



# GoTriangle

## Agency Overview and Durham-Orange Light Rail Transit (D-O LRT) Project Update

February 22, 2016



# About GoTriangle



- 14 Regional Routes
- 12 Weekday Express Routes
- 73 WiFi Equipped Buses
- 83 Vanpools/14 Paratransit Vehicles
- 260 Employees



# About GoTriangle



- Ridership continues to grow
  - 2010 – 1 million riders/year
  - 2015 – 1.8 million riders/year
- We operate four express routes as part of the Fortify rebuilding project on I-40 including Johnston County, Cary, Clayton and Fuquay-Varina



# What Is A Fixed Guideway Transit Project?



- Runs in its own right-of-way
- Not subject to traffic congestion
- High capacity vehicles



# How Fixed Guideway Projects Get Started



- Research to identify high-trip-intensity corridors
- Adoption into local MPO transportation plans
- Potential Alternative Analysis to find mode that is best matched to corridor needs
- Local funding share identified
- Enter highly competitive Federal New Starts program for Environmental Work, Final Design, Construction

# D-O LRT Funding Overview



- Federal Funding & Project Evaluation Criteria
- State Funding & Project Evaluation Criteria

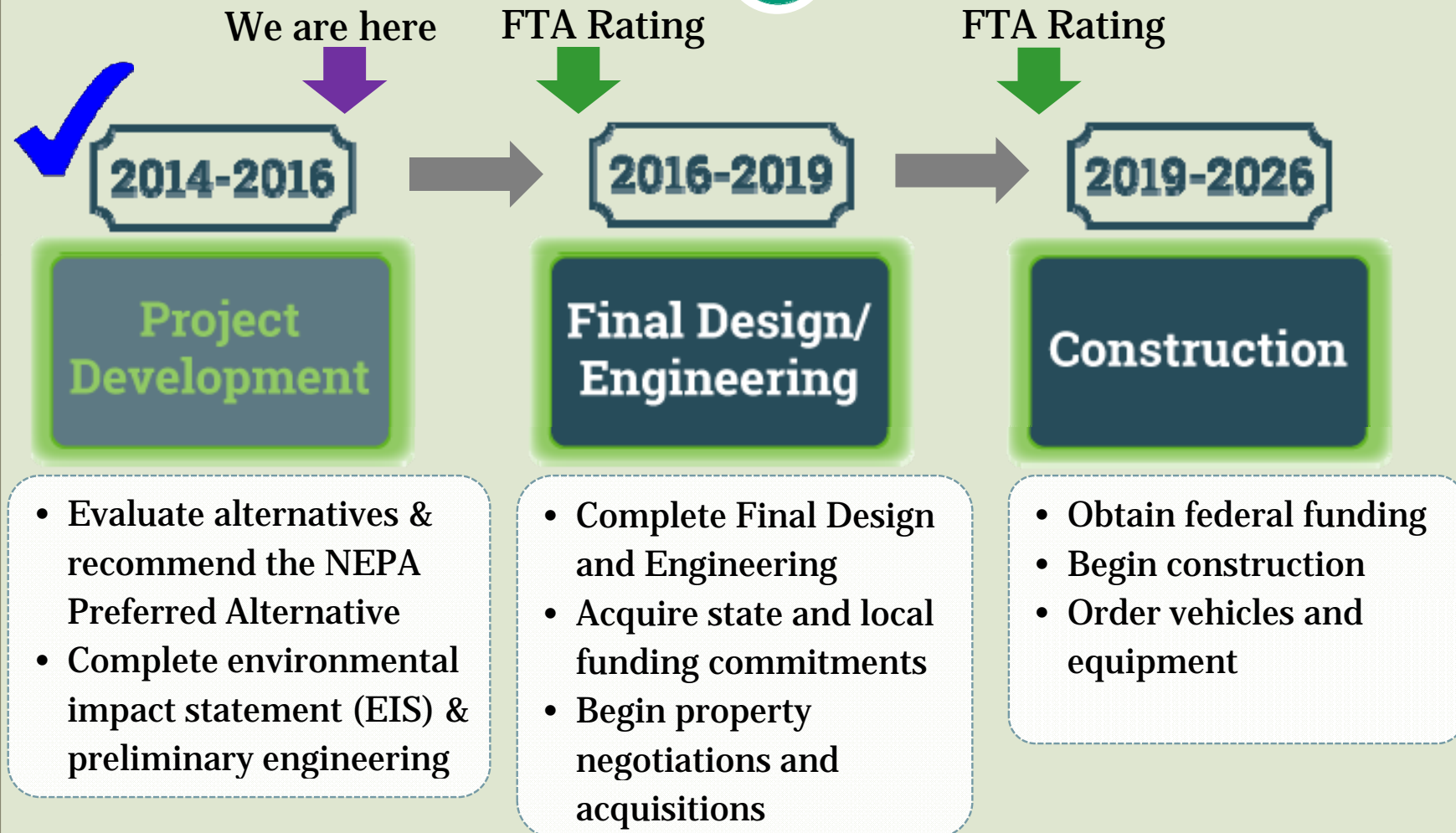


# Overview of FTA Capital Project Funding



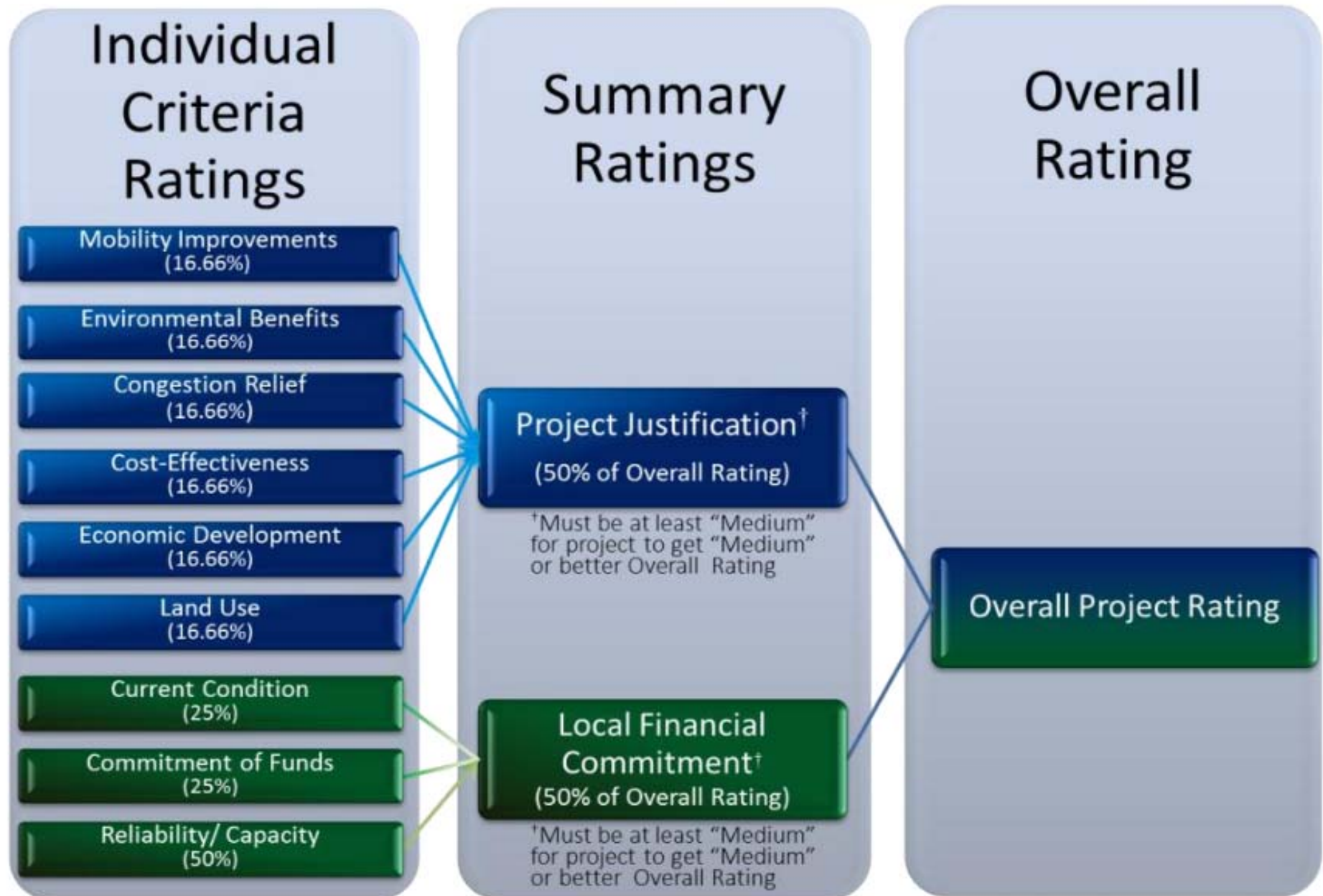
- FTA Capital Investment Grants Program
  - Discretionary & Competitive Grant Program
  - Roughly \$2 billion/year awarded annually nationwide
  - Specifies stepwise process to be followed & rating criteria
  - Funds light rail, heavy rail/subway, commuter rail, streetcar, and bus rapid transit projects
- New Starts
  - Project cost above \$300m & seeking \$100m or more in Fed \$
- Small Starts
  - Project cost below \$300m & seeking less than \$100m in Fed \$

# Project Steps & Timeline to FFGA





## New and Small Starts Project Evaluation and Rating under MAP-21



# FTA & STI Criteria: Well-Matched



Criteria	FTA	STI
