



ENVIRONMENTAL JUSTICE REPORT

FOR THE DURHAM-CHAPEL HILL- CARRBORO
METROPOLITAN PLANNING ORGANIZATION

2020

DURHAM - CHAPEL HILL - CARRBORO

DCHC

Metropolitan Planning Organization
Planning Tomorrow's Transportation

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EXECUTIVE SUMMARY

The Durham- Chapel Hill - Carrboro Metropolitan Planning Organization (DCHC MPO) is the regional organization responsible for transportation planning and project selection for the western part of the Research Triangle area in North Carolina. In response to federal statutes, the DCHC MPO incorporates Environmental Justice (EJ) into all relevant aspects of the transportation planning process. The scope of this document covers EJ threshold evaluation of 2045 Metropolitan Transportation Plan (MTP) of DCHC MPO and 2018-27 Transportation Improvement Program (TIP) and overview of Unified Planning Work Program (UPWP) for FY 2019-20.

EJ “communities of concern” (CoC) are defined as any geographic area where the percentage of any EJ population is greater than the regional threshold for that particular EJ population. Total population numbers for each EJ population in the Census Block Groups within the DCHC MPO were found and then compared to the total population of the MPO to determine the percent of total population for each EJ population. Each regional threshold was then used during the analysis and identification of EJ communities of concern.

The next step in evaluating EJ in the DCHC MPO area was to compile the percent of the total Block Groups for each of the five EJ populations. These five percentages were then averaged to determine the overall average percent of total Block Groups, the resultant average was 37%. This means that 37% of all Block Groups in the DCHC MPO area were considered an EJ CoC and that was used as a threshold for the evaluation of long-range transportation projects.

The final step in the evaluation was to identify which Block Groups had overlapping EJ CoCs. There were 128 Block Groups with overlapping CoCs. Since 37% was the threshold established in the study, it was determined that for each mode in the aforementioned long range transportation plans, more than 37% of the projects’ location and projects’ combined funding be within or adjacent

to Block Groups with overlapping EJ CoCs for the plan (and the mode) to be considered above the established threshold.

Ideally, an equitable distribution of funding and projects will allow all populations to equally enjoy the benefits and burdens related to transportation projects. Detailed GIS analysis was carried out for projects in the MTP and TIP across all major modes to determine whether or not they cross the 37% threshold. For MTP, all measures of interchange, highway and transit investments in communities of concern exceeded the 37% threshold. All measures of the different modes of TIP projects show that investments in communities of concern exceeded the 37% threshold except for interstate project funding which is 27%.

At the analysis of this report, it cannot be determined whether communities of concern experience an overall benefit or burden from this imbalance of transportation investments. Therefore, the DCHC MPO should continue to assess and consider potential benefits and burdens related to the projects that are proposed for inclusion in long-range planning efforts such as MTP and TIP. The MPO should also make exceptional efforts to include populations from the communities of concern in the public involvement activities of the MTP and TIP to ensure that the MPO has a clear understanding of the project benefits and burdens to those communities.

INTRODUCTION

Environmental Justice (EJ) refers to the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income, with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.¹ EJ is a federal requirement of all federal, state, and local agencies and has legal basis in Title VI of the Civil Rights Act of 1964, Executive Order 12898 of 1994, and the National Environmental Policy Act (NEPA). These regulations require that all agencies receiving federal assistance demonstrate compliance with related laws so that all the populations in the agency's study area enjoy the same benefits of the federal investments, bear the same burdens resulted from the federal projects, and have equal participation in local and state issues.

In response to these federal statutes, the Durham-Chapel Hill - Carrboro Metropolitan Planning Organization (DCHC MPO) incorporates EJ into all relevant aspects of the transportation planning process. The DCHC MPO's policy is based on the three core principles of EJ set forth by the Federal Highway Administration and Federal Transit Administration:

- Avoid, minimize, or mitigate disproportionately high and adverse human health or environmental effects, including social and economic effects, on minority populations and low-income populations.
- Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process.
- Prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority populations and low-income populations.

After taking into consideration the federal definition of Environmental Justice, the DCHC MPO determined that there may be other variables that should be reviewed. This is because the United States Department of Transportation's (US DOT) planning regulations

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BACKGROUND AND OVERVIEW

CHAPTER CONTENTS

- 1.1 Introduction
- 1.2 DCHC MPO
- 1.3 MPO Duties and Responsibilities
- 1.4 Map of DCHC MPO Urbanized Area

require MPOs to “seek out and consider the needs of those traditionally under-served by existing transportation systems, including, but not limited to, low-income and minority households.”

It is for that reason that the discussion has been broadened in this EJ report to consider the Limited English Proficiency (LEP) population, low access to vehicle populations, and senior populations.

This document details the DCHC MPO’s approach to EJ in the DCHC MPO planning area.

DCHC MPO

The DCHC MPO is the regional organization responsible for transportation planning and project selection for the western part of the Research Triangle area in North Carolina.

The DCHC MPO region, first designated by the 1980 Census, covers all of Durham County, a portion of Orange County including the towns of Chapel Hill, Carrboro, and Hillsborough, and the northeastern section of Chatham County. The DCHC MPO area is one of the ten urban areas in North Carolina designated as a Transportation Management Area (TMA). TMA’s are urban areas with a population of over 200,000 people.

Map 1 on page 1-7 presents the DCHC MPO planning area boundary.² The DCHC MPO is an umbrella organization led by the MPO Board and the Technical Committee (TC), local governments, transit agencies, and the State of North Carolina. The MPO Board is a policy body comprised of elected officials from the member jurisdictions that coordinates and makes decisions on transportation planning issues.

The TC is composed of staff members from the units of local and county governments, NCDOT, GoTriangle, Research Triangle Foundation, Triangle J Council of Governments, Raleigh-Durham Airport Authority, North Carolina Central University, the University of North Carolina at Chapel Hill, and Duke University. The TC reviews data, information, reports, and other

transportation-related materials and provides technical recommendations to the MPO Board.

DCHC MPO DUTIES AND RESPONSIBILITIES

The primary responsibility of the DCHC MPO is to fulfill the requirements of the Federal Highway Act of 1962. These regulations require those urban areas with a population of 50,000 or more to conduct a Continuing, Comprehensive, and Cooperative (3-C) transportation planning process. An integral element of this 3-C process is the development of long-range transportation related plans and programs.

The DCHC MPO develops and maintains the area’s long-range Metropolitan Transportation Plan (MTP), which addresses the region’s projects, programs and policies for at least a 25-year period. The DCHC MPO also produces and maintains the metropolitan Transportation Improvement Program (TIP), which is a ten-year state and federal funding program for transportation projects to be implemented within the MPO planning area for at least a 20-year period.

Annually, the DCHC MPO is required by federal regulations to prepare a Unified Planning Work Program (UPWP) that describes and guides the urban area transportation planning activities and programs for the year.

In addition to the MTP, TIP, and UPWP, the DCHC MPO prepares special planning documents such as the Comprehensive Transportation Plan (CTP), transit plans, safety plans, bicycle, pedestrian, and trails plans, and congestion management plans.³

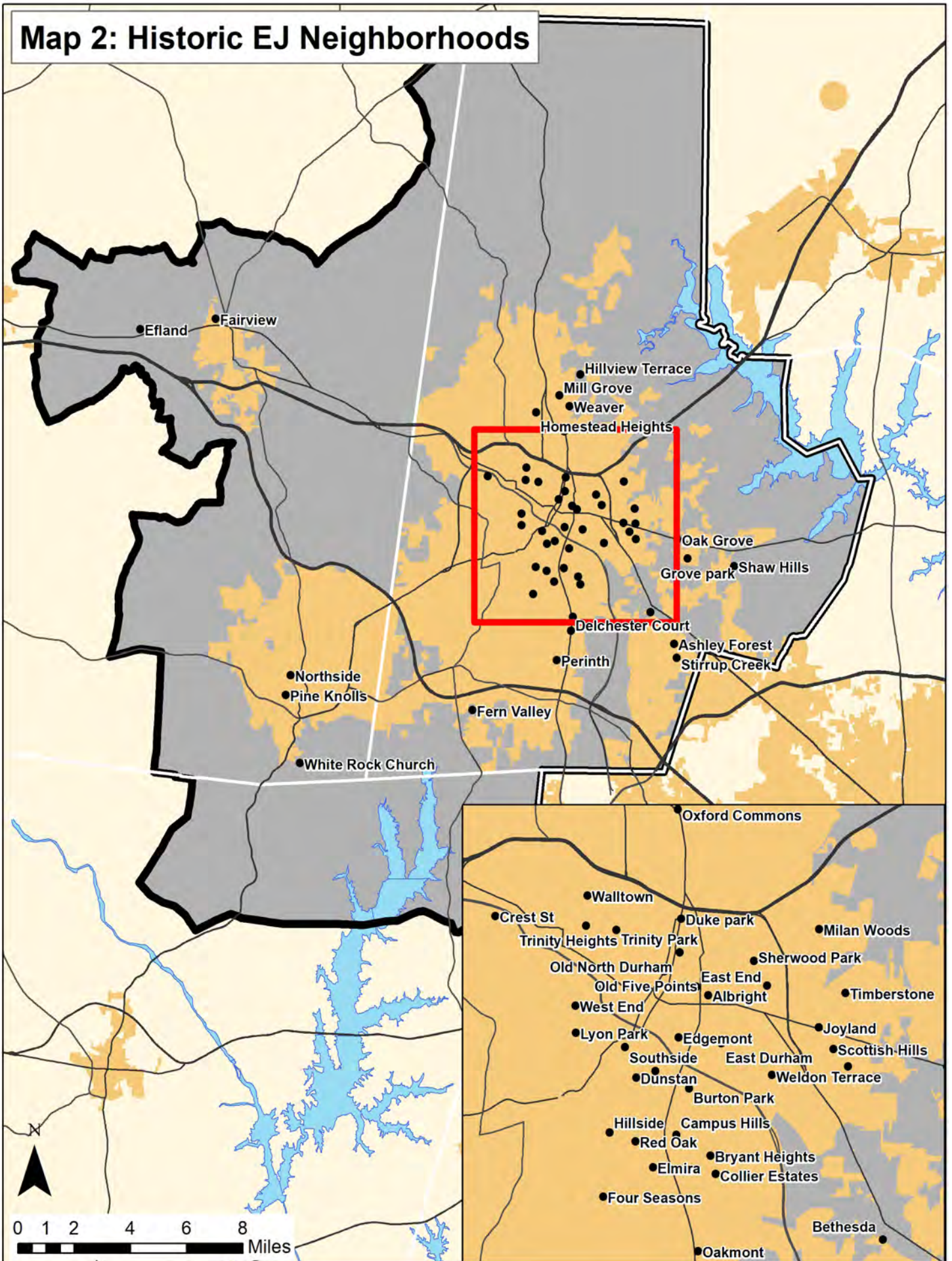
Chapter 2 of this EJ report presents a summary of the federal laws, regulations, statutes, and orders that establish the requirements for non-discrimination during all DCHC MPO transportation-related planning and programming initiatives. An analysis of EJ populations is included in Chapter 3, followed by an assessment of the DCHC MPO’s major planning activities in Chapter 4.

NEIGHBORHOODS WITHIN DCHC MPO

Generally, EJ Analysis is carried out using Census Block Groups. The MPO realized that a key drawback of this means of representation is that people identify themselves as residents of a neighborhood, rather than a Census Block Group. Providing names and locations of neighborhoods in this report creates an opportunity for the residents of these neighborhoods to identify whether or not a project will impact their community.

There are certain neighborhoods in the DCHC MPO which have historically been home to certain disadvantaged communities. Identifying these neighborhoods at the beginning of this document will make it easier to locate them during the EJ analysis carried out in subsequent chapters. The neighborhoods were identified based on prior knowledge of the region and by consulting with MPO and local jurisdiction staff. These neighborhoods are shown in Map 2 on page 1-5.

Map 2: Historic EJ Neighborhoods



Endnotes

1. "Environmental Justice." *EPA*, Environmental Protection Agency, 20 Nov. 2019, <https://www.epa.gov/environmentaljustice>.
2. "Overview." *DCHC MPO - Overview*, <http://www.dhcmpo.org/about/overview.asp>.
3. "Programs & Plans." *DCHC MPO - Programs & Plans*, <http://www.dhcmpo.org/programs/default.asp>.

TITLE VI OF THE CIVIL RIGHTS ACT AND ENVIRONMENTAL JUSTICE

Two key federal actions provide the basis for the civil protections addressed in this EJ report:

1. The 1964 Civil Rights Act and Title VI of the Act (nondiscrimination)
2. Executive Order No. 12898 signed by President Clinton in 1994 (Environmental Justice)

The Civil Rights Act, and specifically Title VI of the Act, establishes the prohibition of discrimination “on the basis of race, color or national origin” in any “program or activity receiving federal financial assistance.” Subsequent legislation has extended the protection to include gender, disability, age, and income, and has broadened the application of the protection to all activities of federal aid recipients, sub-recipients, and contractors regardless of whether a particular activity is receiving federal funding.

The 1994 Executive Order 12898 focused attention on Title VI of the Civil Rights Act by providing that “each federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations.”

See Appendix 1 for more details about the executive order.

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LAWS AND REGULATIONS PERTAINING TO ENVIRONMENTAL JUSTICE

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- 2.1 Title VI of the Civil Rights Act and Environmental Justice
- 2.2 Federal Statutes and Regulations
- 2.3 DCHC MPO’s commitment to Environmental Justice

FEDERAL STATUTES AND REGULATIONS

This section contains the regulations, statutes, and orders that establish the requirements for non-discrimination for the DCHC MPO. United States Code (USC) and Code of Federal Regulations (CFR) citations are provided.¹

Title VI of the Civil Rights Act of 1964 mandates “No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance.” (23 CFR 2009 and 49 CFR Part 21)

As the designated Metropolitan Planning Organization for the urbanized areas of Durham, Orange, and Chatham Counties, the DCHC MPO is responsible for planning and implementing transportation projects, and is thus required to comply with this law. Appendix 2 expands on the authority, requirements, and standards of the 1964 Act:

USDOT Planning Assistance and Standards for Metropolitan Planning require MPOs to seek out and consider “the needs of those traditionally underserved by existing transportation systems, such as low income and minority households, who may face challenges accessing employment and other services” (23 CFR 450.316). Additional staff guidance from FHWA and FTA provides direction for assessing an MPO’s level of compliance with Title VI, and establishes a corrective process that can affect federal funding.

DCHC MPO’S COMMITMENT TO ENVIRONMENTAL JUSTICE

The DCHC MPO carries out a comprehensive and thorough set of activities to ensure that disadvantaged persons, as characterized in the federal statutes and regulations listed in this chapter, do not suffer discrimination in the transportation planning and implementation processes. These activities have been in the areas of public participation and outreach, equitable distribution of programming and project funding, and plan analysis. Each long range planning initiative and special study prepared by the DCHC MPO includes a presentation of EJ analyses and activities performed during the planning process.²

OVERVIEW

The DCHC MPO considers the impact its programs may have on communities protected by Title VI/ environmental justice, also referred to as “environmental justice communities”. Federal statutes and regulations require that all EJ analyses consider the needs of minority and low income communities, however, neither Title VI of the Civil Rights Act nor Executive Order 12898 provide specific instructions for a preferred methodology or approach to EJ analyses. Therefore, MPOs are granted the latitude to devise their own methods for ensuring that EJ and non-EJ population groups and their needs are appropriately represented in transportation decision-making processes.

The ability to effectively communicate and share ideas with all communities within the DCHC MPO area strengthens regional and local planning efforts. Innovative ideas exist within EJ communities, as they exist within non-EJ communities. Too often, however, avenues for communicating and sharing local knowledge are poorly established. For immigrants, language can be a barrier. Other social and cultural barriers limiting knowledge in the planning process or comfort levels in the ability to engage local leaders may exist, resulting in a consistent lack of participation and engagement.

