FAST 2.0

Freeway, Arterial, Street, and Tactical Transit

EQUITY PLAN MEMO

February 2025

CONTENTS

Introduction

The purpose of this memo is to demonstrate how the regional network and priority corridors, part of the Phase 2 Freeway, Arterial, Street and Tactile (FAST) Study, considered equity when choosing corridors that are a part of the unique networks. Understanding the distribution of social economic markers such as vehicles per household, age, English proficiency, disability status, income, and race helps to identify where transit can be beneficial in providing essential connections.

Part of this analysis looked at tools and indices developed by North Carolina Department of Transportation (NCDOT) and the Metropolitan Planning Organizations (MPOs) to determine which populations or areas can benefit the most from transit investments. This included two indices, the Transportation Disadvantaged Index (TDI) scores, and the Environmental Justice (EJ) Index, developed by NCDOT to "illustrate the disproportionate impact transportation barriers have on communities of color". The analysis used NCDOT's new source data for these indices, the U.S. Census 2016-2020 5-Year American Community Survey (ACS) at the block group level, to visualize individual equity indicators.

The Equity Indicators evaluate the concentrations of the following populations throughout the study area:

- **BIPOC (Black, Indigenous, Persons of Color)** – the composite of racial and ethnic minorities combined, and includes Black, Hispanic, Asian, Pacific Islander, American Indian, and Multi-race populations.
- **Low-Income** – individuals having incomes below 150% of the federal poverty line.
- **Zero Car Households** - households without access to a personal vehicle for travel.
- **Senior** – individuals who are at least 65 years of age.
- **LEP (Limited English Proficiency)** – populations who do not speak English as their primary language, including those who have a limited ability in reading, writing, speaking, and understanding English.
- **Persons with Mobility Impairment**) – a mobility impairment is considered a physical, mental, or self-care disability and applies to those over the age of 18 years.
- **Transportation Disadvantaged (TDI)** – focuses on race (Black, Indigenous, and Persons of Color), income, personal vehicle access, people with mobility impairments, the elderly, youth, and populations with Limited English Proficiency. The composite score is based on seven indicators of potential transportation disadvantage.
- **Environmental Justice (EJ)** - focuses on low-income and racial and ethnic minorities, with the EJ Index score being based on the relative concentration of the population groups in each block group.

The study area is comprised of five counties in central North Carolina (Chatham, Durham, Johnston, Orange, and Wake), each with a unique demographic makeup. Table 1 identifies the percentages of equity indicators in each county, along with percentages in North Carolina. While some indicators stand out, like the percentage of the BIPOC population in Durham County or the percentage of the senior population in Chatham County, many of the equity indicators are similar between the study area counties and North Carolina. The differences among the indicators are seen more at a block group level and discussed more in the sections below.

Table 1: Equity Indicators by Geography

Geography	BIPOC	Low-Income	Zero Car	Senior	LEP	Persons with Mobility Impairments
Chatham	28%	20%	4%	24%	5%	17%
Durham	57%	21%	7%	13%	8%	12%
Johnston	33%	22%	5%	13%	5%	17%
Orange	31%	17%	5%	14%	5%	10%
Wake	41%	14%	4%	12%	6%	10%
North Carolina	37%	23%	6%	16%	4%	16%

Equity Indicators

BIPOC Population

Figure 1 illustrates the BIPOC (Black, Indigenous, Persons of Color) population percentages, at a block group level, within the study area and along the regional network which is a composite of racial and ethnic minorities combined, and includes Black, Hispanic, Asian, Pacific Islander, American Indian, and Multi-race populations. In this figure, higher percentages of BIPOC populations are observed in east and northeast Raleigh, as well as north, east, and south of Downtown Durham. Other places with block groups with higher percentages of BIPOC populations in the study area include Selma, Siler City, and along I-40 in Durham and Wake counties. In Figure 2, the priority corridors can serve and connect areas with the greatest concentration of BIPOC populations, such as in central Durham and north Chapel Hill, along the North-South BRT (NSBRT). The priority corridors also connect to funded and planned Wake Bus Rapid Transit (BRT) lines, like New Bern Avenue, Southern Corridor, and Northern Corridors.