Mobility	16.6%	20%
Cost-Effectiveness	16.6%	15%
Economic Development	16.6%	20%
Congestion Relief	16.6%	15%
Land Use	16.6%	NA
Environmental Benefits	16.6%	NA
Local Input Points	NA	30%

- STI closely tracking FTA criteria means STI will only advance fixed guideway projects that will compete effectively for federal funds

## P4.0 Public Transportation Criteria (Fixed Guideway)

<u>Criteria</u>	<u>Measure</u>	<u>Regional Weight</u>	<u>Division Weight</u>
Mobility	Estimated Annual Trips (1 point for every 250,000 Trips)	20%	15%
Cost Effectiveness	Cost of the Trip Over the Life of the Project (100 points for a cost of \$1 or less per trip; decreasing by 1 point for every \$0.03 increase per trip)	15%	15%
Economic Development	1 point per 1,000 new employees and 1 point per 500 new residents	20%	10%
Congestion Relief	$\frac{((\text{Guideway Passengers/Day}) \times 290 \text{ Days} \times 30 \text{ Years} \times \text{Avg Time of Trip} \times \text{Value of Time})}{\$10,000,000}$	15%	10%

# D-O LRT in 2016-2025 STIP Under STI



**\$10.25 billion programmed through STI criteria**

**Statewide  
\$3.73 billion**

**Regional  
\$3.67 billion**

**Division  
\$2.86 billion**

Region C  
Total allotment:  
**\$780 million**

Region D  
Total allotment:  
**\$602 million**

**10% cap on public  
transportation projects**

**10% cap on public  
transportation projects**

**D-O LRT: \$78.0 million**

**D-O LRT: \$60.2 million**

# D-O LRT Ridership



# How Ridership Is Projected



- Use best practices as recommended by FTA guidelines
  - Assess capacity for community growth using current zoning, future land use plans, market trends
  - Take state demographer projections by county, allocate new jobs/housing by land value (higher if already has water/sewer, proximity to existing job centers, better highway/transit access)



