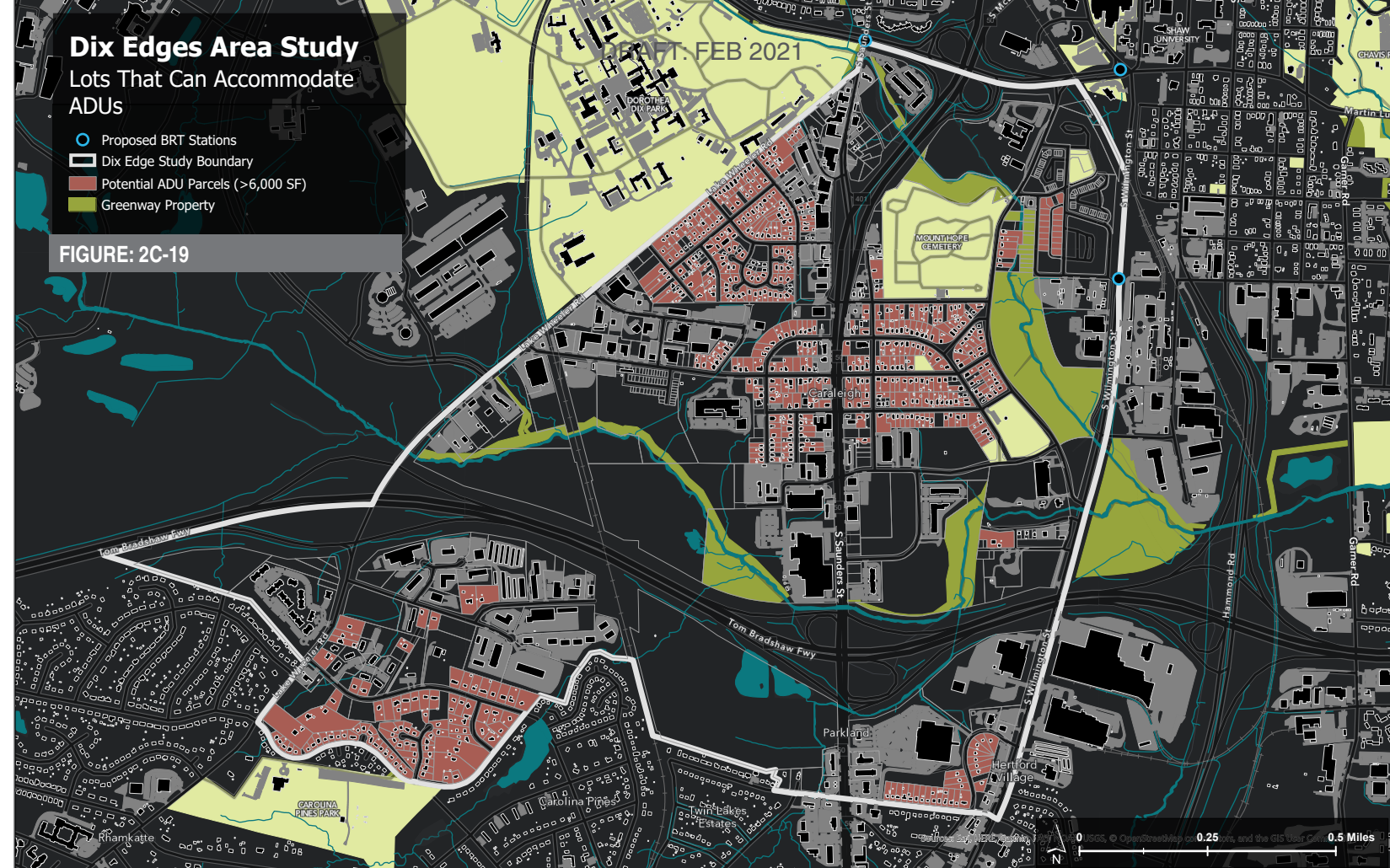


FIGURE: 2C-19



Dix Edges Area Study  
Home Building Age

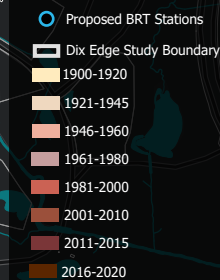


FIGURE: 2C-20

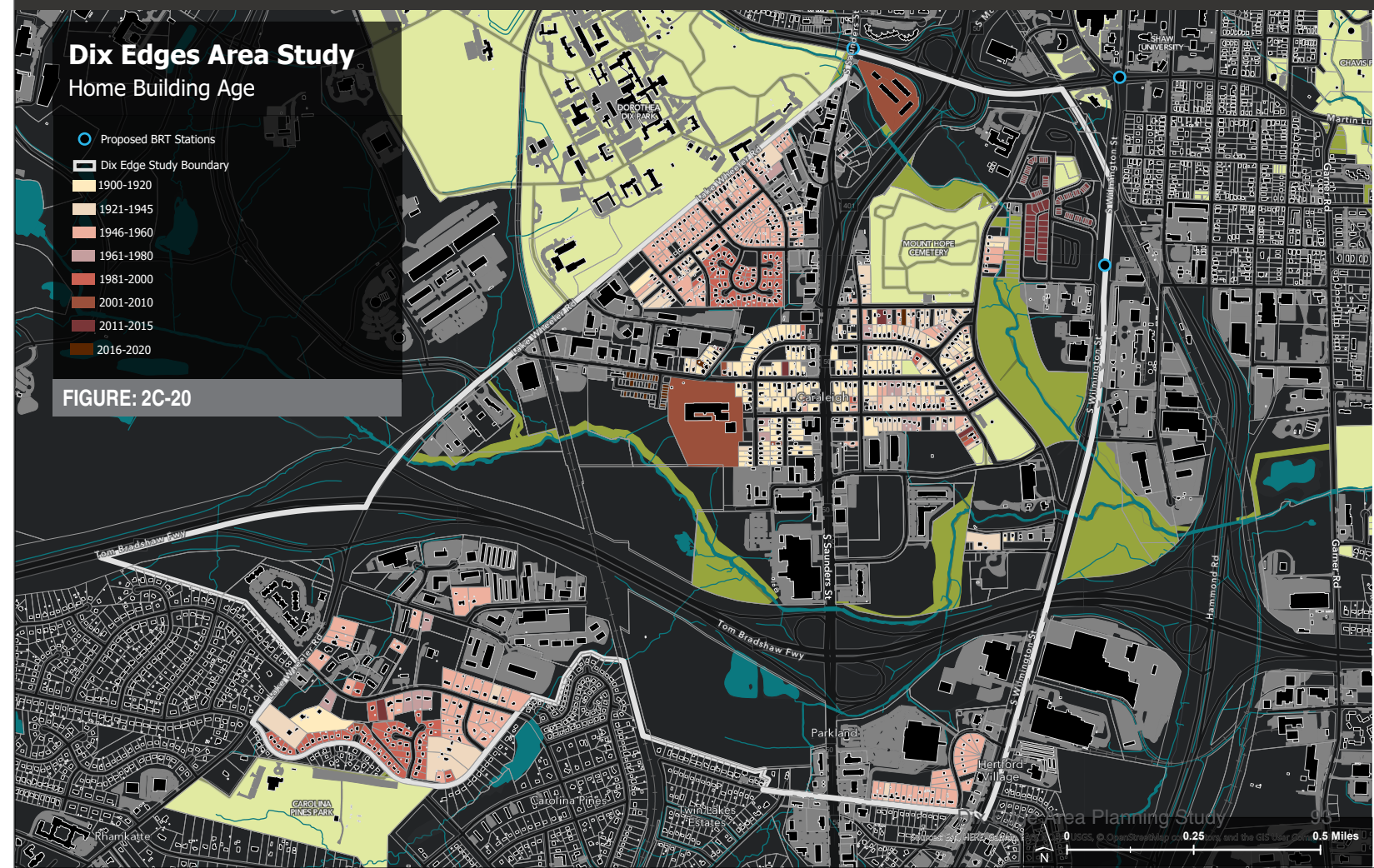


TABLE: 2C-19

Housing Stock by Structure Year Built  
Dix Edge Community Study Area and Raleigh City, NC (2020)

	Dix Edge Study Area		Raleigh City	
	Count	Percent	Count	Percent
2010-Present	267	13.3%	16,840	8.5%
2000-2009	202	10.1%	51,466	25.8%
1990-1999	226	11.3%	38,905	19.5%
1980-1989	186	9.3%	34,520	17.3%
<b>Before 1980</b>	<b>1,124</b>	<b>56.1%</b>	<b>57,483</b>	<b>28.9%</b>
<b>Total</b>	<b>2,005</b>	<b>100.0%</b>	<b>199,214</b>	<b>100.0%</b>

Source: ESRI and RKG Associates, Inc., 2020

old house may have seen up to 50% of its systems replaced. While most of the Dix Edge neighborhoods appear to be stable and of average condition, housing rehabilitation activities may be needed to preserve the housing stock. As a comparison, only 28.9% of the City's housing stock is 40 years or older. Almost 34% of the City's housing has been constructed in the past 20 years, while only 23% of the Study Area's units are newer units.

**HOUSING VALUES AND RENT LEVELS**

Owner-occupied homes valued under \$150,000 represent 28% of the Dix Edge housing stock, versus less than 10% in the City (Table 2C-20). According to ESRI, the 2020 median home value in the Study Area is estimated at \$243,182, as compared to the City with its median home value of \$261,209 and the MSA at \$260,622. These values put the Dix Edge Study Area at 93% of the City median home value, which is a very positive indicator that the neighborhood is on par with the greater region. However, the median value of owner-occupied housing in Dix Edge is \$263,792. This indicates that the non-owner-occupied housing is priced below the median home value.

As a metropolitan region, the Raleigh-Durham MSA is still considered an

affordable housing market by national standards. One of the Study Area's attractive qualities is its overall housing affordability. The same is true for rental housing, with 55% of all rental units priced below \$1,000/month, whereas only 41% of the City's rentals are similarly priced (Figure 2C-24). Lower tier rents have been rising faster in Dix Edge than the City. Rents below \$500/month grew at 11.4% in Dix Edge from 2014-2018, as compared to only 3.9% across the City. Rents between \$500 and \$750/month grew at 12.5% in Dix Edge while the City grew at only 8.0%. While the increase in lower priced rental units is making the Study Area more affordable, it is also a sign that the City's stock is appreciating in value and rents, while the Study Area is falling behind. Based on RKG's field research, older apartments or rental homes with condition problems are likely dragging down rental rates, because these units are not competitive against the newer apartment communities being built in the City. While supportive programs can be crafted to assist with repairs, maintaining the units as affordable would be the next challenge.

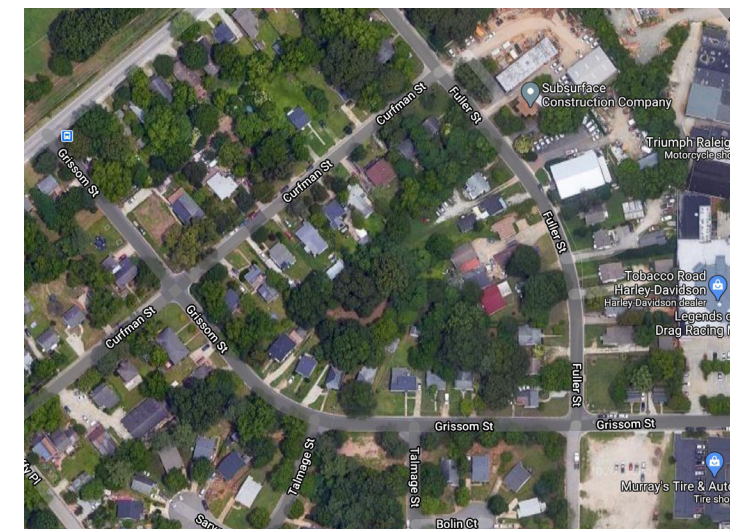
TABLE: 2C-20

Housing Value of Owner-Occupied Units  
Dix Edge Study Area and Raleigh City, NC (2020)

	Dix Edge Study Area		Raleigh City	
	Count	Percent	Count	Percent
\$0-\$149,999	179	28.5%	15,181	15.9%
\$150,000-\$299,999	223	35.5%	41,777	43.7%
\$300,000-\$499,999	185	29.4%	26,037	27.2%
\$500,000-\$999,999	39	6.2%	11,133	11.6%
\$1,000,000 Or More	3	0.5%	1,547	1.6%
<b>Total</b>	<b>629</b>	<b>100.0%</b>	<b>95,675</b>	<b>100.0%</b>

Source: ESRI and RKG Associates, Inc., 2020

**HOUSING TYPES**



Deep single-family lots in the Fuller Heights neighborhood



Multi-family affordable units at Gateway Park Credit: Gateway Park



Pre-1920 housing stock, Caraleigh neighborhood

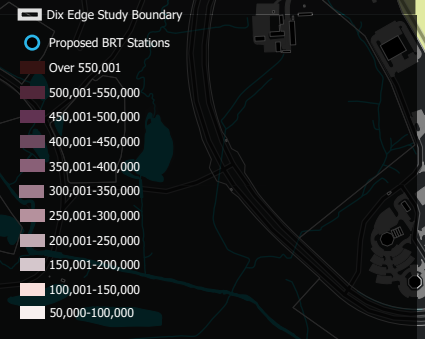


Newer Housing Stock, Maywood Ave.

