INTRODUCTORY INFORMATION

Definitions

- **Area Median Income** - The "area median income" (AMI) is the median income of a certain geographic area defined annually by the United States Department of Housing and Development (HUD). The median splits the income distribution into two equal parts: one-half of the cases falling below the median income and one-half above the median.

- **Atlanta regional population** - For the purposes of this plan unless otherwise noted, the regional population is defined as the Atlanta-Sandy Springs-Roswell Metropolitan Statistical Area (MSA) and includes only the non-institutionalized, civilian population. This MSA is made up of 29 counties: Barrow, Bartow, Butts, Carroll, Cherokee, Clayton, Cobb, Coweta, Dawson, DeKalb, Douglas, Fayette, Forsyth, Fulton, Gwinnett, Haralson, Heard, Henry, Jasper, Lamar, Meriwether, Morgan, Newton, Paulding, Pickens, Pike, Rockdale, Spalding, and Walton. The most recently available data at the time of this plan's publication was the US Census's American Community Survey 5-year estimates. (See Appendix A).

- **Demand-response transportation (DRT)** – Also known as demand-responsive transportation, this is any transportation option that takes people directly from their home to their destination without stopping or requiring a transfer. It can be a component of a trip that incorporates transit (demand-response can be combined with other options to complete the trip). These trips might also be referred to as curb-to-curb (picked up/dropped off at the curb) or door-to-door (picked up/dropped off at the door) to express this nuance. Carpool/vanpool, taxis/transportation network companies (e.g., Lyft/Uber), and specialized services (defined below, including ADA paratransit) are all types of DRT.

- **Guideway transit** - Also known as personal rapid transit, group rapid transit, or people mover, this is a capital expense for right-of-way facilities for rail or the exclusive use of buses, including the buildings and structures dedicated for the operation of transit vehicles including elevated and subway structures, tunnels, bridges, track and power systems for rail, and paved highway lanes dedicated to bus.[1]

- **Human Services Transportation (HST)** – An approach to transportation services and planning that integrates personal needs arising from various characteristics (e.g., age, disability, limited English proficiency, low income, and veteran status) into the larger transportation system.

- **Hybrid demand-response/fixed transit** – This option combines elements of both fixed route/guideway public transit (i.e., bus and train) and demand-response transportation (DRT, defined above). Also known as deviated fixed route, this option is characterized by having some components of fixed routes and points in the service while also providing the possibility to schedule a pick-up/drop-off at certain locations (e.g., home, various destinations). In the Atlanta region, the only example of this service, called "Flex", is in Cobb County.[2]

- **Mobility Management (MM)** – An approach to transportation services and planning that focuses on coordination, capturing efficiencies, integrating modal options, and in some cases, specific needs of Human Services Transportation (HST) populations.

- **National population** - For the purposes of this plan, the national population includes only the non-institutionalized, civilian population.

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1 " Fact Book Glossary"

2 "Cobb Community Transit FLEX."

- **Non-SOV options** – Non-single occupancy vehicle options (SOV) include all travel modes except driving a car by oneself. For the purposes of this plan, they include fixed route/guideway public transit (i.e., bus and train), cycling, walking, carpool/vanpool, taxis and transportation network companies (e.g., Lyft/Uber), "specialized services" (defined below), hybrid demand-response/fixed transit, and telework/teleconnect.

- **Personal eligibility** - This indicates the personal characteristics that identify a potential user of a service as eligible or ineligible. Many "specialized services" (defined below) require a potential user to go through an eligibility determination process. Often these characteristics relate to age, disability, limited English proficiency, low income, veteran status, or a combination of multiple characteristics. Personal eligibility and "trip eligibility" (defined below) may be used in combination to determine eligibility.

- **Specialized services** – These services are for people with disabilities and/or with medical needs who require a curb-to-curb trip (some may also go door-to-door). This includes Americans with Disabilities Act (ADA) paratransit provided by transit agencies as well as many other services.

- **Telework/teleconnect** – Telework is the concept of working from one's home. Though it is not exactly a transportation mode/option, it is a commuting option with growing adoption rates in the Atlanta region. Teleconnect refers to other non-work related trips that may be done online instead of in-person. Examples of teleconnect include medical appointments by videoconference and online shopping, but there are many more.

- **Trip eligibility** – This indicates the geographic or "trip purpose" (defined below) eligibility components of a trip. For example, for ADA paratransit, only trips with both origin (starting location) and destination (finishing location) ¾ of a mile from fixed route service are eligible. If the home location of a person (often the origin or destination) falls outside of the service area, it does not make them ineligible for the service so long as they can be transported to the service area for the ADA paratransit trip. While ADA paratransit does not have trip purpose restrictions, many specialized services do (e.g., must be medial purpose).

- **Trip purpose** – This is the primary reason for the transportation trip. Particularly for specialized services, trip purposes can be very limited (e.g., Medicaid trips are only for medical purposes). ADA paratransit is one example of a specialized service that does not have purpose limitations.

- **Veterans** – Unless otherwise noted, this plan uses data from the US Census American Community Survey to discuss statistics related to HST populations, including veterans. The Census defines veterans as "men and women who have served (even for a short time), but are not currently serving, on active duty in the U.S. Army, Navy, Air Force, Marine Corps, or the Coast Guard, or who served in the U.S. Merchant Marine during World War II. People who served in the National Guard or Reserves are classified as veterans only if they were ever called or ordered to active duty, not counting the 4-6 months for initial training or yearly summer camps".[3]

3 "Veterans. Definitions and concepts." (Emphasis added)

Acronyms

- Aging and Disability Resource Connection (ADRC)
- American Community Survey (ACS)
- American Public Transit Association (APTA)
- Americans with Disabilities Act (ADA)
- Area Median Income (AMI)
- Atlanta Regional Commission (ARC)
- Center for Neighborhood Technology (CNT)
- Cherokee Area Transportation System (CATS)
- Federal Highway Administration (FHWA) Congestion Mitigation and Air Quality Improvement Program (CMAQ)
- Federal Highway Administration (FHWA) Surface Transportation Program (STP)
- Federal Highway Administration (FHWA) Transportation Alternatives Program (TAP)
- Federal Transportation Administration (FTA)
- General Transit Feed Specification (GTFS) data
- General Transit Feed Specification Real Time (GTFS RT) data
- Georgia Department of Community Health (DCH)
- Georgia Department of Human Services (DHS)
- Georgia Regional Transportation Authority (GRTA)
- Gwinnett County Transit (GCT)
- Human Services Transportation (HST)
- Leadership in Energy and Environmental Design (LEED) certification
- Metropolitan Atlanta Rapid Transit Authority (MARTA)
- Metropolitan Planning Organization (MPO)
- Mobility Services for All Americans (MSAA) grant
- National Center for Mobility Management (NCMM)
- Limited English proficiency (LEP)
- Regional Transportation Plan (RTP)
- Single-occupancy vehicle (SOV)
- Temporary Assistance for Needy Families (TANF)
- Transportation Improvement Program (TIP)
- Transportation Network Company (TNC)
- United States Department of Housing and Development (HUD)
- Veterans Administration (VA)
- Veterans Transportation and Community Living Initiative (VTCLI)
- World Health Organization (WHO)

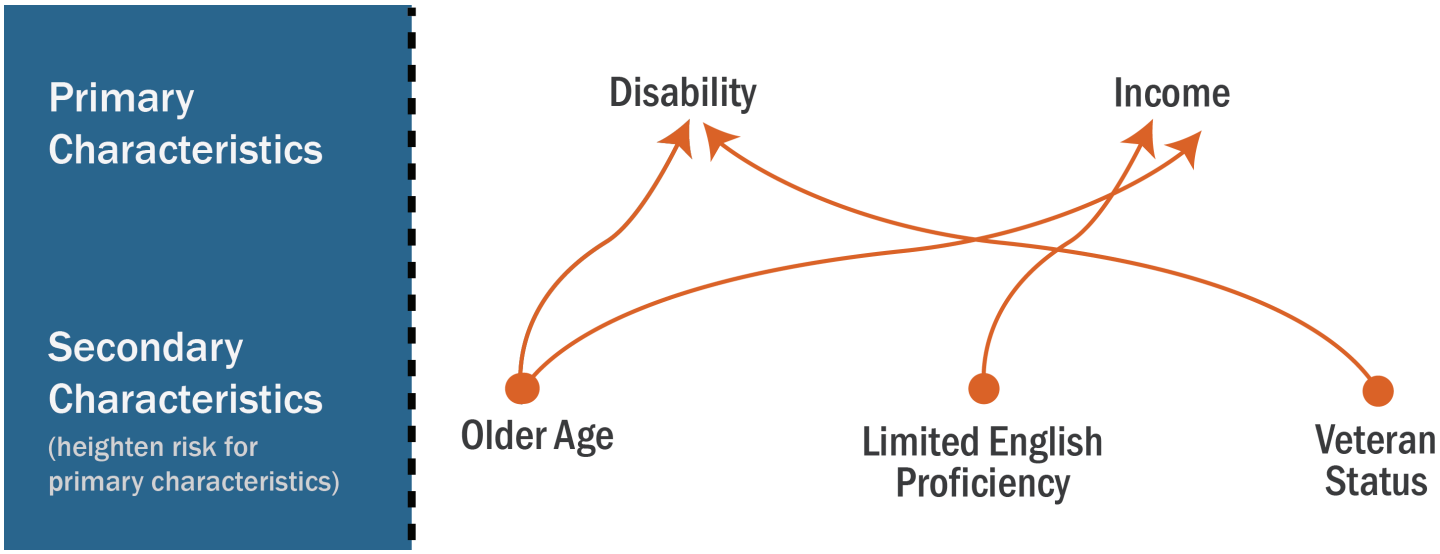
HST PLAN PART 1: NEEDS ASSESSMENT

Humans Services Transportation (HST) focuses on the transportation options available to, accessible to, and needed by frequently underserved populations, whose options are often reduced due to personal characteristics such as disability and low income. As referenced throughout the plan, three populations in the Atlanta region have a higher likelihood of having a disability and/or low income. These include older adults (65 years of age or older), individuals with limited English proficiency (LEP), and individuals with a veteran status. Correlations between disability and income exist as explained below. More than one of these characteristics (i.e., disability, low income, veteran status) can affect a person, further limiting viable transportation options. These characteristics are subject to change throughout a person's life (due to age in particular), so individuals may experience year-to-year fluctuations in these characteristics. HST needs, then, are not static, but dynamic for both individuals and the population as a whole. The sections below provide further details, data, and maps to illustrate geographic concentrations.

SECTION 1: Diversity of People and Their Transportation Needs

HST TRANSPORTATION OPTIONS: Disability and income greatly reduce the accessibility of generally available transportation options. Due to disability, some may not have the ability to independently drive a personal vehicle. Due to income restrictions, many with lower incomes are not able to afford a personal vehicle. Therefore, they often rely on non-SOV (single occupancy vehicle) options to get around the region. Non-single occupancy vehicle options include all travel options except driving a car by oneself. For the purposes of this plan, they include fixed route/guideway public transit (i.e., bus and train), cycling, walking, carpool/vanpool, taxis and transportation network companies (e.g., Lyft/Uber), "specialized services" (defined below), hybrid demand-response/fixed transit, and telework/teleconnect. These options are described below, and some are also defined in the definitions section of the plan.

Fixed-route/guideway transit and ADA paratransit: Fixed-route/guideway transit is public transportation operating with routes that are fixed (run on regular schedules) and stops/stations that are also fixed places. It includes both trains and buses that operate as described. Fixed "guideway" more specifically refers to trains (and buses in some cases) that have dedicated infrastructure such as train tracks or dedicated bus lanes. The six public transit agencies in the Atlanta region include the Atlanta Streetcar, Cherokee Area Transportation System (CATS), Cobb Linc, Georgia Regional Transportation Authority



Source: ARC

Source: ARC

(GRTA), Gwinnett County Transit (GCT), and the Metropolitan Atlanta Rapid Transit Authority (MARTA).

ADA paratransit is required by the federal government within civil rights legislation, and it specifies that all transit agencies in the United States with fixed route/guideway transit service provide a "complementary" demand-response service that takes people curb-to-curb.[4] The service area is defined by a ¾ mile buffer to either side of each transit route. Disability status alone, not the individual's home location, determines eligibility. This enables anyone with a disability to access the service as long as they are able to obtain transportation to the service area and their trip destination is also within the service area (also known as "trip eligibility"). Each transit agency has their own methods for determining disability status eligibility within the parameters allowed by the federal government. Cherokee Area Transportation System (CATS), Cobb Linc, Gwinnett County Transit (GCT), and the Metropolitan Atlanta Rapid Transit Authority (MARTA) all provide paratransit services. Atlanta Streetcar does not, but its route is within the MARTA ADA paratransit service area. Georgia Regional Transportation Authority (GRTA) is excluded from the requirement due to operating solely commuter bus service.[5] ADA paratransit trips with most of the region's agencies are $4.00 per one-way trip, per person.[6] CATS is an exception with a $2.50 per one-way trip, per person fare.[7]

Whereas ADA paratransit requires an eligibility determination based on the disabilities of the individual, fixed-route/guideway transit is available to the general public without eligibility restrictions. The scope of geographic access and high degree of flexibility for potential trip destinations make these options the most popular of non-SOV options. The chart on the following page shows that of the non-SOV options, public transit by far has the highest usage rates in the Atlanta region. The data are broken into two categories: 1) total commuters (regardless of transit proximity, at right) and 2) commuters with transit proximity (living within ½ mile of transit, at left).

Fixed-route/guideway transit tends to offer fixed schedules that do not require advance notice (except in the case of ADA paratransit), so that minimal advance planning is needed. Following the passage of the Americans with Disabilities Act (ADA), the physical accessibility of transportation increased markedly in the United States. Built pre-ADA but on the cusp of such legislation, all MARTA train stations and trains are ADA-accessible. However, malfunctioning and closed elevators present difficulties on a short-term basis. All buses in Atlanta's regional transit system are also ADA-

4 "Part 37--Transportation services for individuals with disabilities."

5 Americans with Disabilities Act of 1990, *AS AMENDED with ADA Amendments Act of 2008*, Sec. 223(a).

6 *"MARTA Mobility Fare", "Fares and Transfers", "Fare Policy and Prices"*

7 CATS

Commuters Near Transit	Commuters
642,209	2,332,059
Commuters who live within a ½ mile of transit.	Total commuters.
Commuters by Mode	**Commuters by Mode**
Commute by Car, Truck, or Van: 86.35%	Commute by Car, Truck, or Van: 93.67%
Commute by Public Transportation: 8.55%	Commute by Public Transportation: 3.28%
Commute by Taxicab: 0.32%	Commute by Taxicab: 0.19%
Commute by Motorcycle: 0.14%	Commute by Motorcycle: 0.12%
Commute by Bicycle: 0.40%	Commute by Bicycle: 0.20%
Commute by Walking: 2.97%	Commute by Walking: 1.45%
Commute by Other Means: 1.27%	Commute by Other Means: 1.10%

Source: Center for Neighborhood Technology "AllTransit Maps & Analysis".

compliant; however, not all bus stops are connected to accessible sidewalks. This can render many bus stops inaccessible. Regional maps are provided below, but please refer to individual agency websites for details on each route.[8] Of all non-SOV options, fixed-route/guideway transit and Americans with Disabilities Act (ADA) paratransit enable customers with disabilities to travel the longest distances and for the widest range of allowable trip purposes (as compared with other services requiring that trips are for purposes such as medical or work).

Affordability is also an important factor. Individual fixed route/guideway transit trips in the Atlanta region range from $1 - $5 depending on the agency.[9] The Atlanta region's transit agencies have both individual trip fares and zonal fares. There are no agencies with a distance or time based fare, so regardless of whether the trip involves five stops or twenty, the trip cost is the same. More details about the process of transferring between the transit agencies can be found at atltransit.org,[10] an online resource created and maintained by ARC. Some of the regional transit agencies offer discounted fares for older adults, youth, and/or Medicare card holders.[11] Children also ride for free at some agencies.[12] Some other US transit agencies extend these discounts to veterans and other population groups.[13]

Base Fares

Atlanta Streetcar

Fare product	Cost
Local	$1.00

Cherokee Area Transit System

Fare product	Cost
Local	$1.25

CobbLinc

Fare product	Cost
Local	$2.50
Express	$5.00

Gwinnett County Transit

Fare product	Cost
Local	$2.50
Zone 1	$3.75
Zone 2	$5.00

GRTA Xpress

Fare product	Cost
Green Zone	$3.00
Blue Zone	$4.00

Metropolitan Atlanta Rapid Transit Authority

Fare product	Cost
Local	$2.50

Source: Atltransit.org "Fares, passes & breeze card"

Fixed-route/guideway transit and ADA paratransit are the most widely used of all the non-SOV options and therefore help illustrate the widest reach of all non-SOV options. Both fixed-route/guideway transit and ADA paratransit may be available transportation options for a person depending on a number of factors such as disability type and whether the locations of both home and destination fall within related service areas. Of the six agencies, five provide "all day" service Monday to Friday. The table on the following page illustrates the service hours of each agency.[14] GRTA provides closed-door, commuting-only service from outlying counties to the urban core in Atlanta with stops in Midtown and Downtown in the City of Atlanta. This service operates Monday-Friday inbound in the morning (5:30 – 9 AM) and outbound in the evening (3-7 PM) with no transit service during mid-day (9 AM – 3 PM). In addition, CobbLinc and GCT also operate some routes of closed-door, commuting-only service. Together, these six services comprise the Atlanta regional fixed route/guideway transit system.

In addition, there are a number of shuttles in the Atlanta region such as The Buc[15] and the Atlantic Station Shuttle[16]. Universities also often have their own transit system, such as Emory, Georgia State, and Georgia Tech, to name a few. There is also a

8 "ATLTransit"

9 "Fares, passes & breeze card."

10 "Transfers"

11 "Fares, passes & breeze card."

12 "Fares, passes & breeze card."

13 "Military service pass"

14 "Hours of Operation", "MARTA Mobility Guide", "CCT General Information" , CCT, GCT, "Routes and Schedules", "Commuter Tools"

15 "About "The Buc" « Bucride"

16 "Shuttle Information"

Transit Agency	Fixed Route				ADA Paratransit
Atlanta Streetcar	6 AM - 11 PM (until 1 AM on Fridays)	8:30 AM - 1 AM	9 AM - 11 PM	9 AM - 11 PM	None (in MARTA area)
CATS	8 AM - 4 PM	None	None	None	*same as fixed route, except no service noon - 1 PM
CCT	4:30 AM - 12:50 AM	6 AM - 12:30 AM	None	None	route
GRTA	5:30 AM - 9 AM, 3 PM - 7 PM	None	None	None	None
GCT	6 AM - 9 PM	6:30 AM - 9 PM	None	None	route
MARTA	4:45/5 AM - 1 AM	5/6 AM - 12:30/1 AM	5/6 AM - 12:30/1 AM	5/6 AM - 12:30/1 AM	route

Source: Transit agency websites

Royal Bus Lines service that is privately owned and operated along Buford Highway and surrounding areas.[17] This table helps shed some light on the how some transportation options, including public transit, can be complemented with services that help guarantee a ride home due to gaps in service hours/ frequency. Other services help save money on the trip or provide cash incentives to reward behavior (table at right).

The figure below demonstrates transit access by race.

Maps on the following pages illustrate the service areas of the six transit agencies.

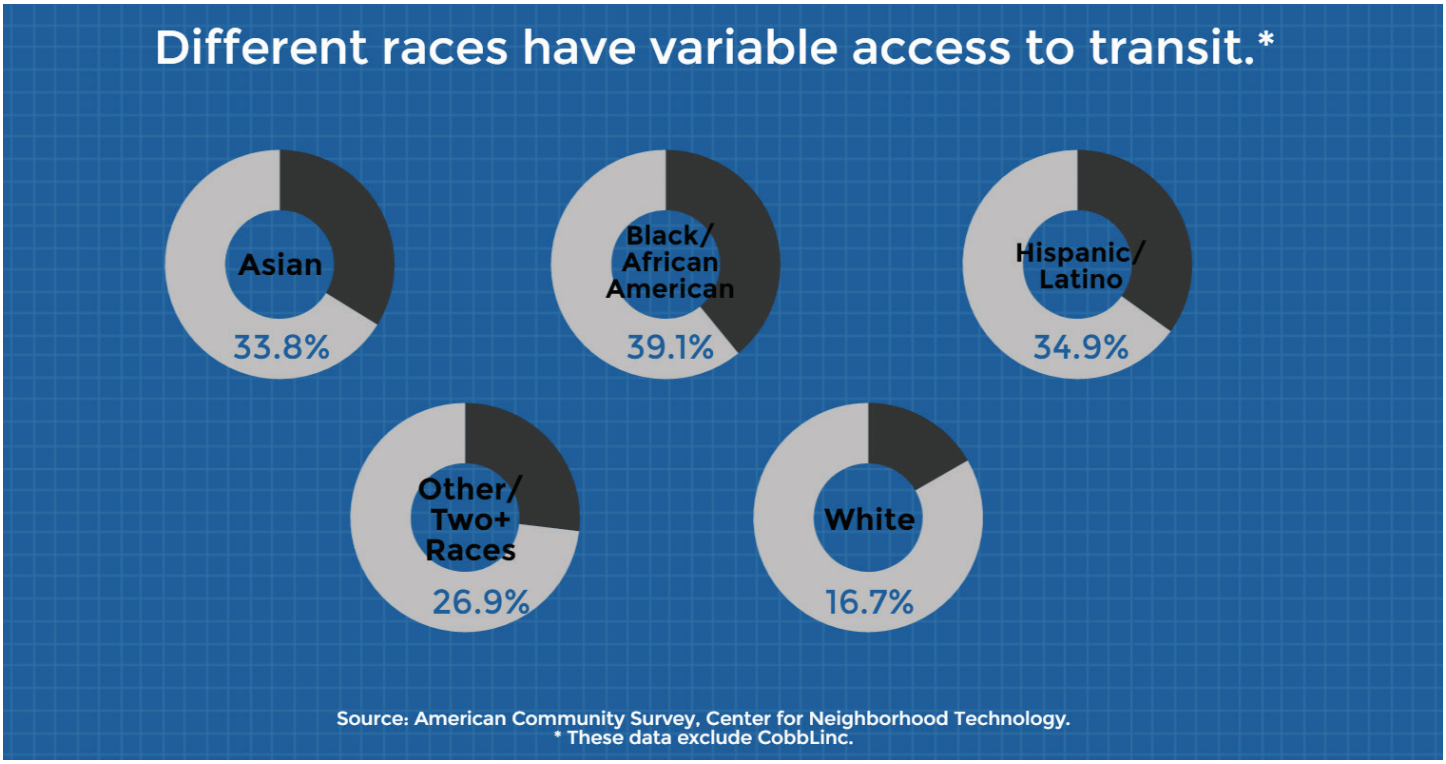
17 Evitt

Services to Motivate Commute Option Use

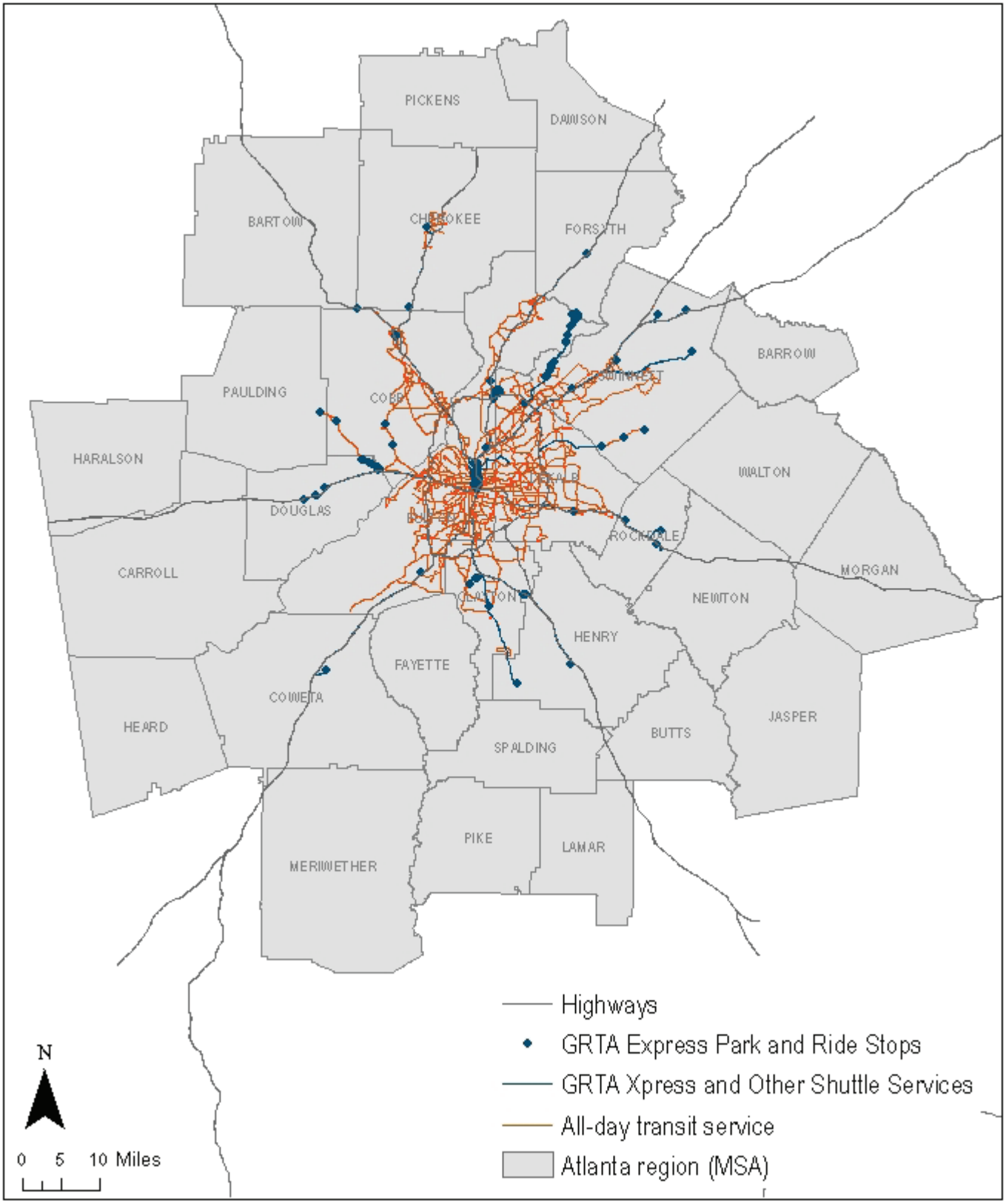
Services*	2014 Ratings of Influential Services (1 means service would have no influence and 5 means it would have a great deal of influence)				
	1 or 2	3	4	5	2014 Mean Rating
Guaranteed ride home if you have personal emergency during the workday (n=712)	38%	14%	15%	33%	3.1
Monthly $40-$60 gas cards for carpools (n=711)	39%	14%	17%	30%	3.1
$3 per day, up to $100, to switch from driving alone to another type of transportation for travel to work (n=710)	45%	16%	19%	20%	2.8
Financial contribution to a charity of your choice (n=710)	51%	19%	11%	20%	2.6
You could accumulate points redeemable for gift cards and merchandise (n=708)	56%	16%	10%	18%	2.4
System that tracks the pollution you reduce by not driving alone (n=709)	58%	16%	11%	15%	2.4
Discounted monthly transit pass (n=710)	64%	12%	9%	15%	2.2
System that tracks your financial savings when you choose not to drive alone to work (n=709)	65%	14%	9%	13%	2.2
Entry onto a monthly drawing for a $25 gift cars (n=710)	70%	12%	7%	11%	2.0
Public recognition (n=706)	87%	5%	3%	5%	1.5

**Aided responses given. Respondents were asked to rate the list of services using a 1 to 5 scale, where "1" means the service would have no influence on their commute choices and "5" means the service would have a great deal of influence on their commute choices.*

Source: 2014 Regional Commuter Survey Technical Report

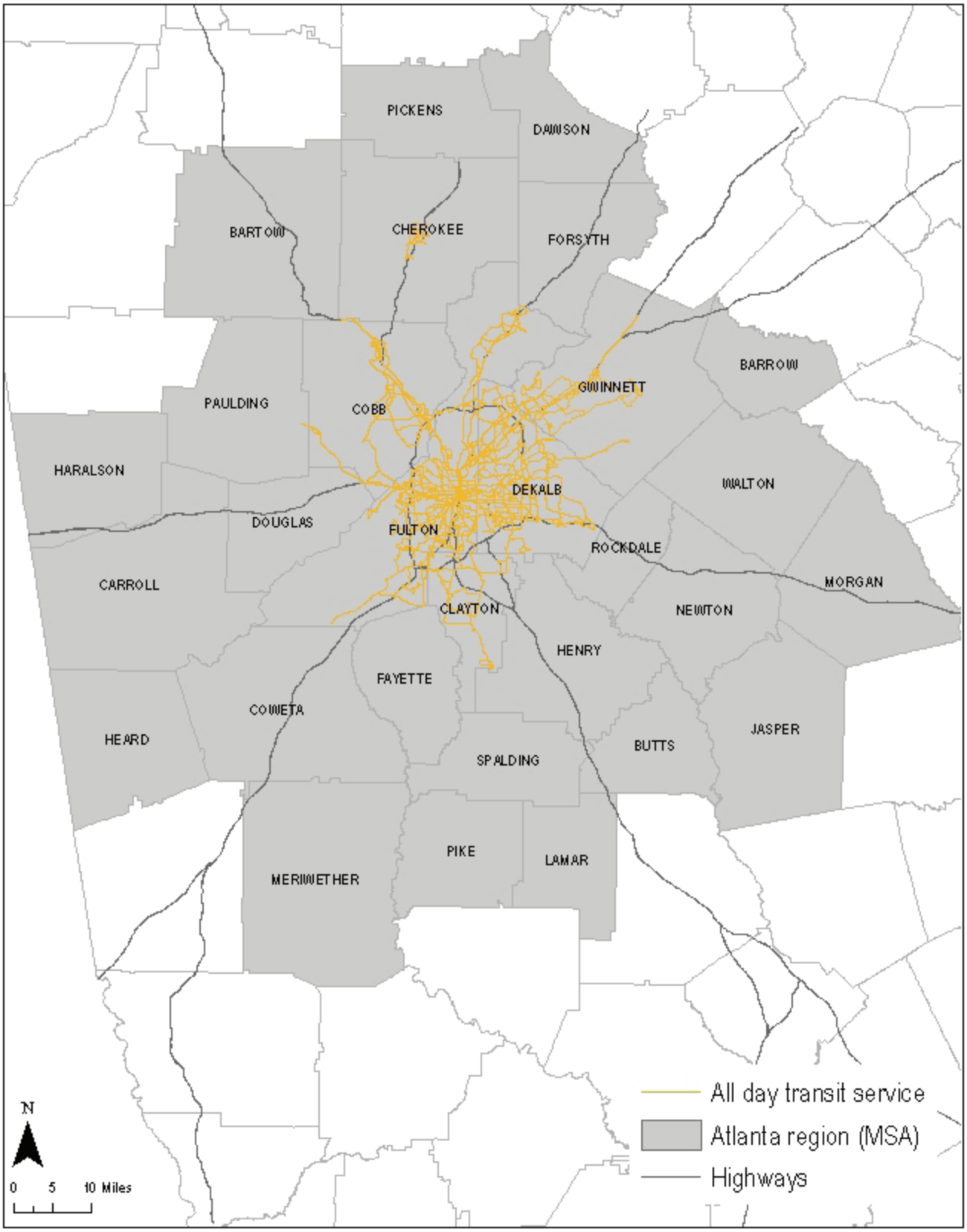


GRTA Xpress and all-day transit service coverage



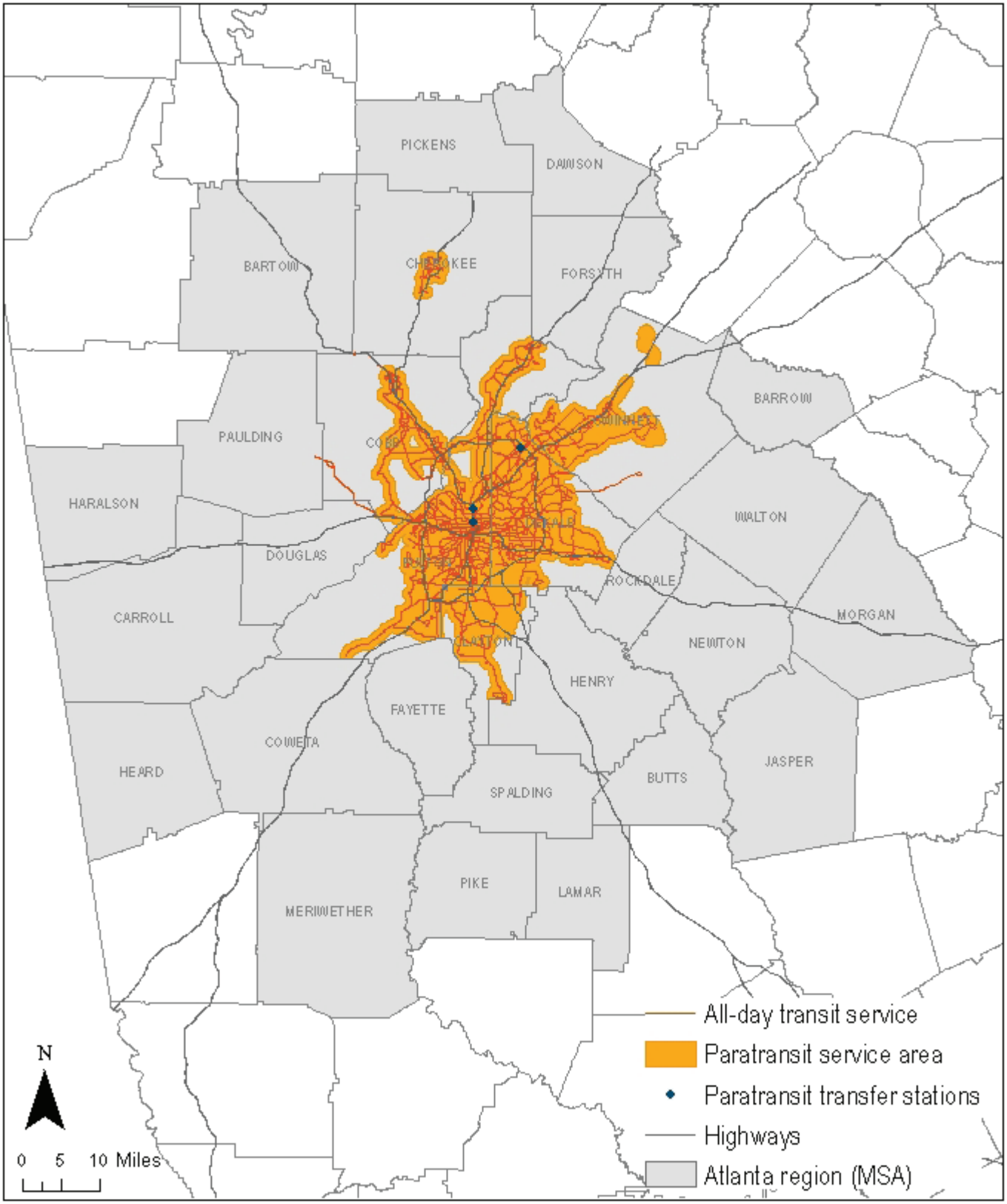
Data source: GTFS for regional transit operators

The Atlanta region's all day transit coverage



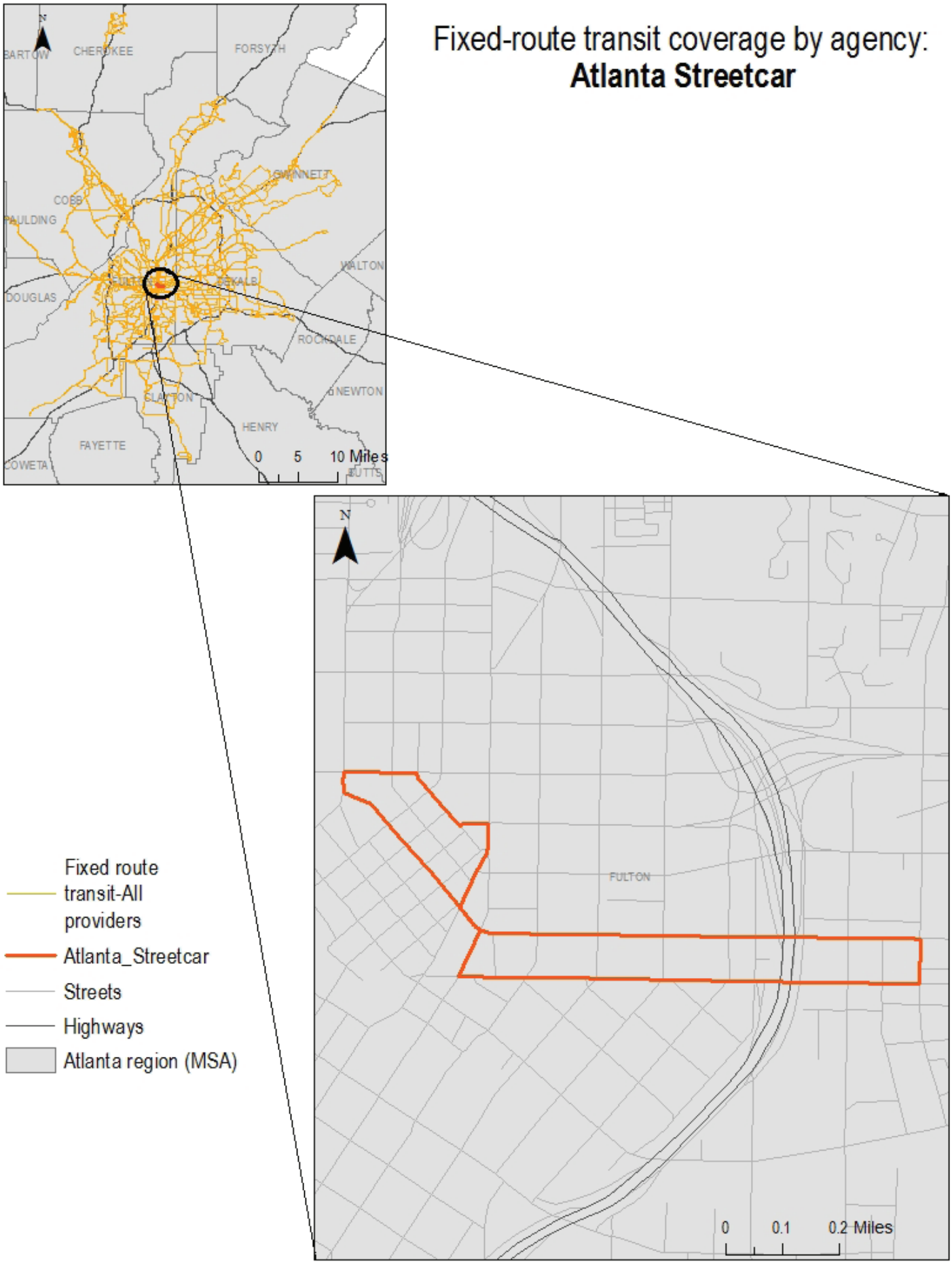
Data source: GTFS for regional transit operators

