NORTH CAROLINA
Department of Transportation

Another Way to get from Here to There

Multimodal Innovations Webinar Series

April 27, 2021

Multimodal Innovations Webinar Series

Another Way to get from Here to There

2021

May

The Autonomous Shuttle Pilot – Learning and Leveraging for the Future

June

Tech Showcase (Tentative) – Updates on New Technologies in the Mobility World

Today's Speakers

Calvin Gladney, LEED AP, is President and CEO of Smart Growth America and is a nationally recognized thought leader on the equitable and sustainable revitalization of communities. Prior to being named President and CEO of Smart Growth America in April of 2018, Mr. Gladney was Managing Partner of Mosaic Urban Partners, a real estate development and advisory services firm that advised non-profits, cities, and elected officials on how to sustainably and equitably regenerate their communities. In 2017, Mr. Gladney was also the Urban Land Institute's Senior Visiting Fellow for Equity.

Mr. Gladney graduated *cum laude* from Harvard Law School, received his BS from Cornell University and is a LEED Accredited Professional. He is a trustee of the Urban Land Institute and a board member of the Center for Community Progress. He is also a member of ULI's national Public/Private Partnership Council (Blue Flight). Mr. Gladney also serves as an adjunct professor at Georgetown University's Masters in Real Estate Program where he teaches real estate entrepreneurship and a real estate market analysis class.

As the Policy Director to the Chief Operating Officer of NC's Department of Transportation, **Aldea Coleman** is responsible for managing strategic initiatives and planning processes that impact all divisions within the agency. Aldea joined NCDOT after more than 18 years of transportation and urban planning work in communities throughout the United States. Her previous work includes extensive advocacy work around Complete Streets policy and implementation, as well as managing transit-oriented development planning processes and creating community outreach strategies in multi-cultural communities. Aldea received a master degree in Geography from the University of North Carolina at Charlotte and bachelor degree in Environmental Science from North Carolina A&T State University.

Dr. Eleni Bardaka is an Assistant Professor in the Department of Civil, Construction, and Environmental Engineering at North Carolina State University. Her work focuses on two main research areas: (i) the study of causal social and economic impacts of transportation investments and policies; and (ii) the analysis of aggregate and individual travel demand, preferences, and needs related to public transportation systems, smart mobility systems, and land-use and infrastructure financing policies. In her research, she uses quasi-experimental methods, spatial analysis, and econometric modeling. Dr. Bardaka holds a Ph.D. and M.S. degree in Transportation Engineering and an M.S. degree in Economics from Purdue University. She earned a five-year diploma in Civil Engineering at the National Technical University of Athens in Greece.

Another Way to Get from Here to There: IMD Innovation & Technology Webinar Series - Equity & Access

April 27, 2021

Presentation by Calvin Gladney, @SmartGrowthCEO

Smart Growth America

North Star

"We envision a country
where no matter where you live,
or who you are,
you can enjoy living in a place
that is
healthy, prosperous, and resilient."

Smart Growth America
Improving lives by improving communities

The SGA Family

GOVERNORS' INSTITUTE on community design

LOCUS | Smart Growth America
Improving lives by improving communities

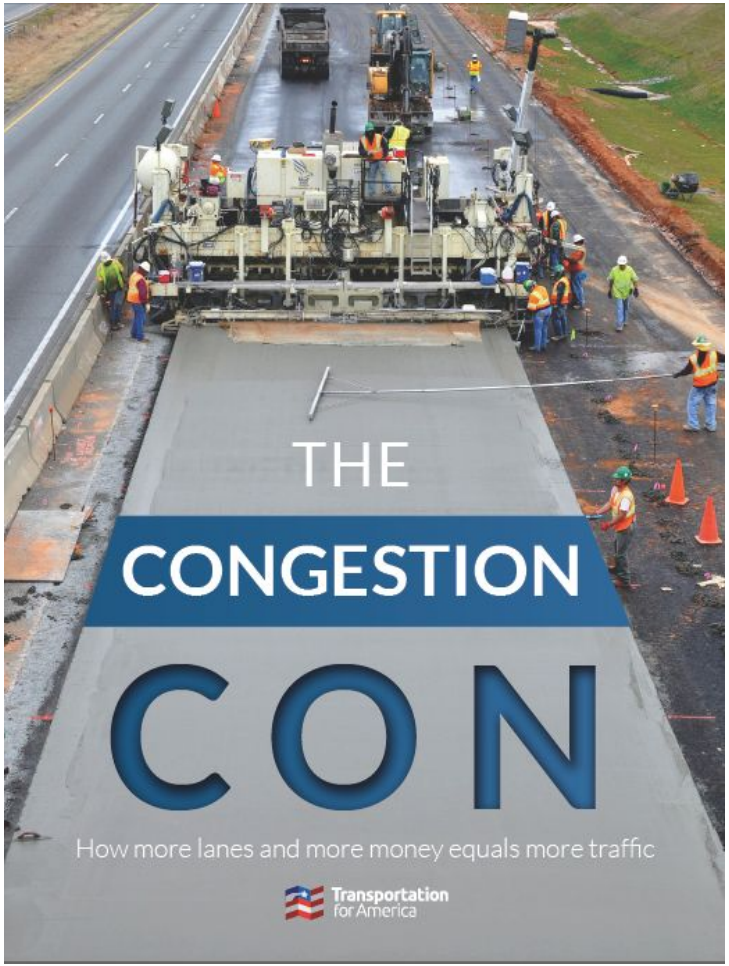
National Complete Streets Coalition

Transportation for America

SSTI State Smart Transportation Initiative

FBCI Form-Based Codes Institute

FIRST & MAIN



Report: Available now https://smartgrowthamerica.org/resources/the-congestion-con-how-more-lanes-and-more-money-equals-more-traffic/

Chasing the dream only to catch the nightmare

Induced demand

How highway expansion actually creates more traffic

Government invests millions in expanding the highway to "alleviate" congestion.

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Transportation for America

Transportation for America

Adding capacity is failing to produce results

Freeway capacity grew faster than population, yet delay exploded

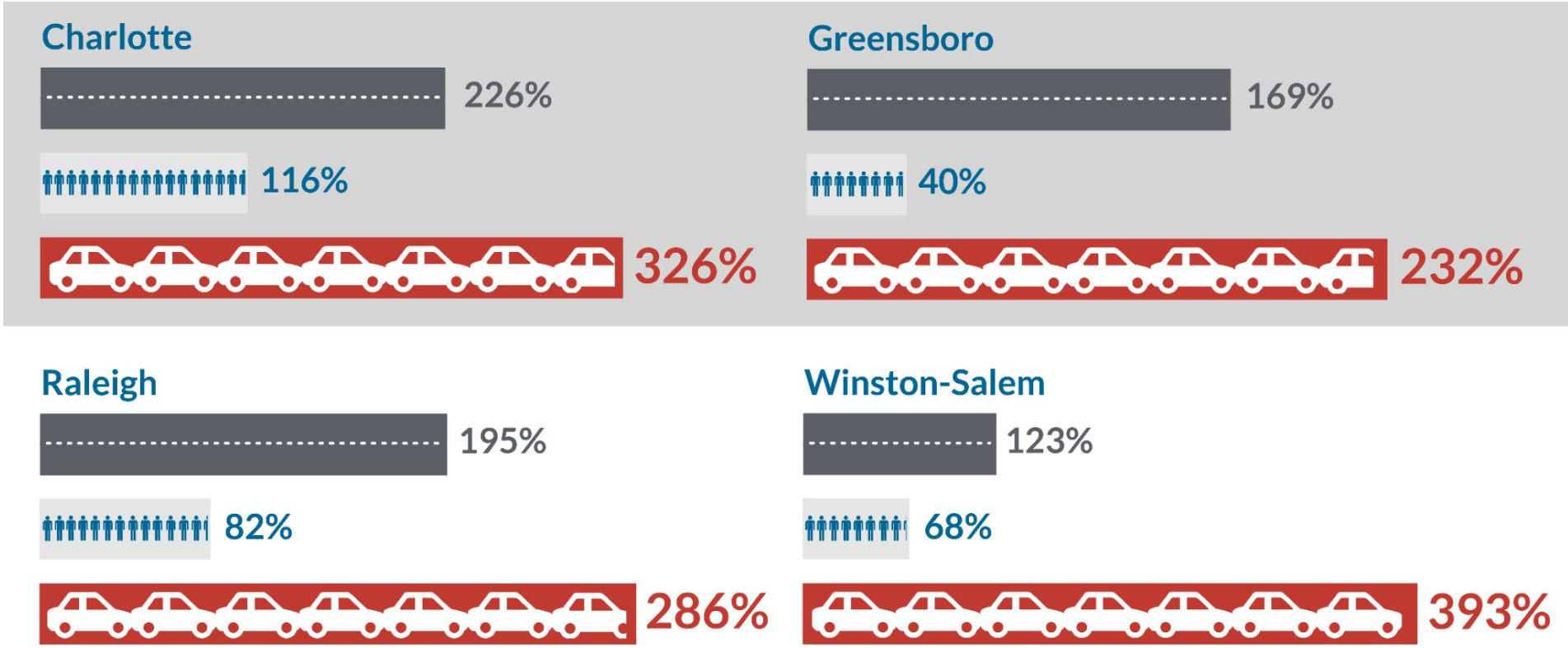
42%

32%

144%

Change in freeway lane-miles, population growth, and annual hours of delay in the largest 100 urbanized areas from 1993-2017. Delay is defined as extra time spent traveling at congested rather than free-flow speeds. While FHWA only provides data on lane-miles of freeway, TTI's delay metrics capture both freeways and arterial roads.