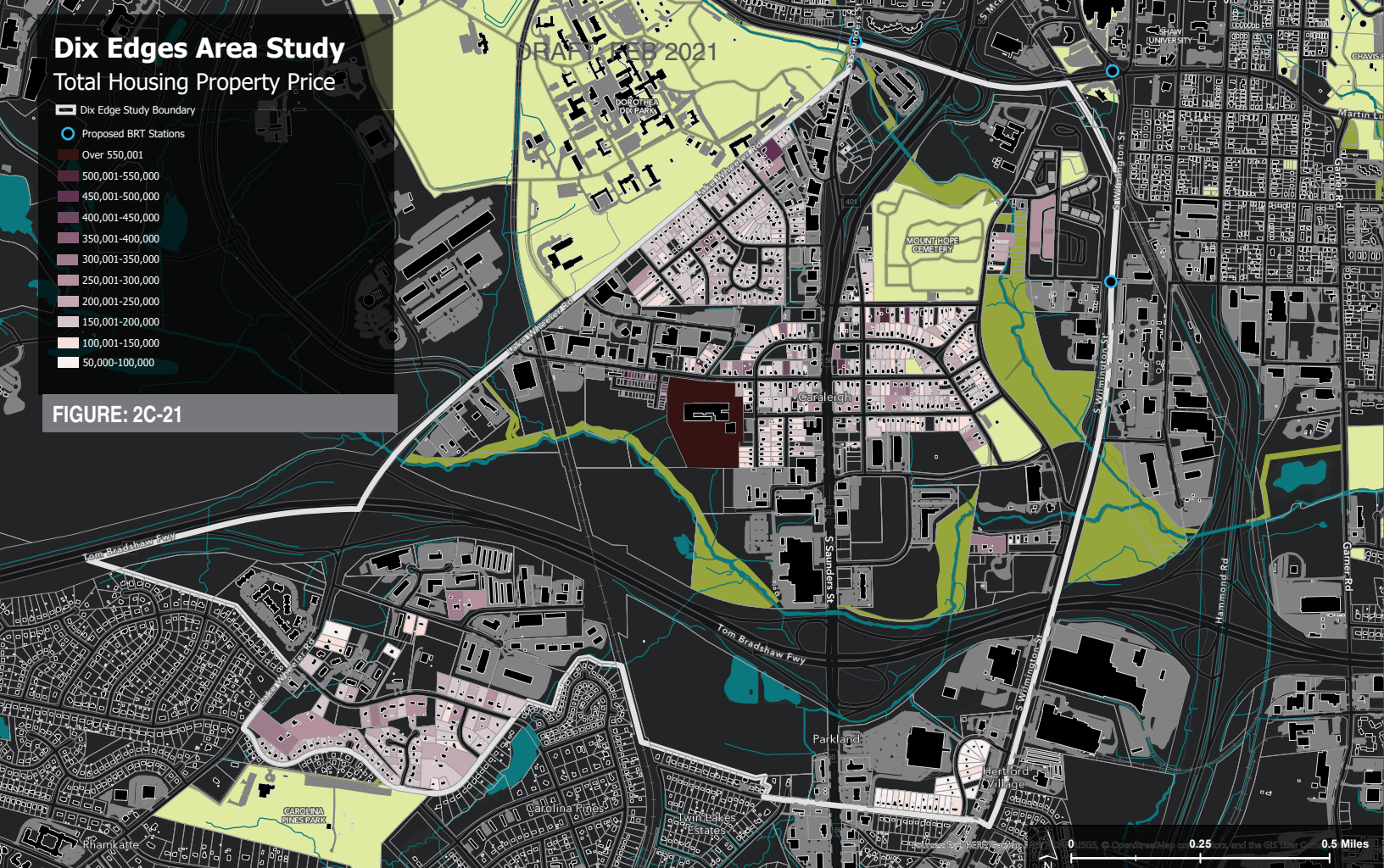
**BOTTOM**  
Examples of lot capacity and the range of housing age across the site area  
Credit: Googlemaps, Raleigh UDC



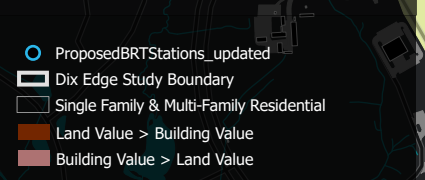
**Dix Edges Area Study**  
Total Housing Property Price



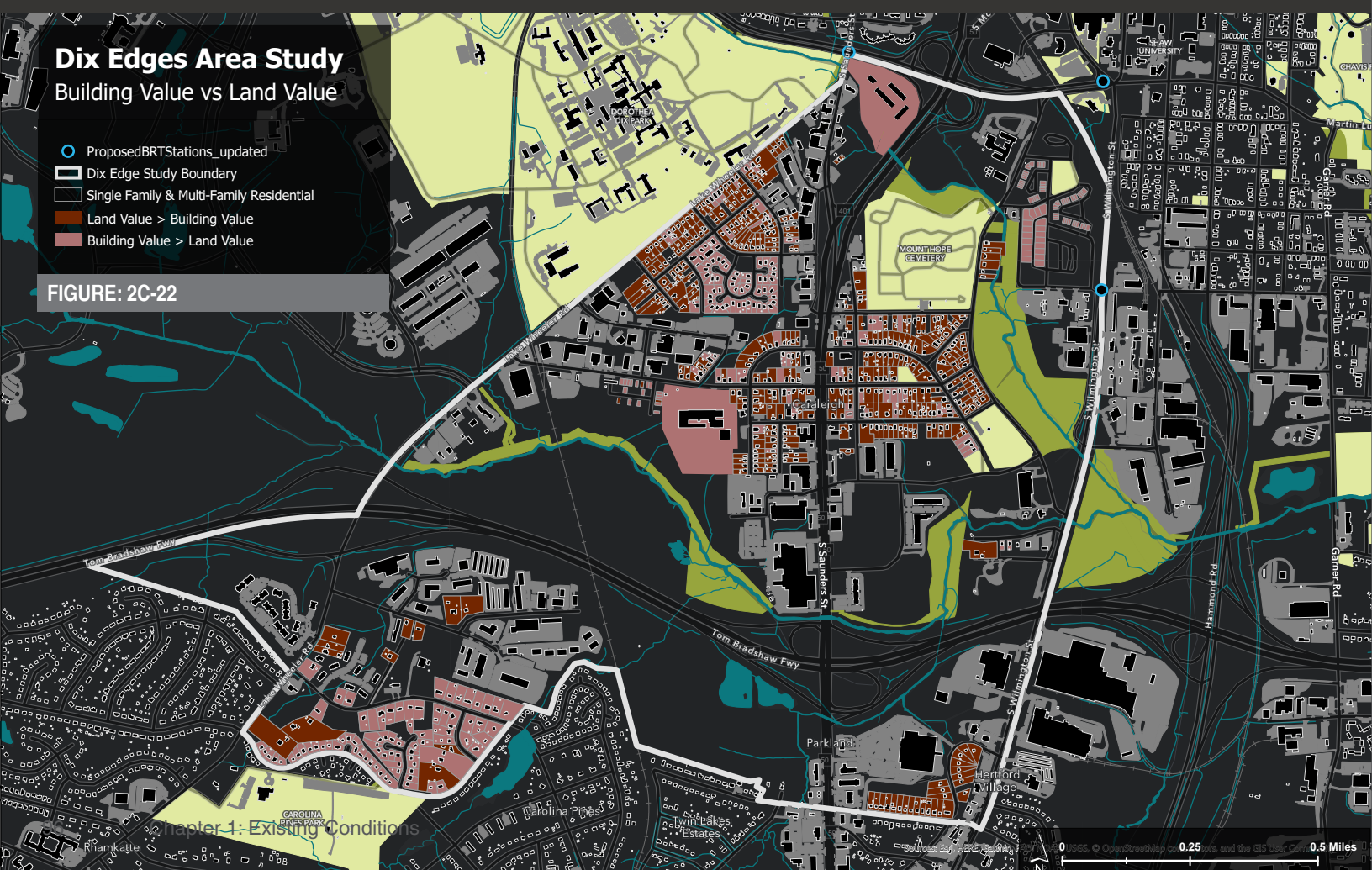
**FIGURE: 2C-21**



**Dix Edges Area Study**  
Building Value vs Land Value



**FIGURE: 2C-22**



**HOUSING PRICE CHANGES**

**159%**  
CHANGE IN SALE PRICE 2015 TO 2019

For the entire study area, the median home sale price increased from \$83,100 to \$215,500.

Figure 2C-21 shows the range in home value across the site and Figure 2C-22 shows the lots where homes are more valuable than the underlying land, and where the land is more valuable than the structure. The highest concentration of housing prices is along the western side of Maywood Avenue where a new development is under construction.

**23%**  
CHANGE IN SALE PRICE 2019 TO 2020

For the entire study area, the median home sale price increased from \$215,500 to \$265,000-- an increase of nearly \$50,000 in a year.

In the Caraleigh neighborhood, land is more frequently of higher value than the home structures on the lot. The same is true for most of Fuller Heights with the exception of a pocket in the Wheeler Crossing subdivision of homes newer than the rest of the surrounding area (see Figure 2C-20: Home Building Age map).

**TOP**  
Housing stock example  
in Caraleigh  
Credit: RHI

**BOTTOM**  
Housing stock example  
in Fuller Heights  
Neighborhood  
Credit: RHI



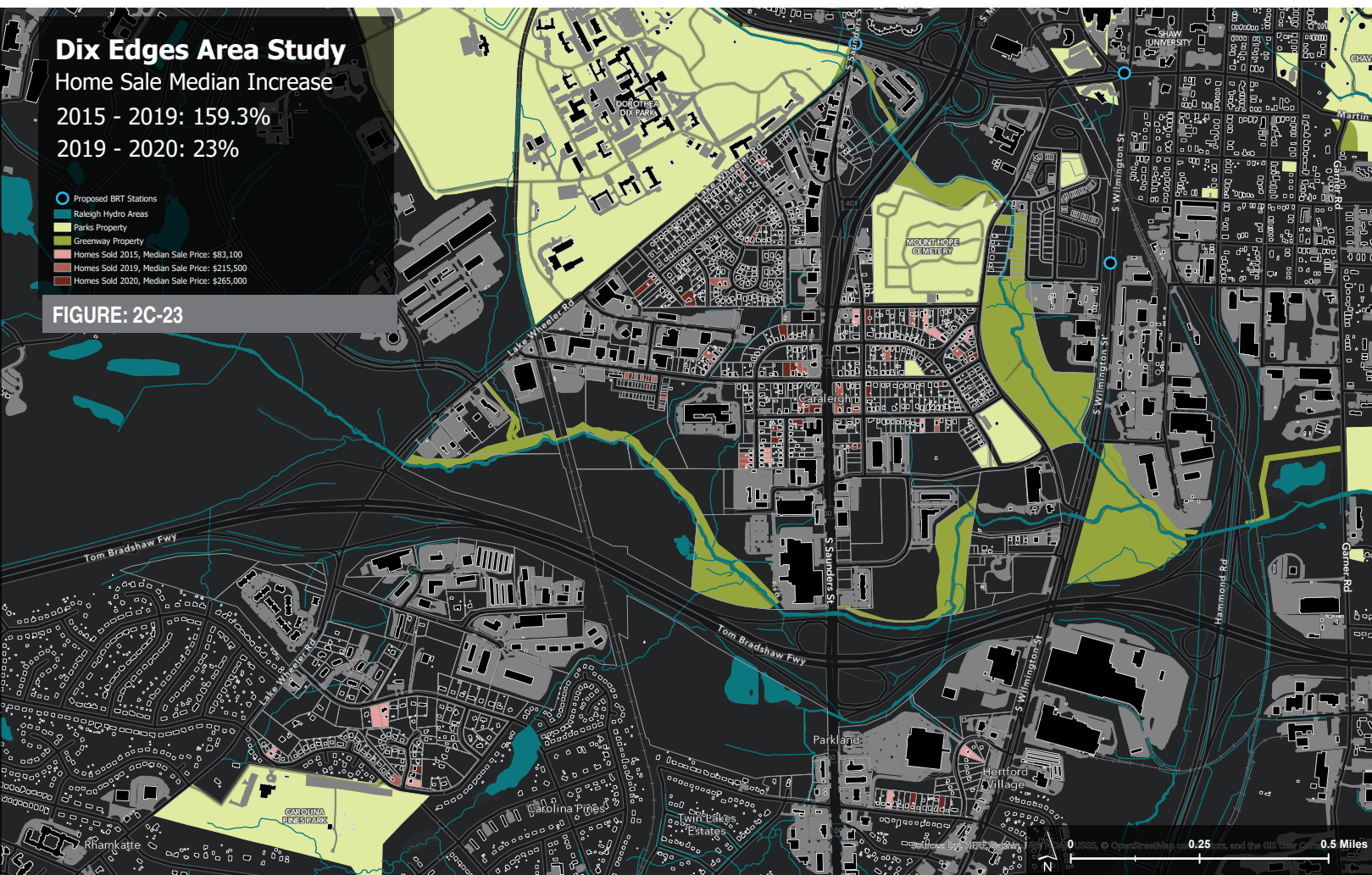
**176%**  
CHANGE IN SALE PRICE FOR  
CARALEIGH 2015-2019

For the Caraleigh neighborhood, sale prices have increased 176% from 2015-2019 and another 98% from 2019 to 2020.



**1%**  
CHANGE IN SALE PRICE FOR FULLER  
HEIGHTS 2019-2020

For the Fuller Heights neighborhood, sale prices have increased less than 1% in a year.



**CHANGE IN SALE PRICE**

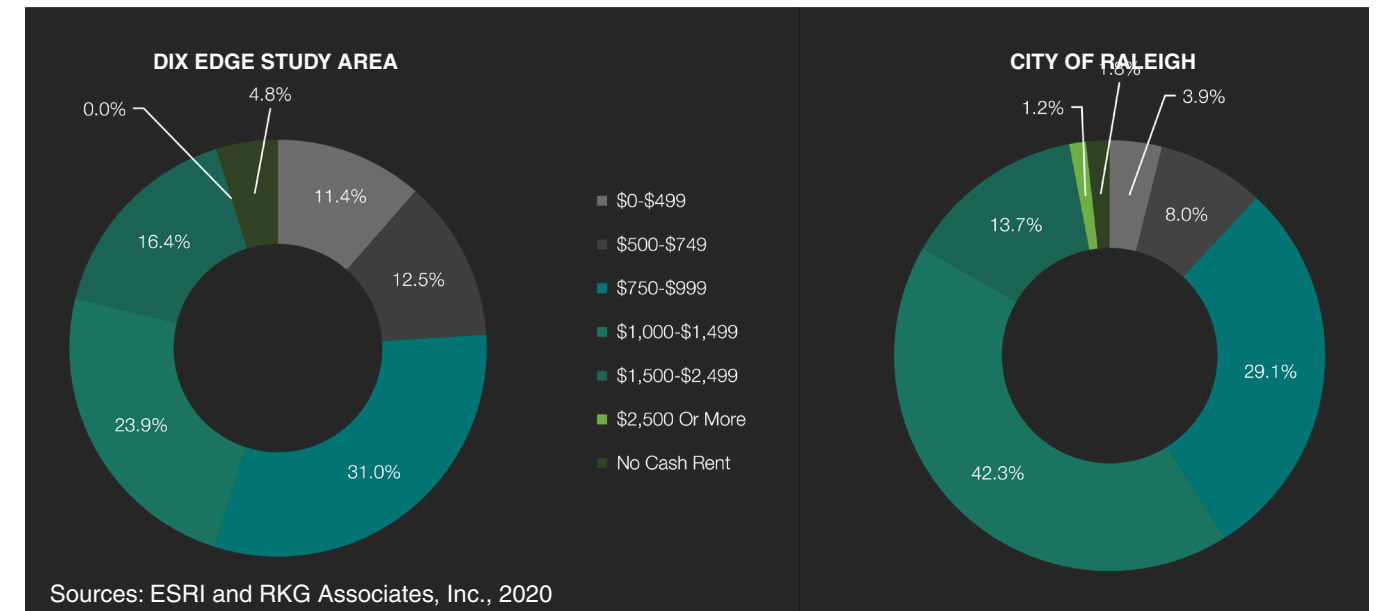
For the entire study area, the median home price has increased by 159.3% for home sales occurring from 2015 (median was \$83,100) to 2019 (median sale price of \$215,500). Sale price increased again from 2019 to 2020 by 23% (in 2020, median sale price was \$265,000).