All day transit and paratransit services areas



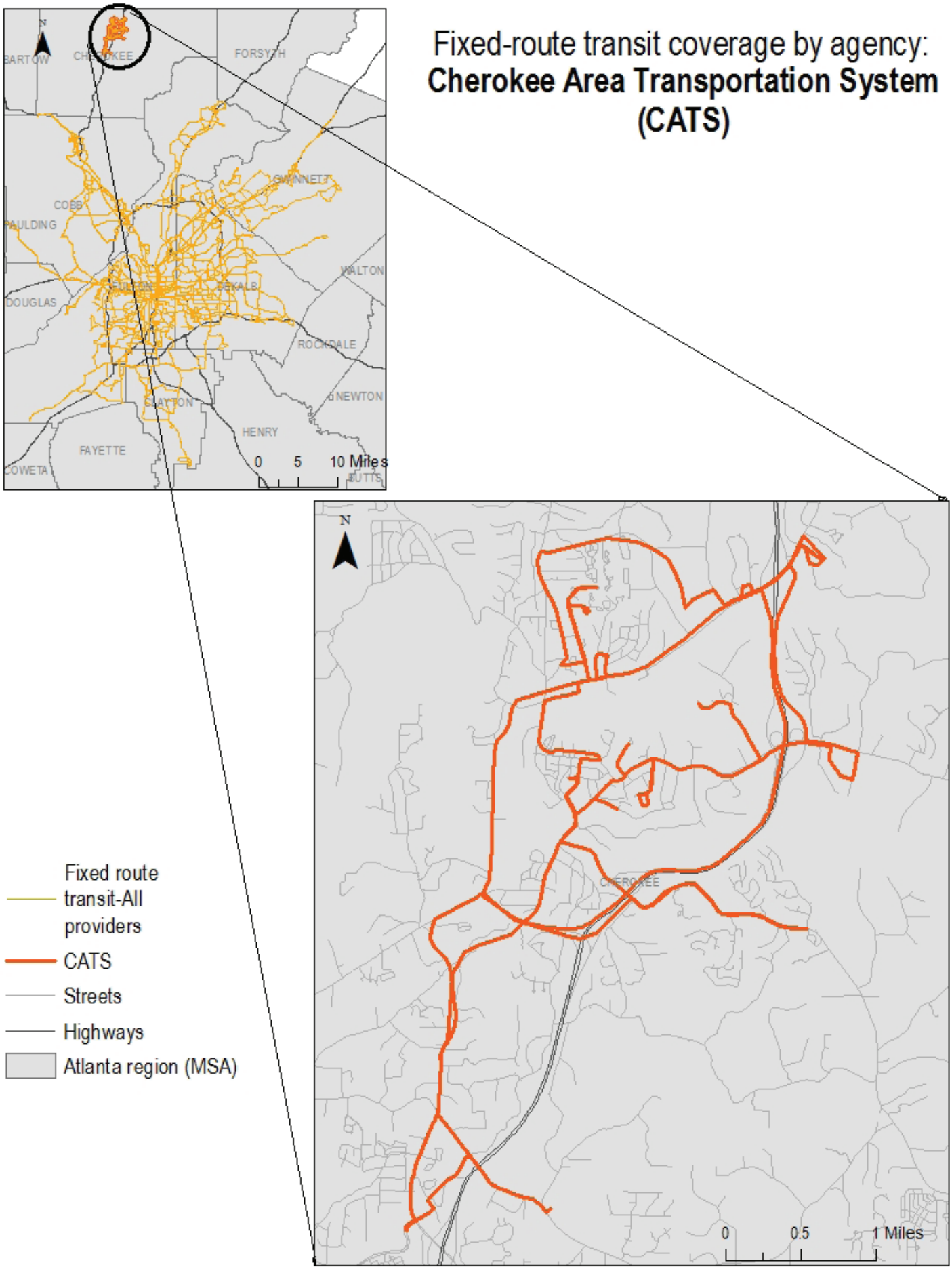
Data source: GTFS for regional transit operators

Fixed-route transit coverage by agency:
Atlanta Streetcar



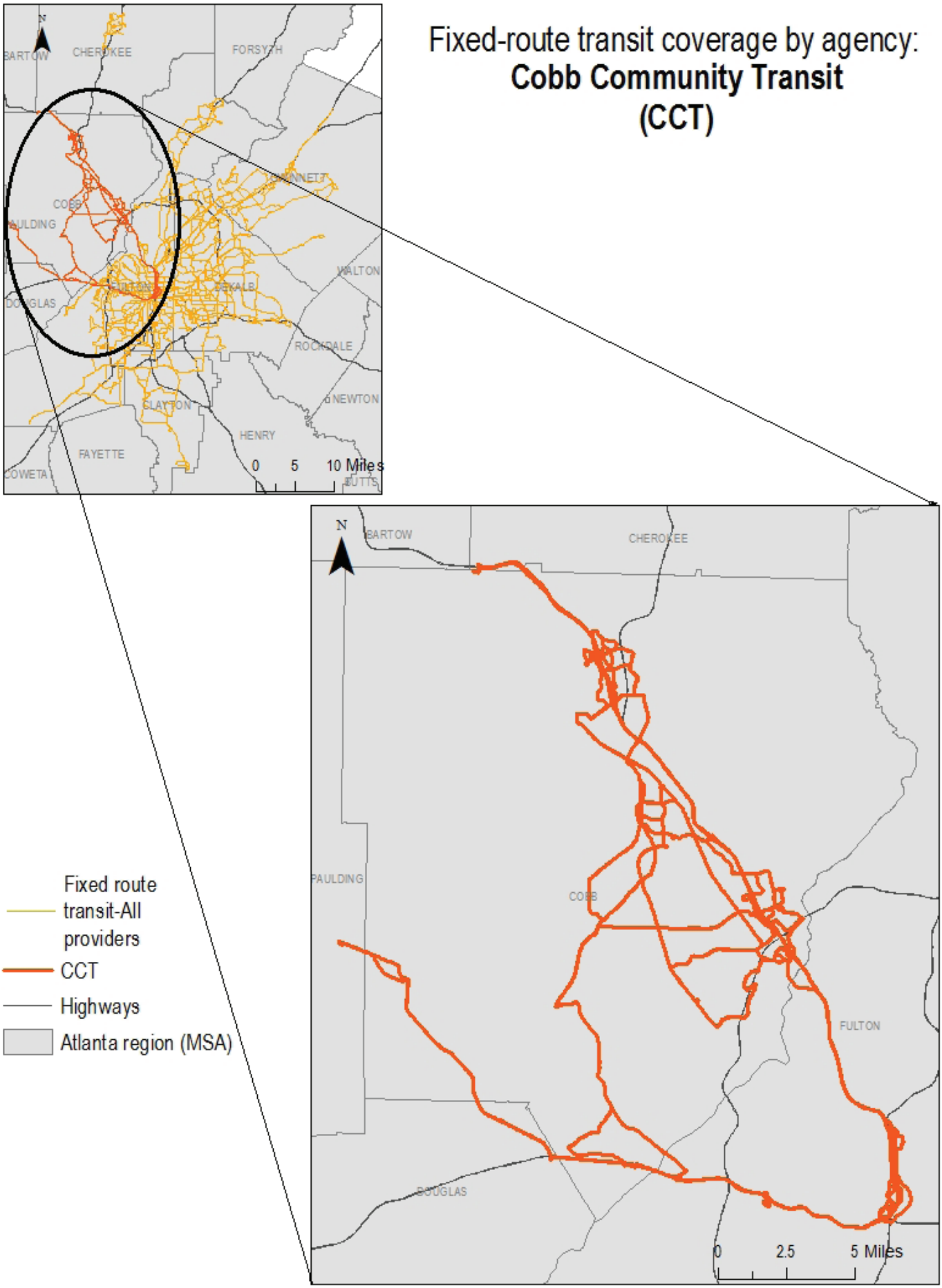
Data source: GTFS for regional transit operators

Fixed-route transit coverage by agency: **Cherokee Area Transportation System (CATS)**



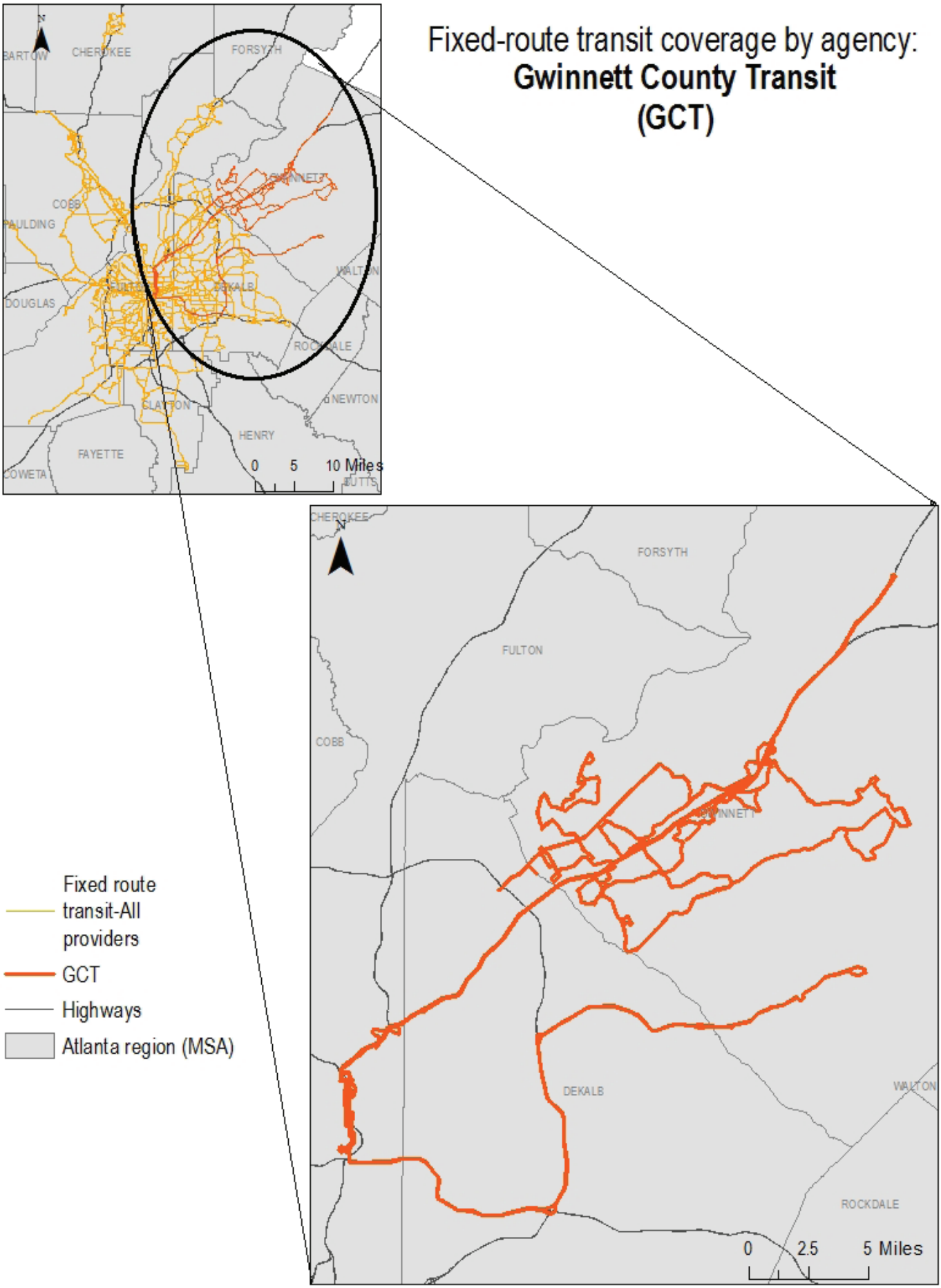
Data source: GTFS for regional transit operators

Fixed-route transit coverage by agency: **Cobb Community Transit (CCT)**



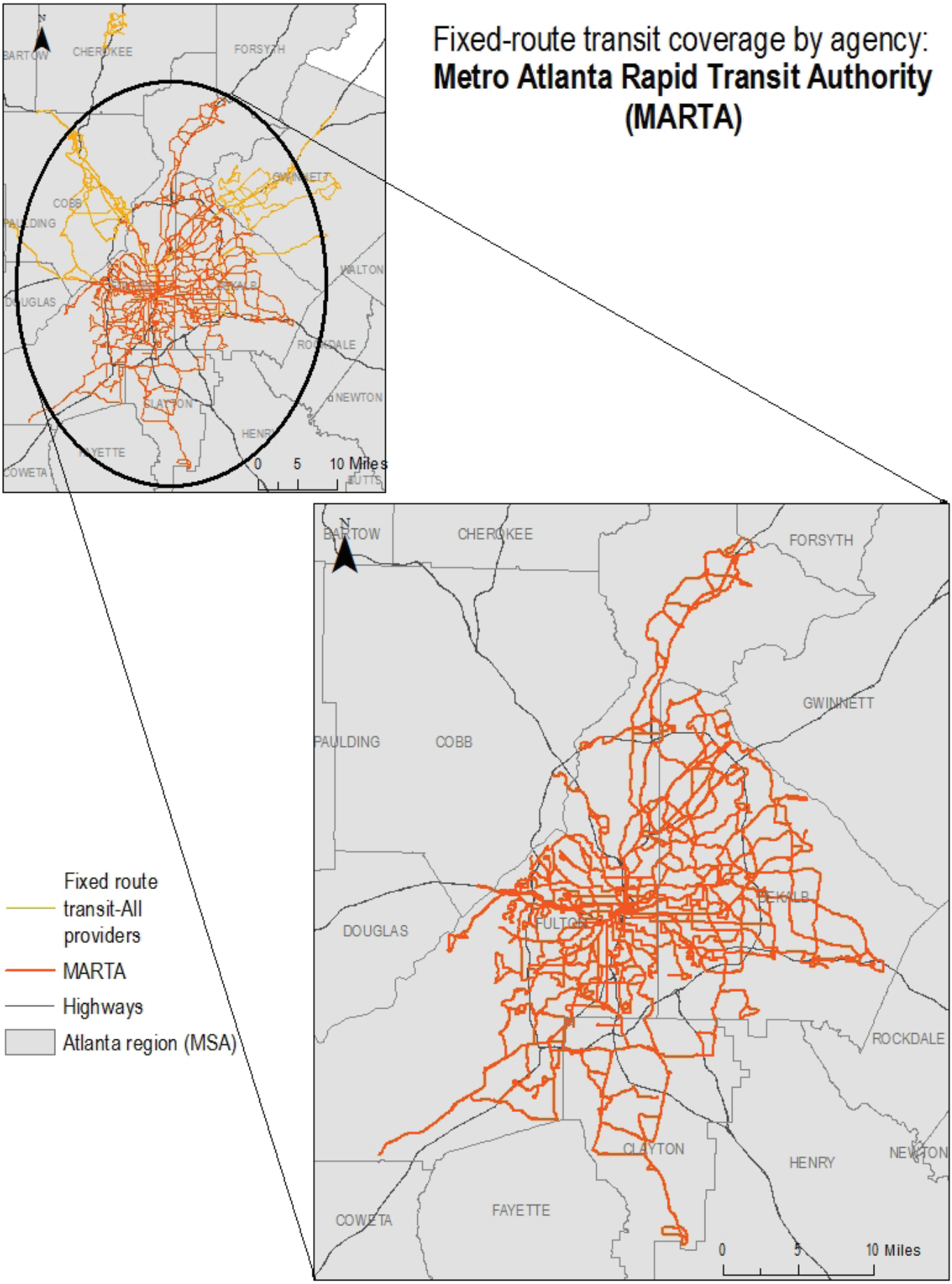
Data source: GTFS for regional transit operators

Fixed-route transit coverage by agency: **Gwinnett County Transit (GCT)**



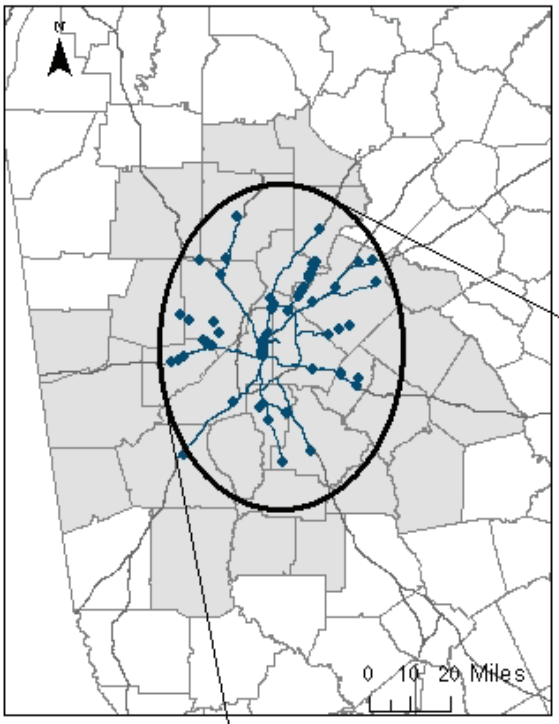
Data source: GTFS for regional transit operators

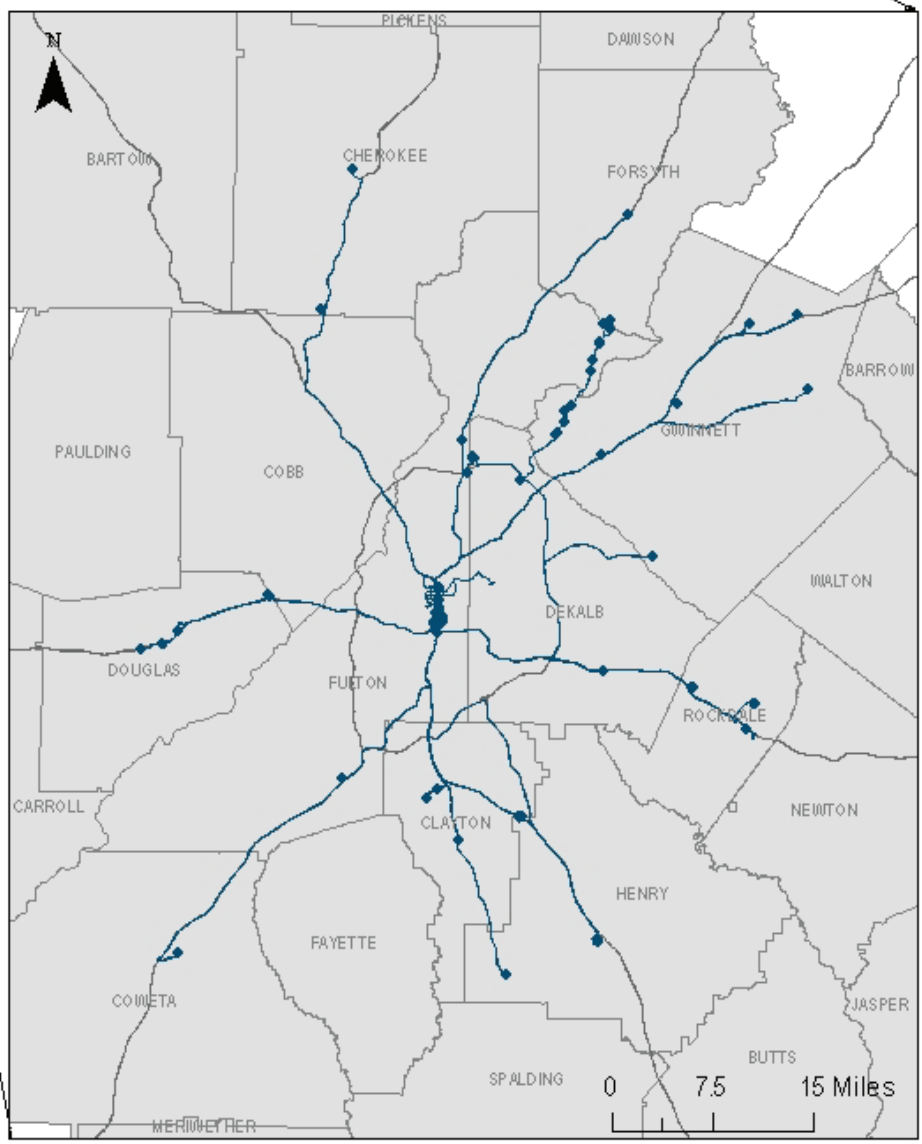
Fixed-route transit coverage by agency: **Metro Atlanta Rapid Transit Authority (MARTA)**



Data source: GTFS for regional transit operators

Fixed-route transit coverage by agency:
Georgia Regional Transportation Authority (GRTA)





GRTA Express Park and Ride Stops

GRTA Xpress and Other Shuttle Services

Highways

Atlanta region (MSA)

Data source: GTFS for regional transit operators

Carpool/vanpool and taxis/transportation network companies (e.g., Lyft/Uber): Demand-response transportation (DRT, defined above) options for the general public may be available and accessible for some people with disabilities. Commuting rideshare (specifically for work/employment purposes) may be an option for some who can find suitable carpool-mates—through Georgia Commute Options or otherwise--and where vehicle access is possible[18]. In addition to this formal option, people arrange trips with friends/colleagues more informally. Additionally, some may have the ability to travel by private taxi or Transportation Network Companies (TNC) such as Uber and Lyft, which offer curb-to-curb service to the general public. For these ride-hailing options to be available to someone with a disability, however, he or she must 1) be able to afford the private service (typically more expensive than other options), 2) be able to use the associated company's scheduling system, and 3) be able to access the vehicles used by the company. Private accessible services that offer door-to-door service are often available for much higher rates than public services—rates that likely exclude many potential users from these options. Rates for these options are difficult to report or estimate. Carpool/vanpoolers make their own financial arrangements, and taxi/TNCs have fare structures that are subject to change and often combine both time and distance in their calculations.

Carpool Occupancy

Carpool Size	2014 (n=236)	2010 (n=226)	2007 (n=273)
2-person	74%	81%	70%
3-person	18%	14%	18%
4-person	6%	4%	6%
5-person	2%	1%	6%

Source: 2014 Regional Commuter Survey Technical Report

These options are often not counted in the census as a specific mode, so regional surveys are used to better understand the impact of this option in the region. In a regional commuter survey conducted in 2014, 5% of respondents in the Atlanta region[19] carpooled or vanpooled as their primary mode. This was the same percentage of respondents who reported carpooling or vanpooling in 2010. Approximately half of all carpoolers rode with a co-worker, while the other half reported riding with a family member. In addition, "the 2014 survey found a shift in the distribution of carpool occupancy to more riders per carpool. In 2010, 81% of carpoolers reported they rode in a 2-person carpool and 19% rode in a carpool with three or more people. In 2014, 74% of carpools were 2-person and 26% of carpools were comprised of 3 or more people."[20]

Specialized services: Demand-response transportation (DRT, defined above) options specifically for HST populations are called "specialized services." ADA paratransit is part of specialized services (map and details above). Human Service Agencies, such as the Department of Human Services (DHS), the Veterans Administration (VA) Medical Centers, Senior Services (in varying counties), and Department of Community Health (DCH, oversees Medicaid and Medicare), may also provide demand-response transportation options for certain types of trips and destinations. These services are tied to specific medical or senior services, most often not commuting or errand-related needs, and they are for individuals who meet the eligibility requirements of each agency's service. In some counties without fixed route/guideway transit in the Atlanta region, the county itself may provide local demand-response transportation. These counties include Bartow, Cherokee, Coweta, Dawson, Hall, Henry, Forsyth, and Paulding within the Metropolitan Planning Organization (MPO) 20-county planning area. The personal and trip eligibility factors differ county to county. In general, vehicles owned/operated by these agencies would likely be ADA accessible due to their focus on assisting people with disabilities. Costs to the rider vary depend on the agency's policies and may even be free in some cases.

Volunteer network options may also exist for HST populations through either formal (such as ICARE[21]) or informal (such as faith-based or community organizations) networks. These programs are not available in all areas, nor is there a regional database that keeps all these data current. Awareness of and ability to locate the available services, as well as

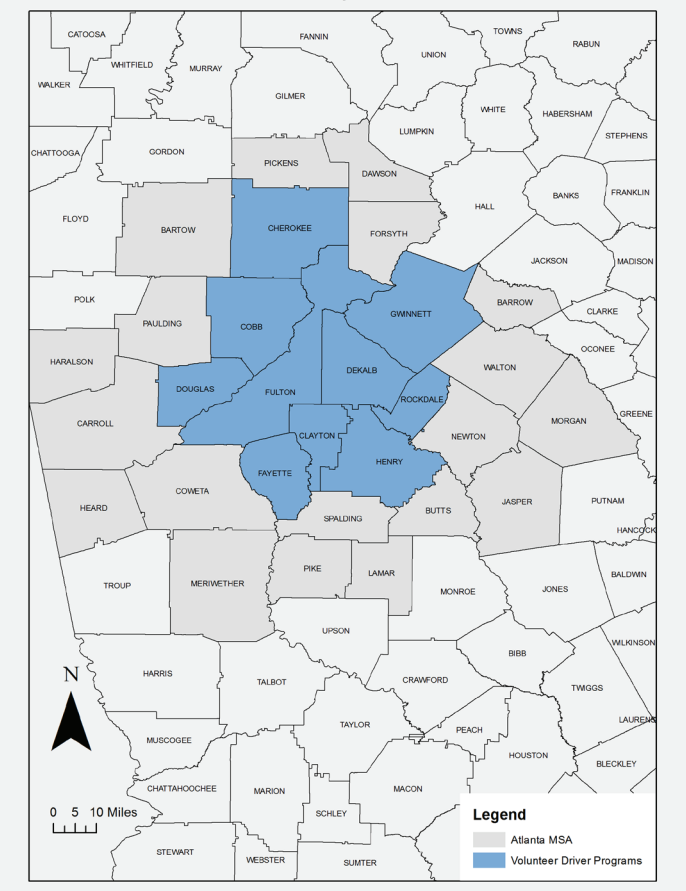
18 Georgia Commute Options

19 The study scope of the report was the Atlanta 20-county nonattainment area (not the MSA).

20 2014 Regional Commuter Survey Technical Report

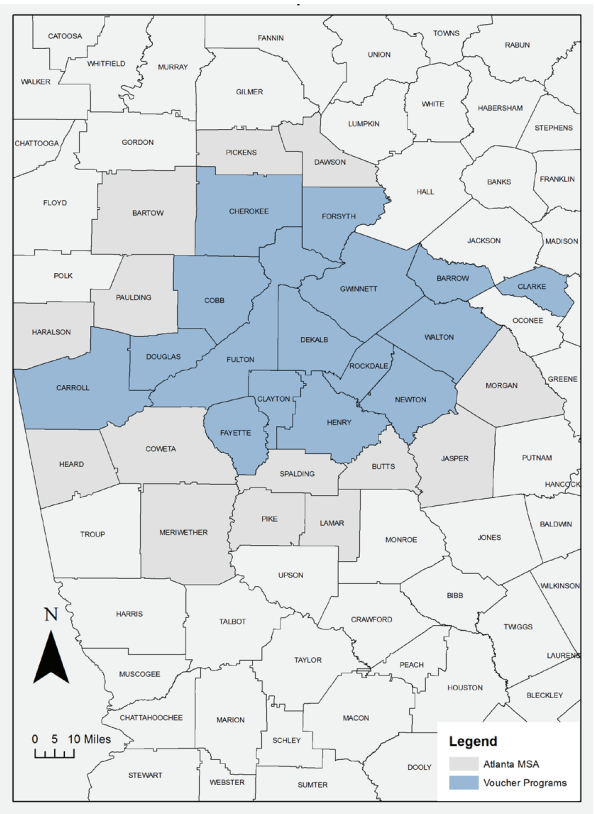
21 I CARE Volunteer Rides for Seniors

consistency of service with volunteer turnover, may interfere with this being a viable, sustainable option. In addition, as the vehicles tend to be personally owned, they may not be ADA accessible.



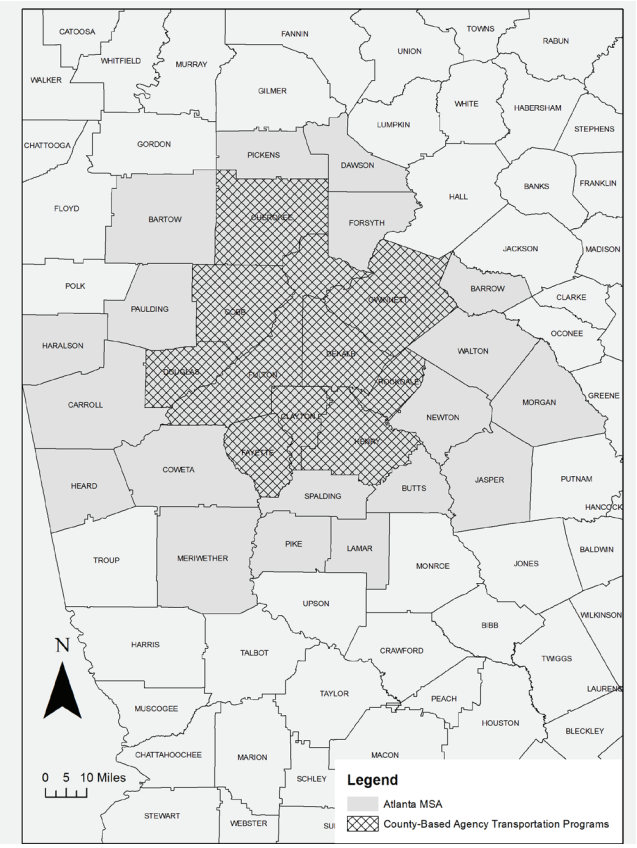
Source: ARC project data and database from SimplyGetThere.org

Voucher and discount programs are in place, in some cases, to help cover the costs of transportation options. Vouchers may be used in conjunction with volunteer networks or to pay for other options. Even with these programs, the ability to afford the options required by one's trip origin, trip destination, and disability can still be a challenge or an outright barrier. Costs to the rider for these options will vary based on individual agreements.



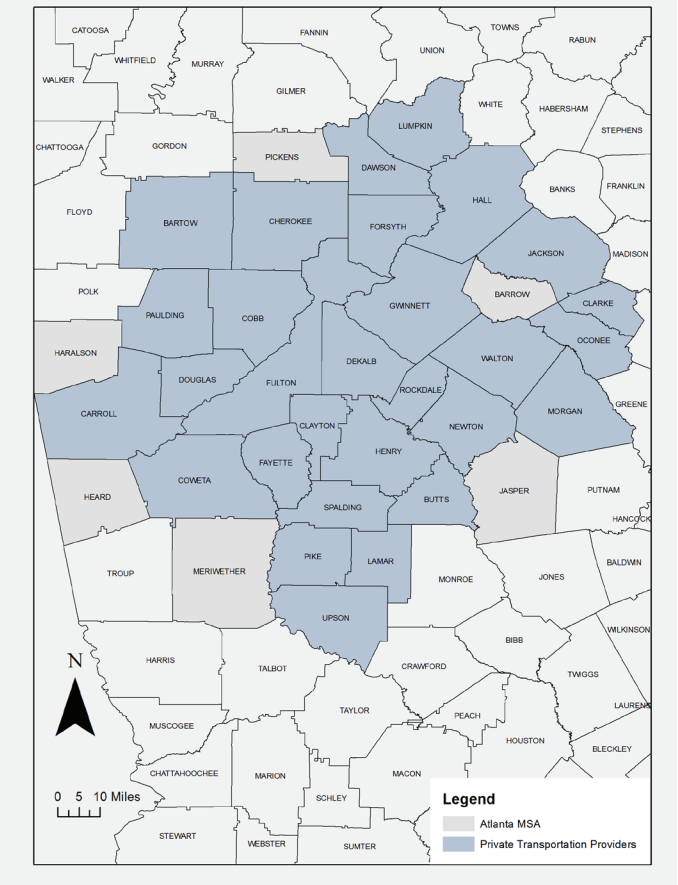
Source: ARC project data and database from SimplyGetThere.org

"County-based agency senior transportation programs" are programs based within county-run senior centers. They may perform demand response trips through volunteer drivers, vouchers, or by using their own fleet.



Source: ARC project data and database from SimplyGetThere.org

"Private transportation providers" are limited liability corporations with their own fleets of vehicles that can be requested to transport HST populations.



Source: ARC project data and database from SimplyGetThere.org

Taken as a group, these services cover a significant portion of the Atlanta region. For further details, a table is provided (See Appendix B).

Awareness of and understanding of how one might qualify for the different transportation options and financial assistance programs such as these also can serve as a large barrier to efficient transportation choices for HST populations. A survey of older adults living in the region revealed that older adults, especially those who are not internet savvy, are often perplexed by the region's convoluted set of transportation provider choices, as the appropriateness of each often varies by destination, as well as a number of other factors.[22] When surveyed, 65% of older adults said that if they were unable to drive temporarily or long term, they would have family or friends drive them around. Another 20% indicated that they did not know how they would get around under those circumstances.[23] Older adults are often not informed of all of their options and may not know where to get assistance with this information. These are awareness issues that have been reported by other HST populations as well. [24]

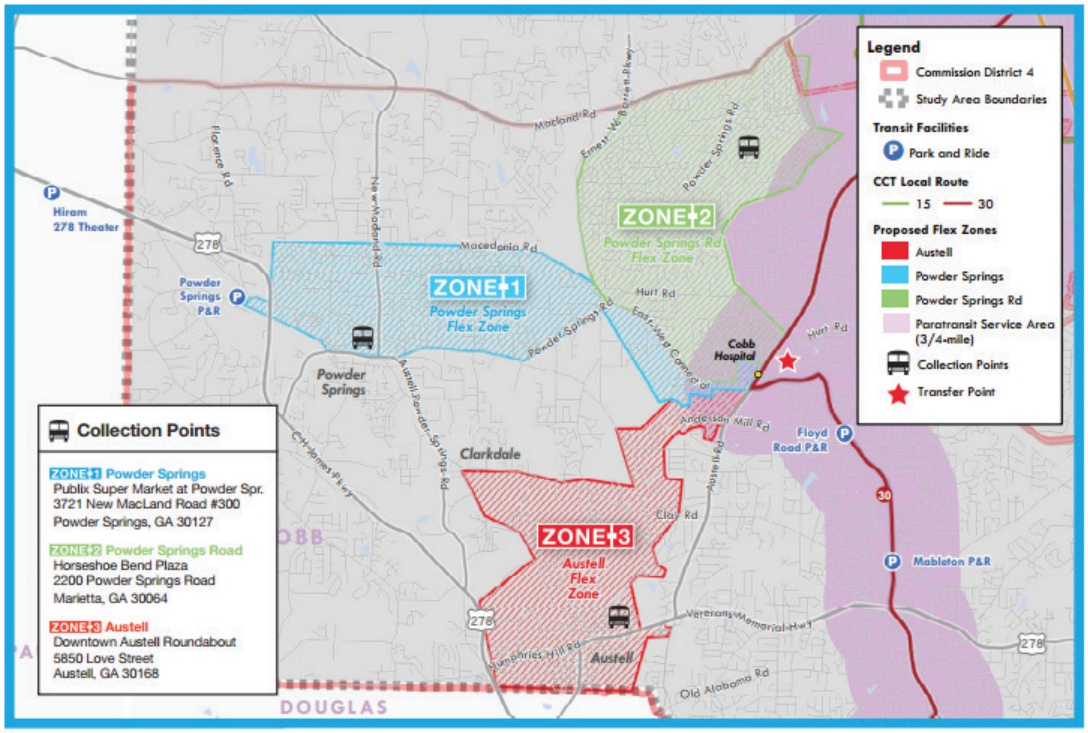
Hybrid demand-response/fixed transit: This option combines elements of both fixed route/guideway transit (i.e., bus and train) and demand-response transportation (DRT, defined above). Also known as deviated fixed route, this option is characterized by having some components of fixed routes and points in the service while also providing the possibility to schedule a pick-up/drop-off at certain locations (e.g., home, various destinations). In the Atlanta region, the only example of this service called "Flex" is in Cobb County.[25] At the time of Plan drafting, this service has been in operation just over one year.

22 Cobb County

23 Regional Live Beyond Expectations Strategic Plan and associated surveys

24 CPACS Discussion Group

25 "Cobb Community Transit FLEX."