Our “solutions” for congestion are completely disconnected from solving the problem



Change in freeway lane-miles, population growth, and annual hours of delay from 1993-2017.
Delay = extra time spent traveling at congested rather than free-flow speeds.

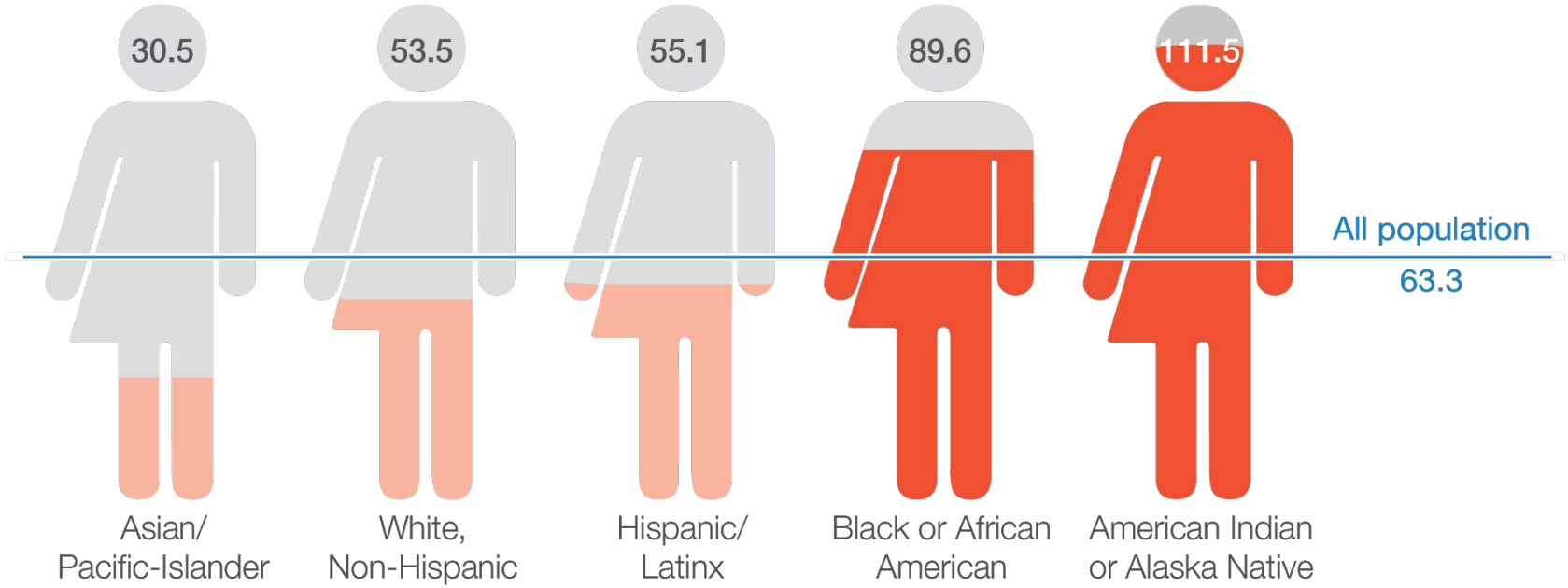

A
FEATURE

Dangerous by Design 2021

Report: Available now smartgrowthamerica.org/dangerous-by-design

People of color are disproportionately represented

Relative pedestrian danger by race and ethnicity (2010-2019)



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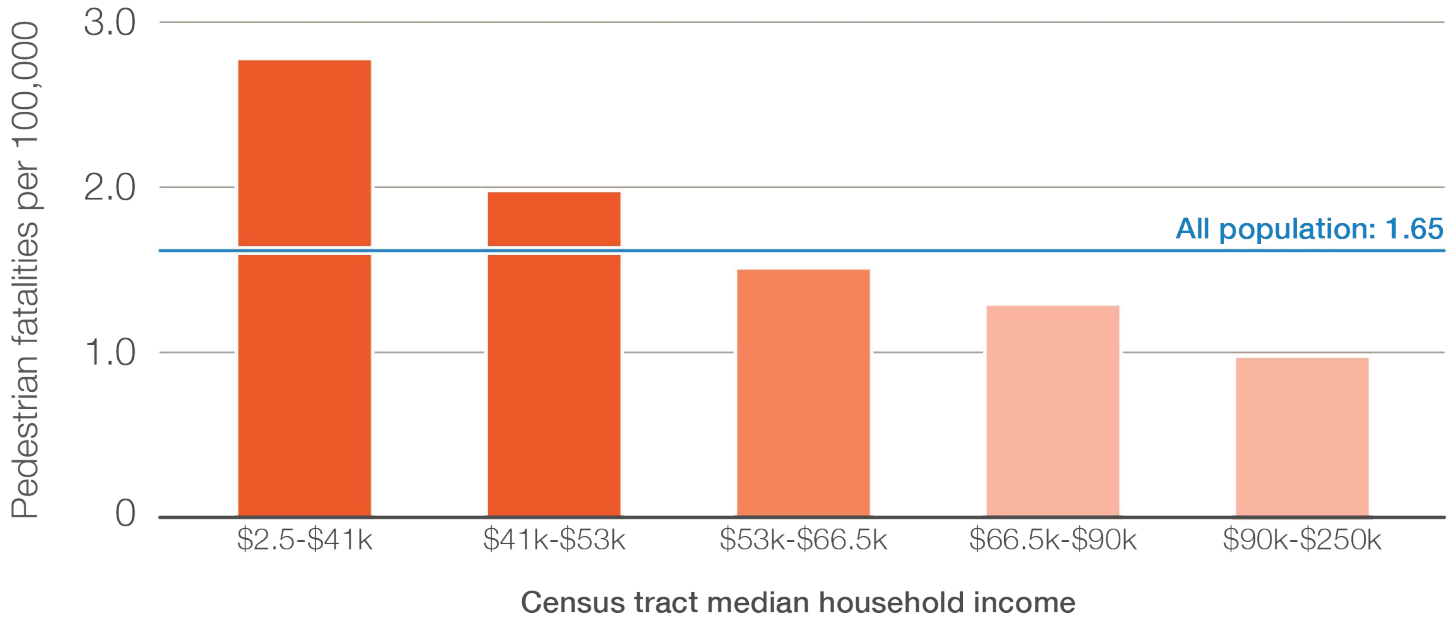
Disparities by neighborhood income

Pedestrian fatalities per 100,000 people by census tract MHI



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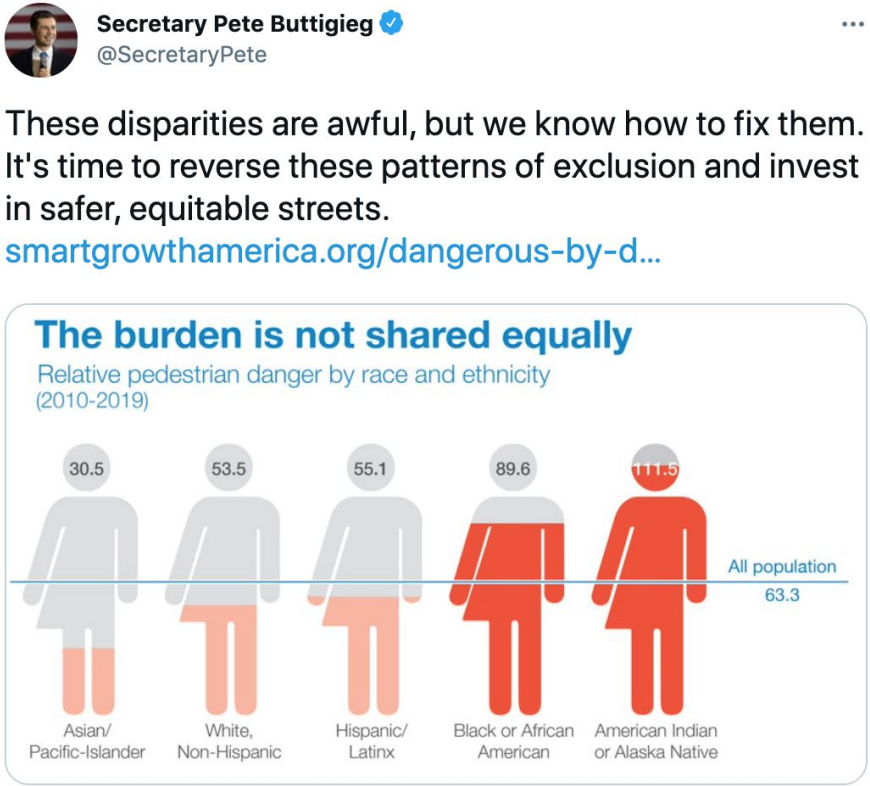

Secretary Pete Buttigieg
@SecretaryPete

These disparities are awful, but we know how to fix them. It's time to reverse these patterns of exclusion and invest in safer, equitable streets.
smartgrowthamerica.org/dangerous-by-d...

1:32 PM · Mar 24, 2021 · Twitter Web App

341 Retweets **74** Quote Tweets **1,636** Likes

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~~Speed~~ or safety

Eliminating right turn "slip" lanes in favor of right-angle turns produces slower, safer turns and shorter crossing distances for people.

