

CHARL[👑]TTE
STRATEGIC
MOBILITY PLAN

STATE OF MOBILITY
Charlotte 2020

THE STATE OF MOBILITY REPORT

This “State of Mobility Report” is a foundational assessment of the physical conditions and socio-demographic trends that affect how Charlotte moves, documenting our successes and taking stock of our weaknesses. It is not a full accounting of our infrastructure or all information relevant to Charlotte’s mobility. It is simply intended to set the stage for defining and shaping a new mobility future.

The State of Mobility Report is a snapshot of our current transportation and mobility reality.

DATA SOURCES

This report leverages a variety of data sources that provide unique and foundational data relating to mobility in Charlotte. Those sources that provided a bulk of the data in this report are identified and described below:

Mecklenburg County

Quality of Life (QoL) Explorer

The QoL Explorer is an interactive database of more than 80 variables on social, housing, economic, environmental and safety conditions for 462 neighborhood profile areas (NPAs) that was created in partnership by Mecklenburg County, City, and UNC Charlotte Urban Institute.

US Census American Community Survey (ACS)

The ACS is an ongoing survey by the US Census Bureau that collects detailed population and housing information on a yearly basis down to the block group level.

Zillow Research

Zillow Research, which is independent of Zillow’s business goals, provides housing data, including their proprietary Zillow Home Value Index and Zillow Observed Rent Index, which offer smoothed measures of typical home values and market rate rents from a regional scale down to the neighborhood level.

Vision Zero - High Injury Network

Vision Zero is a comprehensive traffic safety initiative focused on eliminating traffic fatalities and serious injuries. Charlotte’s Vision Zero Action Plan was developed using a collaborative process that convened a Task Force of over 50 members from 25 organizations representing a breadth of safety professions and advocates.

Housing & Transportation

Affordability (HTA) Index

The HTA Index provides data on housing and transportation costs for population and households across the United States at the regional level down to the block group level. Estimated cost burdens are provided based on the average regional household and illustrate how costs vary between and within regions based on locational characteristics.

US Census Longitudinal Employer-Household Dynamics (LEHD) OnTheMap

LEHD OnTheMap is a web-based mapping platform that provides information on employment that is compiled from several sources, including from the Quarterly Census for Employment and Wages, Office of Personnel Management, and Unemployment Insurance Wage Records.

ESRI Business Analyst Online (BAO)

ESRI BAO is a demographic mapping software that combines population, business, lifestyle, spending, and census data with map-based analytics.

Walk Score

Walk Score, owned by Redfin real estate brokerage, provides ratings between 0 and 100 that measure the walkability, bikeability, and public transit access for a specific location using patented methods of analysis. The scores are based on data from Google, Open Street Map, US Census, US Geological Survey (USGS), and others.

Equity Atlas

Developed as part of the Charlotte Future 2040 Comprehensive Plan, the Equity Atlas looks at built aspects of the City of Charlotte through an equity lens to identify what may need to be added and where. Much of the data in the Equity Atlas utilizes the Mecklenburg County Quality of Life Explorer and US Census data.

The State of Mobility Report was prepared by:
The Charlotte Department of Transportation

In association with:
The City of Charlotte’s Office of Sustainability

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Development Department



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SETTING THE STAGE

This section highlights the fundamental and foundational characteristics that influence the Strategic Mobility Plan process and mobility throughout the City of Charlotte.

SHAPING A NEW MOBILITY FUTURE

The Strategic Mobility Plan derives its vision from the ongoing Charlotte Future 2040 Comprehensive Plan work. The plan outlines a vision statement for mobility:

*“Charlotte will provide **safe** and **equitable** mobility options for all travelers regardless of age, income, ability, race, where they live, or how they choose to travel. An integrated system of transit, bikeways, sidewalks, trails, and streets will support a **sustainable, connected, prosperous, and innovative** network that connects all Charlotteans to each other, jobs, housing, amenities, goods, services, and the region.”*

We are at a critical moment in Charlotte’s history, punctuated by challenges and opportunities that have the potential to fundamentally change our mobility future. These include supporting equity, COVID-19, climate change, rapid population growth, emerging technologies, rising housing costs, balancing tradeoffs among different modes of travel, and more.



SAFETY

Too many people die traveling on our streets (74 in 2017). A disproportionate number of those fatalities are pedestrians and bicyclists. We must make our streets safe for everyone, regardless of age and ability, or where, when, and how you travel.



AFFORDABILITY

Over half of our household income is spent on the increasing costs of housing and transportation. Our mobility investments should reduce the cost of transportation and make it possible live and work in Charlotte without having to own a car.



GROWTH

We have outgrown our ability to travel the way we used to, and we cannot build our way out of congestion. Our mobility future rests in moving people (not just cars) and requires us to prioritize and invest in a broader range of mobility choices.



ENVIRONMENT

Transportation accounts for 40% of our greenhouse gas emissions. Our streets impact the tree canopy and the runoff in creeks. We must prioritize investments that expand sustainable mobility options and protect our environment and resources.



PROSPERITY

Our mobility investments can do more to expand prosperity throughout our city. We must identify investments that connect people to jobs, move goods and services, strengthen businesses, and support the needs of daily life.



TRANSFORMATION

The way we travel, like no time before, is in a period of creative disruption and rapid transformation. We must accept, adapt, and anticipate new opportunities, technologies, and challenges.



HEALTH

Our health is tied to the way we move and our ability to access daily needs. We must provide healthier active mobility options and expand access to the needs (food, recreational space, health care, etc.) that shape our health and happiness.



REGIONAL

We are the center of the region. How we invest shapes lives within, and beyond Charlotte's borders. Our mobility and investment strategy must build and strengthen regional partnerships and define shared success.



DEMOGRAPHICS

Charlotte is becoming increasingly older and more diverse, reshaping the very nature of who we are and what we need. We must re-balance our mobility choices to fit the changing needs of our future city.



ALIGNMENT

We are envisioning our future at all levels with transformational plans underway shaping our growth, development, land use, transit, and recreational space. Mobility is a common thread throughout these efforts, and now is the time to align a shared vision.



*Charlotte Future
2040 Comprehensive Plan*



Charlotte UDO Update



*Park & Recreation
2020 Master Plan*



LYNX Silver Line



Bus Priority Study



Envision My Ride



*Connect Beyond Regional
Mobility Initiative*



*Center City
2040 Vision Plan*



Beyond 77 Corridor Study



*Strategic Energy
Action Plan*



EQUITY

We are currently reconciling the negative outcomes of our past decisions. We must further define and prioritize equity in our future decisions so that who you are, where you live, what you look like, and what you make won't limit your mobility.



TRADEOFFS

Our space and resources are limited; accommodating each need equally simply is not possible. We must face the difficult tradeoffs necessary to support under-invested modes of transportation (e.g., walking, biking, transit) to help ensure safe and comfortable transportation choices.

SUPPORTING EQUITY & BALANCING TRADEOFFS



The City is under increasing pressure to make decisions about mobility improvements that require challenging tradeoffs. At the heart of these tradeoff conversations are issues of transportation equity, which can be characterized in two important ways (described below). **Transportation equity means:**

1 SOCIAL/GEOGRAPHIC EQUITY
Where We Invest
 Supporting equity requires focusing limited resources on mobility needs identified by vulnerable communities to ensure that people of all ages, abilities, and backgrounds have access to high-quality, affordable transportation choices and equitable access to opportunity.

2 MODAL EQUITY
How We Travel
 Projects, programs, and policies need to be prioritized that invest in under-invested travel modes (like walking, biking, and transit) to make sure that residents have safe and comfortable transportation choices, no matter how they choose to travel.

Aligning Competing Interests Through Mode Shift:

Successfully balancing tradeoffs to support greater transportation equity will be a defining challenge for the Strategic Mobility Plan. As Charlotte grows, needs increase, and available roadway space becomes more constrained, the tradeoffs necessary to support transportation equity interests are becoming more and more challenging.

A mode shift target provides an appropriate lens to effectively balance tradeoffs between other, sometimes competing, goals.

Other interests like Vision Zero, minimizing traffic congestion, decreasing greenhouse gas emissions, supporting efficient commute times, and managing growth are often in competition, and they require staff and stakeholders to navigate thoughtful tradeoff decisions. One commonality amongst these interests is that they point toward a need for an aggressive and overarching mode shift target to create meaningful change. Mode shift means decreasing the percentage of Charlotteans who drive in cars alone, and increasing the percentage who use other forms of transportation (transit, walking, biking, carpooling, micromobility / shared mobility, and teleworking).

Creating a more sustainable distribution of travel (mode shift) supports transportation equity and affordability. It reduces our reliance on driving, which supports goals around climate, congestion, and growth management. It also creates enhanced travel choices and advances our Vision Zero safety commitment.

Successfully balancing tradeoffs to support greater mobility equity will be a defining challenge for the Strategic Mobility Plan.

EMERGING TRENDS

As technology, initiatives, and motivations change within Charlotte, the nation, and the world, it's critical to understand the forces that most directly affect mobility in our City. These emerging trends present a variety of challenges and opportunities.

SHARED AND MICROMOBILITY

Bike share began in Charlotte with the launch of the Charlotte B-cycle system in 2012. Private dockless bike share companies began operating in Charlotte in 2017 and quickly pivoted to e-scooters. Lime, Bird, and Spin are Charlotte's current e-scooter operators. They are part of an ongoing pilot program which has been continuously evaluated and reformulated with a focus on encouraging responsible rider behavior and closing first/last mile gaps for transit riders. Charlotte has innovated in this field through a unique, data-driven approach to dynamic pricing that supports first/last mile connections and discourages overcrowding in Uptown.

2.2 million
Trips taken on e-scooters
since May 2018

2.3 million
Miles ridden on e-scooter
share since May 2018

150,000+
Trips in June 2019
(Pre-Pandemic)

31,000+
Trips in June 2020
(Post-Pandemic)

CURB-LANE MANAGEMENT

As transportation options and new trends like micromobility and ridesharing continue to increase, competition for curb lanes in employment/activity centers is becoming an ever-present challenge. Public transit, parked cars, bikes, scooters, rideshare services, delivery vehicles, and more all use the curb lane. Charlotte is already taking steps toward creating standards for curb lane management to help ensure the most efficient use of that public space resource during peak times. Curb lane management studies are currently ongoing in Uptown and South End.

As transportation choices, new technology, and trends continue to develop, competition for curb lanes in employment/activity centers will become an ever-present challenge.

RIDESHARE

Ridesharing companies, such as Uber and Lyft, have grown rapidly since launching in the early 21st century. While providing primarily vehicular transportation, rideshare companies provide an alternative to driving personal vehicles, taking transit, riding a bicycle, or walking to and from destinations. Companies like Uber have drastically changed the landscape for how we think and plan for the growing transportation network. Top rideshare destinations in Charlotte include Charlotte Douglas Airport; music/entertainment venues, restaurants/bars/breweries; sports stadiums; Uptown hotels; and light rail stops.

Top rideshare destinations include CLT airport; music/entertainment venues, restaurants/bars/breweries; sports stadiums; Uptown hotels; and light rail stops.

THE DELIVERY ECONOMY

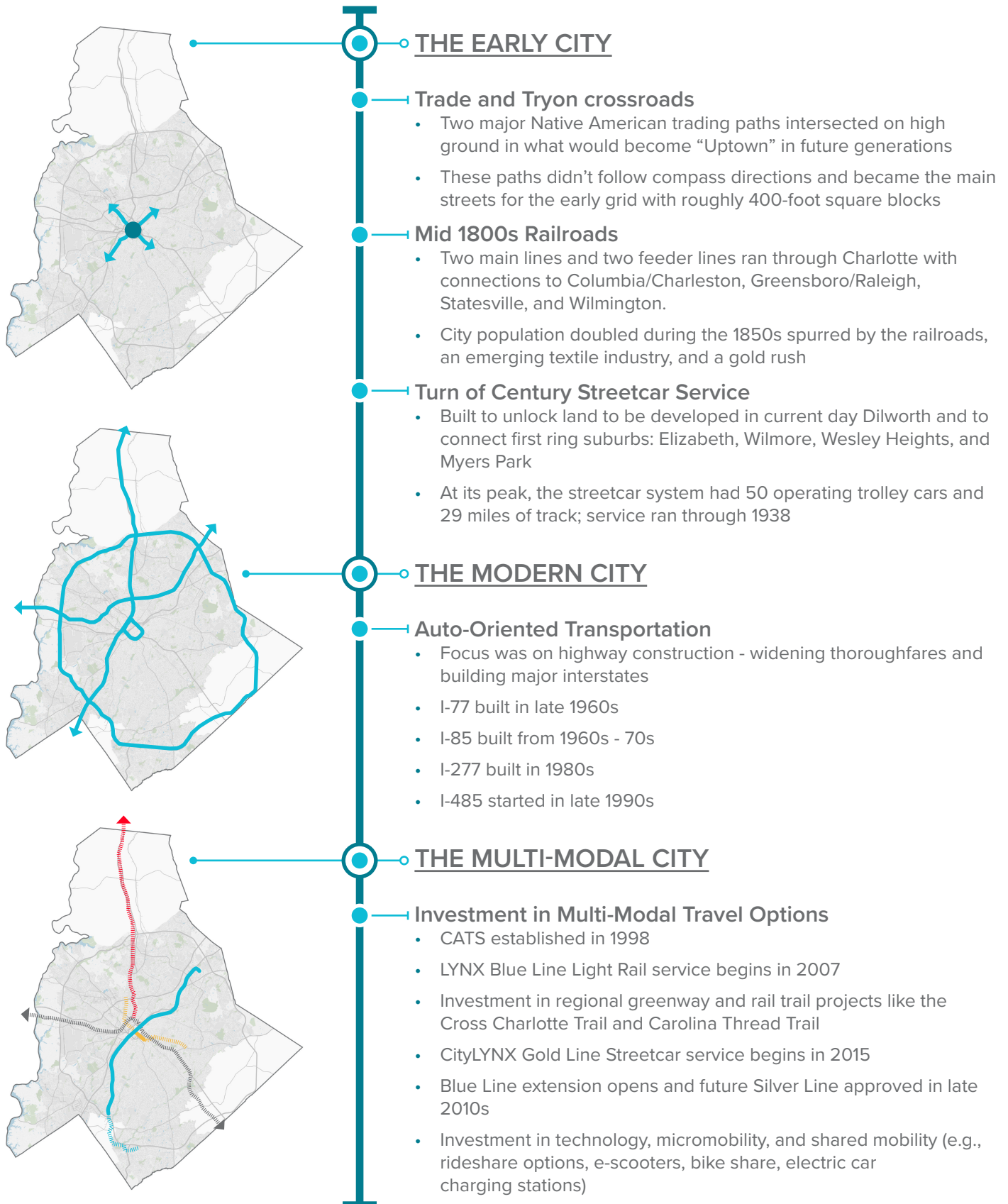
Consumers have been increasingly expanding online ordering and delivery—many for the first time due to COVID-19 (e.g., groceries, pharmacies, etc.). According to *Forbes*, while traditional retail sales have declined, e-commerce grew 129% in US and Canadian orders between April 2019 and April 2020. In 2020, e-commerce sales are projected to reach \$710 billion, or 14.5% of all US retail sales (up from ~\$601 billion in 2019; 11% of all sales).

NEW TECHNOLOGIES

Shared lanes for mass transit and autonomous vehicles (AVs) and dedicated areas for AV drop-offs have been piloted in some US cities. These systems will utilize artificial intelligence to adapt to human behaviors. To ensure safety it will be necessary for governments and private companies to coordinate on mapping efforts and the development of AV communication sensors.

HISTORY AND DEVELOPMENT

Charlotte's Mobility Evolution



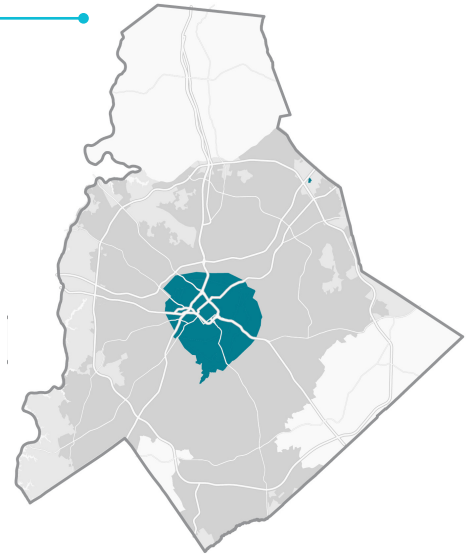
Charlotte's Expansion and Annexation

1950

Emerging from World War II, private automobile ownership became the norm for Charlotte households that could afford a car. Growth exploded beyond Uptown, ushering in a period of dramatic suburban growth and expansion. Local and national policies supported the increased suburban growth. They also supported increased racial segregation through redlining and urban renewal.

134,042
Population

30
Square Miles
(5% of County)

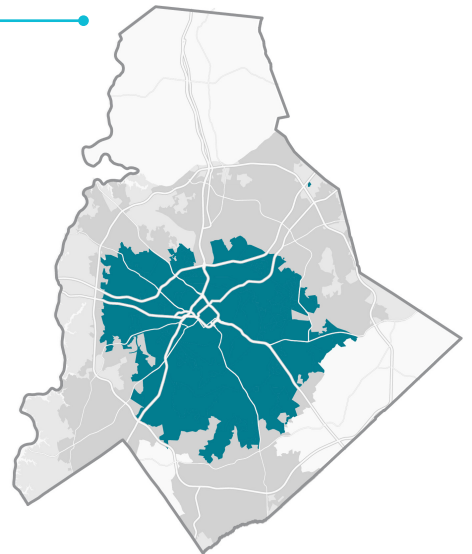


1980

In the late 20th century, Charlotte emerged as a nationally-significant economic center with strength in the banking/financial services, energy, and logistics/freight industries. Rapid growth continued, characterized by the development of multiple employment/activity centers with sprawling suburban neighborhoods and corridors in between.