Why does this matter to long-range planning?

The best community and long-range planning efforts are able to fully tap into their most important resource: people. People know the strengths and weaknesses of their community and the improvements that can catalyze resilient prosperity. Not unlike the scientific method, human daily routines are the product of much trial and error; developing presumptions, exploring options, and uncovering successful strategies in daily routines serves to inform longer-term planning efforts. By more thoroughly and effectively connecting to all groups – hence including a more diverse pool of citizens and ideas – innovative community solutions can be revealed and encouraged to flourish. This makes planning outputs more valuable, more

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DEMOGRAPHIC PROFILES

CHAPTER CONTENTS

3.1 Overview

3.2 Analysis of Environmental
Justice Communities of Concern

meaningful, and ultimately more successful. As previously mentioned, federal requirements for EJ mandate that an MPO identify and analyze the needs of minority and low-income communities. The DCHC MPO broadened the scope of the traditional EJ approach to include a review and consideration of additional EJ communities that exist in the DCHC MPO area. The five EJ communities considered in this EJ report are:

1. Minority race populations
 - a. All Minority race populations
 - b. Hispanic/Latino Ethnicity Origin populations
 - c. Black populations
2. Elderly populations
3. Low-income households
4. Limited English Proficiency (LEP)
5. Zero-car households

Appendix 3 contains detailed definitions of EJ communities. This chapter describes the DCHC MPO's methodology for evaluating EJ communities and serves as a resource for local and regional transportation planning by providing recent and statistically reliable information about areas of identified communities and population demographics using US Census Bureau American Community Survey (ACS) data sets.

The demographic analyses presented in the remainder of this chapter assist in assessing the needs of, and analyzing the potential impacts on and benefits to, the five identified EJ communities.

ANALYSIS OF EJ COMMUNITIES OF CONCERN

EJ "communities of concern" (CoC) are defined as any geographic area where the percentage of any EJ population (defined on pages 3-2 and 3-3) is greater than the regional threshold for that particular EJ population. US Census Block Group level data were used as the geographic area of comparison for each EJ population.

Determining Regional Thresholds

Regional thresholds for each EJ population group were developed and used as benchmarks for comparison. Total population numbers for each EJ population in the Census Block Groups within the DCHC MPO were found and then compared to the total population of the MPO to determine the percent of total population for each EJ population. Each regional threshold was then used during the analysis and identification of EJ communities of concern. Regional thresholds are presented in Table 3.1.

Table 3.1: Regional Thresholds for EJ Population Groups

EJ Communities of Concern	Count	%
Total Population	455,813	
Total Households	182,810	
Racial Minority Population	218,877	48%
Hispanic/Latino Population	53,434	12%
Black Population	126,910	28%
Elderly Population	59,095	13%
Limited English Proficiency Households	7,687	4.2%
Low Income Limit for Households	\$38,920	
Zero-Car Households	12,722	7%

COMPARING US CENSUS BLOCK GROUPS TO REGIONAL THRESHOLDS

Each EJ population in the DCHC MPO area was mapped by US Census Block Group (Block Group). Any Block Group with a concentration of an EJ population that exceeded the regional threshold for that population was identified as an EJ community of concern. This comparative analysis was performed for each EJ population group to determine the locations of concentrated EJ communities of concern.

For example, Table 3.1 indicates that 48 percent of the total population of the DCHC area, is an EJ racial minority population. Thus, 48 percent is used as the regional threshold for racial minority population. Any Block Group with a racial minority population representing greater than 48 percent of the total population in that Block Group is considered an EJ community of concern for racial minority population.

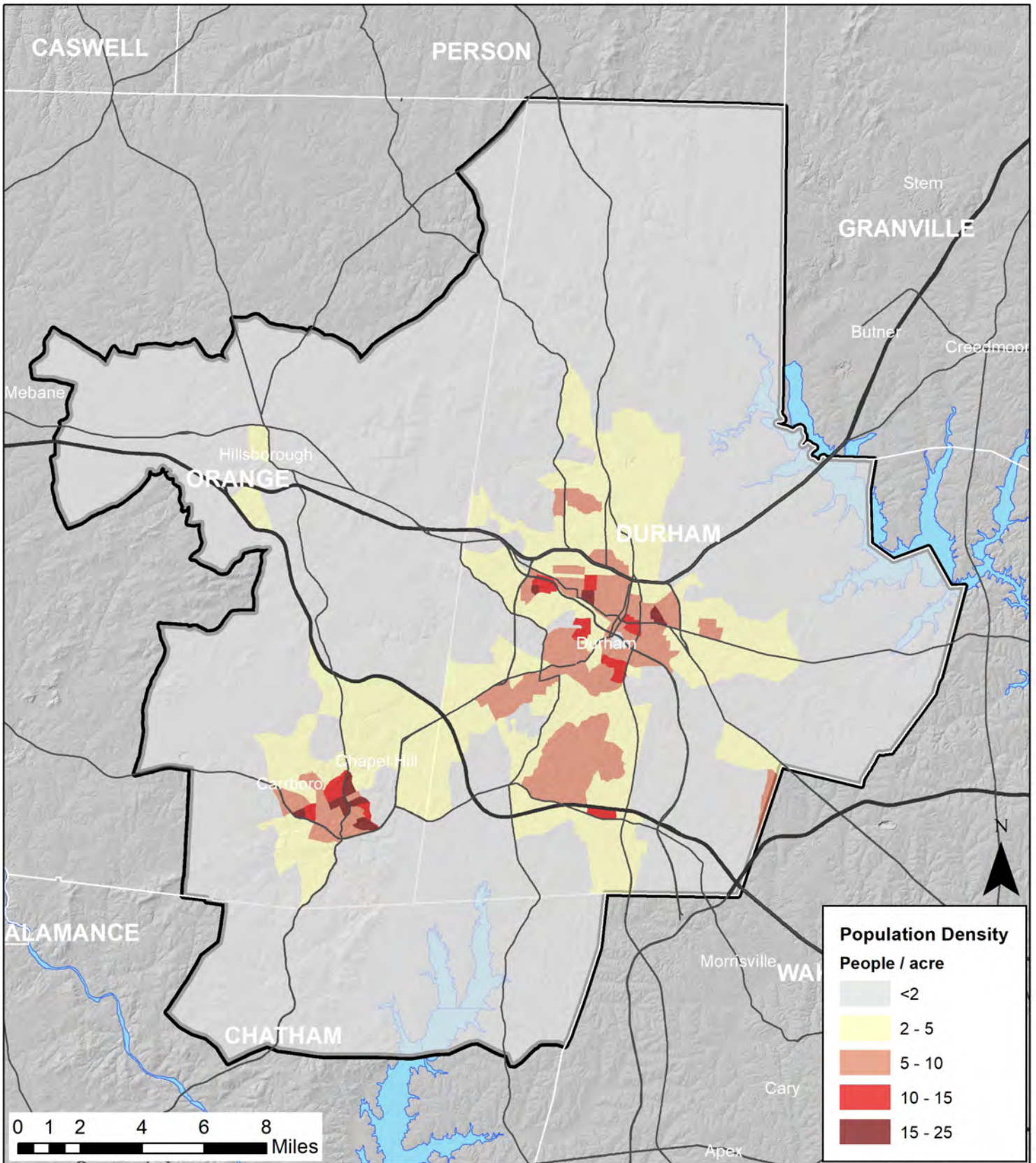
The determination of what is “disproportionately high and adverse human health or environmental effect” as discussed by E.O. 12898 is context dependent. The approach used in the development of this EJ report to identify communities of concern is only based on available Block Group data and the proportion of protected populations that they contain. All future project development processes should include additional efforts to utilize local knowledge of individual neighborhoods to identify potential populations that might have been missed during this Census-based analysis.

Population Density (Map 3.1)

Map 3.1 on page 3-4 depicts population density by Block Group in the DCHC MPO area. The most densely populated areas with density ranging from 15 to 25 persons per acre are mostly concentrated in Chapel Hill near University of North Carolina Chapel Hill Campus and the historic districts of Franklin-Rosemary and Cameron-McCauley; Duke East Campus, Albright and Crest Street neighborhoods in Durham; and the neighborhood between Jones Ferry Road and NC-54 west of Barnes Street in Carrboro.

Another set of high density areas with 10 to 15 persons per acre are scattered in different parts of Durham, like Walltown, Trinity Heights, North Carolina Central University, West End and Lyon Park. Northside neighborhood in Chapel Hill also falls within this density category.

Providing safe access between highly populated areas and destinations such as commercial centers and downtown areas should be considered a high priority for the DCHC MPO.



Map 3.1: Population Density

People within each Census Block Group / Area of the Census Block Group in Acres

Total population = 455,813
 Total area = 482,010 acres

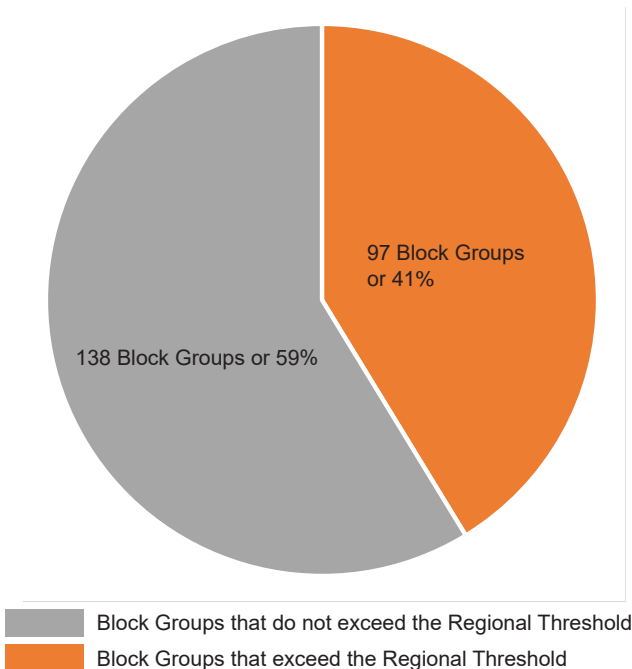
Source: 2013-2017 NCDOT 2019 Demographic Snapshot Tool

Racial Minority (Map 3.2)

Racial minority population consists of people from all racial groups except non-Hispanic White. The regional threshold for racial minority populations is 48 percent. Detailed analysis of Block Groups in the DCHC MPO area identified 97 of the total 235 Block Groups with racial minority populations representing greater than 48 percent of the total population, thus these Block Groups were considered communities of concern. The most highly concentrated areas of racial minority communities of concern were located in the City of Durham.

Of the 97 Census Block Groups, 25 block groups had racial minority populations that exceeded 75 percent of the total population. They were mostly located in Durham between Angier Ave to the north, MLK Jr Parkway to the south, Briggs and Alston Avenues to the east and Roxboro street to the west. Other areas include Albright, East Durham, LaSalle Street, West End and areas north of Colonial Village.

Chart 1: Block Groups that Exceed the Regional Threshold for Racial Minority Populations



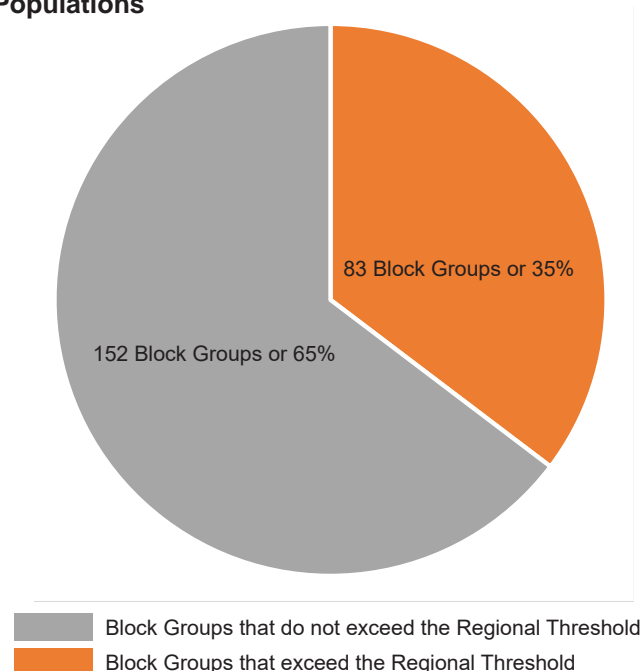
Hispanic (Map 3.3)

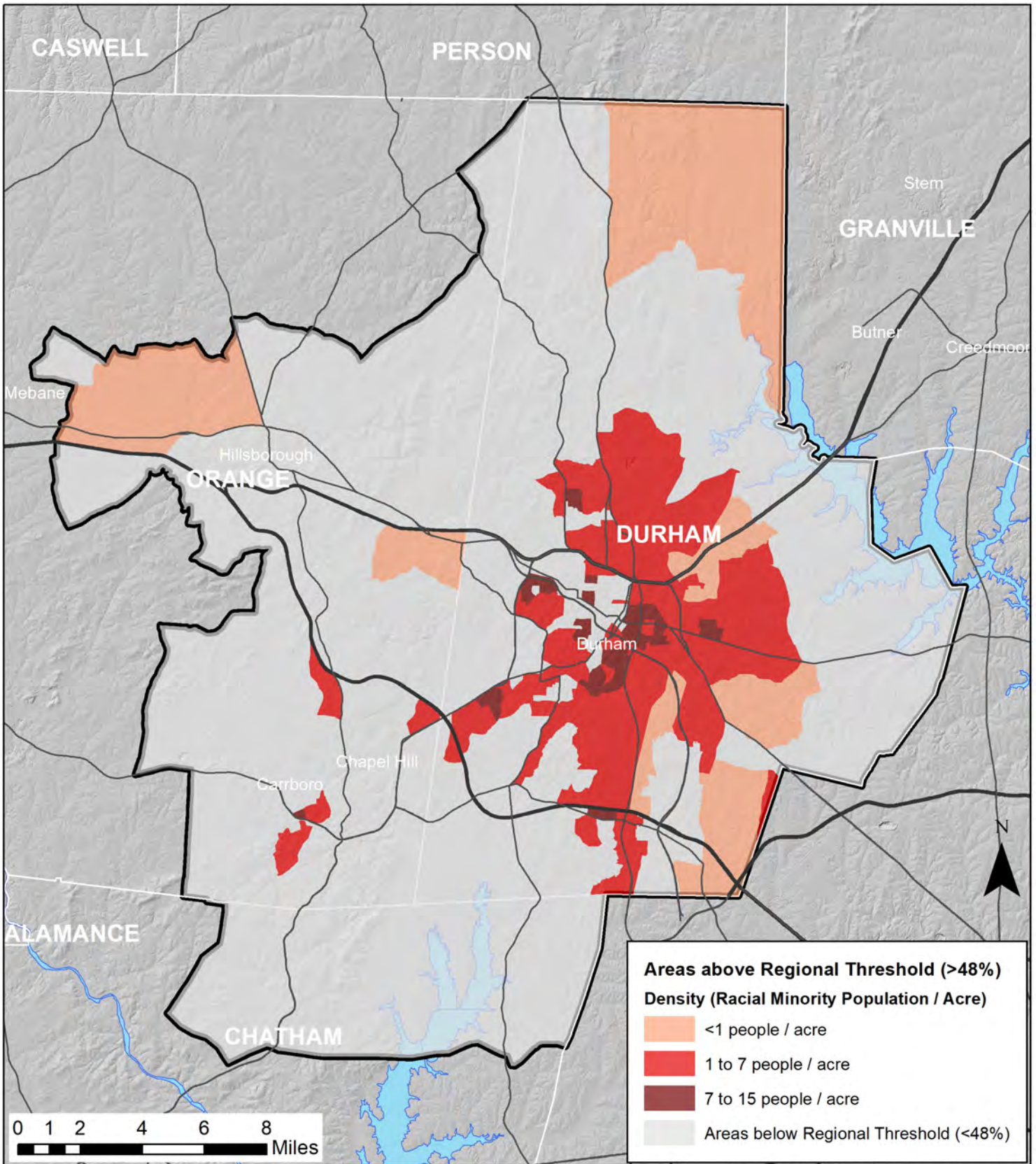
The regional threshold for Hispanic/Latino Ethnicity Origin populations is 12 percent. Eighty-three out of the total 235 Census Block Groups in the DCHC MPO area have Hispanic/Latino Ethnicity Origin populations that represent greater than 12 percent of the total population and are considered communities of concern.