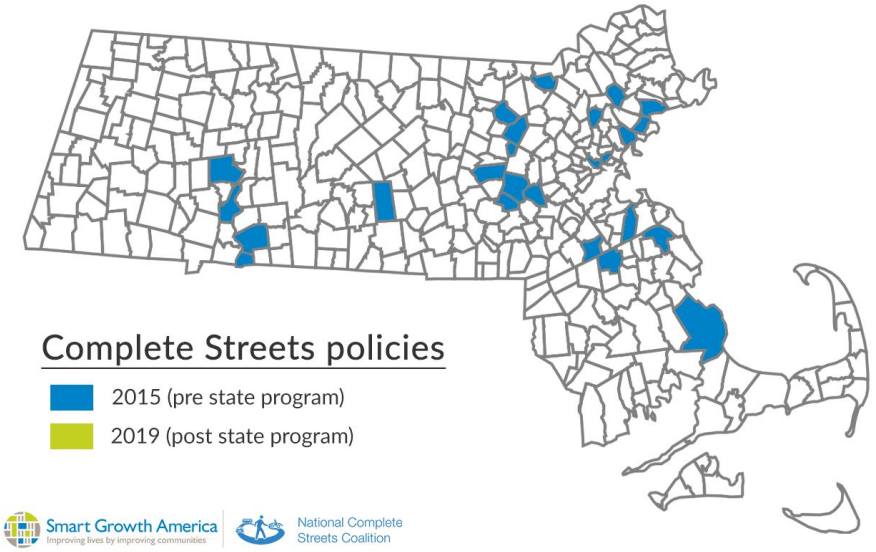
Complete Streets Act of 2021

The Complete Streets Act of 2021 does three basic things:

1. **Sets aside federal funds** to support Complete Streets projects (five percent of annual federal highway funds).

2. **Requires states to create a program** to provide technical assistance and **award funding** for communities to build Complete Streets projects.

3. **Directs localities to adopt a Complete Streets policy** that meets a minimum set of standards to access that dedicated funding.



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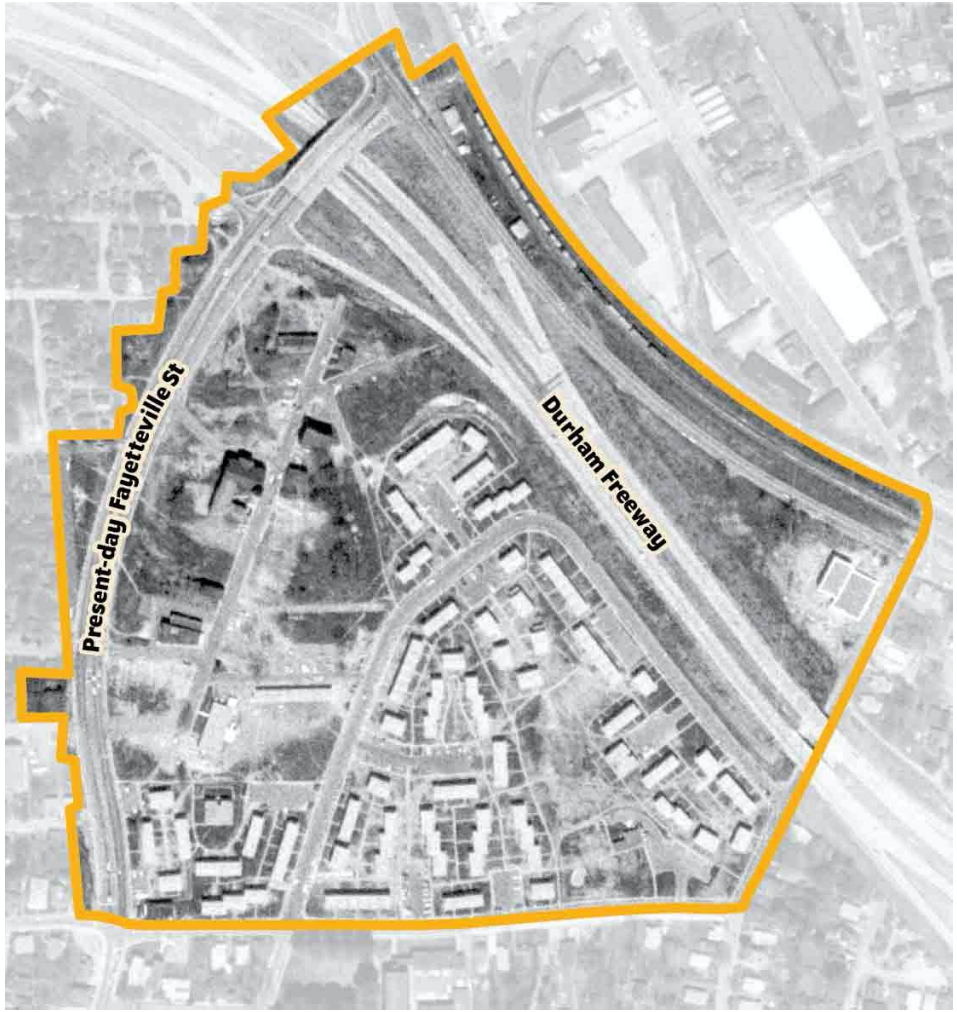
Report: Available now https://www.thirdway.org/digital-event/undoing-the-damage-of-urban-freeways

I-35 UPPER DECK CONSTRUCTION
1973
Austin, Texas

Source: Austin Chronicle

HAYTI
NEIGHBORHOOD
Durham, North Carolina



Durham Freeway
1972
Durham, North Carolina

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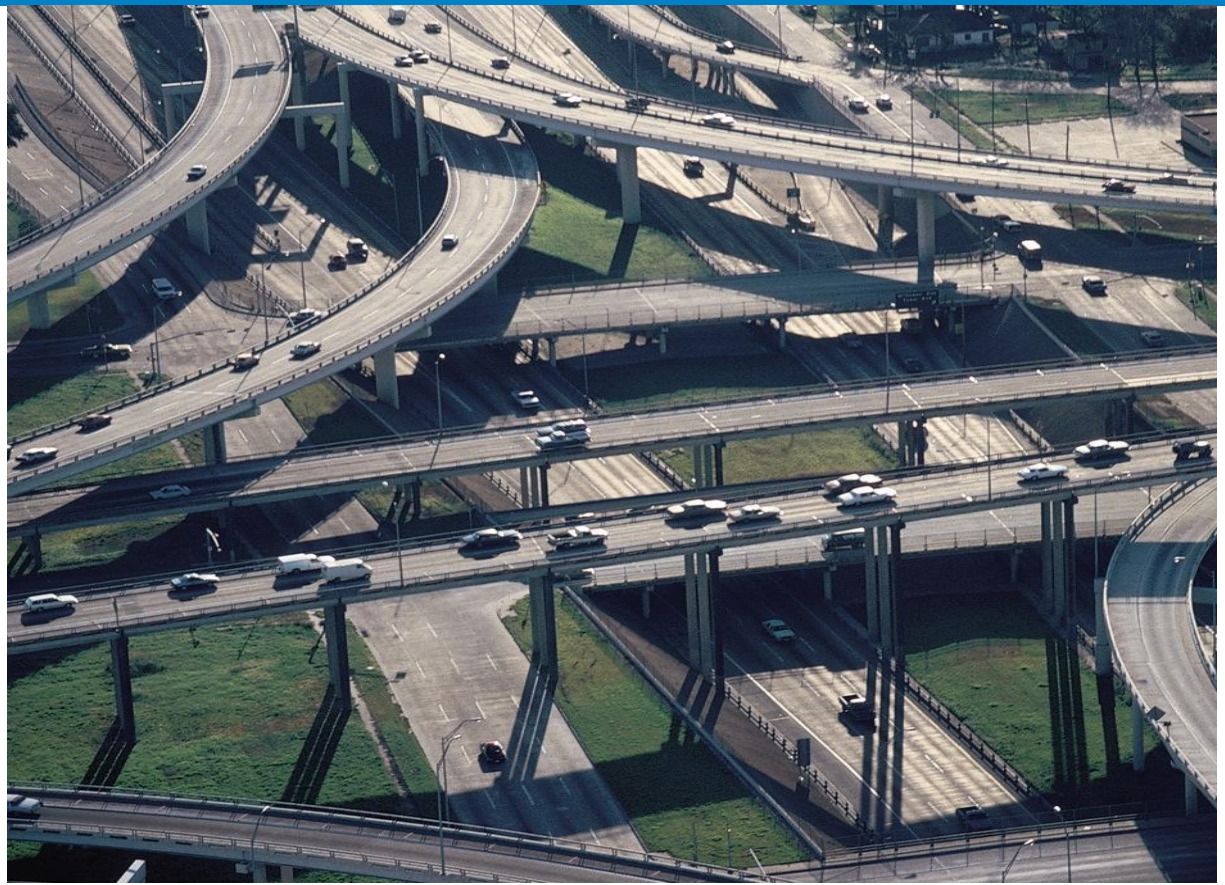
Smart Growth America's **Equity Summit:**

Day three panel: The role of government in undoing the harm caused by the Interstate Highway System