Source: Cobb Community Transit, Flex map

Cycling and using sidewalks: These may be options for an individual, depending on a number of factors. Some of these factors include the type of disability, the availability and condition of sidewalk/cycling infrastructure such as lighting,[26] the availability of safe crosswalks,[27] the extent of separation from high speed traffic lanes, bike facilities at transit connections,[28] and the street grid connectivity, land use patterns, and urban density required for origins and destinations to be within appropriate distances for these active modes.[29] More details on the status of the sidewalk and cycling infrastructure in Atlanta is provided in the Walk! Bike! Thrive! Bicycle and Pedestrian Plan for the Atlanta region.[30]

Of the 2,100 miles of sidewalks and curbs in the City of Atlanta, 395 miles of sidewalk are in disrepair and 216 miles of curbs are in disrepair.[31] As a part of their Project Civic Access initiative, the U.S. Department of Justice conducted an ADA compliance review of the City of Atlanta in 2009. The review resulted in an agreement that involved City of Atlanta's Department of Public Works completing an inventory of 757 miles of city streets which had been resurfaced since 1992, when the ADA became effective:

> "The inventory found 18,884 intersection nodes with ADA ramp requirements. Of the nodes surveyed in the inventory, 3,080 intersection nodes were ADA compliant, 8,705 of the ramps were non-compliant, and 7,099 intersection nodes had no ADA ramps. The inventory only include[d] ramps on roads resurfaced since 1992. The backlog of curb ramps jumps to 31,442 when all city streets are considered."[32]

The Department of Public Works inventory and subsequent report estimated that approximately $52 million would be required to make the curb ramps ADA compliant,[33] while a more recent study

26 Poverty Forum ETA

27 Bike-Ped Task-force Discussion

28 Poverty Forum ETA

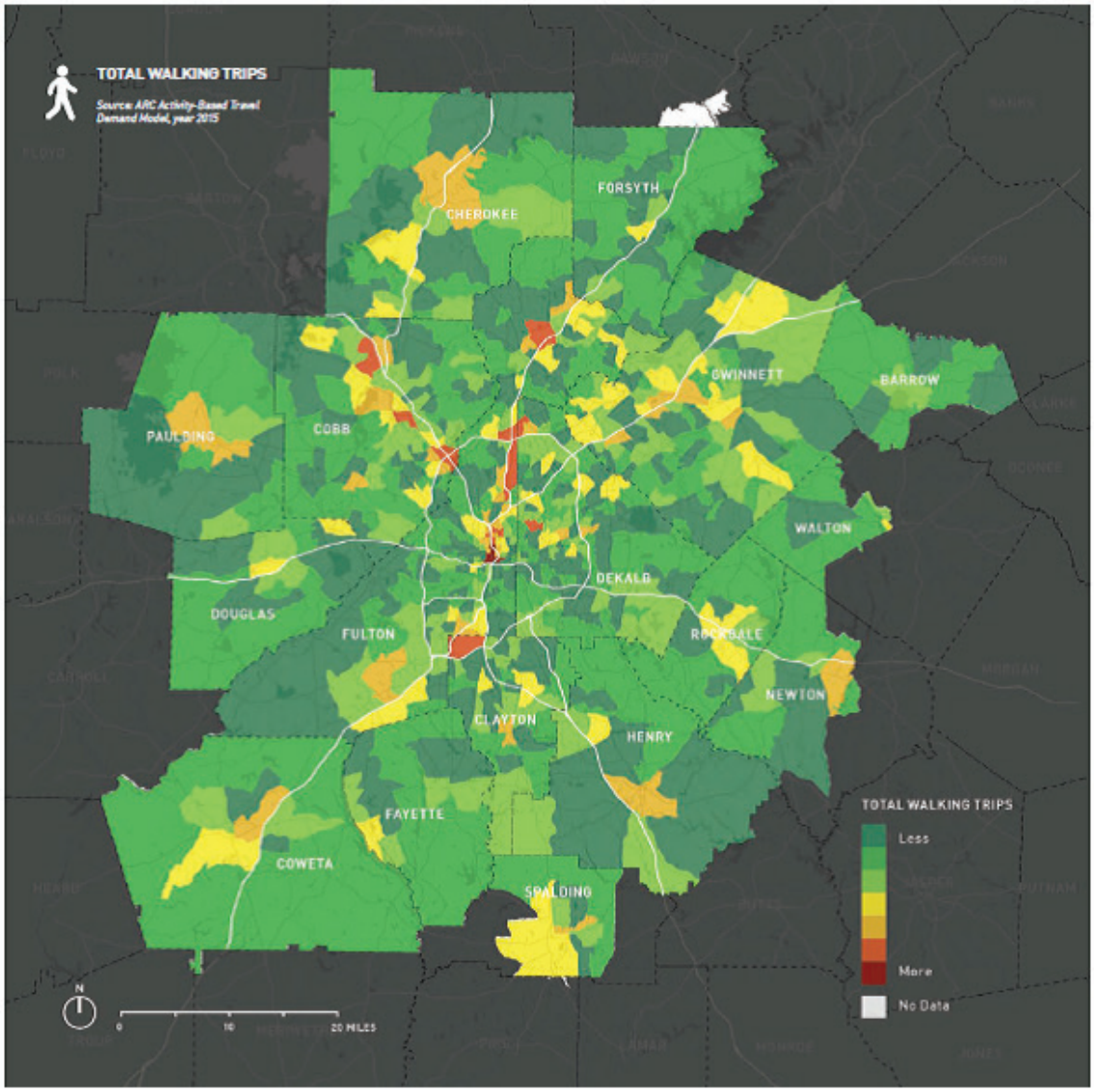
29 Transportation Coordinating Committee Work Session on Mobility Management & HST Breakout sessions

30 *Walk, Bike, Thrive!*

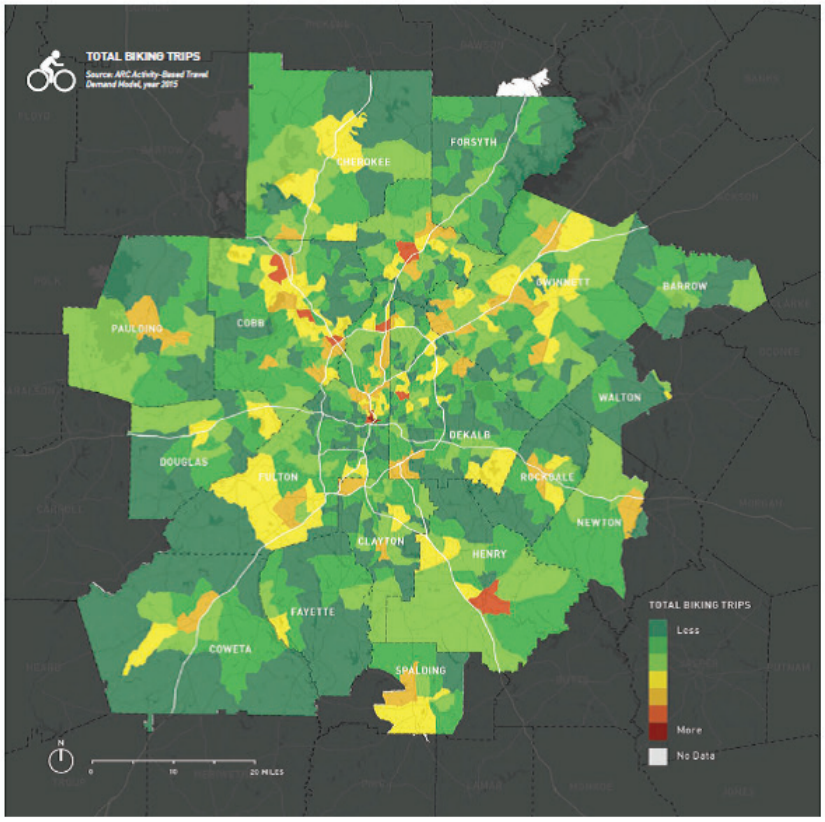
31 The City of Atlanta. Department of Public Works

32 Carrillo et al.

33 The City of Atlanta. Department of Public Works.



Source: Walk, Bike, Thrive!



Source: Walk, Bike, Thrive!

found that the total replacement cost of the City of Atlanta's 2,100 miles of sidewalks was close to $400 million.[34] Additional complete sidewalk blockages also frequently result from construction projects for extended periods of time, adding to the barriers faced by those attempting to use sidewalks safely.[35]

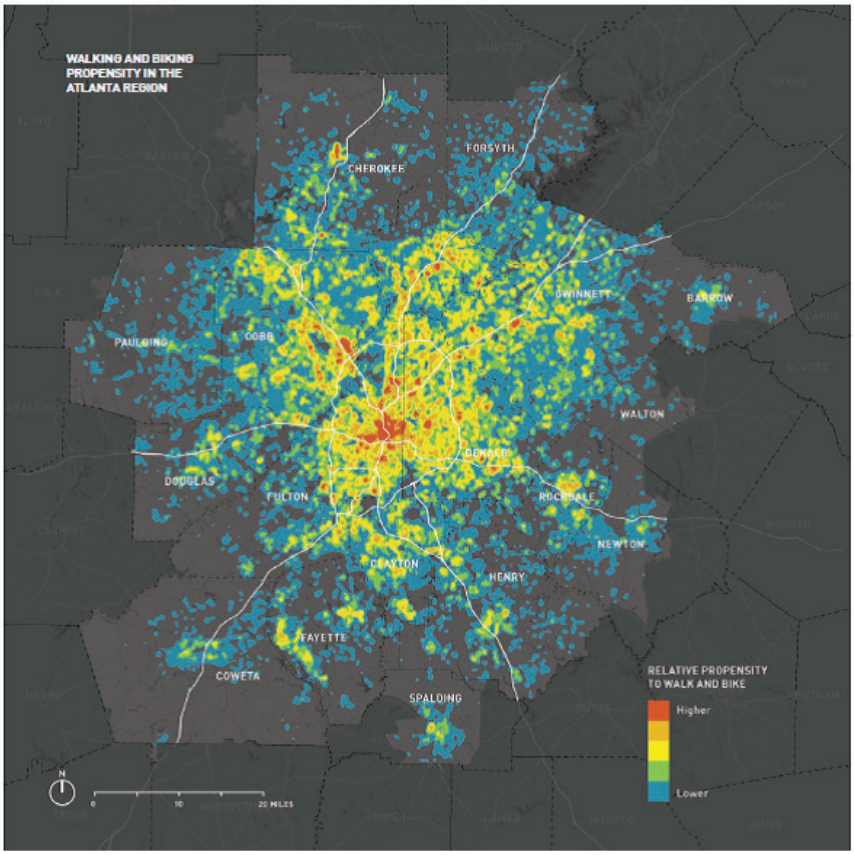
In the meantime, ADA paratransit is serving those unable to access the fixed route bus and train system in the Atlanta region at a cost of $43.20 per one-way trip on MARTA (passengers pay $4.00 and the rest is subsidized by the system). MARTA paratransit passengers and their companions make an average of 48,700 trips per month, amounting to $22.9 million in subsidies per year.

Maps displaying concentrations of walking and biking trips along with the propensity to bike or walk in the region are provided.

Telework/teleconnect: Telework is the concept of working from one's home. Though it is not a transportation mode/ option, it is a commuting option with growing adoption rates in the Atlanta region. Teleconnect refers to other non-work related trips that may be done online instead of in-person. Examples of teleconnect include medical appointments by videoconference and online shopping, but there are many more.

As with carpool and vanpool, data for teleworking are often less available. From a 2014 commuter survey, the following figures were revealed:

- One-third of respondents (33%) indicated they teleworked, even if only occasionally. This is a 22% increase from 2010 when 27% of respondents reported teleworking.
- Not only did the 2014 survey find that more commuters are choosing to telework, even if occasionally, the rate at



Source: Walk, Bike, Thrive!

34 Carrillo et al.

35 Transportation Coordinating Committee Work Session on Mobility Management & HST Breakout sessions

which respondents are teleworking has also increased. More than one-quarter of respondents (26%) teleworked full time. This is a significant increase from the 2010 survey that found 17% of respondents teleworked 5+ days a week.

- Half of all respondents (50%) worked for an employer that had a telework program, with 52% of them being informal arrangements with their supervisors.
- In 2014, 25% of respondents used a non-drive alone commute as their primary commute mode as opposed to 19% in 2010. This is a significant change from 2010 with the majority of the increase attributed to more respondents reporting teleworking.[36]

36 2014 Regional Commuter Survey Technical Report

Percentage of Weekly Trips Made By Commute Mode

Commute Modes	2014 (n=4,814)	2010 (n=4,048)	2007 (n=4,000)
Drive Alone	75%	81%	84%
Telework	13%	8%	4%
Carpool	5%	5%	6%
Train	3%	3%	2%
Bus	2%	2%	2%
Compressed Work Schedule	1%	1%	1%
Bike/Walk	1%	<1%	1%
Vanpool	<1%	<1%	<1%

Source: 2014 Regional Commuter Survey Technical Report

However, it should be noted that teleworking is either not possible or likely for all job types.

Teleworker Occupations

Occupations *	2014 (n=1,436)
Professional (doctor, lawyer, engineer)	34%
Executive, managerial	30%
Administrative or technical support	16%
Sales	14%
Service	3%
Other	4%

** Table exceeds 100% due to rounding*

Source: 2014 Regional Commuter Survey Technical Report

Primary Commute Mode

Commute Modes	2014 (n=4,425)	2010 (n=3,789)	2007 (n=3,835)
Drive Alone	78%	82%	85%
Telework	11%	7%	4%
Carpool/Vanpool	5%	5%	7%
Train	3%	3%	2%
Bus	2%	2%	2%
Bike/Walk	1%	<1%	1%

Source: 2014 Regional Commuter Survey Technical Report

8% of weekly trips in the Atlanta region were made by teleworking.

2010

13% of weekly trips in the Atlanta region were made by teleworking.

2014

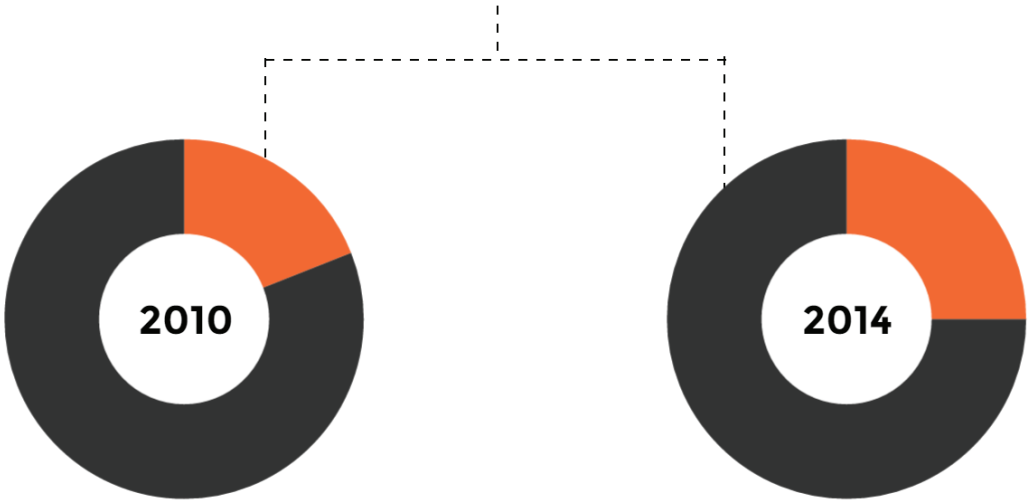
Teleworking

has been a key reason for Atlanta region residents increasingly shifting towards a non-drive alone commute.

Source: 2014 Regional Commuter Survey Technical Report

Residents in the Atlanta region

have been increasingly shifting towards a non-drive alone commute.



19% used a non-drive alone commute as their primary commute mode

25% used a non-drive alone commute as their primary commute mode

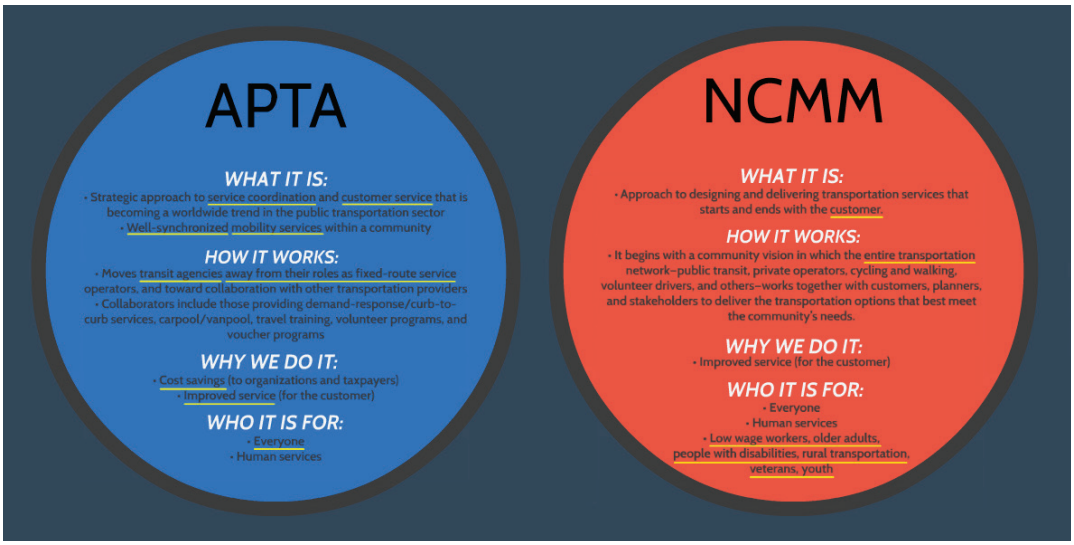
Source: 2014 Regional Commuter Survey Technical Report

The region has been shifting towards non-SOV options between 2010 and 2014, largely due to telework rates increasing.

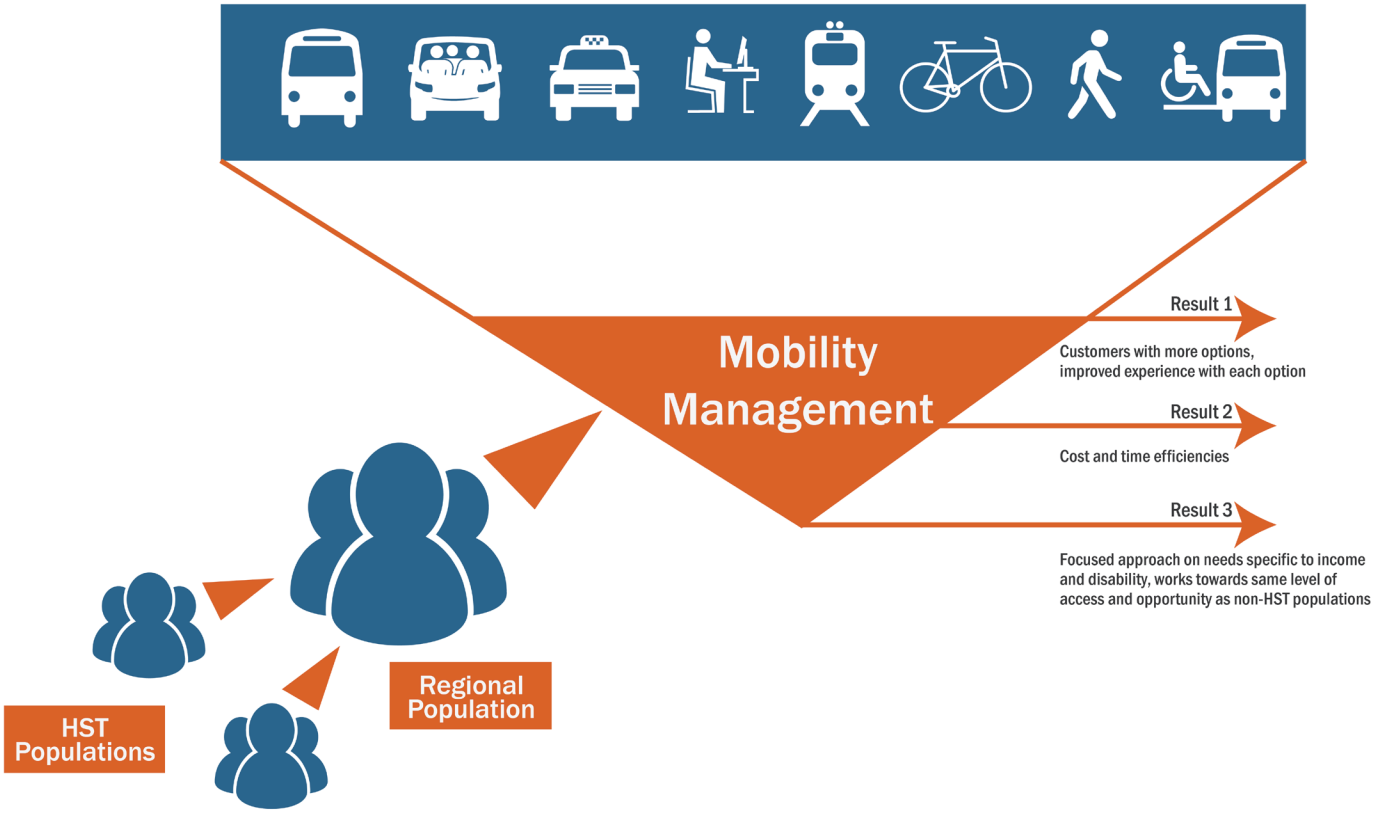
HST AND MOBILITY MANAGEMENT:

The concepts of HST and Mobility Management (MM) have some crossover. Both the American Public Transit Association (APTA) and the National Center for Mobility Management (NCMM) agree that MM is a strategic approach to transportation service coordination resulting in greater efficiencies in the transportation system, particularly through modal integration. They would also agree that customer service plays a big role in successful MM, and how the customer interacts with the services is of paramount importance. Where they differ is in their focus on specific populations. While the NCMM would include HST populations in their definition of MM, APTA would not necessarily do so (but would certainly consider them more broadly within the customer service approach).[37] This is an important distinction to consider, particularly when merging the concepts of MM and HST, as ARC approaches the topics in this plan. ARC, therefore, operates under the broader definition of MM that is explicitly inclusive of HST populations.

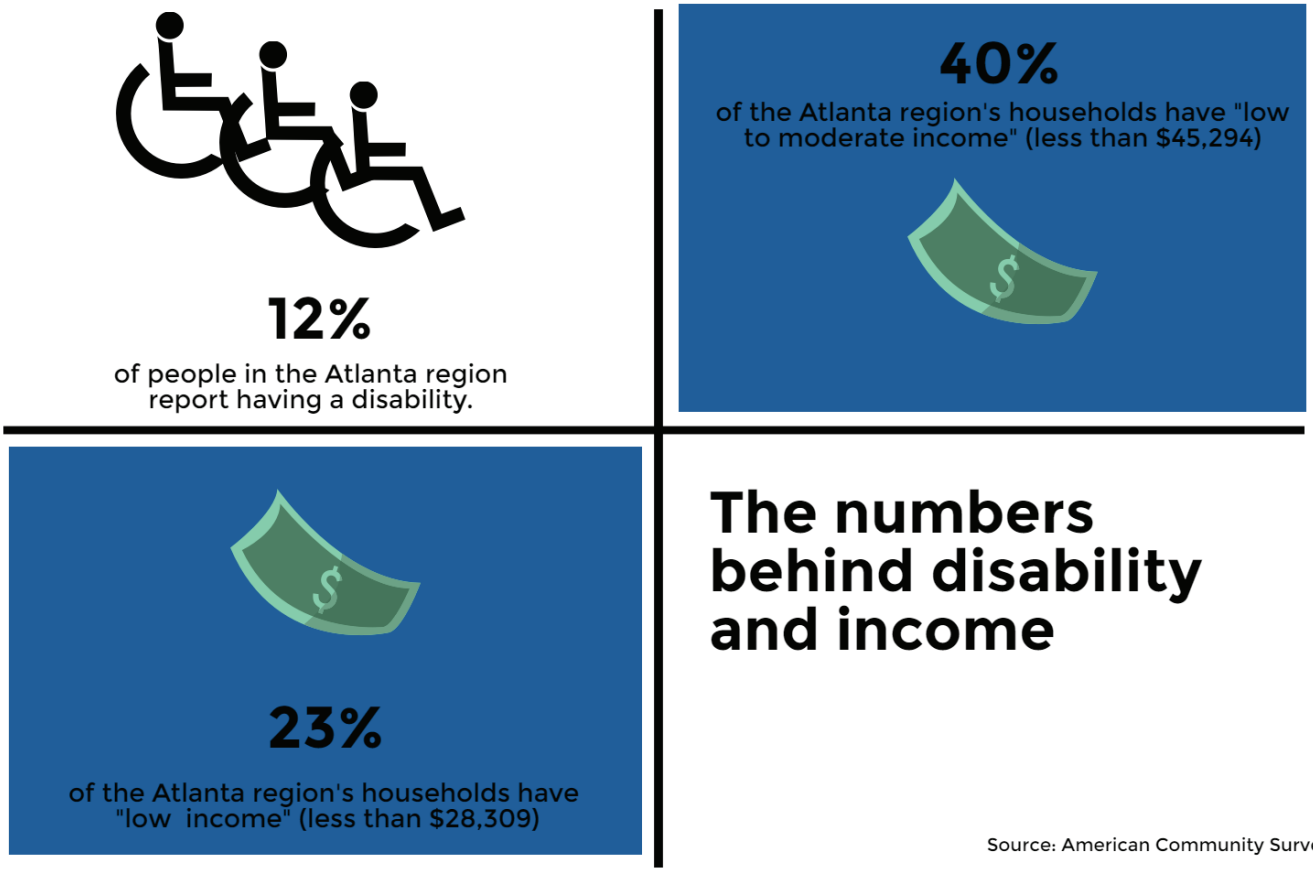
37 "Mobility Management"



Source: ARC, APTA and NCMM websites



Source: ARC



DISABILITY: Nationwide, 12.6% of the United States' population have a disability.[38] Of the Atlanta regional population aged 18+, 12.3% have at least one disability.[39] Even for an individual with a disability whose trip origin and destination locations fall within a fixed-route transit service area, getting to transit stations and stops may still be difficult or impossible because of the distance of the stops from their homes. Further, many are located in areas with scant sidewalks and lighting, high slopes resulting from hilly topography, unsuitable bus stop design in many cases, poor pedestrian infrastructure at traffic intersections, and even missing curb ramps.[40] For those who have the ability to access and use fixed-route service but simply need an initiation into understanding how to use the system, MARTA and other service providers, as well as nonprofit organizations such as disABILITY LINK, offer travel training to boost comfort levels with utilizing fixed route/guideway transit services.[41]

Some people with disabilities may be unable to use the fixed-route system even with the assistance of another person and/or a mobility device (e.g. wheelchair lifts or low-floor bus ramps). This is because they are unable to travel to or from a fixed-route bus stop or rail station due to the stop/stations' surrounding environmental conditions (e.g., rain, snow, or ice) or architectural barriers as aforementioned. Those unable to use or access fixed-route transit for these reasons may be eligible for ADA paratransit. While Fulton and DeKalb counties have significant paratransit coverage and both Cobb and Gwinnett counties have some paratransit coverage, those with disabilities in large parts of the region have no access to ADA paratransit services. Many counties with relatively high rates of disability offer no ADA paratransit service.

Cross-jurisdictional trips often present additional challenges or barriers to use (sometimes requiring a transfer), as do providers' hours or days of service, complicated and lengthy scheduling or eligibility requirements that do not offer same-day service, and the availability of door-to-door service compared to curb-to-curb service (resulting in less assistance getting from the vehicle to the door).

38 American Community Survey
39 American Community Survey
40 Carrillo et al.
41 MARTA

SPECTRUM AND DIVERSITY OF DISABILITY

Various definitions of disability exist and, in order to better understand their meanings, it's important to note the models of thought from which the definitions originate. The two primary models of disability theory are the medical model and the social model of disability.

Medical Model of Disability

The medical model of disability is rooted in World Health Organization (WHO) taxonomy. Originally published in 1980, the WHO's International Classification of Impairments, Disabilities and Handicaps report framed disability as an interrelated set of definitions[42]:

> Impairment: In the context of health experience, impairment is any loss or abnormality of psychological, physiological, or anatomical structure or function.
>
> Disability: In the context of health experience, a disability is any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being.
>
> Handicap: In the context of health experience, a handicap is a disadvantage for a given individual, resulting from an impairment or a disability, that limits or prevents the fulfilment of a role that is normal (depending on age, sex, and social and cultural factors) for that individual.

Social Model of Disability

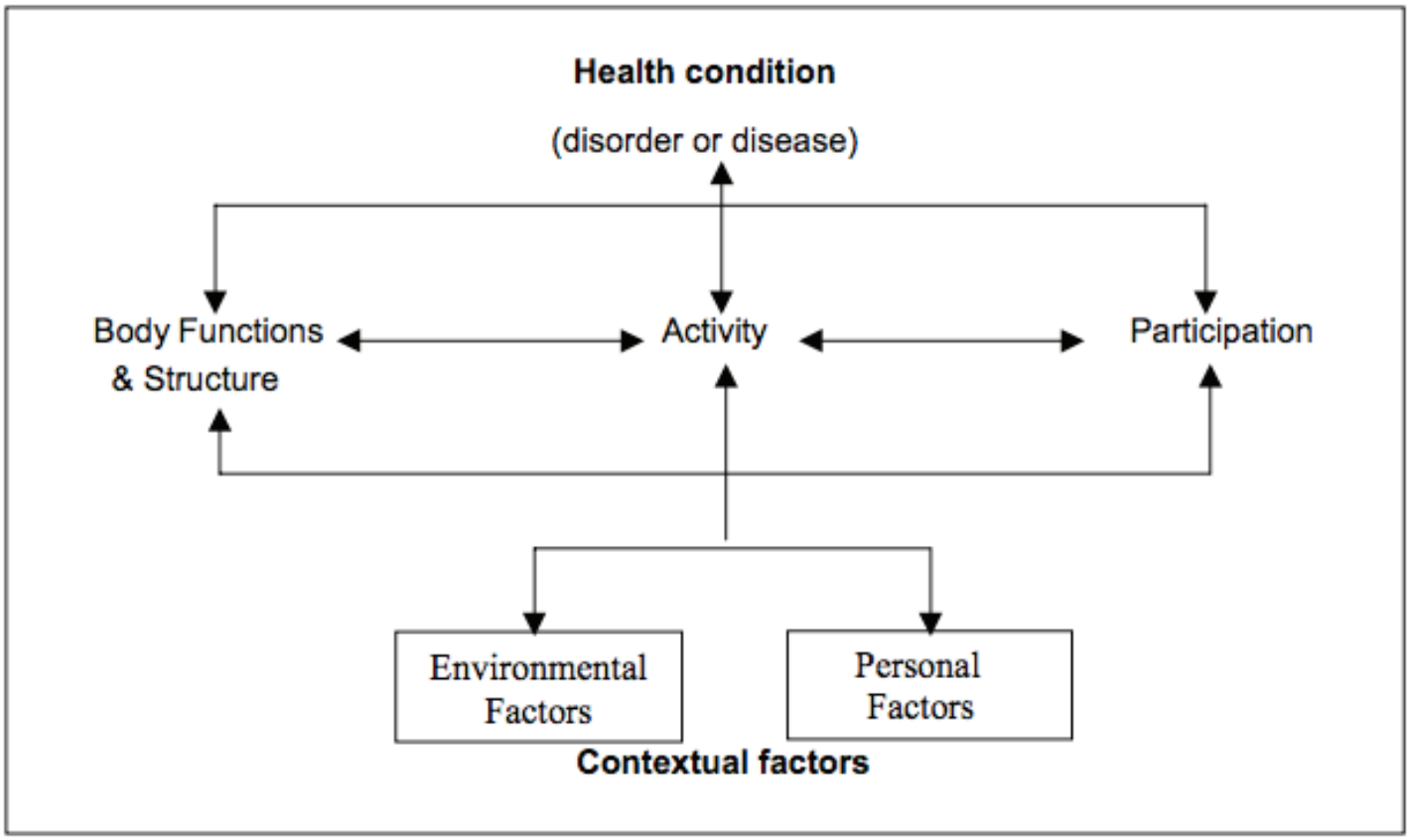
The social model of disability emerged as a response to the medical model of disability. Wherein the medical model focuses on defining disability as something originating at the individual level, the social model of disability suggests that "disability is not an attribute of an individual, but rather a complex collection of conditions, many of which are created by the social environment."[43] By taking this perspective, proponents of the social model of disability were able to argue for disability rights as human rights.

Biopsychosocial Model of Disability

The biopsychosocial model of disability is the current accepted model by the WHO. This model is

42 International Classification of Impairments, Disabilities, and Handicaps A Manual of Classification Relating to the Consequences of Disease

43 "Definitions of the models of disability"



an integration of the medical and social models of disabilities resulting from the realization by the WHO that disability is "an interaction between features of the person and features of the overall context in which the person lives, but some aspects of disability are almost entirely internal to the person, while another aspect is almost entirely external."[44] A graphic representation of the biopsychosocial model of disability from the 2002 WHO International Classification of Functioning, Disability and Health report can be found below.[45]

> Body Functions: Physiological functions of body systems (including psychological functions).
>
> Body Structures: Anatomical parts of the body such as organs, limbs and their components.
>
> Impairments: Problems in body function or structure such as a significant deviation or loss.
>
> Activity: The execution of a task or action by an individual.
>
> Participation: Involvement in a life situation.
>
> Activity Limitations: Difficulties an individual may have in executing activities.
>
> Participation Restrictions: Problems an individual may experience in involvement in life situations.
>
> Environmental Factors: The physical, social and attitudinal environment in which people live and conduct their lives.

United States Census Bureau Definition of Disability

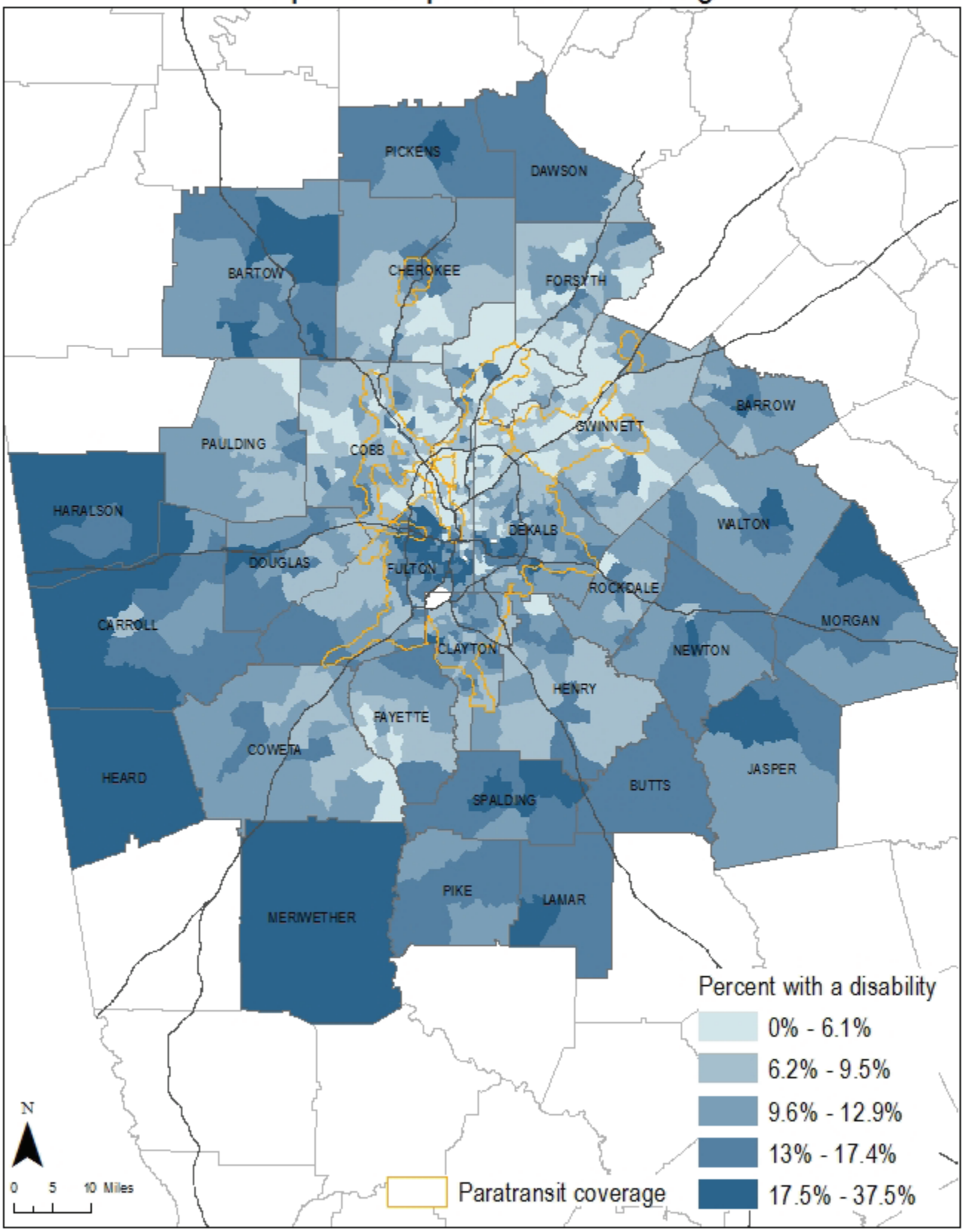
The disability-related data seen in this plan has primarily been gathered from the American Community Survey (ACS) conducted by the U.S. Census Bureau. Around the same time that the WHO released its biopsychosocial model of disability, the Census Bureau began developing a new set of ACS questions regarding disability that would move away from "questions focused on the presence of specific conditions, rather than the impact those conditions might have on basic functioning."[46] In 2008, the ACS defined individuals with disabilities as those that report any one of the following: Hearing difficulty, vision difficulty, cognitive difficulty, ambulatory difficulty, self-care difficulty, and/or independent living difficulty.

44 Towards a Common Language for Functioning, Disability and Health ICF Towards a Common Language for Functioning, Disability and Health: ICF the International Classification of Functioning, Disability and Health

45 Towards a Common Language for Functioning, Disability and Health ICF Towards a Common Language for Functioning, Disability and Health: ICF the International Classification of Functioning, Disability and Health

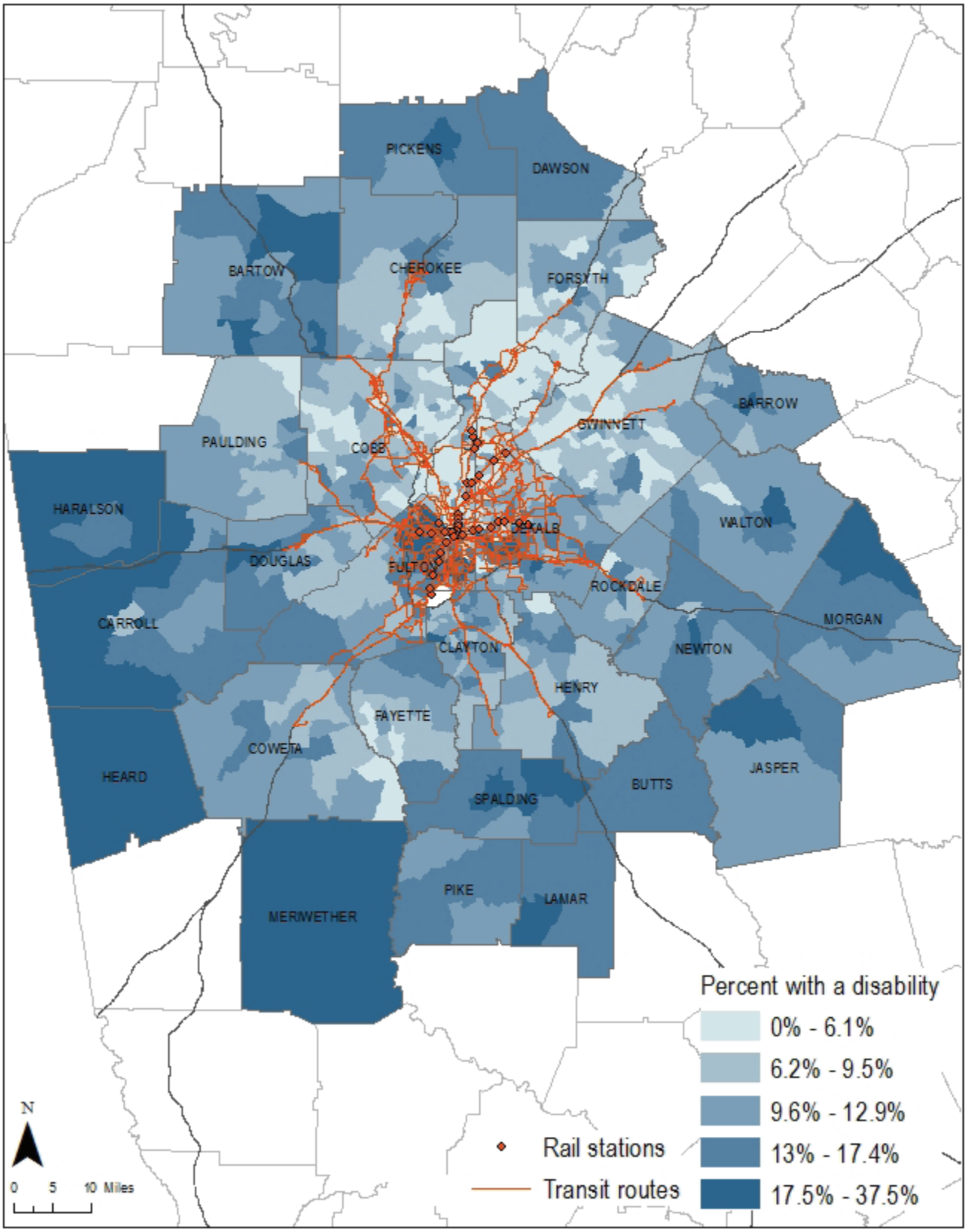
46 "American Community Survey (ACS). Disability Methodology."