395,719
Population

140
Square Miles
(25% of County)

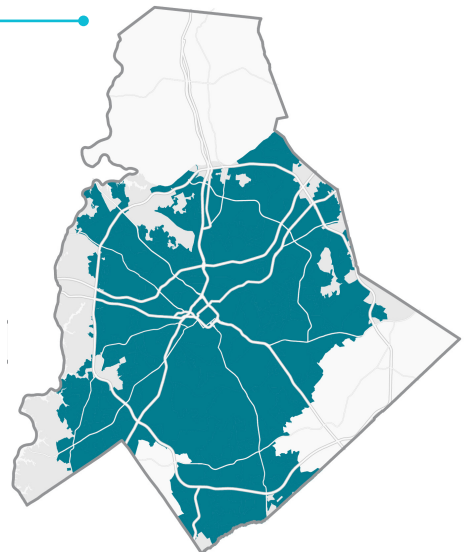


2020

The early 21st century saw growth and development guided by major transportation investments like the LYNX Blue Line light rail, Little Sugar Creek Greenway, and I-485. Uptown and areas along the light rail, like South End and NoDa, were transformed by large, mixed-use, multifamily developments. Other centers, such as University City, South Park, Plaza Midwood, Midtown, and Ballantyne, also saw rapid growth and densification through large commercial and multifamily projects. The completion of the I-485 loop has begun to attract significant growth and development in the Prosperity Village area. In between emerging/growing centers, infill development is changing the land use characteristics and transportation demands on major corridors in the City.

877,279
Population

309
Square Miles
(57% of County)



RACIAL AND ECONOMIC PATTERNS

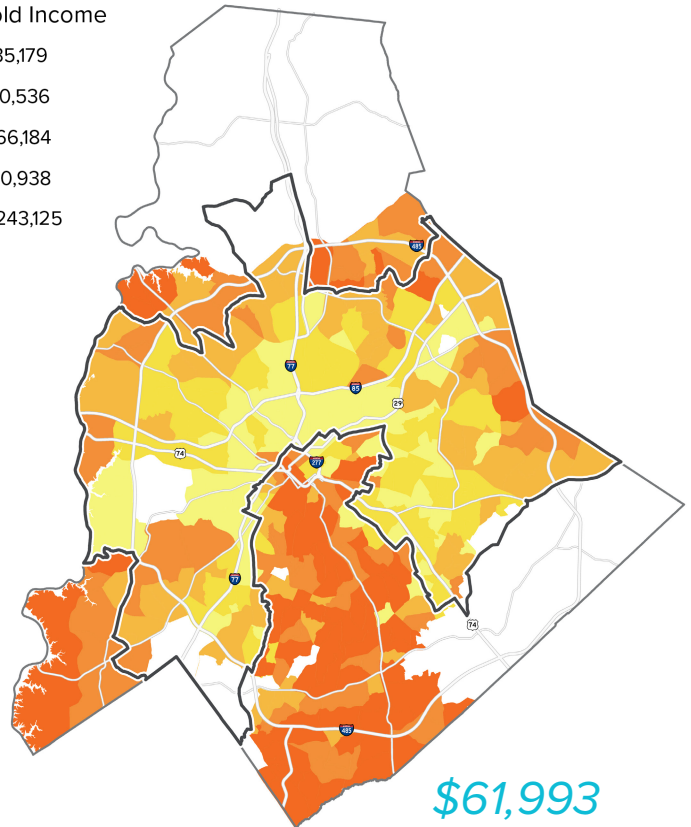
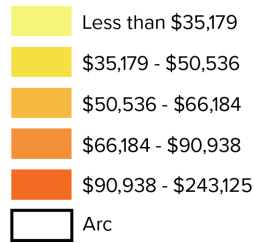
Income

The median household income for the City is around \$61,000. Average household incomes in Uptown and SouthPark are around \$100,000. The average income within the Arc (introduced on the adjacent page) is approximately \$49,705.

Considering the median household income is crucial to understand the associated transportation and opportunity burdens a community--or subset of a community--faces. Access to transportation is one of the highest indicators of job accessibility and economic mobility. A component of the Arc map, income clearly follows the spatial boundary of economic segregation in Charlotte.

Charlotte's highest income areas are heavily concentrated in a wedge of neighborhoods south of Uptown.

Median Household Income



\$61,993

Median Household Income
(US Median: \$61,937)

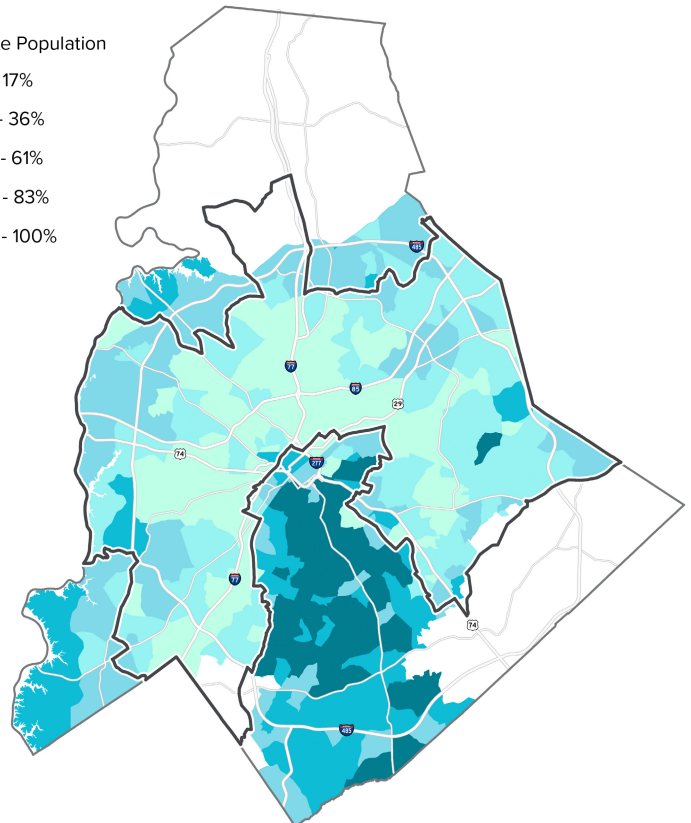
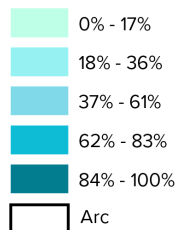
Race

Racial distribution is largely consistent with median household income data. The map to the right shows the percentage of the White population distributed throughout neighborhoods in Charlotte. In 2017, a concentration of White population spanned from south of Uptown to the South Carolina border. A component of the Arc map, race clearly follows a spatial boundary of segregation in Charlotte.

Minority neighborhoods are heavily concentrated within the Arc.

Race

Percent White Population

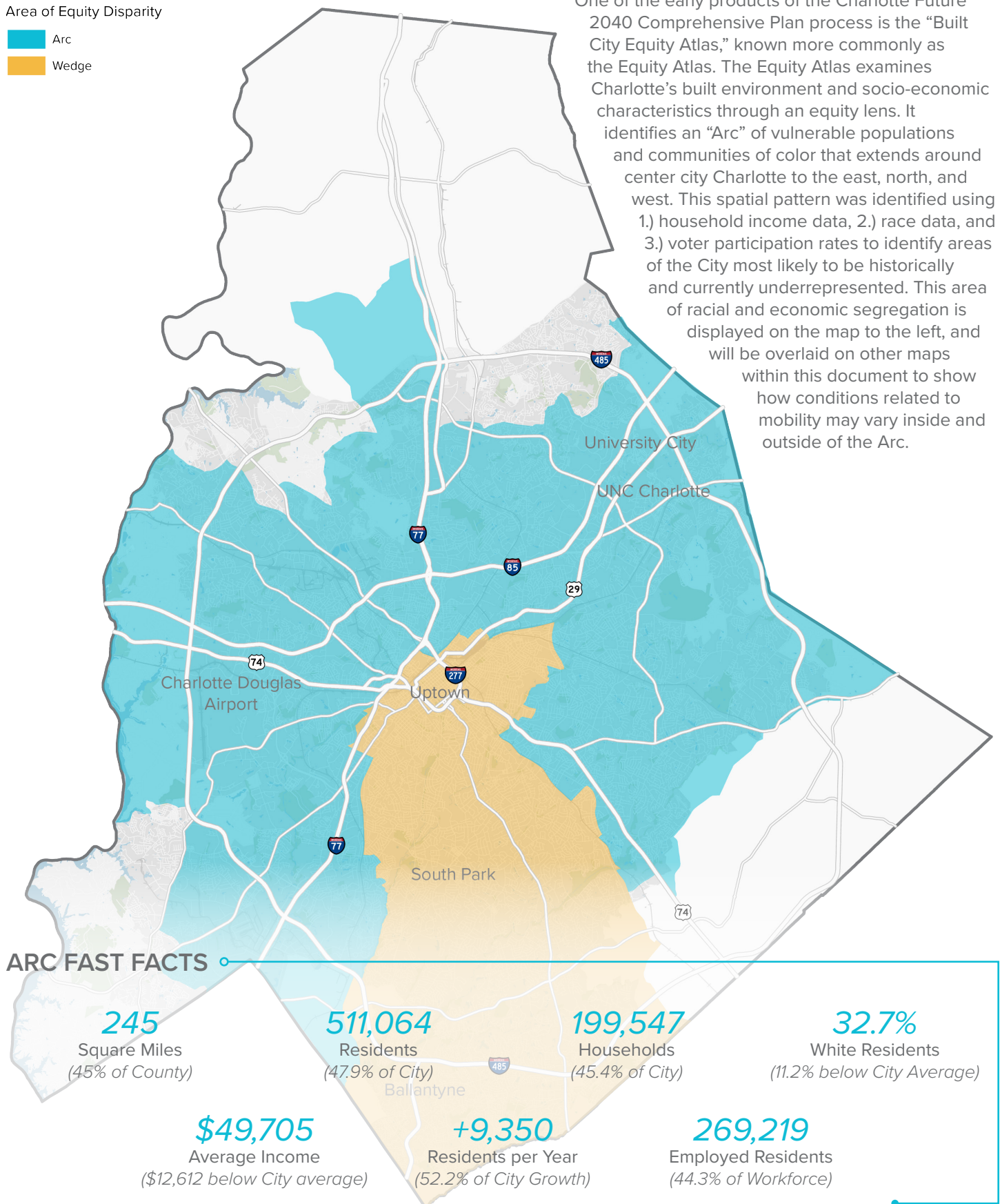


The Arc

Area of Equity Disparity



One of the early products of the Charlotte Future 2040 Comprehensive Plan process is the “Built City Equity Atlas,” known more commonly as the Equity Atlas. The Equity Atlas examines Charlotte’s built environment and socio-economic characteristics through an equity lens. It identifies an “Arc” of vulnerable populations and communities of color that extends around center city Charlotte to the east, north, and west. This spatial pattern was identified using 1.) household income data, 2.) race data, and 3.) voter participation rates to identify areas of the City most likely to be historically and currently underrepresented. This area of racial and economic segregation is displayed on the map to the left, and will be overlaid on other maps within this document to show how conditions related to mobility may vary inside and outside of the Arc.



Source: Equity Atlas

GROWTH AND DIVERSITY

DEMOGRAPHIC FAST FACTS

877,279

Population Total
(2020)

52.5%

Increase in Population
(Since 2000)

34.8

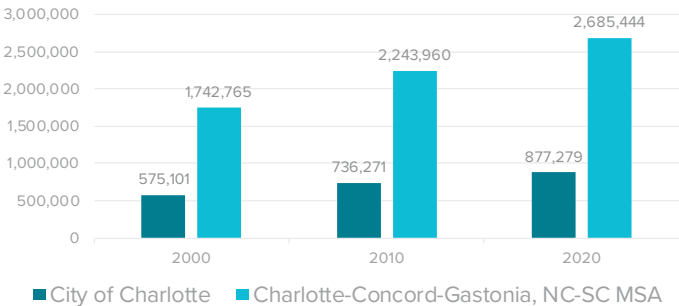
Median Age

60+

People Per Day
(Meck. County Growth Rate)

Population Growth

Charlotte has seen significant population increase since 2000 (302,178 people, or 52.5%). The increase was most dramatic between 2000 and 2010, which saw a 28% increase as opposed to a 19.2% increase between 2010 and 2020. Charlotte's population accounts for roughly 1/3 of the larger Charlotte-Concord-Gastonia Metropolitan Statistical Area (MSA), which has a population over 2.6 million.



Age

As seen on the table to the right, Millennials (roughly approximated by people 25-44) make up the largest share of the population among all generations at 31.4%. However, Baby Boomers (roughly approximated by people 55-74) make up the fastest growing cohort by far. This could be indicative, in part, of national trends that show Baby Boomers and empty-nesters moving back into urban areas from suburban neighborhoods. Given Charlotte's diversity in age and growth in older populations, it will be necessary for all travel modes, especially biking, walking, and transit, to support people of all ages and abilities.

Cohort	2010	2020	% Change
0 - 14	477,963	526,347	10.1%
15 - 24	291,715	335,681	15.1%
25 - 34	309,666	375,962	21.4%
35 - 44	345,570	365,220	5.7%
45 - 54	325,374	367,906	13.1%
55 - 64	246,836	332,995	34.9%
65 - 74	141,369	233,634	65.3%
75 - 84	74,051	107,418	45.1%
85+	29,171	40,282	38.1%

Diversity

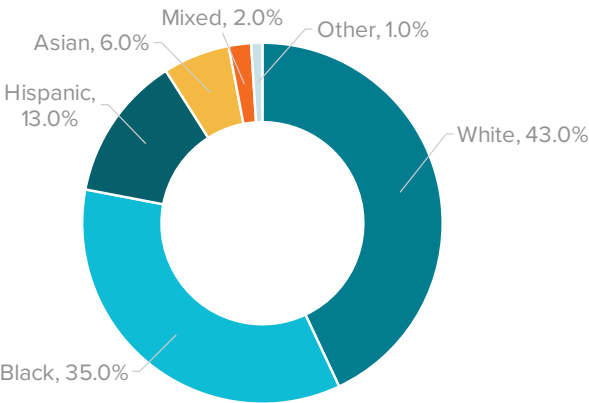
In Charlotte (seen on the graph to the right), 43% of residents identify as White; 35% identify as Black; and 13% identify as Hispanic. This means that the majority of Charlotte residents are from a minority racial or ethnic group. This breakdown is more diverse than the larger Charlotte-Concord-Gastonia MSA, which is 23% Black and 11% Hispanic.