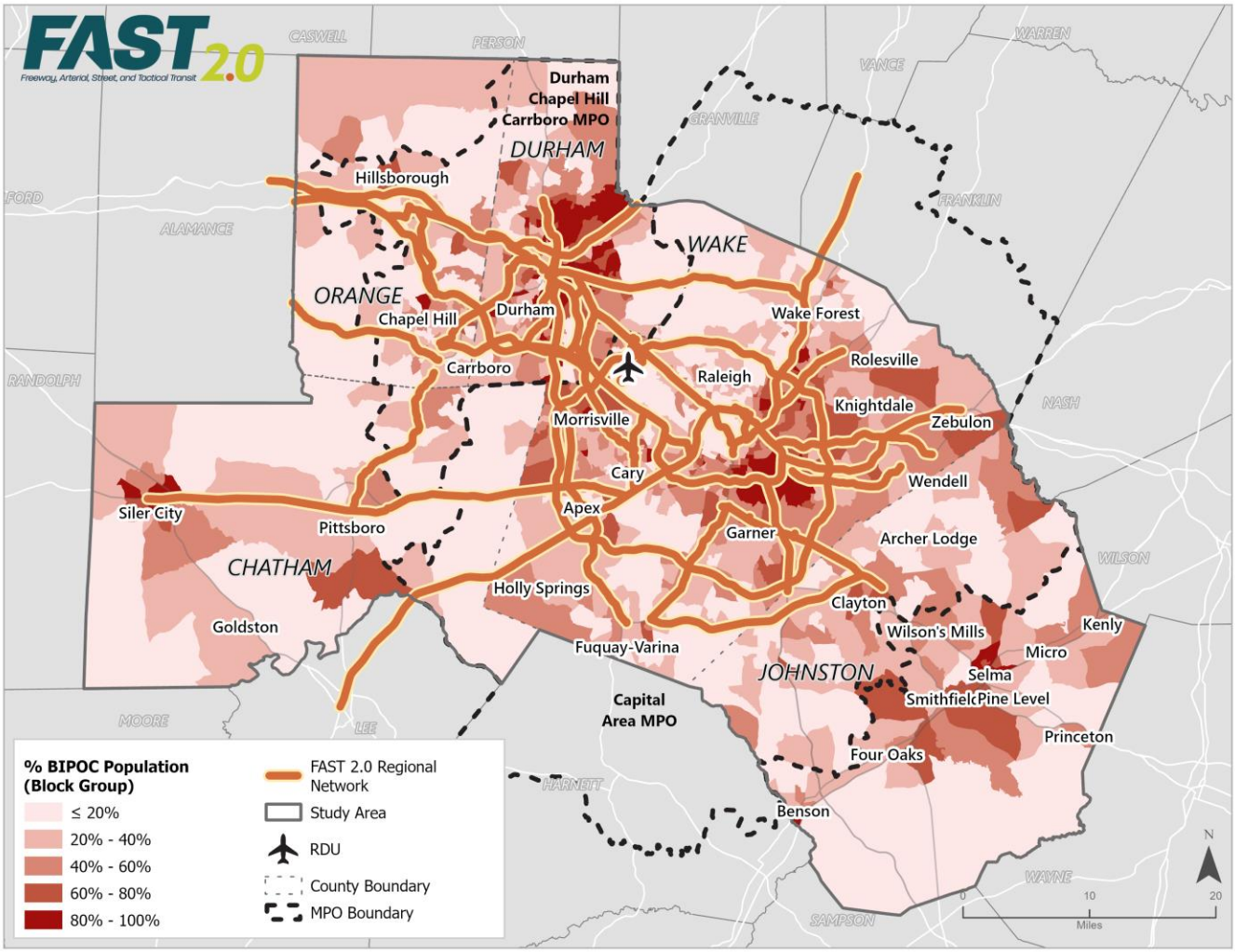

Figure 1: BIPOC Populations along the Regional Network

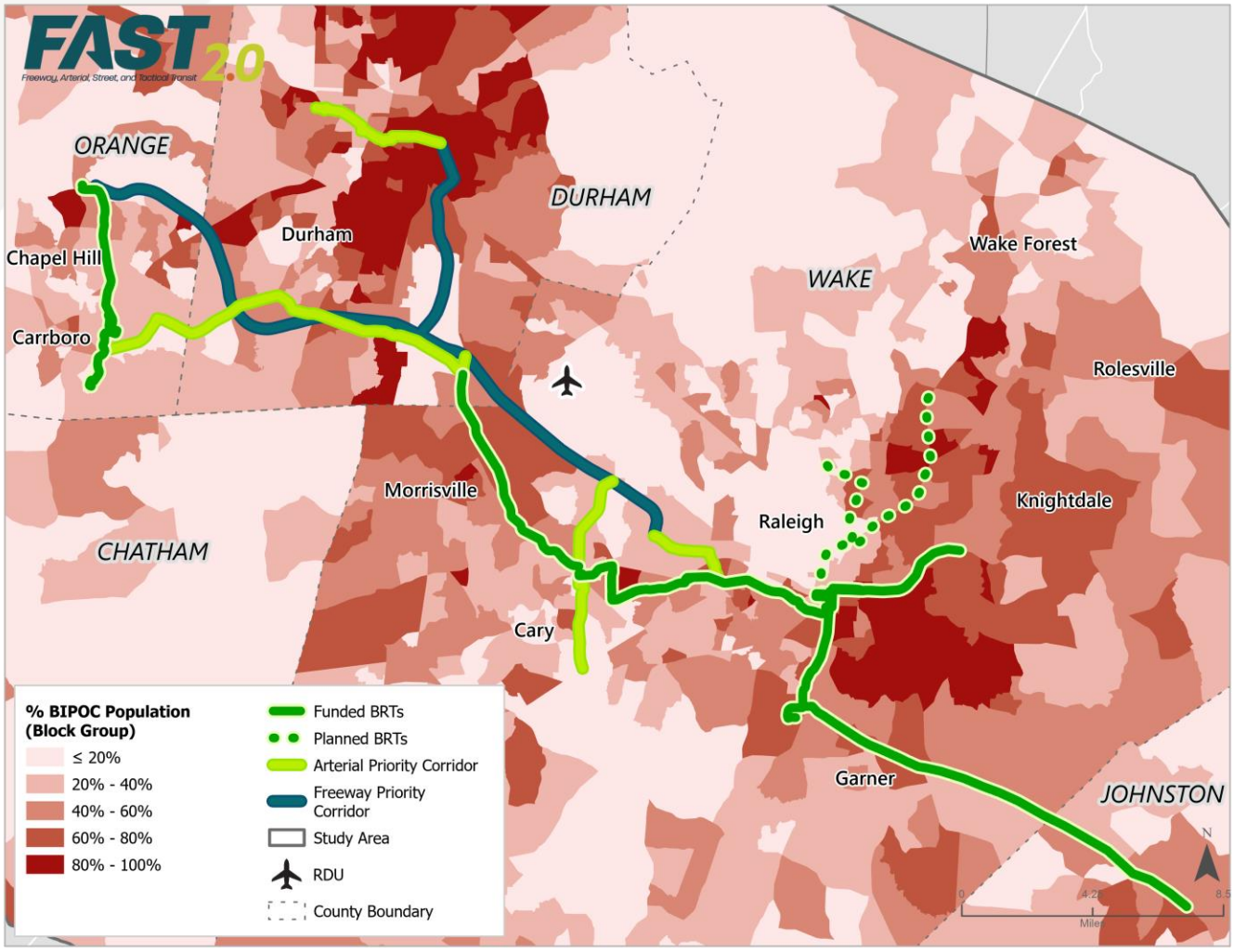

Figure 2: BIPOC Populations along Priority and BRT Corridors

Low-Income Population

Figure 3 shows block groups with a higher percentage of low-income individuals as it pertains to the regional network. Clusters of low-income populations are located throughout municipalities served by the regional network, such as central and north Durham along US 501, Roxboro Rd, Fayetteville St, and NC 55. The regional network expands to connect other areas with notable low-income populations, such as south and east Raleigh following the south and east I-440 loop, Carrboro, Hillsborough, Pittsboro, and Siler City. Figure 4 highlights the connections to and between these areas that are made with the priority corridors, including along NC-147 in Durham, along the funded NSBRT in Chapel Hill, and along the Western and Southern BRT corridors in Raleigh.

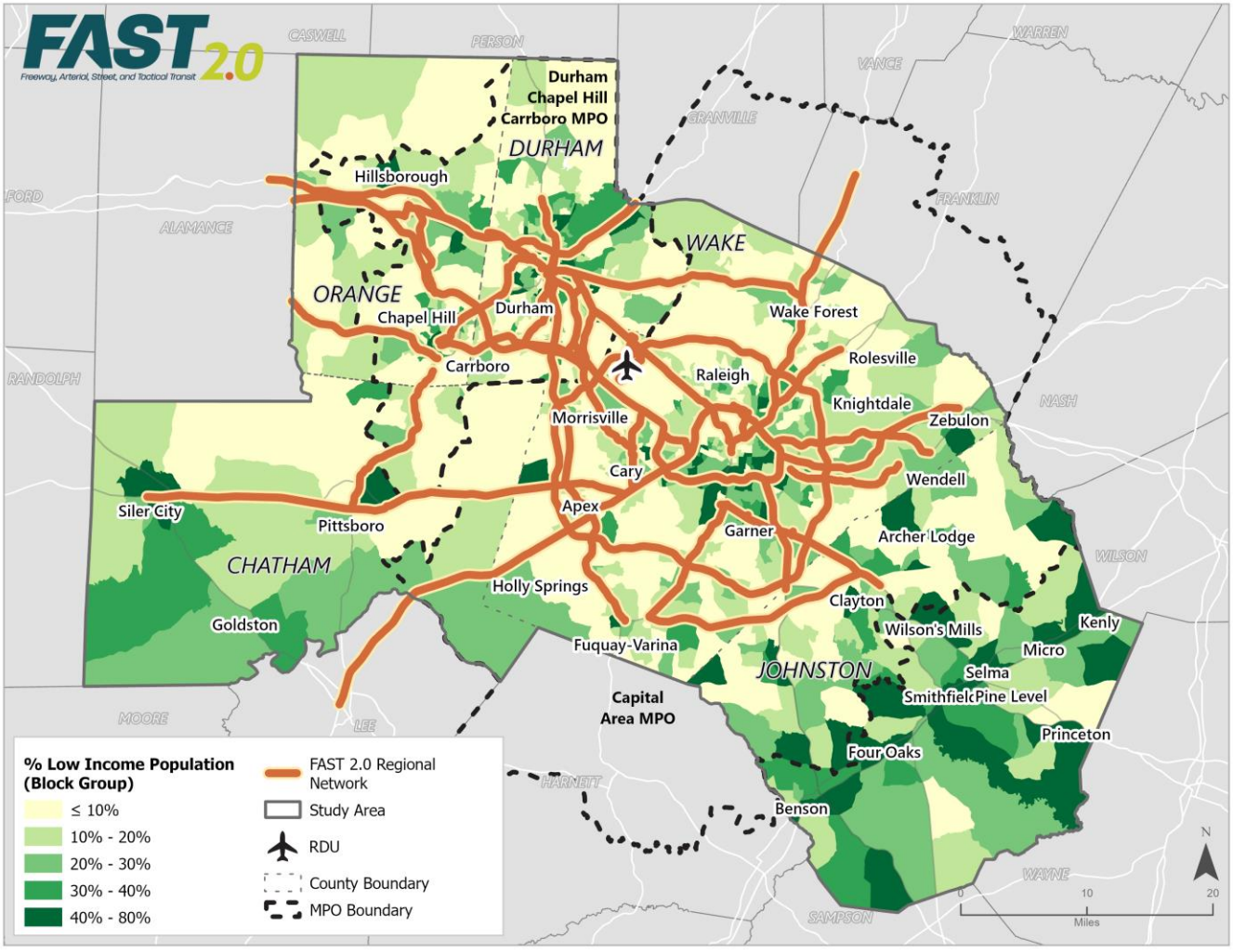

Figure 3: Low-Income Populations along the Regional Network

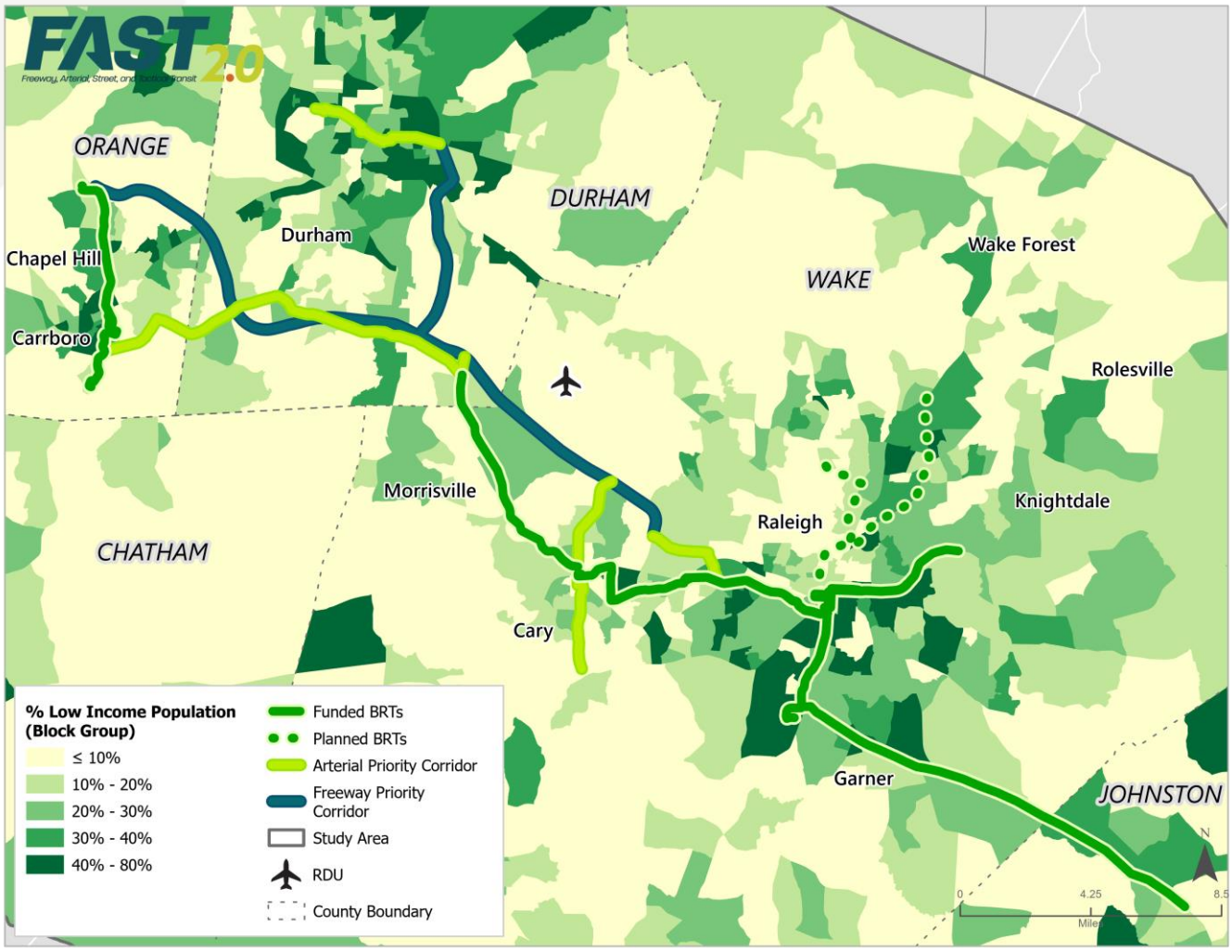

Figure 4: Low-Income Populations along Priority and BRT Corridors

Zero Car Households

Figure 5 illustrates the distribution of zero car households and their proximity to the regional network. Block groups where 20% or more of households without access to a vehicle are located throughout the regional network, but concentrations can be found in southeast Raleigh along I-440, along the portions of the network that travel within and between Chapel Hill and Durham, along US-64 between Siler City and Pittsboro, east of I-95, and near universities. Along priority and BRT corridors, notable concentrations of zero car households can be found in central Durham and along Western and Southern BRT lines as shown in Figure 6.