The Atlanta region's population with a disability compared to paratransit coverage

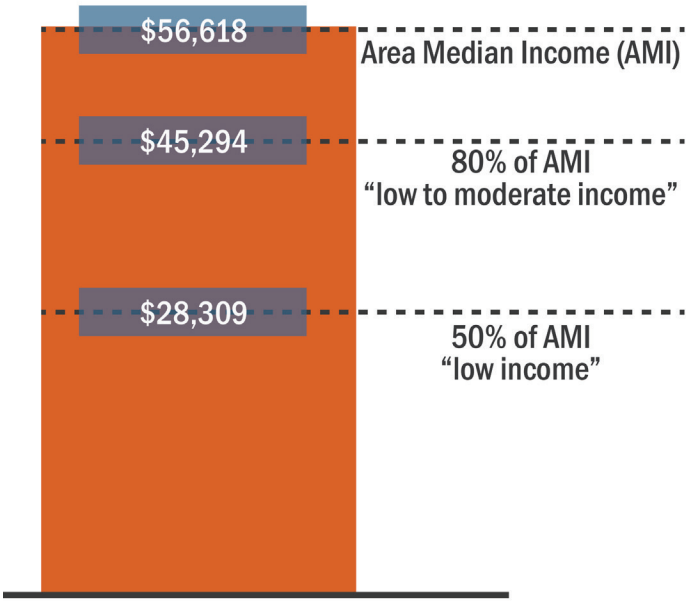


Data source: American Community Survey

The Atlanta region's population with a disability compared to transit routes and rail stations



Data source: American Community Survey & GTFS for regional transit operators



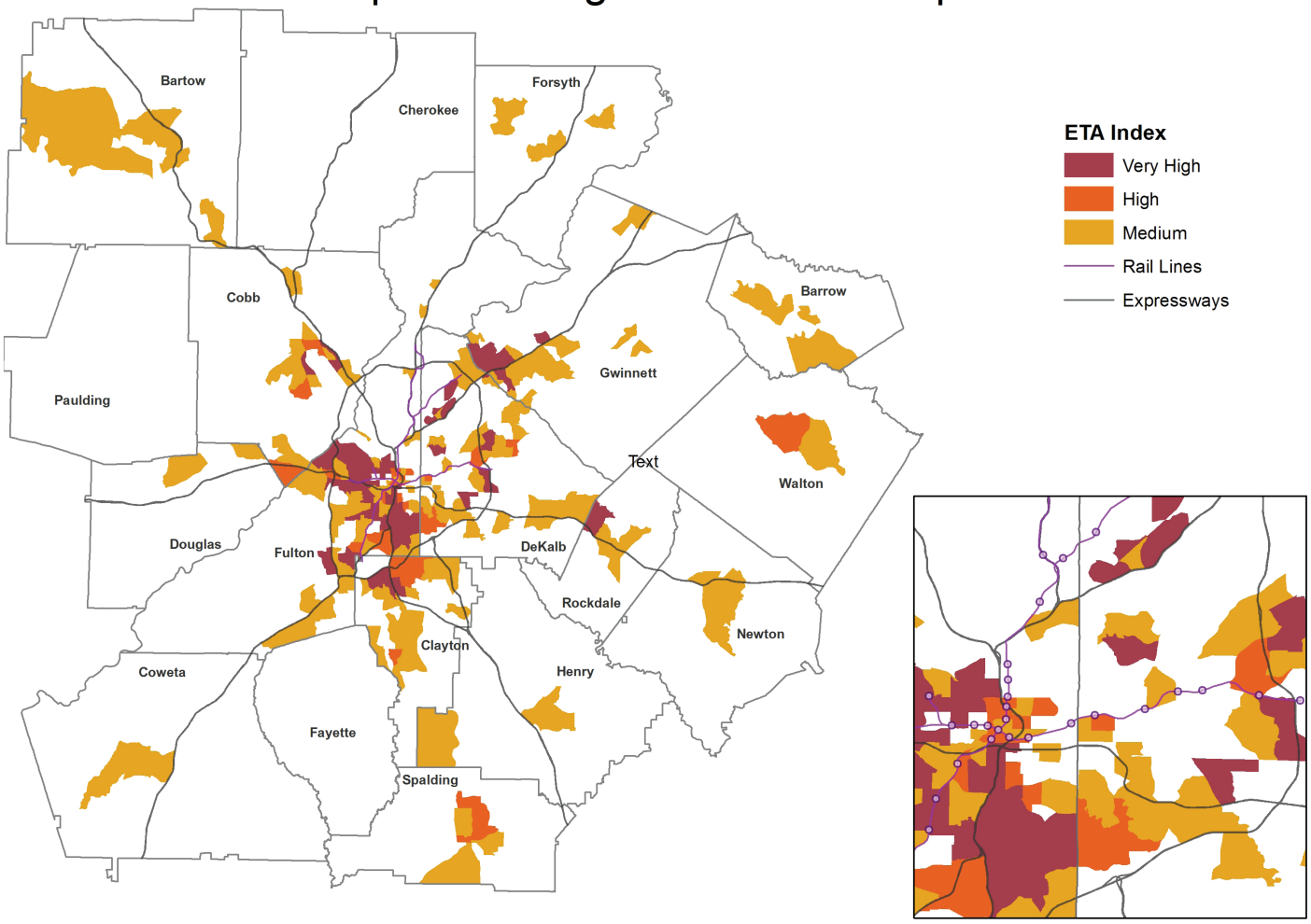
Source: ARC (graphic), HUD (AMI structure)

LOW-INCOME: Cost can be a barrier to many transportation options for those with low incomes, regardless of disability. In the Atlanta region, the median income for individuals is $28,753. The median income for households is $56,618. These figures are often different, as a household is potentially comprised of more than 1 individual and is therefore more likely to have a higher income.

A household is defined as having "low to moderate income" when income is 80% of the area median income (AMI) of a given geographic area.[47] For the Atlanta region, since the 2014 household AMI was $56,618, the "low to moderate income" upward limit for households was $45,294. In 2014, 40.1% of households in the Atlanta region had an income less

47 A "household" is defined in the Census as "one or more people who occupy a housing unit" and can vary in size and relationship between the individuals that occupy the housing unit (for instance the average household has 2.63 people). HUD uses the median income for families in metropolitan and non-metropolitan areas to calculate income limits for eligibility in a variety of housing programs. HUD estimates the median family income for an area in the current year and adjusts that amount for different family sizes so that family incomes may be expressed as a percentage of the area median income. "Low- to Moderate-income" definition is that used by HUD & Community Development Block Grants.

Equitable Target Area Base Map



http://atlantaregional.com/the-regional-plan

than $45,000.[48]

A household is defined as having "low income" when income is at or below 50% of the household AMI.[49] For the Atlanta region, the 2014 "low income" upward limit was $28,309. In 2014, 25.5% of households in the Atlanta region had an income less than $30,000, while 20.7% of households had an income less than $25,000.[50]

ARC has an index called "Equitable Target Areas" (ETA) that "helps ARC better understand complexities in communities of concern - high percentage of people living in poverty or high minority population - and how to make wise decisions regarding investments."[51] ARC uses the ETA index to understand access from the homes of people living in poverty or high minority population to key destinations such as grocery stones, grade schools, higher education, hospitals, and libraries.

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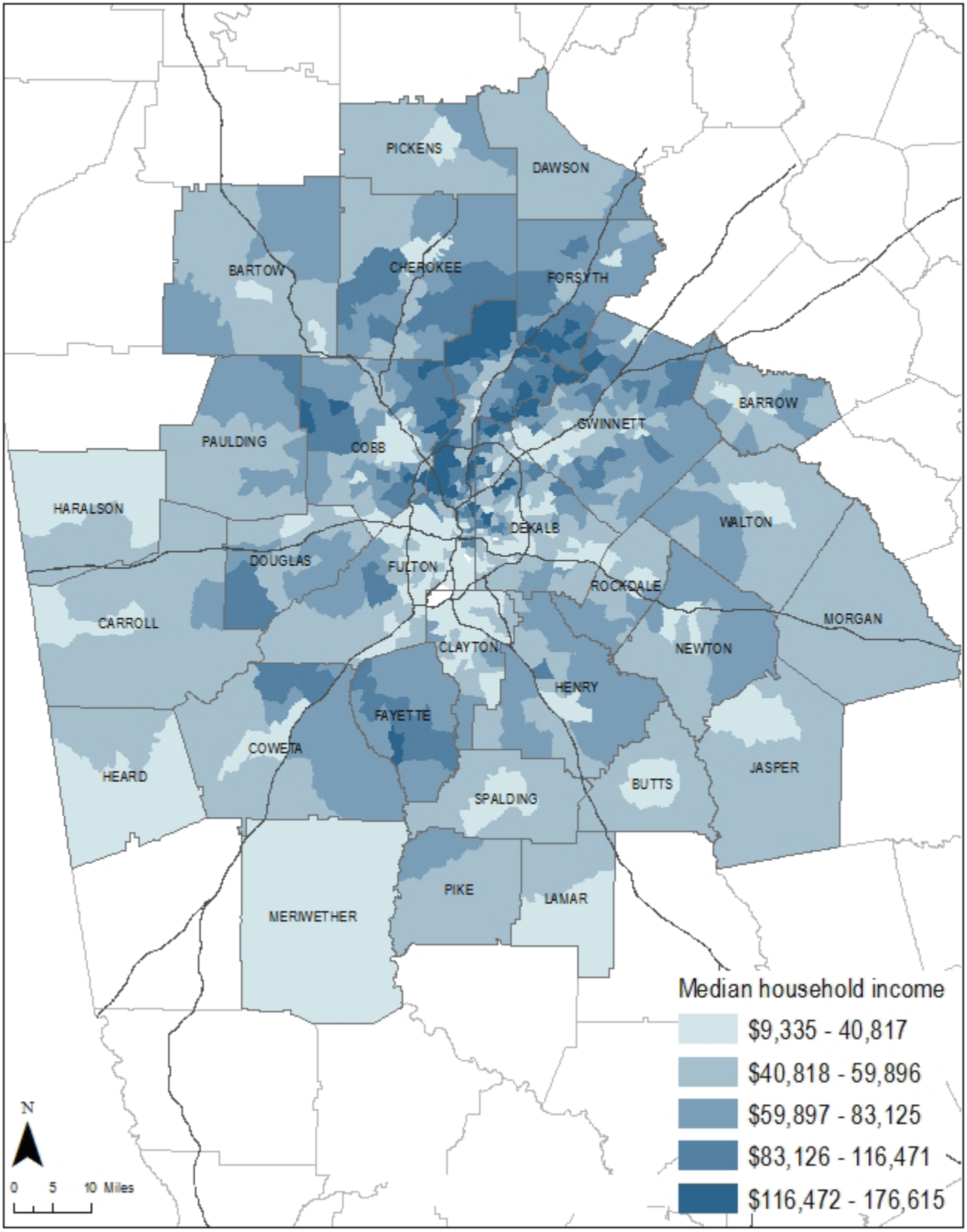
48 Income statistics for the Atlanta region are provided by the census's American Factfinder in buckets per every $5000 of household income, and thus this (under $45,000) is the income bucket that most closely aligns with the AMI calculation.

49 HUD definition

50 Income statistics for the Atlanta region are provided by the census's American Factfinder in buckets per every $5000 of *household* income, and thus this (under $25,000) is the income bucket that most closely aligns with the AMI calculation.

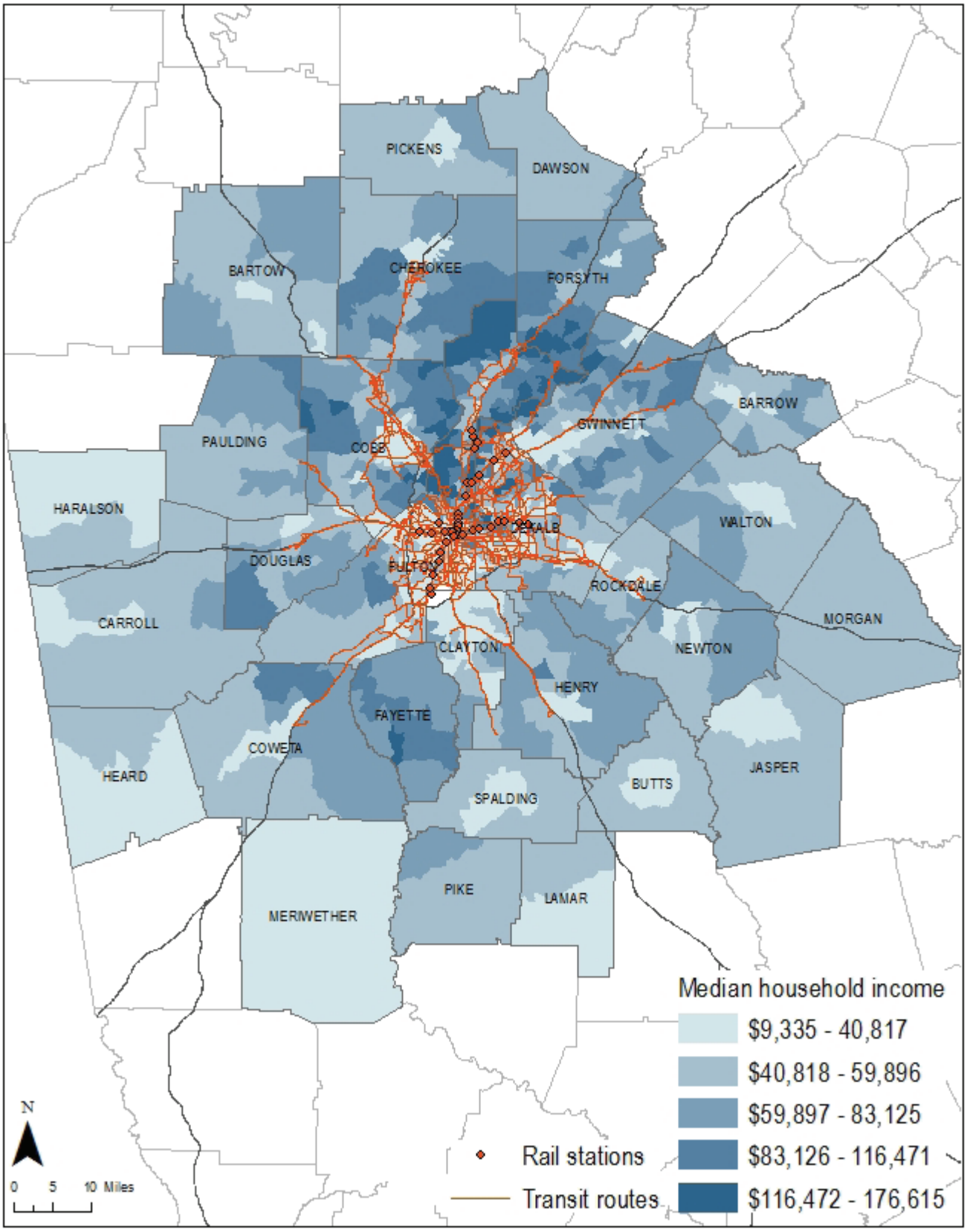
51 "Social Equity"

Median household income by census tract



Data source: American Community Survey

Median household income by census tract compared to transit routes and rail stations



Data source: American Community Survey & GTFS for regional transit operators

COMBINED HOUSING AND TRANSPORTATION COSTS: Even when costs do not present outright obstacles to using a service, they may interfere with quality of life by cutting disproportionately into a household's budget that could be spent on other needs/wants.

A "low to moderate income" household in the Atlanta region spends 67% of their household income on housing and transportation.[52] This compares to 54% of the household income spent on those two budget items by a typical household in the region and 57% spent by a typical household nationwide, where a "typical" household is one with the median income for the area, the average household size for the area, and the average commuters per household for the area.[53] In addition, 39% of "low to moderate income" household income is spent on housing (compared to the 31% of household income spent on housing by the typical regional household and 33% spent on housing by the typical household nationally).[54]

The Center for Neighborhood Technology (CNT) considers transportation costs to be affordable if they are 15% or less of household income.[55] In the Atlanta region, the "low to moderate income" household spends 28% of its income on transportation (compared to 23% of household income spent on transportation by the typical regional household and 24% of household income spent on transportation by the typical national household).[56]

52 "H + T Index Data Download"

53 "H + T Index Data Download"

54 "H + T Index Data Download"

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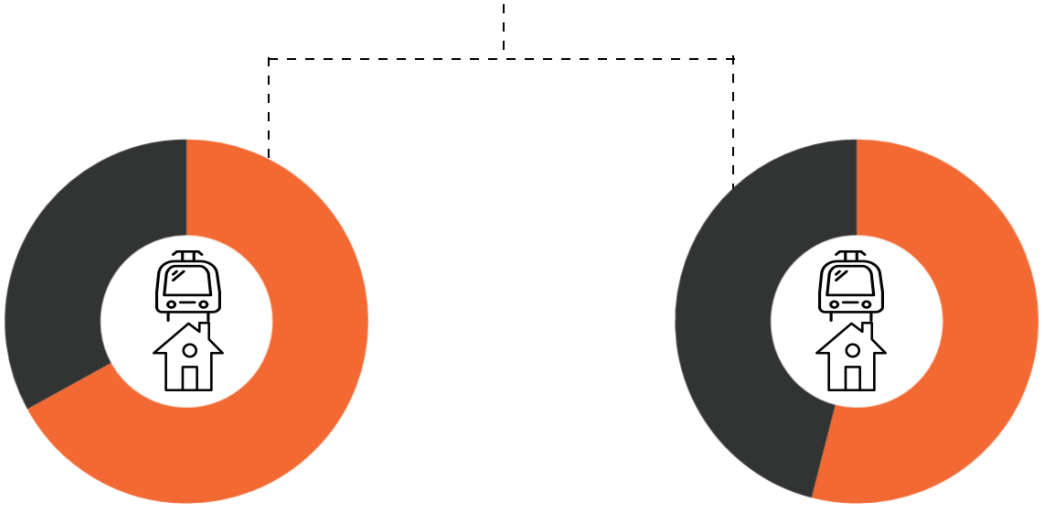
56 "H + T Index Data Download"

Households with lower income

spend a disproportionately large percentage of their income on housing and transportation costs.



67% for "low to moderate income" households (less than $45,294) in the Atlanta region

54 % for "average"* households ($56,618) in the Atlanta region.

Source: American Community Survey, Center for Neighborhood Technology.
* The Regional Typical Household assumes a household income that is the median income for the region, the average household size for the region, and the average commuters per household for the region.

An individual does not necessarily need to have low income to be cost-conscious about transportation options (note “save money” response below).

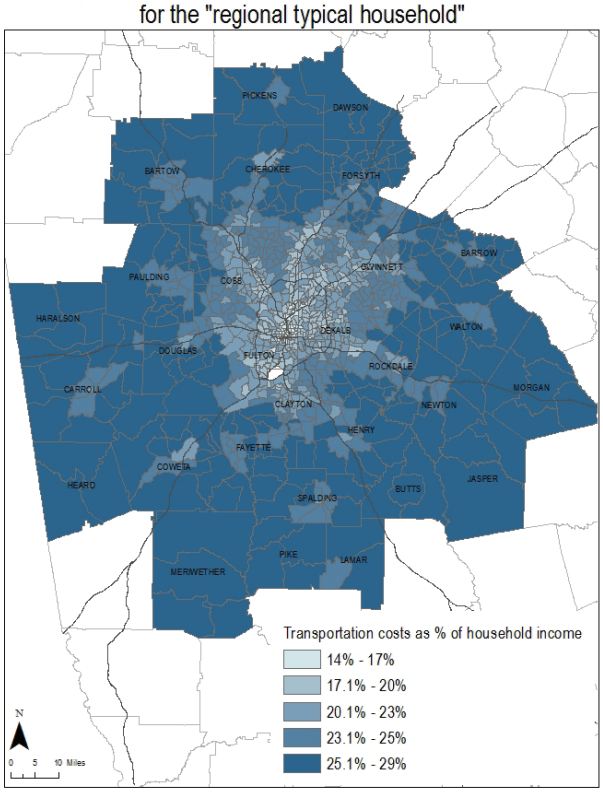
Benefits From Commute Option Use

Benefits*	2014 (n=)
Save money	45%
Avoid stress	18%
Use time productively	13%
Companionship	11%
Less wear and tear on car	10%
Less likely to be late for work	8%
Health benefits, exercise	7%
Avoid traffic	5%
Not a need to have a car	4%
Use HOT lane	3%
Save time	3%
Convenient	3%
Reduce carbon footprint	2%
Save gas	1%
Other	3%
No benefits received	14%

** Multiple, unaided responses given; total will exceed 100%.*

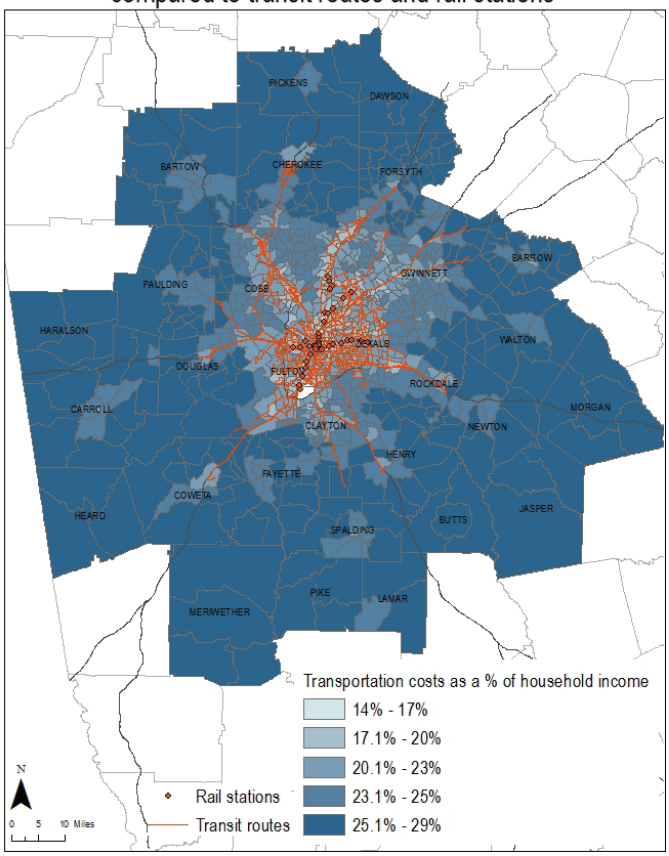
Source: 2014 Regional Commuter Survey Technical Report

Transportation costs as a percentage of household income for the "regional typical household"



Data source: American Community Survey

Transportation costs as a percentage of household income for the "regional typical household" compared to transit routes and rail stations



Data source: American Community Survey & GTFS for regional transit operators

VEHICLE AVAILABILITY & OWNERSHIP: In the Atlanta region, 6.24% of households report having no vehicle available.[57] It is important to distinguish between the various reasons people do not own vehicles. In some cases, low income leads to an inability to purchase a vehicle. In other cases, people elect to live without owning their own vehicle. In fact, recent national figures indicate millennials (aged 20-34) are less likely to own a vehicle than other age groups.[58] This may signal a trend towards fewer people overall owning cars. The counties served by MARTA (which also have higher housing densities) have higher rates of zero-car households: 12.00% of Fulton's, 9.28% of Dekalb's, and 7.37% of Clayton's households reported having no available vehicle compared with 3.10% of Gwinnett's households, for example.[59] Other regional counties, even those with high rates of low income, do not have high rates of zero-car ownership.[60] Therefore, having low income does not necessarily indicate a higher propensity to not own a vehicle.

Of the individual workers surveyed in the Atlanta region, 3.14% report having no vehicles available.[61] The counties served by MARTA have higher rates of workers reporting no vehicle available: 5.87% in Fulton, 5.49% in Dekalb, and 4.29% in Clayton. In comparison, only 1.86% of Gwinnett's individual workers have no available vehicle.[62]

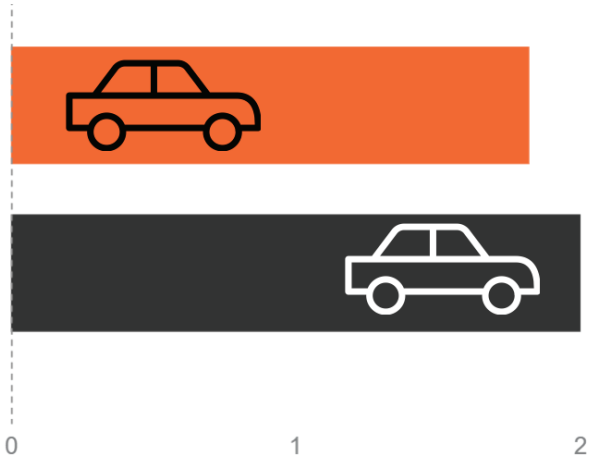
Households in Atlanta region counties without transit services spend higher portions of their income on transportation costs, and large portions of more rural counties far from the urban core also have relatively low median incomes. The percentage of the "low to moderate income" income workers who are transit riders, 4%, is identical to the percentage of typical workers both regionally and nationally who are transit riders.[63] However, households in the Atlanta region classified as "low to moderate income" have 2 cars, while the typical household in the region averages

57 American Community Survey
58 Nelson, Badger
59 American Community Survey
60 American Community Survey

61 American Community Survey
62 American Community Survey
63 "H + T Index Data Download"

Having a low income

does not equal a lack of car ownership.

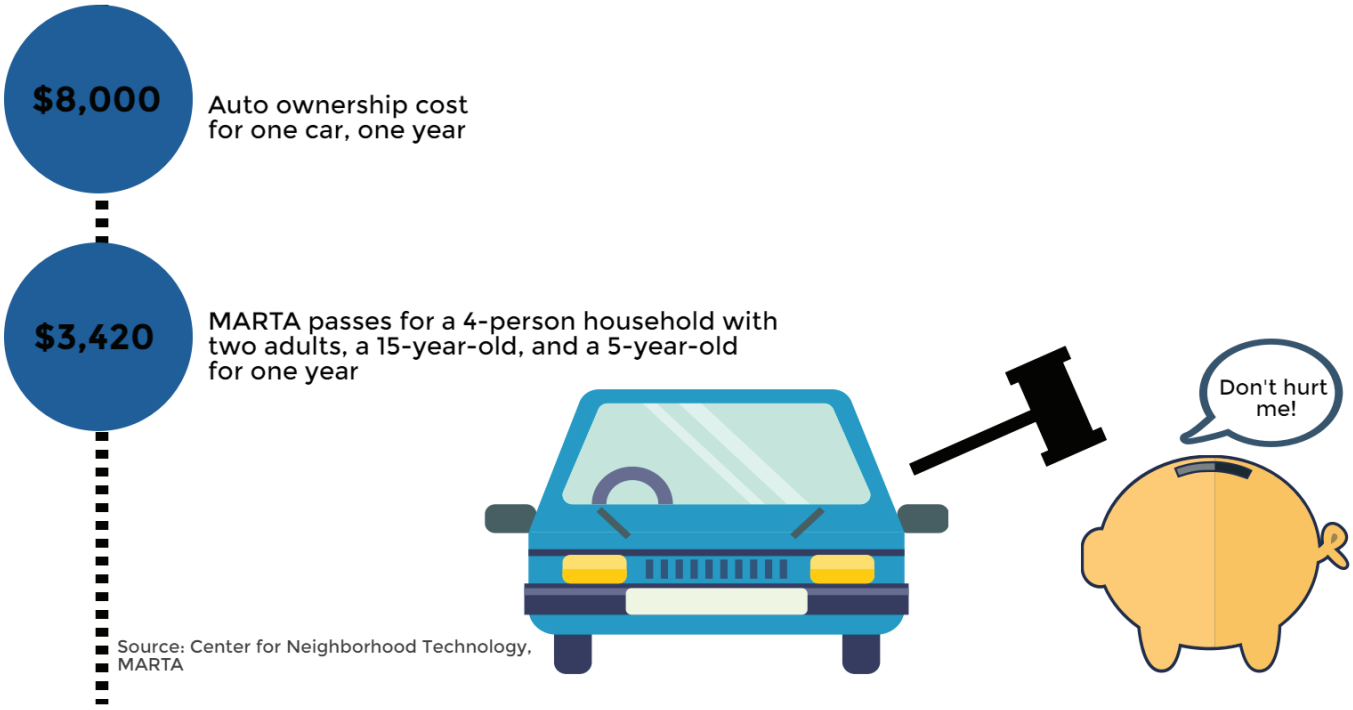


"Average"* households ($56,618) own 1.82 cars

"Low to moderate income" households (less than $45,294) own 2.0 cars

Source: American Community Survey, Center for Neighborhood Technology.
* The Regional Typical Household assumes a household income that is the median income for the region, the average household size for the region, and the average commuters per household for the region.

Car ownership breaks the bank.

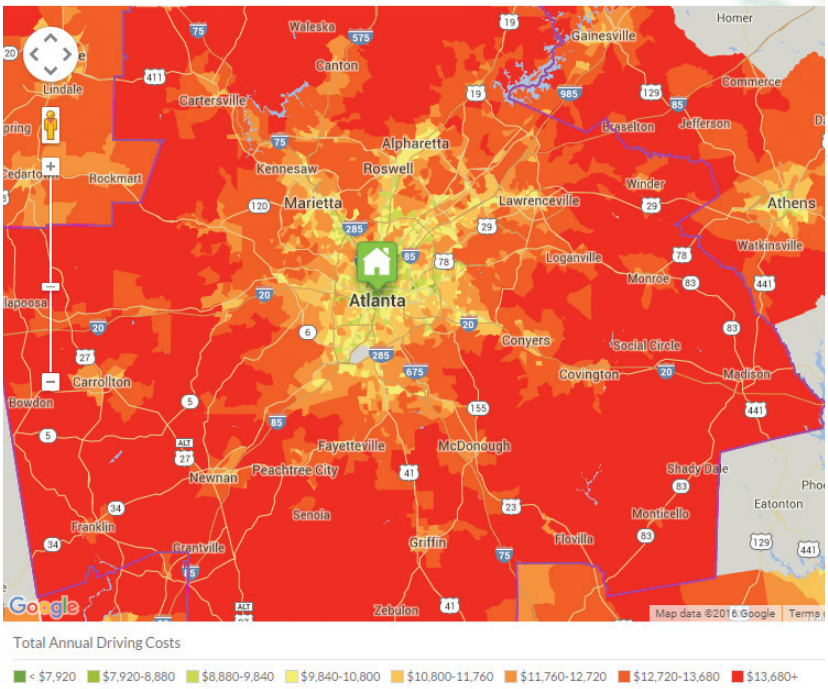


1.82 cars.[64] (The typical national household has 2 cars.[65]) This relatively higher car ownership rate among low-to-moderate income households likely represents the stories of those in census tracts with relatively low median incomes in the region's peripheral counties that lack transit access (like Bartow, Carroll, Hall, Newton, Spalding, and Walton; see map "Median Income by Census Tract").

Annual auto ownership costs are lower for the region's "low to moderate income" households ($7,819) than the region's typical household's ($8,101) and the national typical household's ($7,894).[66] This cost differential might be due to dissimilarities in the type or costs of cars lower income households are likely to have, deferral of maintenance by those families because of affordability, and lower insurance rates farther from the urban core. Many of the external counties have relatively low median incomes, indicating that high rates of "low to moderate income" households may live in those lower-insurance areas. However, it is important to note that even relatively lower auto ownership costs make up a larger percentage of total income for the low-to-moderate household income than the (relatively higher) auto ownership costs for those with higher household incomes.

Other data indicate that while the household might have a vehicle, not all individuals have access to the vehicle (note 26% responding "no vehicle available" as a motivation for commute option use).

Annual driving costs for average households in the Atlanta region



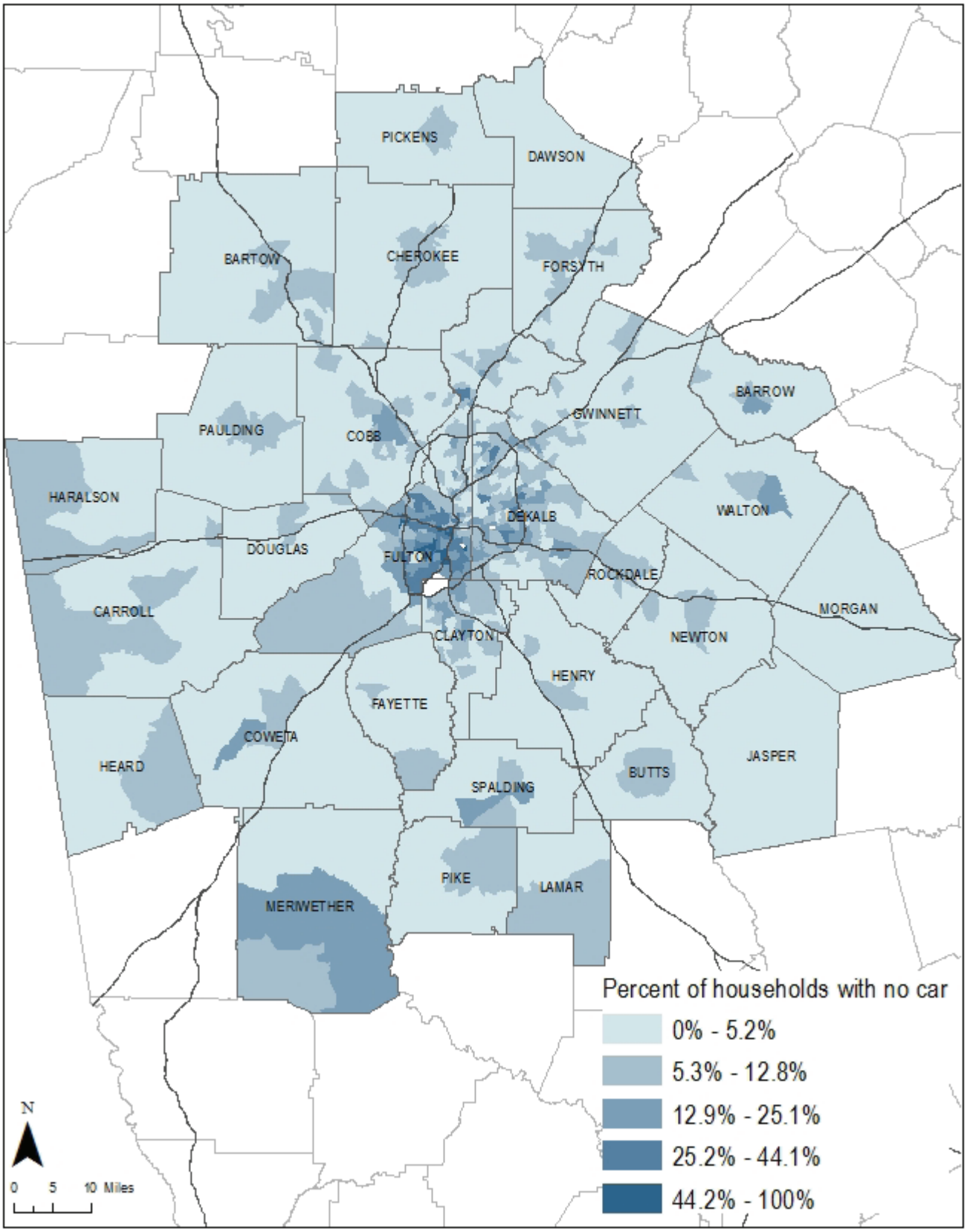
Source: Center for Neighborhood Technology "H + T Index Data Download"

64 "H + T Index Data Download"

65 "H + T Index Data Download"

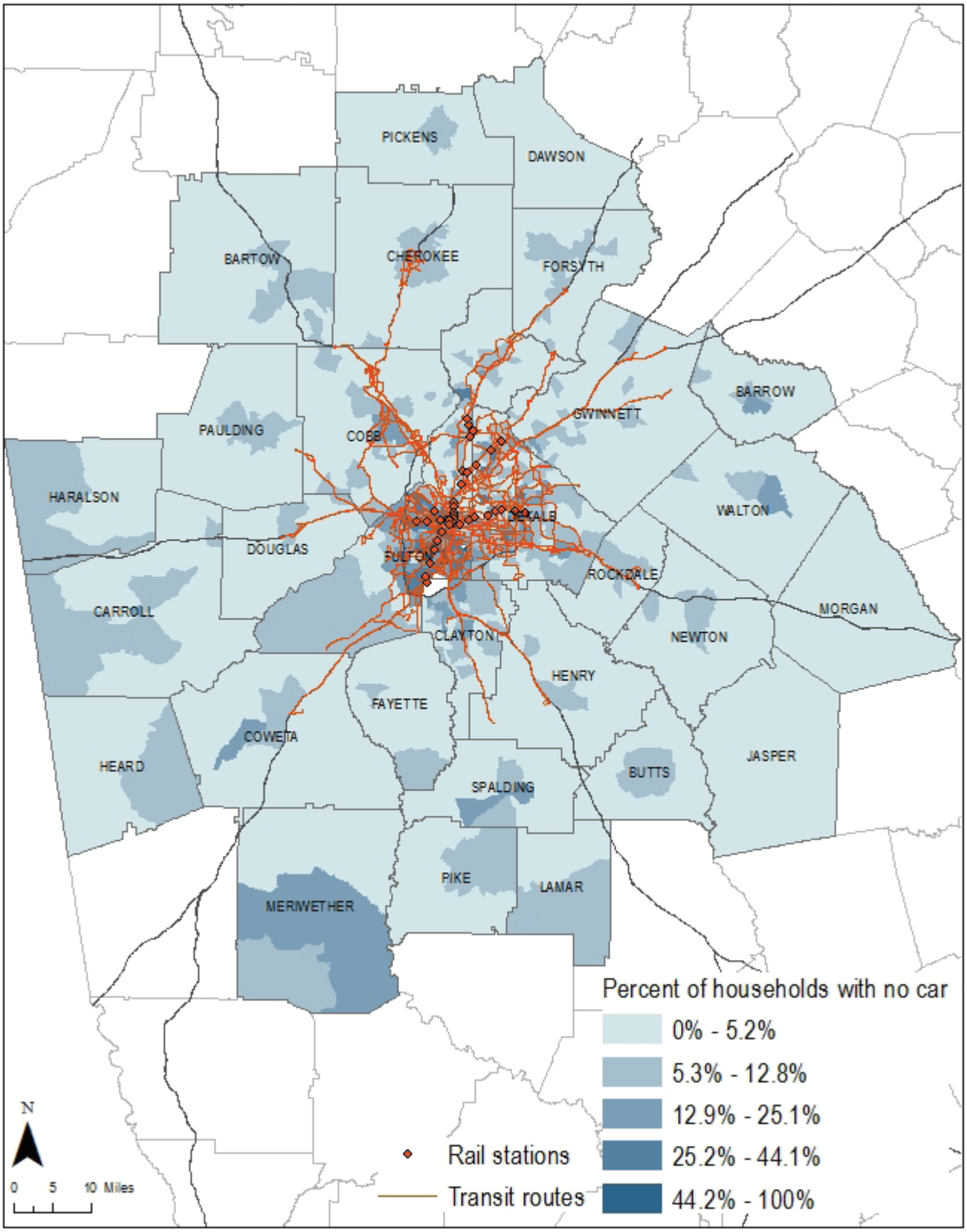
66 "H + T Index Data Download"

The Atlanta region's zero-car households



Data source: American Community Survey

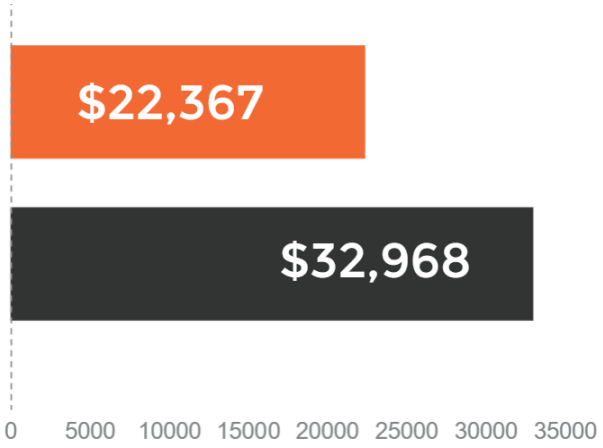
The Atlanta region's zero-car households compared with transit routes and rail stations



Data source: American Community Survey & GTFS for regional transit operators

Individuals who report having a disability

are more likely to have a lower income than those who do not report having a disability in the Atlanta region.



The median income for those with a disability is $22,367.

The median income for those without a disability is $32,968.

Source: American Community Survey

CORRELATION BETWEEN DISABILITY AND LOW-INCOME: The two main barriers to transportation options--disability and low income—are also correlated with each other in the Atlanta region: The median income for those with a disability is $22,367 compared to a median income of $32,968 for those without a disability.[67]

POPULATIONS WITH ELEVATED RISK FOR DISABILITY AND/OR LOW-INCOME: HST places an emphasis on advocacy for and analysis of options needed by those with a heightened risk for disability and low income.