# How Ridership Is Projected, Cont'd



- Use best practices as recommended by FTA guidelines
  - Triangle Regional Model (TRM) Computer software uses surveys of current travel behavior to estimate future travel on future network of roads, bus routes, rail lines
  - Same software used to analyze all major highway projects in Triangle; used by CAMPO, DCHC-MPO, NCDOT
  - TRM developed/maintained by Institute of Transportation Research & Education at NCSU, run by expert third-party consultants

# Ridership Projections for D-O LRT



- TRM projects ~23,000 daily riders in 2040
- Is this reasonable?
  - RSG, Inc survey found 15,078 passengers on bus routes currently operating in D-O LRT corridor in fall 2014
    - ✦ All current bus routes get stuck in traffic, D-O LRT will not
    - ✦ D-O LRT will have higher average speeds
    - ✦ D-O LRT will run more frequently at rush hour, later at night
    - ✦ Durham-Chapel Hill corridor will absorb ten more years of growth before opening day for D-O LRT
  - Strong Existing Ridership – 70,000 bus riders in Durham/Chapel Hill today, 10 years before light rail service begins
  - 73,000 bus riders in Charlotte year before LYNX Blue Line opened

# Criteria Focus on Corridor Density

City	2014 Population	Sq Miles	People Per Sq Mile
Chapel Hill	60,000	21	2,817
Charlotte	810,000	298	2,721
Durham	250,000	108	2,308
Greensboro	280,000	131	2,134
			People Per Sq Mile
Charlotte Blue Line Extension Station Areas 2015			4,310
Durham-Orange Light Rail Line Station Areas 2015			3,300
Durham-Orange Light Rail Line Station Areas 2035			4,762

- **FTA & STI criteria evaluate density of where investment goes, not entire city – to maximize cost effectiveness**

# Light Rail Focused on Job Centers



- Charlotte Blue Line Extension serves 91,720 jobs **TODAY**
- D-O LRT station sites hold 77,500 jobs **TODAY**
- Jobs in D-O LRT station sites projected to be 111,000 in 20 years



Downtown Durham



UNC Hospital



Duke/VA Medical Center

# Morning Rush Hour Travel Times



Origin	Destination	Bus Today	Car Today	Light Rail 2025 & beyond
Alston Avenue	Patterson Place	51 min.	14-18 min.	27 min.
Leigh Village	UNC Hospitals	28 min.	10-18 min.	12 min.
Gateway Station	Downtown Durham	51 min.	14-20 min.	28 min.
Woodmont Station	Duke/VA	69 min.	16-26 min.	24 min.
Ninth Street	UNC Hospitals	69 min.	22-35 min.	34 min.
MLK Jr. Parkway	Downtown Durham	29 min.	9-12 min.	17 min.

***US 15-501 Corridor Travel Time got  
4-7 minutes longer between 2013 & 2015***

# D-O LRT Project Overview





# High-Growth Triangle Region



- Durham & Orange Corridor
  - 175,000 people (2005)
  - 231,000 people (2035)
- 3 Major Universities
- 3 Major Medical Centers
- Hub of innovation and entrepreneurship
- Abundant parks, cultural, culinary, artistic & historical resources

# Explosive Growth



- Led to more congestion, increased travel times & sprawling development
- Outpacing our ability to repair, replace and expand roadway network
- Transit systems operating close to maximum capacity
  - 84 buses per hour at UNC Hospitals
  - 46 buses per hour at Duke University and Durham VA Medical Centers



# What We Need



- A long term solution that
  - Provides convenient and accessible transit service
  - Provides a competitive and reliable alternative to congested roadways
  - Seamlessly serves many popular destinations in Durham and Chapel Hill
  - Fosters growth, compact development and economic development along a high-capacity transportation network