The bulk of the increase occurred in the Caraleigh neighborhood, where sale prices increased by 176% from 2015 to 2019, and then again by 98% in 2020.

Fuller Heights had no home sales in 2015 and saw hardly any increase in median sale price between 2019 and 2020, bumping up by less than 1%.

**FIGURE: 2C-24**

Gross Monthly Rents  
Dix Edge Community Study Area and Raleigh City, NC (2020)



**REAL ESTATE MARKET IMPLICATIONS**

The Raleigh-Durham real estate market is in full growth mode and is gaining population and employment at a rapid rate. In many respects, the region and the City is evolving into a larger and more complex urban metropolitan area. The City is poised to attract over 10 million SF of new office, retail, and institutional uses south of downtown over the next generation. This will draw more residents, employers, workers, and visitors to the city center, which will increase real estate values and change the built environment. And while the COVID-19 pandemic is still underway, it is believed that the market is in a long-term trend back to equilibrium. However, it remains to be seen how issues such a telecommuting will impact factors such as office occupancy.

With the eventual addition of bus rapid transit, the neighborhoods surrounding downtown Raleigh will be under intense pressure to change and Dix Edge will be right in the path of this growth. In order to avoid wholesale changes in the character of the neighborhood, affirmative actions are needed today to forestall the most impactful changes that could result in the displacement of legacy households and modest income residents and businesses that would like to remain in this part of the City.

## 2.D LAND USE & URBAN DESIGN

### 2.D.i LAND USE

This section analyzes the existing land uses within the Dix Edge Study Area and highlights planned developments that will impact the future growth.

Figures 2D-1 and 2D-2 represent current and future land use designations. Figure 2D-2 shows the delta between current land use and the City of Raleigh's Future Land Use designations. Highlighted areas represent policy support for future increase in density or in intensity of use. Areas not highlighted are either slated to stay the same or shift to a use of a similar intensity.

Fuller Heights and Caraleigh are zoned R-6 and are largely single-family homes. The majority of the single family homes in Carolina Pines are zoned R-4, with some pockets of denser residential on the northern side of Carolina Pines Avenue. Hertford Village is R-10, located southeast in Study Area, while Gateway Park, Walnut Terrace and Village Green are RX-3. A recent change to the area after the approval of the Downtown South rezoning request shifted much of the southern portion of the study area just south and north of I-40 to CX-40 zoning. There are also a few pockets of heavy industrial and Commercial Mixed Use along S Saunders. Between Summit Avenue and Penmarc Drive is a small pocket of Neighborhood Mixed-Use (NX).

Downtown South, a development plan for the current industrial area just south of Caraleigh, will bring an influx of housing density, retail hotel, open space, and a soccer stadium. The nearly 90-acre development will define a large portion of the future land use of the site area.

### LAND USE SNAPSHOT

 **17.27%**  
HOUSING


Under the site area's current land use, single-family residential makes up 11.8% of the occupied land area and 5.5% is multi-family, making residential uses 17.27% of the total.

 **16.38%**  
COMMERCIAL

Commercial uses predominately run along S. Saunders Street with current land use.

 **8.17%**  
INDUSTRIAL

Industrial uses make up just over 9% of the Study Area. Ringing the Fuller Heights and south of I-40, the pockets of industrial uses are low density and mostly single story.

 **9.1%**  
PARKS + GREENWAYS

Open green space, including parks, greenways, and the Mt. Hope Cemetery, make up 9% of the Study Area.

### Dix Edges Area Study Current Land Use











-  Proposed BRT Stations
-  Dix Edge Study Boundary
-  Churches
-  Multi-Family
-  Single Family
-  Condominium & Apartment
-  Commercial
-  Industrial
-  Parks Property
-  Greenway Property

FIGURE: 2D-1

### Dix Edges Area Study Future Higher Intensity Use than Current Land Use




-  Proposed BRT Stations
-  Dix Edge Study Boundary
-  Higher Intensity Future Use

FIGURE: 2D-2

## 2.D.ii NATURAL RESOURCES

The Dix Edge Study Area is home to a rich diversity of environmental conditions and ecologies. Taken with Dorothea Dix Park, it's one of the most unique areas from a natural resources perspective in proximity to Downtown Raleigh. From two unique stream corridors, undulating landform, rich vegetation, and large wetlands - the natural features of this Study Area offer many unique opportunities.

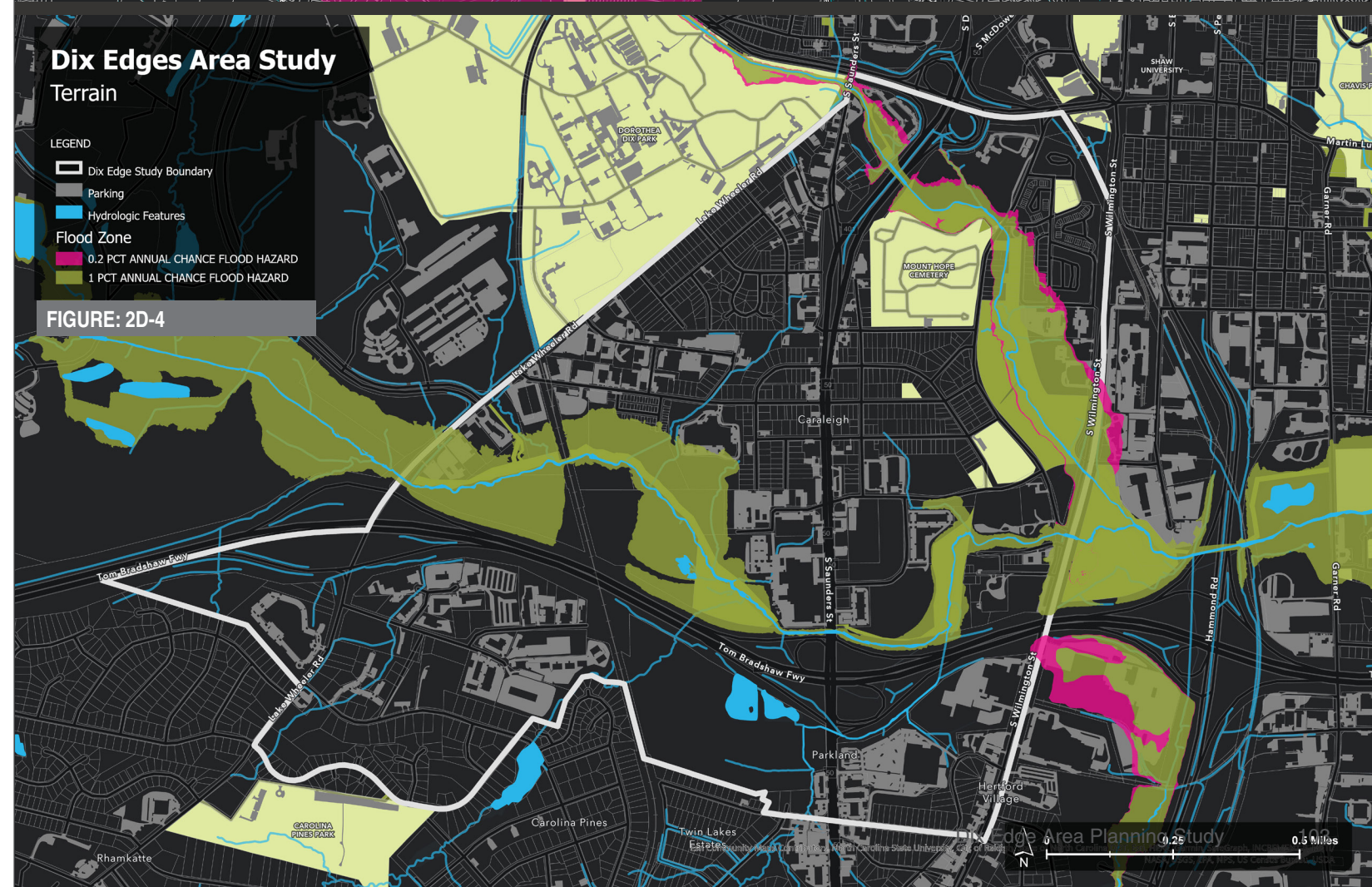
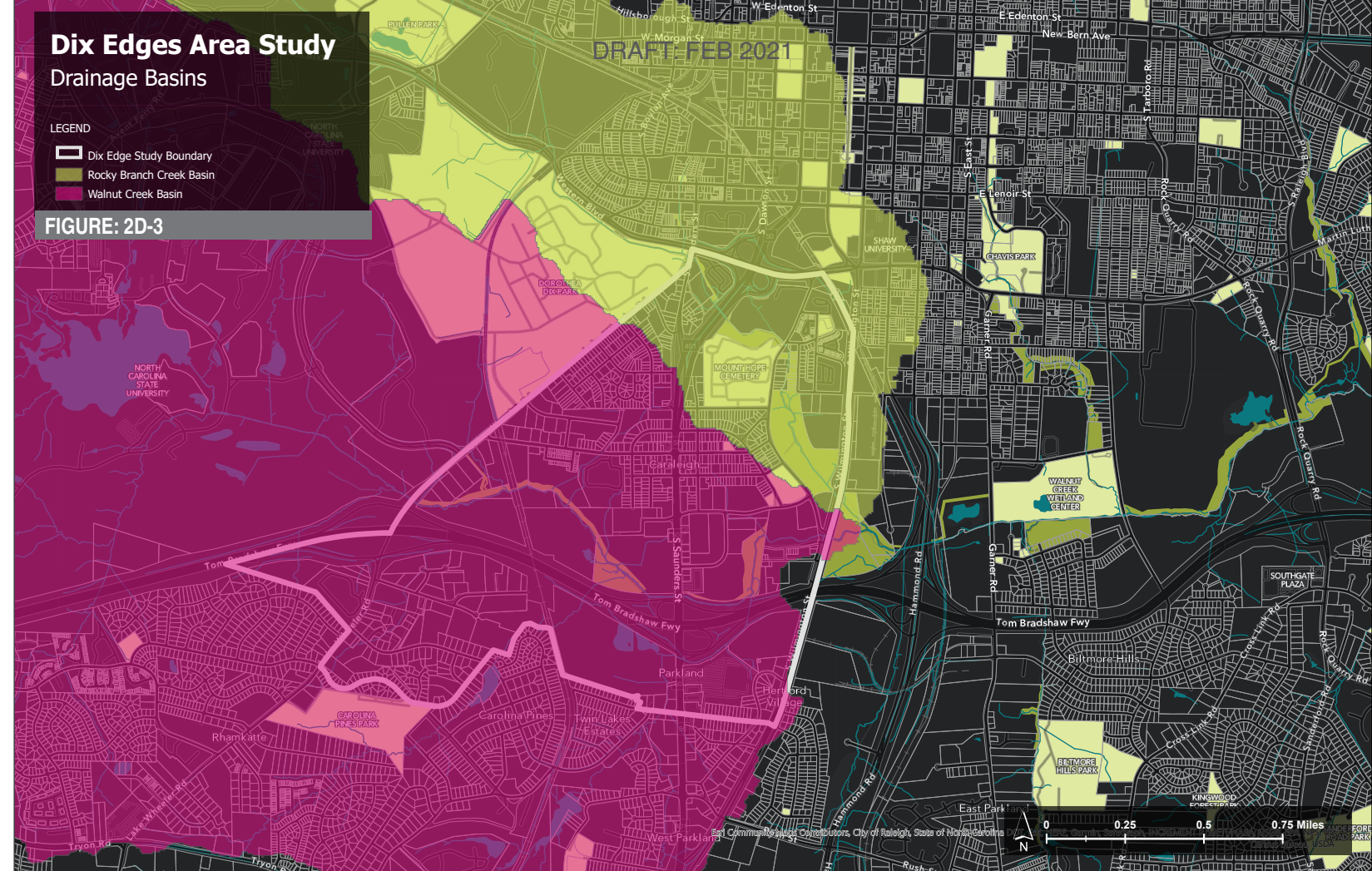
### HYDROLOGY

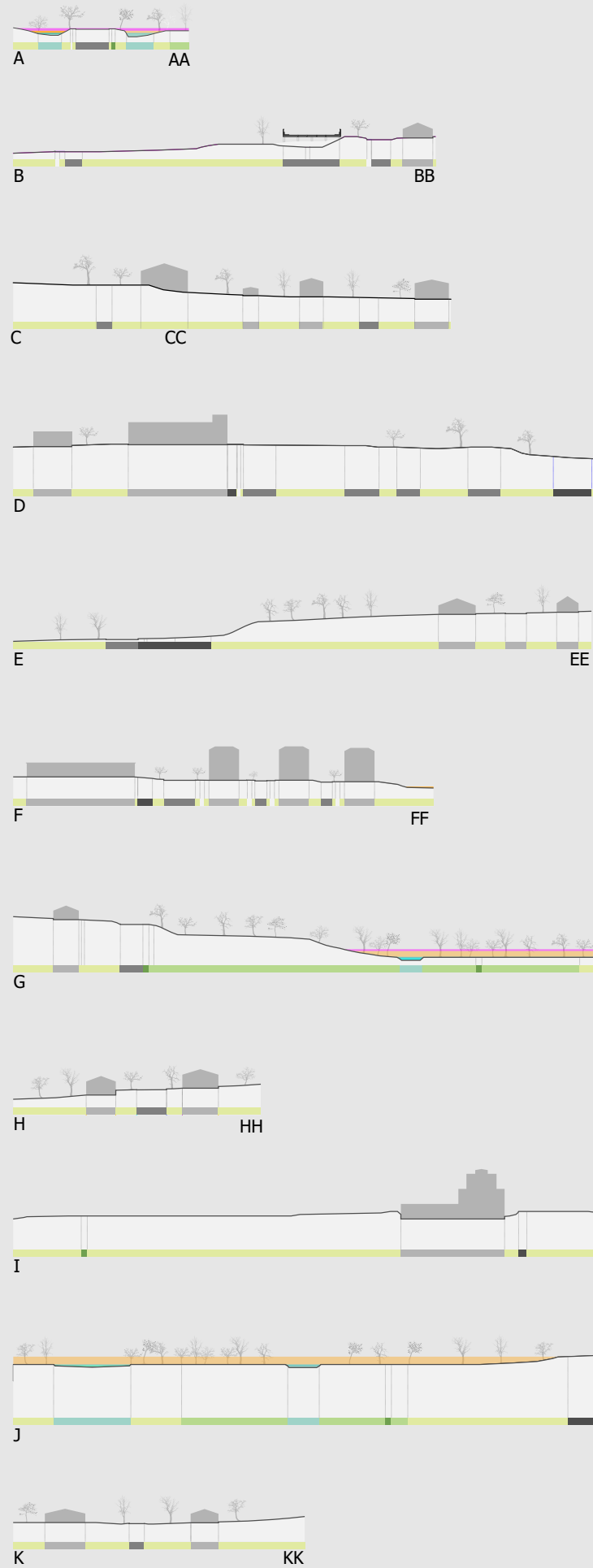
The Study Area is home to two stream corridors: Rocky Branch and Walnut Creek. The geographic extent of their drainage basins are 20 sq. miles respectively. The two streams confluence in the Study Area. Areas of confluence can be pressure points for streams and are also areas where maintaining integrity are paramount. Large swaths of impervious surface in the Study Area, which mostly drains to Walnut Creek but in some capacity impacts Rocky Branch, increases volumetric strain on the streams and introduces water quality issues. Future development could utilize green stormwater constructed approaches to restore and/or enhance these stream corridors and reduce the amount of impacts from development. Treating stormwater sustainably where it falls through on-site management is also important.