43%

White

57%

Minority



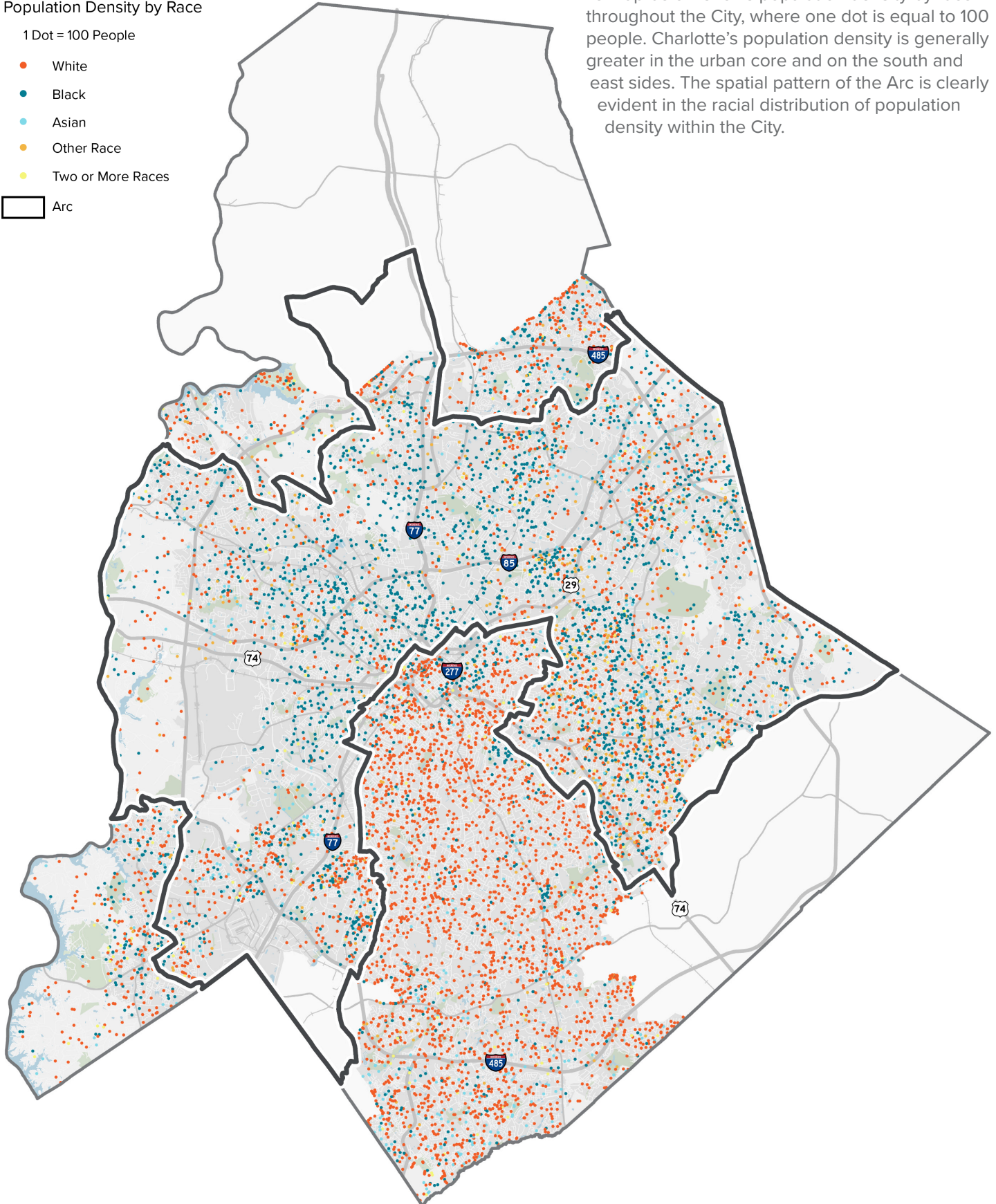
Population Density by Race

Population Density by Race

1 Dot = 100 People

- White
- Black
- Asian
- Other Race
- Two or More Races
- Arc

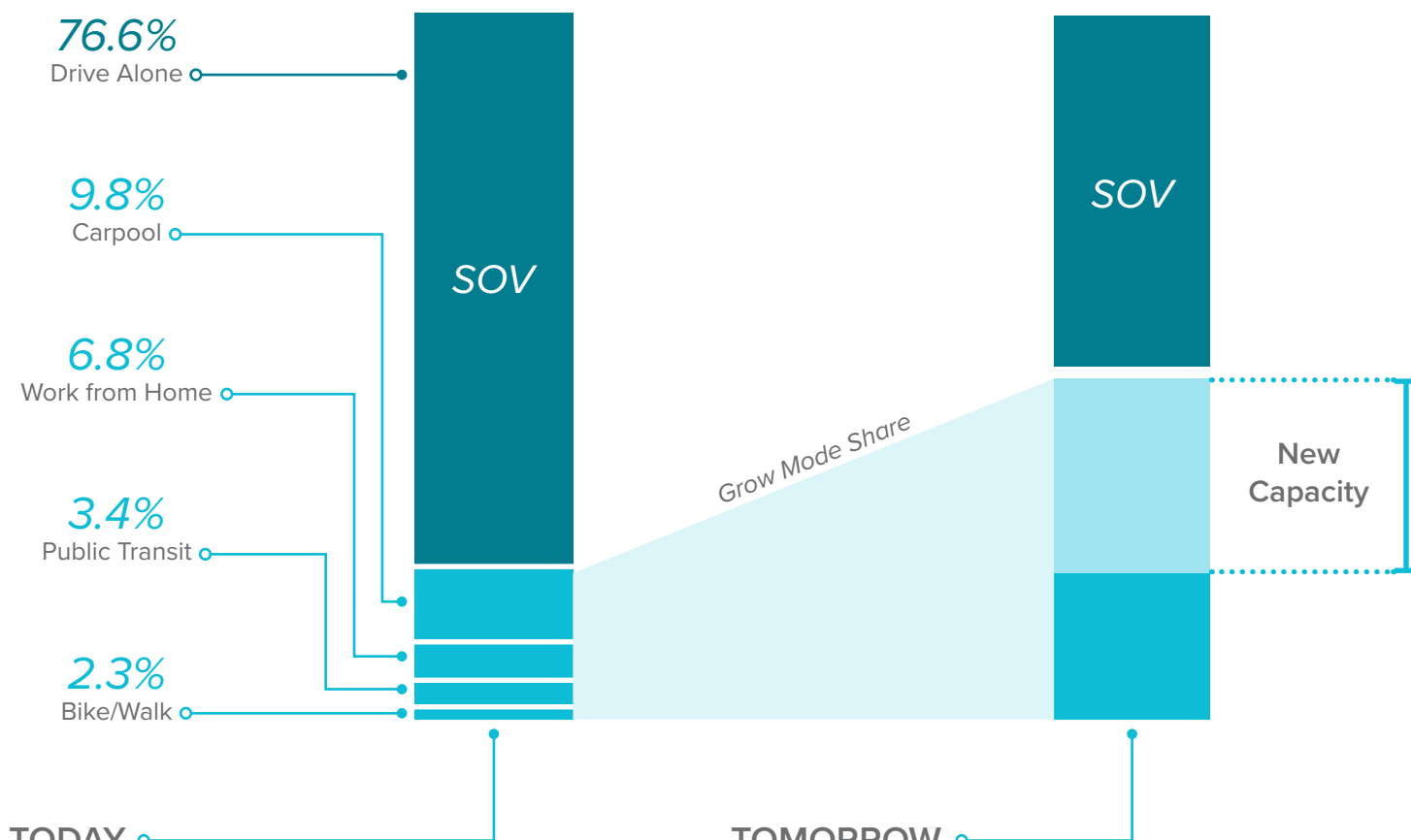
The map below shows population density by race throughout the City, where one dot is equal to 100 people. Charlotte's population density is generally greater in the urban core and on the south and east sides. The spatial pattern of the Arc is clearly evident in the racial distribution of population density within the City.



HOW CHARLOTTE MOVES

This section assesses the critical elements of the transportation system and community that most affect mobility in Charlotte. This assessment includes analysis of important demographic characteristics and each travel mode.

TRAVEL PATTERNS AND MODE



TODAY

Charlotte is a car-dependent city. 76.6% of Charlotte workers drive alone to work. 23.4% travel by some other mode (e.g., walk, bike, transit, carpool, or telework). That imbalance is a direct result of 1.) Charlotte's sprawling pattern of growth and development after World War II, and 2.) Charlotte's historic underinvestment in infrastructure for walking, biking, and riding transit. Charlotte's car dependence also reflects other challenging issues, like the lack of a connected multimodal network, our transportation sector accounting for almost 40% of greenhouse gas emissions (Strategic Energy Action Plan. 2015.), or the fact that the average household in Charlotte spends nearly a quarter of their income on transportation (HTA Index).

TOMORROW

Achieving a more balanced mode split is critical to achieving complicated—and sometimes competing—mobility goals, such as:

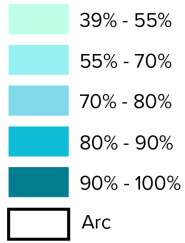
- Managing rapid growth,
- Improving multimodal accessibility and safety,
- Supporting equity, affordability, and health,
- Responding to climate change,
- Alleviating congestion.

Setting an aspirational mode balance target to guide future transportation investment and policies should be considered to achieve citywide mobility goals.

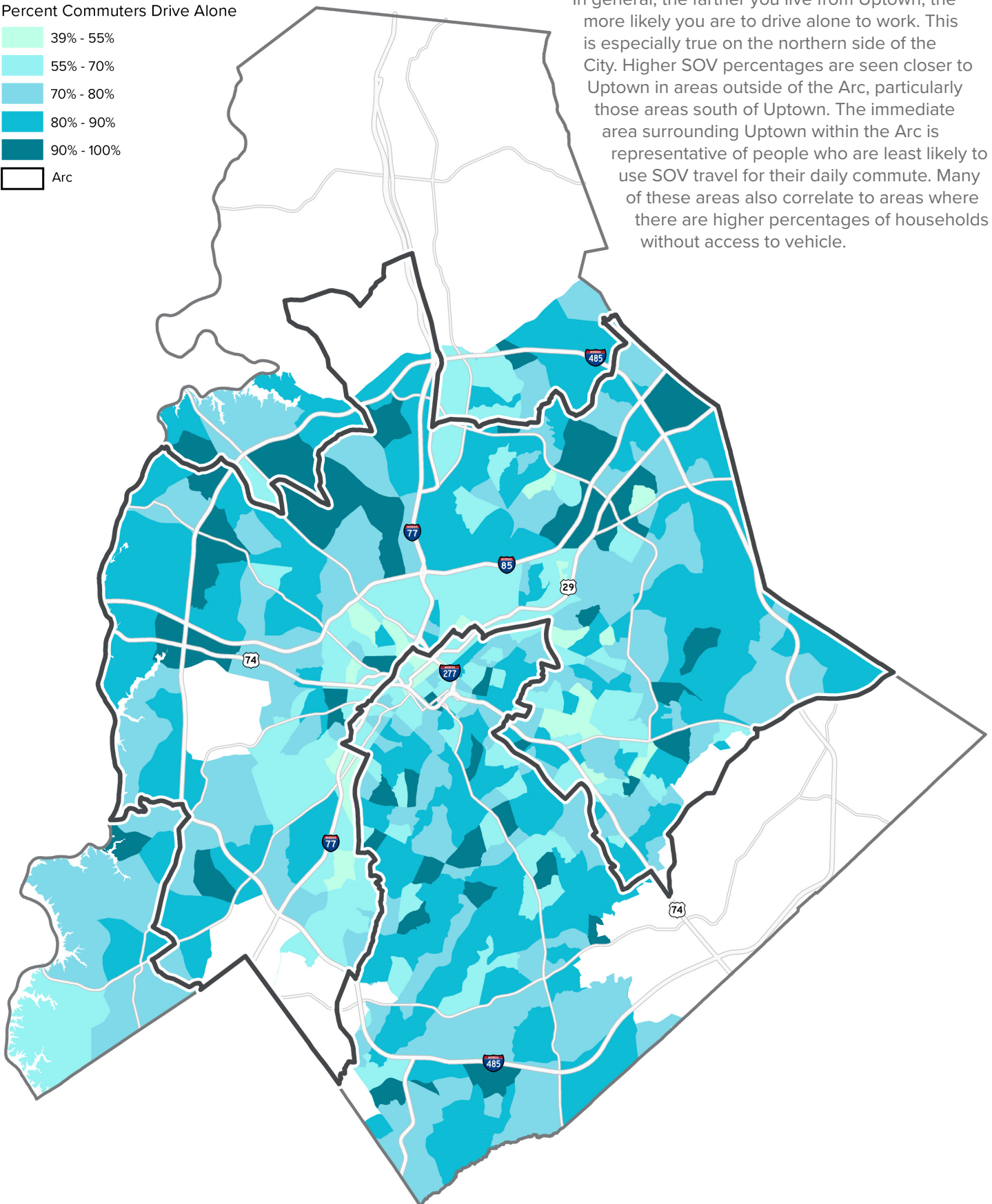
Modal imbalance is a direct result of Charlotte's sprawling pattern of growth and development.

Single Occupancy Vehicle (SOV) Distribution

Percent Commuters Drive Alone



In general, the farther you live from Uptown, the more likely you are to drive alone to work. This is especially true on the northern side of the City. Higher SOV percentages are seen closer to Uptown in areas outside of the Arc, particularly those areas south of Uptown. The immediate area surrounding Uptown within the Arc is representative of people who are least likely to use SOV travel for their daily commute. Many of these areas also correlate to areas where there are higher percentages of households without access to vehicle.



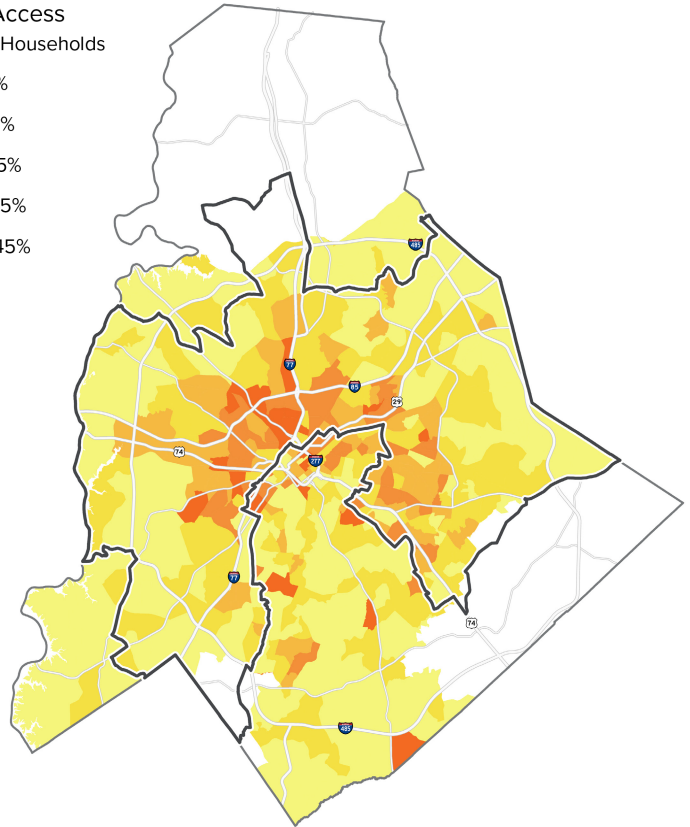
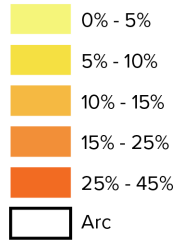
AFFORDABLE TRAVEL

Vehicle Access

Roughly 13,000 Charlotte households do not have access to a car. In a City like Charlotte, which has been designed and developed for vehicular travel, it is very difficult to move through the City without one. This is especially true for those within vulnerable communities who are less likely to be able to afford a vehicle.

Almost 13,000 households in Charlotte don't have access to a vehicle, and the vast majority of these households are within the Arc.

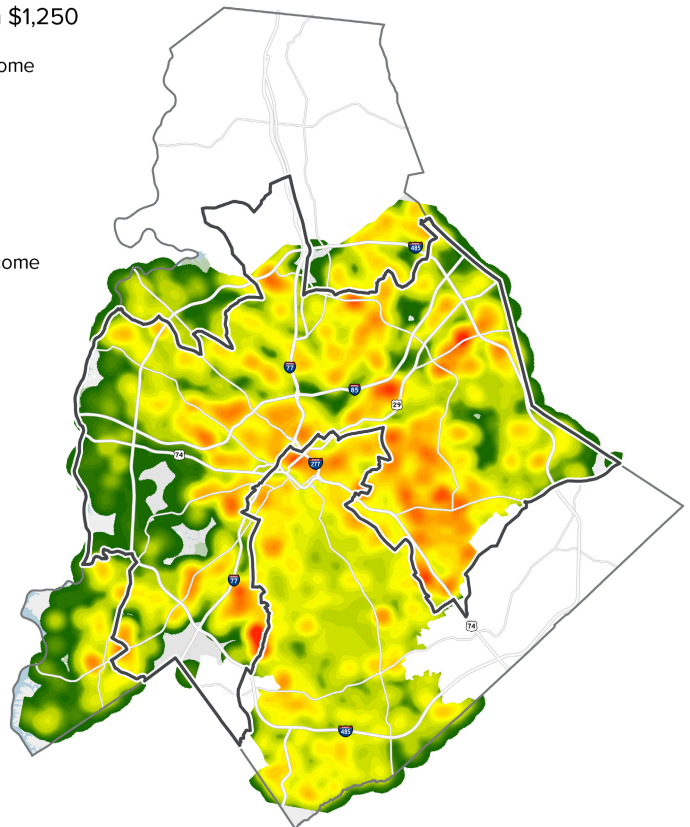
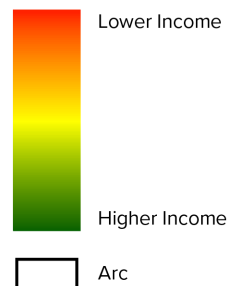
No Vehicle Access
Percentage by Households



Low-Wage Living

The map to the right shows the areas where workers making \$1,250 or less per month live. The figure shows that the concentration of those households with lower incomes are generally within the Arc—to the west, north, and east. These households are less likely to be able to afford a motor vehicle, which highlights the need to improve access to various transportation choices for these residents and workers.

Income less than \$1,250



The highest concentrations of low-wage households are primarily within the Arc.

Cost-Burdened Households

This map displays housing cost burden by block group in Charlotte. The United States Department of Housing and Urban Development defines cost-burdened families as those who spend 30% or more of their median income on housing expenses. Areas with the highest housing cost burden include areas inside the Arc close to Uptown (particularly to the north and west) and the University of North Carolina at Charlotte (UNC Charlotte).

44.9%

Increase in Charlotte
Home Value
(Since 2010)

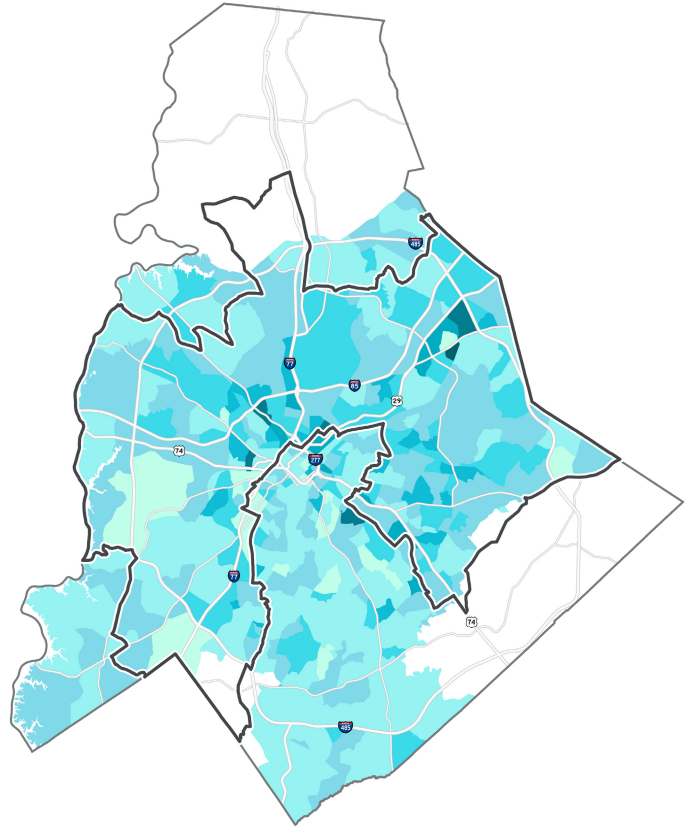
13.4%

Increase in Avg. Charlotte
Rent Prices
(Since 2016)

Households that spend 25% or more of their income on housing:

Within Arc: 48%

Outside Arc: 16%



NOT COST-BURDENED

Less than 25% of income spent on housing

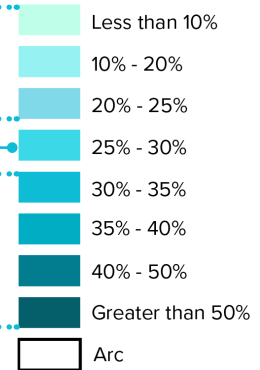
APPROACHING COST-BURDEN

25%-30% of income spent on housing

COST-BURDENED

More than 30% of income spent on housing

Housing Cost Burden
Percent of Median Household Income



# of Households in Cost-Burdened Block Groups	Approaching Cost-Burdened	Cost-Burdened
<i>Arc Households</i>	50,956	49,215
<i>Non-Arc Households</i>	19,252	7,660

% of Households in Cost-Burdened Block Groups	Approaching Cost-Burdened	Cost-Burdened
<i>Arc Households</i>	24.4%	23.6%
<i>Non-Arc Households</i>	11.5%	4.6%

ACCESS TO CRITICAL NEEDS

Critical Needs Index

A successful mobility system should connect the community to those destinations and needs most critical for livability. The map on the adjacent page showcases an index of accessibility to public transportation, grocery stores, public outdoor recreation, and low-cost health care—all basic needs. The Critical Needs Index map shows an aggregate score of the percentage of households within a half mile of each of those 4 categories.