January 26-28 // smartgrowthamerica.org/equity-summit/

https://youtu.be/p5NwGUxO89Y

ACCESS



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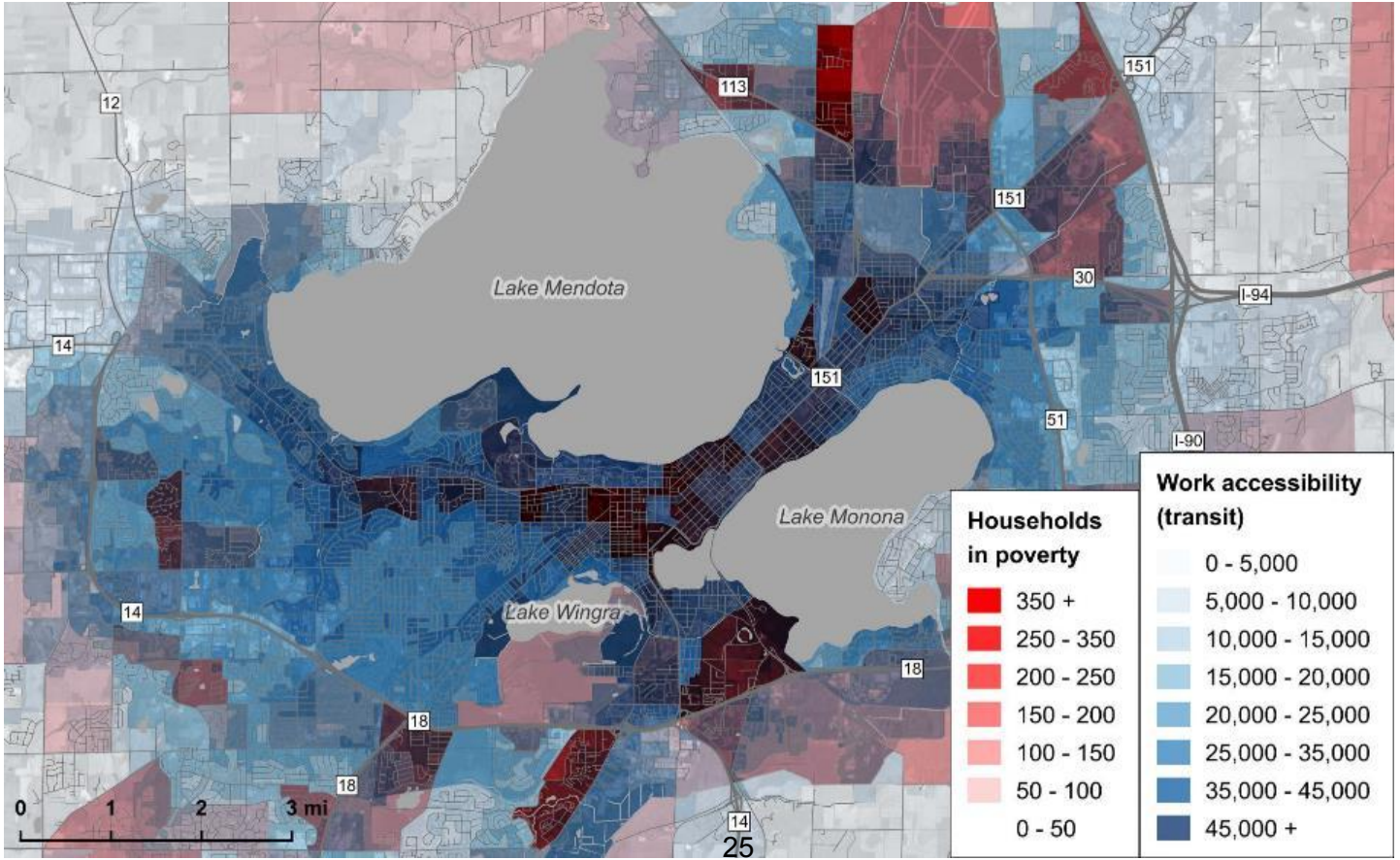
What we measure now

Transportation for America

What we should measure — destination access

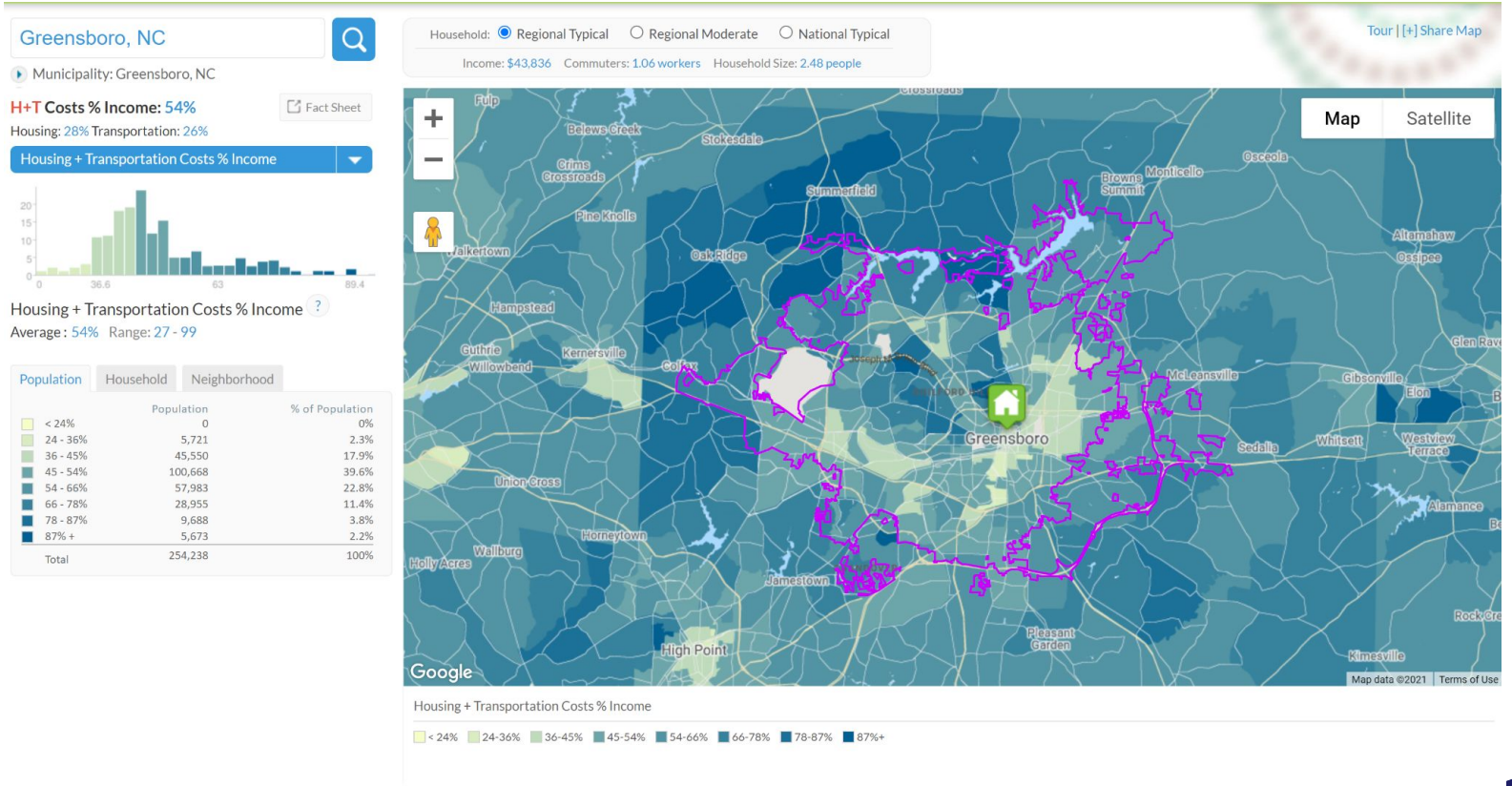
Transportation for America

Access to jobs by transit & poverty



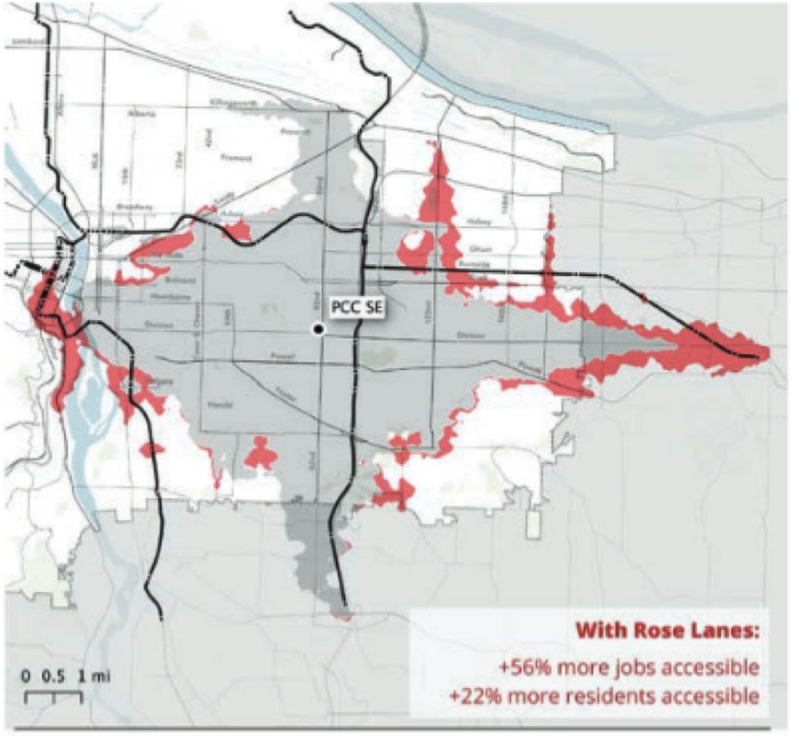
Transportation for America

Access to jobs and other needs — affordability



Transportation for America

Another Proposed Project



Map 9: Reachable in 45 minutes today (gray) and reachable with Rose Lanes (red)