Of the 83 Census Block Groups five block groups had Hispanic/Latino Ethnicity Origin Populations that exceeded 40 percent of the total population. These Census Block Groups are located in Orange County between Eno and Mt Sinai Road and in East Durham near CR Woods Park and Wellons Village.

To help identify the most dense minority areas, a 3 people per acre threshold was set. Ten out of 83 Census Block Groups had 3 or more people per acre from Hispanic/Latino Ethnicity Origin Populations. In Durham, these Census Block Groups are concentrated around East Durham, Timberstone, Sherwood Park, Wellons Village, Albright, Crest St, Lyon Park, and few locations along US15 Business.

Chart 2: Block Groups that Exceed the Regional Threshold for Hispanic/Latino Ethnicity Origin Populations





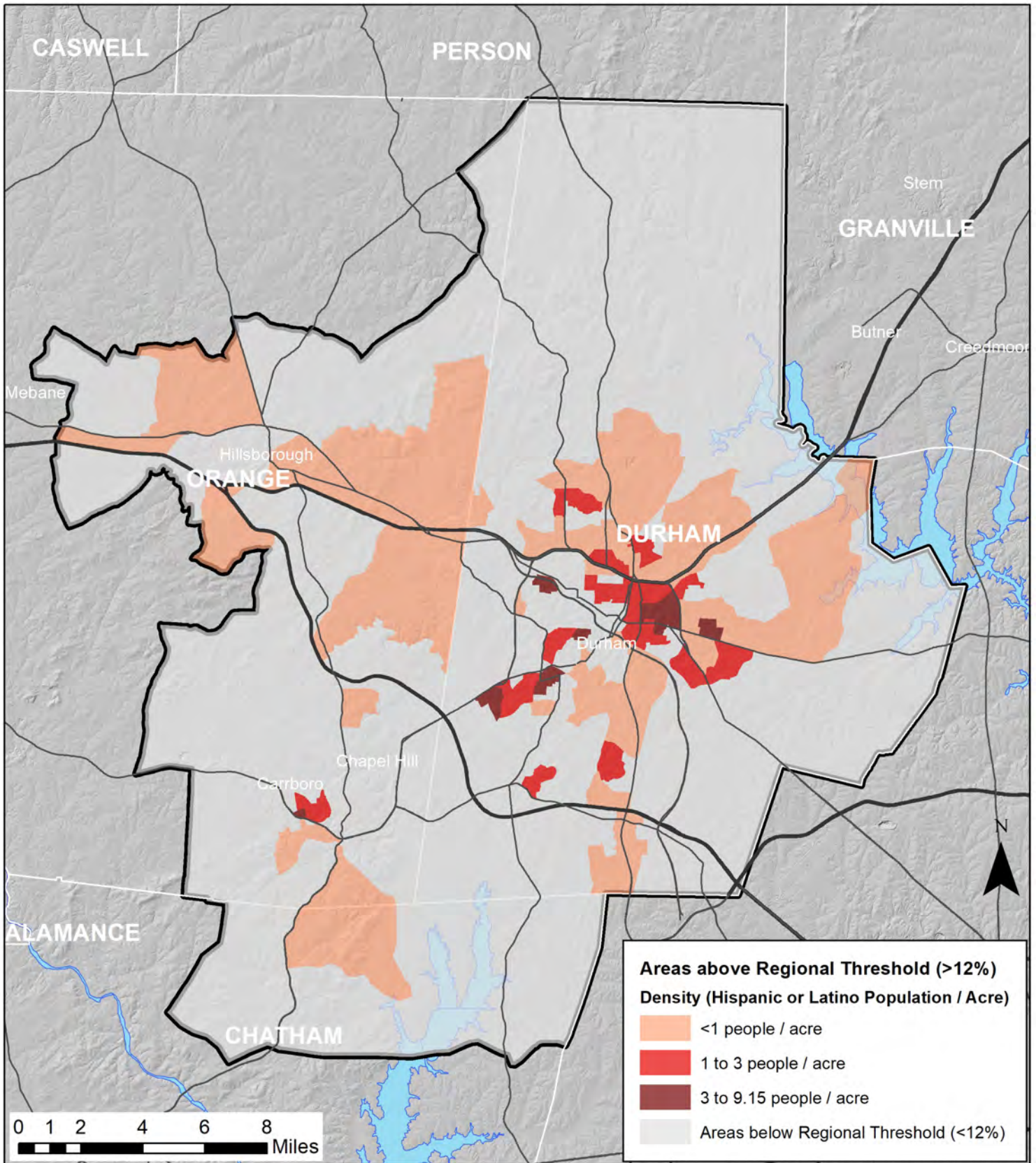
Map 3.2: Percent of Population: Racial Minority

Census Block Groups where percentage of racial minority population is higher than the regional threshold of 48%.

Map gradient is based on the density of racial minority population.

Regional Threshold for DCHC MPO = Racial Minority population (218,877) / Total population (455,813) = 48%

Source: 2013-2017 NCDOT 2019 Demographic Snapshot Tool



Map 3.3: Percent of Population: Hispanic or Latino Ethnicity Origin

Census Block Groups where percentage of Hispanic or Latino population is higher than the regional threshold of 12%.

Map gradient is based on the density of Hispanic or Latino population.

Regional Threshold for DCHC MPO = Hispanic or Latino population (53,434) / Total population (455,813) = 12%

Source: 2013-2017 NCDOT 2019 Demographic Snapshot Tool

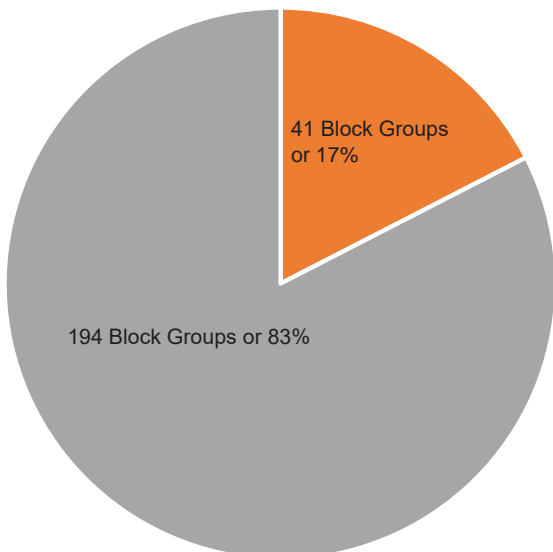
Black (Map 3.4)

The regional threshold for Black populations is 28 percent. Eighty-one out of the total 235 Census Block Groups in the DCHC MPO area have Black populations that represent greater than 28 percent of the total population and are considered communities of concern.

Of the 81 Census Block Groups, 41 block groups had Black populations that exceeded 50 percent of the total population. These 41 block groups encompass major parts of eastern and southern Durham City and a few neighborhoods in north and east Durham.

Fourteen out of 81 Census Block Groups had 5 or more people per acre from Black populations. These Census Block Groups are located in Durham County concentrated around eastern and southern sections of Durham City. The neighborhoods encompassed by these Census Block Groups are Hillside, Red Oak, Dunstan and Lincoln Hospital in south Durham; East End, East Durham, Timberstone in east Durham; Walltown in north Durham and West End and Lyon Park in west Durham.

Chart 3: Block Groups that Exceed the Regional Threshold for Black Populations



Block Groups that do not exceed the Regional Threshold
 Block Groups that exceed the Regional Threshold

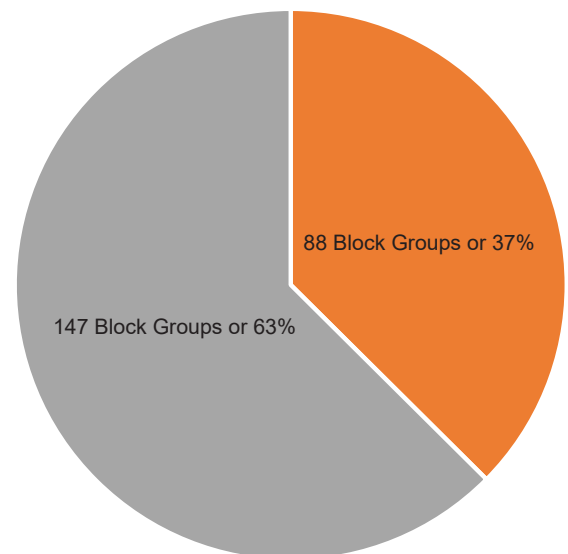
Elderly (Map 3.5)

The regional threshold for elderly populations is 13 percent. Eighty-eight out of the total 235 Census Block Groups in the DCHC MPO area have elderly populations that represent greater than 13 percent of the total population and are considered communities of concern.

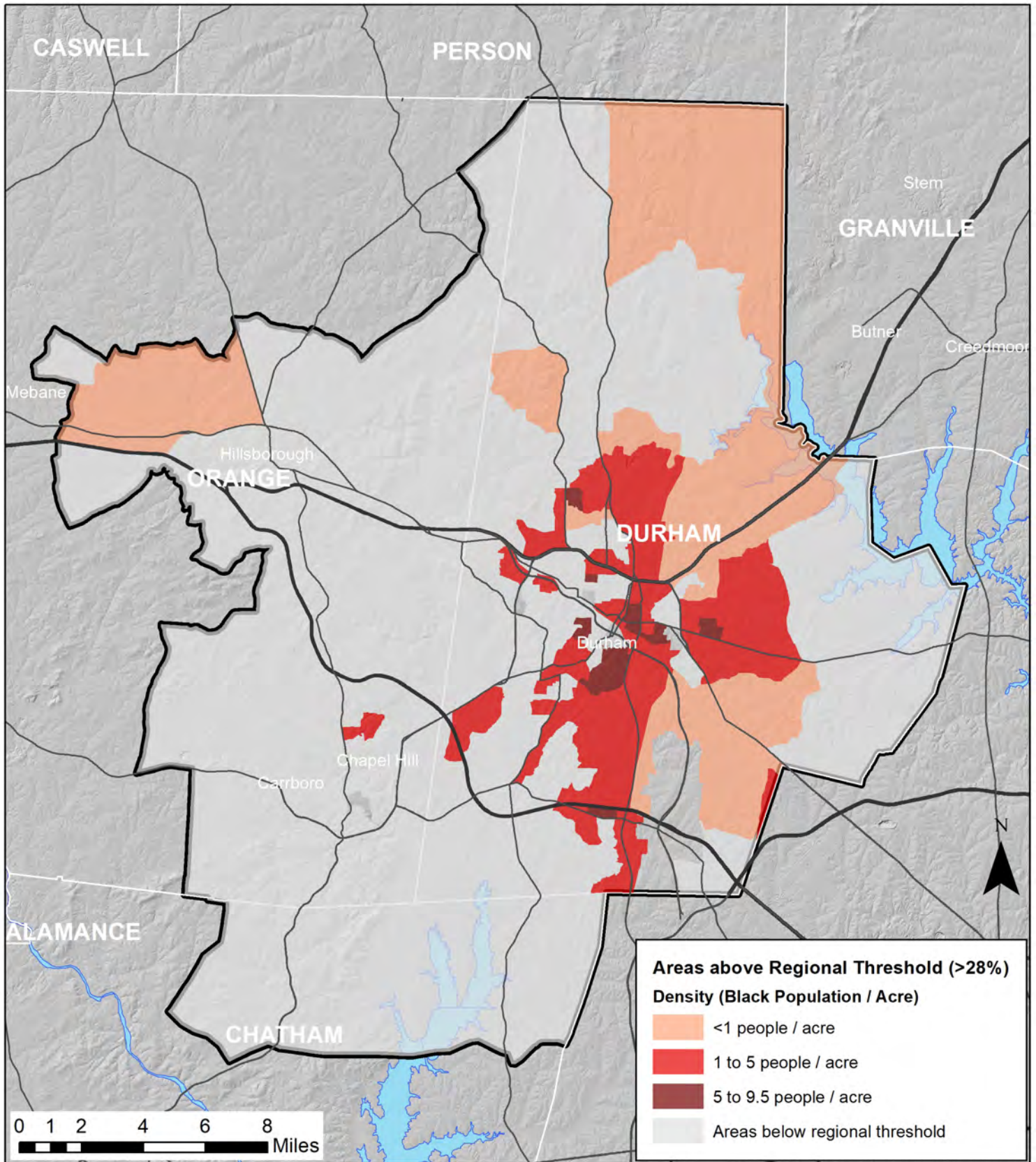
Elderly population communities of concern were dispersed throughout the DCHC MPO area, mostly outside the urban centers. Almost all Census Block Groups in Chatham county that are within DCHC MPO region are elderly communities of concern. Similarly, large parts of rural Orange county and northern Durham county are also elderly communities of concern.

Of the 88 Census Block Groups, 7 block groups had elderly populations that exceeded 40 percent of the total population. Five out of seven Census Block Groups are located in Chatham county, and the remaining two are located in Durham county. The ones in Durham county are located in the area between South Square Mall and Academy Road, and the area north of Crossdaile Country Club.

Chart 4: Block Groups that Exceed the Regional Threshold for Elderly Populations



Block Groups that do not exceed the Regional Threshold
 Block Groups that exceed the Regional Threshold



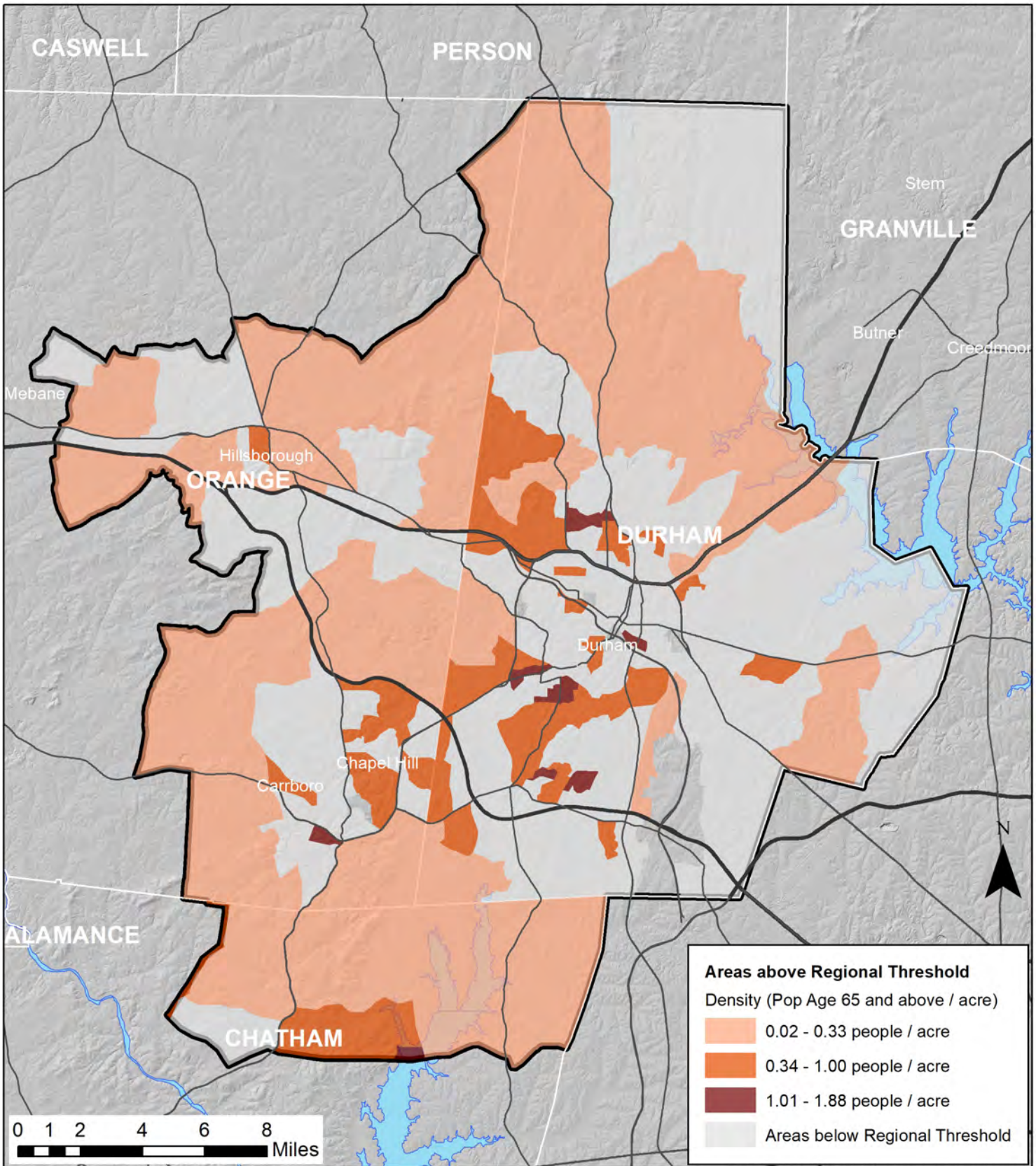
Map 3.4: Percent of Population: Black or African American

Census Block Groups where Percentage of Black population is higher than the regional threshold of 28%.