A successful mobility system should connect the community to those destinations and needs most critical for livability.

Park Access

The Trust for Public Land (TPL) publishes an annual “ParkScore” ranking for the 100 largest cities in the United States. Currently, Charlotte/Mecklenburg County ranks 95th out of 100. The score takes into account several critical characteristics (acreage, investment, amenities, and access) and scores each characteristic out of 100. As it relates to mobility, Charlotte/Mecklenburg County scored 3 out of 100 on parks access, which takes into account the percentage of population living within 10 minutes of a public park, physical barriers to access, walkability, bikability, safety and more. Improving access to parks through mobility investment is imperative to improving public health and equity within the City.

Improving access to parks through mobility investment is imperative to improving public health and equity within the City.

37%

Residents Within 10-minute
Walk from Park
(National Average: 55%)

6%

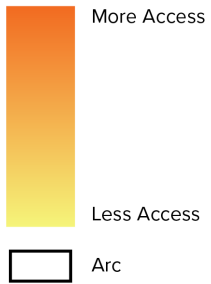
City Land Used for Parks
and Recreation
(National Average: 15%)



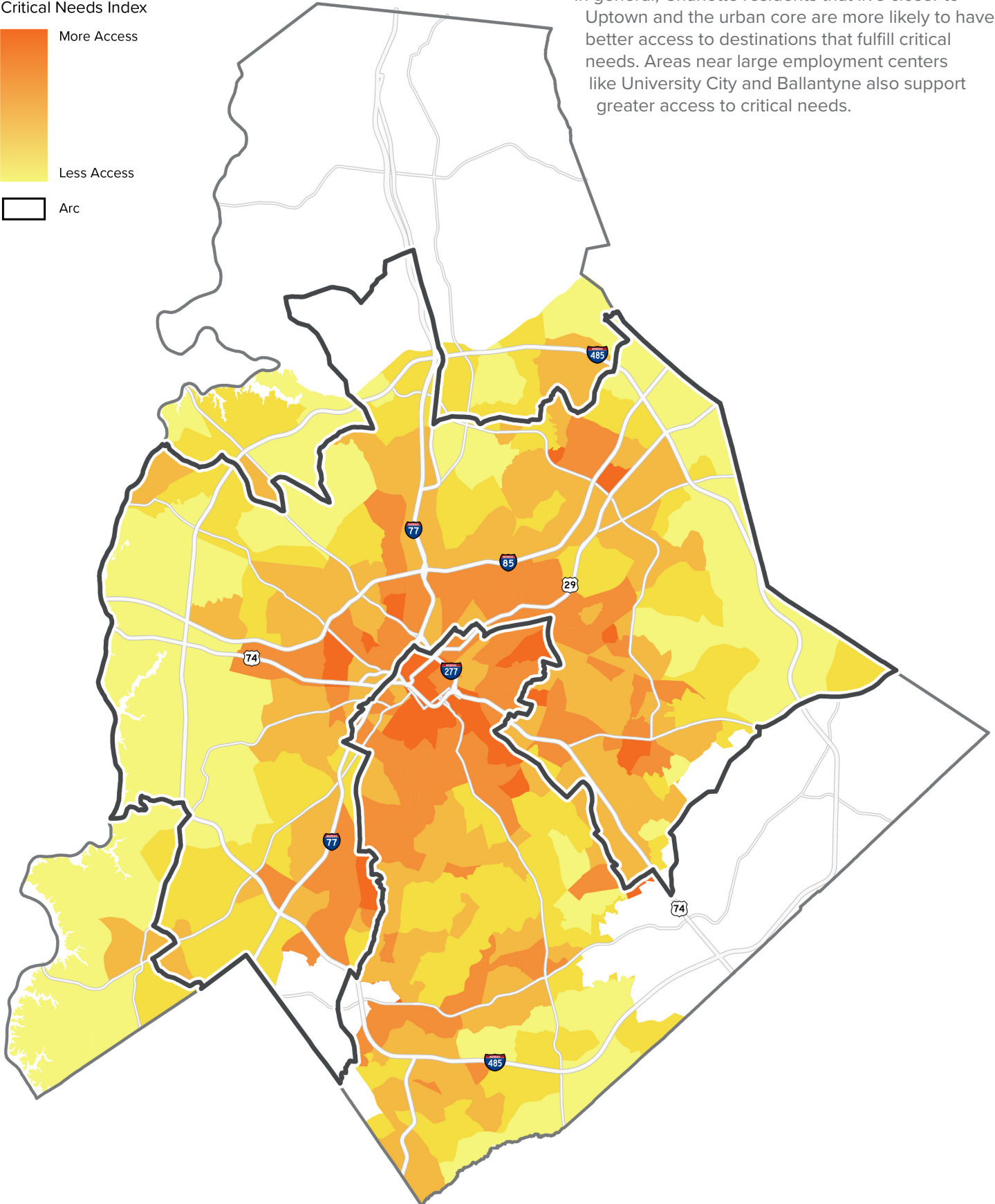
Little Sugar Creek Greenway | Kimley-Horn

Critical Needs Index Map

Critical Needs Index



In general, Charlotte residents that live closer to Uptown and the urban core are more likely to have better access to destinations that fulfill critical needs. Areas near large employment centers like University City and Ballantyne also support greater access to critical needs.



ACCESS TO JOBS

One of the most common daily trips for most Charlotteans is between two places - their home and their place of employment. The identification of important employment characteristics is critical to understanding the needs of Charlotte workers and improving economic vibrancy.

EMPLOYMENT FAST FACTS

64,828

Employees in Healthcare

62,740

Employees in Finance and Insurance

33.6%

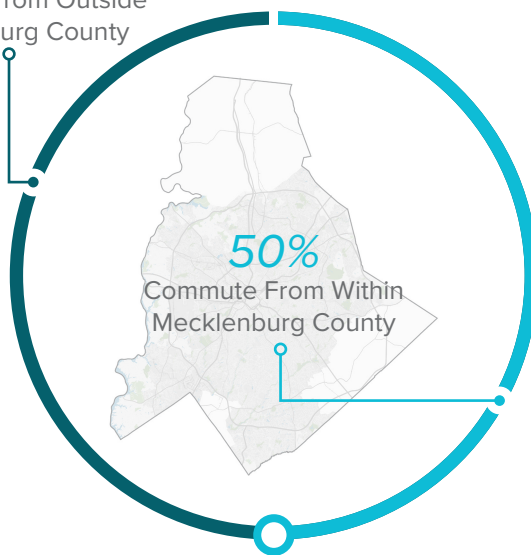
Growth in Transportation and Warehousing Since 2012

18,744

Avg. Annual Net New Jobs (2012–2017)

50%

Commute From Outside Mecklenburg County

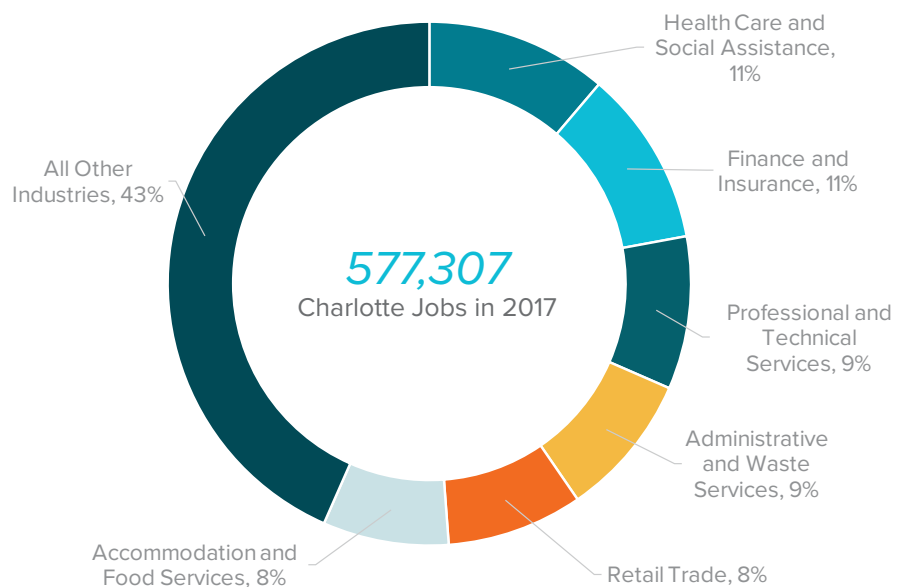


Economic Engine

Charlotte is the economic engine of a region of over 2.6M people (U.S. Census. Charlotte-Concord-Gastonia MSA. 2019 est.). As the center of the region, how the City invests in its mobility network has significant effects beyond Charlotte's borders. Roughly half of Charlotte's employment base commutes from homes outside of Mecklenburg County. Union County (6.4%), Cabarrus County (5.8%), Gaston County (5.4%), and York County, SC (5.4%) are the top origin points for Charlotte workers who commute from outside the County.

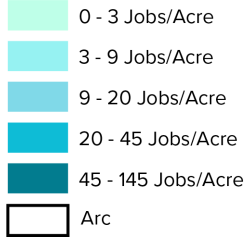
Top Industries

HealthCare and Social Assistance, and Finance and Insurance are the two largest industries in Charlotte, with more than 64,000 and 62,000 employees in 2017, respectively. However, Finance and Insurance has seen rapid growth since 2012, with a 33.2% change; whereas HealthCare and Social Assistance increased at less than half that rate over the same time span. Both industries have a strong presence in Uptown, Midtown, University City, and Ballantyne. HealthCare and Social Assistance, Finance and Insurance, Administration and Support, and Waste Management and Remediation account for 30% of Charlotte's workforce. As these and other office-based industries (like professional and technical services) continue to grow, focus will need to be placed on efficiently moving commuters in and out of employment clusters.

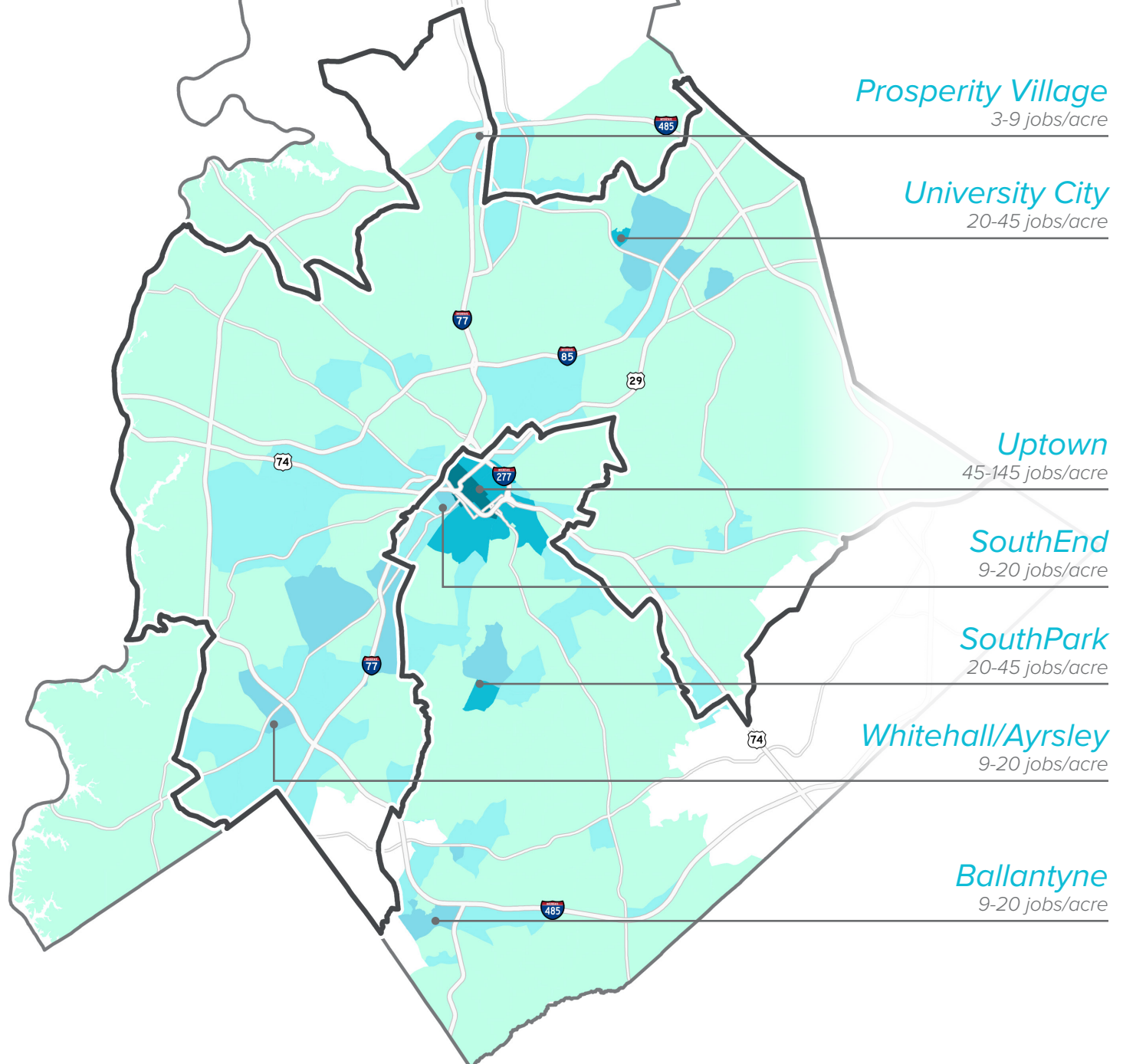


Job Density

Job Density
Jobs per Acre



The data from the Quality of Life Explorer (QoL) shown on the map below was used to evaluate the areas within Charlotte that have the highest number of jobs. The map shows clusters of high employment areas in and around Uptown Charlotte, University City, SouthPark, Ballantyne, and the airport. Employment centers with the highest density of jobs per acre are located outside the Arc.



ACCESS TO TRANSIT

CATS Service and the 2030 Plan

In November 2006, the Metropolitan Transit Commission (MTC) adopted the 2030 Transit Corridor System Plan (shown at right). Updated in 2019, this long-range plan consists of multiple rapid transit improvements in five corridors, a series of Center City improvements, and bus service and facility improvements throughout the region.

BUS SERVICE

The Charlotte Area Transit System (CATS) operates more than 70 routes that transport over 25 million passengers annually.

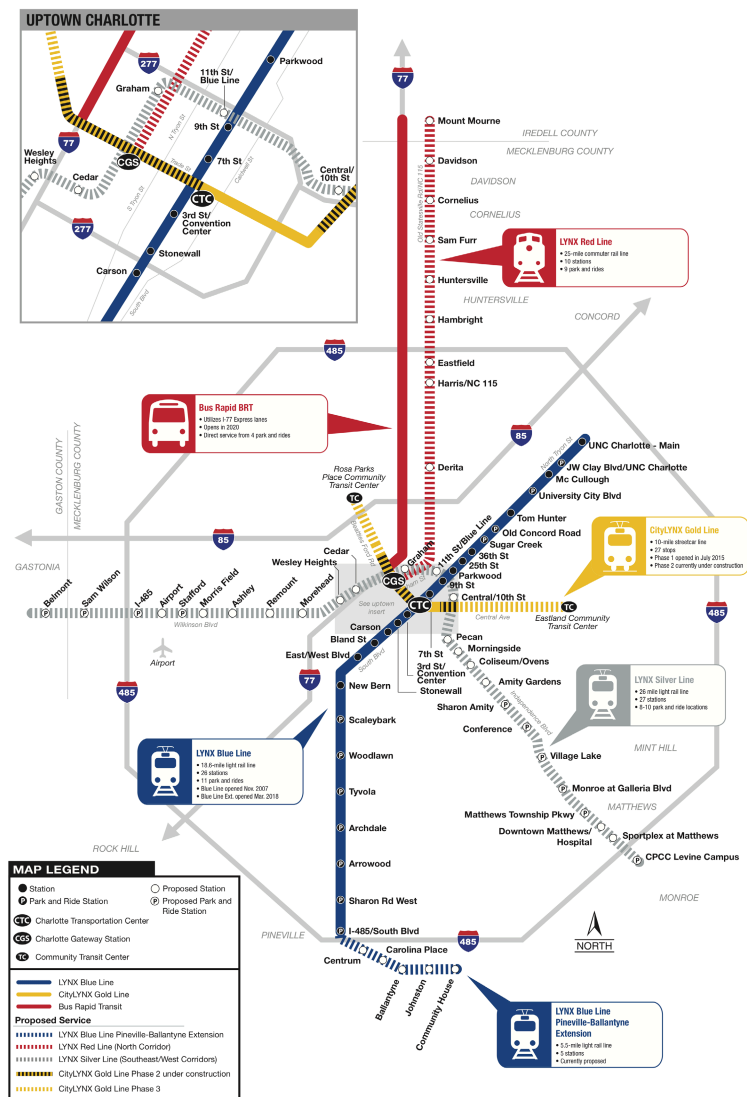
RAIL AND STREETCAR

The LYNX Blue Line is about 20 miles long with 26 stations, and operates from I-485 at South Boulevard to UNC Charlotte's main campus in University City. The rail carried 28,000 riders a day in 2019. The CityLYNX Gold Line is about 1.5 miles long and runs from Uptown to Novant Hospital with six stops.