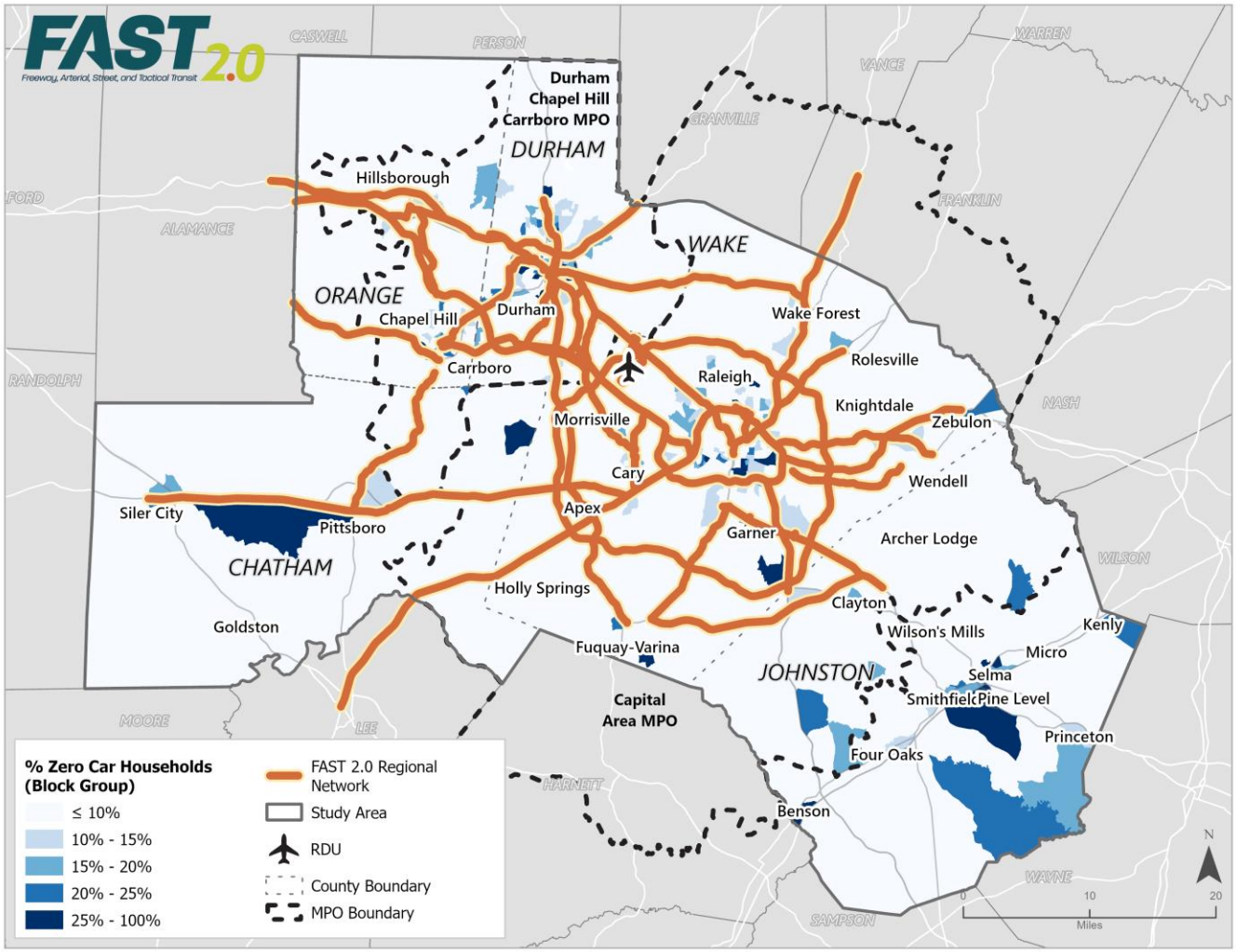

Figure 5: Zero Car Households along the Regional Network

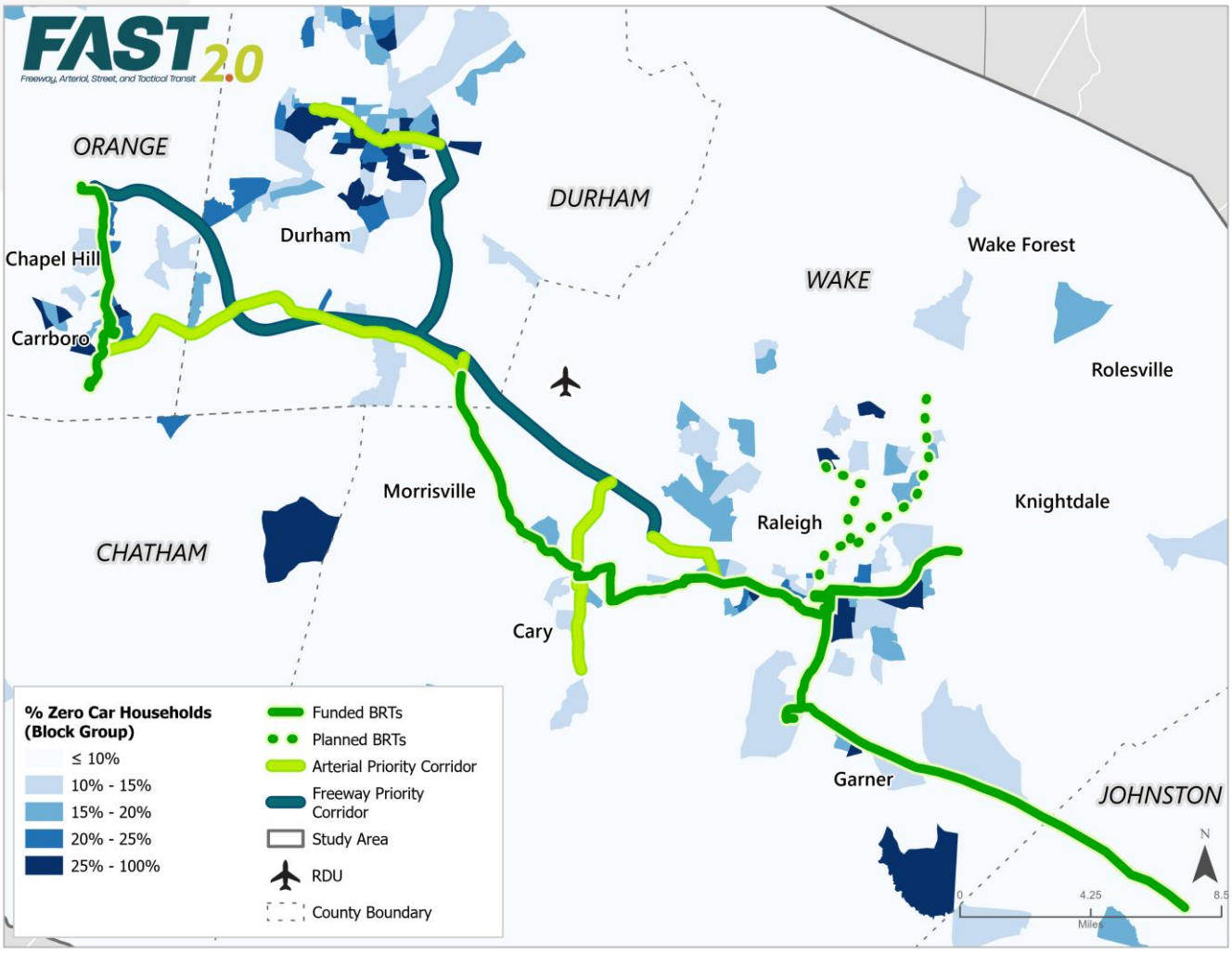

Figure 6: Zero Car Households along Priority and BRT Corridors

Senior Population

Figure 13 captures the distribution of senior populations throughout the regional network. Significant populations of block groups with senior populations greater than 20% are found throughout the regional network while the greatest concentration can be found in Siler City, southern Chatham County, and northeastern Chatham County near US 15-501 and US-64. Larger populations can also be found in eastern Durham County and western Durham County, along NC-98. Orange County has notable senior populations along the regional network corridors. Figure 8, illustrates senior populations along the priority corridors within the study area. Notable populations exist along priority corridors such as Harrison Avenue, I-40 in Orange and Durham Counties, and NC-54.