Transportation for America

Presentation by Calvin Gladney, @SmartGrowthCEO

NORTH CAROLINA
Department of Transportation

SEA-Change: An Equity Framework

Aldea Coleman, Policy Director

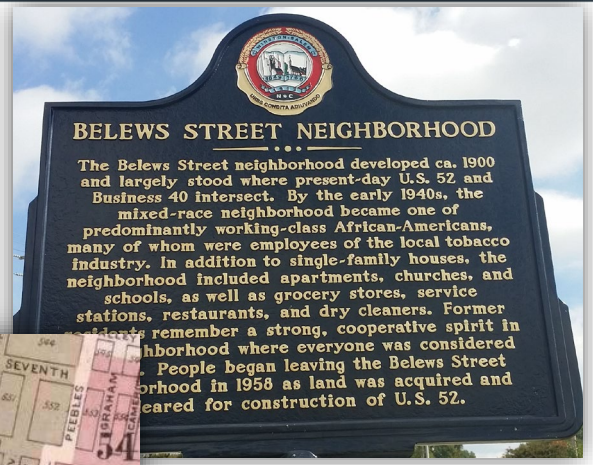
Office of the Chief Operating Officer

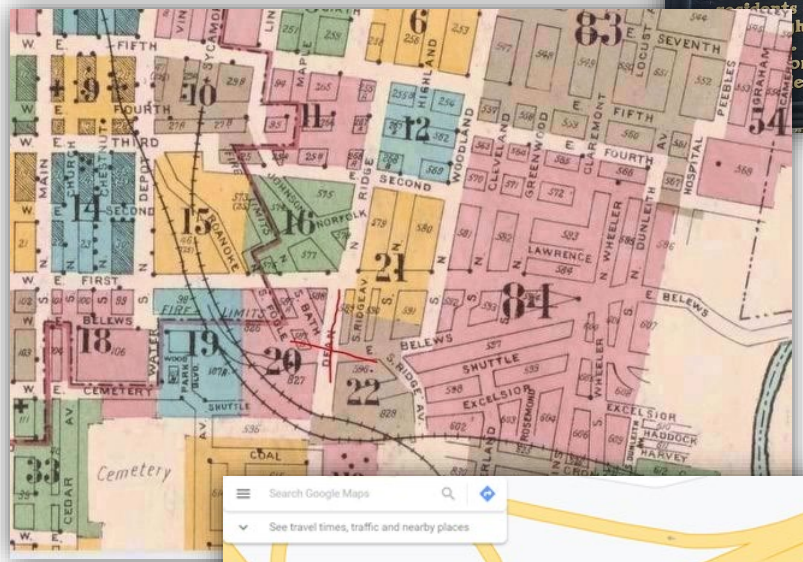
IMD Innovation & Technology Webinar Series | April 27, 2021

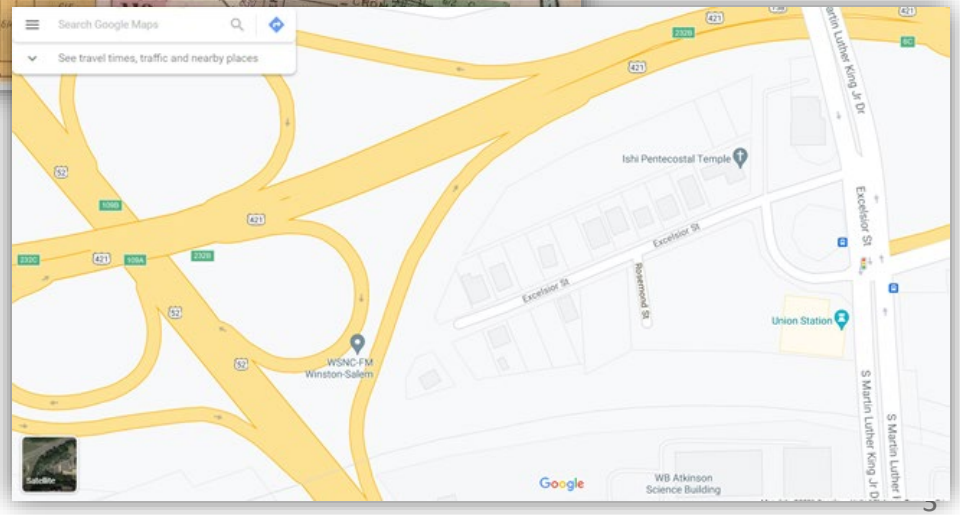
The Strategic Equity Agenda (SEA-Change) is a blueprint for action by offices and divisions within NCDOT. This document provides a set of forward-looking strategies for increasing equity, building upon previous planning initiatives and successes from each office and division. The presentation will highlight how this living document provides a framework for coordinating Diversity, Equity, and Inclusion (DEI) activities across departments to increase equity within the Transportation field.

Transportation + Equity

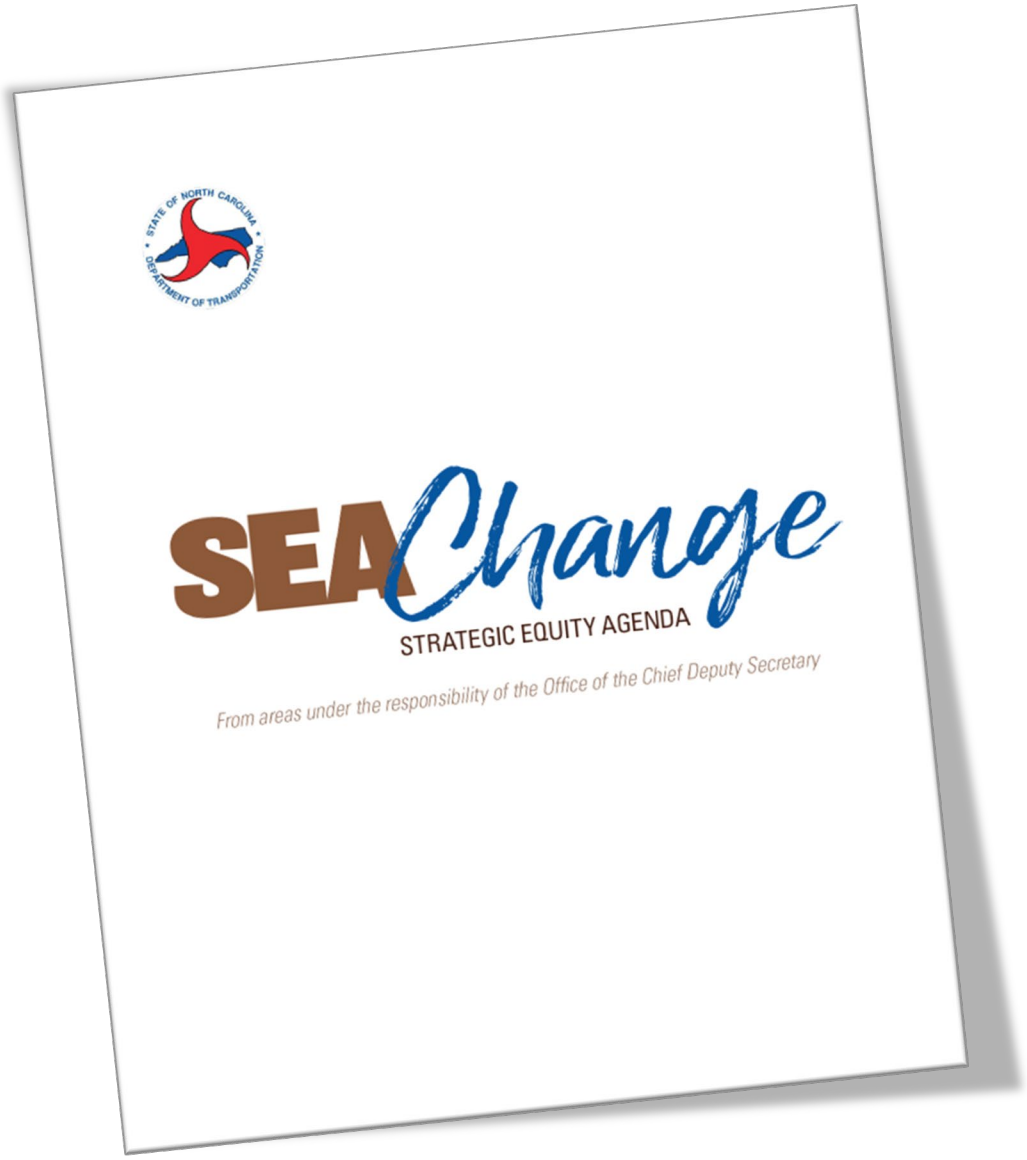
- Transportation development in the U.S. has a deeply inequitable history tied closely to segregation, access and loss of housing, jobs, and other services.
- Addressing this history of discrimination and inequitable access to transportation is key toward expanding opportunities and creating an equitable future.
- Addressing long standing inequities through the involvement of communities in transportation decision making, strategic investment, and the provision of increased services to those with the fewest transportation options can begin to build wealth and opportunity in these communities.