The LYNX Blue Line carried 28,000 riders a day in 2019.

COVID-19 AND TRANSIT RIDERSHIP

While long term COVID-19 impact on travel behavior has yet to come into focus, regional polling indicates a return to transit in a post-pandemic reality.



Once completed, the 2030 System Plan will encompass 25 miles of commuter rail, 45 miles of light rail, 10 miles of streetcar, and an expanded network of buses and other transit services.

ONGOING EFFORTS

Current efforts to expand public transportation has CATS focused on several primary initiatives that include expansion and improvement of the current bus system and service frequency through Bus Priority Corridors and the Envision My Ride process. Additionally, investment and ongoing efforts related to premium rail transit options include:

LYNX Blue Line Extension (to Ballantyne)

5.5 miles | 5 stations

CityLYNX Gold Line Phases 2 & 3 (East to West Ctl.)

10 miles | 37 stops

LYNX Red Line (North Meck. County and Mooresville)

I-77 BRT (Long-Term: Commuter Rail | 25 miles | 10 stations)

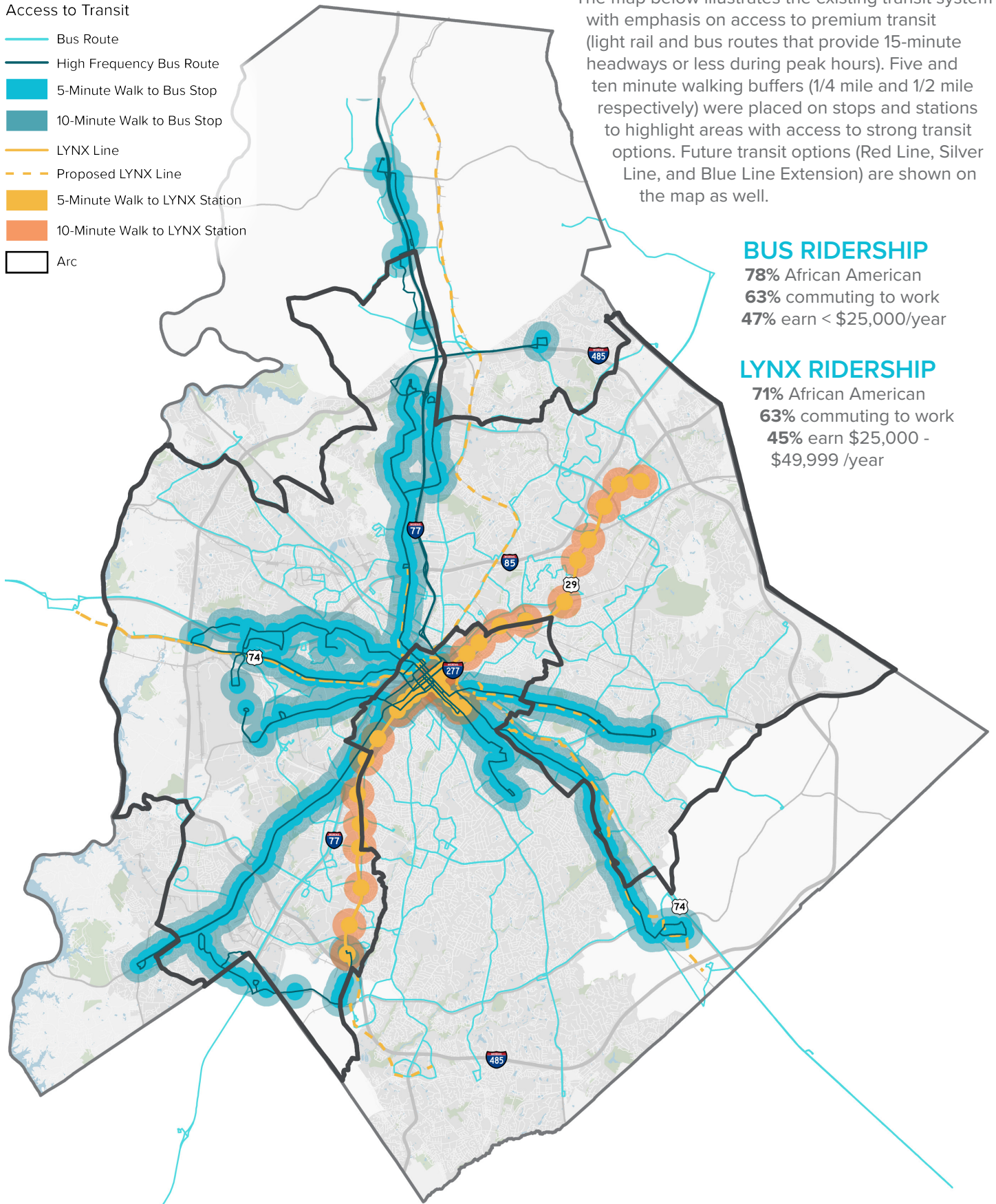
LYNX Silver Line (Matthews to Belmont)

26 miles | 27 stations

Transit Facilities and Access

Access to Transit

- Bus Route
- High Frequency Bus Route
- 5-Minute Walk to Bus Stop
- 10-Minute Walk to Bus Stop
- LYNX Line
- - - Proposed LYNX Line
- 5-Minute Walk to LYNX Station
- 10-Minute Walk to LYNX Station
- Arc



BUS RIDERSHIP

78% African American
63% commuting to work
47% earn < \$25,000/year

LYNX RIDERSHIP

71% African American
63% commuting to work
45% earn \$25,000 - \$49,999 /year

CAR TRAVEL

Commute Times

The map to the right shows the percentage of commuters who live within Charlotte and travel 20 minutes or more to work. In 2018, the mean travel time to work was about 25 minutes for Charlotte residents.

76.6% of Charlotteans drive alone on their daily commute.

24.6

Average Daily Commute Time
(Minutes)

36.8%

Commute More than
30 Minutes Daily

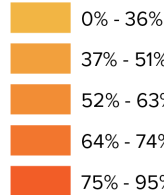
22%

Average Household Income
Spent on Transportation
(HTA Index)

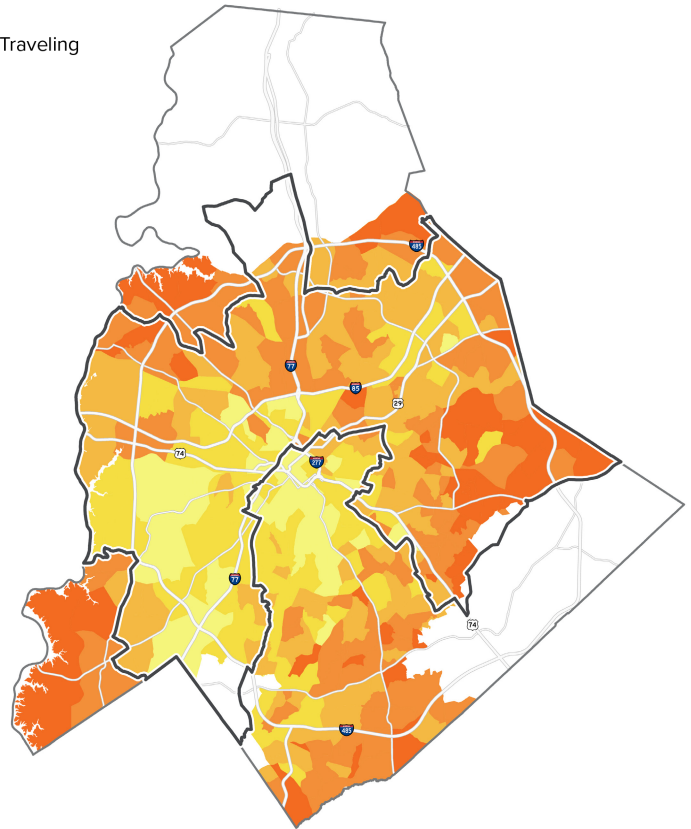
\$15,719

Average Annual Household
Cost of Driving in Charlotte
(City of Charlotte)

Long Commute
Percent of Commuters Traveling
20 Minutes or More



Arc

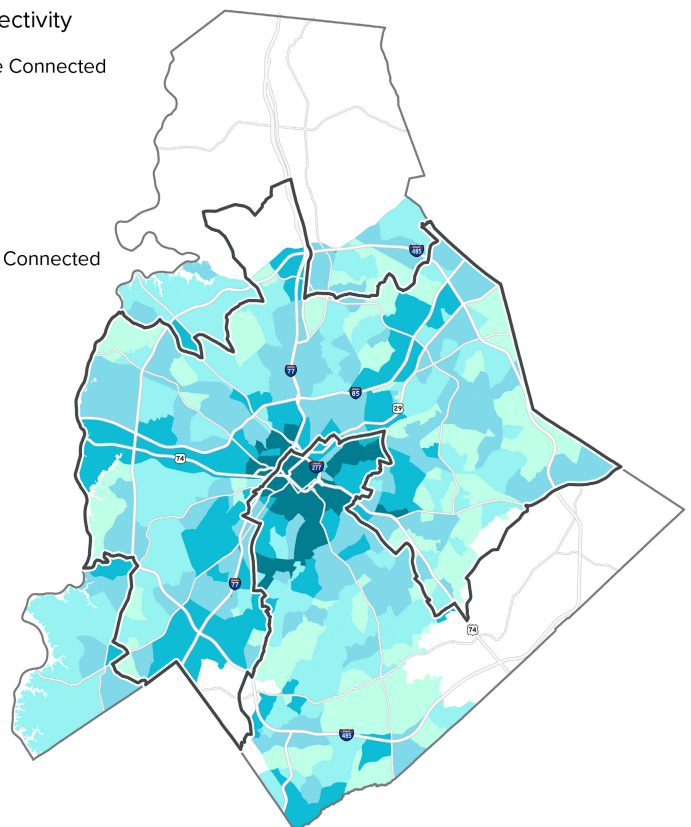
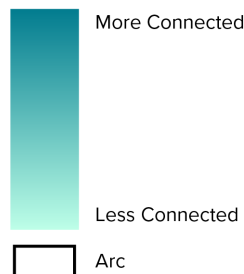


Street Connectivity

The map to the right uses data from the Mecklenburg County Quality of Life (QoL) Explorer tool to display the connectivity of the street network by an index number from 1 to 3 for each NPA. The index is calculated by dividing the total number of street links by the number of nodes, which include intersections and end points. A score of one indicates less connectivity and a score of three is indicative of a more connected street system. The City has a goal of having an average street connectivity index of 1.4. In 2018, the mean index value for NPAs across Charlotte was 1.16.

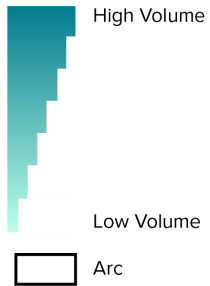
Higher street connectivity provides greater route choice and facilitates efficient multimodal travel.

Street Connectivity

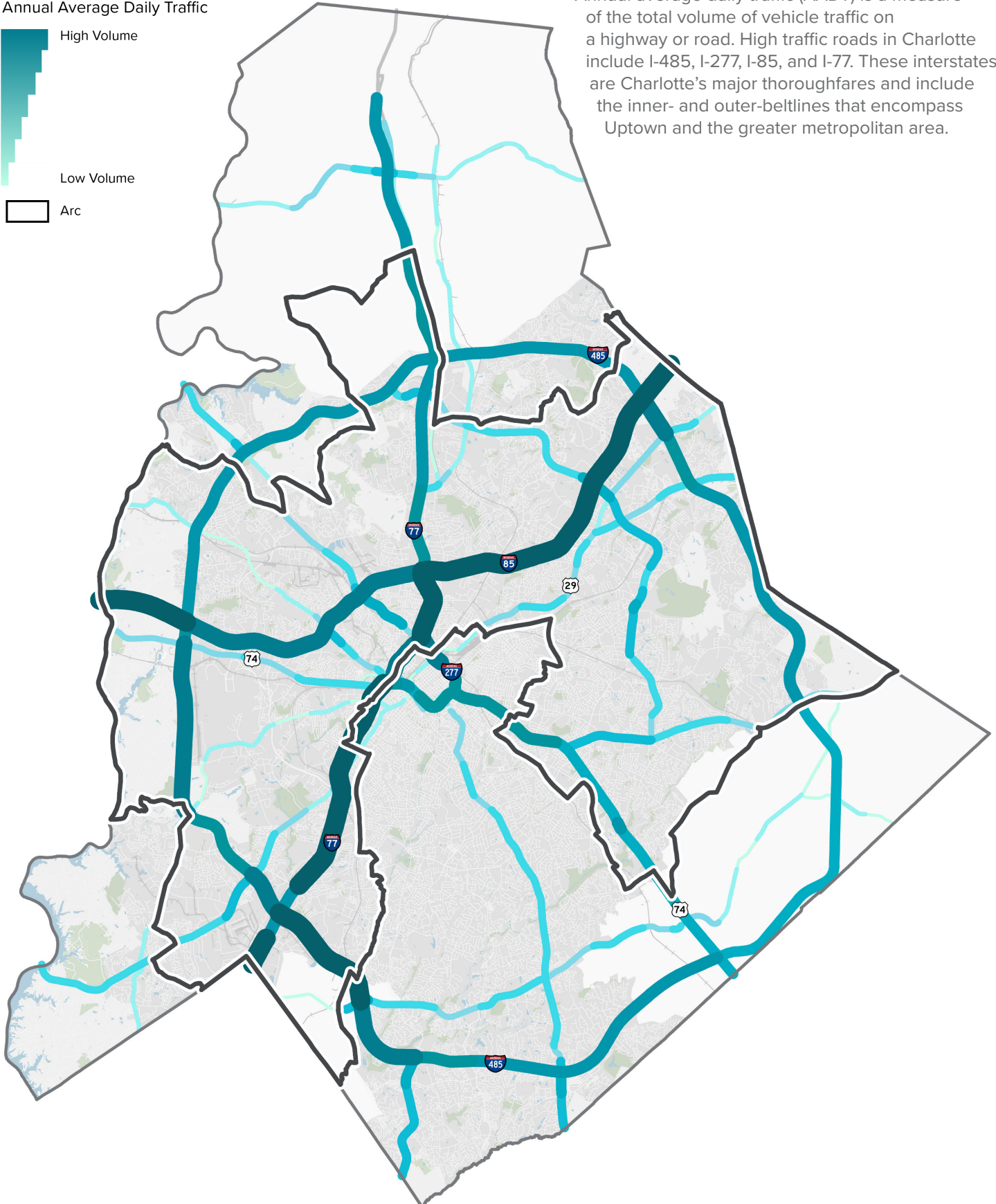


Roadway Traffic Volumes

Annual Average Daily Traffic



Annual average daily traffic (AADT) is a measure of the total volume of vehicle traffic on a highway or road. High traffic roads in Charlotte include I-485, I-277, I-85, and I-77. These interstates are Charlotte's major thoroughfares and include the inner- and outer-beltlines that encompass Uptown and the greater metropolitan area.



WALKABILITY

Sidewalks

According to a recent CDOT study, there are 2,546 miles of sidewalk in Charlotte. Many gaps in the sidewalk network remain. For example, the Charlotte WALKS Pedestrian Plan identified 1,890 miles of missing sidewalks (2015 data). Not surprisingly, research indicates that streets without sidewalks are more likely to have pedestrian crashes. Encouraging walking promotes health and economic benefits.

The biggest determinant of sidewalk availability is the time when the street was originally built. Charlotte's land development regulations did not require sidewalks on both sides of all new streets until 1998. Areas with more recent investment and development tend to have more sidewalks than older streets.