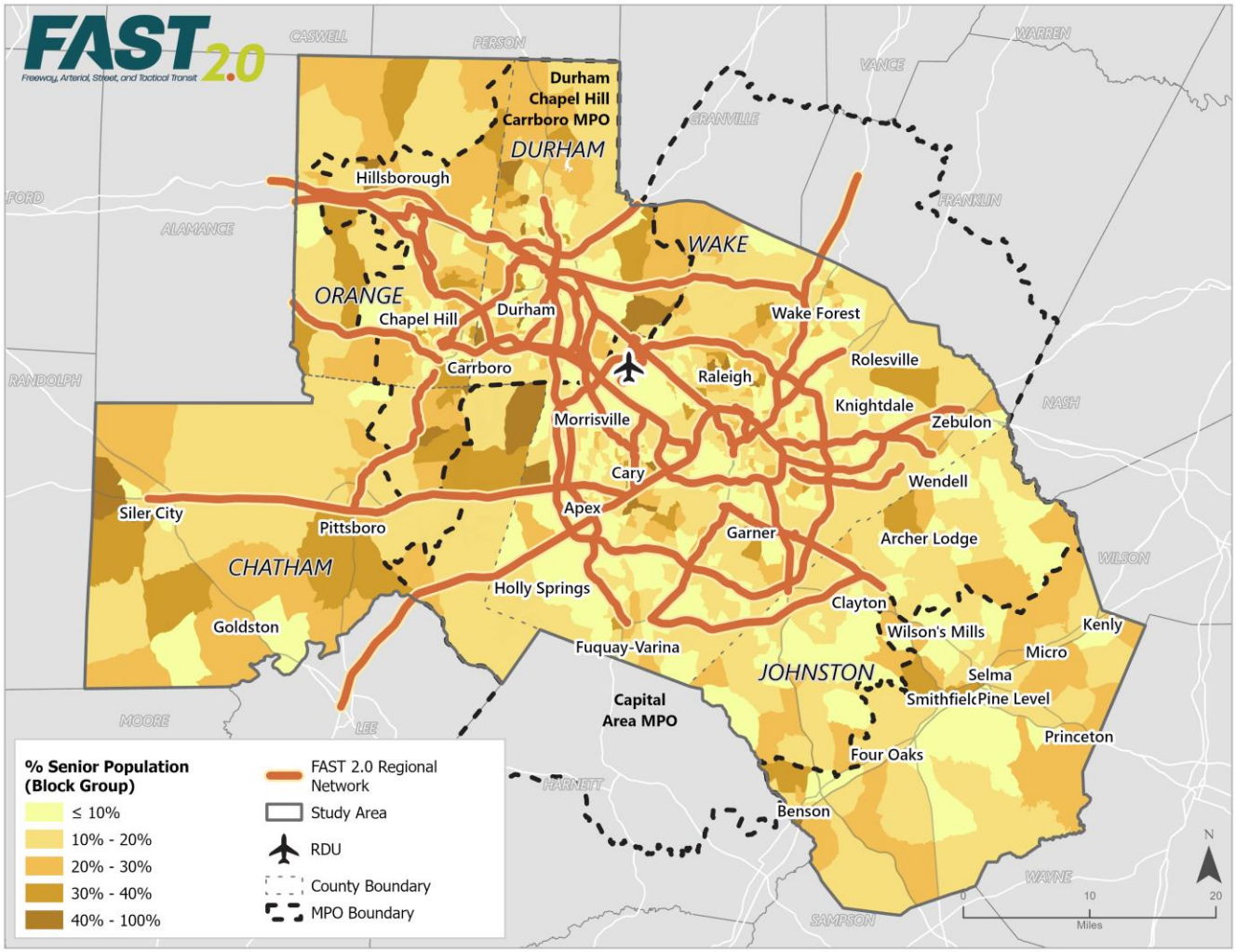

Figure 7: Senior Population along the Regional Network

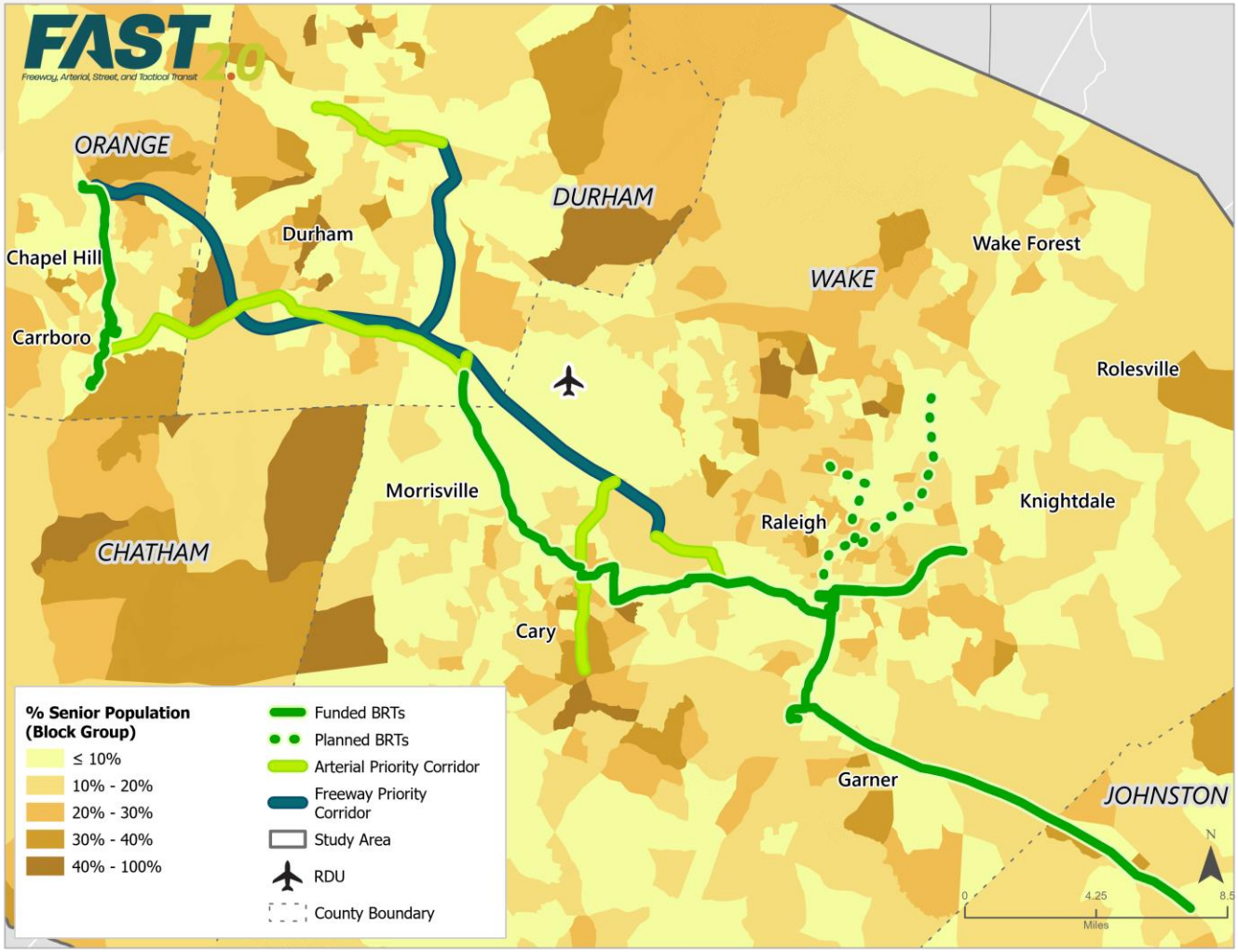

Figure 8: Senior Populations along Priority and BRT Corridors

Limited English Proficiency Populations

Figure 9 illustrates the concentrations of Limited English Proficiency (LEP) populations throughout the study area and along the regional network at a block group level. Higher percentages of LEP populations are dispersed throughout the study area, but notable clusters can be found within and around Downtown Durham. Other clusters can be found in eastern Wake County along the portions of US-401 and Capital Boulevard in the regional network. Other places with higher LEP populations are Smithfield, Selma, Siler City, and Zebulon. In Figure 10, the priority corridors are able to connect the areas with the greatest percentage of LEP populations following along corridors such as I-885, I-40, and NC-54 from Durham and Chapel Hill to Raleigh.