- Drafted by each business unit and division
- Provided a framework for achieving equity goals & collaboration across the organization
- Building block for Secretary's DEI Plan



Participating NCDOT Offices & Divisions

- Office of Civil Rights
- Office of HBCU Outreach
- Transportation Planning
- Logistics + Freight
- Rail Division
- Aviation Division
- Ferry Aviation
- Integrated Mobility

Planning Process

Planning Team

Collected data from a wide range of experience, expertise, and documentation of past equity-related work at NCDOT and beyond

U.S. Department of Transportation Volpe Center

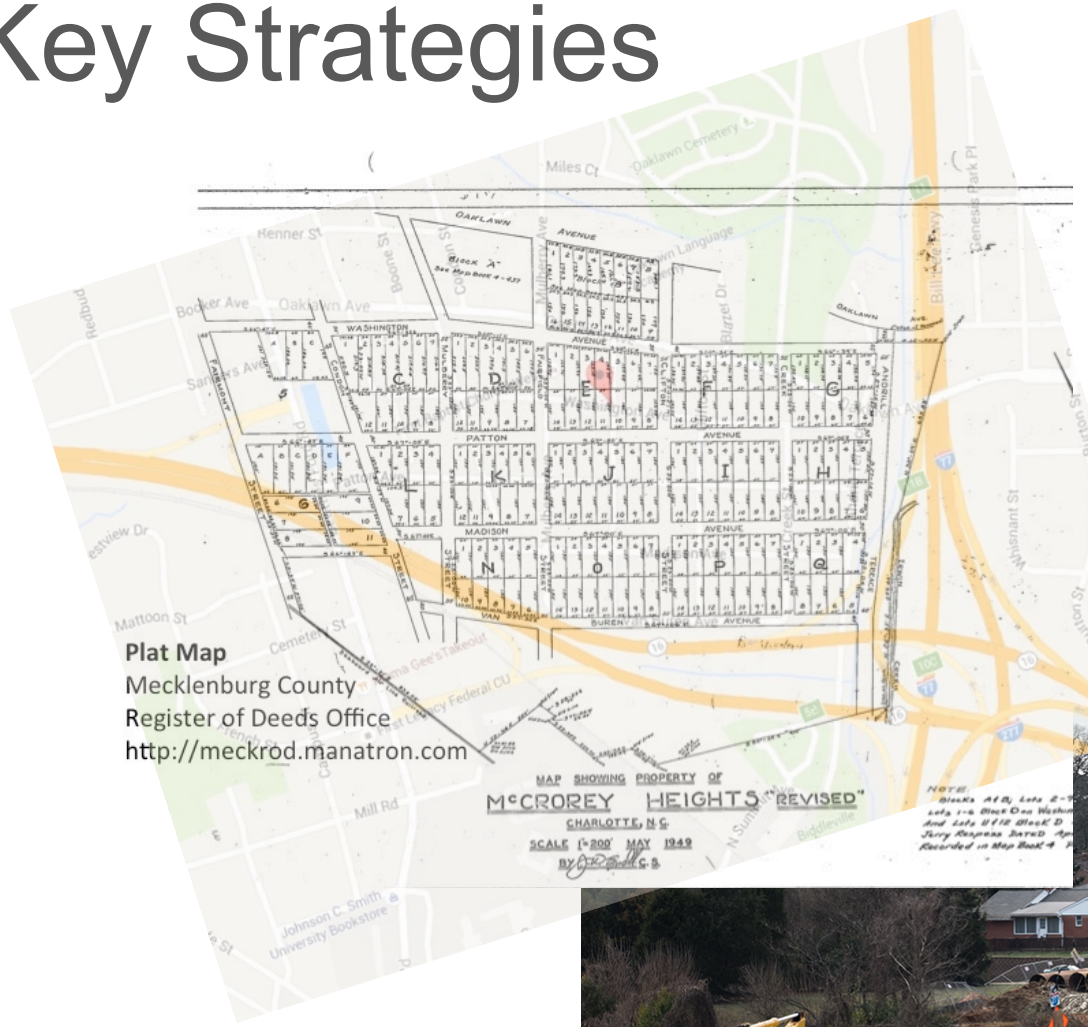
Division/Office Directors

Developed a shared set of goals, strategies, and tactics for advancing equity that draws heavily upon existing programs, activities, and work of the offices and divisions.

STATE OF NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

Guiding Principles & Key Strategies

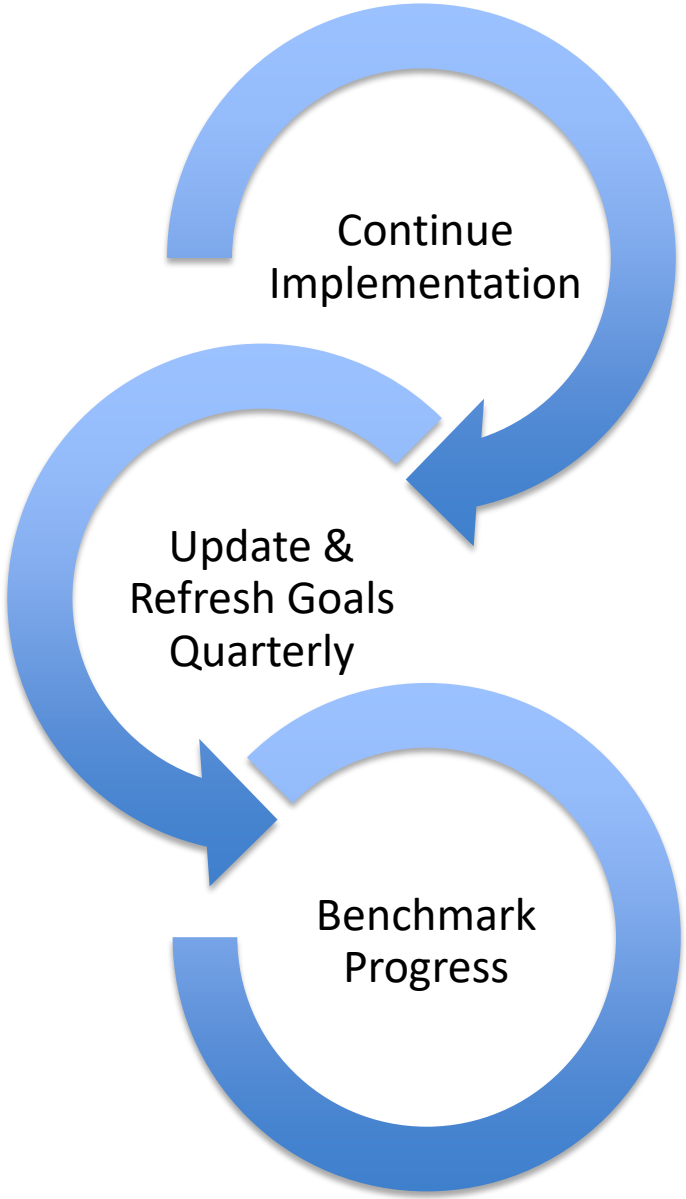
- Strengthen Internal Awareness
- Cultivate a Diverse Workforce
- Use Data & Metrics
- Strengthen Public Engagement
- Leverage Planning Structures
- Promote Diverse Contractors
- Expand Access to Transportation



Recommendations for NCDOT leadership to support equity

Programs	• Add equity/diversity metrics to Goals • Identify an equity champion in each division/office
Policies	• Implement contracting policies that expand & promote opportunities to small & minority companies
Awareness	• Provide regular, clear direction on the importance of DEI efforts & internal/external resources • Develop in-person DEI trainings for all staff
Leadership Development	• Develop intentional programs and targeted marketing for recruiting and retaining minority talent, working with key partners • Develop and retain subject matter experts on issues of equity at the organization
External Partners	• Learn from and support NCDOT partners in supporting equitable outcomes across the transportation industry.

Next Steps



How will Racial Equity and Barriers to Opportunity criterion be evaluated?

The Department encourages applicants to address potential inequities and barriers to equal opportunity in: (1) planning and policies; and (2) project investments. Applicants should reference specific qualifying activities and project components for this criterion, which are listed in Section E.1.a of the NOFO.

How does the INFRA Grant program focus on safety?

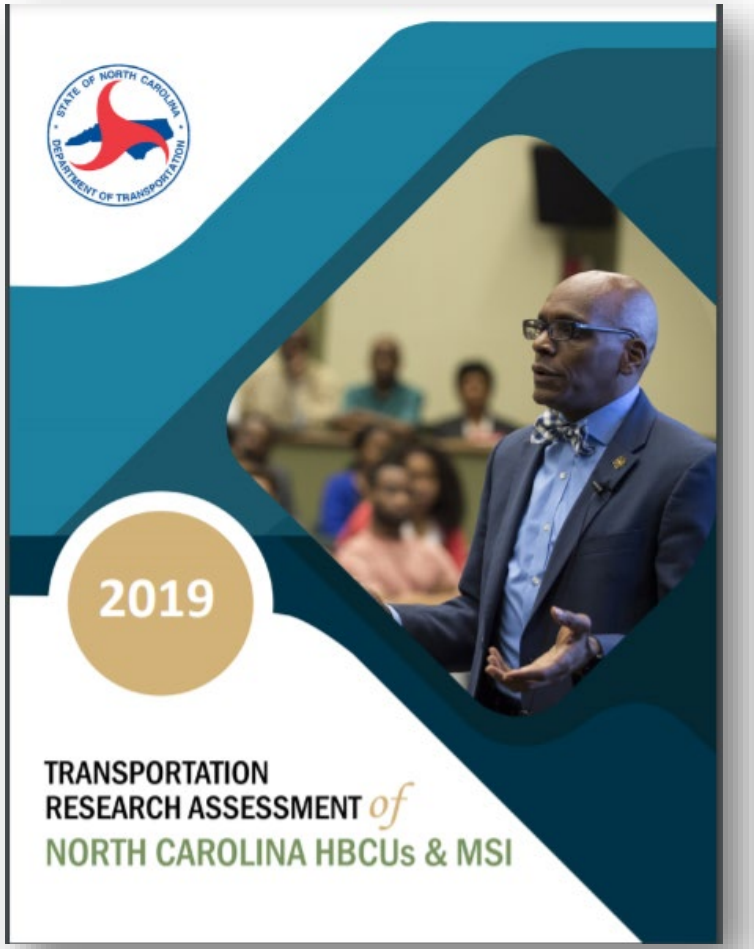
Safety is the top priority of the Department, and this program supports our continued commitment to safety. The Department seeks applications that are likely to yield safety benefits. Projects with significant safety benefits will be competitive under the Economic Vitality criterion.