OLDER ADULTS: Older adults In the Atlanta region, 9.9% are aged 65+.[68] Older adults aged 65+ are much more likely than other ages to have a disability; of adults aged 65+ in the Atlanta region, 35.20% of the adults aged 65+ have a disability compared to the 8.50% of adults aged 18-64 in the Atlanta region who have a disability.[69] Nationwide, 36.3% of adults age 65 or older have a disability compared to 10.2% of those aged 18-64.[70] Of households with a householder aged 65 or older, approximately 54% have incomes that fall approximately within the "low to moderate income" range (compared to 40% of the total region population inclusive of that age group),[71] and approximately 40% fall into the "low income" range (compared to 23% of the total region population inclusive of that age group).[72]

67 American Community Survey

68 American Community Survey

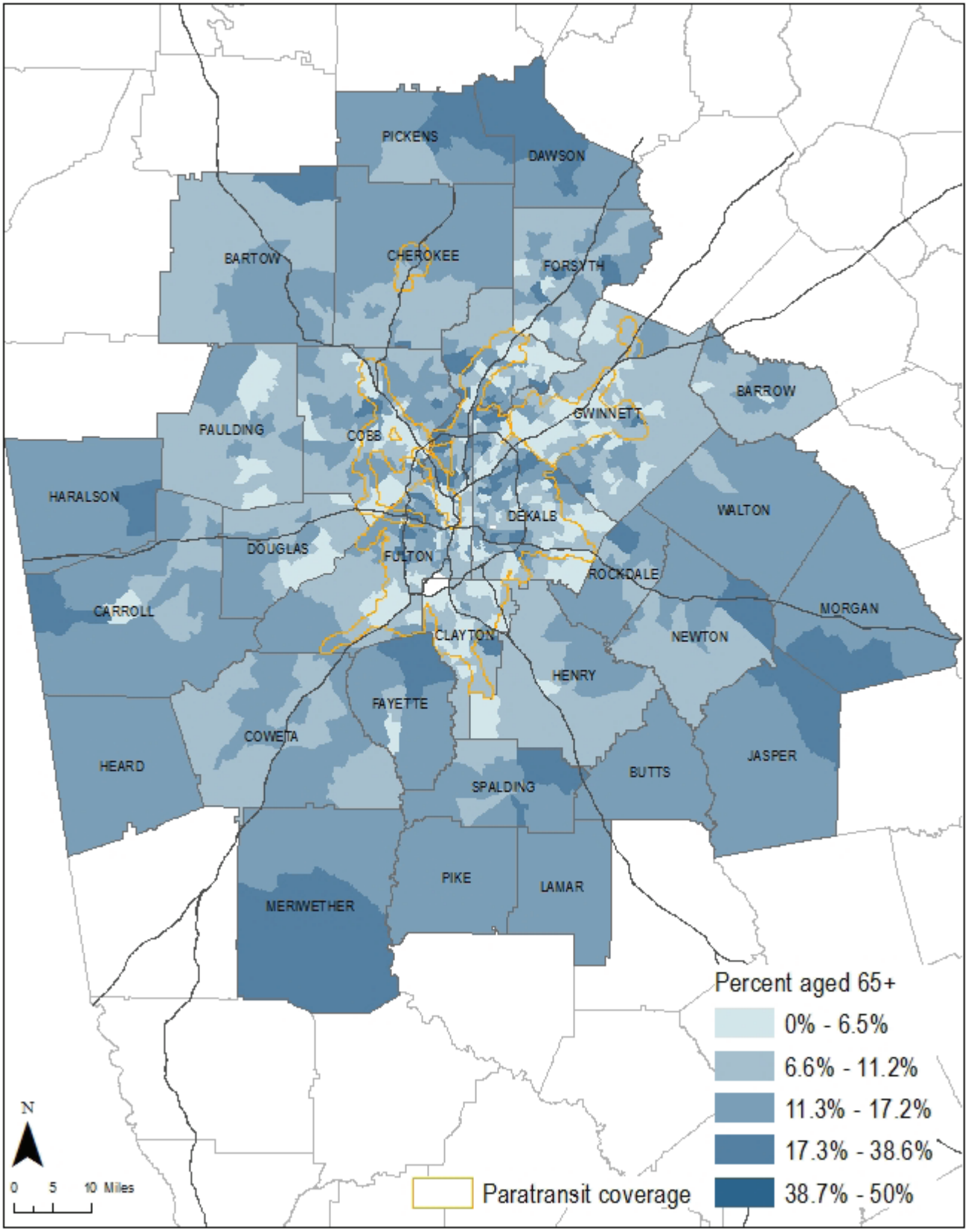
69 American Community Survey

70 American Community Survey

71 The census's American Factfinder provides income buckets that do not align perfectly with the 80% AMI and 50% AMI calculations used to determine these categories, so the closest buckets to those calculations were used to determine the percentage of the 65+ householder population falling into these categories.

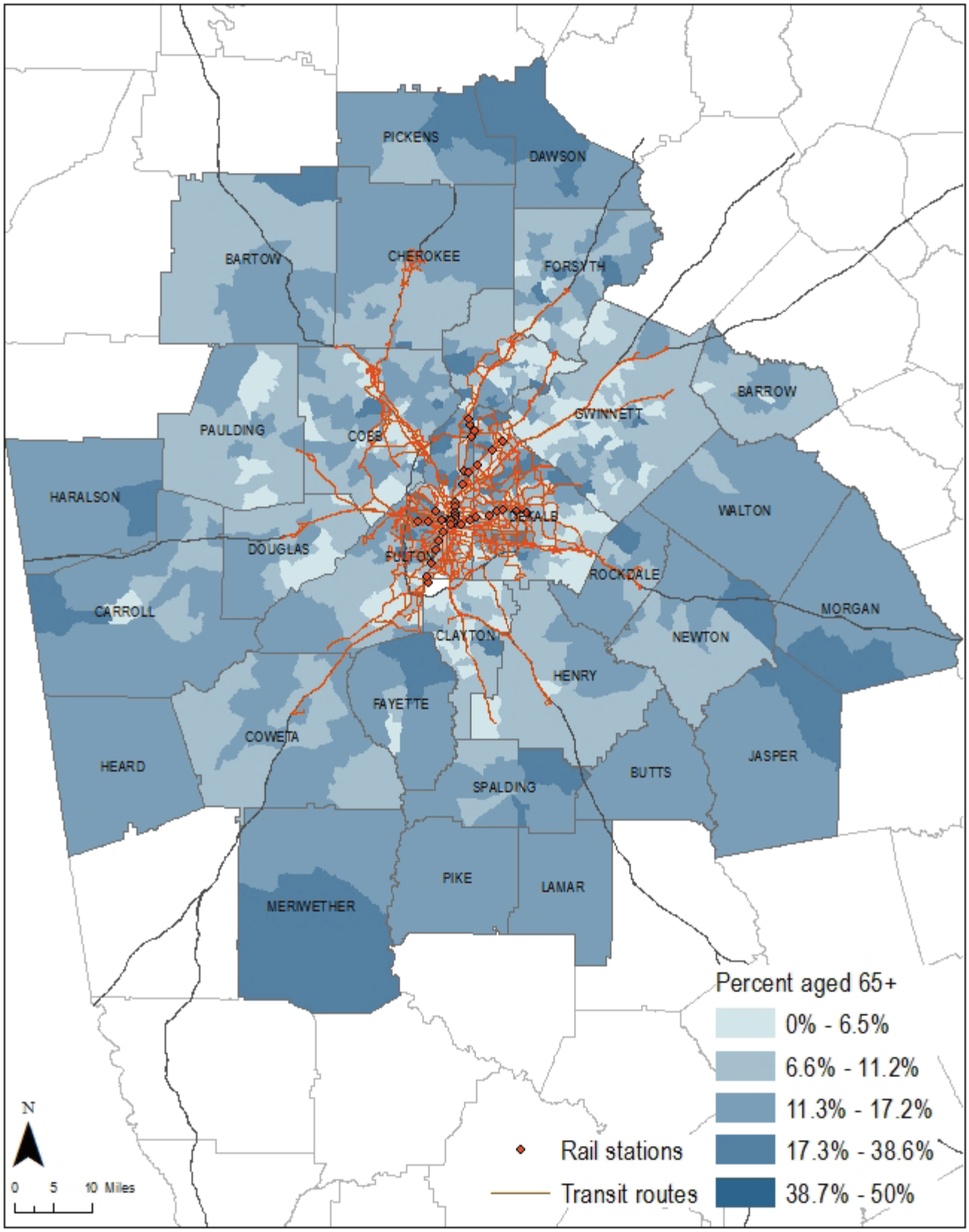
72 American Community Survey

The Atlanta region's population aged 65+ compared with paratransit coverage



Data source: American Community Survey

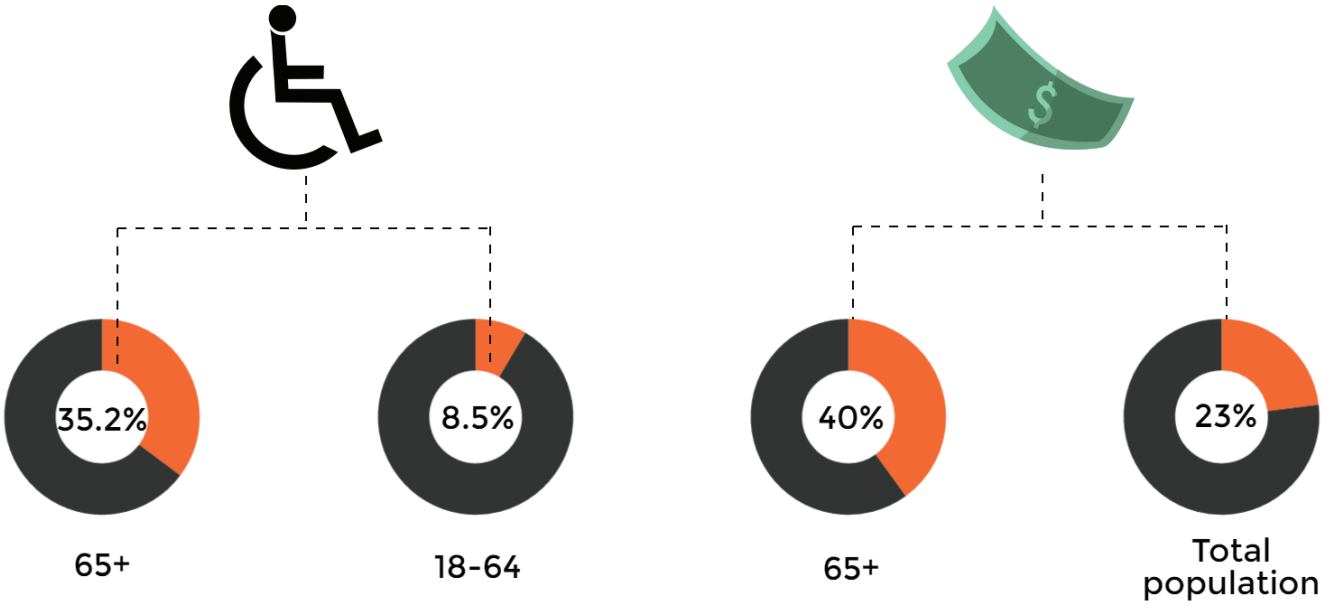
The Atlanta region's population aged 65+ compared with transit routes and rail stations



Data source: American Community Survey & GTFS for regional transit operators

Individuals aged 65+

are more likely to have a lower income and have a disability in the Atlanta region.



35.2% of adults aged 65+ have a disability compared to 8.5% of adults aged 18-64

40% of adults aged 65+ live in a household with "low income" (less than $28,309) compared to 23% of the total region's households*

Source: American Community Survey
*Inclusive of households with a householder 65+

VETERANS[73]: Civilian veterans make up 8.20% of the civilian population of the Atlanta region.[74]

Nationwide, veterans have much higher median incomes than their non-veteran counterparts: $37,466 is the veteran median individual income compared to $26,214 for non-veterans.[75] The same is true in the Atlanta region, in which the median individual income for veterans is $41,236 income compared to $27,899 for non-veterans.[76] This relatively heartening economic outlook for veterans is counterbalanced by their concurrent over-representation in the nation's homeless population: the National Center for Veterans Analysis and Statistics found that in 2010, veterans made up 16% of the sheltered homeless population, but only 10% of the general population.[77] More than half of the sheltered veteran population that year also had a disability, and the sheltered veteran population was on average much older than the sheltered non-veteran population.[78] The same study found that from 2009 to 2010, the number of sheltered veterans increased in both emergency shelters and in transitional housing, and in both principal cities and suburban and rural areas.[79]

The connection of veteran status with disability is strong: 27.0% of veterans nationwide report having a disability compared to 13.8% of non-veterans.[80] Disabilities specifically resulting from their

73 The Census defines veterans as "men and women who have served (even for a short time), but are not currently serving, on active duty in the U.S. Army, Navy, Air Force, Marine Corps, or the Coast Guard, or who served in the U.S. Merchant Marine during World War II. People who served in the National Guard or Reserves are classified as veterans only if they were ever called or ordered to active duty, not counting the 4-6 months for initial training or yearly summer camps" (Veterans. Definitions and concepts).

74 American Community Survey

75 American Community Survey

76 American Community Survey

77 Profile of Sheltered Homeless Veterans for Fiscal Years 2009 and 2010

78 Profile of Sheltered Homeless Veterans for Fiscal Years 2009 and 2010

79 Profile of Sheltered Homeless Veterans for Fiscal Years 2009 and 2010

80 American Community Survey

military service are reported by 19.5% of veterans nationwide.[81] In the Atlanta region, 17.67% of veterans have a disability related to their military service while 22.28% of veterans have a disability of any kind, resulting from their military service or otherwise.[82]

Veterans of more recent wars report a higher rate of disability related to their military service than do veterans of earlier wars: 30% of veterans who served in the Gulf War era I (August 1990 to August 2001)[83] report a disability related to their military service, while a smaller 16% of the total veteran population, inclusive of that Gulf War era I group, reports having a disability connected to their military service.[84] This has placed a corresponding increased pressure on the VA healthcare system and associated transportation benefits: as of November 2015, there were 9.11 million nationwide enrollees nationwide.[85] Serving those numbers and their additional eligible family members are 144 VA Hospitals and 1,211 outpatient sites nationwide.[86] In 2014, the Atlanta region was home to 331,331 veterans, 60,985 of which served in the Gulf War era I and 43,577 served in Gulf War era II (September 2001 to present).[87] There were 91,772 VA Healthcare enrollees in the Atlanta region in 2014.[88]

81 American Community Survey

82 American Community Survey

83 Gulf War era I includes Operation Desert Shield and Operation Desert Storm. Gulf war era II includes Operation Iraqi Freedom (now called Operation New Dawn) and the continuing Operation Enduring Freedom. For more information, see Gulf Era Veterans Report: Pre-9/11.

84 News Release March 18, 2015: Employment Situation of Veterans--2014

85 VA Benefits and Healthcare Utilization

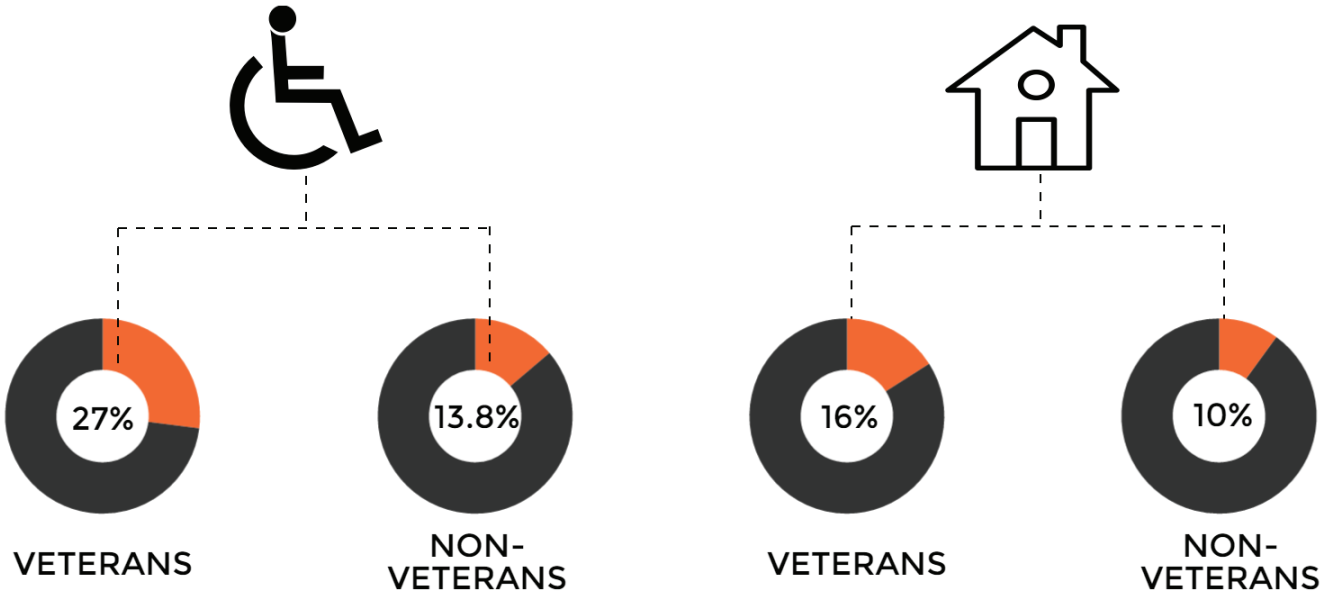
86 VA Benefits and Healthcare Utilization

87 American Community Survey

88 American Community Survey

Having a veteran status

increases the likelihood an individual will have a disability and be without a home.

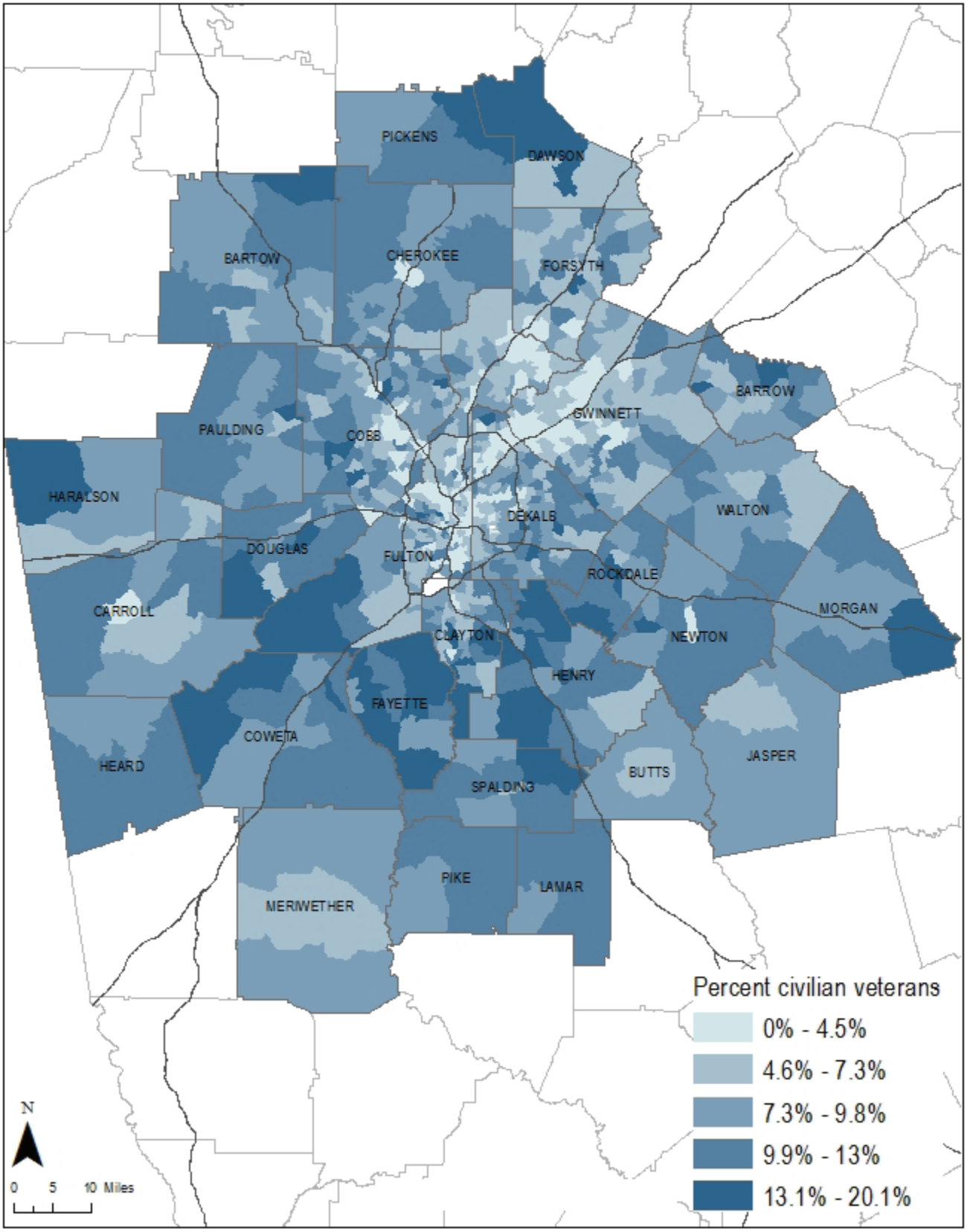


Of veterans nationwide, 27.0% of report having a disability compared to 13.8% of non-veterans.

In 2010, veterans nationwide made up 16% of the sheltered homeless population, but only 10% of the general population.

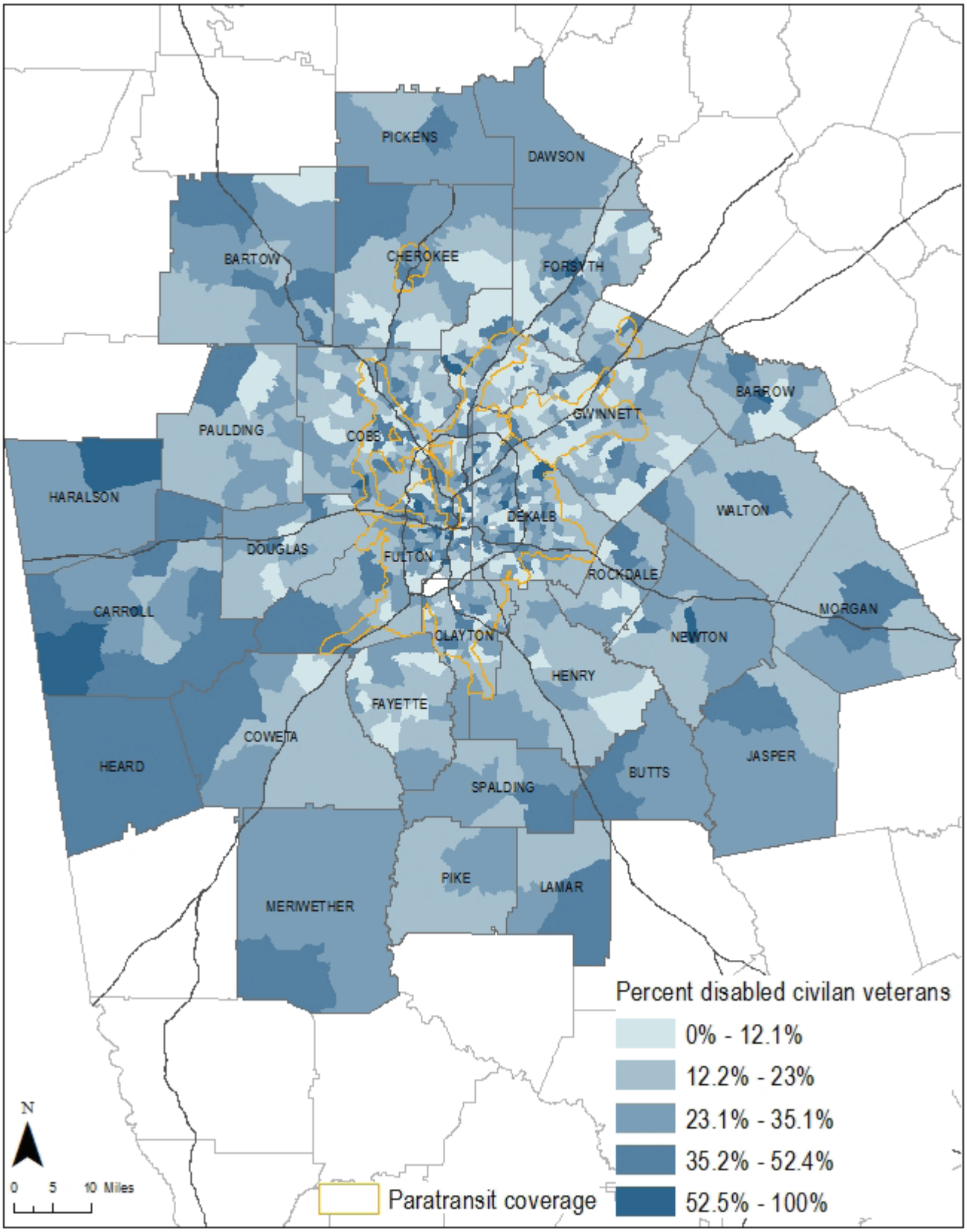
Source: American Community Survey, Profile of Sheltered Homeless Veterans for Fiscal Years 2009 and 2010

The Atlanta region's population of civilian veterans



Data source: American Community Survey

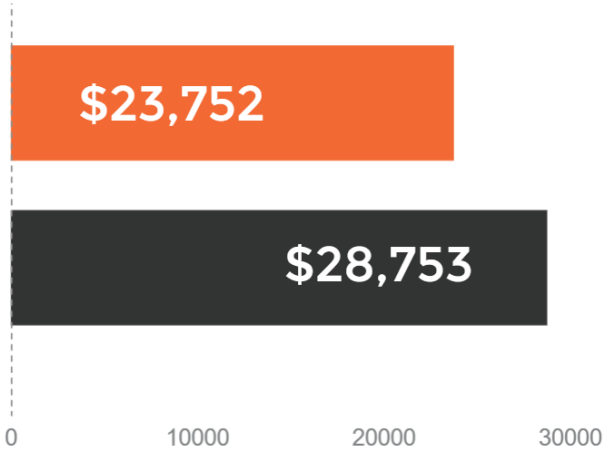
The Atlanta region's population of disabled civilian veterans compared to paratransit coverage



Data source: American Community Survey & GTFS for regional transit operators

The foreign-born population,

which represents the highest percentage of individuals with limited English proficiency, is more likely to have a lower income.



The median income for the Atlanta region's foreign-born individuals is $23,752.

The median individual income for the region as a whole is $28,753.*

Source: American Community Survey
* This is inclusive of the foreign born population.

PEOPLE WITH LIMITED ENGLISH PROFICIENCY (LEP): Nationwide, 8.6% report that they speak English "less than very well".[89] In the Atlanta region,[90] 7.3% report that they speak English "less than very well".[91] Of those who report speaking English "less than very well", 62.9% are Spanish speakers and 37.0% speak other languages.[92]

Inability to understand intake processes, service, schedules, routes, driver communication, and signage because of a language barrier has the potential to reduce transportation options for this group or at least reduce the safety or efficiency for them of their available options.

The reduction of transportation options for these individuals might also be exacerbated by low incomes. The median income for the Atlanta region's foreign-born individuals is $23,752, compared to the median individual income for the region as a whole of $28,753 (inclusive of this foreign born population).[93]

Though not all foreign-born individuals have reduced transportation options because of low-income or disability, a look at the foreign born population can approximate a description of the region's population with low-English proficiency.[94] A look at birth places for foreign born provides an idea of the languages that might be spoken by the group who speak English "less than very well".

Central America and Asia are overwhelmingly the most common regions of birth for the foreign born population. A large portion of many regional counties' foreign born populations were born in Latin American countries: 85.3% of Hall county's, 59.2% of Clayton county's, 55.9% of Cherokee county's, 50.3% of Gwinnett county's, 45.6% of Dekalb county's, and 38.6% of Fulton county's foreign born populations

89 American Community Survey

90 A caveat to these statistics is that a relatively low 41% of Atlanta's foreign-born population is naturalized (about 300,000), which ranks 46th among 65 metros, which means a large portion may not be reached by the census.

91 American Community Survey

92 American Community Survey

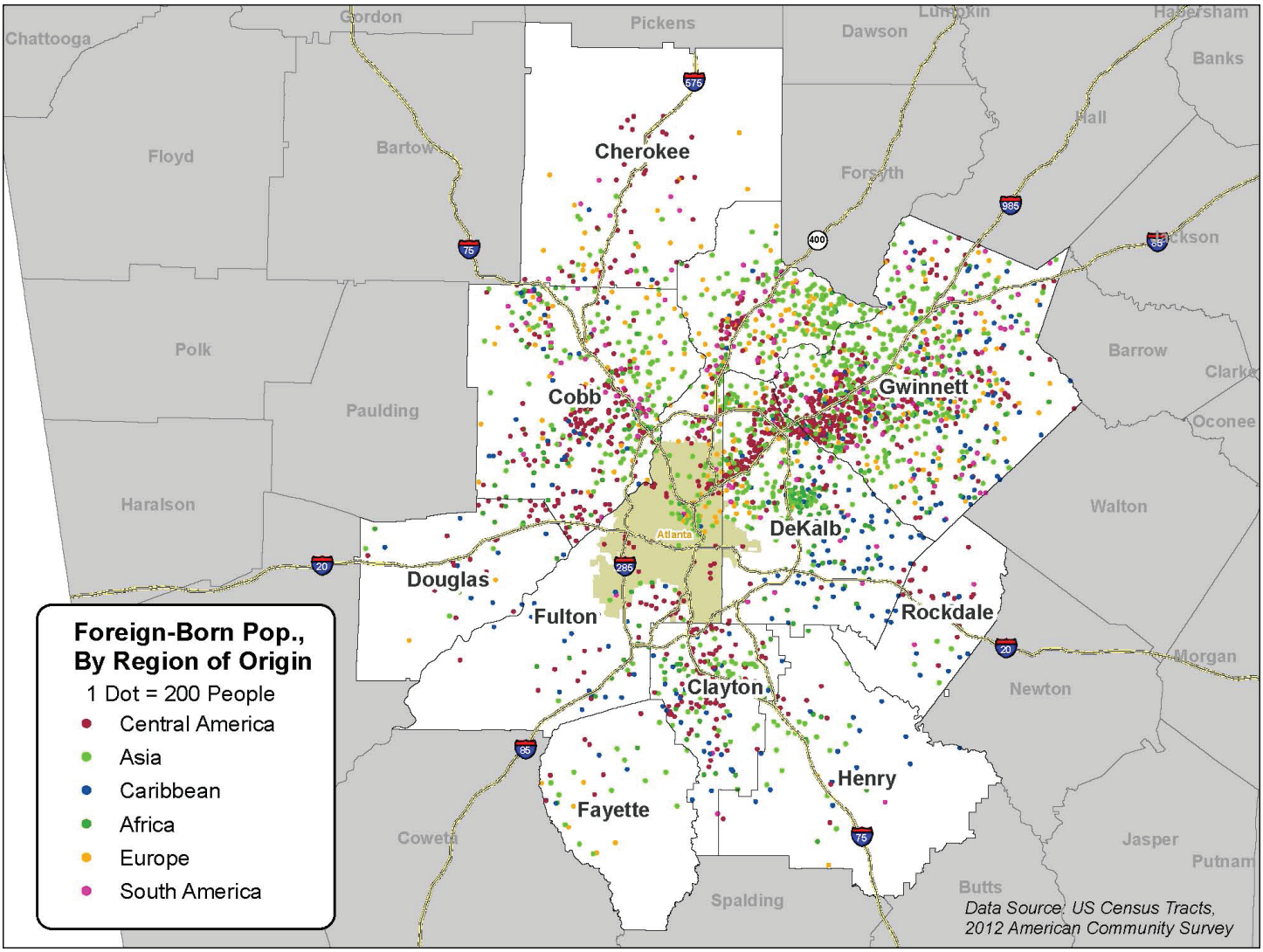
93 American Community Survey

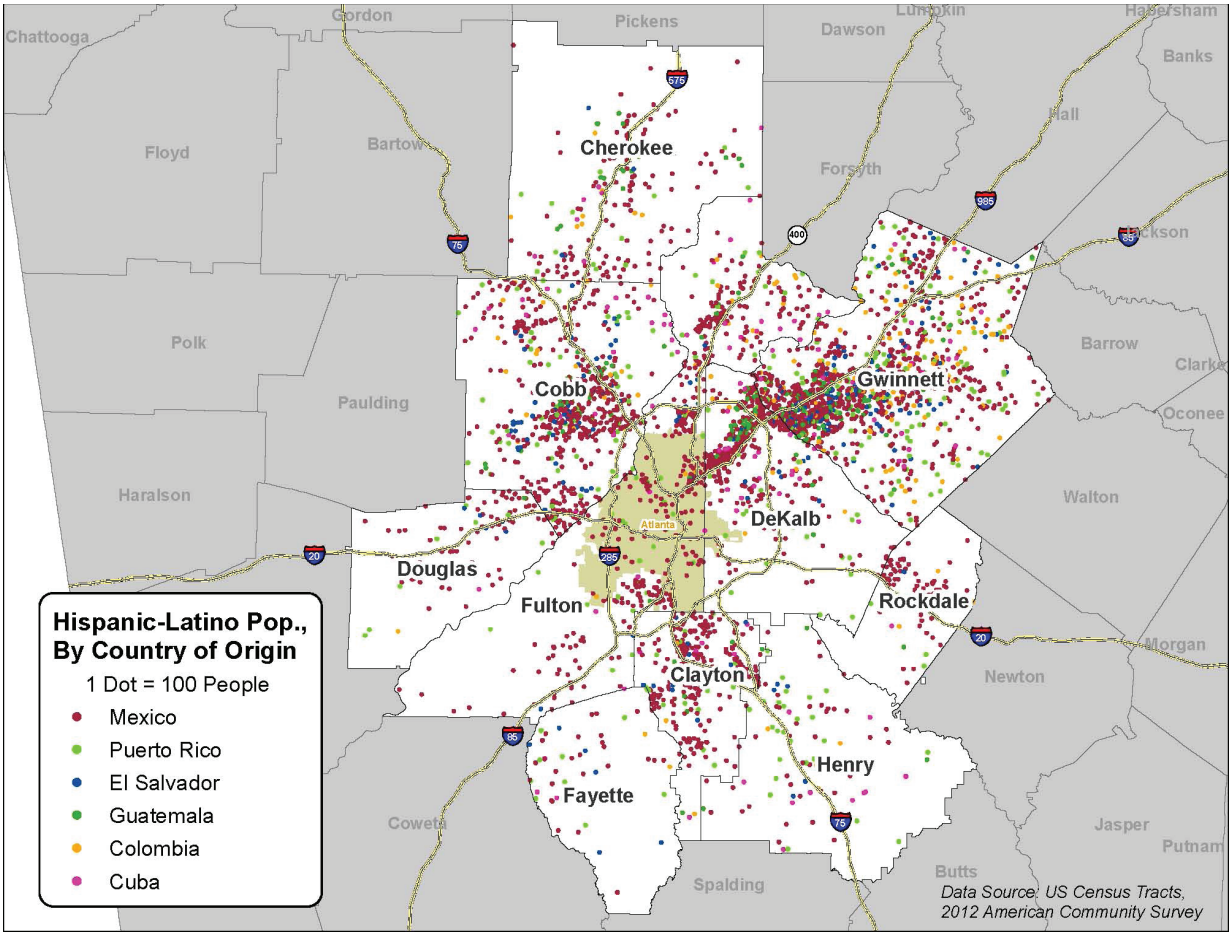
94 Fewer relevant data points are available in American Fact Finder on those who speak English "less than well" than those who are foreign born, necessitating this approximation. Of the Atlanta region's foreign born residents, 44.7% speak English "less than very well" (American Community Survey).