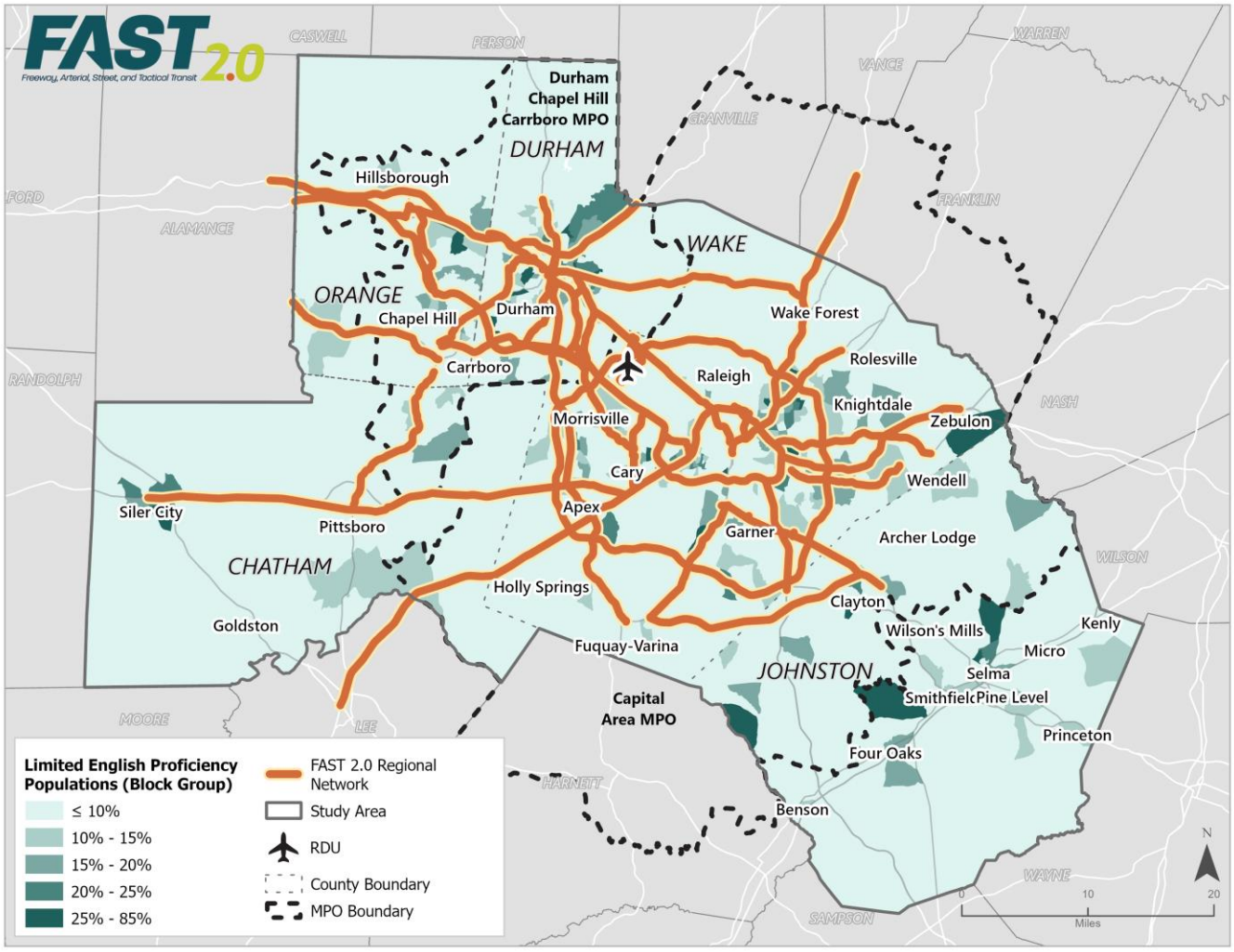

Figure 9: LEP Populations along the Regional Network

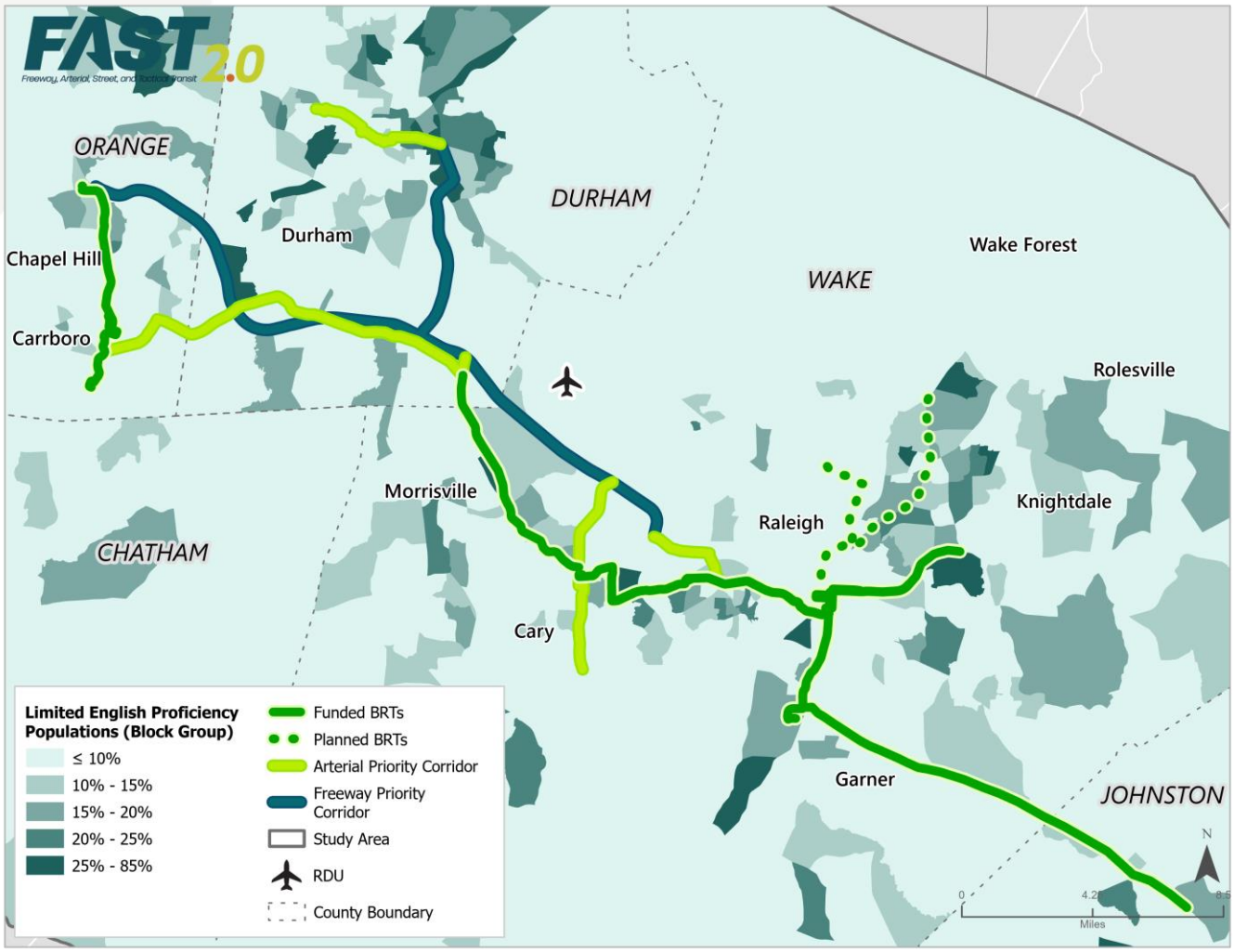

Figure 10: LEP Populations along Priority and BRT Corridors

Persons with a Mobility Impairment

Figure 11 illustrates the concentrations of individuals with mobility impairments and their proximity to the regional network, at a block group level. Clusters of mobility impaired populations are present outside of Wake County, such as in Siler City, Pittsboro, and southern Johnston County. Notable populations along the regional network include US-64 in Chatham County, US-15-501 between Pittsboro and Carrboro, and southern I-440 in Raleigh. Figure 12 shows the concentrations of individuals with mobility impairments along the priority network and BRT corridors such as US 70, the Southern Corridor, and New Bern Avenue, that provide connections from Wake County into Johnston County.