Map gradient is based on the density of Black population.

Regional Threshold for DCHC MPO = Black population (126,910) / Total population (455,813) = 28%

Source: 2013-2017 NCDOT 2019 Demographic Snapshot Tool



Map 3.5: Percent of Population: Elderly (65 Years of Age or Older)

Census Block Groups where percentage of population of age 65 years and above is greater than 13.3%.

Map gradient is based on the density of population of age 65 years and above.

Regional Threshold for DCHC MPO = Population over 65 years of age (67,939) / Total Population (511,041) = 13.3%

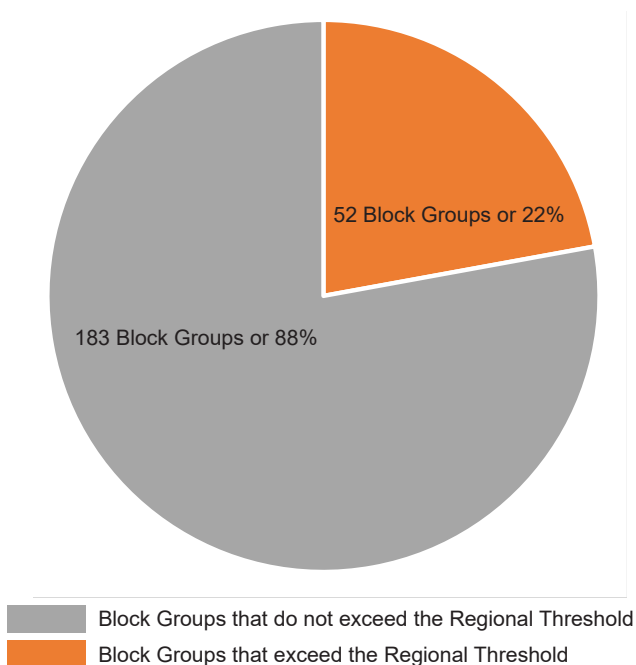
Source: 2013-2017 American Community Survey 5-Year Estimates Table: B01001

Low Income (Map 3.6)

A Census Block Group whose annual median household income is less than the low-income limit is considered a low-income household community of concern. The low-income limit for DCHC MPO region is \$38,920 and is established as the regional threshold. For DCHC MPO, any Block Group with a median household income less than \$38,920 was considered a low-income community of concern.

Fifty two of the total 235 Census Block Groups in the DCHC MPO area were considered low-income communities of concern. These communities were clustered primarily in Durham City and parts of Chapel Hill and Carrboro in Orange County. The neighborhoods of Crest St, West End, Lyon Park, Hillside Park, Forestview Heights, Campus Hills, Bryant Heights, Burton Park, parts of University Dr, eastern Durham, and neighborhoods along I-85 between Jeffries Road to Broad Street largely encompass communities of concern in Durham. Areas with high student population in Chapel Hill and Carrboro are also included as communities of concern.

Chart 5: Block Groups that are Low-Income Communities of Concern



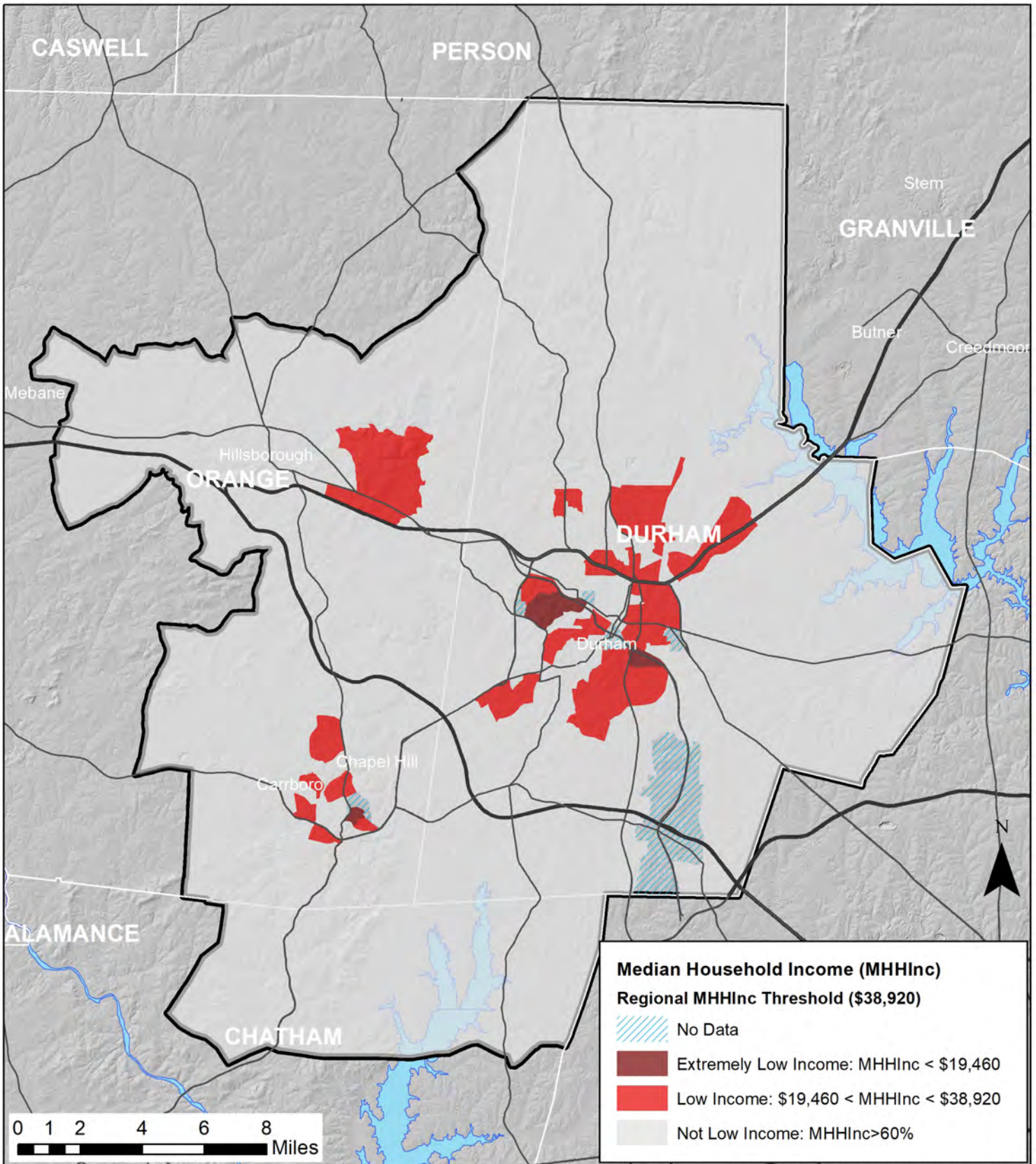
Extremely Low-Income Households (also Map 3.6)

To fully consider the needs of lower-income populations and recognizing that HUD uses more than one low-income limit to analyze lower income populations, the DCHC MPO reviewed a second low-income limit called extremely low income. The term extremely low-income refers to households whose incomes do not exceed 30 percent of the median household income for the area. **Thirty percent of median household income in DCHC MPO (\$64,865) is \$19,460.**

Any Block Group with a median household income less than \$19,460 is illustrated on Map 3.6 on page 3-12 by dark red color. Four of the total 235 Block Groups in the DCHC MPO area were considered extremely low-income.

One of the four extremely low income Block Groups with the median income of \$9,205 is located in Chapel Hill within UNC Chapel Hill campus. This area contains many student housing facilities which may have resulted in the low median income of this Census Block Group.

Two of the 4 extremely low income Block Groups with median household incomes of \$11,250 and \$16,000 are located at the sites of Duke University Campus, again owing to the high concentration of student population in that area. The last extremely low income Block Group with median household income of \$13,688 is located at Burton Park and Durham Tech.



Map 3.6: Low Income and Extremely Low Income Households

Census Block Groups where Median Annual Household Income is lower than the regional threshold of \$38,920.

Regional Threshold for DCHC MPO = 60% of Average Median Household Income of all Census Block Groups within DCHC = \$64,865 x 60% = \$38,920

Source: 2013-2017 American Community Survey 5-Year Estimates Table: B19013

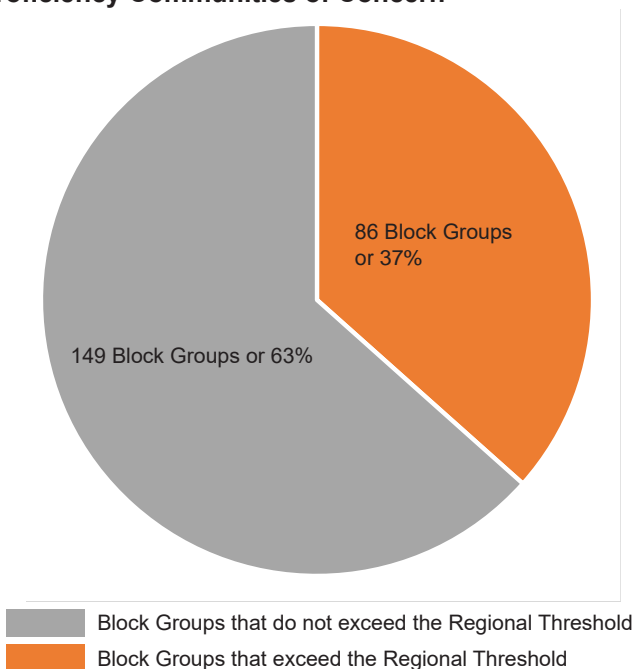
LEP (Map 3.7)

The regional threshold for LEP populations by household is 4.2 percent. 86 out of the total 235 Census Block Groups in the DCHC MPO area exceeded the regional threshold for LEP populations and were considered LEP communities of concern.

As depicted on Map 3.7, the LEP communities of concern (CoC) were dispersed throughout the DCHC MPO area. There were 64 LEP CoC Block Groups located in Durham county, mostly concentrated in east and southwest Durham; and 21 in Orange county, spread throughout the county with minor concentrations in parts of Chapel Hill. The remaining LEP CoC Block Group is located in Chatham County.

Nine of the 86 Census Block Groups had Limited English Proficiency households that exceeded 20 percent of the total number of households. These Census Block Groups are concentrated primarily in east Durham, between Eno River State Park and I-85, between Garrett Road and University Dr, and on UNC-Chapel Hill campus.

Chart 6: Block Groups that are Limited English Proficiency Communities of Concern

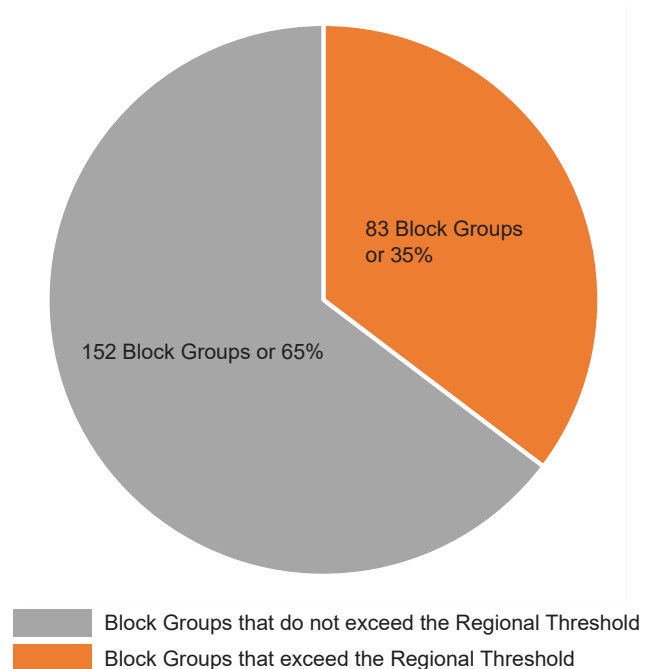


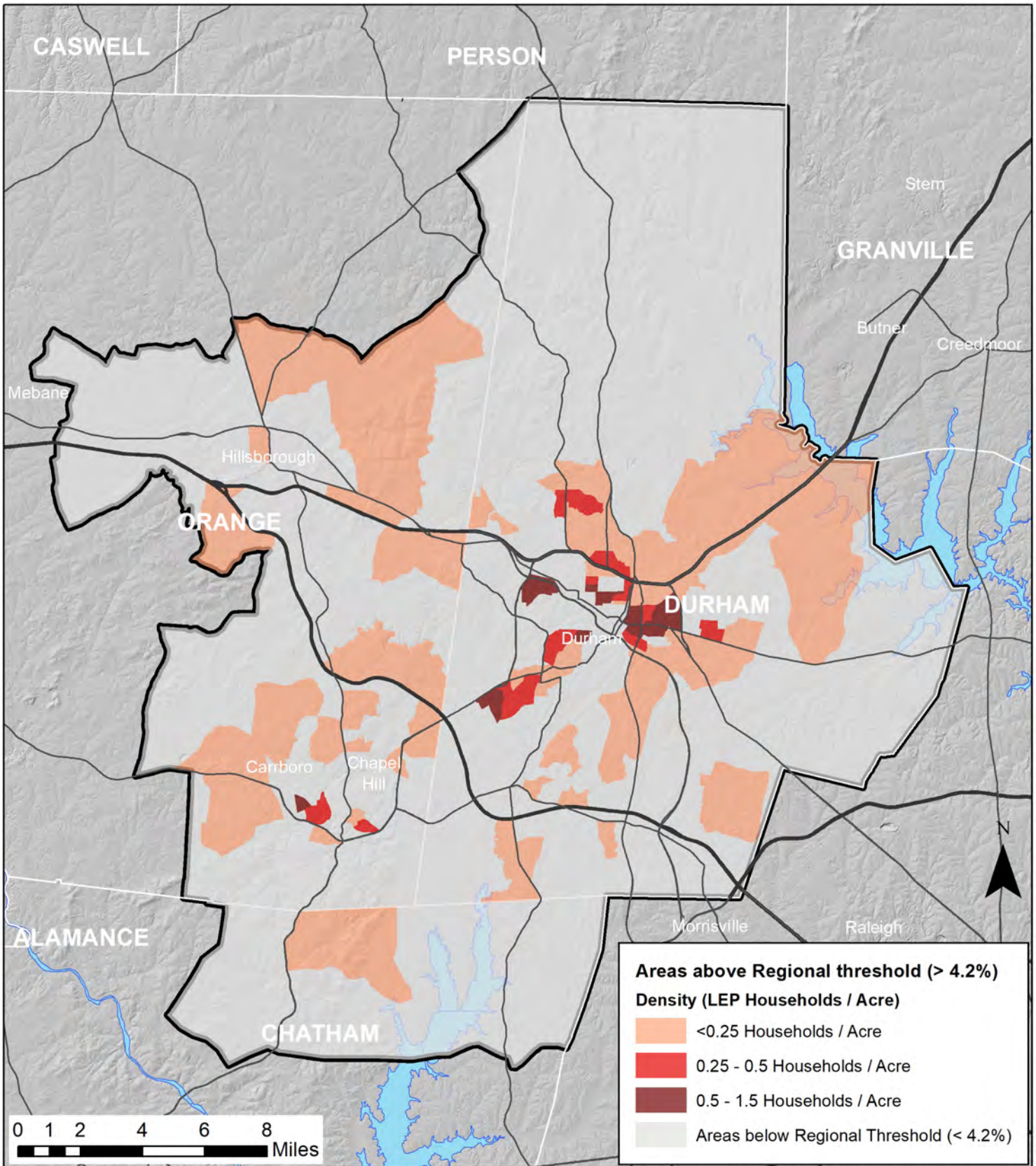
Zero Car Households (Map 3.8)

Households that do not have access to a vehicle are often referred to as “zero-car households”. These residents primarily rely on walking, another form of non-motorized transportation, or public transit. The regional threshold for zero-car households is seven percent. Eighty-three out of the total 235 Census Block Groups in the DCHC MPO area had zero-car household populations that represented greater than seven percent and are considered zero-car household CoC Block Groups. These 83 Block Groups were located throughout downtown Durham, downtown Chapel Hill, and northwest of Hillsborough.