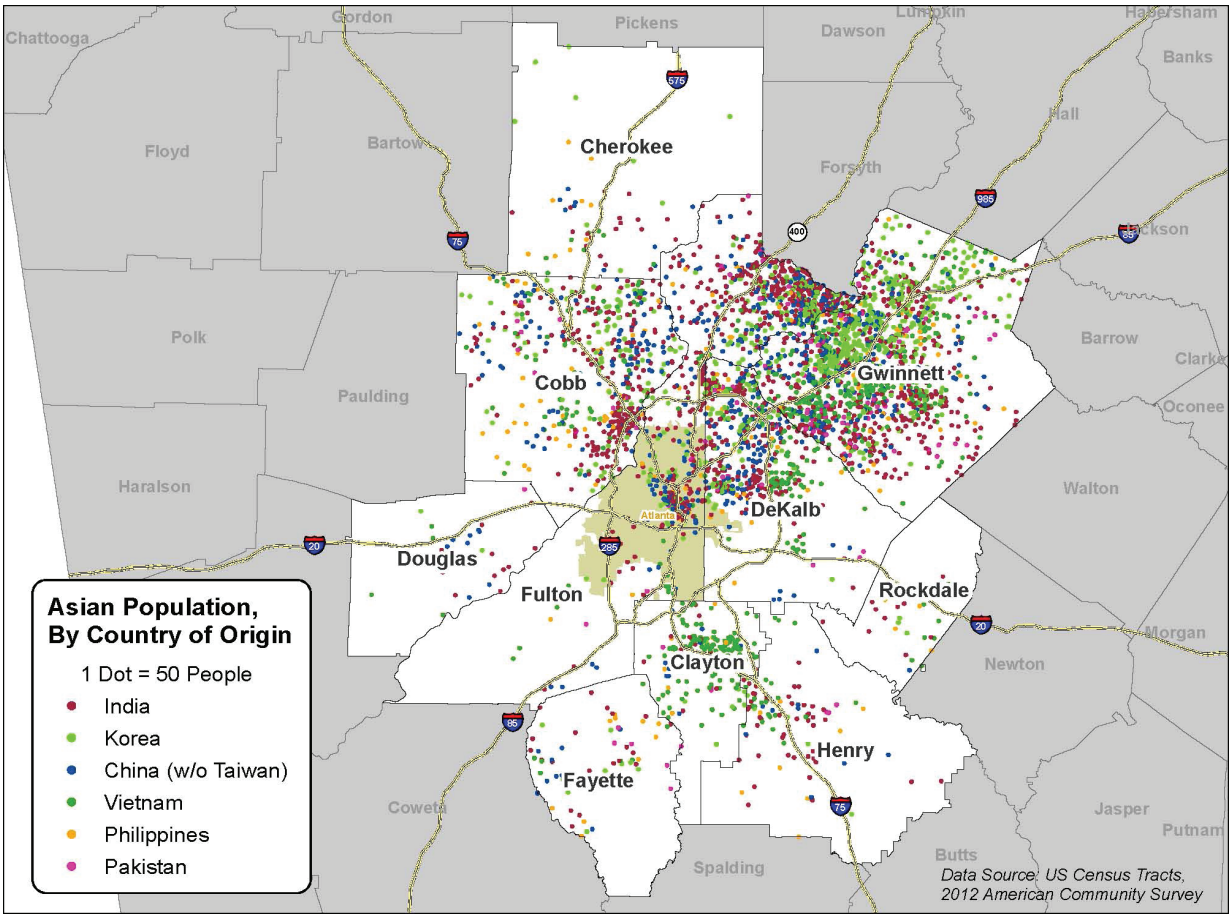
were born in Latin American countries.[95] Within this group, Mexico is the most common Latin American country of birth. A few other birth regions stood out for specific regional counties' foreign-born populations: 38.0% of Fulton county's, 32.8% of Gwinnett county's and 28.7% of Dekalb county's foreign born were born in Asian countries, 19.3% of Cherokee county's foreign born were born in Europe, and 17.6% of Dekalb's foreign born were born in African countries.[96]

95 American Community Survey

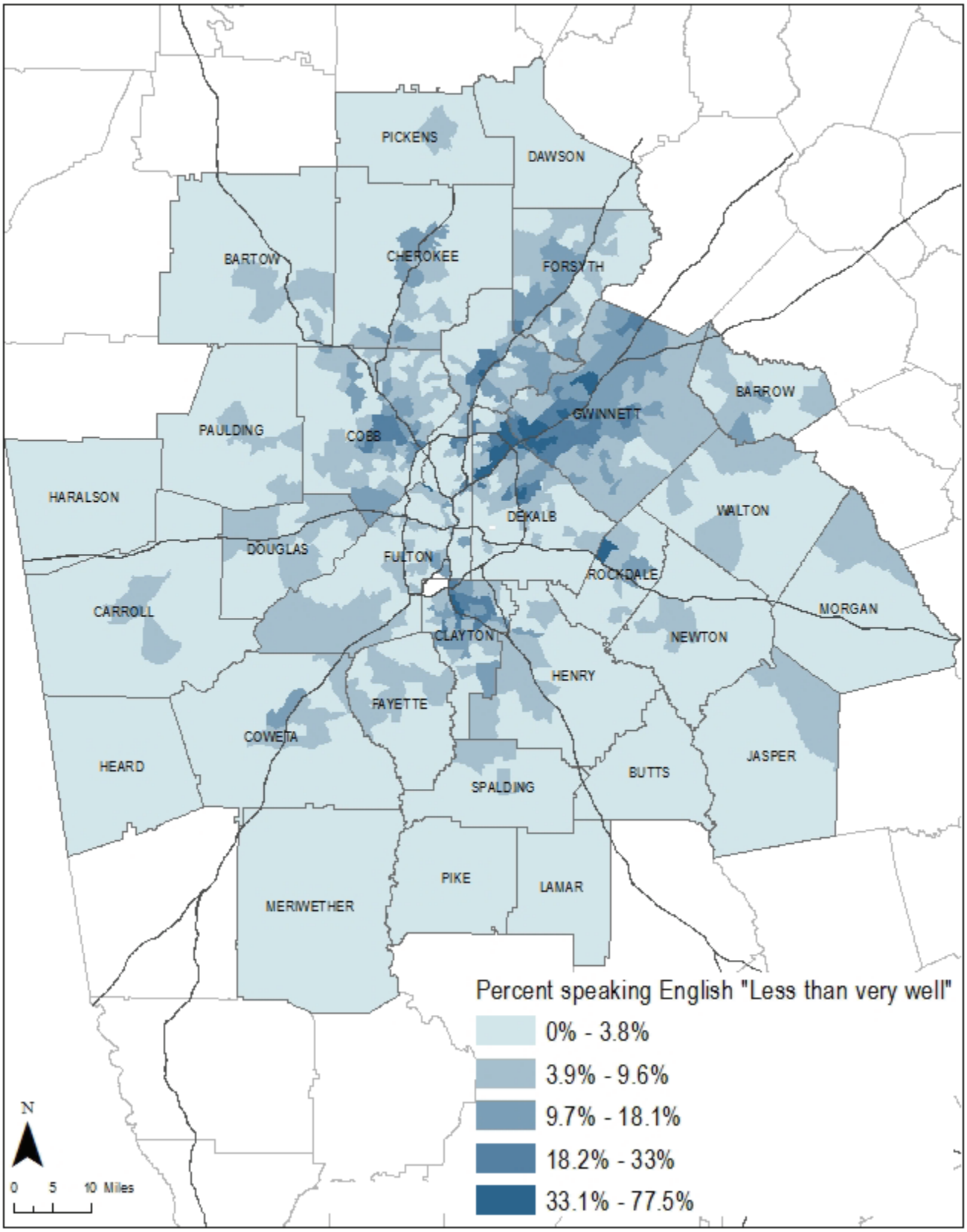
96 American Community Survey




Hispanic-Latino Pop., By Country of Origin
1 Dot = 100 People
Mexico
Puerto Rico
El Salvador
Guatemala
Colombia
Cuba
Cherokee
Cobb
Gwinnett
DeKalb
Douglas
Fulton
Rockdale
Clayton
Henry
Fayette
Chattooga
Gordon
Pickens
Dawson
Lumpkin
Habersham
Banks
Floyd
Bartow
Forsyth
Hall
Jackson
Polk
Paulding
Barrow
Clarke
Oconee
Haralson
Walton
Morgan
Newton
Coweta
Spalding
Jasper
Putnam
Butts
Atlanta
Data Source: US Census Tracts, 2012 American Community Survey

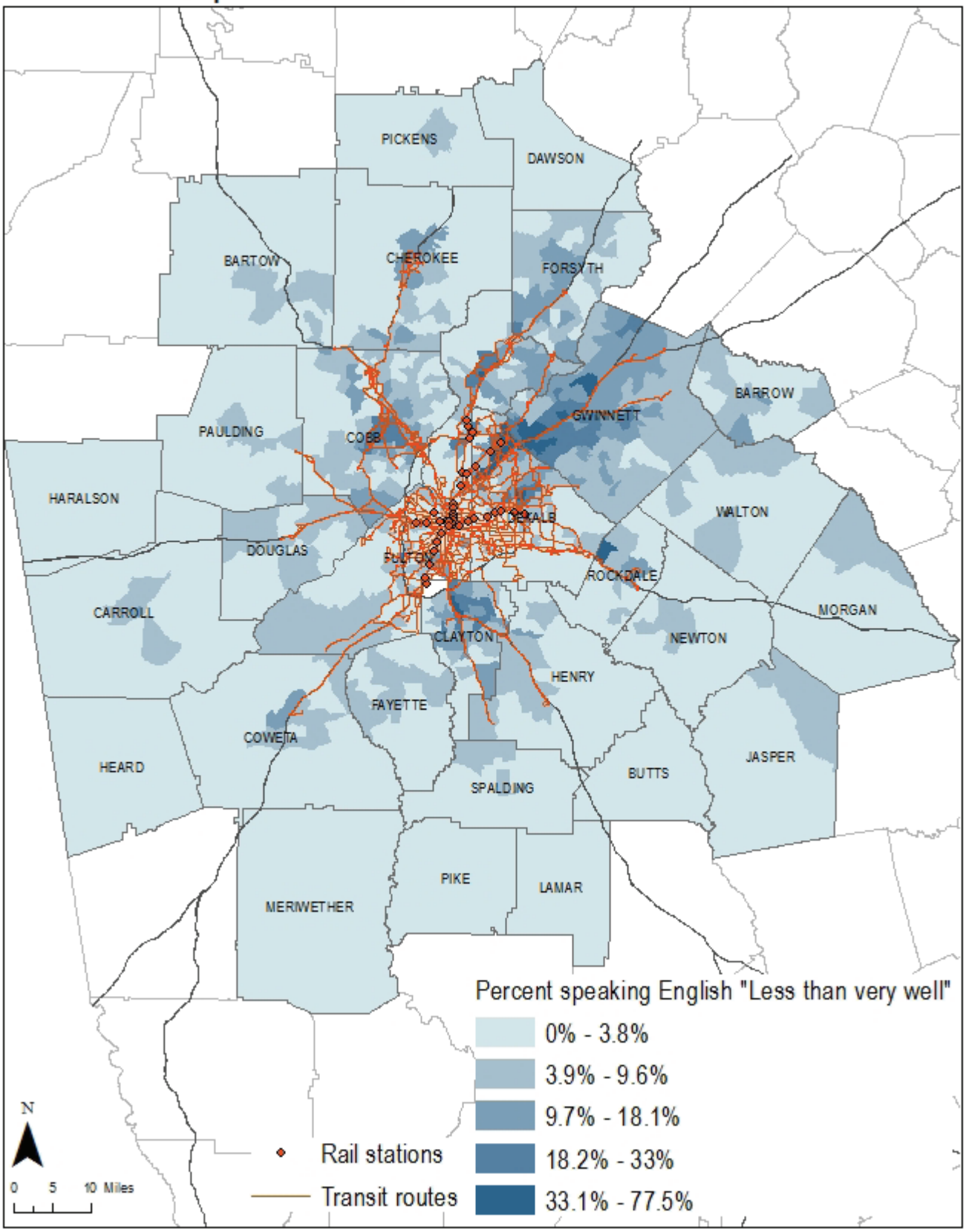

Asian Population, By Country of Origin
1 Dot = 50 People
India
Korea
China (w/o Taiwan)
Vietnam
Philippines
Pakistan
Cherokee
Cobb
Gwinnett
DeKalb
Douglas
Fulton
Rockdale
Clayton
Henry
Fayette
Chattooga
Gordon
Pickens
Dawson
Lumpkin
Habersham
Banks
Floyd
Bartow
Forsyth
Hall
Jackson
Polk
Paulding
Barrow
Clarke
Oconee
Haralson
Walton
Morgan
Newton
Coweta
Spalding
Jasper
Putnam
Butts
Atlanta
Data Source: US Census Tracts, 2012 American Community Survey

The Atlanta region's population speaking English "less than very well"



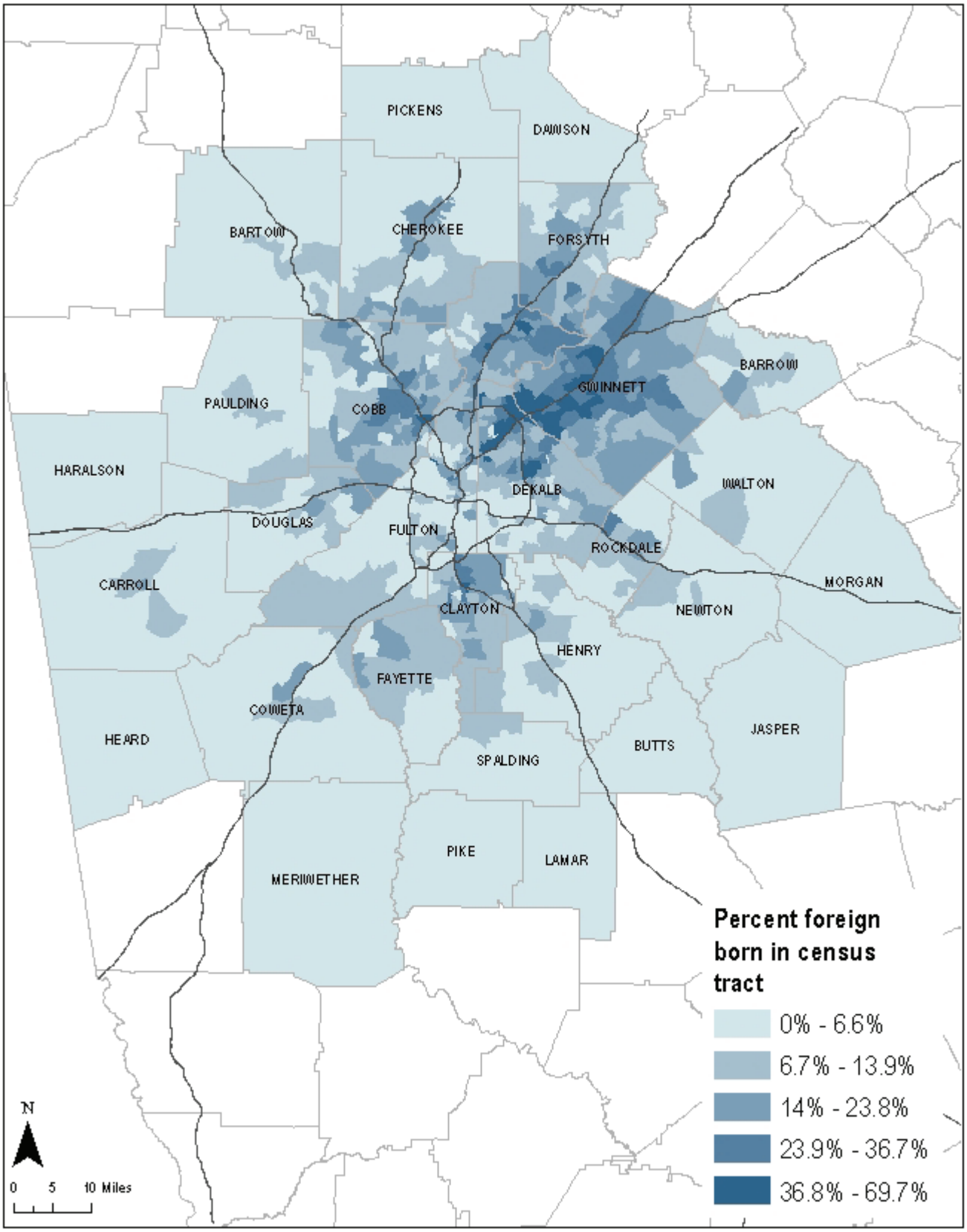
Data source: American Community Survey

The Atlanta region's population speaking English "less than very well" compared with transit routes and rail stations

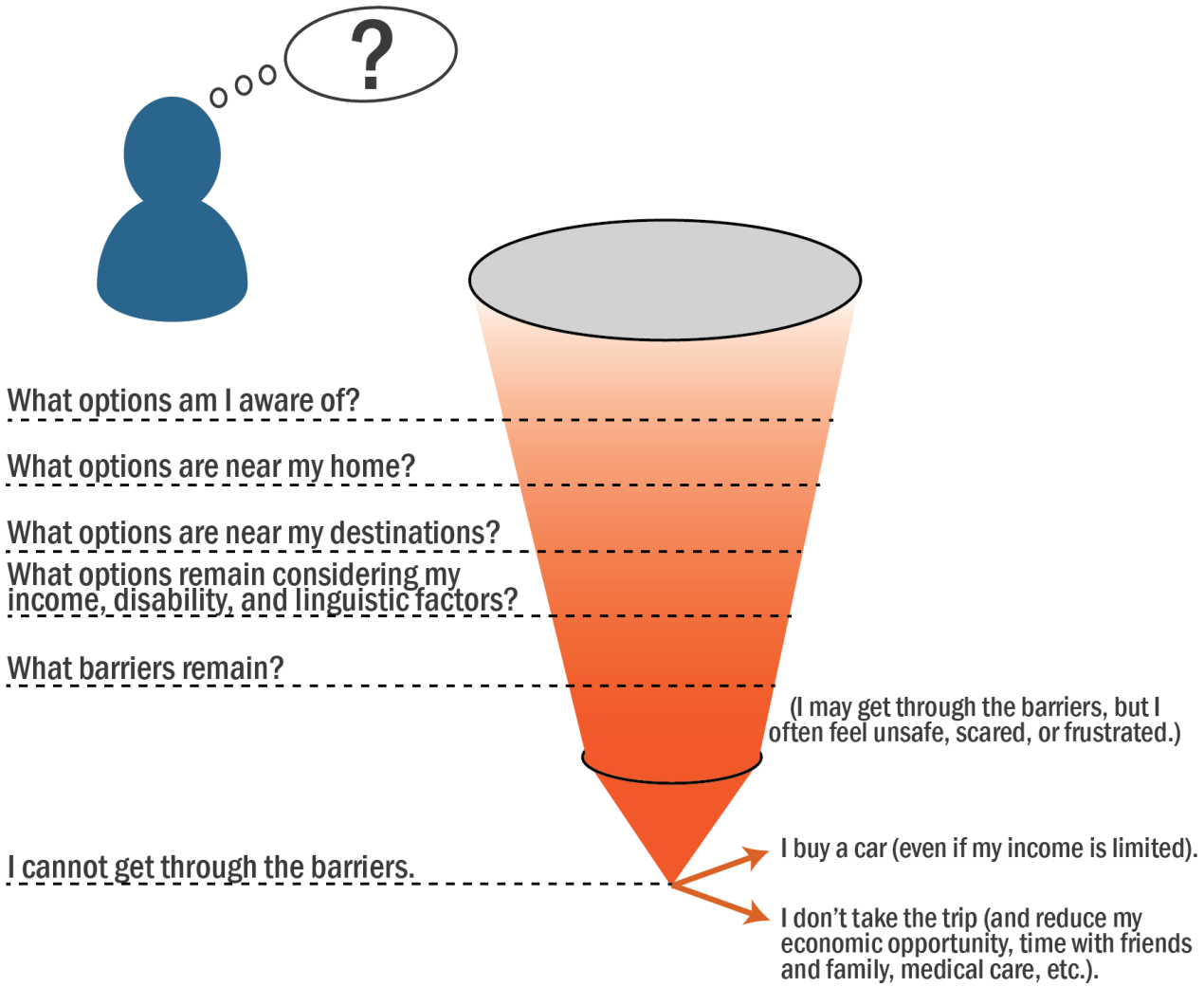


Data source: American Community Survey & GTFS for regional transit operators

The Atlanta region's population of foreign born individuals



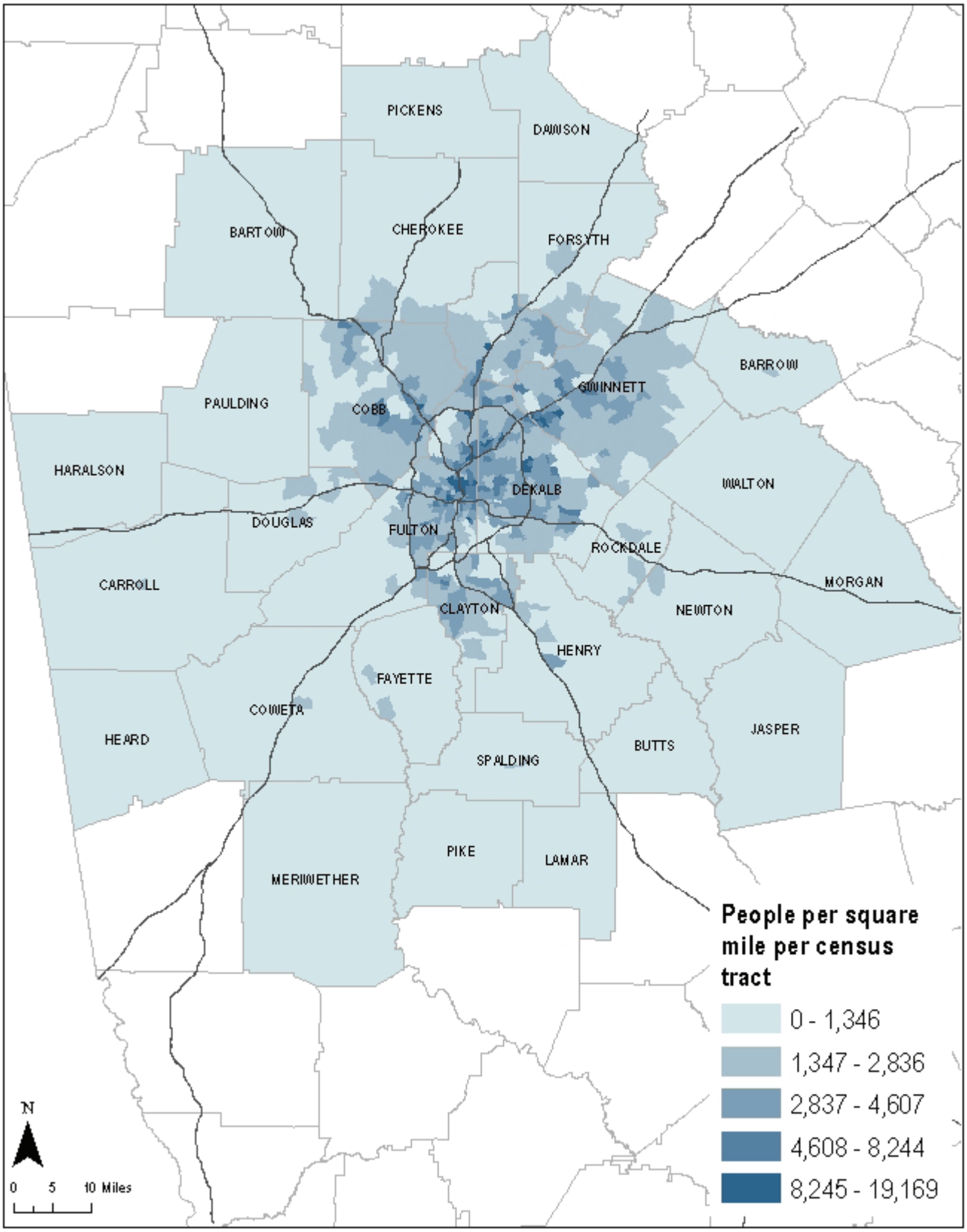
Data source: American Community Survey



SECTION 2: DECISION MAKING PROCESSES FOR TRANSPORTATION

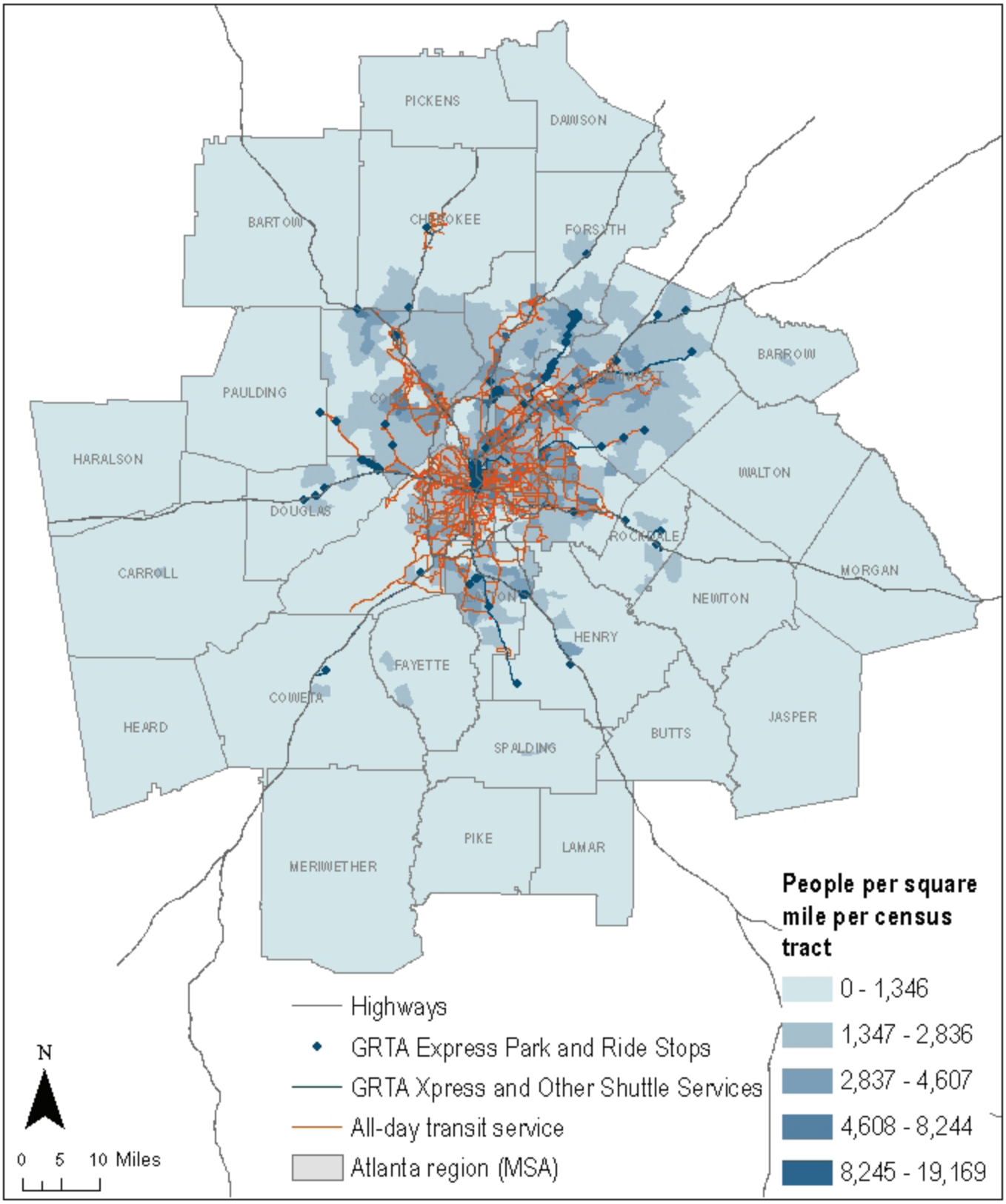
STEP 1 - HOME LOCATION: The public outreach component of the plan development revealed how HST populations go through their personal decision-making process to arrive at which transportation options to use (See Appendices C - E). First, they often situate themselves as favorably as they can, geographically and financially, to access the transportation options that they know will work best for them. The home location is the top determinant of an individual's access to non-SOV options including fixed route/guideway transit. The levels of awareness of this important step varied from person-to-person with some assuming transit would be available no matter where they lived in the Atlanta region and others analyzing the situation carefully to work to their best advantage. For instance, one woman explained that she situates herself first near a train station if possible, and if not (due to housing costs or home availability) near to two bus routes. When asked why two bus routes as opposed to one, she responded (and others heartily agreed) that she had lived through bus route changes which resulted in her local route changing or being removed. With two bus routes, she mitigated the risk of bus route changes. Ensuring each person has adequate non-SOV transportation has two sides: 1) individual choices of riders and 2) collective choices of the agencies that plan and provide transportation services. It is critical that both sides come together when matching people with potential options. The maps in the previous section detailed where the various HST populations tend to reside.

The Atlanta region's population density



Data source: American Community Survey

The Atlanta region's population density compared with GRTA and all-day transit service coverage



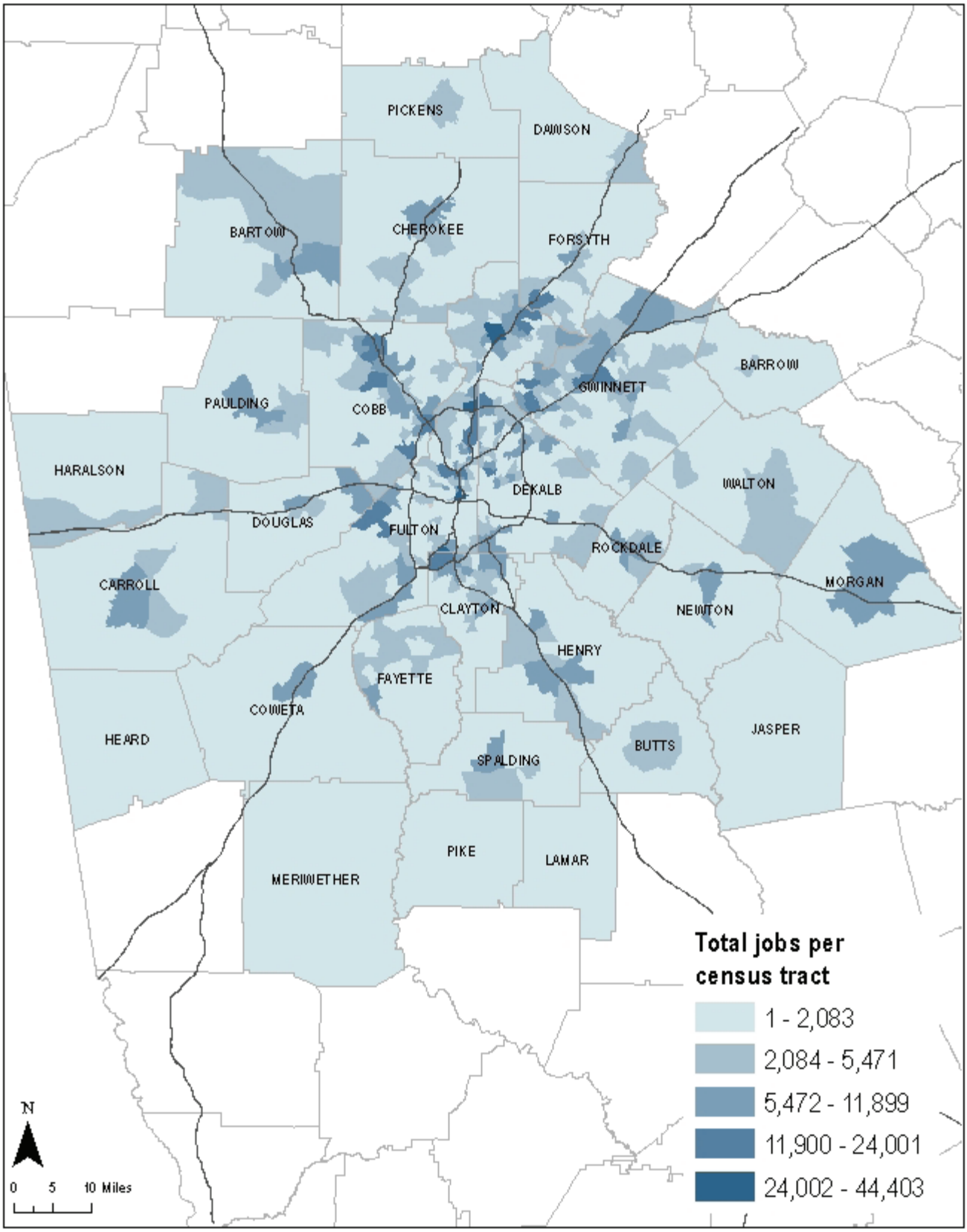
Data source: American Community Survey & GTFS for regional transit operators

STEP 2 – RELEVANT DESTINATIONS: Not every bus route is a match; people must understand where it goes, its frequency, its operating hours, accessibility to and from the stop, and if it connects them with key destinations on the other end. Whether or not a destination is "relevant" is highly personal, but there are some general ways to consider what may be key destinations in the Atlanta region. The list below is not exhaustive but highlights key categories of destinations.

- **Employment** – The Atlanta region has areas with low, medium, and high concentrations of jobs. Non-SOV options do not work for everyone getting across the region, especially due to time constraints. During a focus group conducted in August 2015 to better understand how to market transit to current infrequent or non-riders,[97] many respondents cited trips of 2+ hours to get to and from work. People with multiple jobs per day or mixing destinations for education with work have a very difficult time getting around with transit. Contrasting with the ease of moving by car, even considering the traffic congestion the region currently experiences, transit can be seen as an inferior option. Jobs that require late transit departure times (e.g., 11 PM, 12 AM) were a particular area of concern. Many respondents need to catch the last bus or train home. They reported sometimes missing the last bus or train and having great difficulty getting home as a result. It was common to hear stories of sleeping in the train station or walking many hours to get home. Depending on the income level, a taxi or TNC can cut into significantly into the income they earned that evening. It is not uncommon for people to report being put in situations that are stressful and unsafe as a result of a missed bus or train.

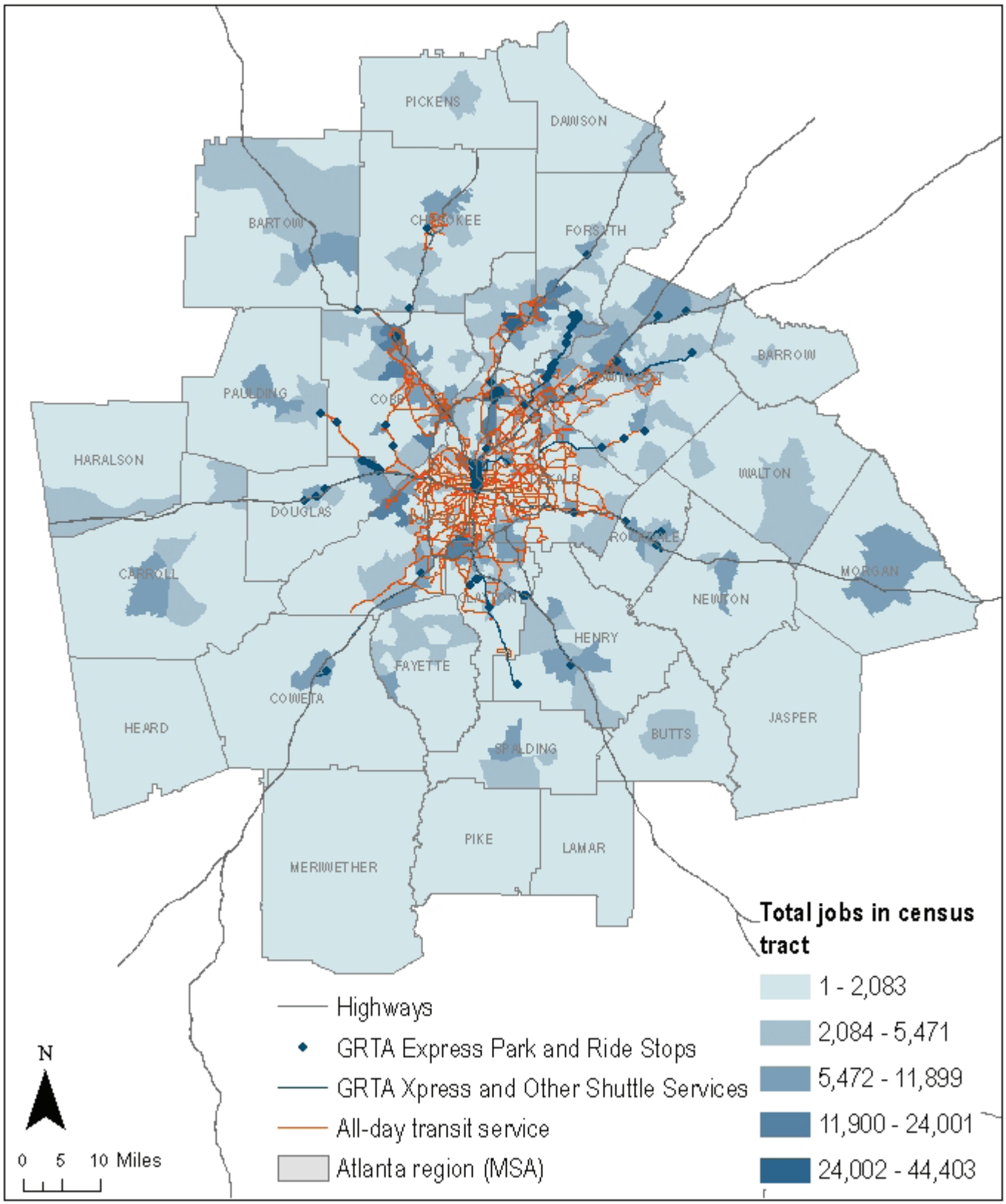
97 Millennials and Transit Focus Group Report.

The Atlanta region's concentration of jobs



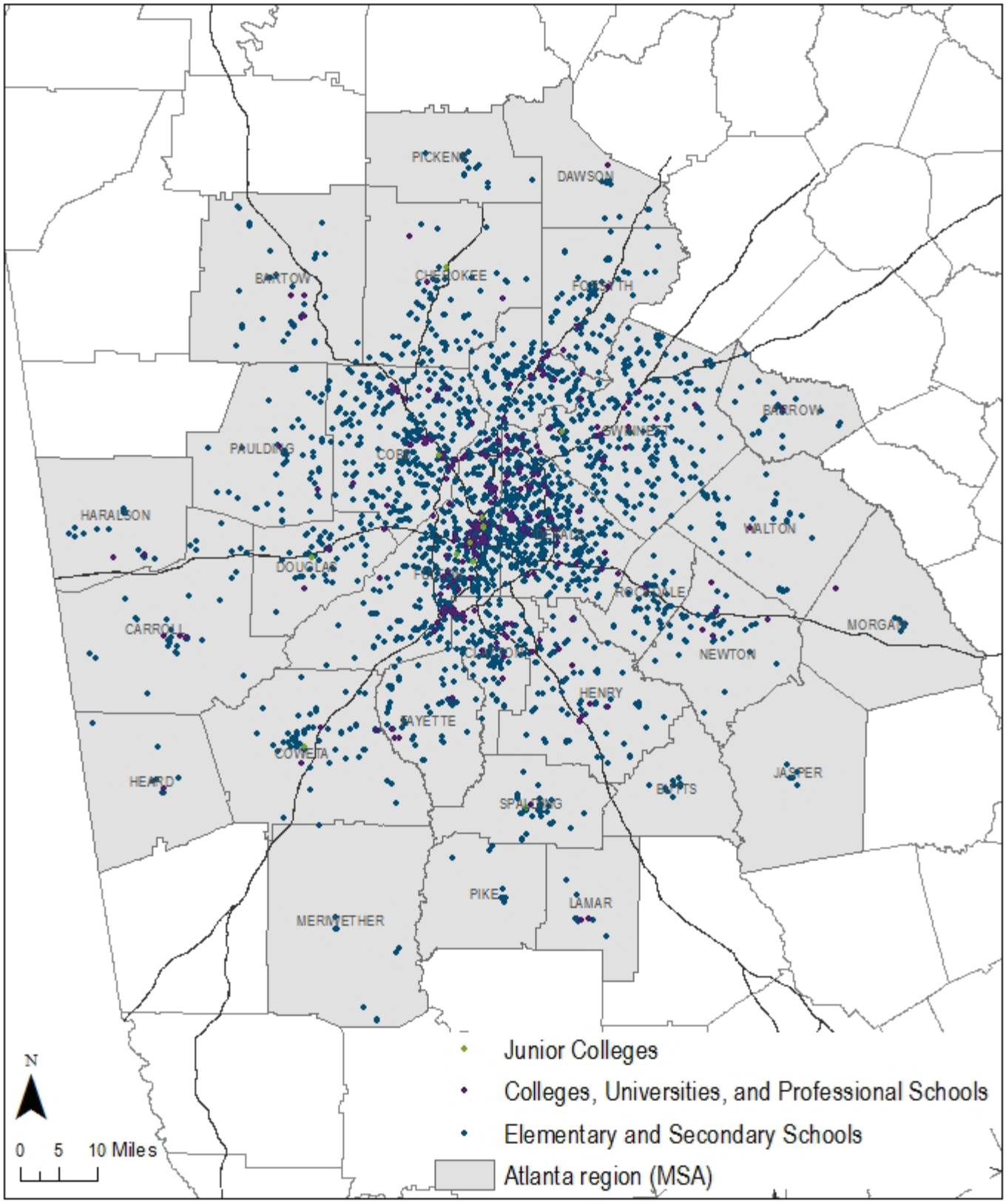
Data source: American Community Survey

The Atlanta region's concentration of jobs compared with GRTA and all-day transit service coverage



Data source: American Community Survey & GTFS for regional transit operators

Atlanta region schools and universities



Data source: ESRI

- Schools and Universities – The Atlanta region is home to many universities and schools, all foundational for children and adults to obtain education at various levels.