### TERRAIN

The Piedmont region, in which Raleigh is located, was created over millions of years of eroding Blue Ridge Mountains. The region's characteristic rolling hills define the Dix Edge Study Area's terrain. From a high point of approximately 340 feet above sea level at its border with Dorothea Dix Park in the west, the area slopes generally down to a low point of 218 feet on its eastern boundary. The interior of the Study Area contains ten individual creek branches and corresponding valleys. Viewed in section, one can see a pattern of low-lying, undeveloped or undevelopable land adjacent to developed areas at higher elevation.

The two largest stream branches - Walnut Creek and Rocky Branch, each contain wide floodplains that preclude development, but offer opportunities for ecological restoration and conservation, micro-climate regulation, and recreational amenities, including greenways. As seen from Sections G, I and J, the floodplains reach nearly 1,000 feet at their widest points. Where Rocky Branch and Walnut Creek converge, they create a delta of sorts with a floodplain that is nearly one-half mile wide.





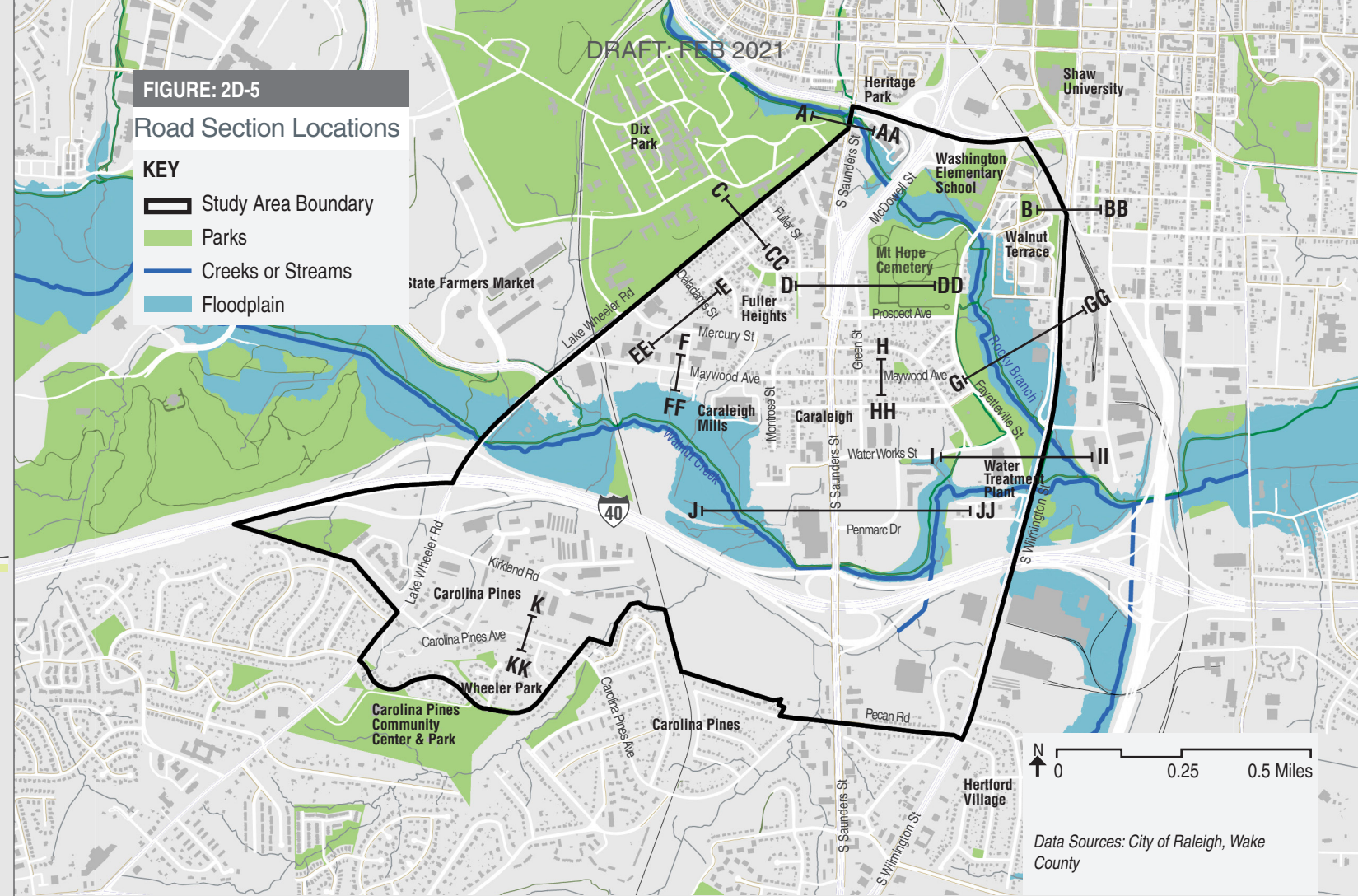
Today, as in the past, development is centered on areas at higher elevation. However, proximity to open space and Raleigh's greenway system is increasingly desirable, offering opportunities for an urban design framework that regulates the floodplain-development interface and considers sloped sites, green stormwater infrastructure, and trail-oriented development best practices. Additional considerations should be given to preserving view corridors, particularly to open space, Dorothea Dix Park and Downtown Raleigh.

FIGURE: 2D-5

Road Section Locations

**KEY**

- Study Area Boundary
- Parks
- Creeks or Streams
- Floodplain



- Greenway Property
- Greenway Trail
- Building
- Stream
- Road
- Sidewalk
- Parking
- Fallow/Vacant

**FLOODPLAIN**

- Floodway
- 100-YR
- 500-YR

**OBSERVATIONS**

- Significant width to floodplain in areas. Wide floodplains have impact on developable area.
- Raleigh has experienced an increase in significant and high impact floods that have resulted in regulation changes limiting development in the 100 year floodplain.
- Some developable land exists adjacent to floodplain – large city-owned expanses along S. Fayetteville St.
- Areas with sloping sites present design opportunities and challenges – see City's Hillside Development Study, where feasible.
- Two of the affordable housing communities in the Study Area are located in the floodplain areas.

## NATURAL RESOURCES

# 20 SQ MILES

DRAINAGE AREA

The Study Area occupies both the Rocky Branch and Walnut Creek drainage basins. The two streams confluence just outside the Study Area. The ultimate future of the Study Area will have a large impact on the health of these two streams and their ecologies.

# 105

ACRES OF WETLANDS

Large areas of wetlands offer unique and rich ecologies. These areas offer great focal points for an evolving parks and greenway system.

“ THIS LOCATION HAS A COMMANDING VIEW OF THE CITY AND IS BELIEVED TO BE PERFECTLY HEALTHY. THE GROUNDS ARE BEAUTIFULLY UNDULATING.” -1851 REPORT TO LEGISLATURE OF COMMISSIONERS FOR THE FUTURE DOROTHEA DIX HOSPITAL

## VEGETATION

Figure 2D-5 shows Normalized Difference Vegetation Index (NDVI) analysis. The NDVI analysis takes a special aerial photograph and is able to compute relative biomass. Areas in red have no measurable biomass - features like roads, parking lots, and buildings. Non-red areas are on a sliding scale - the closer to dark green the higher the biomass. The darkest green is indicative of very healthy vegetation while yellow and orange indicate vegetation that isn't as healthy.

The NDVI analysis shows that a significant portion of the Study Area has healthy vegetation. The largest gaps being the commercial core along S. Saunders St. and larger scale development along Maywood Ave. Opportunities here can be realized in many ways through updated streetscape designs that can create a more connected and uniform canopy.

## WETLANDS

There are 7 recognized and delineated wetlands in the area, as shown in Figure 2D-6. The largest being the cluster bound by Lake Wheeler to the west, S. Saunders to the east, and I-40 to the south. Of note, a forthcoming development resulted from Downtown South, will be located on a parcel immediately west of S. Saunders that has a large area of wetland. This development has agreed to refrain from constructing in the floodplain and has dedicated open space.

All of the wetlands in the area are of the same type: Freshwater Forested/Shrub. These are freshwater wetlands characterized by a mix of tall and short woody vegetation. A freshwater wetland is defined as “wet meadows, marshes, swamps, bogs, areas where groundwater, flowing or standing surface water or ice provides a significant part of the supporting substrate for a plant community for at least five months of the year,” by the US Geologic Survey (USGS).

**Dix Edges Area Study**  
Normalized Difference Vegetation Index (NDVI)

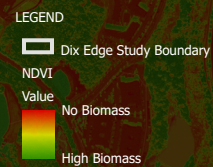
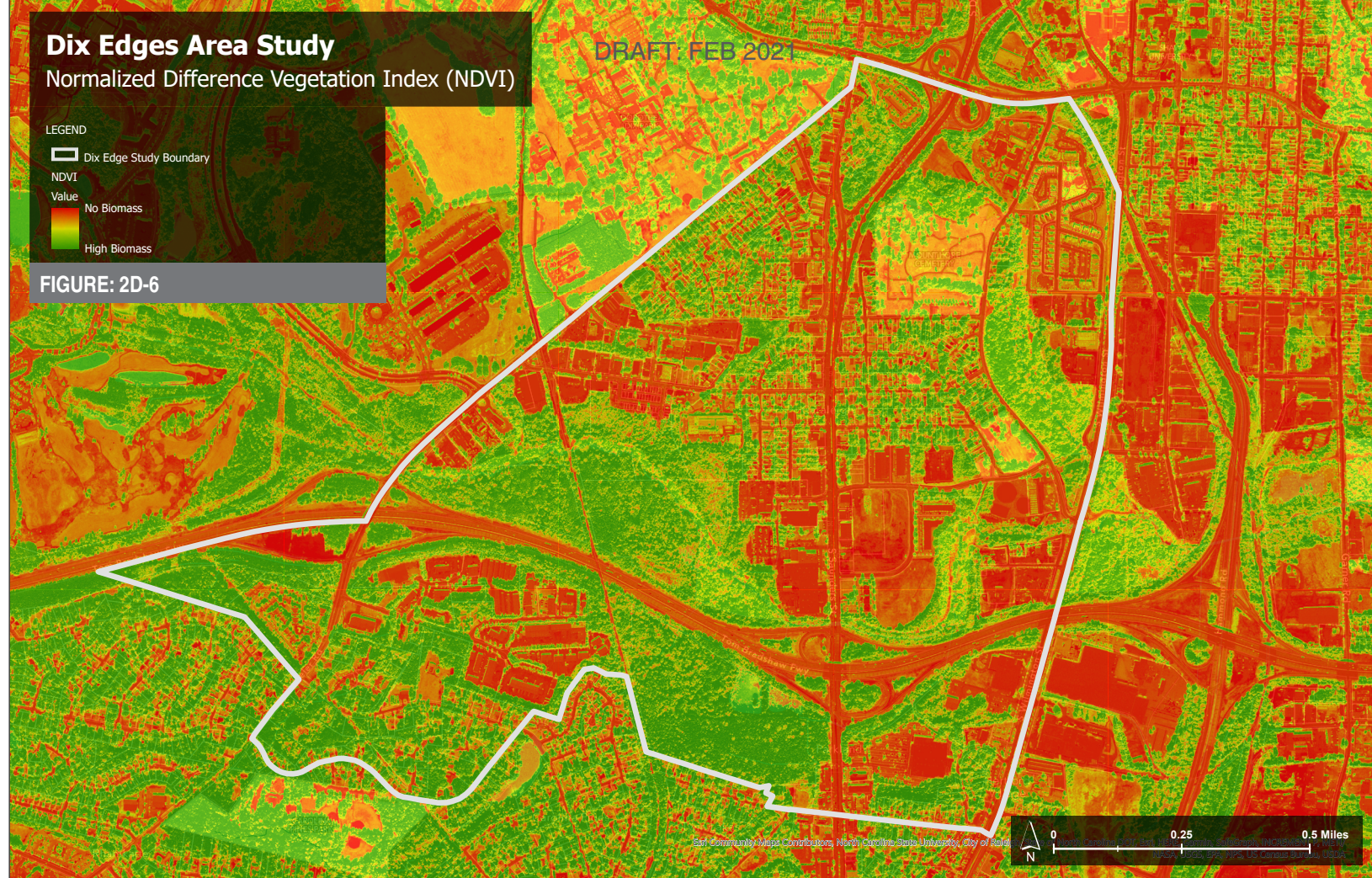