2,546

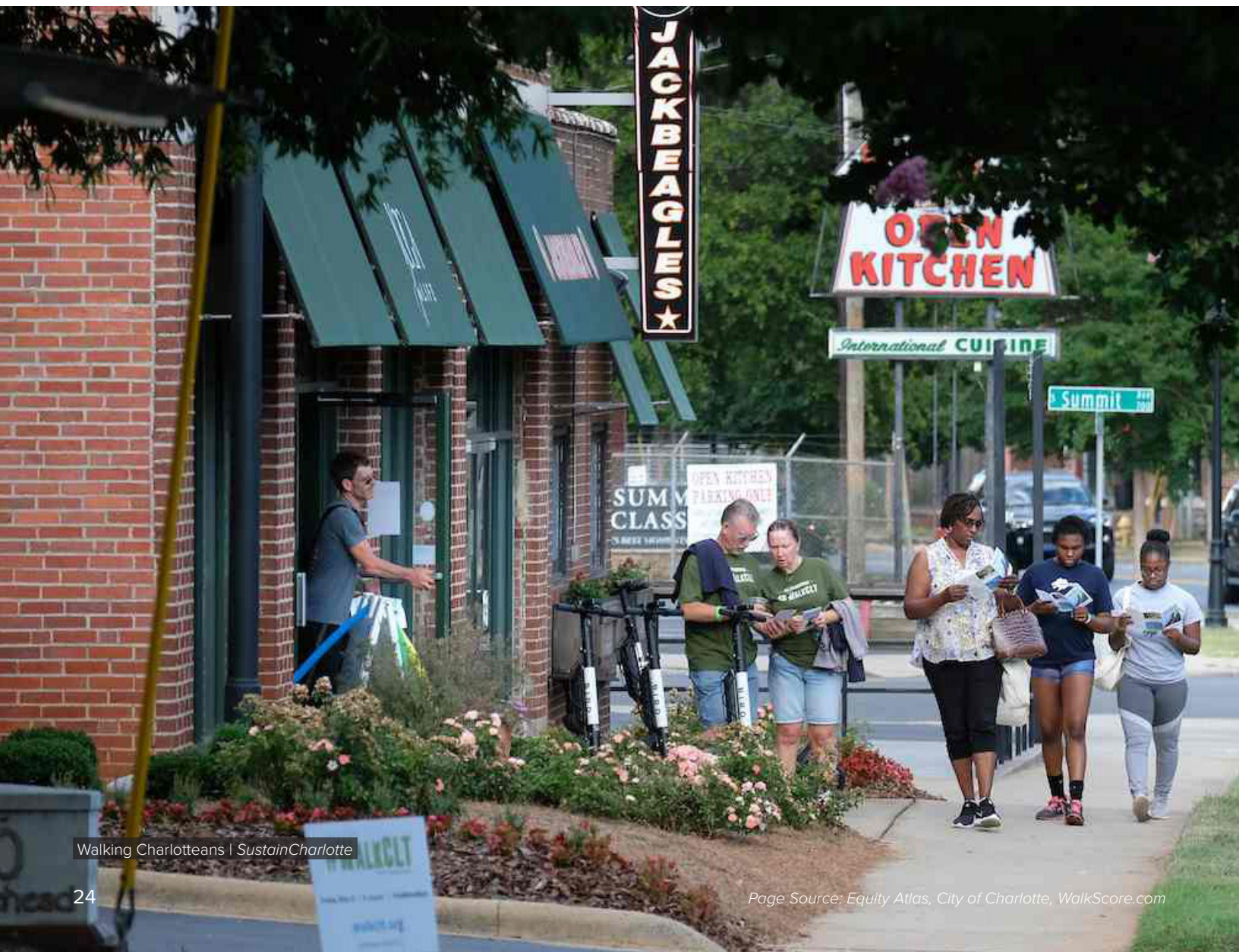
Miles of Sidewalk in Charlotte

1,890

Miles of Sidewalk Gaps
Identified in Pedestrian Plan
(2015)

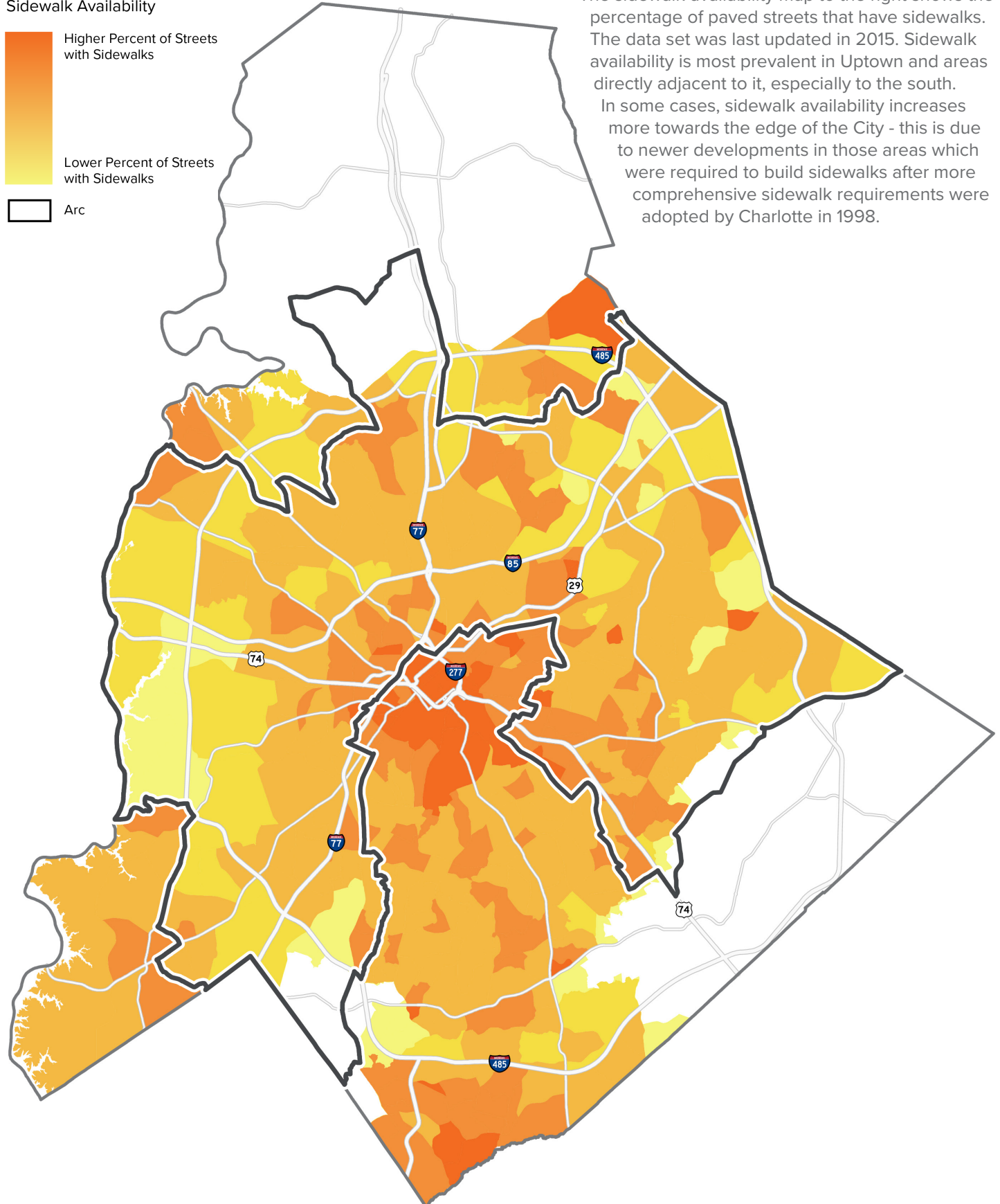
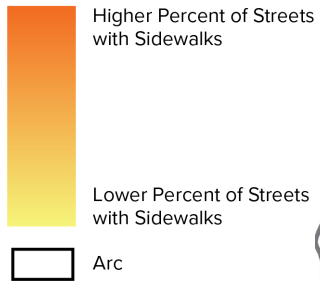
41%

Households in Arc with
Access to Sidewalks



Sidewalk Availability

Sidewalk Availability



The sidewalk availability map to the right shows the percentage of paved streets that have sidewalks. The data set was last updated in 2015. Sidewalk availability is most prevalent in Uptown and areas directly adjacent to it, especially to the south.

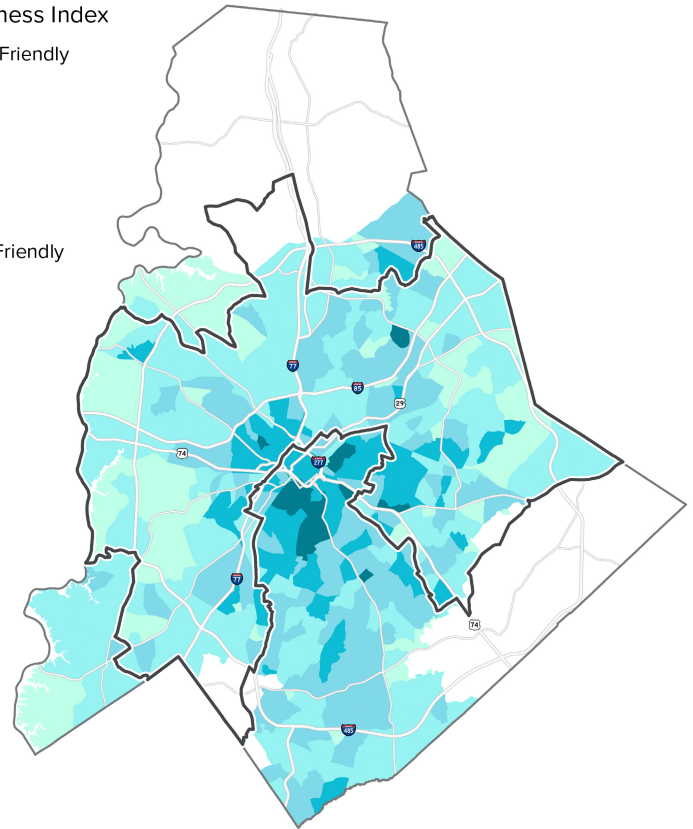
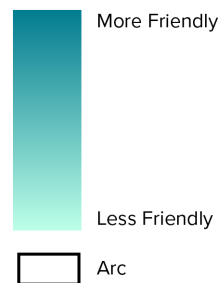
In some cases, sidewalk availability increases more towards the edge of the City - this is due to newer developments in those areas which were required to build sidewalks after more comprehensive sidewalk requirements were adopted by Charlotte in 1998.

BICYCLING

Bicycle Friendliness

The map to the right displays the bicycle friendliness score by assigning NPAs an index number from 1 to 3. The index is calculated by assessing the street speeds, the bicycle lane miles, and the greenway and multi-use path miles, which is then divided by the total street mileage. A score of 1 indicates less bicycle friendliness, with a 3 being most bicycle friendly. The average score for Mecklenburg County is 1.5, with a score of 1.4 within the Arc, indicating a need to improve the bicycle network citywide. The most bike friendly areas are closest to the urban core where the street connectivity is shown to be higher.

Bike Friendliness Index



In general, the least friendly areas for biking are located within the Arc. Areas south of Uptown, especially SouthEnd and Dilworth are among the friendliest for biking in Charlotte.

190

Miles of Existing Bikeways
(includes greenways/shared-use paths)

0.2%

Residents that Bike for
Daily Commute

0

of Continuous Bicycle
Facilities Across Uptown

Bike Priority Network

The development of a Bicycle Priority Network is currently underway. The purpose of this is to establish a clear vision and plan for the implementation of a connected regional network that will support travel by bike, scooter, and other micromobility devices. The development of this network was a key recommendation of the 2017 Charlotte BIKES Plan, and it will be a key focus of the Strategic Mobility Plan.

The Bicycle Priority Network is being developed in collaboration with the City's Bicycle Advisory Committee and with project teams for the Meck Playbook Greenway Master Plan update, the Uptown CycleLink, the Cross Charlotte Trail (XCLT), and the Silver Line Rail Trail. The development of the Bicycle Priority Map is focused on three key principles (to the right):

The purpose of the Bike Priority Network is to establish a clear vision and plan for the implementation of connected regional network that will support travel by bike, scooter, and other micromobility devices.

- 1 Extend/leverage existing and planned corridors
- 2 Focus on all-ages-and-abilities (AAA) bicycle facilities
- 3 Start in and build out

Bicycle Facilities and Access

Standard Bike Facilities

Standard Bike Lane

All Ages and Abilities Bike Facilities

Protected Bike Lane

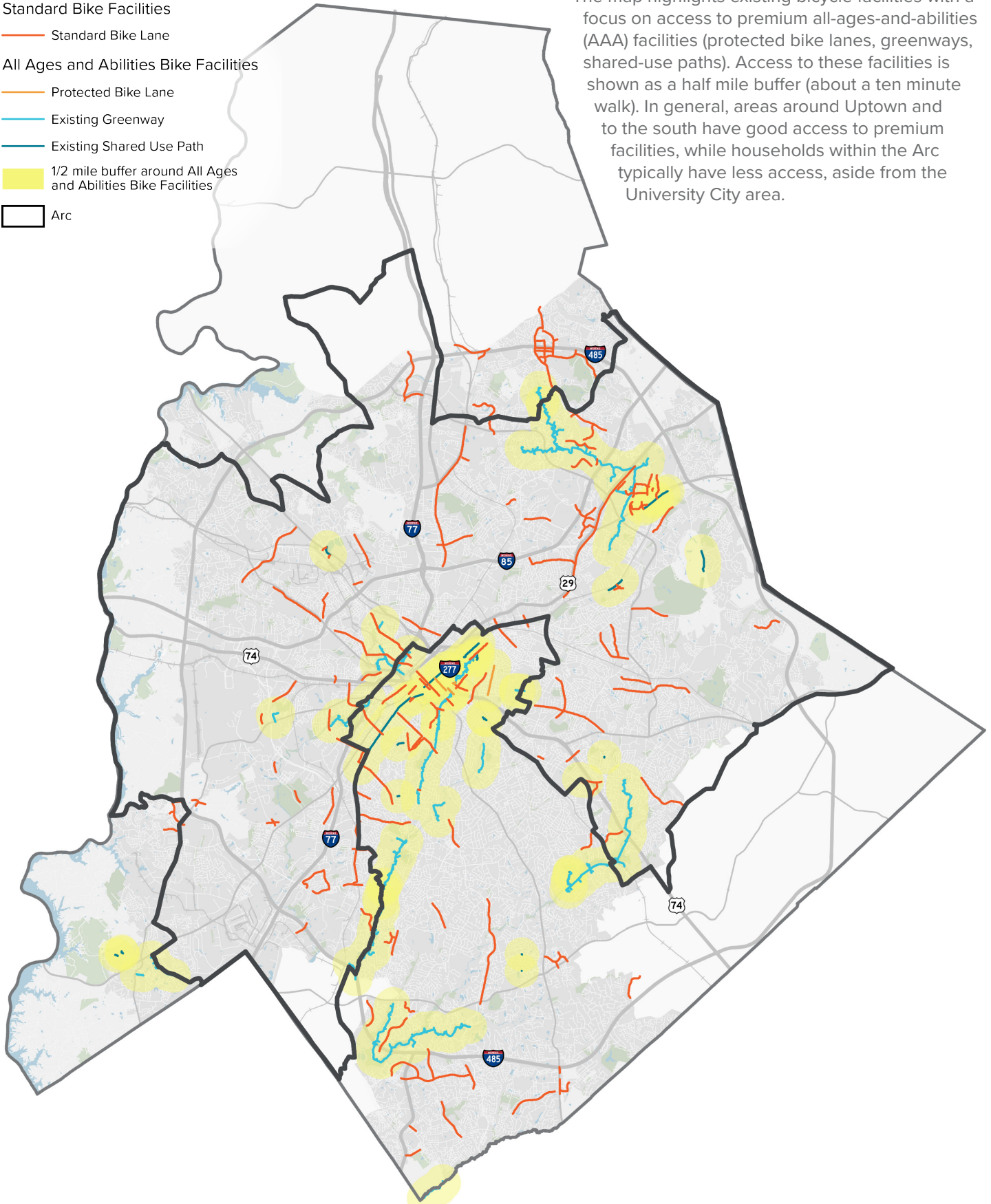
Existing Greenway

Existing Shared Use Path

1/2 mile buffer around All Ages and Abilities Bike Facilities

Arc

The map highlights existing bicycle facilities with a focus on access to premium all-ages-and-abilities (AAA) facilities (protected bike lanes, greenways, shared-use paths). Access to these facilities is shown as a half mile buffer (about a ten minute walk). In general, areas around Uptown and to the south have good access to premium facilities, while households within the Arc typically have less access, aside from the University City area.



GREENWAYS & URBAN TRAILS

Regional Greenway Connectivity

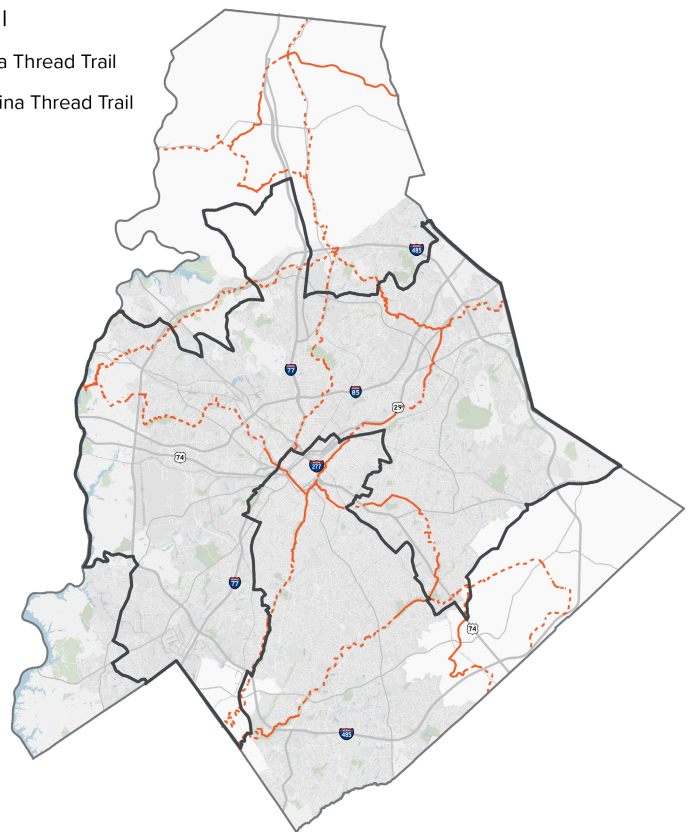
Greenways and urban trails are the “superhighways” of Charlotte’s regional pedestrian and bicycle system. They are also the most complete and longstanding part of Charlotte-Mecklenburg’s all-ages-and-abilities (AAA) bicycle network. In public surveys conducted by the County, paved walking and biking trails are typically the #1 requested amenity, with natural surface trails being a close second.