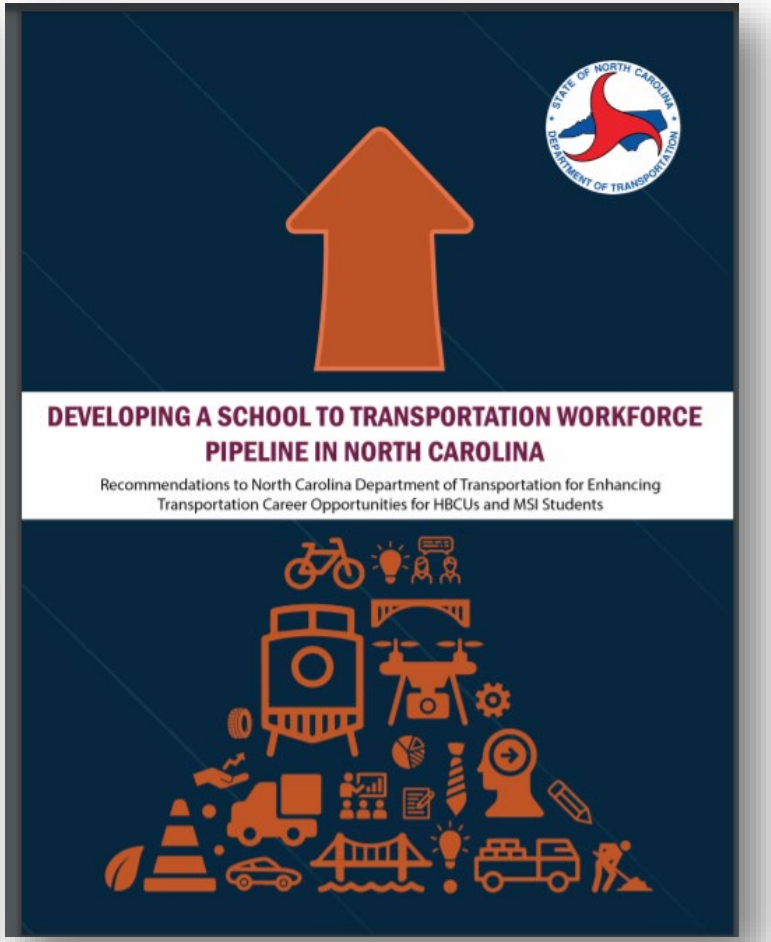
How will INFRA Grants address the needs of rural areas?

Rural transportation networks play a vital role in supporting our national economic vitality. Consistent with the Rural Opportunities to Use Transportation for Economic Success (ROUTES) Initiative, the Department will consider how the project will address the challenges faced by rural areas. The Department is required to award 25% of FY 2021 INFRA funds to rural areas.

Resources


Minorities in Transportation Technology
Baseline Industry & Demographic Trends
2020


2019
TRANSPORTATION RESEARCH ASSESSMENT of
NORTH CAROLINA HBCUs & MSI


DEVELOPING A SCHOOL TO TRANSPORTATION WORKFORCE PIPELINE IN NORTH CAROLINA
Recommendations to North Carolina Department of Transportation for Enhancing Transportation Career Opportunities for HBCUs and MSI Students

NORTH CAROLINA
Department of Transportation






Thank you!

Aldea Coleman, Policy Director

Office of the Chief Operating Officer

accoleman@ncdot.gov

Poverty Suburbanization and Changes in Access to Transit over Time

Eleni Bardaka

Assistant Professor, NCSU

Suburbanization of poverty

- 1970s: Poverty started increasing, income inequality, recessions
- Low-income households attracted to suburbs
  - More affordable; more low-skill jobs; federal efforts to "deconcentrate" poverty
- 1990s: similar low-income population in cities and suburbs
- By 2015: low-income population in the suburbs had doubled and poverty rate increased (from 8% to 12%)

How has access to transit changed over time for the low-income population?

- How the geography of poverty has changed over time
- How transit systems have evolved over time in urban and suburban areas

Research scope: Triangle Region, NC

Why is this important?

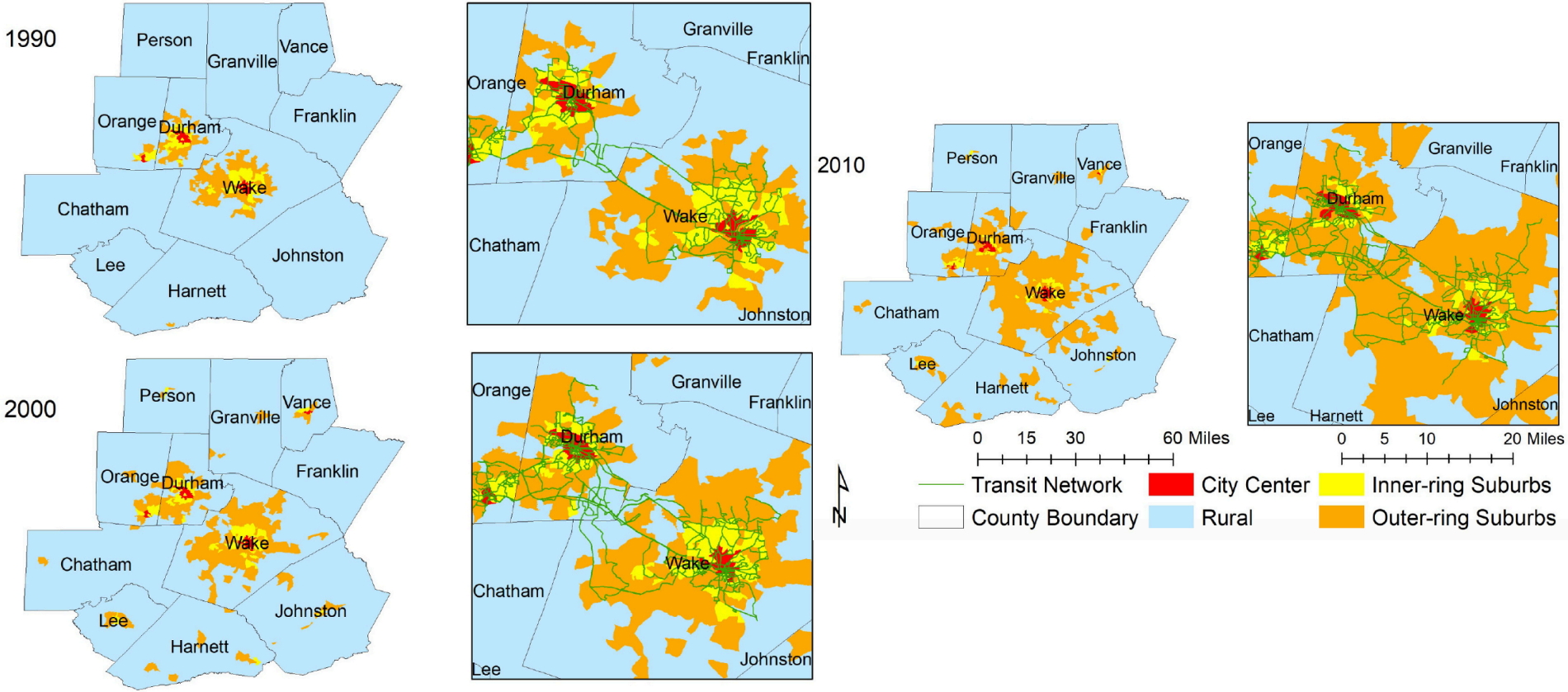
- Public transportation agencies strive to apply equity planning premises and prioritize access to transit for population groups that cannot afford other modes
- Suburbanization trends pose additional challenges

- Understanding the direction and magnitude of the changes in poverty and transit access -> encouraging agencies to **identify equitable and efficient solutions**

Defining geographical areas

- City center
    - High-density areas
- Inner-ring suburbs
    - Areas built during the construction wave after WWII
- Outer-ring suburbs
    - Areas mainly built after 1970
- Rural areas
    - Anything outside the US Census urban boundary

Growth of suburban areas, 1990-2010



Growth of suburban areas, 1990-2010

		City Center	Inner-Ring Suburbs	Outer-Ring Suburbs	Rural
Total area (sq. miles)	1990	17.56	76.28	209.32	5324.01
	2000	19.14	91.13	482.40	5034.50
	2010	18.77	51.75	847.79	4708.88
Percentage change in total area	%Δ(2000–1990)	9.02%	19.46%	130.47%	−5.44%
	%Δ(2010–2000)	−1.95%	−43.21%	75.74%	−6.47%
Percentage of area shifted[1]	%Δ(2000–1990)	8.65%	12.67%	13.23%	5.93%
	%Δ(2010–2000)	18.10%	54.78%	8.01%	7.03%

[1] Proportion of land of a given area that is no longer part of the same geographical category in the next decade. For example, 8.65% of the city center areas in 1990 are no longer classified as city center areas in 2000.