FIGURE: 2D-6



**Dix Edges Area Study**  
Wetlands

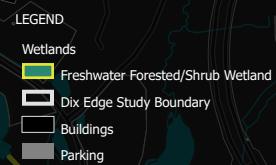
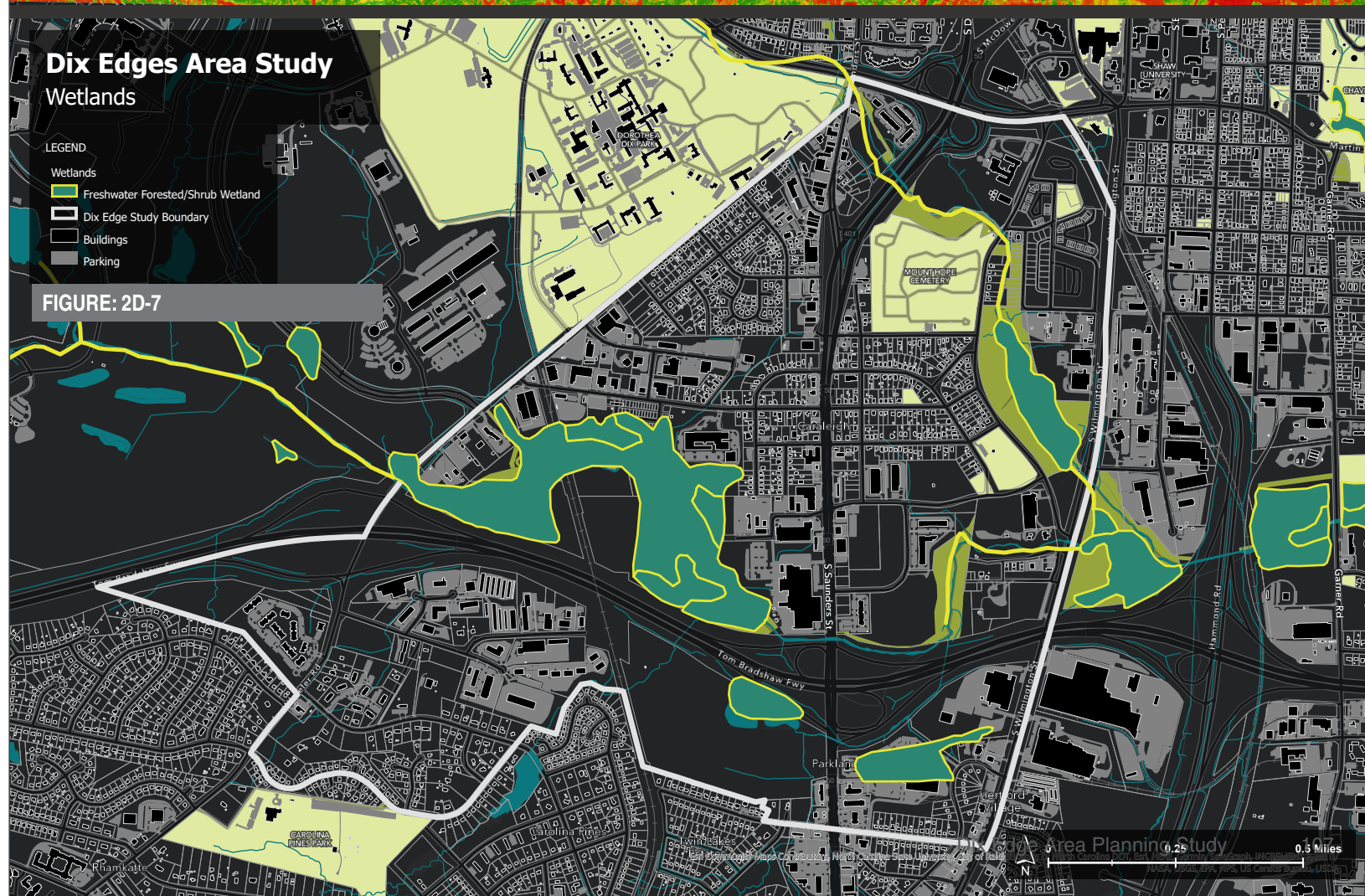


FIGURE: 2D-7



### 2.D.iii DESTINATIONS & LANDMARKS

The three largest attractions in this area are located just outside the Study Area boundary. However, interior to the Study Area, destinations and landmarks are few.

Locally the greenway trails attract recreational bikers and runners and provides a natural resource that draws the largest number of visitors. Eliza Pool Park and Caraleigh Park are small parks that attract families and recreational sports visitors from the adjacent communities. Historical landmarks and communities are significant but don't really draw many visitors as these landmarks are not programmed with public uses. Since the Study Area is so close to downtown, residents can easily access many restaurants and retail stores within a short drive.



Caraleigh Mills used to be the Fred Whitaker Cotton Mill and is on the National Register of Historic Places. Today it is a condo community.



Eliza Poole Park was built in 1996 and has a field, playground, picnic shelter and walking path.



The E.B. Bain Water Treatment Plant is a designated Raleigh Historic Landmark. In operation from 1940-1987, it was used as storage until 2006 when purchased by Empire Properties.



The Rocky Branch Greenway runs north in the Study Area. Visitors on the trail get a peaceful tour of Raleigh's nature and offers picturesque views of Mt. Hope Cemetery.

## 2.D.iv PRECEDENT STUDY

Cities were selected for study that illustrated different edge conditions to a park. Even though close attention was given to the edge, these precedents also illustrate different methods of connections through the communities adjacent with pedestrian/bike networks and transit. Precedents also illustrate how growth and building transitions may occur in the Dix Edge Study. Other factors such as similar attractions, like stadiums or high intensity redevelopments are highlighted.

The Dix Edge Study communities are unique and have individual issues and concerns. However, common themes have emerged and will be studied in a later phases, but are considered in the precedent studies represented. This section will highlight the key takeaways from the precedent studies that can be considered during plan development and recommendations.

### TRANSITIONS

- Dix Edge Study Area has a large amount of public investment in the past years, including streetscape improvements, Dorothea Dix Park and the Bus Rapid Transit (BRT) System.
- New public investments have spurred many private developments, most projects have had recent rezonings or currently in design.
- Many existing business on the major corridor of South Saunders, are industrial or service use and is currently starting the transition to higher use.
- Current residential communities are mostly single family, or older building stock and there may be pressure to increase multi-family projects.

### CONNECTIONS

- Although the area is adjacent to many destinations (including Dorothea Dix Park, Farmers' Market, and downtown Raleigh), good connections are lacking making access difficult by means other than a car.
- Pedestrian sidewalks, bike facilities, greenway trails, and transit are not optimal as the City of Raleigh incrementally adds infrastructure to meet need.
- Improvements to greenway trails, to promote use for commuter use and not just recreational.
- Neighborhood connections may have influx of traffic for new attractions. New connections will need to established, or improving existing to handle new demands.

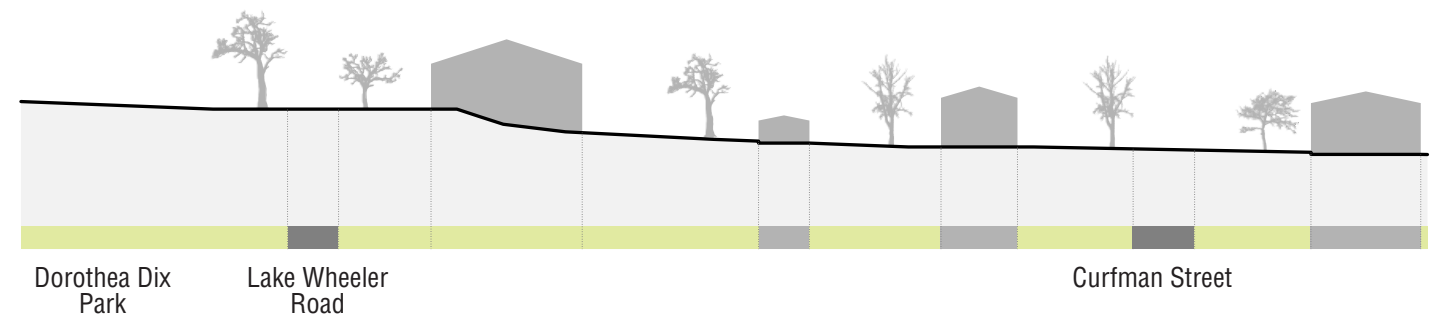
### SMART GROWTH

- Strategies to handle long term growth in Study Area will be needed.
- Study of growth patterns around park edges and ways to implement design to prepare for eventual changes in urban context.



FIGURE: 2D-8

### LAKE WHEELER ROAD AND FULLER HEIGHTS SECTION

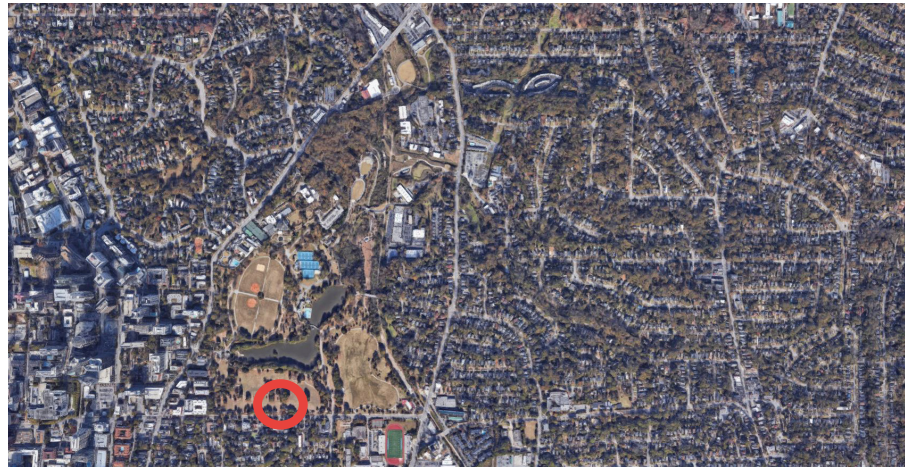




## PIEDMONT PARK, ATLANTA



- 185 acres
- Originally designed by Fredrick Olmsted's sons in 1912. City adopted a revised Master Plan in 1995 .
- \$66 Million public-private collaboration for renovations and implementation of plan.
- Park surrounded by multiple forms of residential, including duplexes.



Midtown Atlanta and the Beltline are adjacent to the west and east edges of park.  
(Credit: Google)

### TRANSITIONS

Areas around this park vary, but in general the residential areas are lower scale and low and midrange density. In some areas the park edges blur with the surrounding neighborhoods, with retail/commercial uses in park and areas where the park flows into a residents back yard. This area of Atlanta is called Midtown and while being an urban community it has a very distinct neighborhood feel with the residential buildings at a lower scale and ample tree canopies. A portion of high rise office and mixed-use buildings occupy the southwest edge of park which provides higher intensity use to a portion of the Study Area.

### CONNECTIONS

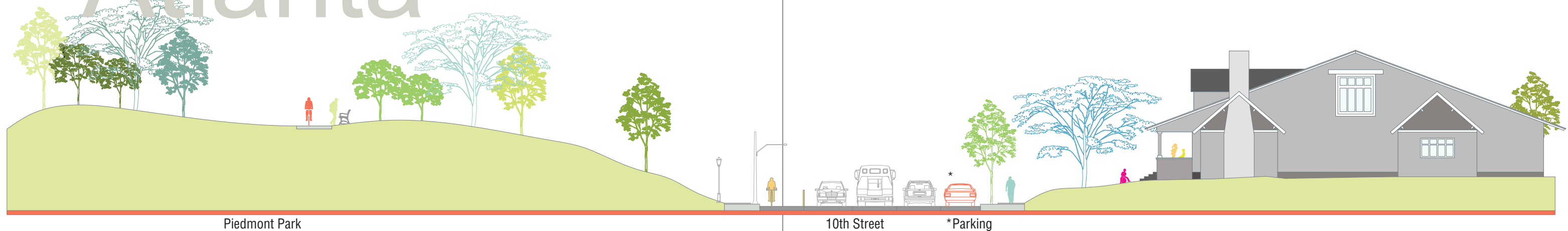
The Atlanta Beltline is a circular system of trails and parks that is being implemented in sections. Once the Beltline is complete, it will use parks, multi-use paths, and a streetcar will connect to 45 neighborhoods in a 22 mile loop. The Beltline has multiple access points, running along the eastern edge of the park, using an abandoned rail line for infrastructure for the path.

The park has many trails on the interior and access points for bike at the edges where on street bike facilities are provided. South of the park, along 10th Street where the section was taken, there is a protected two way cycle track. Sections of the park allow for car entry and parking, only one road looks like it would allow cross access in the park but would not be a logical path for cars to take.



Piedmont Park

# Atlanta



Piedmont Park

10th Street

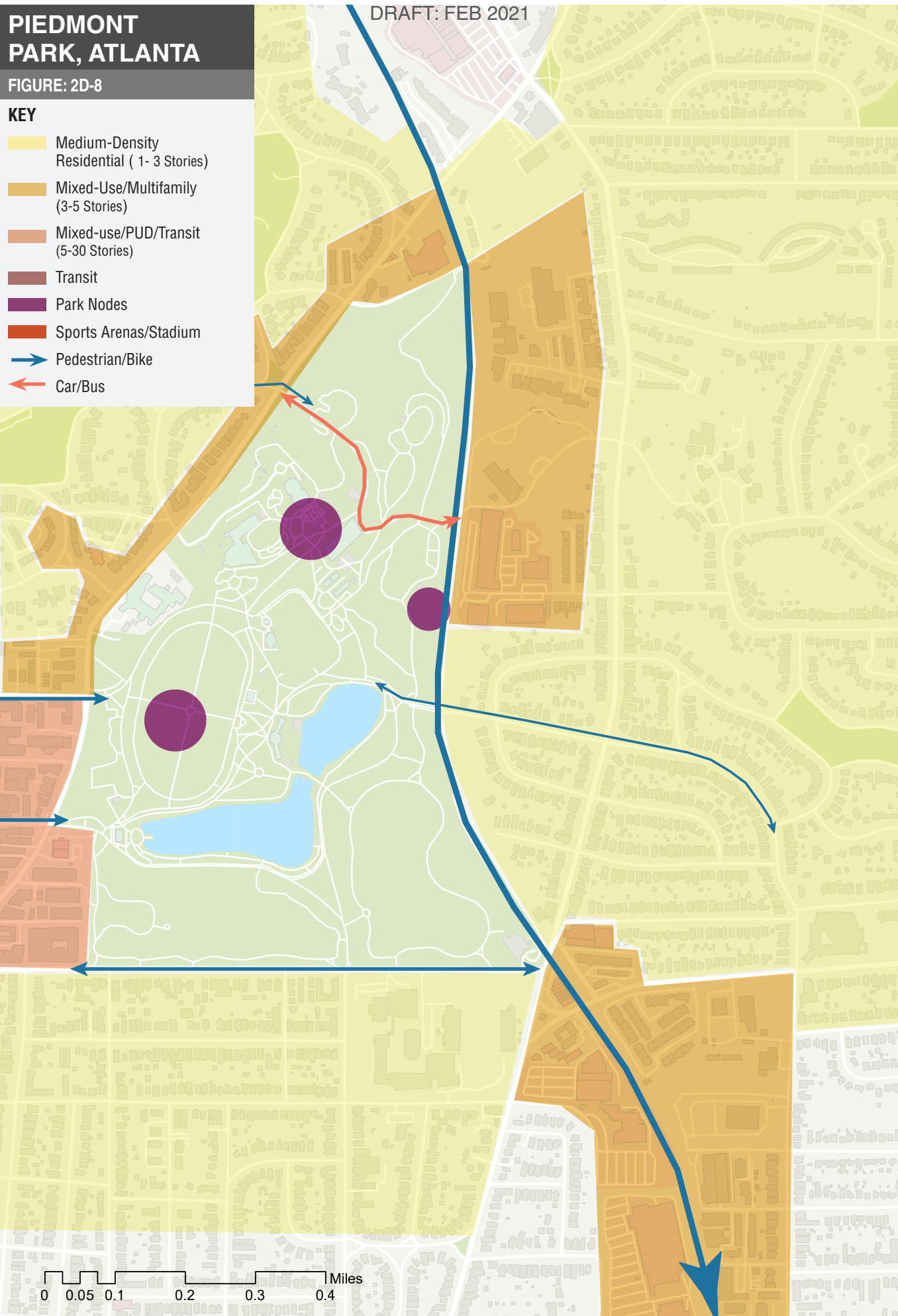
\*Parking

# PIEDMONT PARK, ATLANTA

FIGURE: 2D-8

## KEY

- Medium-Density Residential ( 1-3 Stories)
- Mixed-Use/Multifamily (3-5 Stories)
- Mixed-use/PUD/Transit (5-30 Stories)
- Transit
- Park Nodes
- Sports Arenas/Stadium
- Pedestrian/Bike
- Car/Bus



## SPECIAL ZONING DISTRICTS FOR SMART GROWTH

### Beltline Overlay District:

Establishes a set of regulatory criteria relating to certain characteristics that quality development opportunities in the Beltline planning area.