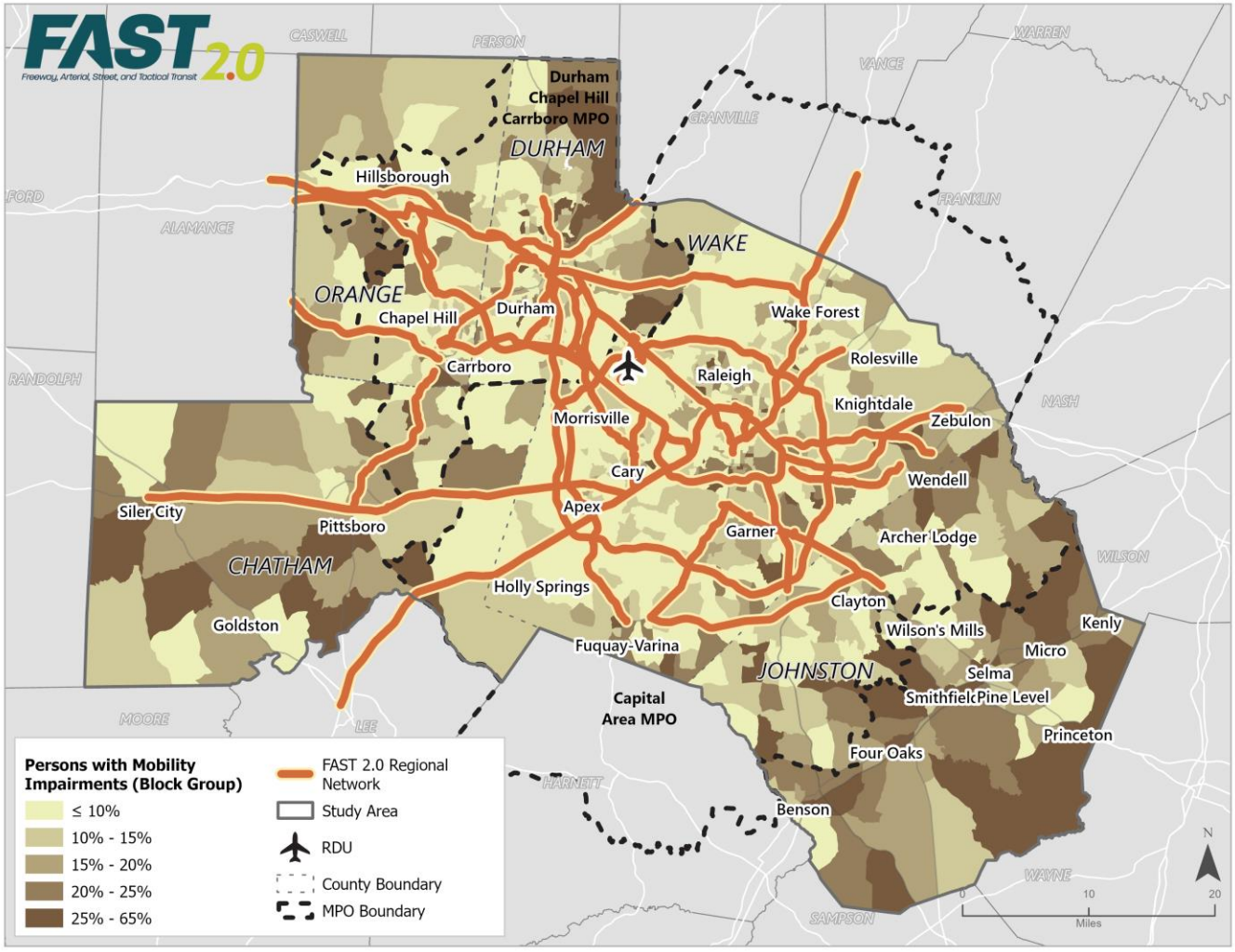

Figure 11: Populations with a Mobility Impairment along the Regional Network

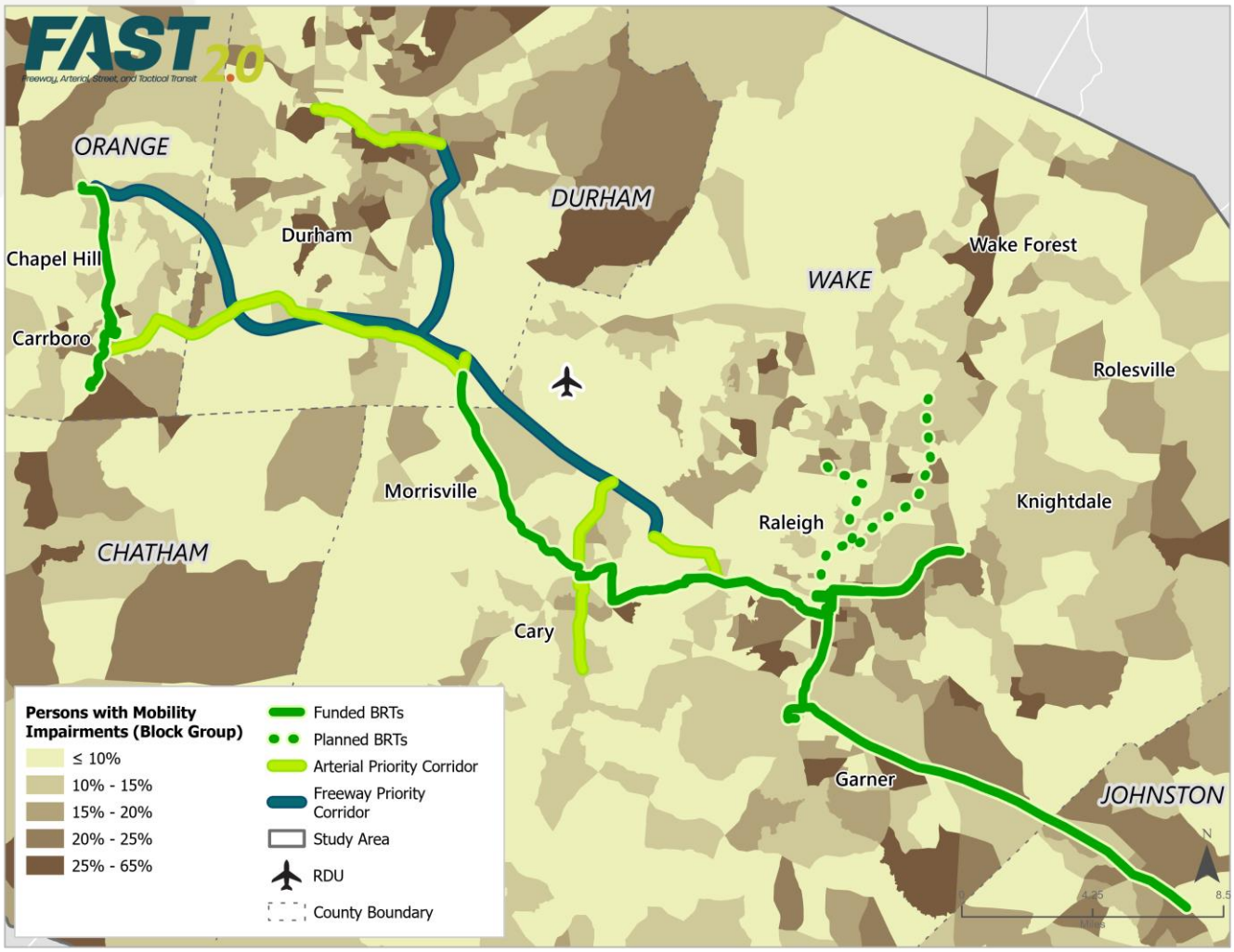

Figure 12: Populations with a Mobility Impairment along Priority and BRT Corridors

Transportation Disadvantaged Index (TDI)

The NCDOT Transportation Disadvantage Index (TDI) tool focuses on race (Black, Indigenous, and Persons of Color), income, personal vehicle access, people with mobility impairments, the elderly, youth, and populations with Limited English Proficiency. The TDI is a composite score based on seven indicators of potential transportation disadvantage where higher scores convey a greater level of potential disadvantage compared to other areas in the state.

Figure 13 explains how TDI scores were calculated and Figure 14 details the resulting TDI scores across the regional network. Figure 14 highlights that the block groups with the highest TDI scores are in similar areas to those highlighted on the individual equity indicator maps. Areas with high TDI scores are present in north and east Durham along US-501, Holloway St, and NC-147, southeast Raleigh along I-440, and along I-95 in Johnston County. In addition, there are concentrations of block groups with high TDI scores in other areas, such as Siler City along US-64 and Hillsborough along US-70.

Shown in Figure 15, the priority and BRT corridors travel in many of the areas with the highest TDI scores, including in central and east Durham and in Raleigh along BRT routes including the Western and Southern Corridors, and also along both of the planned Northern Corridor alignments. The priority corridor along the I-40 corridor also serves areas with higher TDI scores.

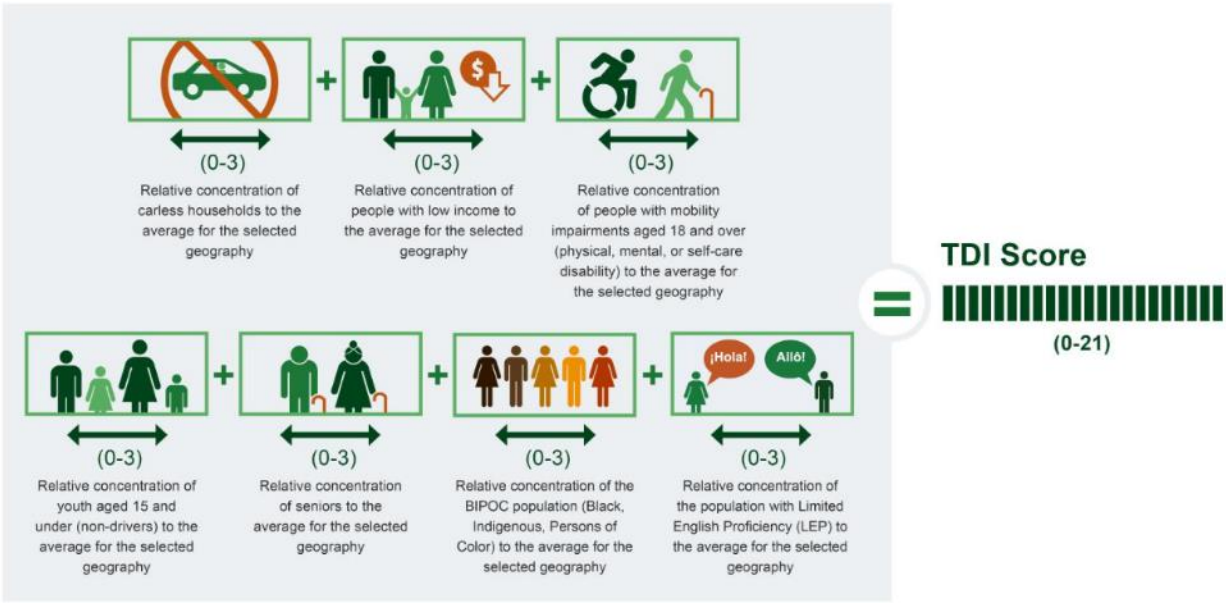

Figure 13: NCDOT's Transportation Disadvantage Index (TDI) Tool and Scoring Guide