- **Medical and Health -** Some health facilities are accessible by transit, but many are not. People aged 65+, people with disabilities, and veterans may need to get to medical facilities more often than the general population. A 2010 survey by the CDC found that the number of physician office visits per 100 persons per year increases significantly by age group: in office visits per 100 people per year, those aged 24-44 had 255.8, those aged 45-64 had 371.0, those aged 65-74 had 623.9, and those aged 75 and older had 715.4.[98] This was particularly true for males: males aged 45-46 had 323.2 visits per 100 persons per year, males aged 65-74 had 596.9 visits per 100 persons per year, and males aged 75 and over had 759.5 office visits per 100 persons per year.[99] Surveyed regional citizens report a lack of transportation to healthcare centers for those living in low income areas, especially, referring to these areas in the Atlanta region as "healthcare deserts".[100] One respondent at a public engagement session expressed angst about the local medical transportation options of which he was aware: "Going to dialysis was a nightmare. When I finally move close to a bus line, I found out that the buses travelled only one route, and I still had to walk a good distance."[101]

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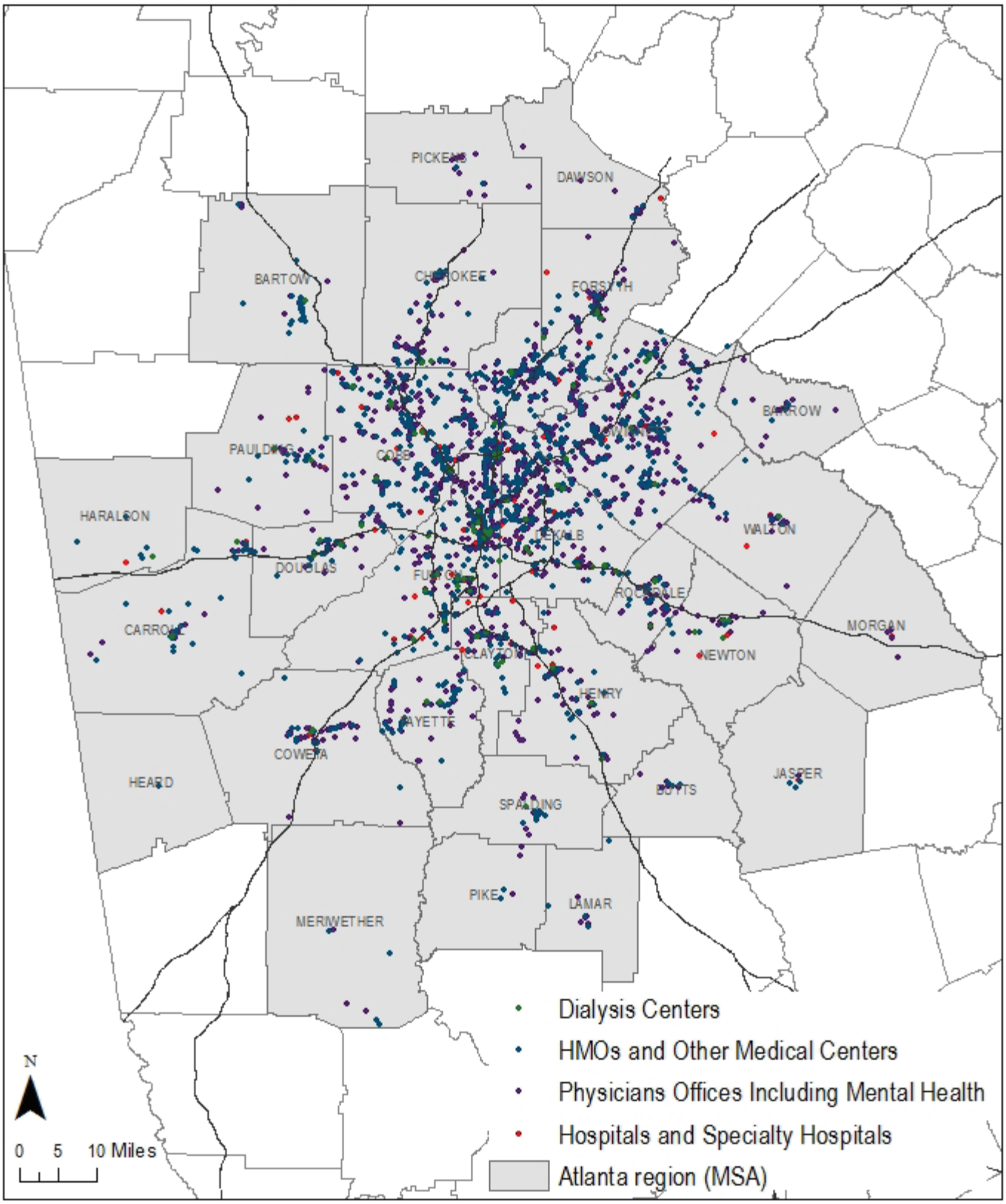
98 National Center for Health Statistics

99 National Center for Health Statistics

100 Regional Plan Online Survey-Phase 1

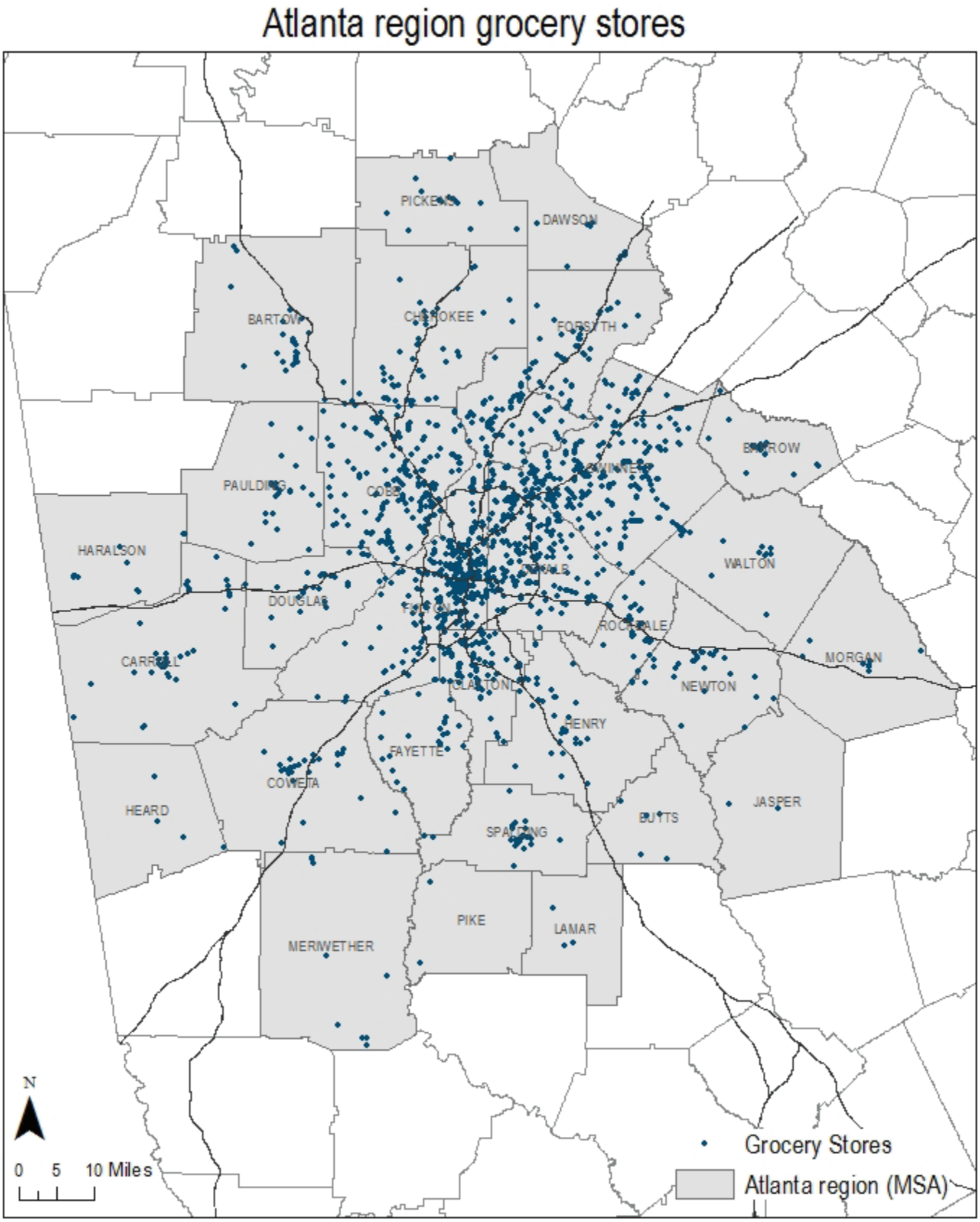
101 Transportation Coordinating Committee Work Session on Mobility Management & HST Breakout sessions

Atlanta region medical and health centers



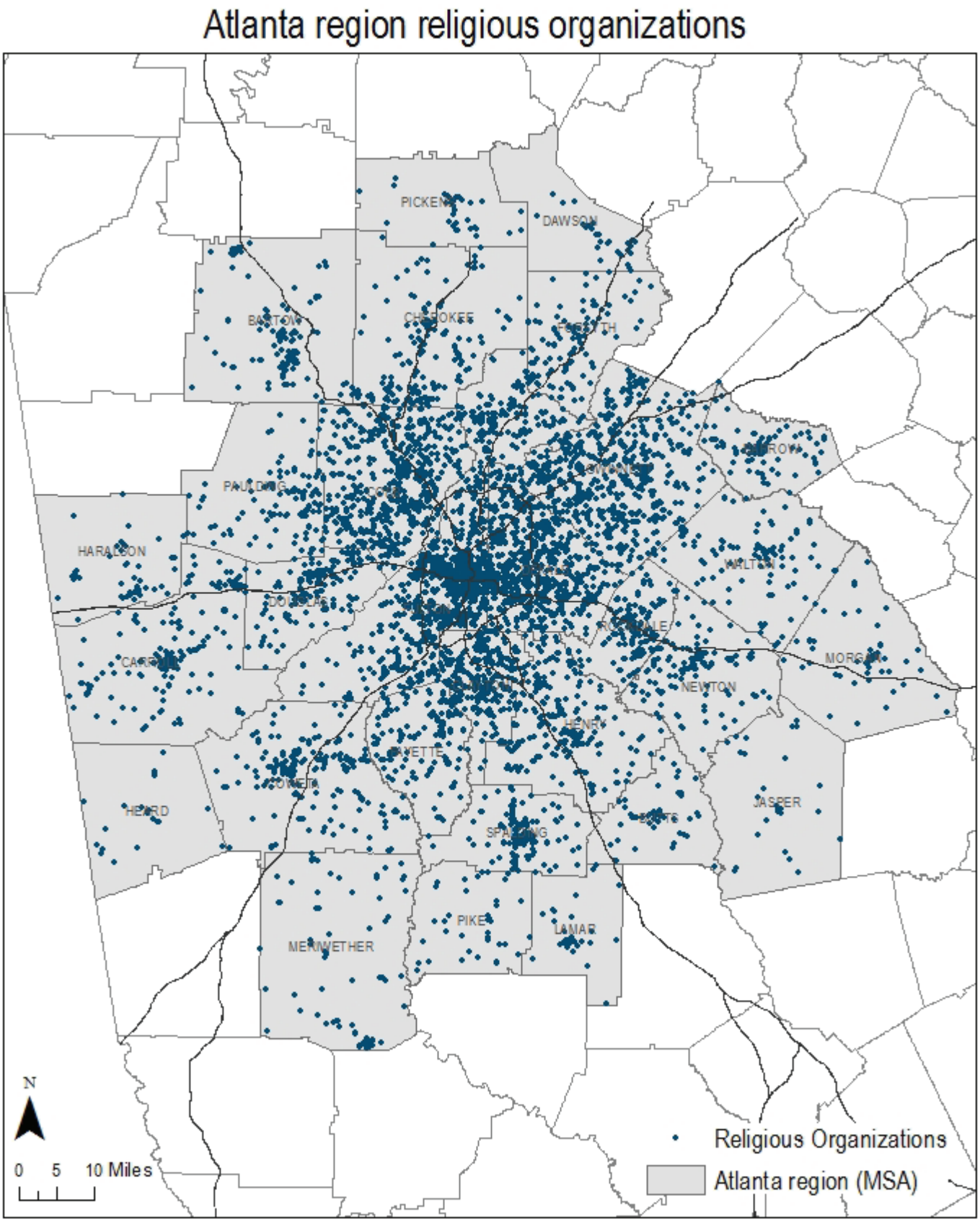
Data source: ESRI

- **Daily Errands** – Of all the daily errands people make, food procurement is possibly the most important and is the focus below. There are many other errand locations to consider.



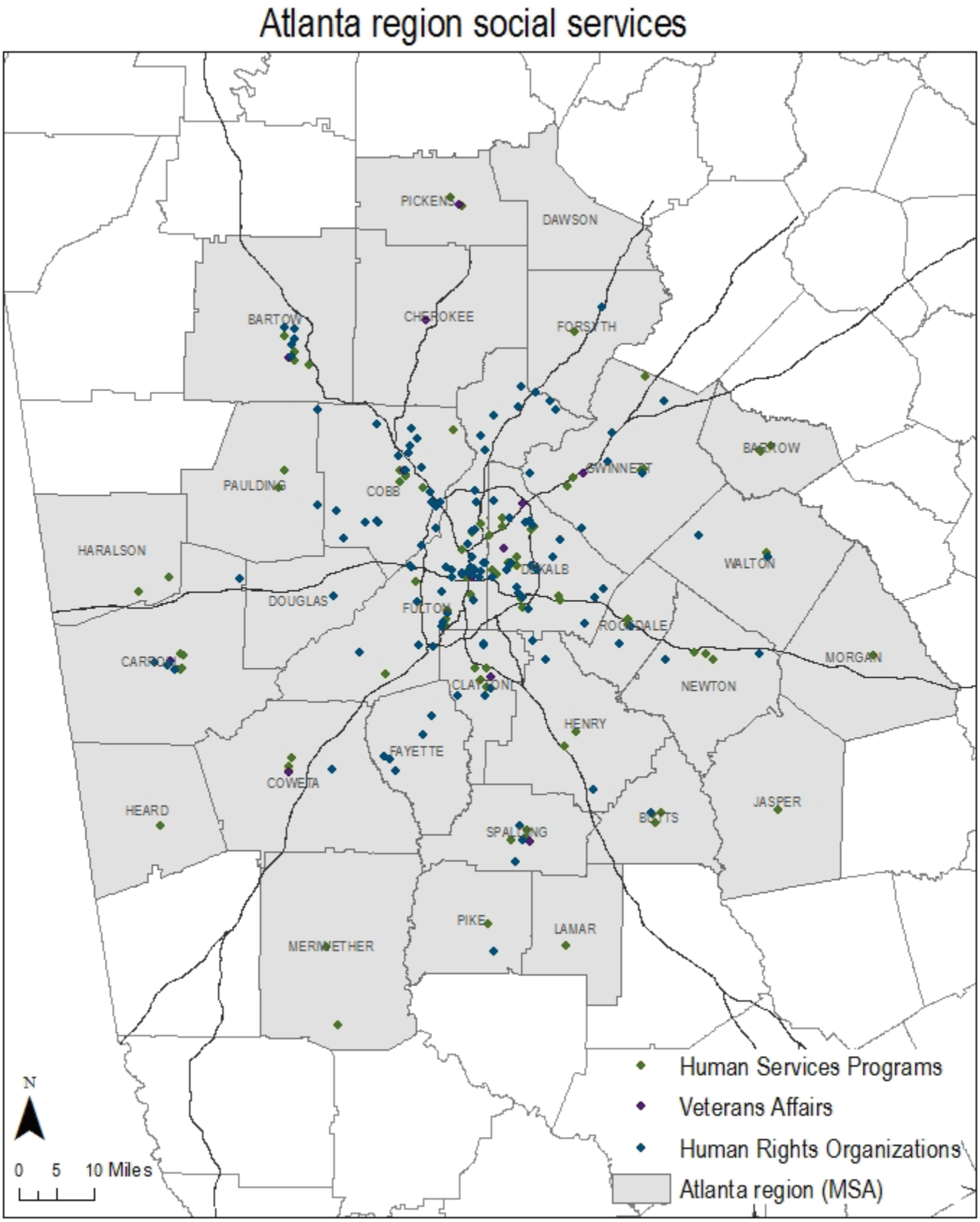
Data source: ESRI

- **Places of Worship** – The Atlanta region has a many worship facilities as shown below.



Data source: ESRI

- **Social Services –** A range of social services are available in the Atlanta region. A few are shown below.



Data source: ESRI

STEP 3: EXPERIENCING BARRIERS: While many non-SOV options might be available based on the home location and destinations, these options will be reduced due to needs that differ person-to-person such as accessibility (related to disability) and affordability. The first section of the HST plan explained the general barriers to non-SOV options, but the HST public outreach process revealed specific experiences regarding diverse barriers. These have been organized by non-SOV option and are displayed below. Interestingly, it is not possible to discuss non-SOV without comparing it to SOV. This is marked as "driving" below. (See Appendices D and E).

Transportation Barriers: The community engagement process for the Human Services Transportation Plan Update involved charrettes with individuals belonging to and working with the primary populations impacted by HST: seniors, persons with disabilities, low income individuals, veterans, and individuals with limited English proficiency. During these sessions, participants were asked to discuss barriers they faced to accessing transportation. Out of these discussions, four barriers (lack of infrastructure, lack of amenities, lack of affordability, lack of security and safety) emerged and several issues were found to be common across all six the modes of transportation discussed (transit, carpool/shuttle, driving, walking, biking, taxi/TNC).

Lack of Infrastructure: First and foremost, infrastructure availability was seen as an issue with regard to transit, carpool/shuttle, and walking. Where infrastructure for a mode did exist, limited service parameters and infrastructure disrepair were identified as an issue by HST populations. The primary two concerns associated with limited service parameters were lack of translation services with regard to driving and transit, as well as lack of wheelchair accessibility with regard to transit, carpool/shuttle, and taxi/TNC. Infrastructure disrepair was seen as an issue when driving, walking, and biking. Poor customer service, especially with regard to the acceptance of service animals, was also noted as a major concern when

Barrier	Transportation Mode					
	Transit	Carpool/Shuttle	Driving	Walking	Biking	Taxi/TNC
Lack of Infrastructure	• Infrastructure unavailable in certain areas	• Infrastructure unavailable in certain areas		• Infrastructure unavailable in certain areas		
	• Limited service parameters	• Limited service parameters				
	○ Limited hours of operation	• Waiting periods prior to obtaining license				
	○ Infrequent service		• Infrastructure in disrepair	• Infrastructure in disrepair	• Infrastructure in disrepair	
	○ Lack of translation services		• Lack of translation services	• Infrastructure is poorly designed		
	○ Limited wheelchair accessible seating	• Lack of wheelchair accessible shuttles				• Lack of wheelchair accessible vehicles
	○ No door-to-door paratransit					
	○ Limitations on companion riders					
	○ Poor connectivity to other transit or modes					
	• Poor customer service	• Poor customer service				• Poor customer service
	○ Service animals not allowed	○ Service animals not allowed				○ Service animals not allowed
	○ Late arrivals					
	○ Improper transfer charges					
	○ No shows					
	○ Drivers have poor interpersonal skills					
	○ Unsanitary conditions					
	• Long commute times		• Long commute times			
Lack of Amenities	• Lack of bathroom availability					
	• Lack of protected waiting areas					
	○ Lack of lighting			• Lack of lighting		
	○ Missing shelters and covering					
	○ Poor weather					
	• Lack of pay phones					
	• Lack of baby seats					
Lack of Affordability	• Expensive fares					• Expensive fares
	○ Monthly passes unaffordable		• Cars and associated costs are expensive			
	○ Travelling as a family gets expensive		• Parking is expensive			
Lack of Security and Safety	• Perception of crime		• Perception of crime			
	• Actual crime		• Actual crime			
	• Panhandling			• Pedestrians not given appropriate right of way		

Data source: ARC Public Outreach Sessions in 2015

using transit, carpool/shuttle, and taxi/TNC systems. Finally, long commute times were identified as an issue in discussions about both transit and driving.

Lack of Amenities: Concerns regarding lack of amenities as barriers to transportation access and use were brought up by HST populations with regard to transit and walking. Of the topics discussed, lack of lighting was identified as an issue for both modes.[102]

Lack of Affordability: Cost of transportation was recognized as a barrier to transportation when transit, driving, and taxi/TNC was discussed in the community engagement sessions. The main issue brought up was the expensive fare costs associated with transit and taxi/TNC use.[103]

Lack of Security and Safety: Finally, the perception of and actual occurrence of crime were noted by many in the HST populations that were surveyed. These issues were discussed particularly with regard to use of transit and driving (specifically, carjacking).

Beyond these four barriers to transportation, individuals in the sessions also discussed how technological, informational, and behavioral issues at large affected their ability to access transportation. Lack of smartphones and basic cellphones, use were cited as technological issues that prevented HST populations from accessing transportation. Lack of awareness of transportation options was also cited as a common informational issue, with many individuals reporting that navigating the transportation system was extremely complicated and often resulted in mental and physical fatigue.[104] Finally, lack of interest and NIMBYism in the general population were identified as behavioral issues that affected transportation access in the region.

When discussing barriers, it is important to differentiate between barriers that are overcome (HST rider uses non-SOV option), those that are not overcome (HST rider uses SOV), and situations in which people who have no other options (therefore must persevere through all remaining barriers to take the non-SOV trip). People who have no other options generally fall into 3 groups: 1) those with disabilities/ medical conditions unable to drive (who also do not have enough income for ongoing transportation assistance), 2) people with extremely low income, and 3) people with suspensions on their driver's license.

During the public outreach sessions, experiences were shared about missing the last bus of the evening after leaving work and sleeping in the train station until they started again. Other experiences were about people walking 2+ hours due to missing the last bus to get home. Construction projects would leave people with visual impairments with a complete lack of awareness about where to go safely in an area with which they were generally very familiar. Wheelchair users set out on a trip unaware of the sidewalk barriers and missing curb ramps, finding they needed to have their wheelchair in the street alongside cars to get where they need to go. These experiences are scary, frightening, and potentially life-threatening. And yet they happen more often than many would realize. Going through daily experiences such as these would be inconceivable to some people, and yet it is simply a part of daily life for others.

The cost of all non-SOV options, specifically transit, is also an area of concern. A single mother of 4 spoke during a session and explained that of her 4 children, 3 were tall enough to need to an adult transit ticket. At $2.50 each, this family of 5 spends $10 for each trip, each way, that they take together. Alternatively, they could get monthly passes for unlimited trips at $95/month each or $380/month for all 4 people. Per year, this would be $4,560. When considering this, it is not surprising that people in the Atlanta region with low-moderate income actually own more cars per household, 2.0 compared with 1.82 overall, spending roughly $7,819 per car, per year on all associated costs. Another consideration that came up was the difficulty of paying $95 for a pass when living paycheck to paycheck. Due to being unable to afford this up-front cost, some are forced to pay trip-by-trip, even if it would be more cost effective (i.e., more than 38 one-way trips in a month) for them to purchase the monthly pass if they could.

When people do not get through the non-SOV barriers and instead rely on their own personal vehicle, there

102 Poverty Forum ETA

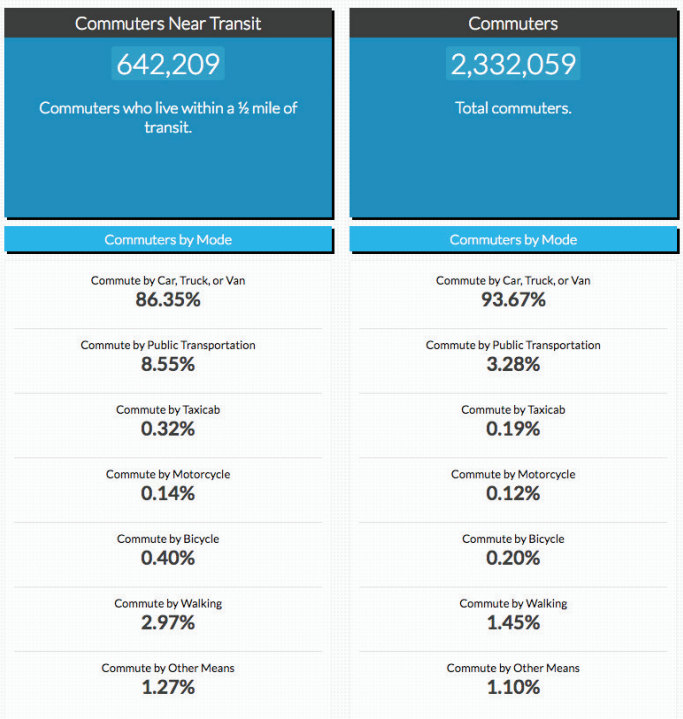
103 Regional Plan Public Survey Phase I data analysis report

104 Cobb County.

are ramifications that impact all residents of the Atlanta region, including those who are not currently part of the HST population groups. Conversely, when people do not get through the non-SOV barriers and don't rely on a personal vehicle, they are geographically fixed in place. The next section explains more about these complexities.

SECTION 3: HST IMPACTS ON ALL RESIDENTS OF THE ATLANTA REGION

In the Atlanta region, 3.28% of commuters take public transit as their primary transportation option compared with 93.67% commuting by car.



Source: Center for Neighborhood Technology "AllTransit Maps & Analysis".

PUBLIC TRANSIT USERS ARE OFTEN LIVING IN POVERTY: National data indicate that public transit users are significantly more likely to live in poverty[105] than driving commuters. "Step onto a bus in any American city and you'll find riders who are poorer and more likely to be minorities than those traveling by car. It's a socioeconomic gap that's persisted across most of the nation's cities for decades[106]." The table below compares the a) percentage of total commuters (primarily by car) living in poverty with the b) percentage of public transit commuters living in poverty for the top 12 largest US metropolitan areas. "In only a few rare exceptions – typically larger systems serving more transit-oriented areas – are a city's public transportation riders representative of all commuters[107]." From the table below, cities where public transit riders seem to be more representative of all commuters include New York City, Chicago, Washington DC, Philadelphia, Boston, and San Francisco. In the Atlanta region, while 9.6% of total commuters are in poverty, 21.2% of public transit commuters are in poverty. This represents a percentage point difference of 11.6, indicating that public transit commuters are not representative of all commuters in Atlanta. Other cities where this is also true include Los Angeles, Dallas, Houston, Miami, and Phoenix.

MSA	% of all commuters in poverty	% of public transit commuters in poverty	Percentage point difference (> 11 in green)
NYC	8.2	8.7	0.5
LA	11.1	22.4	11.3
Chicago	9.5	12.1	2.6
Dallas	10.8	22.3	11.5
Houston	11.6	24.5	12.9
Washington	5.8	6.8	1
Philadelphia	9.9	13.4	3.5
Miami	13.7	25.9	12.2
Atlanta	9.6	21.2	11.6
Boston	9.6	12.2	2.6
San Fran	6.3	7.9	1.6
Phoenix	9.7	22.3	12.6

Data source: Governing, US Census Bureau, American Community Survey, 2010-2012 estimates

ATTRACTIVENESS OF PUBLIC TRANSIT: These data prompt related questions. On one hand, are there reasons why public transit service is not as

105 "Poverty" definitions and data are communicated by the Census Bureau. For more see: https://www.census.gov/topics/income-poverty/poverty.html .

106 Maciag

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attractive to commuters who are not living in poverty in Los Angeles, Dallas, Houston, Miami, Phoenix, and Atlanta? On the other hand, are there reasons why public transit service is more attractive to commuters living in poverty in the same cities? To answer the latter, while there are other factors, cost is one of the most significant. Cost is an issue relative to the transportation type, period of usage, and household size. To illustrate these factors and how an individual/household might compare their options, the tables below show the costs of car ownership per year[108] and MARTA's fare types. Of particular note is that MARTA, and many transit agencies, offer discounted fares (called the "reduced fare program"). For MARTA, eligible individuals include "senior citizens age 65+, disabled riders, and Medicare recipients[109]". (Medicare is "the federal health insurance program for people who are 65 or older, certain younger people with disabilities, and people with End-Stage Renal Disease (permanent kidney failure requiring dialysis or a transplant, sometimes called ESRD.)[110] Also worth noting is that children under 46" ride for free on MARTA, so there is not necessarily a charge for all members of the household.[111]

Income	Auto ownership costs per year
Low-moderate	$7,819
Typical	$8,101

Source: Center for Neighborhood Technology "H + T Index Data Download"

Non-discounted fare	1 person	2 people	3 people	4 people	5 people
Per trip	$2.50	$5.00	$7.50	$10.00	$12.50
Per month	$95	$190	$285	$380	$475
Per year	$1,140	$2,280	$3,420	$4,560	$5,700

Source: Atltransit.org "Fares, passes & breeze card"

Discounted fare	1 person	2 people	3 people	4 people	5 people
Per trip (only)	$1.00	$2.00	$3.00	$4.00	$5.00
Per month	N/A				
Per year					

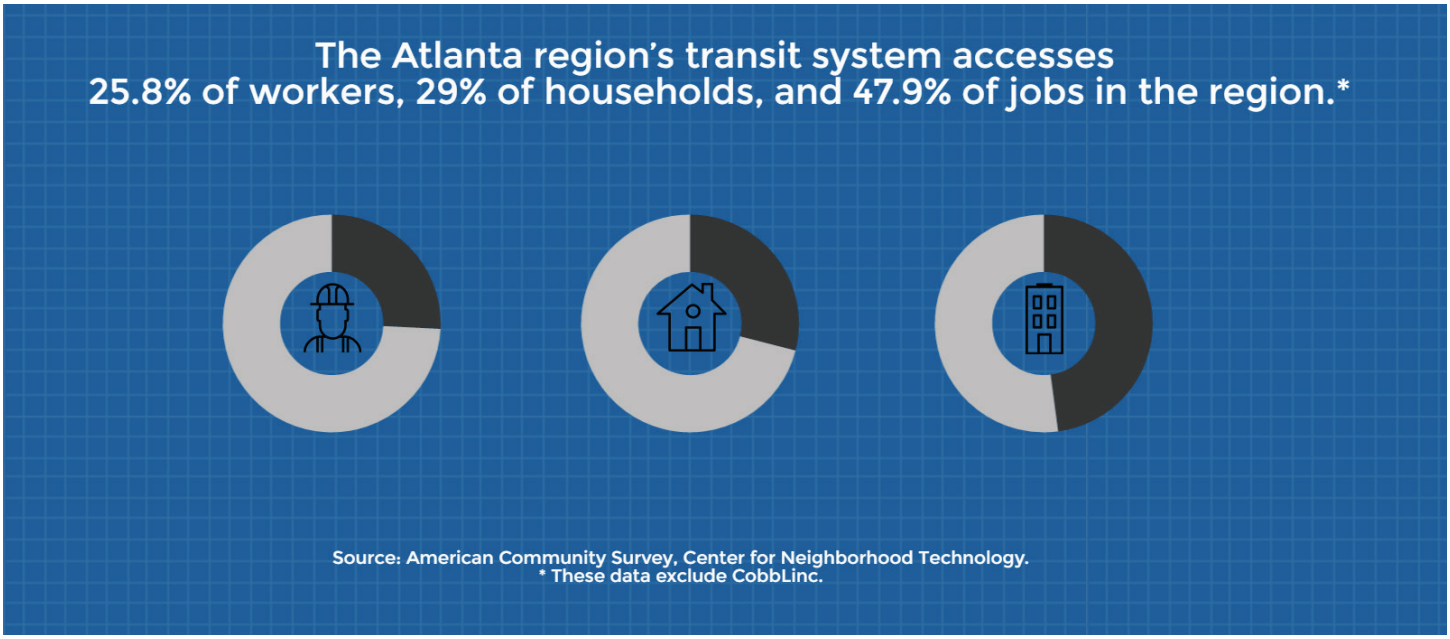
Source: Atltransit.org "Fares, passes & breeze card"

Depending on the size of the household, age of the children (if any), trip frequency, and eligibility for discounts, households make personal decisions about what makes the best sense for them. For instance, a family of four with one young child (below 46" in height) would pay $3,420 per year for unlimited MARTA trips or around $8,000 in auto ownership costs per year for one vehicle. A family of five with no young children (below 46" in height) would pay $5,700 per year for unlimited MARTA trips.

HAVING A LOW INCOME DOES NOT EQUAL A LACK OF CAR OWNERSHIP: While users of public transit in the Atlanta region are more likely to be in poverty, one cannot assume that because someone has a low income, they use public transit as their primary mode or that they do not own a car. In fact, while 23% of households in the Atlanta region have low incomes, there are only 6% "zero car households" (households without a car) in the region. Of course, there are many reasons why people do not own cars, and income is only one of many factors.[112] But, these figures do indicate that at least 17% of the Atlanta region's households have low income, but also own at least one car. Furthermore, households with low-moderate income own 2.0 cars on average compared with 1.82 overall.

PUBLIC TRANSIT ACCESS TO JOBS: If public transit provides a financial incentive in many cases, then why do people with financial restrictions end up owning cars? The geography of transit accessibility and economic opportunity are closely linked. Of the 1,116,852 jobs in the Atlanta region in 2014, a total of 47.9% were within a half mile of transit (a common measurement for a walkable distance). That figure helps explain the limitations of taking transit to work and why access to key employment destinations could be driving factor of car ownership for those with low

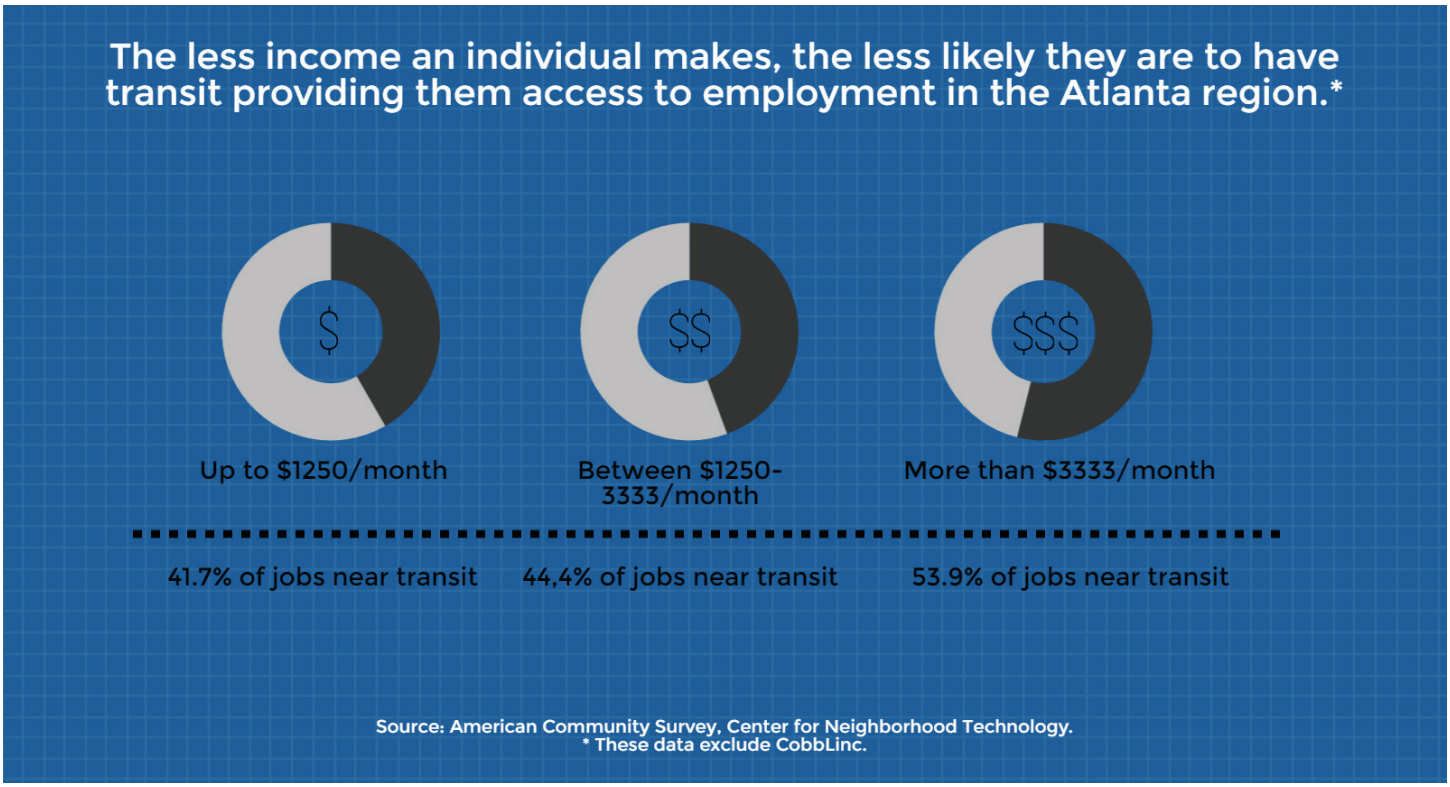
108 "H + T Index Data Download"
109 "Fares and Passes"
110 "What's medicare?"
111 "Fares, passes & breeze card"
112 Jaffe



incomes.

In order for transit to be a viable option, both home and destination (for work or otherwise) must be near to transit. In addition, the home and destination must be connected by a viable route or set of routes. It can be difficult for a household to make all of these components come together and keep transit as a viable, personal transportation option. Of the 562,041 households in the Atlanta region, a total of 29% are located within a half mile of transit. In addition, transit reaches 25.8% of workers (those of "working age" 18-65 who are not in the military or in institutions).

PUBLIC TRANSIT ACCESS TO JOBS BY WAGE LEVELS: Transit's access to jobs at a variety of income levels is another key metric for understanding why people with lower income in the Atlanta region find themselves owning a car. Access to transit in the Atlanta region is not equal for workers at various levels of earnings. Of the total amount of jobs held by workers making up to $1250/month or less (232,263),



41.7% of these jobs were within a half mile of transit. Comparatively, of the total amount of jobs held by workers making $1250-3333/month (361,966), 44.4% of these jobs were within a half mile of transit. And of the total amount of jobs held by workers making $3333/month or more (572,623), 53.9% of these jobs were within a half mile of transit. These figures indicate that the less money one makes, the less likely they are to have transit providing them access to employment.

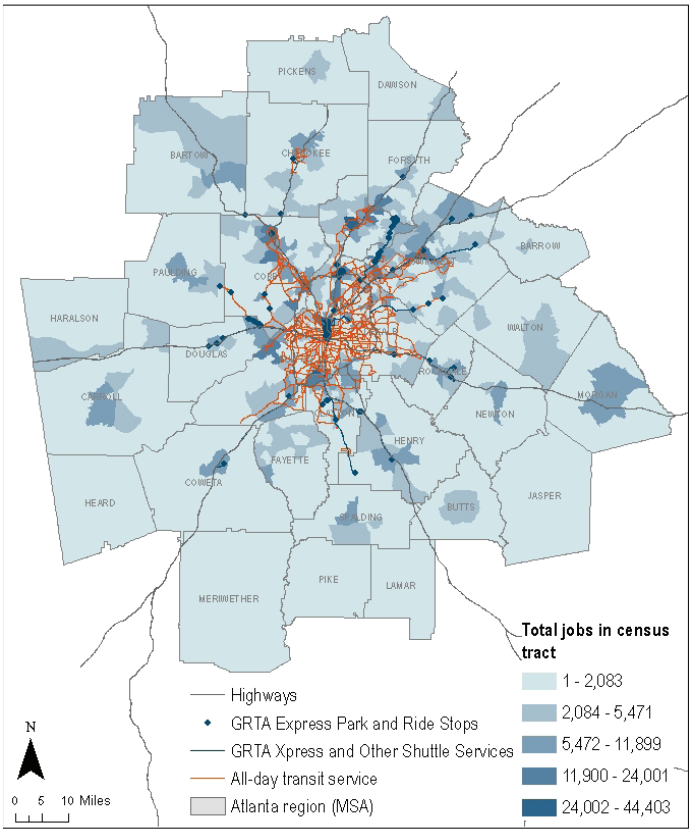
JOB CONCENTRATIONS, HOME CONCENTRATIONS, AND TRANSIT SYSTEM DESIGN: These data lead into another question regarding the general connectivity of public transit with jobs in the Atlanta region. On one side, many job concentration areas in the Atlanta region have no fixed route/guideway public transit. In addition, counties that have transit may not connect directly with jobs along routes. This is why only 47.9% of jobs can be accessed by transit.

Furthermore, housing density patterns are dispersed throughout the region. Homes are often in counties with no fixed route/guideway public transit. In addition, counties that have transit may not connect directly with homes along routes. This is why only 29% of households can be accessed by transit. When individuals in the household are broken down by workers age 18-65, the 25.8% of worker access figure is revealed.