- Preserve and revitalize existing neighborhoods
- Preserve a continuous corridor for transit, trails, and greenspace
- Promote a pedestrian-oriented built environment
- Encourage a grid of interconnected streets and small urban blocks

### Development Controls of Overlay

- Transitional uses and yards
- Open space requirements and incentives
- Site limitations
- Sidewalks
- Supplemental zone
- Relationship of building to street
- Loading and associated areas
- Driveway configuration
- Lighting, security and maintenance requirements
- Landscaping requirements
- Off-street bicycle parking requirements
- Off-street parking requirements
- Pedestrian bridges and tunnel requirements

### Residential Duplex Zoning:

Around Piedmont Park, medium density residential units line around 50% of park edge. The City of Atlanta has a special duplex zoning to the south of the park, that allows higher density prototype that still has a lower architectural scale. Beyond the multifamily and duplex zoning is single family zoning.

## PIEDMONT PARK AND COMMUNITIES



**3.5 MILLION**  
VISITORS

Piedmont Park is situated nicely in the Atlanta Midtown Area, and in 2019 was the biggest attraction in Midtown.



**22 MILES**  
OF BELTLINE

The park connects to the Atlanta Beltline, which when complete will connect up to 45 Neighborhoods.



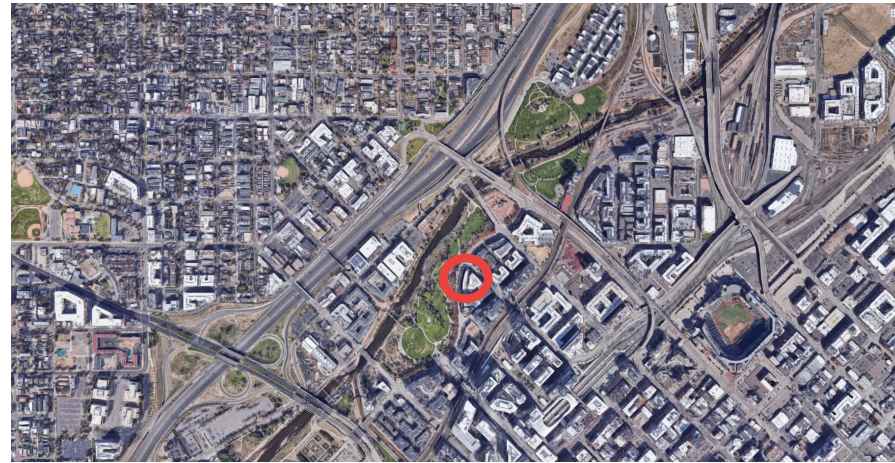
**40 PROJECTS**  
IN THE PAST 10 YEARS

The Midtown District of Atlanta has seen a surge of new developments in only 1.2 square mile area. New projects range in type and scale but are all in the Midtown Area several blocks east of Piedmont Park.

### RIVERSIDE PARK, DENVER



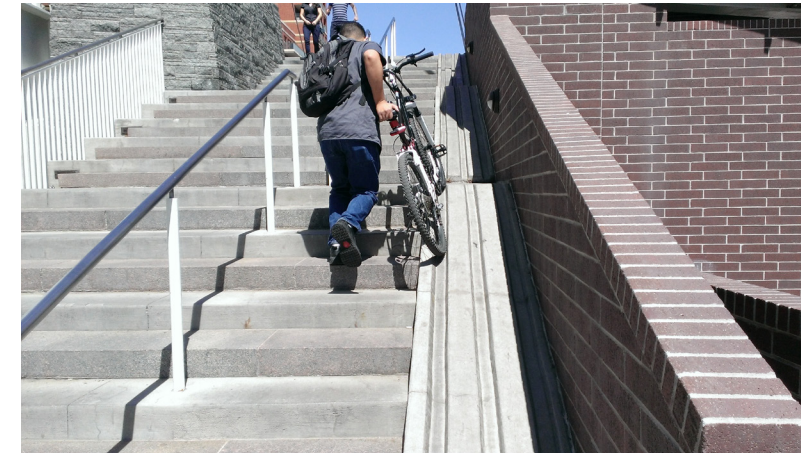
- 220 acres
- String of separate parks adjacent to the South Platte River
- Specific parks relevant, Confluence, Commons, Speer Blvd., Fishback, Centennial Gardens, Skate Park, and the City of Cuernavaca Park
- Infill and Transit Development has transformed this district in the past 10 years



View of District -Natural and man-made edges are navigated with multiple paths. (Credit: Google)

### TRANSITIONS

Height and density of projects is greatest around the Union Station. Lower heights and medium density flank the park. With the lower scale developments along edge it creates a lower impact at park edge. It also allows the higher buildings several blocks away to also have a view of the park.



Pedestrian bridges over Highway and Rails, made it accessible for alternate modes of travel. (Credit: Raleigh Urban Design Center)



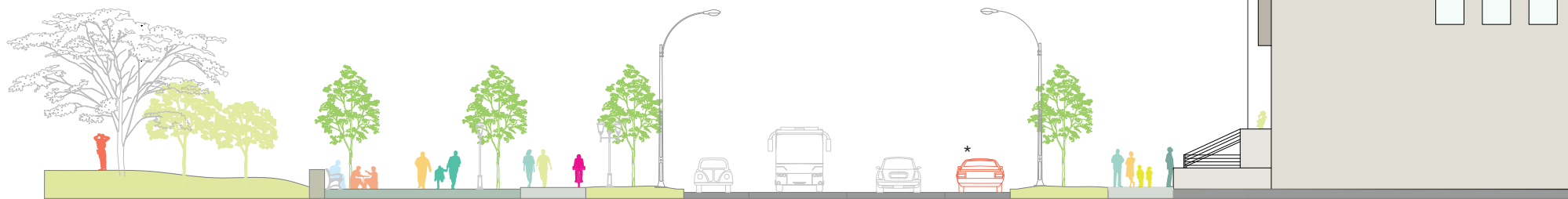
### CONNECTIONS

Multiple bridges accommodate both bike and pedestrians on a main path that connects main downtown to residential community north of the river. This main pathway is adjacent to the Union Station, with access to bus shuttles, bus service, light rail, and commuter and long distance rail services.

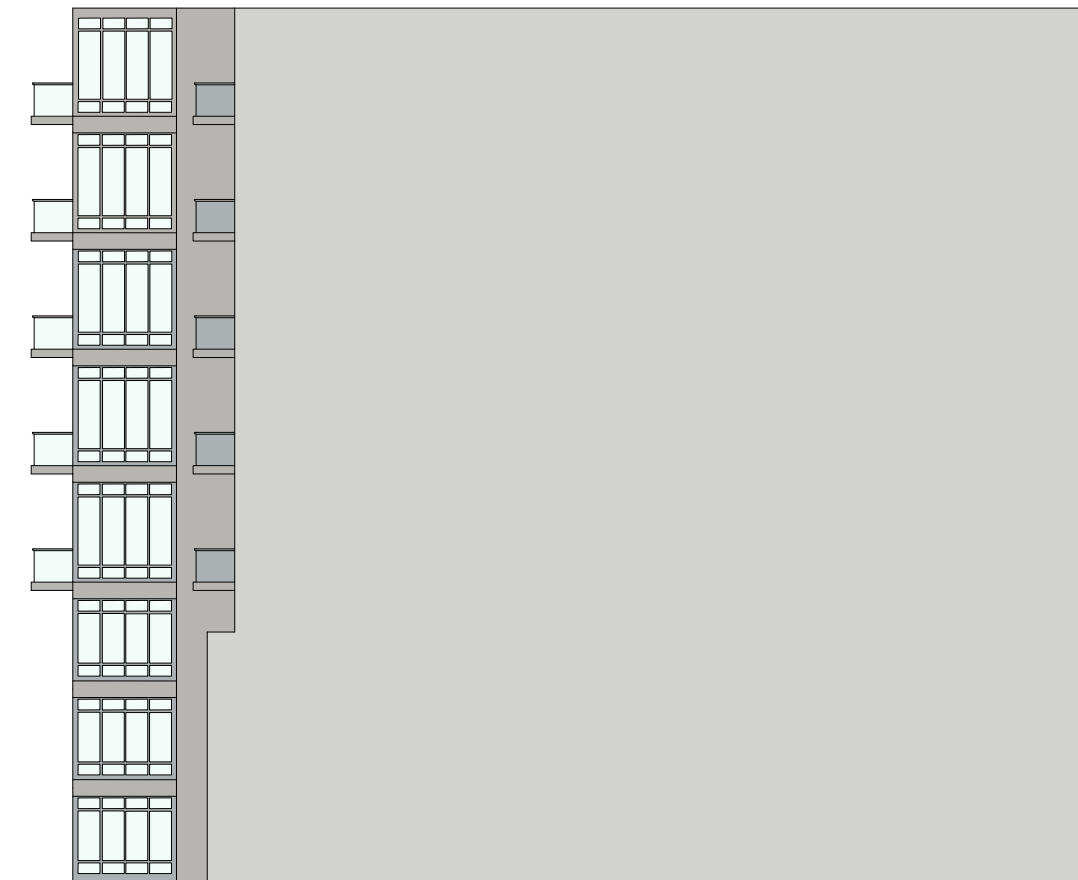
Connections for the edge districts extend past Lower Downtown Area (LODO) into the main business district. These multiple connections allow many different ways to travel, and makes this area seem as one, even with barriers, that otherwise would cut off the park and it's adjacent communities.

# Denver

Riverside Park



\*Parking

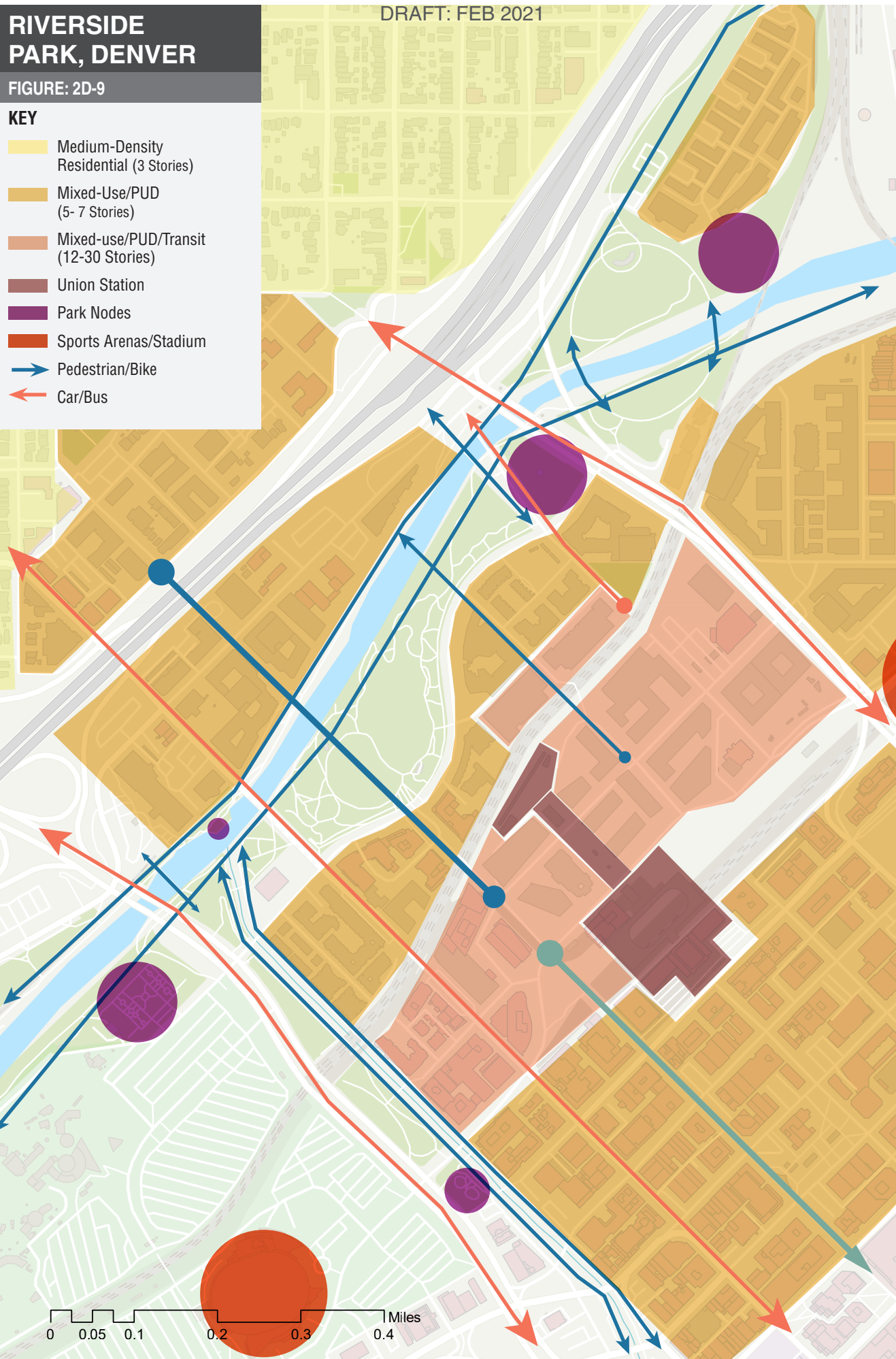


# RIVERSIDE PARK, DENVER

FIGURE: 2D-9

## KEY

- Medium-Density Residential (3 Stories)
- Mixed-Use/PUD (5- 7 Stories)
- Mixed-use/PUD/Transit (12-30 Stories)
- Union Station
- Park Nodes
- Sports Arenas/Stadium
- Pedestrian/Bike
- Car/Bus



## SPECIAL ZONING DISTRICTS FOR SMART GROWTH

### PRV Platte River Valley Zone District:

This district is intended to promote and encourage diversified land uses and to integrate the district's unique geographic location and setting, amenities of view, transportation linkages and open space. A variety of land uses are permitted to facilitate new development, allow for the reuse of eligible historic structures and to complement development in adjacent neighborhoods and downtown. New residential development and open-space is encouraged. Regulatory flexibility is provided to facilitate development responsive to current and future market conditions, and to encourage creativity in the development of the Platte River Valley. A subarea plan, including preliminary design guidelines, is required for all or part of the subarea to be used as a framework for private and public development projects. Rules and criteria adopted by the Planning Board govern the content and requirements of subarea plans. Plans for any given subarea must conform with the subarea zoning standards enacted by City Council.