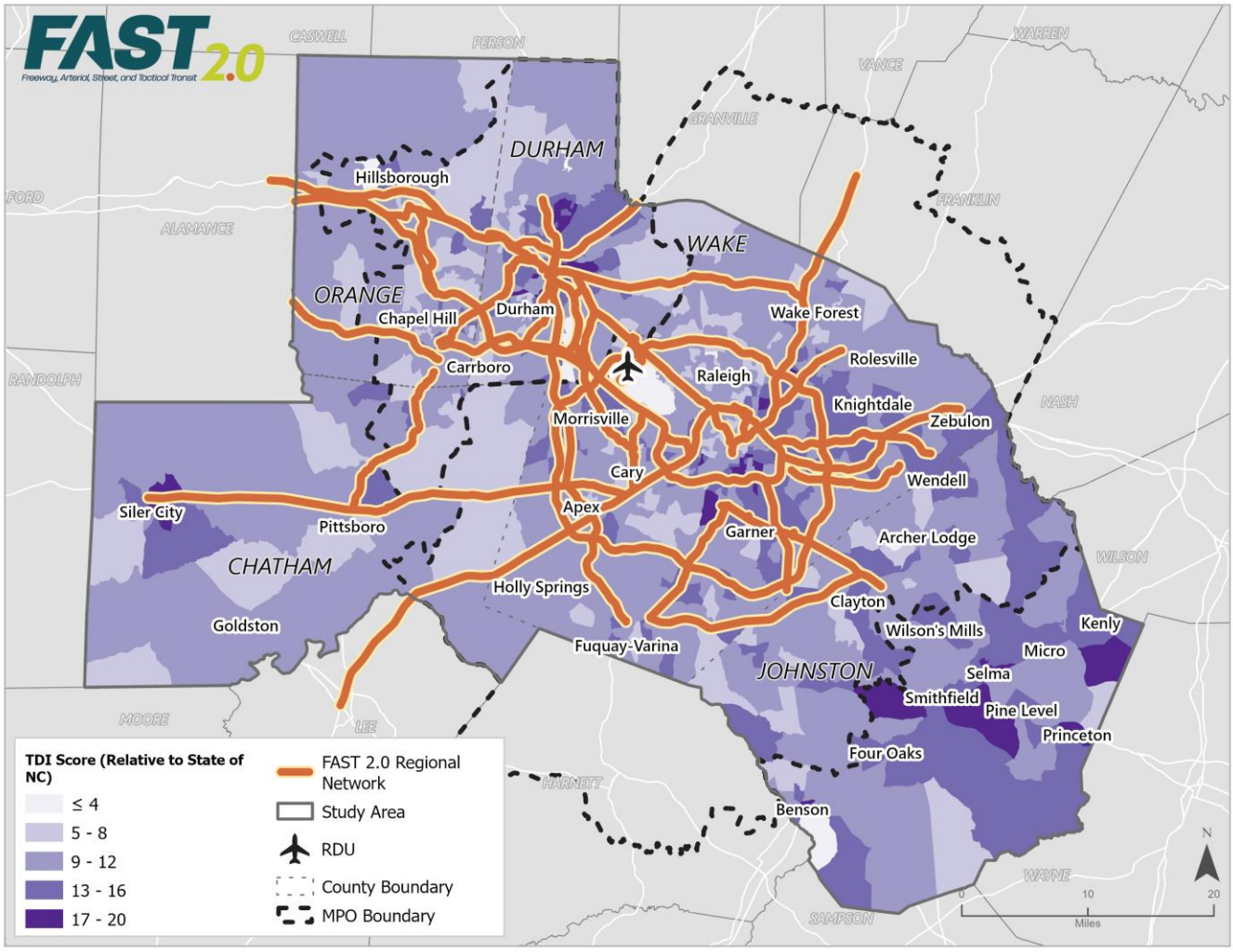

Figure 14: TDI Score along the Regional Network

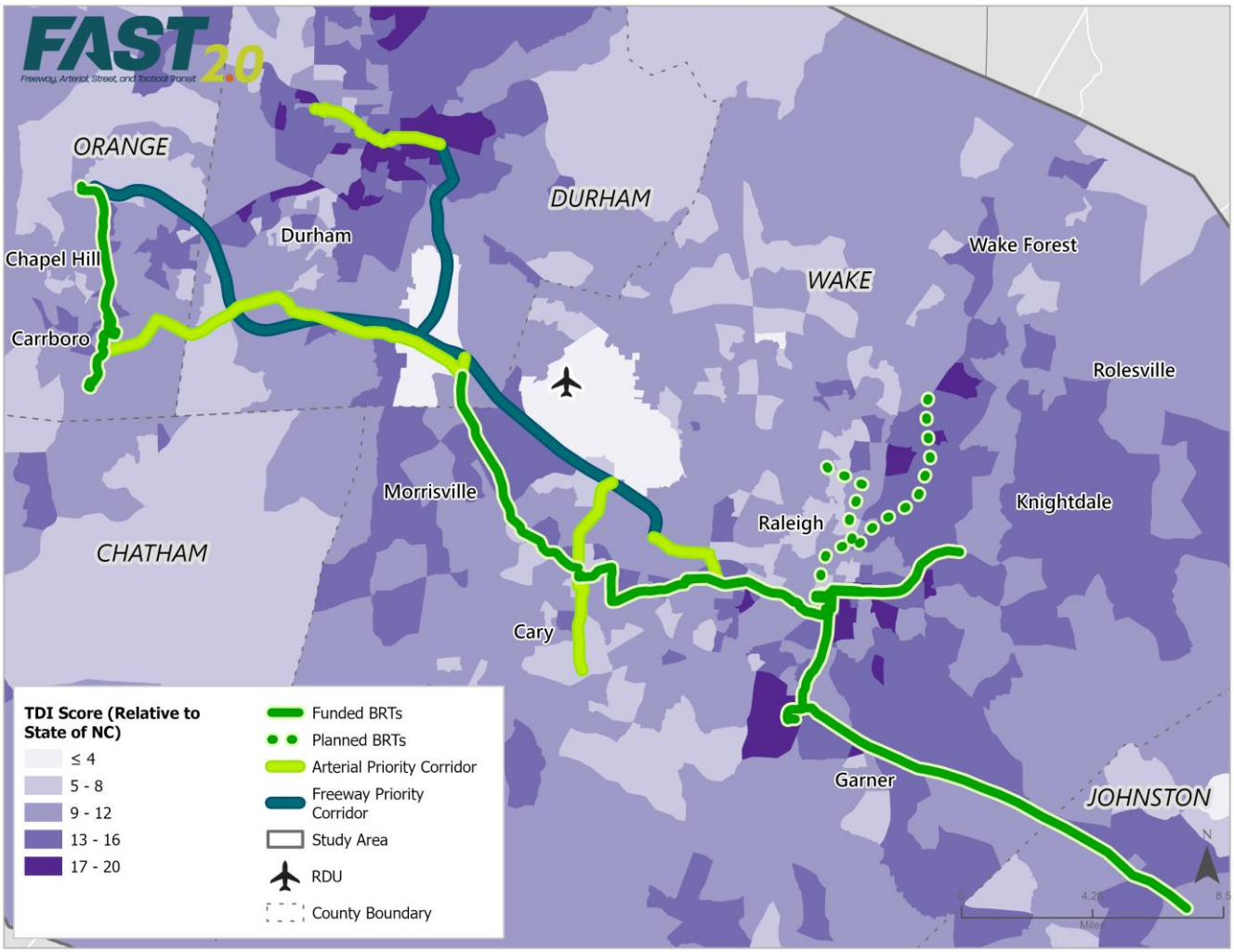

Figure 15: TDI Score along Priority and BRT Corridors

Environmental Justice (EJ) Index

The NCDOT Environmental Justice (EJ) Index tool focuses on low-income and racial and ethnic minorities, with the EJ Index score being based on the relative concentration of the population groups in each block group. Figure 16 shows how the EJ Index score is calculated and Figure 17 shows the resulting EJ scores across the regional network. Figure 17 presents that the block groups with the highest EJ Index scores are in similar areas to the areas highlighted on individual equity indicator maps and the TDI map. Places with the highest concentrations of Environmental Justice populations are in north and east Durham along US-501, Holloway Street, and NC-147, southeast Raleigh along I-440, and along I-95 in Johnston County. In addition, there are concentrations of block groups with high EJ Index scores in other areas, such as Siler City along US-64 and Hillsborough along US-70.

Shown in Figure 18, priority and BRT corridors are within many of the areas with the highest EJ Index scores, including in central and east Durham and Raleigh along BRT routes including Western, Southern, and Northern Corridors. The priority corridor along I-40 also serves areas with higher EJ Index scores.