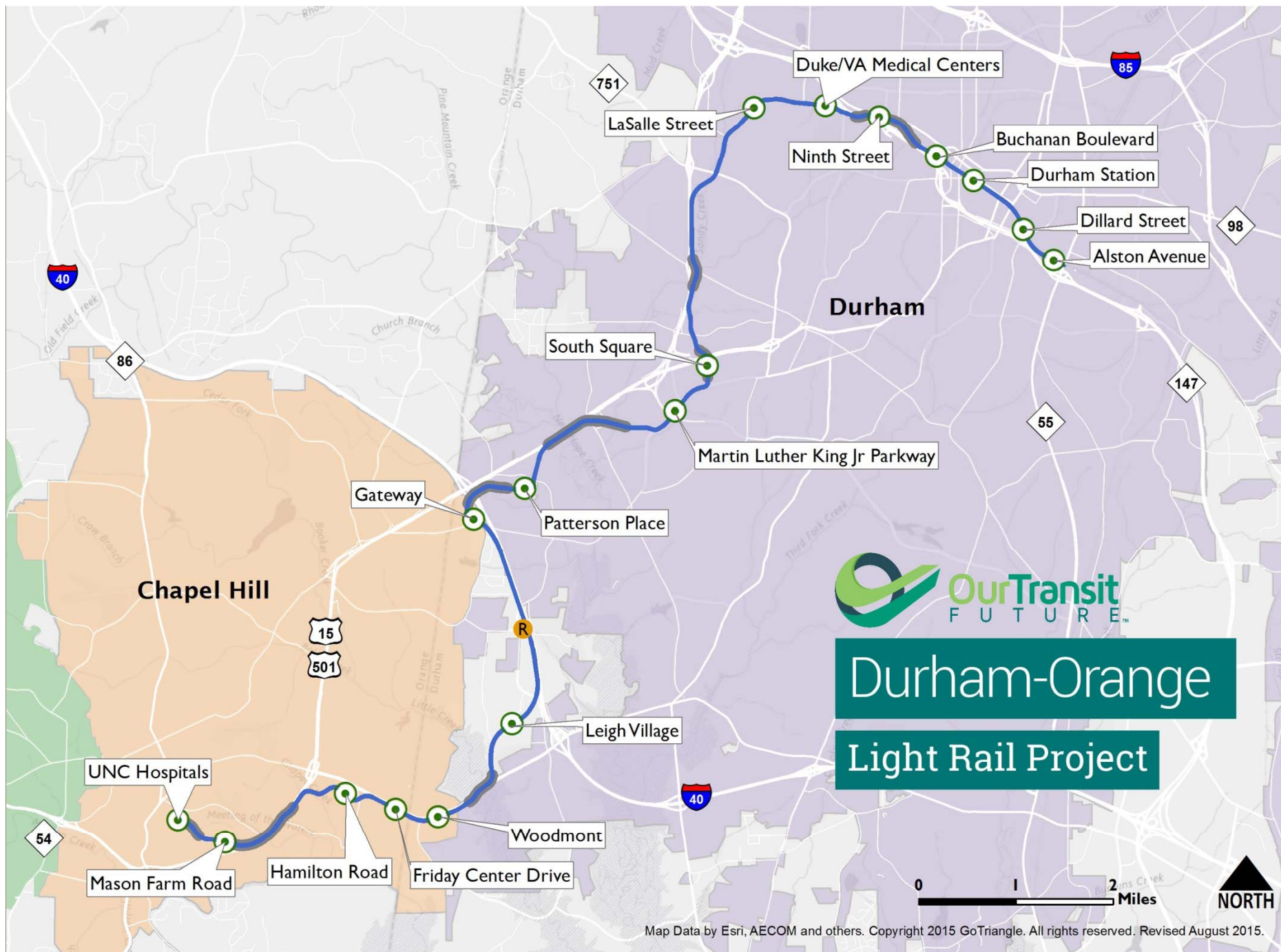
# Durham-Orange LRT Project



- 17-miles serving 17 stations
- 3 of top 10 Employers in NC\* located along the corridor:
  - Duke University (#1)
  - UNC-Chapel Hill (#4)
  - UNC Health Care System (#9)
- Operates 7 days a week
  - 10 min during peak times
  - 20 min off-peak and on weekends
- Projected 2040 Daily Transit Ridership
  - 23,000 LRT plus
  - 16,000 Bus



*\*Employer data for Q2 2014, QCEW via NC Commerce*





# Project History



- Transit Sales Tax Referenda
  - Durham County (2011)
  - Orange County (2012)
- Alternatives Analysis for the D-O Corridor (2012)
  - No Build Alternative
  - Transportation System Management (TSM) Alternative
  - Bus Rapid Transit (BRT) Alternatives
  - Light Rail Transit (LRT) Alternatives
- Action by the MPO Board to adopt the LRT Alignment from UNC Hospitals to Alston Avenue into the 2040 MTP (2012)
- FTA Approves DOLRT into Project Development (2014)



# Preliminary Cost Estimate



- Capital Cost
  - Approximately \$1.6 B in 2015\$
- Operating and Maintenance Costs
  - Approximately \$18 M annually in 2015\$

# Projected Economic Impacts



- Independent estimate of Economic Development potential conducted in 2015\* indicates:
  - +\$4.7 Billion in economic output in Durham and Orange Counties +\$600 Million in additional impacts statewide
  - Estimated 750 of direct construction related jobs, + over 1,000 indirect construction related jobs
  - +\$175 Million in new tax revenue (per year) due to economic impacts

# What is a Light Rail Vehicle?



ADA  
Accessible



Bike Racks/  
Bike Access



Security  
Cameras



On-Board Seating/  
Standing Access



Overhead  
Electric  
Power



Portland



Minneapolis



Minneapolis





Courtesy of Charlotte Area Transit System



Courtesy of Norfolk TIDE: LRT at Intersection



CATS Vehicle Maintenance Facility



CATS Station Platform





## **UNC – Hibbard Drive**

*Conceptual only, subject to change without notice.*





## Woodmont station

*Conceptual only, subject to change without notice.*





## South Square station

*Conceptual only, subject to change without notice.*



**Durham Station**



# What Light Rail Brings to Communities



- Consistent, reliable transportation
  - Often accompanied with other service and capital improvements
- Increased Development Activity
  - Property values around stations often increase
  - Investments made in infrastructure around stations
- Economic Opportunity
  - Jobs during design and construction periods
  - Jobs when operating and maintaining system

# FTA Awards GoTriangle TOD Grant



- GoTriangle applied for Transit-Oriented Development (TOD) Pilot Program call for projects under MAP-21
- TOD Grants targeted to support station area economic development and planning activities
- Application focused on DOLRT earned \$1.7 million
  - Second-largest grant nationally behind Seattle
  - Larger grant than Atlanta, Chicago, San Francisco
- Work begins 2016
- Why Does TOD (including housing near transit) matter for economic development?