### T-MU-30 Transit Mixed-Use District:

The T-MU-30 district provides for urban development proximate to a mass transit railway system station to promote a mix, arrangement, and intensity of uses that support transit ridership and use of other transit modes. The district allows the broadest range of uses and most development intensity of the mixed use districts. The district is intended for use at station areas with adequate land area to create a viable transit oriented development (TOD) and to transition to the surrounding community. Specific additional criteria to be met in the T-MU-30 district are approval of a general development plan and site improvements which reinforce both the relationship of structures to the transit station and the pedestrian connections and linkages throughout the TOD. Basic maximum gross floor area is equal to five (5) times the area of the zone lot.

## DENVER'S RIVERFRONT PARKS & LOWER DOWNTOWN DISTRICT



# 220 ACRES

OF LINEAR PARKS

Along the Platte River, a string of parks edge the Lower Downtown (LODO) District in the city. The parks include, botanical gardens, amphitheater, skate park, aquarium, and picnic areas, that engage both sides of the river. Multiple pedestrian/bike routes through the park connect districts divided by the river and rail corridors.



# 113 MILES

OF LIGHT RAIL

In the past years, Denver has invested in public transit in the LODO area, creating a Multi-modal District. Union Station was redeveloped and an underground Bus Depot was added during the renovation. A Light Rail Service station was added North of Union Station and the existing 16th Street Mall bus shuttles and a park trolley service add to Union Station offerings. Services are accessible to park, residents, and downtown employees.



# 61,700 UNITS

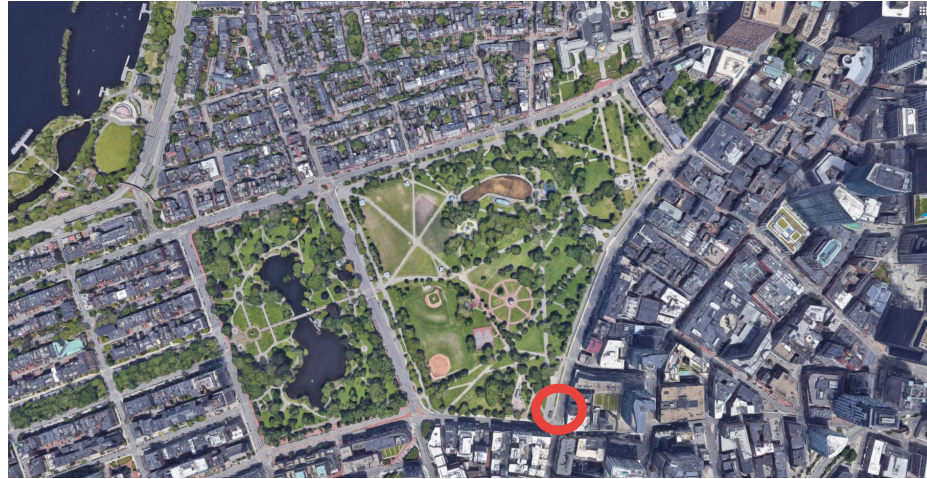
OF MULTIFAMILY ADDED IN PAST TEN YEARS

After half billion dollars of public investments in transit projects and parks in this area, the private sector quickly followed. Vacant and underdeveloped lots were constructed with new mixed-use and multifamily residential buildings. North and south of the river had 20 new developments worth several billion dollars in this time. This new district is now thriving and connected seamlessly to the park and the downtown area.

### BOSTON COMMON, BOSTON



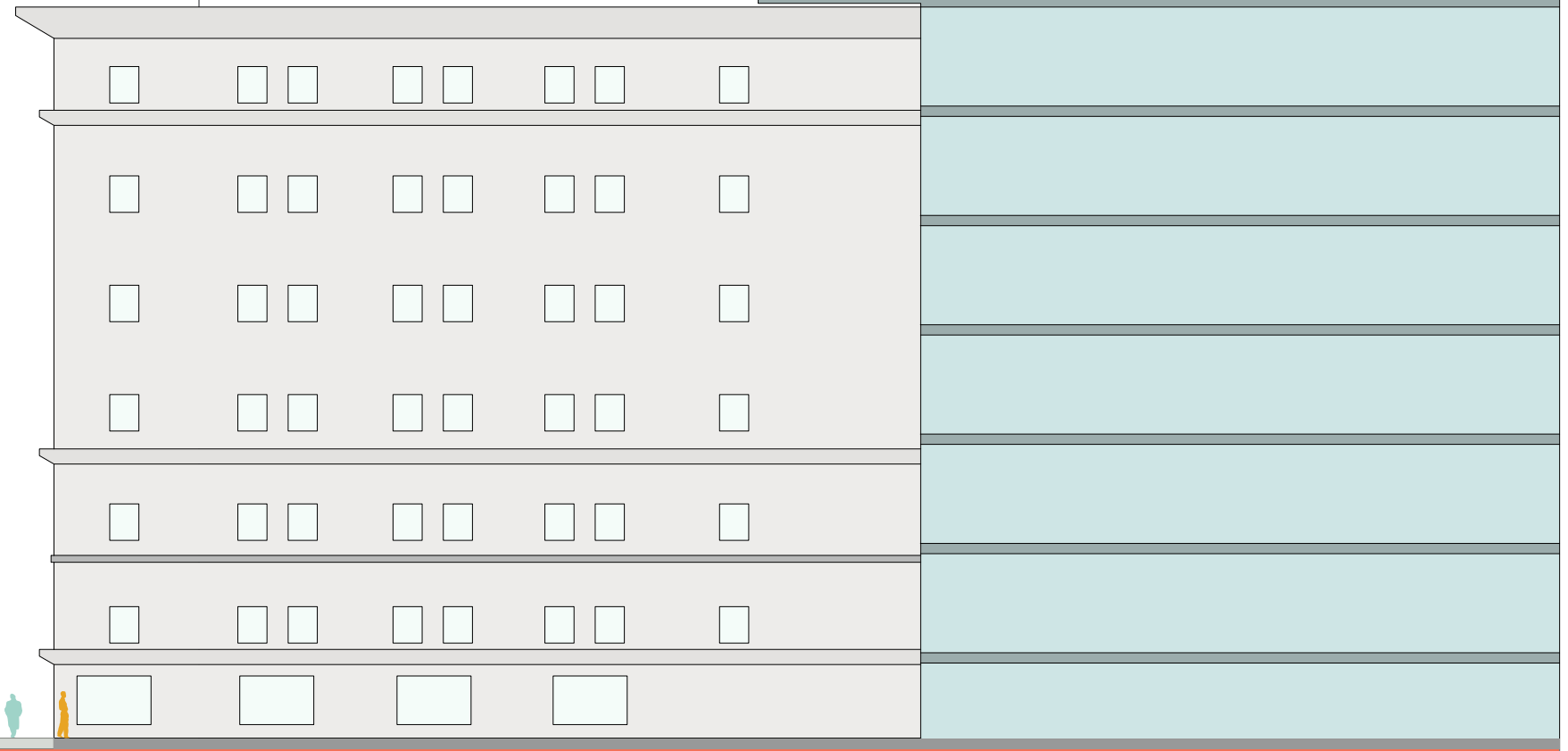
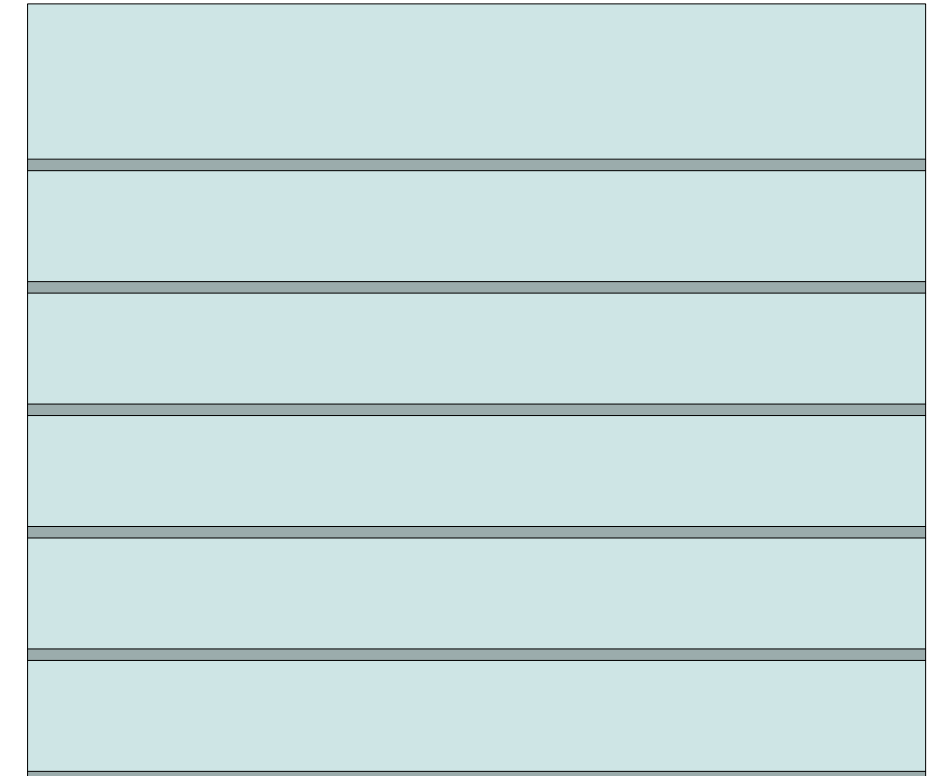
- 50 acres
- Historical Park and City
- Fredrick Olmsted's sons designed portions in 1913.
- Strong urban edges and development.
- Park edge development varies from medium density residential to high density of office buildings



View of Boston Common and adjacent communities. (Credit: Google)

### TRANSITIONS

Multiple types of developments have grown up around this historic area, and the park has a large, dense, but medium scale residential buildings around half of the park edge. The other edges include high intensity office towers and mid-level mixed use buildings. This ensures that the park and city around these edges provide vastly different experiences, but the build-to and street section ratio is fairly consistent. This park edge is a good example of multiple eras of sustained growth could look like.



# Boston



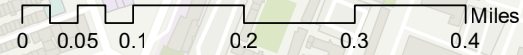
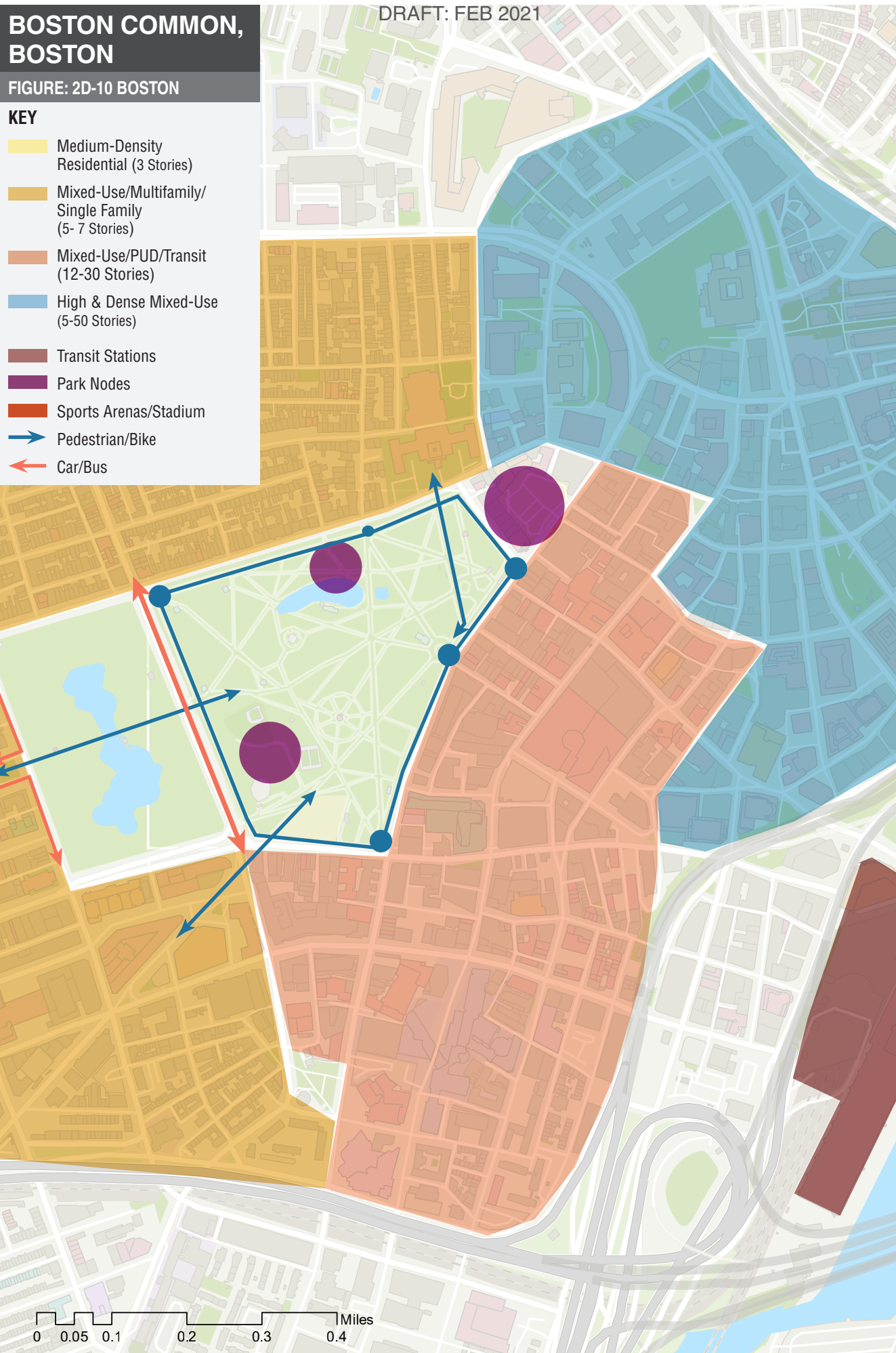
\*Parking

# BOSTON COMMON, BOSTON

FIGURE: 2D-10 BOSTON

## KEY

- Medium-Density Residential (3 Stories)
- Mixed-Use/Multifamily/Single Family (5-7 Stories)
- Mixed-Use/PUD/Transit (12-30 Stories)
- High & Dense Mixed-Use (5-50 Stories)
- Transit Stations
- Park Nodes
- Sports Arenas/Stadium
- Pedestrian/Bike
- Car/Bus



## CONNECTIONS

Boston Common is a unique, small historical area. The important connections in this area is less about pedestrian or car access but rather the connections the park has with the historical context around the edges. Historical trails and view-sheds from the interior of park, reinforce these connections.