- Small changes in city center total area
- Redevelopment in inner-ring suburbs -> decrease in total area
- Noteworthy expansion of outer-ring suburbs

Changes in the geography of poverty

	Changing Geography			1990 Constant Geography		
	Poverty Rate	Low-income Population	Low-income Population Density	Poverty Rate	Low-income Population	Low-income Population Density
			City Center			**City Center**
1990	23%	17,615	1267	23%	17,615	1267
2000	27%	20,069	1349	25%	18,475	1278
2011	28%	22,573	1492	30%	23,926	1565
%Δ(2000–1990)	17%	14%	7%	8%	5%	1%
%Δ(2011–2000)	3%	12%	11%	20%	30%	22%
			Inner-Ring Suburbs			**Inner-Ring Suburbs**
1990	12%	22,830	438	12%	22,830	438
2000	16%	37,391	564	17%	31,468	624
2011	22%	31,195	778	20%	49,563	931
%Δ(2000–1990)	35%	64%	29%	40%	38%	42%
%Δ(2011–2000)	32%	−17%	38%	18%	58%	49%
			Outer-Ring Suburbs			**Outer-Ring Suburbs**
1990	5%	10,366	72	5%	10,366	72
2000	8%	36,700	117	7%	18,155	124
2011	13%	129,253	389	11%	42,534	311
%Δ(2000–1990)	63%	254%	62%	34%	75%	72%
%Δ(2011–2000)	59%	252%	233%	56%	134%	151%
			Rural			**Rural**
1990	11%	69,501	54	11%	69,501	54
2000	10%	60,516	20	10%	86,578	69
2011	15%	93,111	37	15%	160,109	125
%Δ(2000–1990)	−10%	−13%	−62%	−3%	25%	27%
%Δ(2011–2000)	57%	54%	82%	41%	85%	81%

Changes in the bus network over time

	Changing Geography[1]				1990 Constant Geography[1]				
	City Center	Inner-Ring Suburbs	Outer-Ring Suburbs	Rural	City Center	Inner-Ring Suburbs	Outer-Ring Suburbs	Rural	Total
Length of bus lines (miles)									
1995	249.35	349.43	231.32	136.07	249.35	349.43	231.32	136.07	966.17
2005	377.86	509.35	642.53	383.59	353.87	556.32	566.40	436.75	1913.33
2015	441.39	361.85	1556.27	256.74	430.92	731.27	704.14	749.93	2616.26
%Δ(2005–1995)	52%	46%	178%	182%	42%	59%	145%	221%	98%
%Δ(2015–2005)	17%	−29%	142%	−33%	22%	31%	24%	72%	37%
Number of bus stops									
1995	674	1057	586	165	674	1057	586	165	2482
2005	809	1330	1166	226	786	1350	1020	375	3531
2015	797	835	2316	121	815	1483	1203	568	4069
%Δ(2005–1995)	20%	26%	99%	37%	17%	28%	74%	127%	42%
%Δ(2015–2005)	−1%	−37%	99%	−46%	4%	10%	18%	51%	15%
Density of bus lines (miles per sq. mile)									
1995	14.20	4.58	1.11	0.03	14.20	4.58	1.11	0.03	0.17
2005	19.74	5.59	1.33	0.08	20.16	7.29	2.71	0.08	0.34
2015	23.52	6.99	1.84	0.05	24.55	9.59	3.36	0.14	0.46
%Δ(2005–1995)	39%	22%	21%	198%	42%	59%	145%	221%	98%
%Δ(2015–2005)	19%	25%	38%	−28%	22%	31%	24%	72%	37%
Density of bus stops (number per sq. mile)									
1995	38.39	13.86	2.80	0.03	38.39	13.86	2.80	0.03	0.44
2005	42.27	14.60	2.42	0.04	44.77	17.70	4.87	0.07	0.63
2015	42.47	16.13	2.73	0.03	46.42	19.44	5.75	0.11	0.72
%Δ(2005–1995)	10%	5%	−14%	45%	17%	28%	74%	127%	42%
%Δ(2015–2005)	0%	11%	13%	−43%	4%	10%	18%	51%	15%

Measuring access to public transportation

- Impedance (friction) to reach a bus stop by walking
- Zero friction if walking time to transit is 5 minutes or less

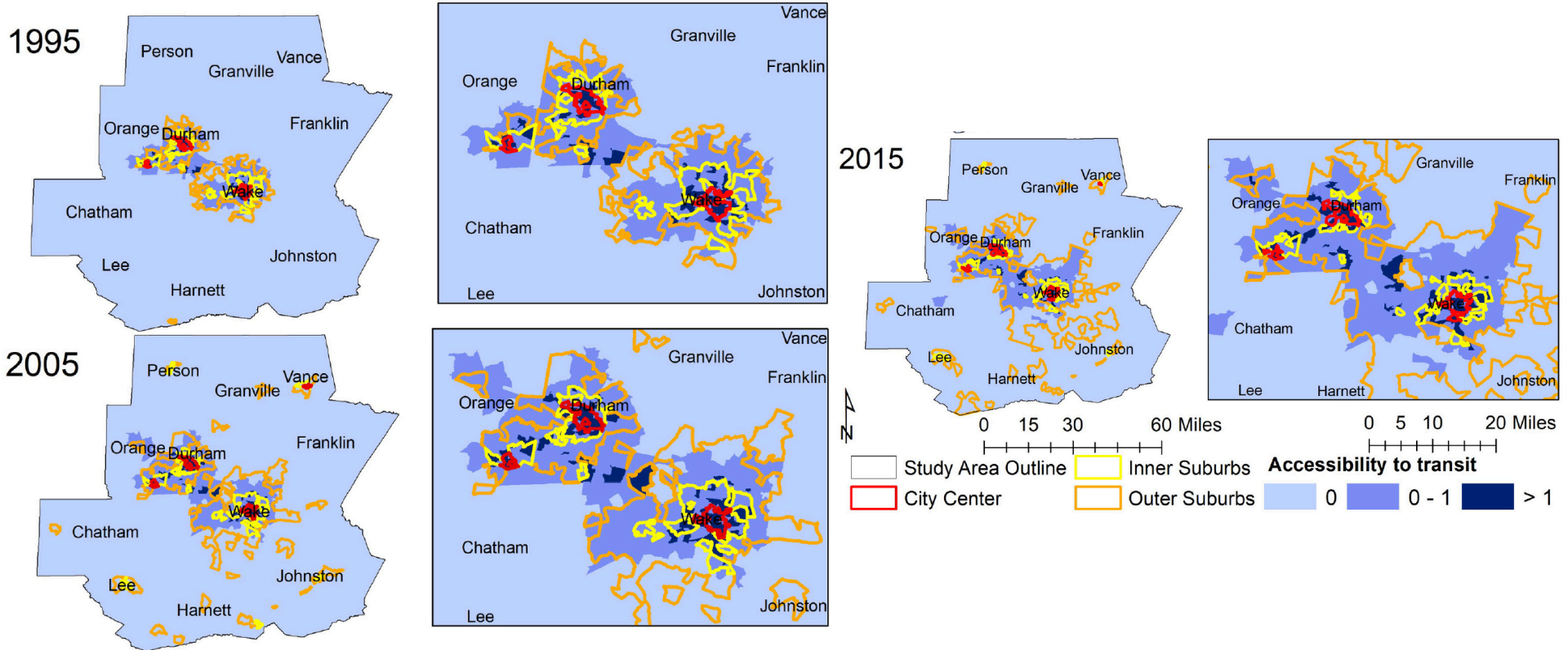
- Walking time: shortest network distance between the centroid of a census block group and a bus stop.

Access to public transportation, 1995-2015

- Increase in transit access
  - Much higher for original outer-ring suburbs
  - Lower for newly suburbanized areas
- Access remains low in the outer-suburbs and less than 12% of what is experienced in city center areas

	Changing Geography				1990 Constant Geography			
	City Center	Inner-Ring Suburbs	Outer-Ring Suburbs	Rural	City Center	Inner-Ring Suburbs	Outer-Ring Suburbs	Rural
1995	3.209	0.980	0.142	0.005	3.209	0.980	0.142	0.005
2005	3.618	1.008	0.265	0.008	3.796	1.342	0.362	0.013
2015	3.880	1.190	0.457	0.000	3.982	1.471	0.484	0.023
%Δ(2005–1995)	13%	3%	86%	49%	18%	37%	154%	137%
%Δ(2015–2005)	7%	18%	72%	−98%	5%	10%	34%	83%

Access to public transportation, 1995-2015



On average, high-poverty areas* experience higher access to transit

* Block groups that belong to the 20% of block groups with the highest poverty rate

Summary

- Comparable increase in poverty rate and access over time for city centers and inner suburbs
- Highest increase in both poverty and bus access happened in the outer-ring suburbs
- Improvements in transit access were lower in the recently urbanized areas (within the outer-ring suburbs) where two-thirds of the outer suburban poor population reside
- The access experienced by 130,000 people below the poverty limit in outer suburbs is one tenth of city center access level

Thank you!

Access to full study:
https://www.sciencedirect.com/science/article/pii/S0966692320310073

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- ✓ This session has been approved for 1 AICP CM Hour.
- ✓ The Reference Number is 9214876.
- ✓ Attendance is automatically recorded.