Out of 83 Census Block Groups above regional threshold of zero-car households, there were 18 Census Block Groups where more than 25 percent of the total households were zero-car households. These were mostly concentrated in Durham City encompassing neighborhoods like Timberstone, Sherwood Park, Wellons Village, East End, Edgemont, East Durham, Burton Park, Red Oak, Elmira, Hillside, West End and Morehead Hill.

Chart 7: Block Groups that Exceed the Regional Threshold for Zero-Car Households



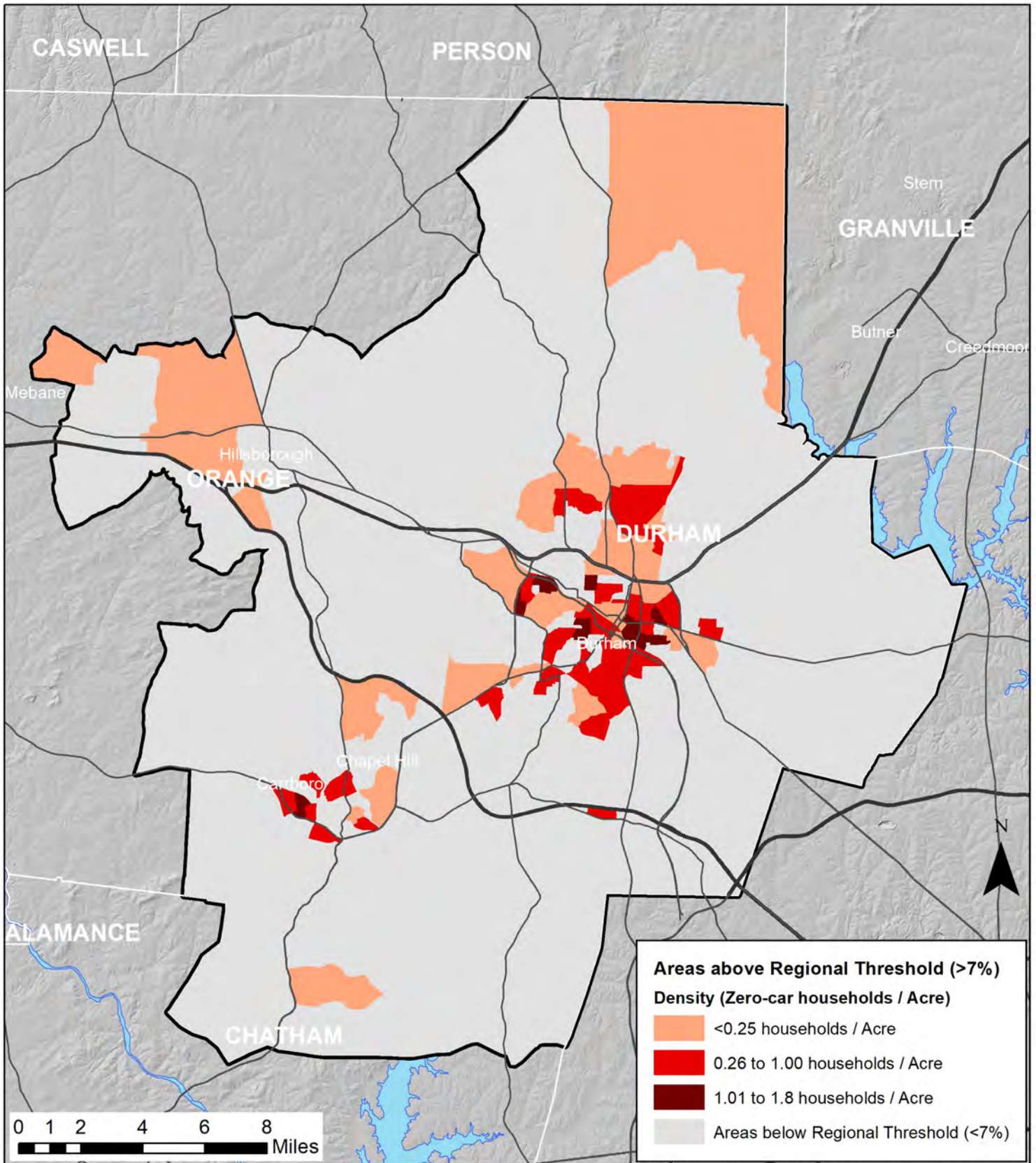


Map 3.7: Limited English Proficiency (LEP) Households
 Census Block Groups where percentage of LEP households is greater than 4.2%.

Map gradient is based on the density of LEP households

Regional Threshold for DCHC MPO = Number of LEP households (7,687) / Total households (182,810) = 4.2%

Source: 2013-2017 American Community Survey 5-Year Estimates Table: C16002



Map 3.8: Zero-Car Households

Census Block Groups where percentage of zero-car households is greater than 7%.

Map gradient is based on the density of zero-car households

Regional Threshold for DCHC MPO = Number of zero-car households (12,722) / Total households (182,810) = 7%

Source: 2013-2017 NCDOT 2019 Demographic Snapshot Tool

Summary of all Communities of Concern Block Groups

The next step in evaluating EJ in the DCHC MPO area was to compile the percent of the total Block Groups for each of the five EJ populations previously presented as the pie charts in this chapter. The five percentages are shown in column D of table 3.2 below. The five main percentages were then averaged to determine the overall average percent of total Block Groups (see bottom row). The overall averaged percent of total Block Groups was 37 percent. This means that 37 percent of all Block Groups in the DCHC MPO area were considered an EJ community of concern. 37 percent was used as a threshold for the evaluation of long-range transportation projects included in Chapter 4.

Table 3.2: Summary of CoC Block Groups

Row #	EJ Populations	Total number of CoC Block Groups	Percent of total Block Groups
1	Any of the three Racial Minority characteristic (a, b or c)	125	53%
1a	Racial Minority Populations (total only)	97	41%
1b	Hispanic/Latino Ethnicity Origins Populations Only	83	35%
1c	Black Populations Only	41	17%
2	Elderly Populations	88	37%
3	Limited English Proficiency Households	86	37%
4	Low-Income Households	52	22%
5	Zero Car Households	83	35%
Averaged Percent of Total Block Groups (sum of Col D (1,2,3,4 and 5) / 5)			37%

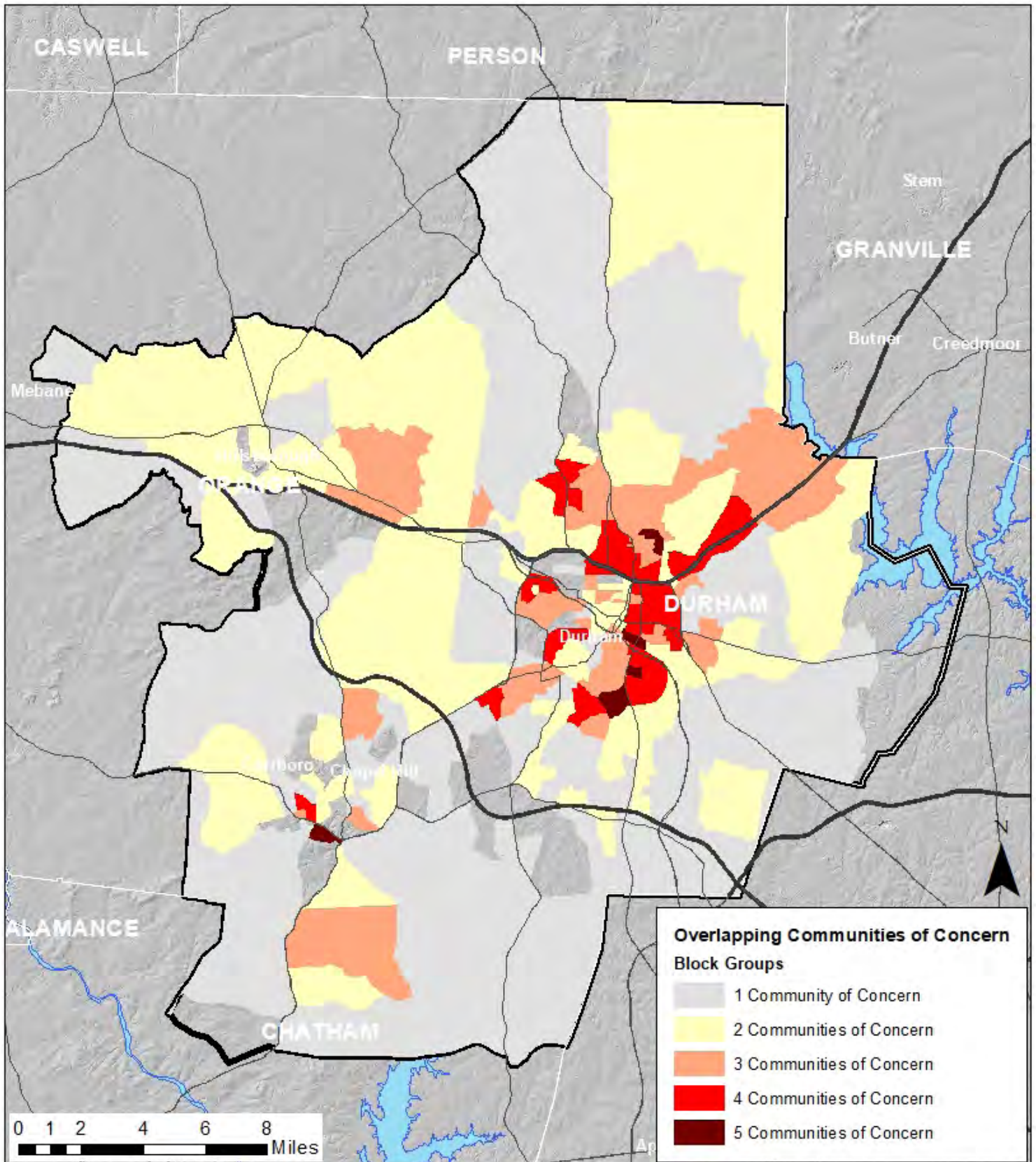
Overlapping Communities of Concern Block Groups (Map 3.9)

The final step in the evaluation was to identify which Block Groups had overlapping communities of concern. This evaluation, often referred to as density mapping or heat mapping, makes it possible to quickly and easily identify where higher concentrations of EJ communities of concern exist. The existence of higher concentrations of EJ communities of concern within the same Block Group indicates that additional attention should be given to this area during the DCHC MPO's planning processes.

Table 3.3 presents a summary of the overlapping communities of concern and Map 3.9 on page 3-17 depicts the locations where two or more EJ communities of concern overlap. There were five Block Groups that exhibited all five EJ communities of concern. This is depicted using the darkest red in Map 3.9. The communities of Edgemont, Plum Street, Elmira and Dearborn Drive in Durham, and the area between Culbreth Road and NC-54 in Chapel Hill exhibited all five EJ communities of concern characteristics.

Table 3.3: Summary of Overlapping CoC Block Groups

Number of Overlapping Communities of Concern (CoC)	Number of Block groups that contain the number of overlaps in Column A
0 overlap (1 CoC)	81
1 overlap (2 CoCs)	58
2 overlaps (3 CoCs)	39
3 overlaps (4 CoCs)	26
4 overlaps (5 CoCs)	5
Total	209



Map 3.9: Overlapping Communities of Concern in the DCHC MPO Area

Census Block Groups with one or more Communities of Concern.

Map gradient is based on the number of overlaps between different Communities of Concern.

Overlap between any combination of Minority, Black or Hispanic (or Latino) populations above regional thresholds are considered as 1 community of concern (0 overlap) for the purpose of this map.

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4

ENVIRONMENTAL JUSTICE IN DCHC MPO'S MAJOR PLANNING ACTIVITIES

CHAPTER CONTENTS

- 4.1 Introduction
- 4.2 Public Involvement Policy (PIP)
- 4.3 Metropolitan Transportation Plan
- 4.4 Transportation Improvement Program
- 4.5 Unified Planning Work Program
- 4.6 Findings for DCHC MPO's Long Range Planning
- 4.7 Conclusions and next steps

INTRODUCTION

The DCHC MPO is responsible for all major transportation planning projects, plans, and services for the DCHC MPO area. This chapter provides a review of environmental justice considerations and activities undertaken during each of the DCHC MPO's major planning activities.

DCHC MPO PUBLIC INVOLVEMENT POLICY (PIP)

The Public Involvement Policy for the DCHC MPO covers the development and approval process for all the principal MPO plans and programs. The policy guides how citizens are notified about programs and plans, what opportunities are available for citizens to provide input into the process, and how long the input period will be. The policy states that the decision making body, the MPO Board (formerly known as the Transportation Advisory Committee, or TAC) will have a standing public input opportunity as part of its monthly meetings.

The policy will be consistent with the requirements of the Fixing America's Surface Transportation Act (FAST ACT), or subsequent updates of this comprehensive federal transportation legislation, and contains a review component to assess the value of the MPO programs on a triennial basis.

The purpose of the DCHC MPO Public Involvement Policy is to create an open decision making process whereby citizens have the opportunity to be involved in all stages of the transportation planning process. This Policy is designed to ensure that transportation decisions will reflect public priorities.

PIP OBJECTIVES

1. Bring a broad cross-section of the public into the public policy and transportation planning decision-making process.
2. Undertake a special emphasis on Environmental Justice (EJ), Limited English Proficiency (LEP) and Title VI populations, and any community that might be directly affected by a particular plan or project.
3. Maintain public involvement from the early stages of the planning process through detailed project development.
4. Provide complete information to citizens and elected officials in order to increase their understanding of transportation issues.
5. Determine citizens' and elected officials' values and attitudes concerning transportation and establish a channel for an effective feedback loop.
6. Use different combinations of public involvement techniques to meet the diverse needs of the public (examples include: social media, web pages, Facebook, Twitter, YouTube, workshops, community events, and mailing lists).
7. Employ visualization techniques to MPO metropolitan transportation plans, TIPs and other project planning activities.
8. Make adopted plans and policies, and technical information easily available to the public using the MPO web site and other electronic means.
9. Consult with federal and State agencies responsible for land management, natural resources, environmental protection, conservation, historic preservation and economic development in the development of transportation plans, TIPs and project planning.
10. Consult with officials and agencies responsible for other planning activities, such as private providers of intercity operators and employer based commuting, vanpool/carpool, parking cash-out shuttle or telework programs, as appropriate.