Paved walking and biking trails are typically the #1 requested recreational amenity by Mecklenburg County residents

Mecklenburg County Park & Recreation built and maintains the great majority of the greenway system. In recent years, urban trails built and maintained by the City of Charlotte (like the Blue Line Rail Trail, the Uptown CycleLink, and portions of the Cross Charlotte Trail) have become important additions to that greenway network.

Carolina Thread Trail

- Existing Carolina Thread Trail
- - - Proposed Carolina Thread Trail
- Arc



COUNTY GREENWAY MASTER PLAN

The current greenway master plan calls for 308 miles of paved trails throughout the County. Today, there are approximately 55 miles of greenways on the ground. The County is in the process of implementing an “accelerated greenway plan” with a goal to build 30 new miles between 2019 and 2023.

CAROLINA THREAD TRAIL (CTT)

The CTT is a regional greenways and blueways system covering 15 counties and reaching 2.9 million people in North and South Carolina. The CTT vision includes more than 1,600 miles of planned trails and 170 miles of blueways. A recent addition is the 6th Street cycle track in Uptown Charlotte, the first two-way, on-street, cycle track facility to be incorporated as part of the CTT network.

CHALLENGES

One challenge to the utility of the greenway network as the backbone of Charlotte’s pedestrian and bicycle system is the fact that nearly all greenway corridors follow creeks. This has implications in two major ways described below.

Lack of East-West Connections





Since nearly all greenway corridors follow creeks, and most creek corridors in the Charlotte region run on a north-south orientation, there are very few east-west greenway connections across the City. So, in addition to the planned greenway network, the current greenway master plan calls for an additional 200+ miles of “overland connectors” along streets to improve east-west connectivity.

Climate Resilience











Most greenways are within floodplains. As a result, much of Charlotte’s bicycle network is under water during rain events. A recent analysis by CDOT revealed that the City loses as much as 44 miles (or 24%) of its bike network after significant rain events. The impacts to those segments can last for days until floodwaters recede and sedimentation/debris is cleared (see map on page 33).

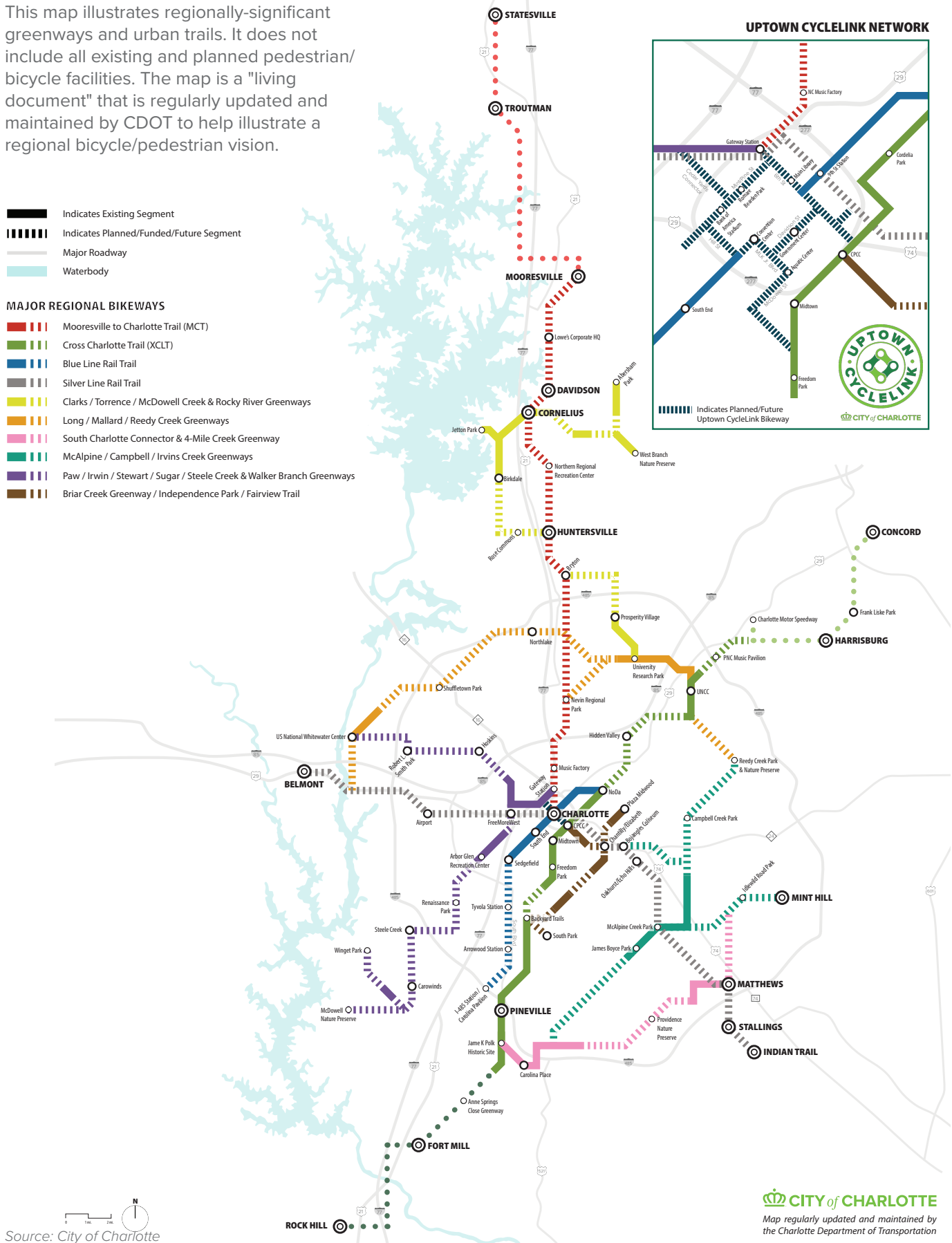
Regional Greenways & Urban Trails Vision

This map illustrates regionally-significant greenways and urban trails. It does not include all existing and planned pedestrian/bicycle facilities. The map is a "living document" that is regularly updated and maintained by CDOT to help illustrate a regional bicycle/pedestrian vision.

-  Indicates Existing Segment
-  Indicates Planned/Funded/Future Segment
-  Major Roadway
-  Waterbody

MAJOR REGIONAL BIKEWAYS

-  Mooresville to Charlotte Trail (MCT)
-  Cross Charlotte Trail (XCLT)
-  Blue Line Rail Trail
-  Silver Line Rail Trail
-  Clarks / Torrence / McDowell Creek & Rocky River Greenways
-  Long / Mallard / Reedy Creek Greenways
-  South Charlotte Connector & 4-Mile Creek Greenway
-  McAlpine / Campbell / Irwins Creek Greenways
-  Paw / Irwin / Stewart / Sugar / Steele Creek & Walker Branch Greenways
-  Briar Creek Greenway / Independence Park / Fairview Trail



HEALTH & SAFETY

Vision Zero

Vision Zero is a comprehensive traffic safety initiative focused on eliminating traffic fatalities and serious injuries. Vision Zero distinguishes itself from traditional road safety approaches by acknowledging that human error is inevitable, but that it should not be fatal. That approach puts emphasis on the shared responsibility of designers, decision-makers, and users.

Charlotte's Vision Zero Action Plan was developed using a collaborative process that convened a Task Force of over 50 members from 25 organizations representing a breadth of safety professions and advocates—including public health professionals, law enforcement agencies, transportation engineers and planners, emergency response professionals, and activists. The Vision Zero Task Force jointly developed the following commitment statement to guide the effort:

“As a community, it’s our responsibility to eliminate traffic deaths and serious injuries for all who share Charlotte streets by 2030.”

In order to focus citywide safety efforts, Charlotte employed a data-driven approach to Vision Zero that revealed key characteristics of crashes with fatal and serious injuries. For example, Vision Zero data analysis showed that:

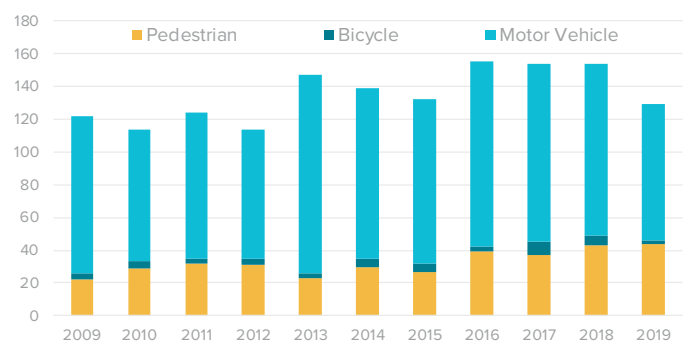
- ① 100% of fatalities and serious injuries occur on just 10% of Charlotte’s streets (also known as the High-Injury Network, or HIN).
- ② Speeding accounts for 44% of all traffic fatalities in the City of Charlotte.
- ③ People walking and bicycling are involved in less than 3% of all crashes but account for nearly 44% of all traffic deaths, reaffirming that pedestrians and cyclists are the most vulnerable users of roadways in Charlotte.

HISTORIC CRASH DATA

The chart to the right showcases historic crash data annually since 2009. The bars highlight the number of people killed or severely injured (KSI) by which travel mode was involved in each year.

100% of fatal/serious injury crashes occur on just 10% of our streets.

Annual KSI Crashes



Public Health

More than half of the deaths in Mecklenburg County are caused by chronic diseases. (Mecklenburg County Public Health: Behavioral Risk Factor Surveillance Survey. 2016.) These deaths are disproportionately linked to ‘place’ in Mecklenburg County. Six zip codes in the County, all located within the Arc, have been designated a Public Health Priority Area because rates of chronic disease, infectious disease, and death are up to 10% higher than other areas. (Mecklenburg County Public Health: State of the County Health Report. 2018.) Social determinants of health, including transportation, public safety, and the availability of food, housing, and health care, play a significant role in these outcomes.

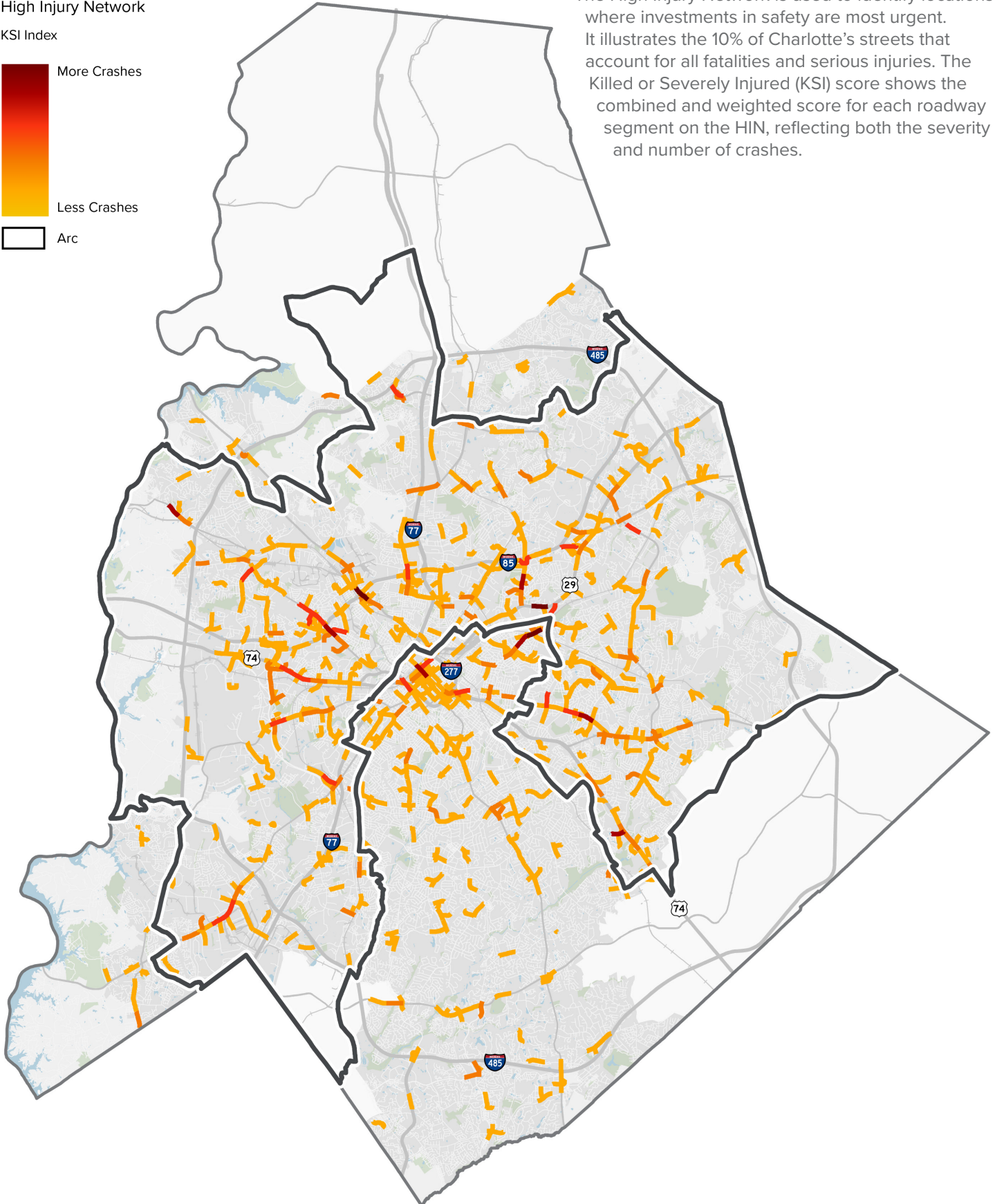
High Injury Network

High Injury Network

KSI Index



The High Injury Network is used to identify locations where investments in safety are most urgent. It illustrates the 10% of Charlotte's streets that account for all fatalities and serious injuries. The Killed or Severely Injured (KSI) score shows the combined and weighted score for each roadway segment on the HIN, reflecting both the severity and number of crashes.



SUSTAINABILITY & RESILIENCY

Climate change is one of the most critical issues affecting our society today, and transportation is an important contributing factor in the pollution levels that lead to negative effects from climate change. Charlotte's Strategic Energy Action Plan (SEAP) is the guiding document for environmental sustainability in the City.

The Strategic Energy Action Plan is Charlotte's North Star for ensuring sustainable and resilient growth.

The SEAP supports two primary goals that were adopted by City Council in November 2017:

- 1 Strive to become a low carbon city by 2050, with each person emitting less than 2 tons of CO₂e per year (Charlotte is currently at 12 tons of CO₂e per person per year).
- 2 Strive to source 100% of energy use in municipal buildings and fleet from zero carbon sources by 2030.

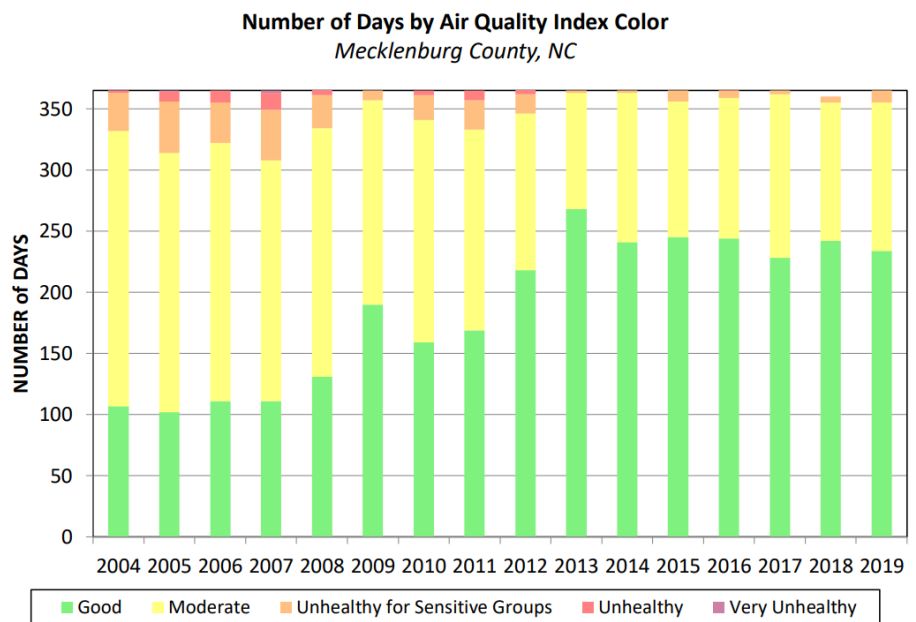
While the SEAP does not outline specific transportation mode shift goals, it clearly states mode shift is critical to achieve the emissions reduction target.

AIR QUALITY

According to Mecklenburg County air quality data, over the past 15 years, air quality has notably improved in the Charlotte-Concord-Gastonia MSA (see chart to the right). Nearly 250 days of the year in 2019 were "Good" quality compared with a little more than 100 days in 2004 and about 150 days in 2010.

In 2020, early data from the Environmental Protection Agency has shown improved air quality, likely due to the circumstances of the pandemic and reduced travel.

Over past fifteen years, air quality has notably improved in Charlotte-Concord-Gastonia MSA



BIKE NETWORK RESILIENCY

Building a sustainable and resilient transportation network means 1) reducing the impact of transportation on climate change and 2) planning for its effects. For example, severe rain events are becoming more common as a result of climate change. Most greenways are within floodplains. As a result, between 25 and 44 miles of Charlotte's bike infrastructure disappears under water during rain events. That represents 13% - 24% of the total bike network. Planning for a more climate-resilient transportation system means we can't be too dependent on our greenways as the only pedestrian and bicycle superhighways in Charlotte. We have to build a more complete on-street pedestrian and bicycle network.