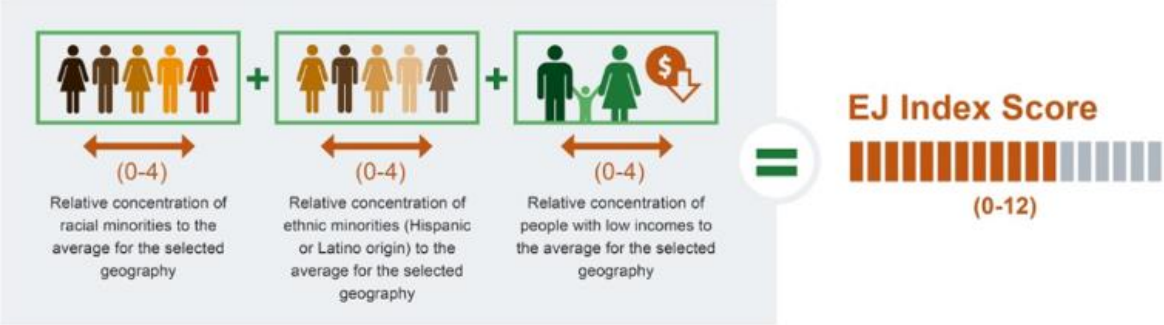

Figure 16: NCDOT's Environmental Justice (EJ) Index and Scoring Guide

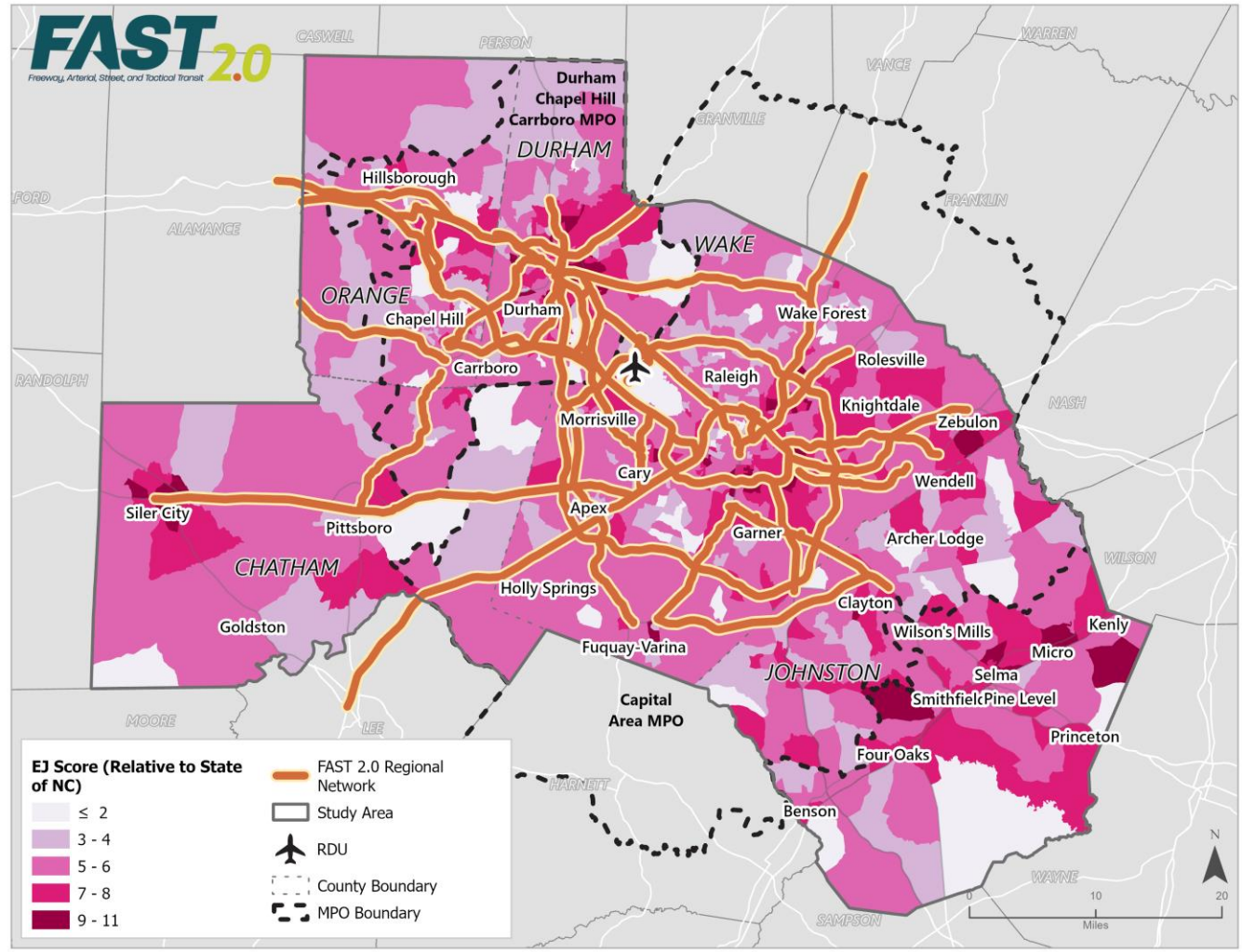

Figure 17: EJ Index Score along the Regional Network

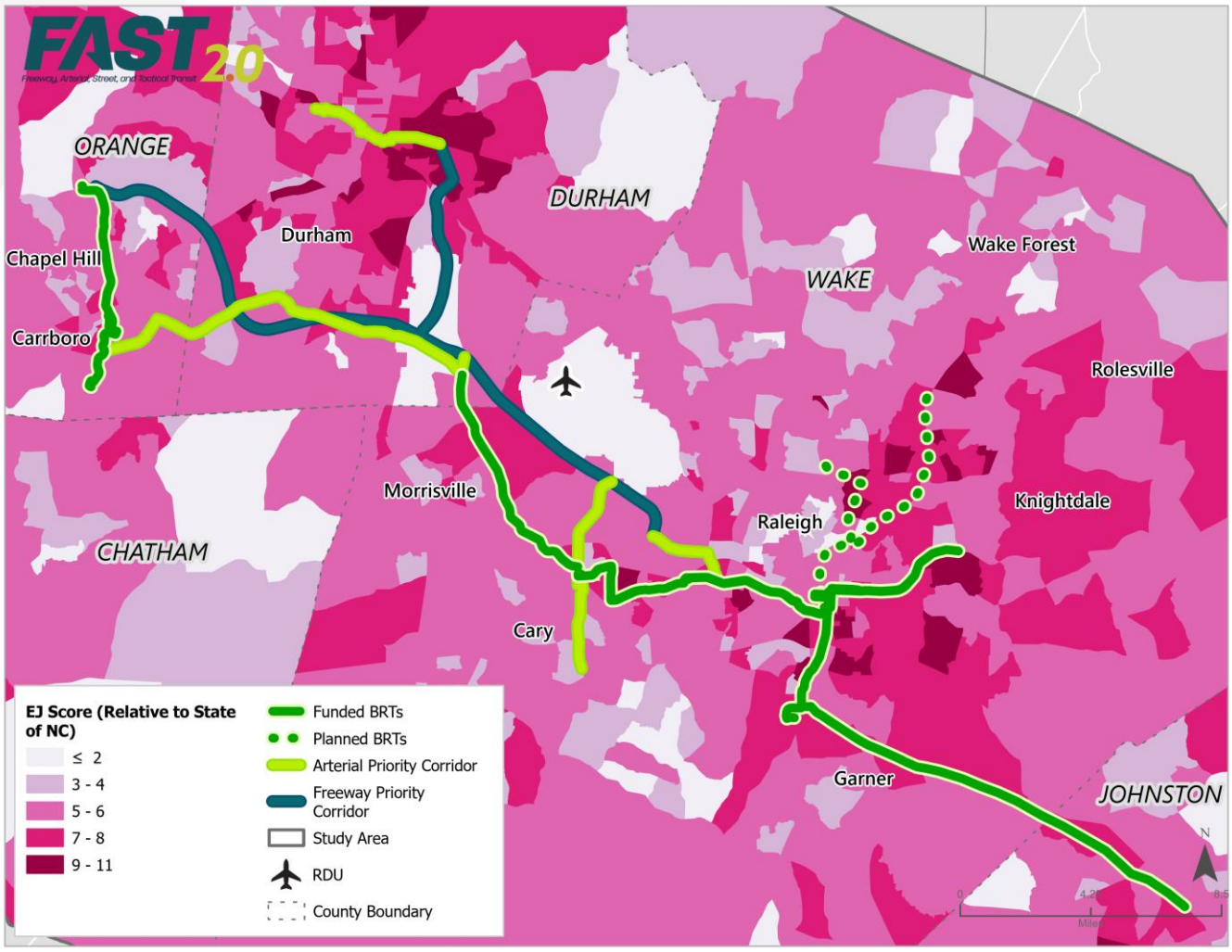

Figure 18: EJ Index Score along Priority and BRT Corridors

Conclusion

Mapping the demographics of the study area highlights how transit investments along the priority corridors and the regional network can help increase connectivity across the region for transit-dependent populations. While the priority corridors are able to capture areas that were highlighted among several different equity indicators, such as in central and east Durham or throughout Raleigh, the regional network is also able to capture smaller geographic areas that can also benefit from transit connections, such as Carrboro, Selma, and Hillsborough. The regional network and priority and BRT corridors are within the boundaries of the Capital Area Metropolitan Organization (CAMPO) and Durham-Chapel Hill-Carrboro (DCHC) MPO, but the maps begin to show how future considerations can be given to transit connections beyond the immediate region, such as to Siler City or eastern Johnston County, along I-95.

The priority corridors can serve and provide enhanced transit connections between regional key job hubs. Even for job hubs that are not directly connected to I-40, like Chapel Hill, Durham, and Cary, the priority corridors are able to build upon a core transit network that allows for enhanced service between these top destinations. As highlighted more in

the *Needs Assessment Memo*, the MPOs have identified neighborhoods that may benefit most from transit investments, called REINVEST Neighborhoods, using similar demographic criteria highlighted in this memo, such as having a significant population of BIPOC individuals, a high proportion of households without vehicles, low-income households, and being designated as Opportunity Zones or having a high number of affordable housing units. Figure 19 highlights how the priority corridors are able to serve many of the neighborhoods that meet several of the thresholds noted and that may benefit from transit investments the most. Once the FAST 2.0 network is fully implemented, these neighborhoods will be able to access the majority of key job, educational, and medical hubs in the region using high-frequency transit.

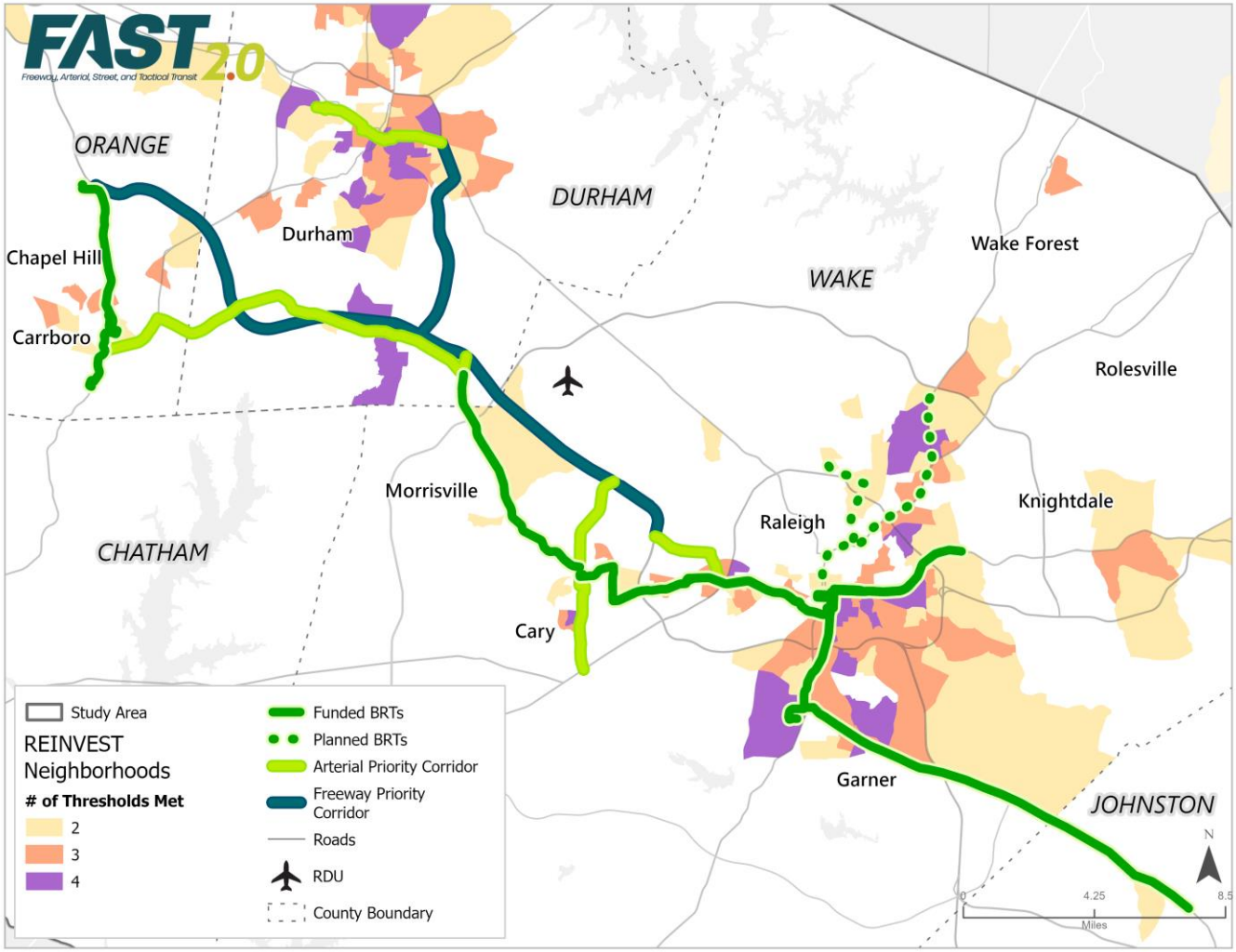

Figure 19: REINVEST Neighborhoods along Priority and BRT Corridors

Being able to meet the diverse needs of residents was a theme of the FAST 2.0 vision and special consideration was given when selecting the priority corridors to how those priorities corridors are able to increase connectivity for transit-dependent populations. Furthermore, the *Implementation Plan* will use equity as a top factor in determining how to prioritize the implementation of the FAST 2.0 recommendations.