But there is another issue at hand. Regional transit patterns in the Atlanta region have been designed primarily as "hub and spoke." The transit system, shared among 6 transit agencies, functions as local service for the immediate counties the transit is located and/or as a way of connecting to the urban core of the City of Atlanta. This helps increase access to City of Atlanta job concentration areas such as Downtown, Midtown, Buckhead, and the airport. Some "reverse commute" lines facilitate connections from the City of Atlanta to outlying counties such as Cobb and Gwinnett.

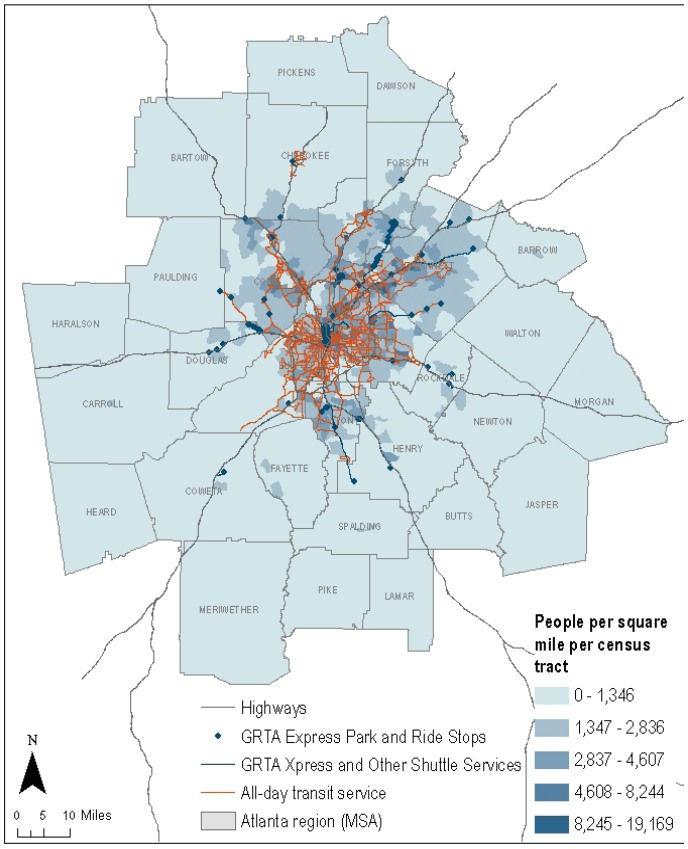
With the dispersion of both housing and jobs across the region, many of the commuting patterns are not only local trips, nor are they "hub and spoke" trips

The Atlanta region's concentration of jobs compared with GRTA and all-day transit service coverage



Data source: American Community Survey & GTFS for regional transit operators

The Atlanta region's population density compared with GRTA and all-day transit service coverage



Data source: American Community Survey & GTFS for regional transit operators

(to and from the urban core of the City of Atlanta). However, the fixed route/guideway transit system does not operate in a way that facilitates non-local, non-hub and spoke trips. Unless the housing and jobs become more connected to transit or the transit system design expands and changes, there will continue to be significant gaps in regional job access with transit. This issue impacts people in the Atlanta region, regardless of income or disability. This may help to answer a question raised earlier – are there reasons why public transit service is not as attractive to commuters who are not living in poverty in Los Angeles, Dallas, Houston, Miami, Phoenix, and Atlanta? Perhaps it is not about "attractiveness" in all cases but connectivity to key employment destinations.

While work trips may comprise the largest percentage by trip purpose, if people cannot travel on transit to other destinations, they may decide to drive to work and make the connections to other destinations easier. Note the reason "need car before/after work" as a reason for not participating in Georgia Commute Options incentive programs.

Reasons for Not Participating in Georgia Commute Options Incentive Programs

Reasons	2014 (n=899)
Need car before/after work	21%
Telework	14%
No transit access	10%
Prefer driving alone	8%
Alt modes don't work for my schedule	8%
Didn't understand program rules	7%
Don't need the program	7%
Don't like the award offered	5%
Couldn't find carpool/vanpool partner	5%
Wasn't eligible	3%
Other	6%
Don't know	3%

Source: 2014 Regional Commuter Survey Technical Report

SUBURBANIZATION OF JOBS AND CAR VS. TRANSIT ACCESS: As noted in a Brookings Institution report that focuses on the "suburbanization of jobs" trend, "Atlanta, Grand Rapids, and McAllen all show near-ubiquitous transit coverage in their primary cities and limited suburban coverage, pushing their overall coverage rates to the bottom quintile".[113] Therefore, transit access in the City of Atlanta and the Atlanta region are very different. While people who live and work in the City of Atlanta may have a more transit connected daily experience to and from work, it becomes much less likely across the region as a whole.

The Atlanta region is a network of counties and cities that connect a functional metropolitan area. While jobs might be geographically available and fluid for those in their personal vehicles, those taking transit do not have a comparable level of regional job access. This lack of access affects individuals and their ability to work at the best job for them personally, not only the best, transit-accessible job they can access. "The difference between city and suburban coverage rates is especially problematic because the majority of metropolitan jobs are now in the suburbs…This leaves metro areas' suburban jobs, such as the 2.2 million in suburban Atlanta, at a structural disadvantage. It is critical that metro areas with majority suburban jobs focus on suburban and suburb-to-suburb routing".[114]

There is some good news regarding regional connections, "In other large metro areas like Dallas and Atlanta, core transit agencies cannot overcome suburban jurisdictions that elect to ignore transit service entirely. The results of both situations are clear: jobs in cities and suburbs fail to connect with labor pools in other parts of the metro area… Fortunately, leaders in Detroit and Atlanta are attempting to establish more regional transit networks".[115] The figures contained in the Brooking's report (below, Map 1, less than 58.2% transit coverage rate) correspond to the more current census data (above, 47.9% actual figure) CNT provides in All Transit.

The Brookings report also brings in another, more detailed way of understanding transit usage. Brookings took all job locations as a set and measured how much of the metropolitan workforce could get to them using transit within a 90-minute

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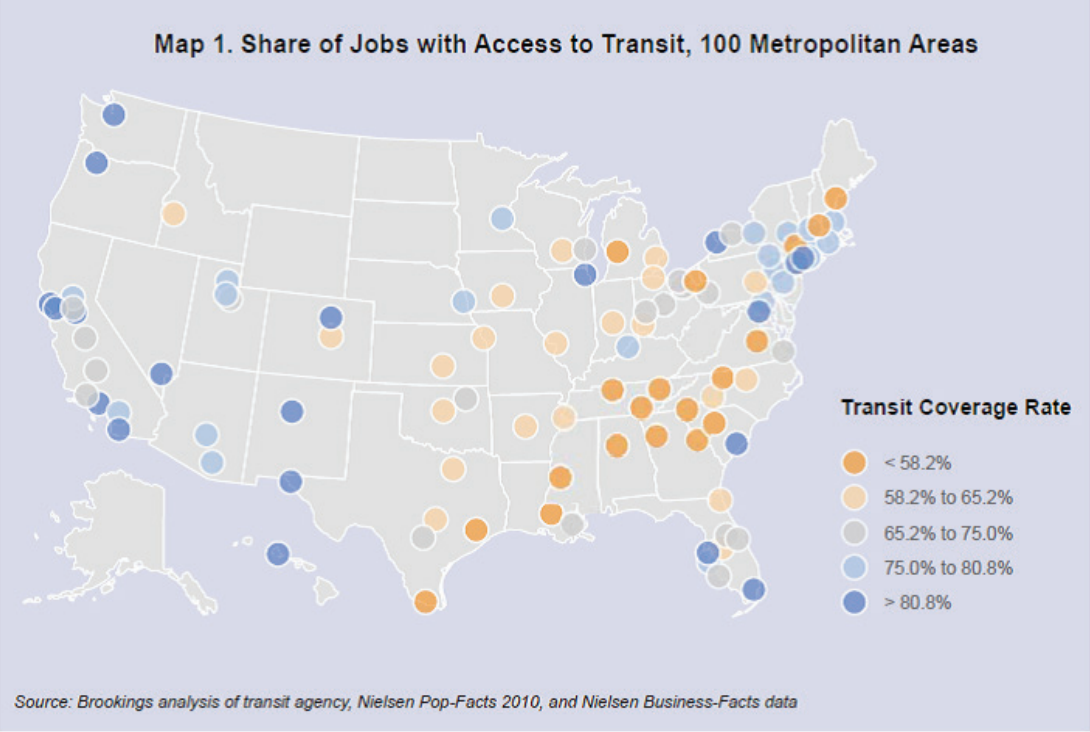
commute time. The Atlanta region was one of the lowest at "less than 17.5%" labor access rate (exact rate unknown). Brookings explained, "Taken together, these two accessibility shares (transit coverage and labor access) provide a sobering account of the costs of continuous decentralization. While the majority of households and jobs are near transit stops—proving that metropolitan transit networks do reach most of our neighborhoods—the distances between people and their regional jobs are too great to generate higher accessibility rates. Thus, transit routing improvements must address coverage gaps in the suburbs and disconnects between population centers and job nodes."[116]



Given these circumstances, it is not surprising that the majority of people with low income in the Atlanta region calculate that the costs of a car are necessary. The lack of geographic mobility of the Atlanta region's transit system contributes to a lack of economic mobility.

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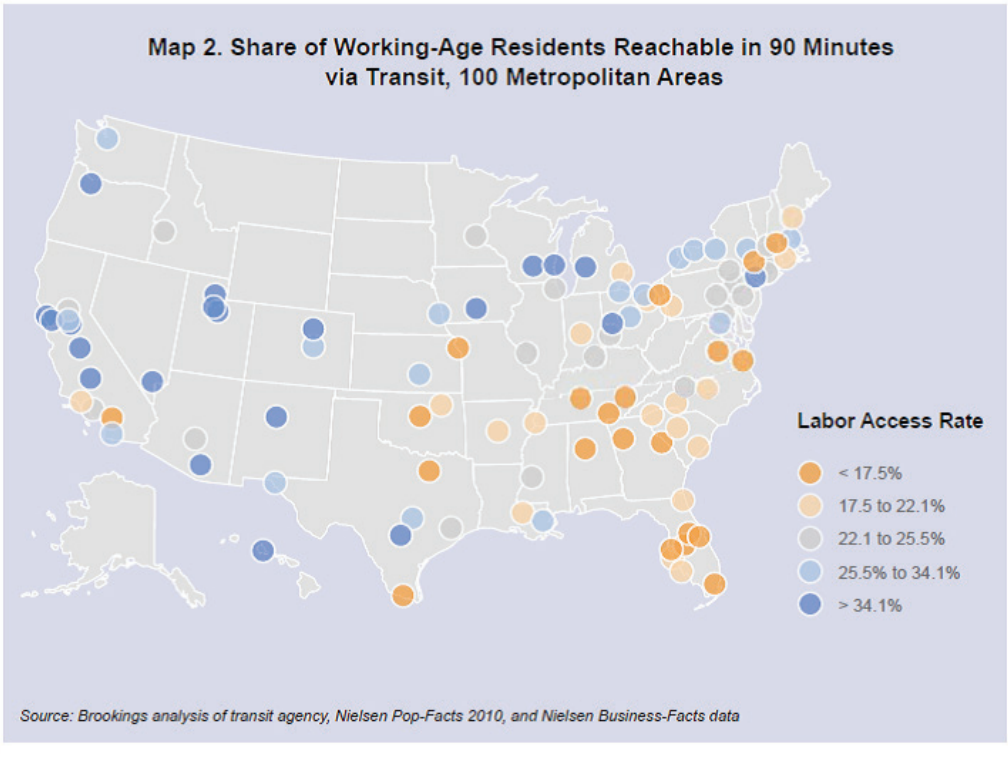


AIR QUALITY, HEALTH, AND TRAFFIC CONGESTION:

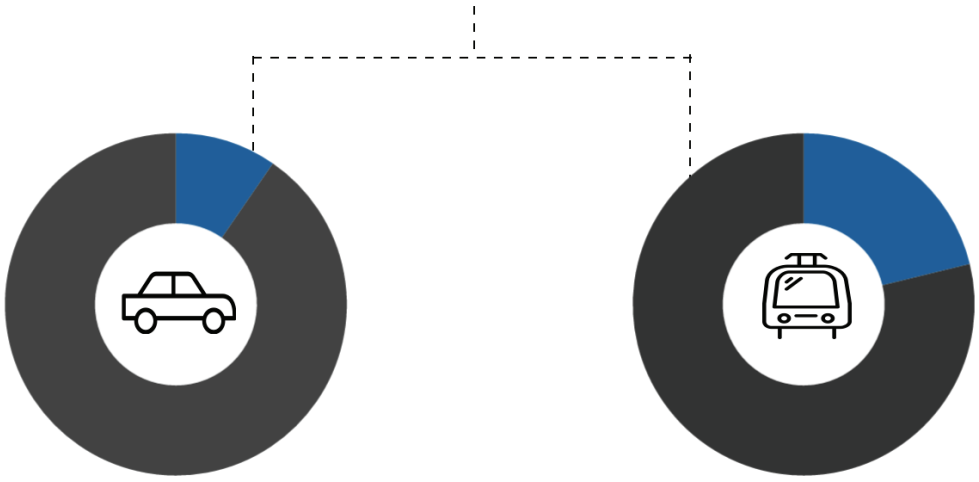
A commuter using the Atlanta region's transit system is more likely to be living in poverty compared with a commuter who is driving to work. And yet, the transit system is not facilitating the type of connectivity to jobs that fosters full economic mobility for everyone in the Atlanta region. Imagine that the regional transit does redesign its approach, expands, and reaches higher rates of connectivity between jobs, homes, and workers. Imagine that it does this with fare structures that individuals with low incomes find affordable. If this happened and bolstered job options available along transit, it could likely follow that some portion of the Atlanta region's households that have low income, but do own at least one car, could potentially become zero car households. Currently households that have low income, but do own at least one car, represent at least 17% of the total regional population. Seemingly small percentages - even 1% or 2% - of the Atlanta region's households becoming zero car households (or owning one car per household instead of two) could reap major rewards for the region.

First, this shift would indicate fewer cars on the road (but this would need to be understood within the context of other shifts such as population change). Having less cars on the road in the Atlanta region would help reduce pollution and achieve related benefits in public health that are exacerbated by air pollutants. The Clean Air Act Amendments of 1990 (CAAA) is a federal law to protect air quality in the United States. The CAAA[117] requires that federal clean air standards are met for six pollutants – ground level ozone (O_3), carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), particulate matter (PM), and sulfur dioxide (SO_2). ARC is responsible for managing the process that ensures transportation plans and programs within the Atlanta nonattainment area, when implemented, do not cause or contribute to degraded air quality. This process is referred to as "transportation conformity." At the time of this Plan's drafting, the Atlanta region is currently in "nonattainment" for two of the six pollutants including ground level ozone (O_3) and particulate matter (PM).

117 "Overview of the clean air act and air pollution."

Public transit commuters in the Atlanta region

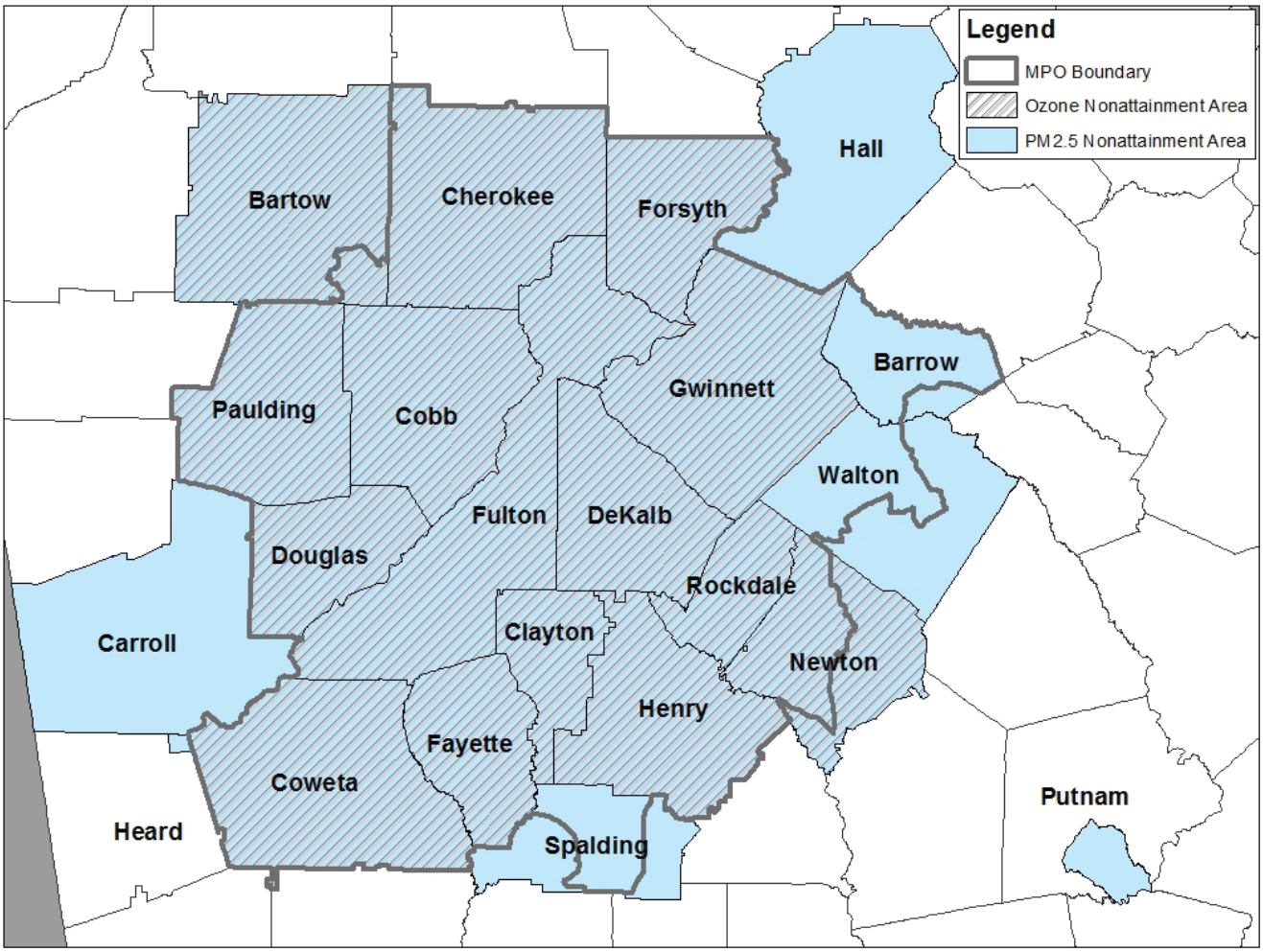
are significantly more likely to live in poverty than driving commuters.



While 9.6% of total commuters are in poverty...

...21.2% of public transit commuters are in poverty.

Source: American Community Survey, Governing



Data source: ARC data, Air quality in the Atlanta metro region

Furthermore, residents of the Atlanta region are aware that air quality is a problem.

VIEWS ON REGIONAL AIR QUALITY, 2014, 2010, AND 2007

Air Quality is a Serious Problem	2014 (n=980)	2010 (n=984)	2007 (n=992)
Strongly agree	45%	60%	48%
Somewhat agree	34%	30%	35%
Neither agree or disagree	12%	6%	6%
Somewhat disagree	6%	3%	9%
Strongly disagree	4%	2%	2%

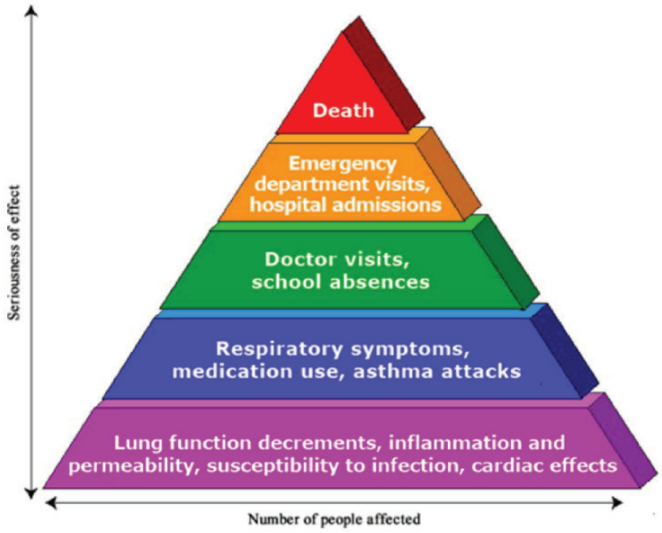
Source: 2014 Regional Commuter Survey Technical Report

The Atlanta region is in "non-attainment" for

2 of 6

air pollutants tracked for federal clean air standards, which affects selection of transportation projects.

EPA's " Pyramid of effects caused by ozone"



Pollutant 1
ground level ozone

+

Pollutant 2
particulate matter

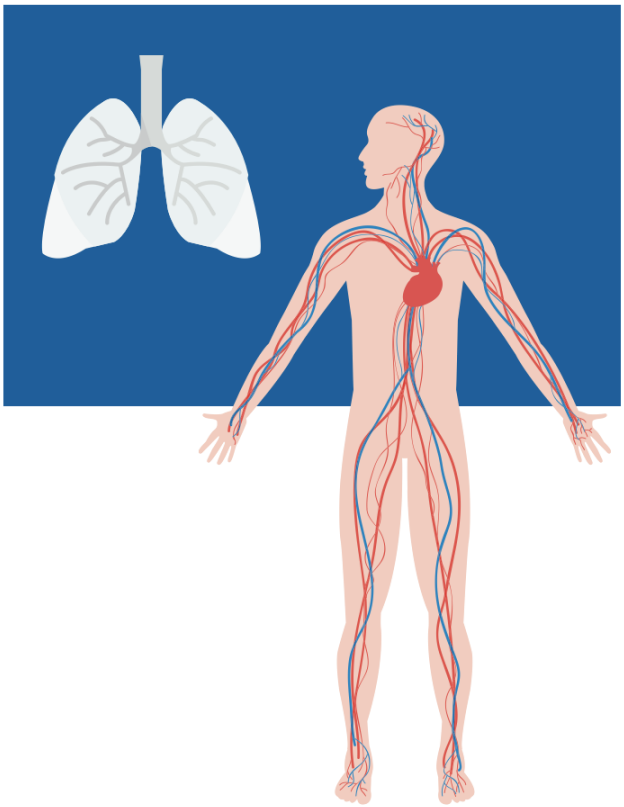
The Effects of Air Pollution on Health

Source: US Environmental Protection Agency, ARC

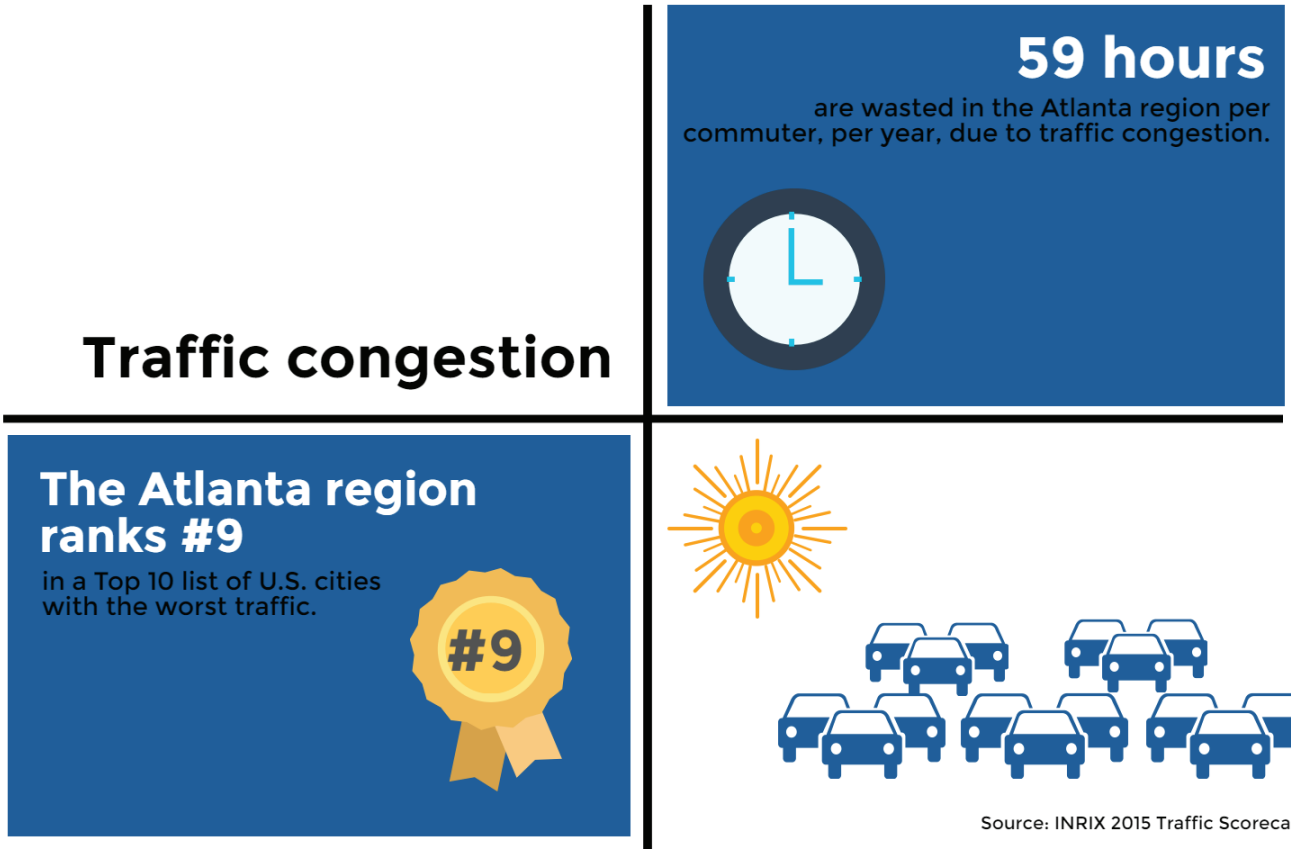
The US Environmental Protection Agency

states, "numerous scientific studies have linked particle pollution exposure to a variety of problems, including:

- premature death in people with heart or lung disease,
- nonfatal heart attacks,
- irregular heartbeat,
- aggravated asthma,
- decreased lung function, and
- increased respiratory symptoms..."



Source: US Environmental Protection Agency, ARC



Fewer cars on the road would also help alleviate some portion of the Atlanta region's traffic congestion. In 2015, the Atlanta region ranked number nine in a Top 10 list of U.S. cities with the worst traffic.[118] According to the company conducting the study, INRIX, the average time in 2015 wasted in the Atlanta region annually was 59 hours (per commuter).[119]

118 The company that conducted the analysis, INRIX, stated in their methodology that the Atlanta MSA (defined in this Plan as the Atlanta region) was the geographic unit of analysis. For more, see: "Methodology: INRIX 2015 Traffic Scorecard"

119 INRIX

ARC publishes data on the most congested corridors in the region.[120] In a 2014 Regional Commuter Survey Technical Report the findings revealed,

> "Traffic congestion continues to resonate strongly with commuters. Overall, 95% of respondents strongly or somewhat agreed with a statement that traffic congestion is a serious problem in the Atlanta region, about the same as the 97% of respondents who agreed in

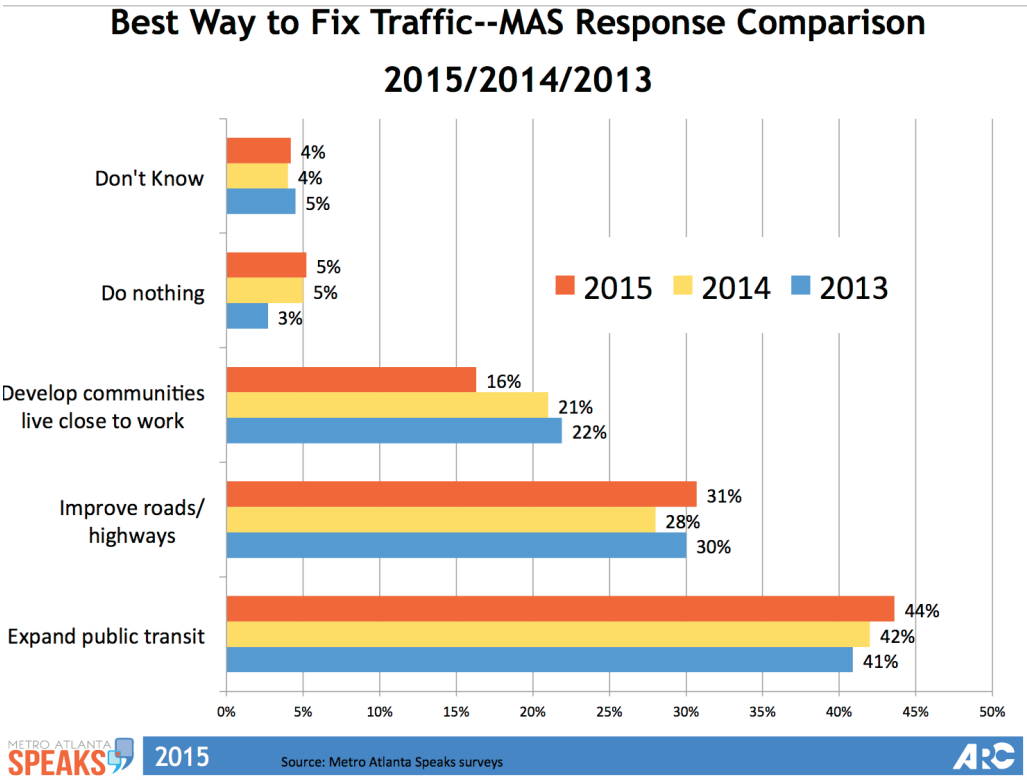
120 "Congestion management process."

Reasons for More Difficult Commute Trip

Reasons*	2014 (n=235)	2010 (n=168)	2007 (n=342)
Route is more congested	75%	71%	82%
Longer distance	14%	12%	6%
Trip is slower	23%	9%	21%
Construction	13%	9%	3%
Work hours/location changed	NA	5%	NA
More stressful	5%	1%	4%

**Multiple, unaided responses given; total will exceed 100%.*

Source: 2014 Regional Commuter Survey Technical Report



2010 and 2007… Both the travel distance and travel time for regional commuters increased from 2010. The average total one-way travel distance for respondents' home to work location was 18.3 miles in 2014. This was a .8-mile increase from 2010. The average travel time was 34 minutes up from the 30 minutes reported in 2010."

ARC conducted a survey called "Metro Atlanta Speaks" during 2013-2015. Each year, "expand public transit" was consistently the top solution selected by surveyed residents for "best way to fix traffic." In 2015, almost 5,200 residents across 13 counties responded to a series of 26 questions.[121]

Second, this shift would enable individuals with lower incomes to spend their transportation savings on other household needs. "Low to moderate income" (less than $45,295) households spend 67% of their income on housing and transportation as compared with 54% for typical households in the Atlanta region.

LIVING WITH A LOW INCOME: To contextualize these figures, for example, if an individual spends 67% of their income on transportation and housing, and their income is $45,294 (low to moderate income upward limit), this means $30,347 has already been allocated. This leaves 33% remaining, or $14,947 in total per year. This would be $1,245 per month to cover all other expenses. Common expenses to households include food, medical/health, childcare, clothing/household items, recreation, and education related expenses. Households, then, have $1,245 per month to cover all these other expenses along with any savings and retirement they seek to set aside. The USDA reported in 2013 that food for a family of 4 could cost $584/month at the most thrifty rate.[122] Assuming employer sponsored healthcare, medical costs for a family of 4 are $873/month on average nationally.[123] Already these costs total $1,457/month.

Childcare, in particular, is a significant challenge for households with low income.[124] For example, a 2015 Economic Policy Institute report "High Quality Child Care is Out of Reach for Working Families" states that monthly childcare costs for an infant and a 4-year old in Atlanta are $1,104.[125] By breaking down what a family can get for $1,245/month, it shows how challenging it can be to make basic ends meet. Costs (and the time required) for adult continuing education is likely a stretch for adults in these households given the financial pressures to make a basic living. Retirement and regular savings could potentially be impossibilities for these households.

Therefore, while transportation is not the sole reason why these households experience the effects of poverty, the requirement of a personal vehicle for job access and its associated financial costs is a significant factor in household budgets being stretched

121 "Metro Atlanta Speaks"

122 Hellmich

123 Munro

124 Dell'antonia

125 Zarya

Program name	Program purpose	2014 Spending in Georgia
Temporary Assistance for Needy Families (TANF)	Cash Assistance	507,253,732
Federal rental assistance (housing choice vouchers, etc.)	Housing Assistance	974,000,000
Supplemental Nutrition Assistance Program (SNAP)	Food Assistance	2,827,853,876
Total		4,309,107,608

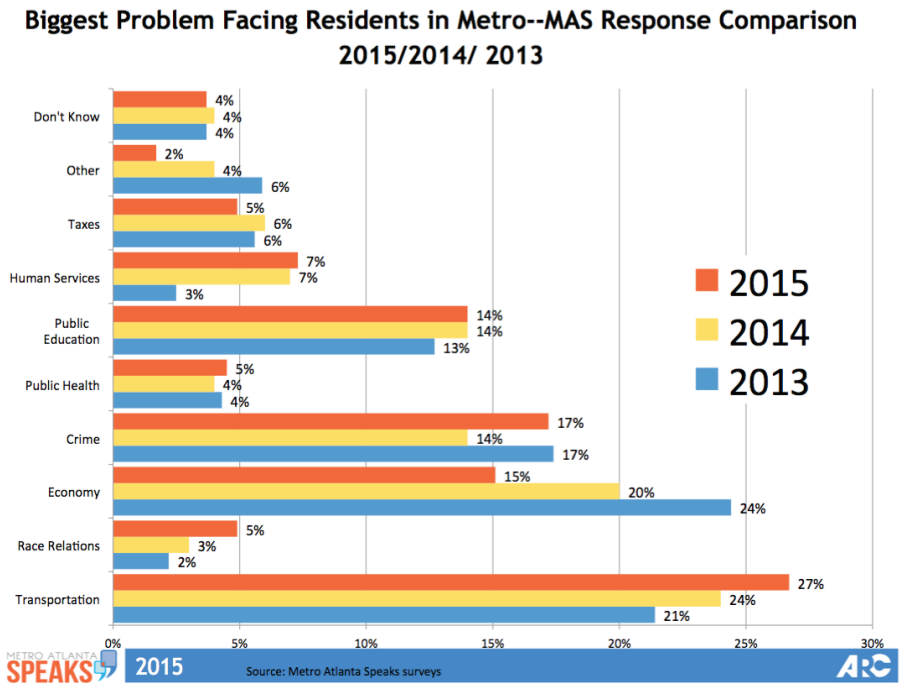
Data sources:
TANF: http://www.acf.hhs.gov/programs/ofa/resource/tanf-financial-data-fy-2014
Rental assistance: http://www.cbpp.org/sites/default/files/atoms/files/4-13-11hous-GA.pdf
SNAP: http://www.fns.usda.gov/sites/default/files/FY14%20State%20Activity%20Report.pdf

to the point of requiring public assistance.

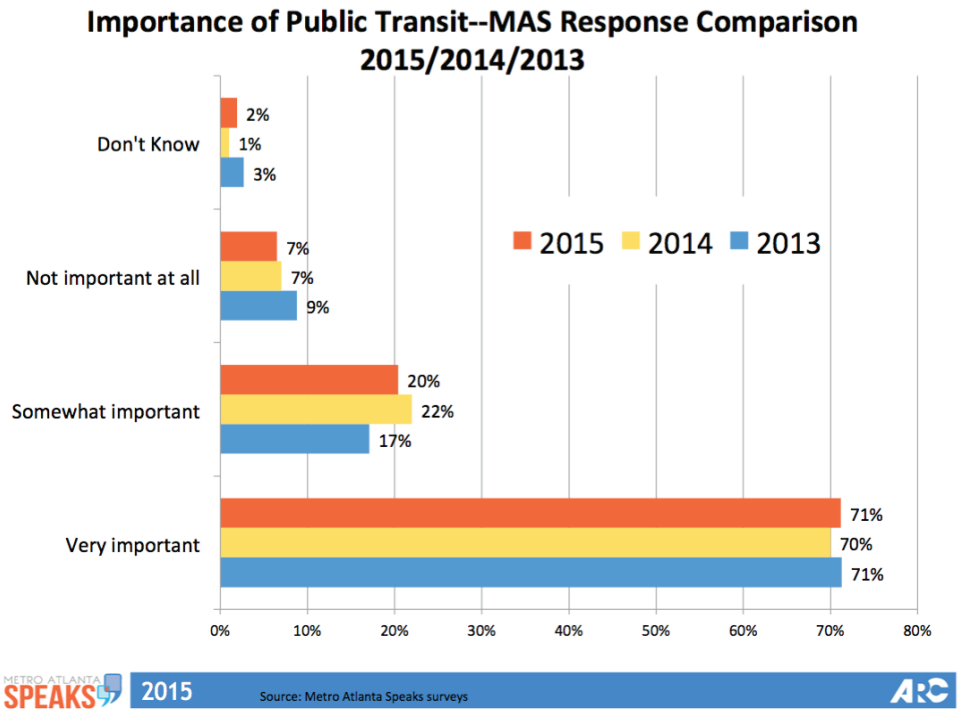
There are various types of public assistance to help households cover costs. A breakdown for Georgia is provided in the table. Temporary Assistance for Needy Families (TANF) provides diverse services to assist families in need to achieve self-sufficiency. "Housing Choice" vouchers, one form of housing assistance, is the "federal government's major program for assisting very low-income families, the elderly, and the disabled to afford decent, safe, and sanitary housing in the private market."[126] The Supplemental Nutrition Assistance Program (SNAP) offers nutrition assistance to eligible low-income families.[127] By enabling households with lower incomes to reduce their spending in the area of transportation, which is currently a factor overstretching budgets, there may be potential reductions in public assistance spending tied to taxpayer funds.

126 "Housing choice vouchers Fact Sheet"

127 "Supplemental nutrition assistance program (SNAP)"



CLOSING: While it would take additional financing for the Atlanta region's transit system to redesign its approach, expand, and reach higher rates of connectivity between jobs, homes, and workers, this increase could connect with reductions in other types of public spending, such as spending on public assistance. It could also help reduce the cost of traffic congestion to businesses and households alike.

Improvements in transit could also help improve less tangible factors such as public health issues exacerbated by air pollution. Through traffic congestion reduction, it could even contribute to improvements in emotional health and stress levels for the Atlanta region as a whole. Making sure the transit system steadily works towards raising rates of connectivity between jobs, homes, and workers is not a benefit only for those with lower incomes or a disability – it would benefit the entire Atlanta region in direct and indirect ways, more obvious and less obvious ways. There is a "cost" associated with the transit system not functioning in a way that facilitates higher levels of economic mobility for everyone, and these costs are shared among HST populations and non-HST populations alike. Regional surveys demonstrate two key issues regional residents feel strongly about: 1) transportation is the biggest problem facing residents in the metro area and 2) public transit is considered "very important" by a large majority of the region across 13 counties. The transportation challenges outlined in this plan are critical concerns for many residents of the Atlanta region, HST populations and non-HST populations alike.

While these connections may not show themselves clearly on the surface, these issues of public transit access, income levels, economic opportunity, disability, traffic congestion, and public health are interwoven. By understanding their connectivity, more actions can contribute to improving the situation – not only to transportation as a stand-alone need, but as a facilitator of connectivity to destinations that improve quality of life as a whole.