11. Evaluate the public involvement process and procedures to assess their success at meeting requirements specified in the FAST ACT (or, subsequent updates to this comprehensive federal transportation legislation), NEPA and other applicable federal regulations and Rules on Public Participation.

The PIP framework includes details on the plans and programs that will require public involvement activities. It lays out ways to engage the general public and specific stakeholders depending on the project. Through the PIP framework, the MPO board identifies appropriate methods to notify the public of upcoming and ongoing opportunities for public involvement and designates reasonable time period for public review and comments for key program and plan decision points. PIP mandates documentation of public comments and summary of responses and means of communicating the outcomes of the public involvement.

Projects with a significant regional impact such as Metropolitan Transportation Plan (MTP), Transportation Improvement Program (TIP), Unified Planning Work Program (UPWP), etc. have their specified outreach methodology detailed in the MPO's Public Involvement Policy document.

2045 METROPOLITAN TRANSPORTATION PLAN

The MTP serves as the official long-range transportation plan for the DCHC MPO region and guides the transportation decision-making for at least a projected 20- year planning horizon. It is updated periodically and was recently updated to plan for the years through 2045. The primary goals and objectives of the updated MTP are identified in Table 4.0.

The 2045 MTP contains an overview of environmental justice issues and identifies the location of particular communities of concern (low-income, minority, and LEP populations).

Public involvement was an essential component in developing the 2045 MTP. The MTP's public involvement process, as directed by the DCHC MPO's PIP, was instituted to ensure early and timely input from a wide range of participants, particularly at critical milestones in the plan development process. For future updates and

Table 4.0: 2045 MTP Goals and Objectives

GOALS	OBJECTIVES
Protect Environment and Minimize Climate Change	Enhance transit services, amenities and facilities Improve bicycle and pedestrian facilities Increase utilization of affordable non-auto travel modes
Connect People	Allow people and goods to move with minimal congestion and time delay, and greater predictability. Promote Travel Demand Management (TDM) such as carpool, vanpool and park-and-ride. Enhance Intelligent Transportation Systems (ITS) such as ramp metering, dynamic signal phasing and vehicle detection systems.
Promote Multimodal and Affordable Travel Choices	Enhance transit services, amenities and facilities Improve bicycle and pedestrian facilities Increase utilization of affordable non-auto travel modes
Manage Congestion & System Reliability	Allow people and goods to move with minimal congestion and time delay, and greater predictability. Promote Travel Demand Management (TDM) such as carpool, vanpool and park-and-ride. Enhance Intelligent Transportation Systems (ITS) such as ramp metering, dynamic signal phasing and vehicle detection systems.
Improve Infrastructure Condition	Increase proportion of highways and highway assets in 'Good' condition Maintain transit vehicles, facilities and amenities in the best operating condition. Improve the condition of bicycle and pedestrian facilities and amenities Improve response time to infrastructure repairs
Ensure Equity and Participation	Ensure that transportation investments do not create a disproportionate burden for any community Enhance public participation among all communities
Promote Safety and Health	Increase safety of travelers and residents Promote public health through transportation choices
Stimulate Economic Vitality	Improve freight movement Link land use and transportation Target funding to the most cost-effective solutions Improve project delivery for all modes

MTP development, the DCHC MPO will refer to this EJ report for information on the locations and potential impacts on EJ populations. It is important to ensure that all groups in the DCHC MPO region understand and have access to the MTP process, including representatives from low income, LEP, elderly, and minority communities.

2045 MTP PROJECT EVALUATION

By analyzing the geographic and funding distribution of projects included in the 2045 MTP, it can be determined if the MTP complies with Title VI, Executive Orders 12898 and 13166, and USDOT Orders related to EJ. Project cost estimates included in the 2045 MTP are estimates of perceived costs for future transportation projects. This analysis is based on the adopted 2045 MTP and does not account for any amendments that have been approved since its adoption in February 2018. This analysis will be updated based on the updated 2050 MTP.

DETERMINING THE THRESHOLD

There are 235 total Block Groups in the DCHC MPO region. The evaluation of EJ communities of concern in Chapter 3 identified a total of 434 instances in which a Block Group exceeded at least one of the regional thresholds for EJ populations. In many cases, two or more communities of concern existed in the same Block Group and were considered overlapping communities of concern. These overlaps represented more highly concentrated areas of EJ communities of concern. There were 128 instances where two or more communities of concern overlapped and existed in the same Block Group.

The evaluation of communities of concern in Chapter 3 determined that 37 percent of all Block Groups in the DCHC MPO area were considered an EJ community of concern (see table 3.2). 37 percent was set as the threshold for measuring the distribution of MTP projects. It is reasonable to assume that 37 percent of all MTP projects and MTP project funding fall within, adjacent to, or impact an EJ community of concern Block Group.

MEASURING 2045 MTP PROJECTS AGAINST THE THRESHOLD

Maps 4.1 and 4.2 on pages 4-6 and 4-7 respectively display the relationship between locations of MTP projects and overlapping community of concern Block Groups. There were approximately 100 highway and fixed guideway projects in the adopted 2045 MTP. These 100 projects were mapped by segments to more concisely determine the portion or portions of a project that impact an overlapping community of concern Block Group. If a project segment was located partially or completely within a community of concern Block Group, it was assumed to impact those populations living there.

The MTP included seven interchange projects totaling \$299 million in project funding. Of the seven projects, five projects (71 percent) were located within, partially within, or connected directly to an overlapping community of concern Block Group. Of the \$299 million in total interchange funding, \$158 million, or 53 percent was within, partially within, or connected directly to an overlapping community of concern Block Group.

The MTP included 211 miles of highway project segments totaling \$3.05 billion in project funding. Of the 211 miles of project segments, 118 miles of project segments (56 percent) were located within, partially within, or connected directly to, an area of overlapping CoC Block Groups. Of the \$3.05 billion in total funding, \$1.28 billion, or 42 percent was within, partially within, or connected directly to an overlapping community of concern Block Group. This was calculated under the assumption that the cost of each project is consistent for every part that project.

The MTP included 49 miles of fixed guideway transit route projects segments. Of the 49 project miles, 28 miles or 58 percent were located within, partially within, or connected directly to an area of overlapping CoC Block Groups. Projected costs for transit route projects and service in 2045 were calculated as part of the 2045 MTP, Table 4.1 on page 4-5 presents the percentage

of MTP projects (or miles) and MTP project funding relative to overlapping EJ CoC Block Groups. The percentages of MTP projects and MTP project funding for interchange projects and transit route projects were above the 37 percent threshold. The percentage of highway

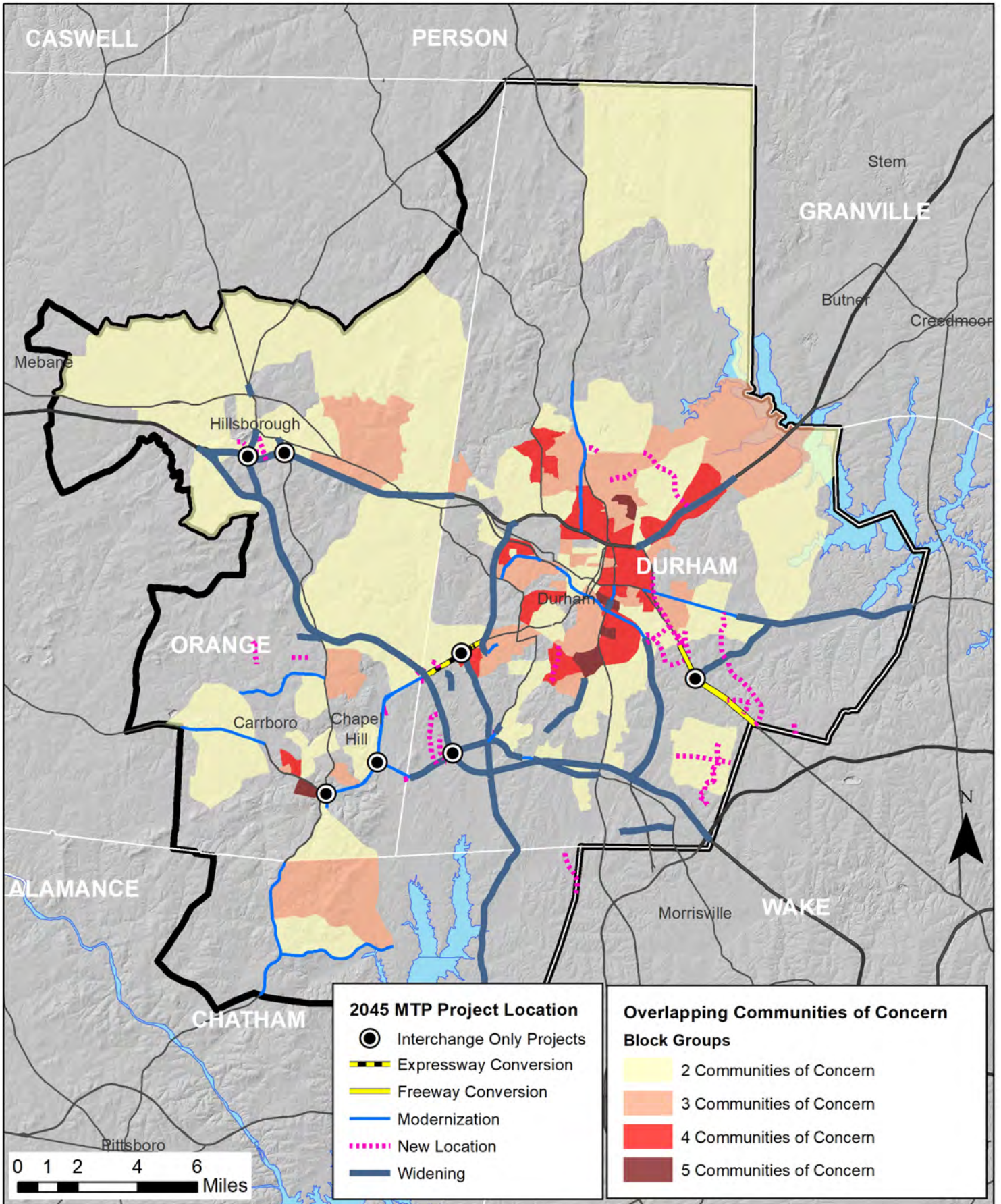
project miles located within or near overlapping EJ CoC Block Groups segments was 56 percent, and funding for the same highway project miles accounted for 42 percent of total funding for highway projects, which is higher than the 37 percent threshold.

Table 4.1: 2045 MTP Project Distribution

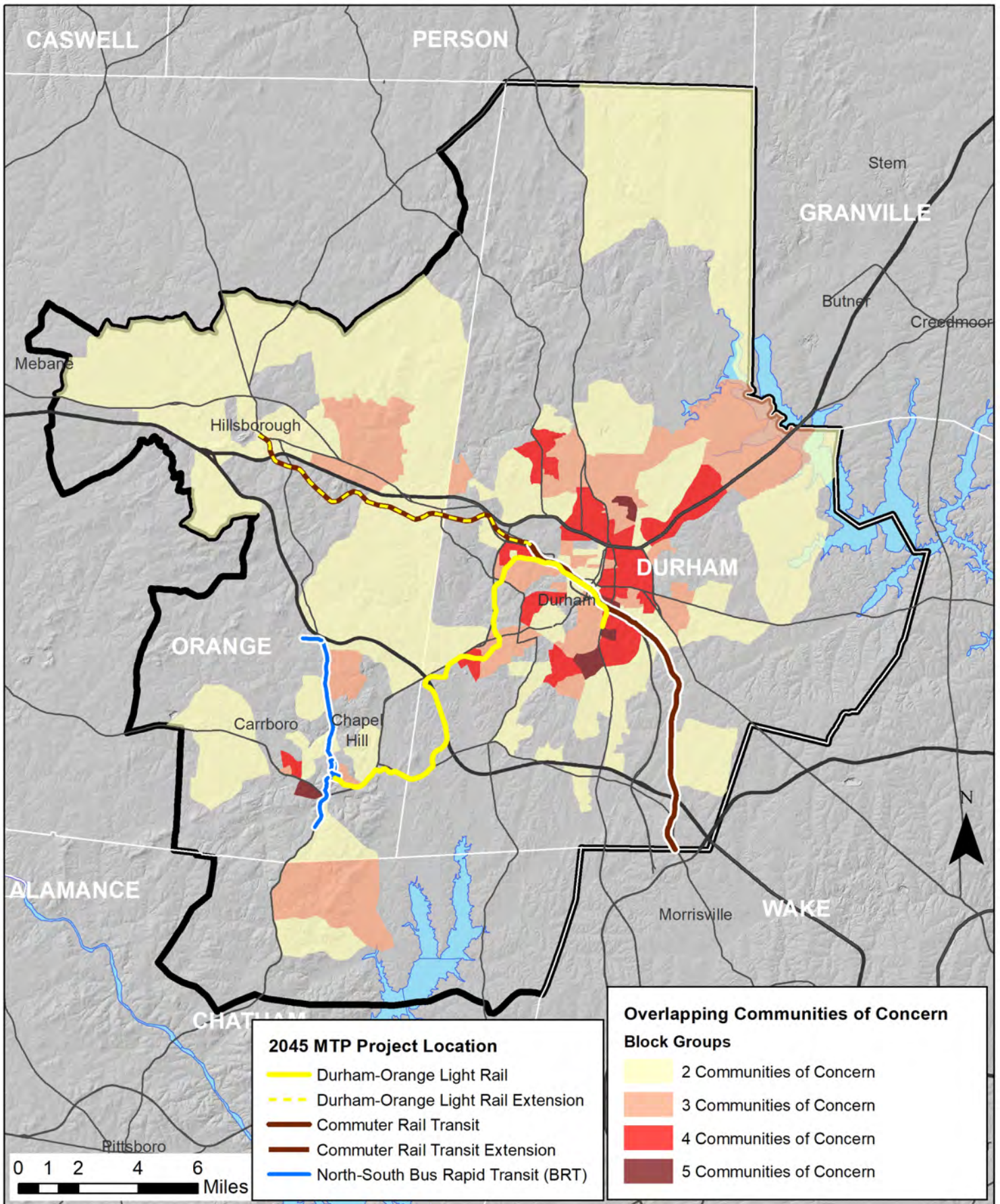
Type of MTP Project	Located within Overlapping CoC Block Groups	Total number of project segments or total Project Funding in DCHC MPO Area	Percent of Total (Threshold for measuring projects is 37%)
Interchange Projects	5	7	71%
Interchange Project Funding	\$158 million	\$299 million	53%
Highway Project Miles	118	211	56%
Highway Project Funding	\$1.28 billion	\$3.05 billion	42%
Transit Project Miles*	28	49	58%

*A methodology for geographic distribution of transit route project costs was not included as part of the 2045 MTP. Thus, the geographic distribution of funding for transit route service projects could not be compared to locations of EJ communities of concern as part of this EJ report.

All measures of interchange, highway and transit investments in communities of concern exceeded the 37% threshold.



Map 4.1: Location of MTP Highway Projects Relative to Overlapping Communities of Concern Block Groups



Map 4.2: Location of MTP Fixed Guideway Transit Projects Relative to Overlapping Communities of Concern Block Groups

TRANSPORTATION IMPROVEMENT PROGRAM

The TIP reflects the transportation capital improvement priorities of the DCHC MPO region and serves as the link between the transportation planning process implementation. It includes a list of transportation projects and programs, scheduled for implementation over a ten-year period, which must be consistent with the goals and the policies in the MTP. While inclusion in the TIP does not guarantee funding, it is an essential step in the authorization of funding for a project, and it is critical to the successful implementation of the project. It is important to ensure that all groups in the DCHC MPO region understand and have access to the TIP process, including representatives from low income, LEP, elderly, and minority communities.