# Transit Travel Time Maps

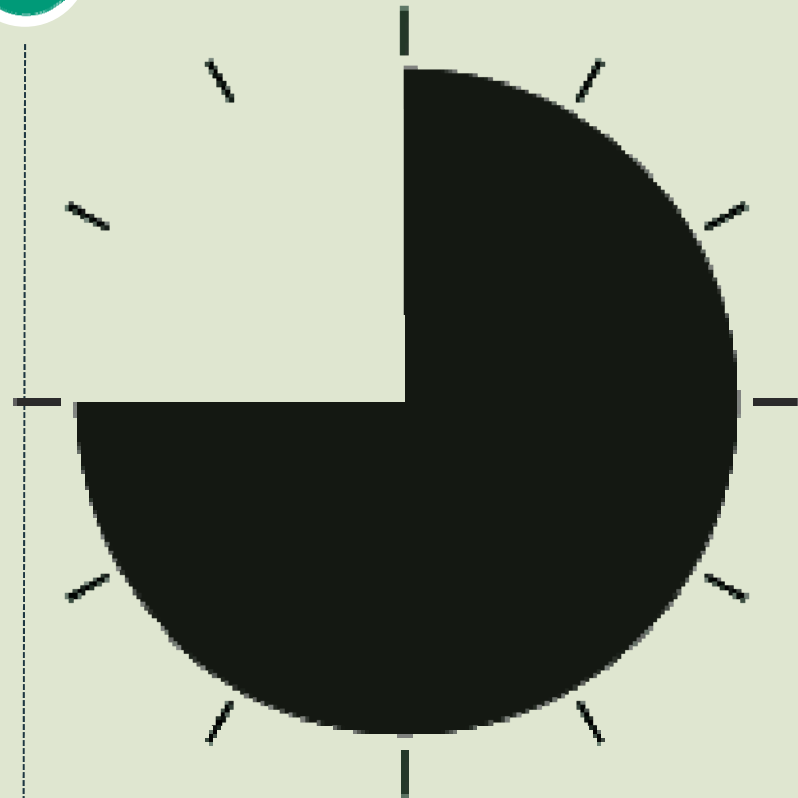


- These travel time maps show how many workers can reach a location in a given amount of time
- Two scenarios:
  - Current (2016) transit network
  - Proposed LRT + bus network in 2026
- **Examples: UNC Hospital, Gateway Station, American Tobacco Campus**

# How bus + LRT improves accessibility

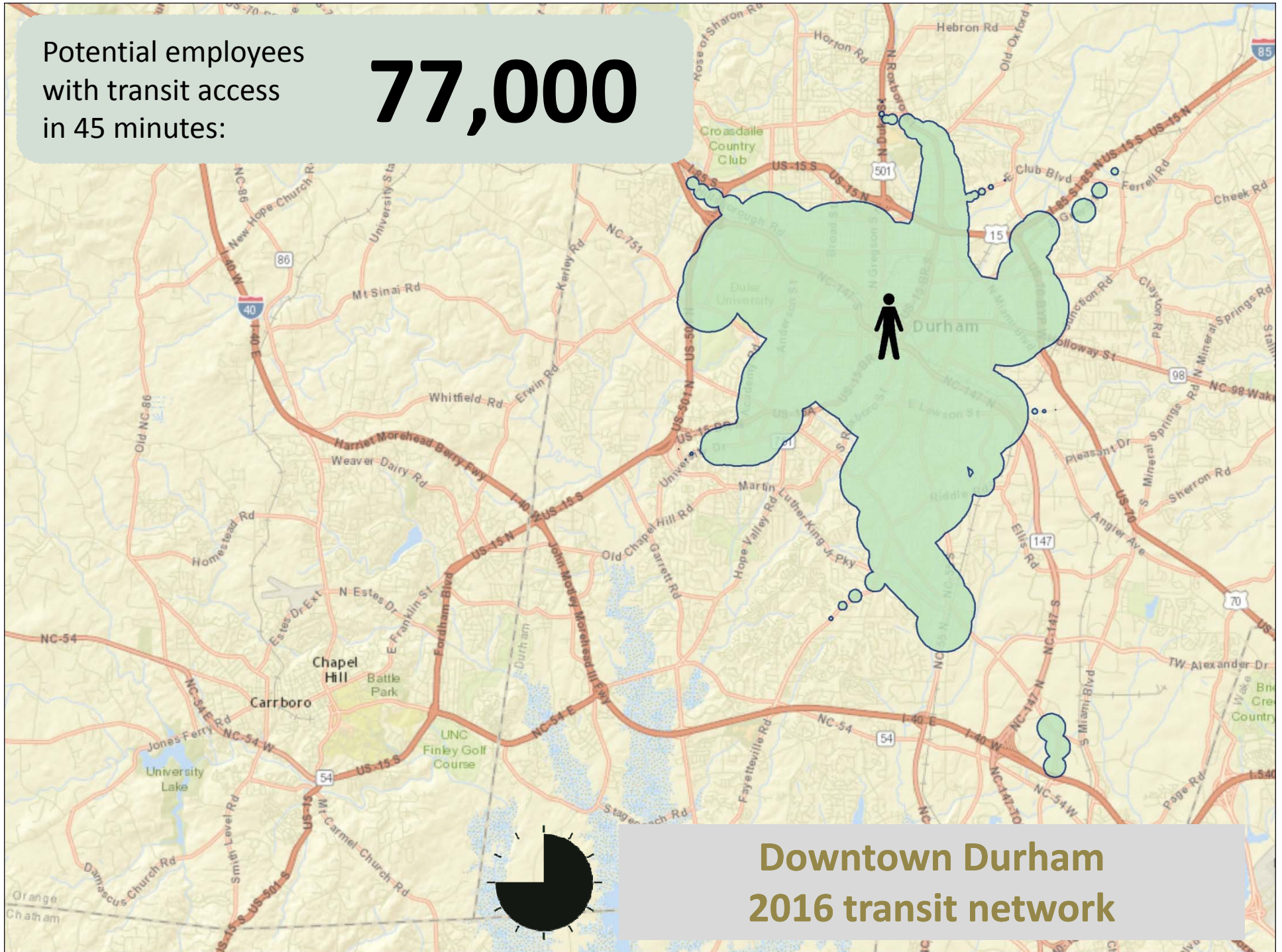


**45  
minutes**



Potential employees  
with transit access  
in 45 minutes:

**77,000**





Potential employees  
with transit access  
in 45 minutes:

**77,000**

Potential employees  
with transit access  
in 45 minutes:

**105,000**

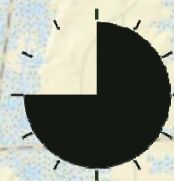
**37%**

**Increase**



***Startups at American  
Underground  
in Downtown Durham gain  
access to 38,000 more  
workers along 15-501 &  
in Chapel Hill***

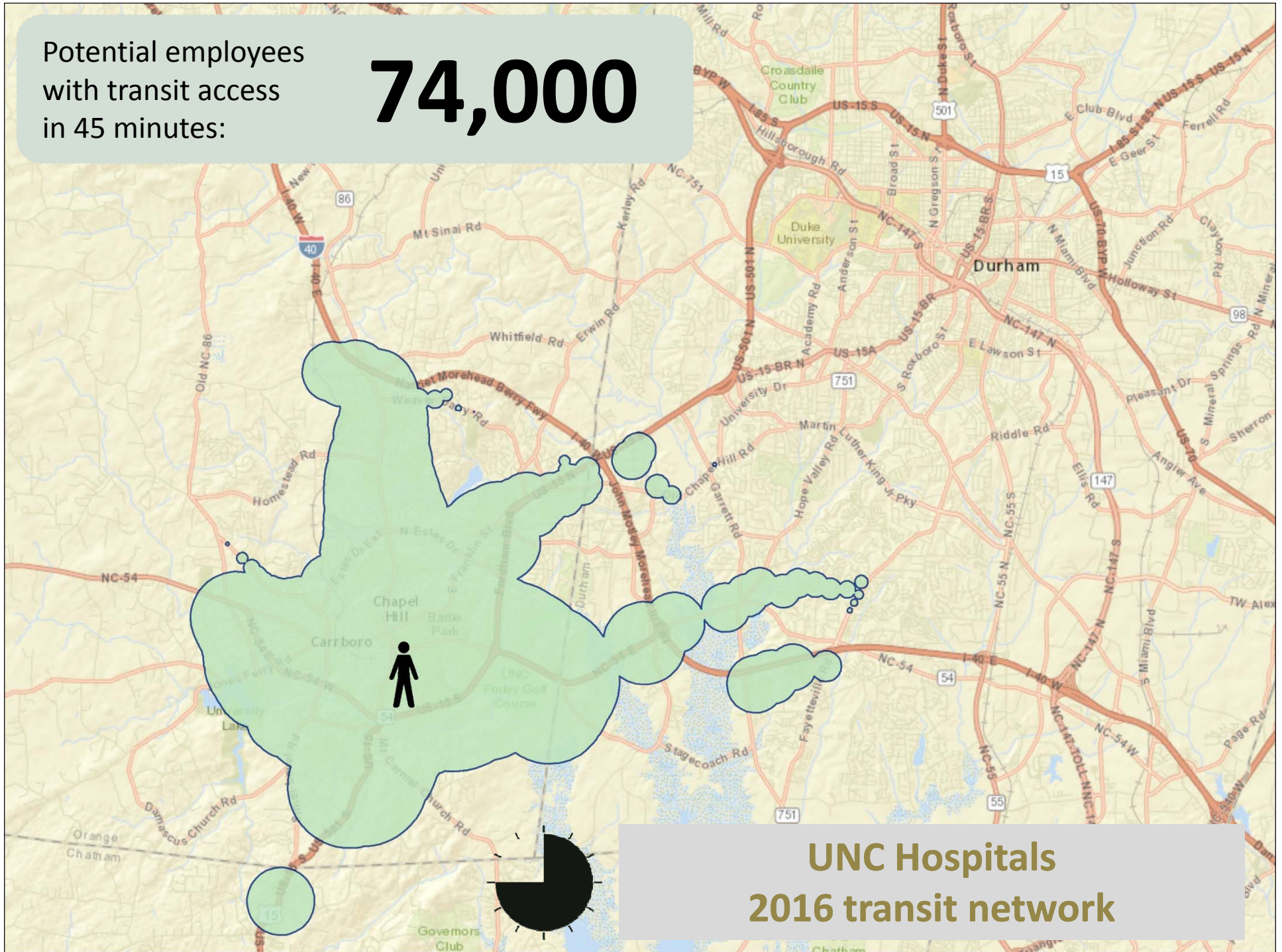
**Downtown Durham  
2026 transit network (with LRT)**





Potential employees  
with transit access  
in 45 minutes:

**74,000**



**UNC Hospitals  
2016 transit network**



Potential employees  
with transit access  
in 45 minutes:

**74,000**

Potential employees  
with transit access  
in 45 minutes:

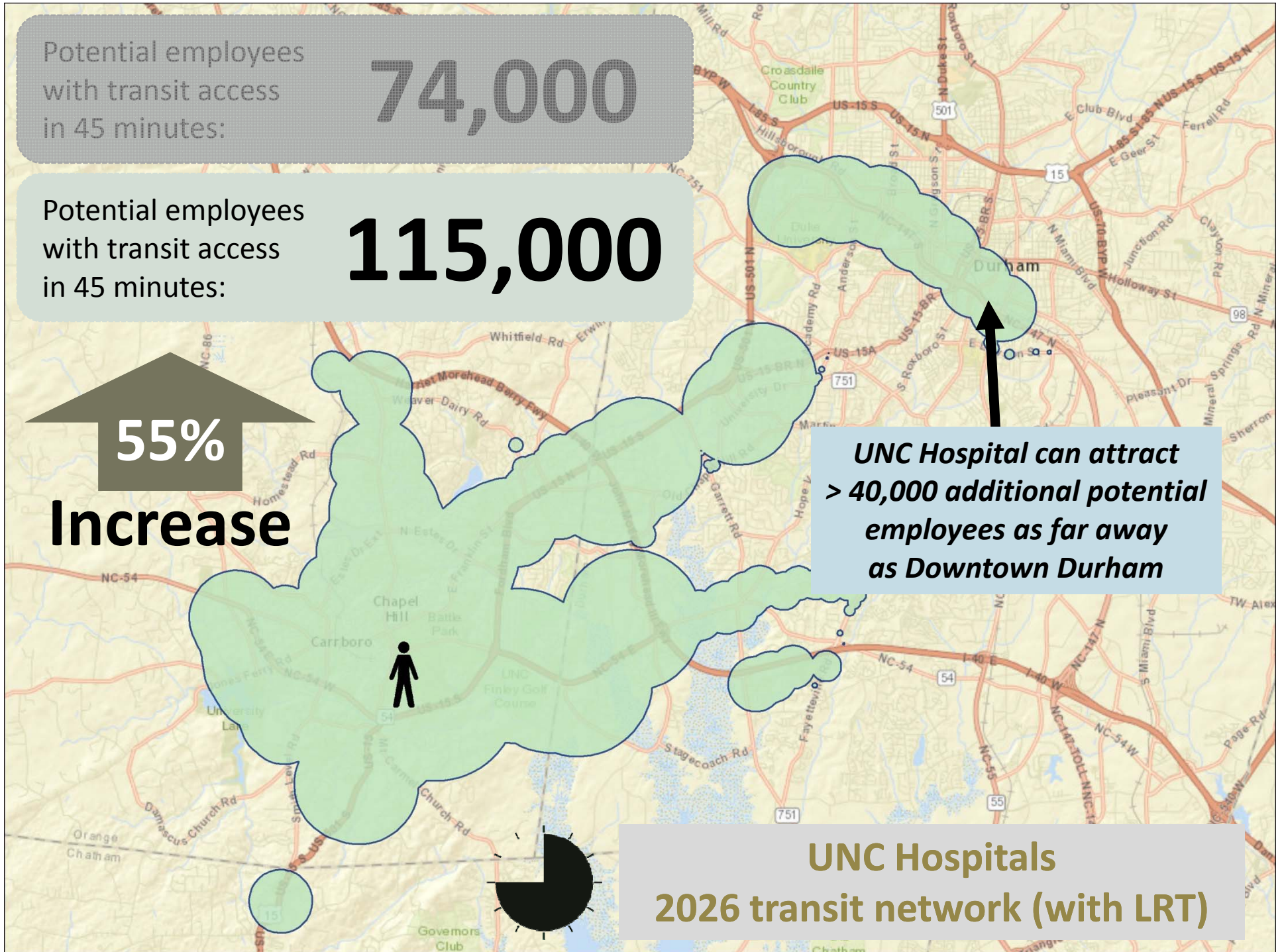
**115,000**

**55%**

**Increase**

***UNC Hospital can attract  
> 40,000 additional potential  
employees as far away  
as Downtown Durham***

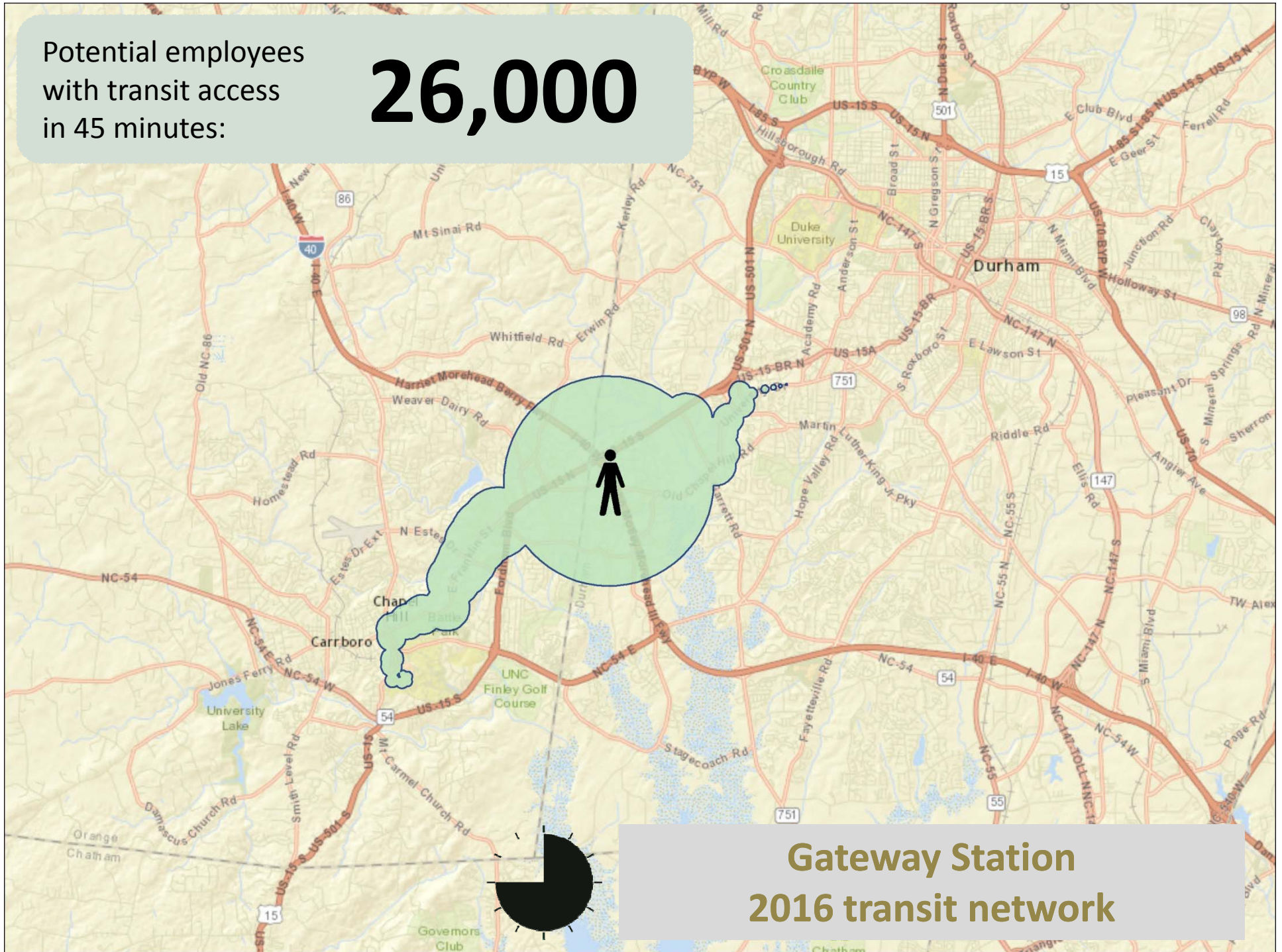
**UNC Hospitals  
2026 transit network (with LRT)**