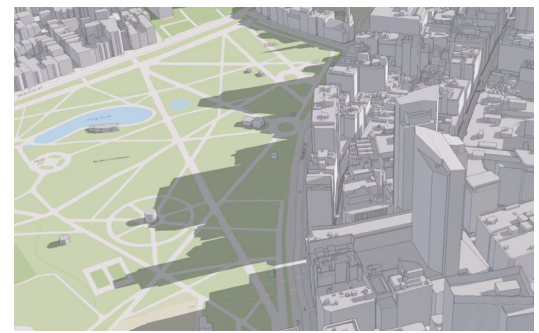


View of State House from the Freedom Trail in Boston Common (Credit: Google)

## SPECIAL ZONING DISTRICTS FOR SMART GROWTH

Boston Common Shadow Law:

The Shadow Law is actually a state law from the 1990s that limits the amount of shadows that can fall across Boston Common and the Public Garden during the day. There is a specified bank of time to divide among all future development, but once the hours of time in the shade are used up, it could limit the height of new developments.



Shadows Cast into Boston Common (Credit: Boston Planning & Development Agency)

## BOSTON COMMON AND A HISTORIC CITY



# 50 ACRES

### OF HISTORIC PARK

As in many New England towns, Boston's common land, used for pasturing cows, also accommodated pedestrian foot traffic. Until 1830 cattle grazed freely on the treeless grounds. In 1836 an ornamental fence was constructed around its perimeter and the park's circulation network was articulated to include pedestrian malls and promenades.



# 1634

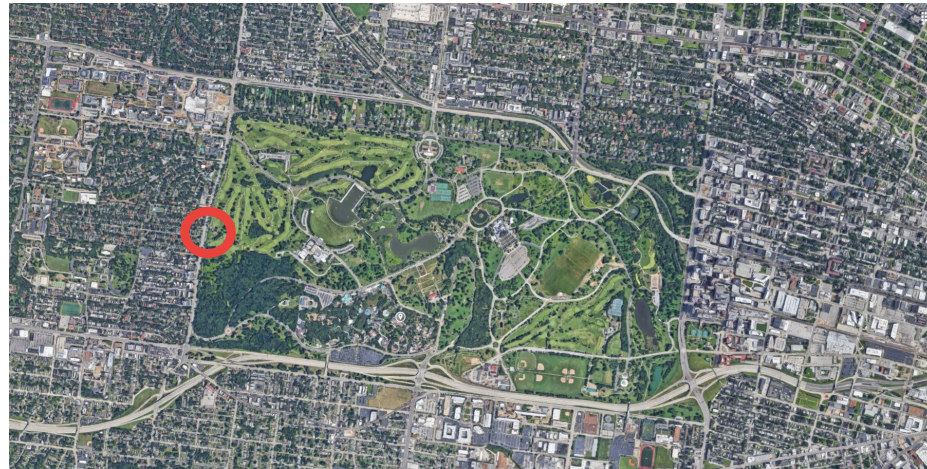
### YEAR PARK ESTABLISHED

The Common was listed in the National Register of Historic Places in 1972 and was included in a National Historic Landmark Historic District in 1987.

## FOREST PARK, ST. LOUIS



- 1326 acres
- Opened in 1876
- A master plan was created in 1995 which has \$100 Million dedicated through public private partnerships.
- The park contains a zoo, history and art museums, a science center, skating rink, two golf courses, several multi-use sport fields, and many other various recreational attractions and amenities.



View of Forest Park and adjacent communities. (Credit: Google)

### TRANSITIONS

Forest Park has several distinct edges though development in the blocks surrounding the park is dominated mostly by residential use. The entirety of the park's 3-mile-long northern edge is bordered by less than 80 large lot detached houses, many with personal pools and tennis courts, and none taller than two stories. Development immediately north, separated from this row of houses by a parkway and rail line, are several blocks of residential use containing an even mix of detached housing and attached housing, the most-dense housing from in this area is four-story apartment buildings. The park's western edge has a similar make-up of residential uses and includes two universities, a seminary, and a hospital. The park's southern edge is separated from adjacent development by the twelve lanes of the combined US-40 and I-64 highways. The southwestern edges in the area are dominated

by detached low density housing with limited commercial and institutional uses at various intersections. The southeastern half of the park's edge is predominantly commercial and industrial use with pockets of detached and multifamily housing. This edge also includes a St. Louis Community College campus. The eastern edge of Forest Park is the most dense and urbanized edge. This edge contains residential, commercial, office and institutional uses with building heights in excess of 12-stories including several blocks of Barnes Jewish Hospital and the Washington University School of Medicine.

### CONNECTIONS

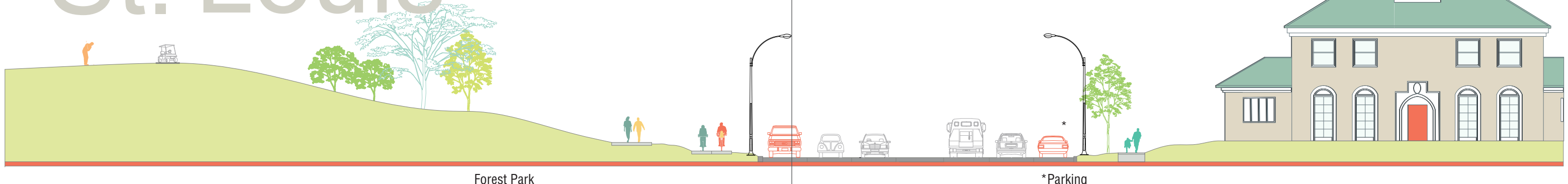
The park is separated from adjacent development on all sides by streets as narrow 4-lane avenues and as wide as 12-lane limited access highways. Pedestrian and bicycle access into the park is limited to key signalized intersections at the perimeter. Vehicle transportation through the park consists of winding multilane streets providing automobile access to the park's many attractions. Bicycle and pedestrian transportation through the park include extensive off-street shared use paths to nearly every corner of the park and limited on-street bicycle lanes.



Images show the multiple barriers to park for surrounding communities and difference in housing density at edge of certain portions of the park.

Credit: Google

# St. Louis



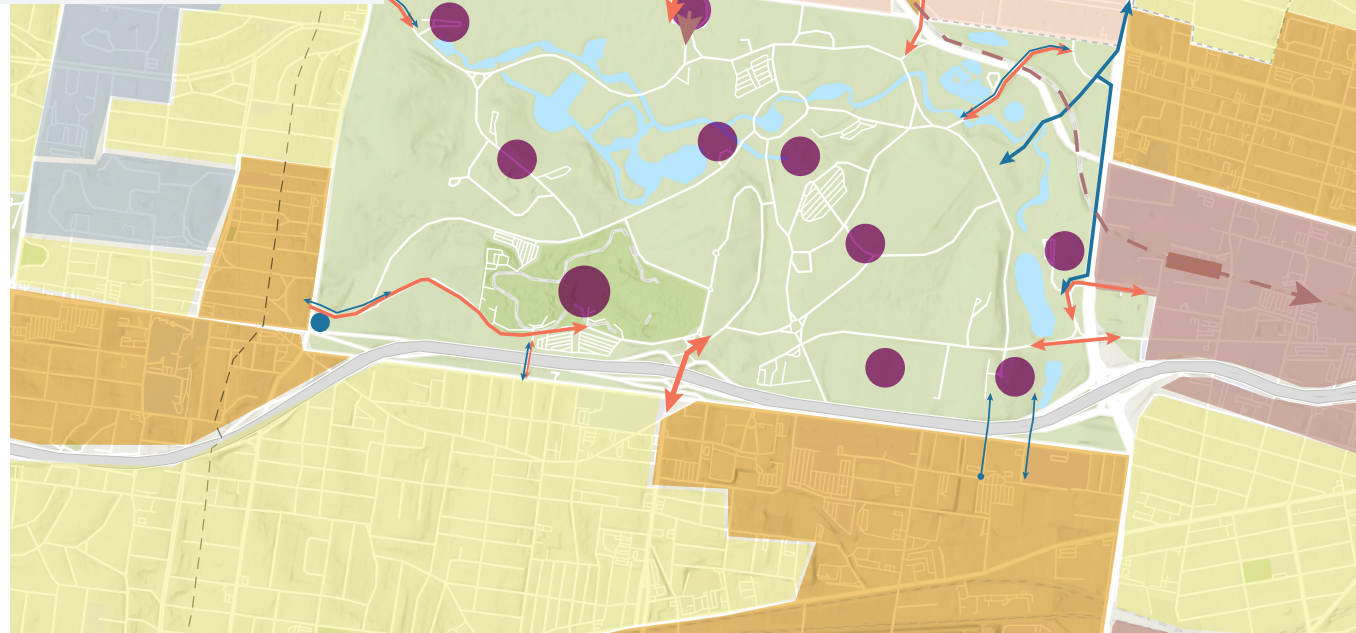
Forest Park

\*Parking

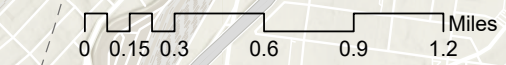
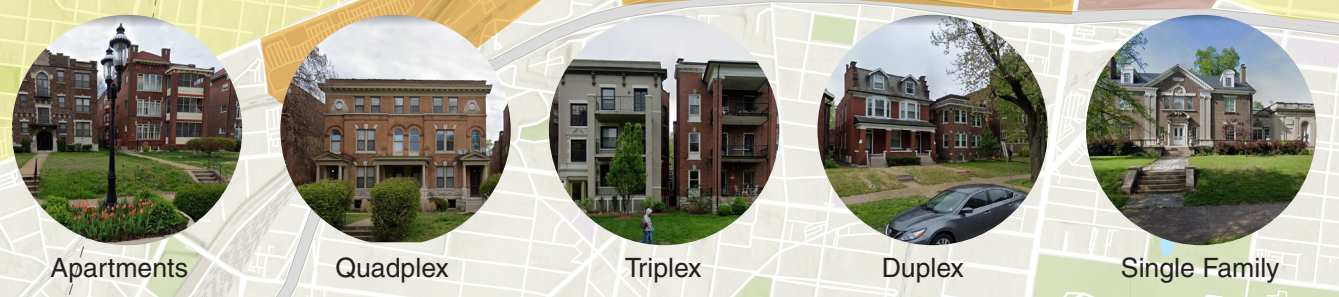
# FOREST PARK, ST. LOUIS

FIGURE: 2D-11

- KEY**
- Single Family Low-Medium Density (up to 3 Stories)
  - Single Family/Multifamily Medium Density (3 Stories)
  - Gated Community
  - Mixed-Use/Multifamily (1- 15 Stories)
  - Industrial/Civic/Commercial (1-20 Stories)
  - Campus (5 Stories)
  - Transit Stations
  - Park Nodes
  - Pedestrian/Bike
  - Car/Bus
  - Rail Routes
  - Car



## DIVERSITY IN LOW TO MEDIUM RISE HOUSING



DRAFT: FEB 2021

DRAFT: FEB 2021

## FOREST PARK AND COMMUNITIES

**1300 ACRES**  
OF HISTORIC PARK

Located in the heart of the city, Forest Park is one of the largest urban parks in the United States. Nearly 500 acres larger than New York City's Central Park, Forest Park also includes over 180 acres of natural reserves.

**12 MILLION**  
VISITORS PER YEAR

Forest Park has a large range of attractions inside the park, including many public and private sites. A zoo, art museum, history museum, botanical garden and planetarium all exist in the park footprint.

**7 MILES**  
OF PARK FRONTAGE

Forest Park has around seven miles of park frontage to the surrounding communities, large sections are lacking pedestrian access. On the north edge of park, gated communities and sunken light rail line provide obstacles for pedestrian access to the more dense residential areas the north. On the east and west edges of park the major pedestrian entries are on the corners and only one additional formal entrance exists. Half of the roads into the park do not include sidewalks, limiting pedestrian access even more. However the park is accommodating to cars and rail services. The park is near two light rail stations and even has a track trolley shuttle that enters the park which connects to the communities to the north.

### SMART GROWTH

Recent planning with two communities around Forest Park has produced updated visions for their future. These plans have produced policies and regulatory tools to address and advance documented community values.

#### Forest Park Southeast

- Public realm improvements: Increase multimodal access and prioritize pedestrian experience
- Access, circulation, and vehicle parking: moving people to and through the area
- Strategic redevelopment: catalyze neighborhood improvements by leveraging private development
- Mapping of Forest Park Southeast Form-Based District overlay zone to facilitate the vision for the area through guiding new construction by use and design standards

#### Skinker Debaliviere Neighborhood

- Integrate mixed-use development
- Preserve housing and redevelop vacant properties
- Maintain and diversify sustainable streetscapes
- Provide housing, transportation, and social programs from seniors and youth
- Improve pedestrian and cyclist safety and comfort
- Transit Oriented Development (TOD) planning
- Mapping of form-based zoning overlay district



*These materials were prepared by Consultant is Rhodeside and Harwell for the City of Raleigh Planning and Development Department.*