FY2018-2027 TIP PROJECT EVALUATION

By analyzing the geographic and funding distribution of projects included in the TIP, it can be determined if the TIP complies with Title VI, Executive Orders 12898 and 13166, and USDOT Orders related to EJ. Project cost estimates included in the TIP were estimates of perceived costs for future transportation projects. Updated cost estimates for projects will be developed when the design/preliminary engineering for the project has been completed.

DETERMINING THE THRESHOLD

There are 235 total Block Groups in the DCHC MPO region. The evaluation of EJ CoCs in Chapter 3 identified a total of 434 instances in which a Block Group exceeded at least one of the regional thresholds for EJ populations. In many cases, two or more CoCs existed in the same Block Group and were considered overlapping communities of concern. These overlaps represented more highly concentrated areas of EJ CoCs. There were 128 instances where two or more CoCs overlapped and existed in the same Block Group.

The evaluation of CoCs in Chapter 3 determined that 37 percent of all Block Groups in the DCHC MPO area were considered an EJ community

of concern. 37 percent was set as the threshold for measuring the distribution of TIP projects. It is reasonable to assume that 37 percent of all TIP projects and TIP project funding fall within, adjacent to, or impact an overlapping EJ community of concern Block Group.

MEASURING TIP PROJECTS AGAINST THE THRESHOLD

The FY2018-2027 TIP was reviewed for projects that were considered to improve local safety, preserve the existing roadways, or enhance the local transportation system, and the projects that could possibly be mapped, were mapped. Projects were categorized as either a highway, bridge, rail intersection improvement, or a bicycle/pedestrian project. Maps 4.3 and 4.4 on pages 4-10 and 4-11 respectively, display the relationship between locations of TIP projects and overlapping CoC Block Groups.

Highway projects in the TIP were mapped by segments to more concisely determine the portion or portions of a project that impact an overlapping CoC Block Group. If a project segment was located partially or completely within a CoC Block Group, it was assumed to impact those populations living there.

The FY2018-2027 TIP included 16 bicycle and pedestrian projects of a combined length of 19 miles totaling approximately \$80 million in project funding. Of the 19 miles, 14 miles (77 percent) were located within, partially within, or connected directly to an area of overlapping EJ CoC Block Groups. Of the \$80 million in total project funding, \$67.5 million, or 84 percent was within, partially within, or connected directly to an overlapping EJ CoC Block Group.

The FY2018-2027 TIP included 10 interstate segment projects of a combined length of 37 miles, totaling about \$402 million dollars in project funding. Of the 37 miles of project segments, 29 miles of project segments (or 77 percent) were located within, partially within, or connected directly to an area of overlapping EJ CoC Block Groups. Of the \$402 million dollars in total project funding, only about \$110 million, or 27 percent was within, partially within, or connected directly to an overlapping

EJ community of concern Block Group. This is below the 37 percent threshold established for measuring the distribution of TIP projects. This is because I-40 managed lanes project which is the most capital intensive at \$274 million is not located within, partially within, or connected directly to an overlapping EJ community of concern Block Group.

The FY2018-2027 TIP included 24 roadway projects of a combined length of 36 miles totaling \$1.06 billion in project funding. Of those projects, 23 miles of projects were located within, partially within, or connected directly to an area of overlapping EJ CoC Block Groups. Of the \$1.06 billion in total project funding, \$697 million, or 65 percent was within, partially within, or connected directly to an overlapping EJ CoC Block Group.

The FY 2018-2027 TIP also included, within EJ CoC block group, 4 out of 5 passenger rail projects (\$78 million out of \$84 million in funding), 1 out of 2 bridge project (\$2 million out of \$4.46 million in funding), and 4 out of 6

highway intersection projects (\$79.5 million out of \$122 million in funding). The geographic and funding distribution for these modes is higher than the 37 percent threshold established for measuring the distribution of TIP projects.

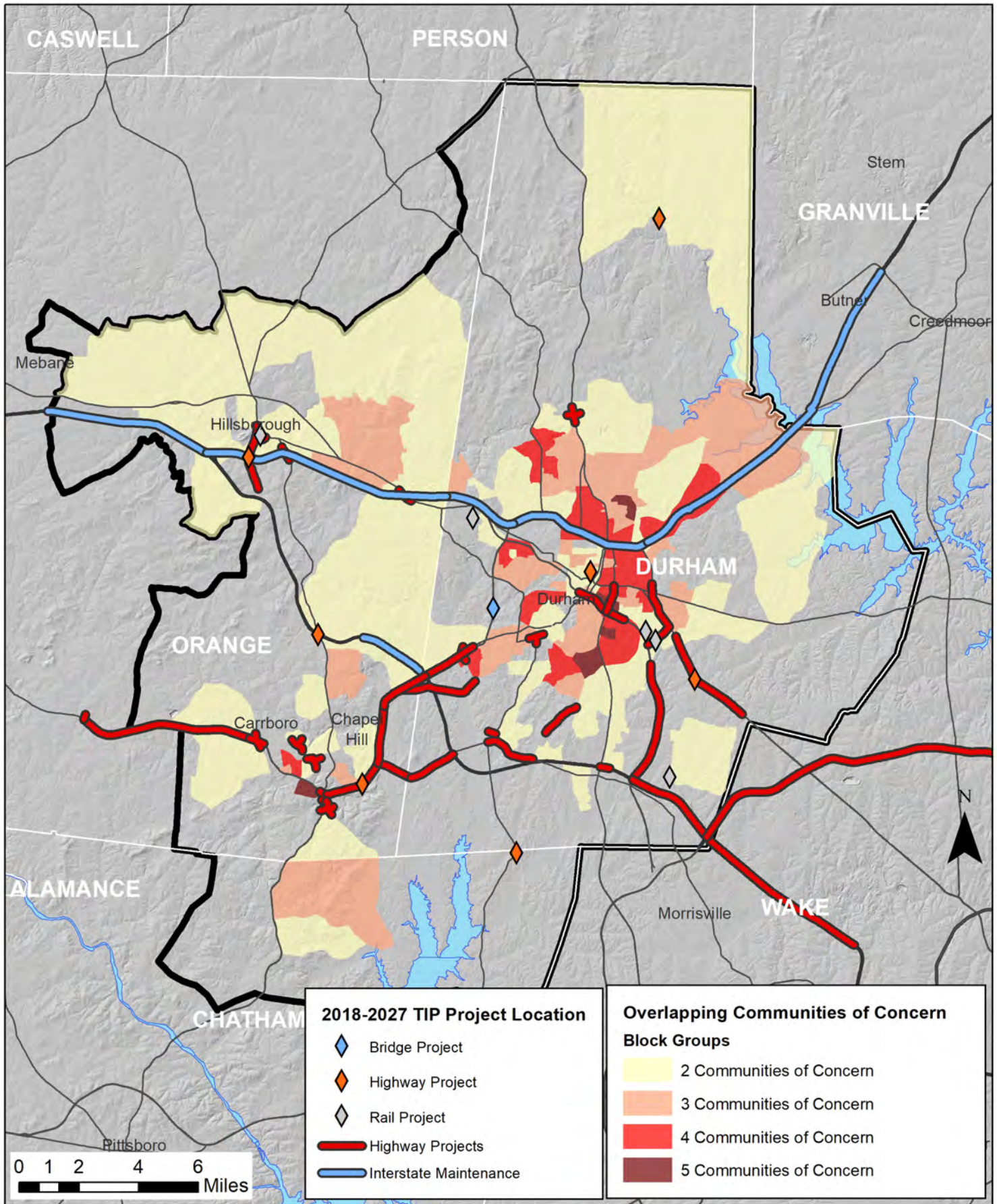
Out of 7 transit projects in the FY2018-2027, 5 projects are geographically based and 2 projects include purchasing new vehicles for express bus routes to Raleigh, which pass through several overlapping EJ CoC Block Groups. Hence it can be said that 5 out of 7 projects are located within overlapping EJ CoC Block Group and these projects represent \$8 million out of a total of \$19.6 million in funding, which is approximately 41 percent of total funding.

Table 4.2 on page 4-9 presents the percentage of TIP projects, project segments, and TIP project funding relative to overlapping EJ CoC Block Groups. The percentages of TIP project segments and the percentages of TIP project funding were above the 37 percent threshold for each project type except for the funding in interstate segment projects.

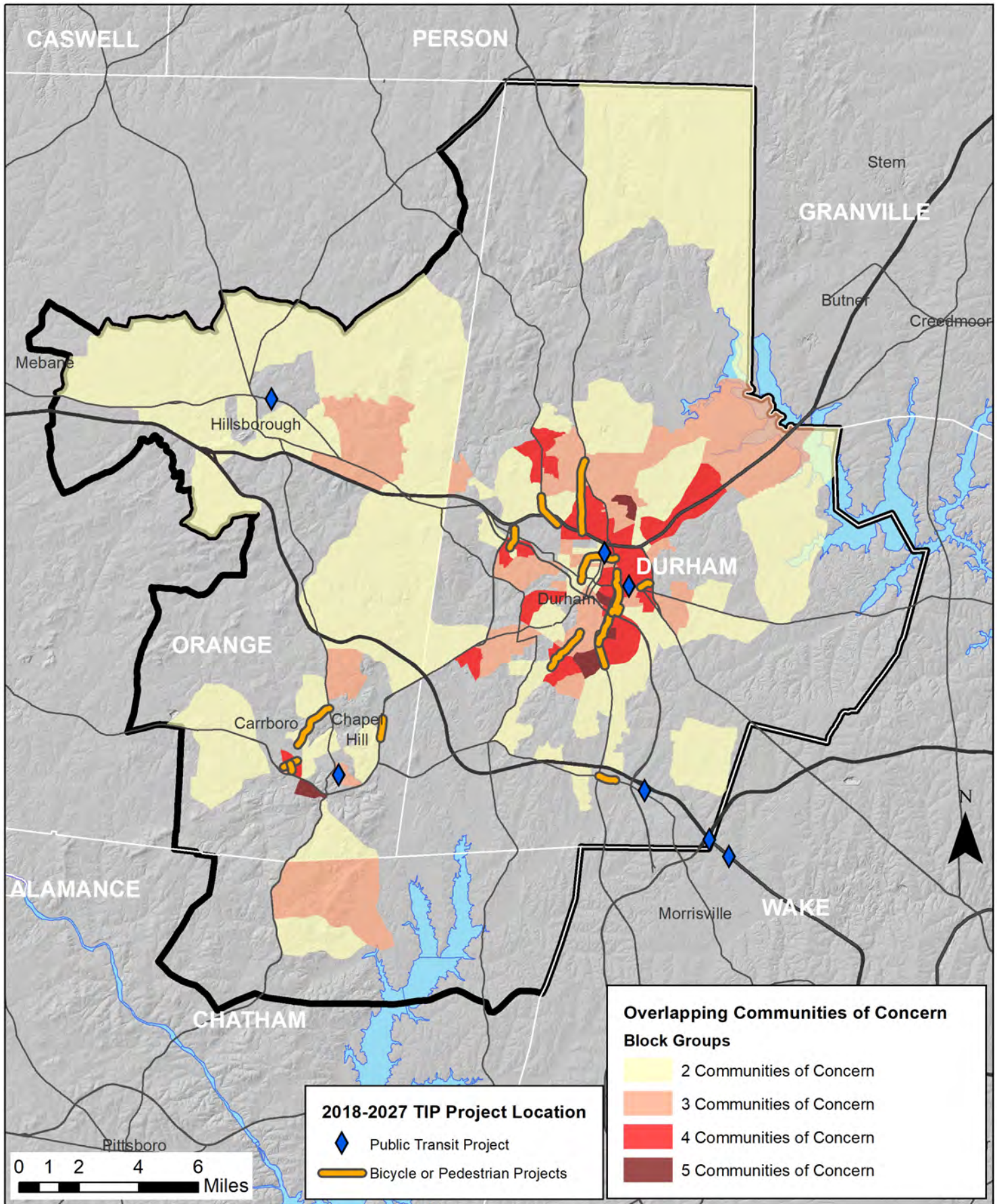
Table 4.2: 2018-2027 TIP Project Distribution

Type of TIP Project	Located within Overlapping CoC Block Groups	Total number of project segments or total Project Funding in DCHC MPO Area	Percent of Total (Threshold for measuring projects is 37%)
Bicycle-Pedestrian Project Miles	15	19	77%
Bicycle-Pedestrian Project Funding	\$67.5 million	\$80 million	84%
Interstate Project Miles	29	37	77%
Interstate Project Funding	\$110 million	\$402 million	27%
Roadway Project Miles	23	36	63%
Roadway Project Funding	\$697 million	\$1.06 billion	66%
Passenger Rail Project Numbers	4	5	80%
Passenger Rail Project Funding	\$78 million	\$84 million	93%
Bridge Project Numbers	1	2	50%
Bridge Project Funding	\$2 million	\$4.46 million	45%
Intersection Project Numbers	4	6	67%
Intersection Project Funding	\$79.5 million	\$122 million	65%
Transit Project Numbers	5	7	71%
Transit Project Funding	\$8 million	\$19.6 million	41%

All measures of the different modes show that investments in communities of concern exceeded the 37% threshold except for interstate project funding which is 27%.



Map 4.3: Location of TIP Highway, Bridge, and Rail Projects Relative to Overlapping Communities of Concern Block Groups



Map 4.4: Location of TIP Bicycle, Pedestrian and Transit Projects Relative to Overlapping Communities of Concern Block Groups

UNIFIED PLANNING WORK PROGRAM (UPWP)

Each year, the DCHC MPO, in cooperation with member agencies, prepares a Unified Planning Work Program (UPWP). The UPWP includes documentation of planning activities to be performed with funds provided to the DCHC MPO by the FHWA and FTA. All transportation planning activities of member agencies and consultants, as well as the work done directly by the DCHC MPO staff are included in the UPWP.

PUBLIC INVOLVEMENT

Public involvement is important to the development of the UPWP. From the outset, citizens are given an opportunity to suggest projects and other activities for consideration. Moreover, the DCHC MPO staff solicits comments from the public, stakeholders, members of the DCHC MPO Technical Committee (TC) and Executive Board.

The draft UPWP is made available for a 21-day public review and comment period. Once comments have been received and addressed, the final UPWP document is presented to the DCHC MPO TC and the Board. The MPO Board holds a public hearing prior to voting on adoption of the final UPWP document. Once adopted, the UPWP is made available on the DCHC MPO website with hard copies available by request.

FY2019-2020 UPWP PROGRAM OF FUNDING

\$3.85 million in federal state and local funding was programmed for use in the FY2019-2020 UPWP. Of these funds, approximately \$2.63 million was programmed to support activities of the DCHC MPO lead planning agency staff. Over \$1 million was programmed for other municipal and county transportation planning activities and about \$80,000 was programmed for Triangle J Council of Governments.

While a majority of this funding is needed for mandatory regional planning activities (such as the MTP and this EJ report), and staff support to carry them out, a notable amount of money is available to conduct other studies and fund planning projects. Table 4.3 on page 4-13

presents a summary of the FY2019-2020 UPWP funding program.

UPWP FUNDING RELATIVE TO EJ POPULATIONS

As there continues to be funding available through the UPWP to fund local studies and projects, it is critical for the DCHC MPO to carefully review this EJ report to ensure EJ populations in the DCHC MPO benefits from federal investments, bear the same burdens resulting from the project impacts, and have equal participation in the public involvement activities.

Public outreach efforts must be strategic and diverse, as the different populations that live within the DCHC MPO area have diverse interests, needs, and abilities. Each agency that receives this federal funding must ensure public access to, and public engagement during the development of federally funded programs and planning activities. These agencies should continue to work strategically to connect with, and engage traditionally underrepresented populations in the DCHC MPO area.