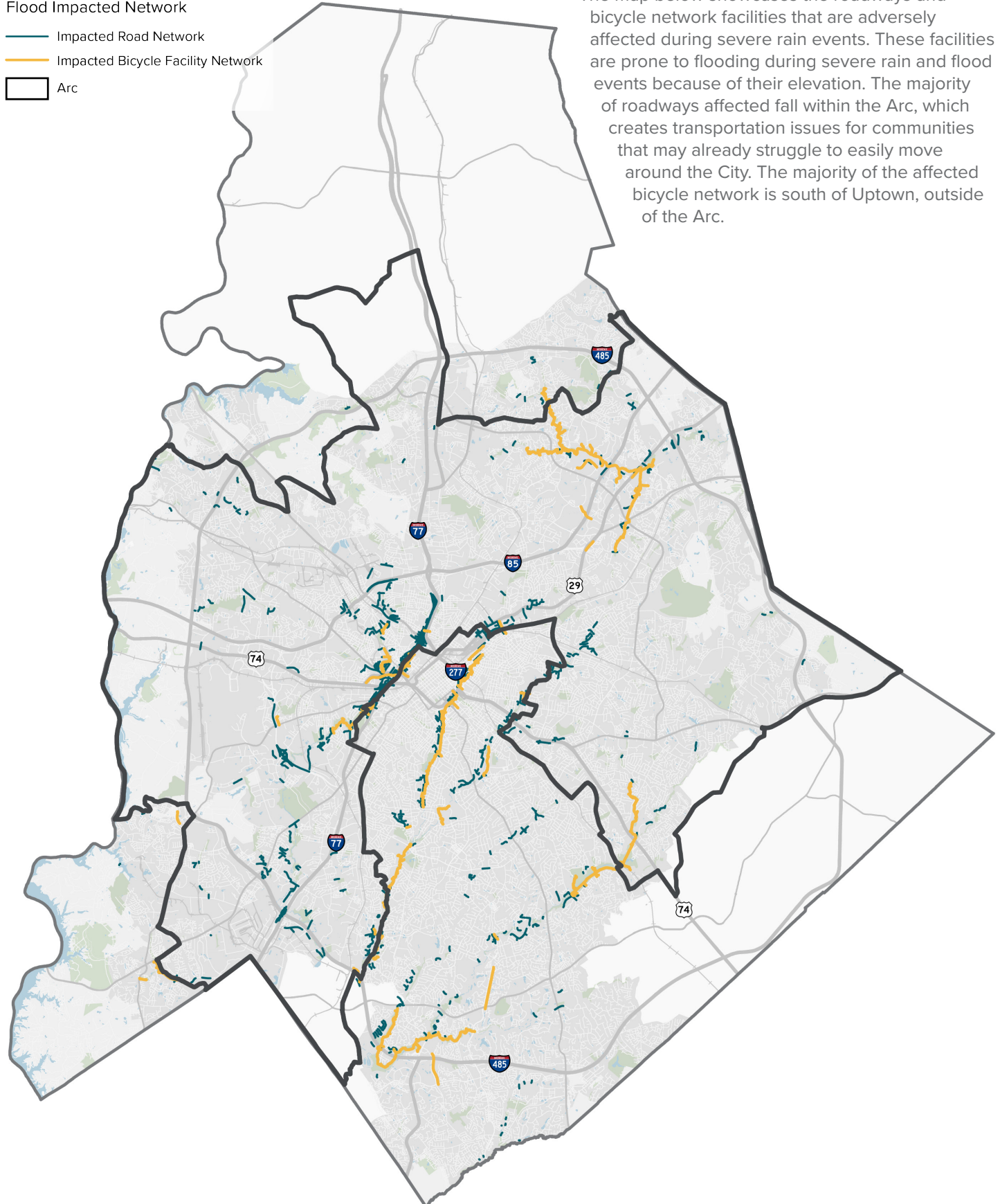
44
Miles of Bike Facilities
Under Water During Severe
Rain Events

24%
of Total Bike Network Under
Water During Severe
Rain Events

Road and Bike Network - Climate Resilience

Flood Impacted Network

- Impacted Road Network
- Impacted Bicycle Facility Network
- Arc



The map below showcases the roadways and bicycle network facilities that are adversely affected during severe rain events. These facilities are prone to flooding during severe rain and flood events because of their elevation. The majority of roadways affected fall within the Arc, which creates transportation issues for communities that may already struggle to easily move around the City. The majority of the affected bicycle network is south of Uptown, outside of the Arc.

HOW DO WE COMPARE?

This section provides a comparison between Charlotte and peer cities to illustrate how Charlotte is performing on key metrics related to mobility.

PEER CITY BENCHMARKS

Peer Cities

The four cities profiled were selected from the peer city set identified in the Charlotte Growth Factors Report that was developed as part of the Charlotte Future 2040 comprehensive planning effort. They are all fast-growing U.S. urban centers that possess comparable and aspirational characteristics when compared to Charlotte. Like Charlotte, they are each grappling with modernizing their transportation systems, housing affordability concerns, and similar land use patterns. Showcasing these comparisons provides greater insight and context for evaluating Charlotte's current mobility reality.



CHARLOTTE

877,279

Population



AUSTIN

964,254

Population



MINNEAPOLIS

425,403

Population



NASHVILLE

692,587

Population



DENVER

734,134

Population

MINNEAPOLIS

57 MI²

DENVER

155 MI²

AUSTIN

325 MI²

CHARLOTTE

309 MI²

NASHVILLE

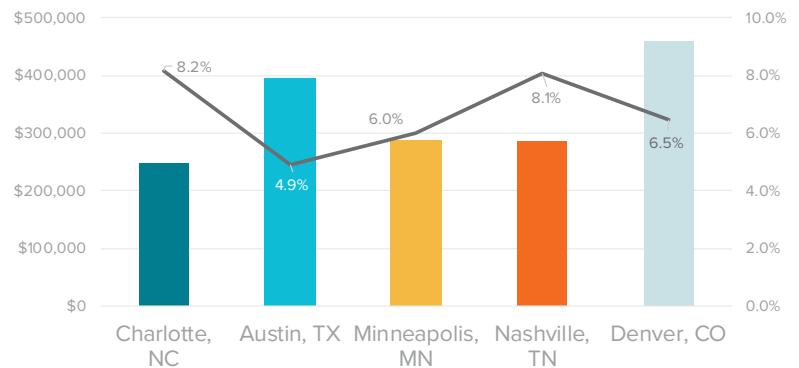
526 MI²

GROWTH AND AFFORDABILITY

Housing Affordability

When compared with the City's peers, housing costs may seem relatively affordable for a desirable urban center, but in Charlotte, housing costs have been increasing at a faster rate than in the peer cities. While Charlotte has historically had the lowest, or nearly the lowest, average home value of the peer cities, home values have increased at a faster rate than the other cities in recent years, with Nashville being close behind. Rent trends in the peer cities have followed a similar pattern. Average rent in Charlotte has consistently been lower than the other peer cities in recent years, but it has grown at a significantly faster rate than the next closest peer city, Minneapolis.

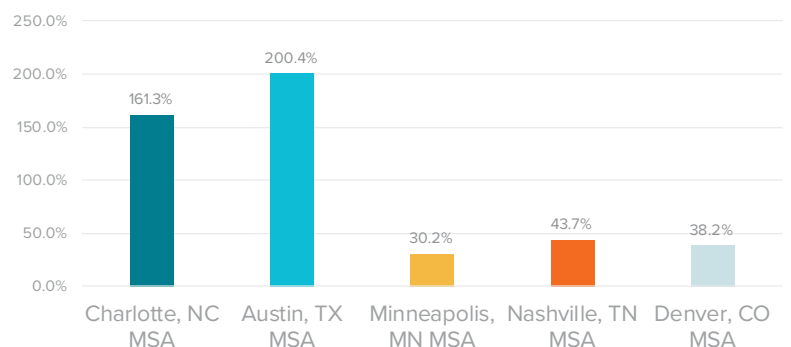
Median Housing Value and Growth Rate



Population Growth

The Charlotte region's population base and explosive growth over the past several decades is most similar to Austin's trajectory. Both regions' population of nearly 400,000 in 1980 grew to over 1 million in 2020. While Austin and Charlotte more than doubled in size over those four decades, the other peer cities grew by an estimated 44% or less over the same period.

Population Growth Rate (1980–2018)



Charlotte has grown by 161.3% since 1980.

HOUSING AND TRANSPORTATION COST BURDEN

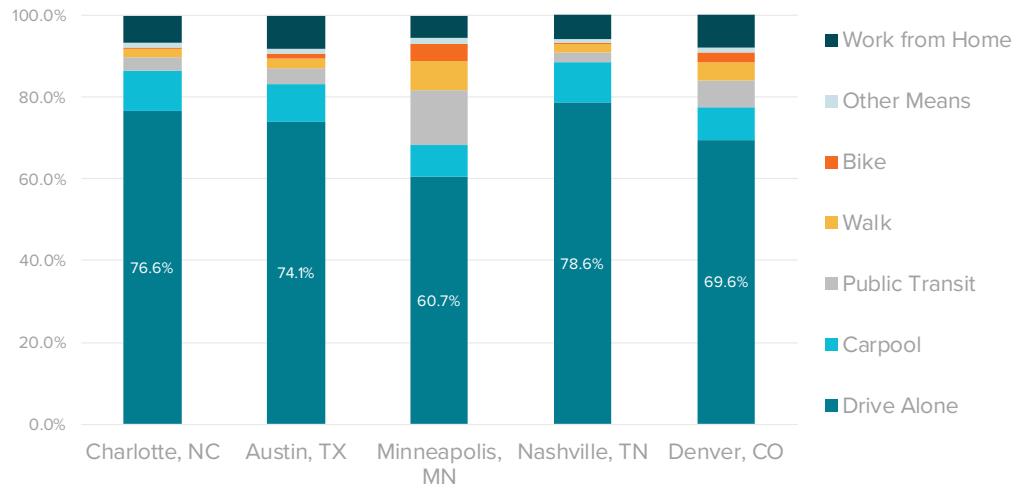
According to the H&T Index, three of the five cities are above the threshold of 45% for being considered housing and transportation cost-burdened. Charlotte has the greatest burden with the average household paying 51% of their household income toward housing and transportation costs, in part due to higher-than-average transportation costs. Nashville and Austin have the next highest cost burdens at 47% and 48%, respectively.

City	H & T Costs % Income (Avg)	H & T Costs % Income (Range)	H & T Costs >44% Income	Housing Costs % Income	Housing Costs >30% Income	Transportation Costs % Income	Median Household Income
Charlotte, NC	51%	24% - 116%	62.9%	29%	34.2%	22%	\$61,993
Austin, TX	47%	28% - 98%	48.9%	28%	28.3%	19%	\$71,543
Minneapolis, MN	38%	15% - 79%	20.8%	22%	17.1%	16%	\$63,590
Nashville, TN	48%	20% - 106%	58.5%	26%	24.4%	22%	\$55,873
Denver, CO	42%	20% - 94%	32.8%	24%	20.2%	18%	\$68,377

MODE SPLIT & TRAVEL TO WORK

Mode Split

In both Charlotte and Nashville, more than three of every four commutes are by single occupancy vehicles (SOVs), the highest shares of the peer city set. Carpooling and working from home make up a bulk of the remaining commute types in both areas. While SOVs still make up a majority of trips, Minneapolis has the most balanced distribution of commutes across all modes.

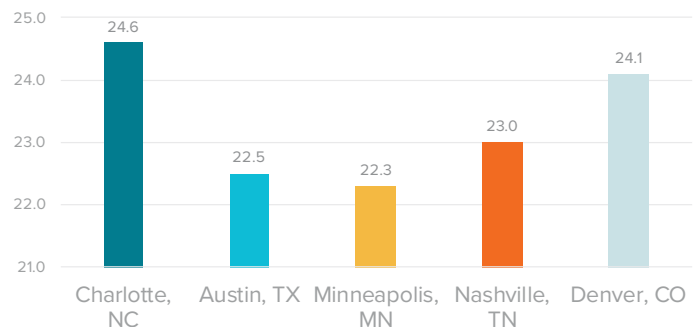


Commute time

The mean travel time to work ranges from 22.3 minutes in Minneapolis, which has the highest walk/bike/transit scores, to 24.6 minutes in Charlotte, which had some of the lowest scores and highest rates of car-dependency.

Charlotte experiences the highest mean travel times compared with the other peer cities.

Mean Travel Time to Work

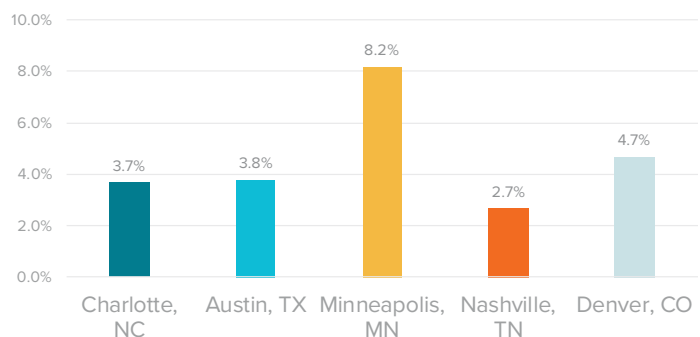


Vehicle Access

Minneapolis has the highest percentage of households without access to a vehicle at 8.2%, largely driven by the convenience of other modes for moving about the city. Vehicle access is highest in the two peer cities that scored most car-dependent: Nashville and Charlotte.

High SOV rates, commuting times, and vehicle access show significant car-dependency in Charlotte.

Percent with No Access to Vehicle

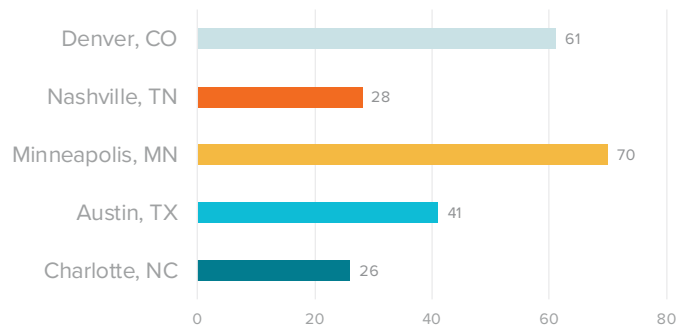


WALK - BIKE - TRANSIT

Walk Score

Walk Score measures the walkability of any address using a patented system. For each address, Walk Score analyzes hundreds of walking routes to nearby amenities. Points are awarded based on the distance to amenities in each category, as well as population density and road metrics.

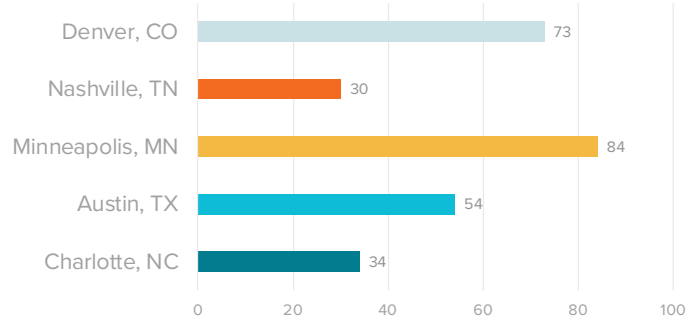
Walk Score	Description
90 - 100	Walker's Paradise <i>Daily errands do not require a car</i>
70 - 89	Very Walkable <i>Most errands can be accomplished on foot</i>
50 - 69	Somewhat Walkable <i>Some errands can be accomplished on foot</i>
25 - 49	Car-Dependent <i>Most errands require a car</i>
0 - 24	Car-Dependent <i>Almost all errands require a car</i>



Bike Score

Bike Score measures whether an area is good for biking. For a given location, a Bike Score is calculated by measuring bike infrastructure (lanes, trails, etc.), hills, destinations and road connectivity, and the number of bike commuters.

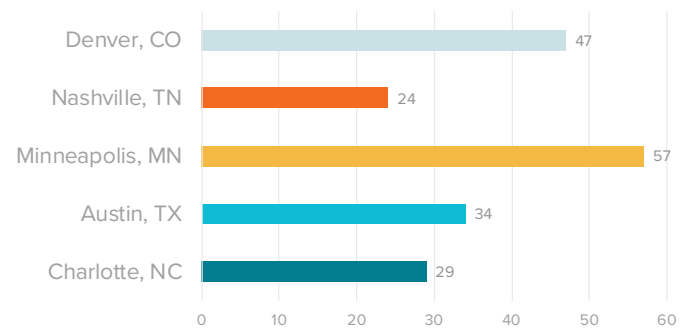
Walk Score	Description
90 - 100	Biker's Paradise <i>Daily errands can be accomplished on a bike</i>
70 - 89	Very Bikeable <i>Biking is convenient for most trips</i>
50 - 69	Bikeable <i>Some bike infrastructure</i>
0 - 49	Somewhat Bikeable <i>Minimal bike infrastructure</i>



Transit Score

Transit Score is a measure of how well a location is served by public transit. Transit Score is calculated by measuring nearby transit routes based on the frequency, type of route, and distance to the nearest stop on the route.

Walk Score	Description
90 - 100	Rider's Paradise <i>World-class public transportation</i>
70 - 89	Excellent Transit <i>Transit is convenient for most trips</i>
50 - 69	Good Transit <i>Many nearby public transportation options</i>
25 - 49	Some Transit <i>A few nearby public transportation options</i>
0 - 24	Minimal Transit <i>It is possible to get on a bus</i>



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