Potential employees  
with transit access  
in 45 minutes:

**26,000**



**Gateway Station**  
**2016 transit network**



Potential employees  
with transit access  
in 45 minutes:

**26,000**

**440% rise in labor  
market access to suburban  
sites for corporate recruitment  
& expansion**

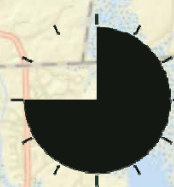
Potential employees  
with transit access  
in 45 minutes:

**140,000**

**440%**

**Increase**

**Gateway Station  
2026 transit network (with LRT)**

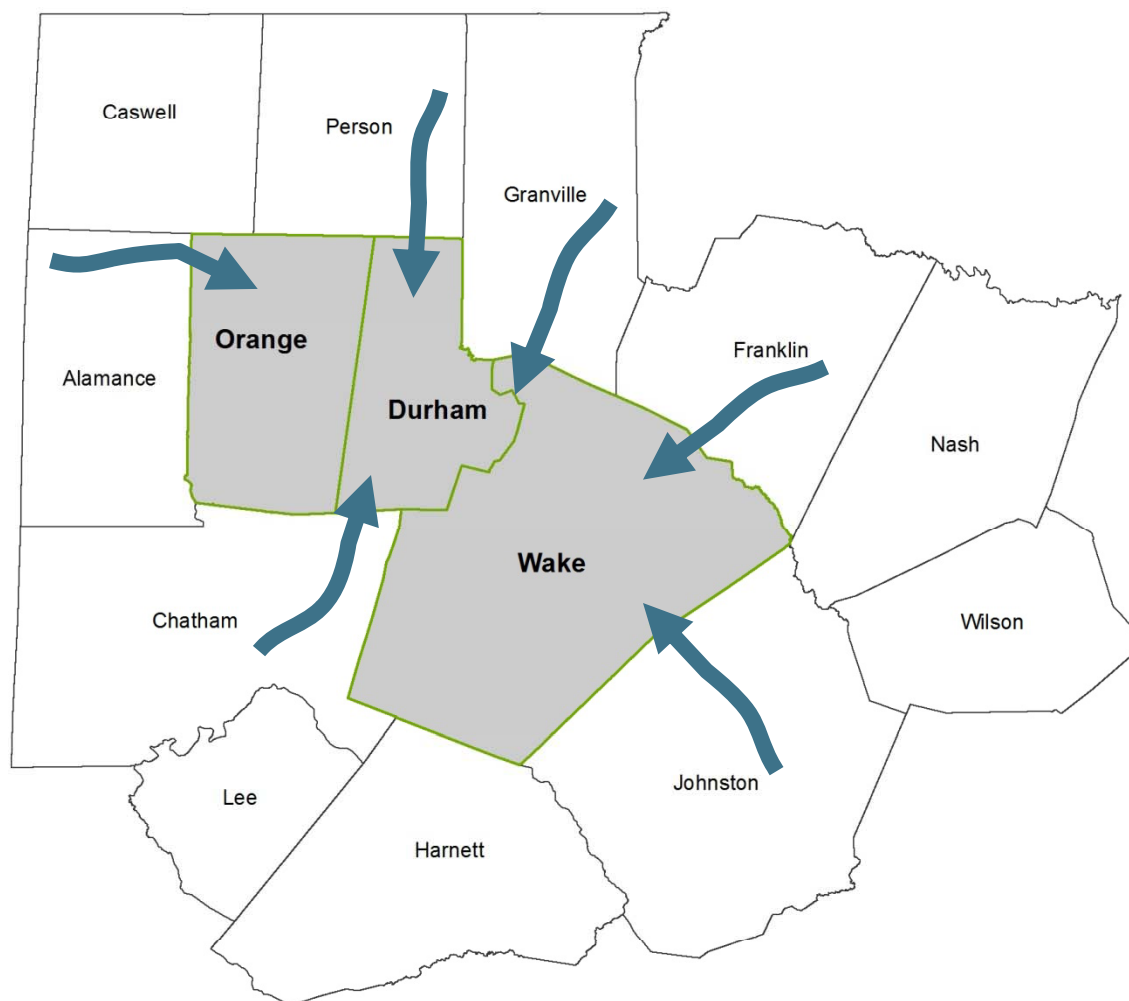


# Commutes into the Triangle from surrounding counties

## Commutes into the core Triangle Counties

**Jobs commuting into core Triangle Counties, and percentage of all workers in each county**

Chatham	11,360 (40%)
Alamance	11,704 (17%)
Person	5,975 (37%)
Granville	9,530 (41%)
Franklin	12,198 (48%)
Johnston	32,300 (42%)



# Discussion