Table 4.3: FY 2019-2020 UPWP Funding Distribution

Receiving Agency	Funding Source	STBGP		Section 104(f)		Section 5303		
		Sec. 133(b)(3)(7)		PL		Highway/Transit		
		Local	FHWA	Local	FHWA	Local	NCDOT	FTA
		20%	80%	20%	80%	10%	10%	80%
LPA		\$350,000	\$1,400,000	\$176,573	\$706,293	\$0	\$0	\$0
Carrboro		\$6,420	\$25,680	\$0	\$0	\$0	\$0	\$0
Chapel Hill/CHT		\$23,983	\$95,929	\$0	\$0	\$17,150	\$17,150	\$137,200
Chatham County		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Durham/DATA		\$53,964	\$215,856	\$0	\$0	\$17,850	\$17,850	\$142,800
Durham County		\$11,658	\$46,630	\$0	\$0	\$0	\$0	\$0
Hillsborough		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Orange County		\$0	\$0	\$0	\$0	\$0	\$0	\$0
TJCOG		\$16,250	\$65,000	\$0	\$0	\$0	\$0	\$0
GoTriangle		\$0	\$0	\$0	\$0	\$0	\$0	\$0
NCDOT		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total		\$462,275	\$1,849,095	\$176,573	\$706,293	\$35,000	\$35,000	\$280,000

Receiving Agency	Funding Source	Section 5307			Funding Summary			
		Transit			Local	NCDOT	Federal	Total
		Local	NCDOT	FTA				
		20%	0%	80%				
LPA		\$0	\$0	\$0	\$526,573	\$0	\$2,106,293	\$2,632,866
Carrboro		\$0	\$0	\$0	\$6,420	\$0	\$25,680	\$32,100
Chapel Hill/CHT		\$0	\$0	\$0	\$41,133	\$17,150	\$233,129	\$291,411
Chatham County		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Durham/DATA		\$61,964	\$0	\$247,856	\$133,778	\$17,850	\$606,512	\$758,140
Durham County		\$0	\$0	\$0	\$11,658	\$0	\$46,630	\$58,288
Hillsborough		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Orange County		\$0	\$0	\$0	\$0	\$0	\$0	\$0
TJCOG		\$0	\$0	\$0	\$16,250	\$0	\$65,000	\$81,250
GoTriangle		\$0	\$0	\$0	\$0	\$0	\$0	\$0
NCDOT		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Total		\$61,964	\$0	\$247,856	\$735,812	\$35,000	\$3,083,244	\$3,854,055

FINDINGS FOR DCHC MPO'S LONG RANGE PLANNING ACTIVITIES

A comparison of the ratio of total 2045 MTP and FY2018-2027 TIP projects with those projects located in CoC Block Groups, indicates that the DCHC MPO has unevenly distributed projects and funding across the region.

2045 MTP FINDINGS

The evaluation of 2045 MTP projects and project segments indicates that 71% of interchange projects, 56% of highway project miles, 58% of transit project miles 53% of funding for interchange projects and 42% of funding for highway project segments were located within or adjacent to CoC Block Groups. These percentages exceed the regional threshold of 37% for measuring distribution of MTP projects.

FY2018-2027 TIP FINDINGS

The evaluation of FY2018-2027 TIP projects indicates that 77% of miles and 84% of funding for bicycle and pedestrian projects, 77% of miles and 27% of funding of interstate projects, 63% of miles and 66% of funding for roadway projects, 80% of projects and 93% of funding for passenger rail, 50% of projects and 45% of funding for bridges, 67% of projects and 65% of funding for intersections, 71% of projects and 41% of funding for transit were located within or adjacent to CoC Block Groups. With the exception of interstate project funding, these percentages exceed the regional threshold of 37 percent for measuring the distribution of TIP projects.

SUMMARY

Ideally, an equitable distribution of funding and projects will allow all populations to equally enjoy the benefits and burdens related to transportation projects. However, in the case of the DCHC MPO, that distribution is not equitable. Project funding and the number of projects in

the 2045 MTP and FY2019-2027 TIP that were located within or adjacent to EJ communities of concern Block Groups exceeded regional thresholds identified in this EJ report, with the exception of TIP interstate project funding.

At the analysis of this report, it cannot be determined whether communities of concern experience an overall benefit or burden from this imbalance of transportation investments. Therefore, the DCHC MPO should continue to assess and consider potential benefits and burdens related to the projects that are proposed for inclusion in long-range planning efforts such as MTP and TIP. The MPO should also make exceptional efforts to include populations from the communities of concern in the public involvement activities of the MTP and TIP to ensure that the MPO has a clear understanding of the project benefits and burdens to those communities.

CONCLUSIONS AND NEXT STEPS

CONSIDERING THE PLANNING PROCESS AND IMPACTS

EJ analysis is a type of equity analysis that is performed as part of the DCHC MPO's long range planning process and also as a component of the planning phase for a specific project. For specific projects, the emphasis is not just to consider potential impacts of project alternatives on the affected community, but also whether the community participated in project inputs and project meetings.¹ An appropriate public outreach and engagement strategy must be developed early in the planning process or in the project development phase and must include opportunities for community input and feedback at all key milestones or decision-making points.

PUBLIC INVOLVEMENT STRATEGIES

The DCHC MPO Public Involvement Policy (PIP) provides effective guidance on public outreach and engagement methods, techniques, strategies, and time lines. However, as the demographic population profiles of the DCHC MPO area evolve over time, so should the PIP. Each time the *Environmental Justice Report for the DCHC MPO* is updated based on more recent US Census Bureau American Community Survey data sets, the DCHC MPO should revisit the PIP to verify that the methods, techniques, strategies, and timelines for public involvement are still relevant and successful. If recent public outreach and engagement efforts have not been successful, the DCHC MPO should re-evaluate the PIP and update it as appropriate.

UPDATING THE PUBLIC INVOLVEMENT POLICY

During any update to the PIP, a specific EJ-related outreach policy statement should be incorporated. It is also important to identify and consider the unique communities that live in the DCHC MPO area. The DCHC MPO should refer to the MPO's EJ report to identify any highly concentrated areas of EJ populations. It is critical that updates to the PIP do not exclude

the consideration of non-EJ populations that live in the DCHC MPO area. The DCHC MPO should learn and understand the values, traditions, and histories of all communities and populations that exist in the DCHC MPO area and tailor outreach strategies appropriately. A few key questions that the DCHC MPO should ask during an update to the PIP are:

- Historically, what populations or communities have been underrepresented during transportation planning activities?
- Is there a local community leader that would be willing to serve as a liaison?
- Where do members of these communities work?
- Where do members of these communities recreate or congregate?
- Where do members of these communities access basic needs, in particular, food and retail goods?
- What languages do members of these communities speak at home?
- How do members of these communities seek out and share information within their communities?
- What obstacles such as physical ability, transportation, employment, or family responsibilities would prevent members of these communities from participating in public meetings or workshops?

For public outreach in the DCHC MPO area to be successful, an update to the PIP should reflect answers or solutions to the questions listed above.

BENEFITS AND BURDENS

Not every project can be beneficial to the communities that it directly impacts. There are benefits and burdens related

to every transportation-related project and both must be considered for each specific project during the project identification and prioritization phases of long-range planning activities such as the MTP and the TIP.

POTENTIAL BURDENS

When considering potential burdens of transportation-related projects, all reasonably foreseeable adverse social, economic, and environmental effects on minority, LEP, elderly, and low-income populations must be identified and addressed. For the purposes of this EJ report, burdens are impacts related to the transportation process that have an adverse impact or effect on the surrounding communities.

The USDOT update to the Final Environmental Justice Order 56102 states that adverse effects include, but are not limited to:

- Bodily impairment, infirmity, illness, or death;
- Air, noise, and water pollution and soil contamination;
- Destruction or disruption of man-made or natural resources;
- Destruction or diminution of aesthetic values;
- Destruction or disruption of community cohesion or a community's economic vitality;
- Destruction or disruption of the availability of public and private facilities and services;
- Vibration;
- Adverse employment effects;
- Displacement of persons, businesses, farms, or nonprofit organizations;
- Increased traffic congestion, isolation, exclusion, or separation of minority or low income individuals within a given community or from the broader community; and
- Denial of, reduction in, or significant delay in the receipt of benefits of USDOT programs, policies, or activities.²

As stated on page 4-14, the DCHC MPO should carefully assess potential burdens related to projects that are proposed for inclusion in long range planning efforts such as the MTP and TIP.

POTENTIAL BENEFITS

Benefits of a transportation investment are the direct, positive effects of that project; that is to say, the desirable things we obtain by directly investing in the project.³ Example benefits include but are not limited to:

- Reduction of travel time;
- Reduced vehicle-related costs (costs of owning and operating a vehicle);
- Reduction in the number or severity of crashes;
- Increase in economic development;
- Reduction in circuitry of travel (provide a shorter route); and
- Reduction of costs related to emission reductions.

The DCHC MPO should consider anticipated benefits related to projects that are proposed for inclusion in long-range planning efforts such as the MTP and TIP. Not all proposed projects will be beneficial to all populations that exist in close proximity to the projects

BENEFITS AND BURDENS COMPARISON TABLE

The Environmental Justice Report of the Coastal Region Metropolitan Planning Organization (Savannah, GA; 2012) provides an excellent comparison of benefits and burdens. Chapter 2 of the report presents a summary table of benefits and burdens related to transportation projects and includes potential mitigation strategies that were identified by the CORE MPO.⁴

The summary table (below) has been included in this EJ report because it provides a wealth of excellent information in an easy to read and condensed format. The DCHC MPO will refer to Table 4.4 during future planning process and will also update the table as needed to reflect EJ goals of the DCHC MPO area.

Table 4.4: Example Table of Potential Benefits and Burdens of Transportation Projects

Proposed Project Type	Possible Benefits	Possible Burdens	Possible Mitigation Strategies
HIGHWAY SYSTEM			
New Road	Enhance accessibility and mobility; Promote economic development; Improve safety; Improve operational efficiency.	Benefits limited to populations with motor vehicles; Increase in noise and air pollution; Might impact existing neighborhoods.	Signal synchronization, pedestrian crosswalks, bike lanes, bus route addition, etc; Select ROW for minimum impacts; Try to incorporate context-sensitive design to maintain the neighborhoods.
Resurface/ Upgrade of existing roadways/ Operational improvements	Promote system preservation; Improve safety; Improve operational efficiency.	Expansion of shoulder width impinges on residential property; Diverted traffic during project construction causes heavy traffic and dangerous conditions on city streets; Noise and air pollution during construction.	Build curbing and sidewalks rather than shoulders; Close large section of roadways on weekends to increase resurfacing productivity; Reroute traffic to major streets if possible.
PUBLIC TRANSIT			
Fixed Route Bus Service	Enhance accessibility by transit to EJ populations; Reduce reliance on motor vehicles and improve air quality; Increase mobility to EJ populations.	Buses are sometimes smelly and noisy; Bus headways in certain routes might be too long; Possible capacity problems with ferry boat; Some bus shelters are not wheelchair accessible.	Try to create a comfortable environment for the bus and ferry boat riders; Improve transit frequency if possible; Bus routes should be within walking distance of EJ populations; Install bus shelters accessible by wheelchairs.
BICYCLE AND PEDESTRIAN FEATURES			
Addition of Pedestrian Amenities and / or Safety Provisions	Improve quality of life, health and environment by encouraging people to use the bike/pedestrian facilities.	“Bump-outs” and traffic calming measures make commercial deliveries difficult.	Need to come up with some original improvement plans to accommodate both motor vehicle traffic and bike/ pedestrian usage.
Addition of Bike Routes/Lanes to Existing Roads	Improve safety to pedestrians and bike riders; Provide an alternative to motor vehicles.	Bike routes takes space for passing turning cars at intersections and reduce on-street parking.	Develop standardized design guidelines that accommodate both motor vehicle traffic and bike/ pedestrian usage.
OTHER TRANSPORTATION PROJECTS			
Multi-modal connections	Enhance mobility and accessibility.	Some ITS projects might be expensive to implement.	Multi-modal incorporates transit stations and other modes.
ITS improvements	Improve safety.		Have a comprehensive design before any ITS projects are implemented.
CMP strategies	Enhance system preservation and operational efficiency.		

NEXT STEPS: USING & UPDATING THIS EJ REPORT

This EJ report can help local, regional, and state agencies or organizations identify the locations and concentrations of EJ populations. Additionally, it can be of assistance during long-range planning processes to avoid disproportionately high and adverse impacts of plans and policies on EJ populations and ensure that EJ populations benefit from transportation investments. This report should be used in conjunction with a more detailed EJ analysis conducted during long-range planning activities such as the MTP and TIP, and again during individual project planning phases, such as the NEPA phase. As the DCHC MPO region continues to grow and change demographically, the methodology developed for this EJ report to evaluate EJ communities of concern should be reassessed for consistency with current best practices.

As was done in this document with the inclusion of the LEP, elderly, and zero-car household analyses, future analyses may include the evaluation of additional EJ populations. The DCHC MPO may consider the creation of a project-specific EJ Advisory Committee, coordination with other MPOs involved in similar processes, receipt of input from stakeholders, individual citizens or community groups, and research and updating of data sources that may prove useful to the analysis. The DCHC MPO should also consider including a review and evaluation of past projects or recently completed projects in a future update to this EJ report. The inclusion of such an evaluation would ensure there are no systematic or cumulative impacts to any one EJ or non-EJ population in the DCHC MPO area.

Additionally, the DCHC MPO will continue to implement EJ activities as part of its annual UPWP, fulfillment of federal certification requirements, and completion of regional goals related to EJ. The EJ program at DCHC MPO is constantly evolving, becoming more effective and inclusive over time. To ensure EJ compliance and considerations are implemented in all major

planning activities, the MPO will:

- Remain informed of legal developments related to Title VI and other nondiscrimination statutes;
- Continue to update the Table 4.4 of potential benefits and burdens related to transportation projects in the DCHC MPO area and include evaluation of additional EJ measures such as accessibility, mobility, safety, displacement, equity, environmental, social, and aesthetics;
- Evaluate the potential impacts of DCHC MPO transportation projects on EJ communities of concern and strive to mitigate or reduce the level of burden associated with a project;
- Assess DCHC MPO studies and programs to identify the regional benefits and burdens of different populations groups;
- Determine strategic outreach efforts to LEP populations and strengthen efforts to include all population groups in the DCHC MPO area in the regional planning process;
- Provide EJ education and training for DCHC MPO staff to heighten the awareness of EJ in the planning process;
- Maintain and update the Title VI Compliance, Public Involvement Policy, LEP Plan, and Environmental Justice Report as necessary;
- Refer to this EJ report often during planning processes for guidance on the locations and concentrations of EJ communities of concern in the DCHC MPO area; and
- Update this EJ report following, or in conjunction with the adoption of future MTPs.

Endnotes

1. Federal Highway Administration. "FHWA Guidebook for State, Regional, and Local Governments on Addressing Potential Equity Impacts of Road Pricing." *US Department of Transportation*. April 2013. <https://ops.fhwa.dot.gov/publications/fhwahop13033/fhwahop13033.pdf>.
2. Federal Highway Administration. "Update to the Final Environmental Justice Order 56102." *US Department of Transportation*. May 2012. http://www.fhwa.dot.gov/environment/environmental_justice/ej_at_dot/orders/order_56102a/.
3. Minnesota Department of Transportation, "Benefit-Cost Analysis for Transportation Projects". *Planning & Programming*. <http://www.dot.state.mn.us/planning/program/benefitcost.html>.
4. Coastal Region Metropolitan Planning Organization, The Chatham County-Savannah Metropolitan Planning Commission. "Environmental Justice Report of the Coastal Region Metropolitan Planning Organization." 2015. <https://www.thempc.org/docs/lit/corempo/draft/titlevi/environmentaljustice.pdf>.

1994 EXECUTIVE ORDER 12898

The three fundamental principals of environmental justice set forth by Title VI and Executive Order 12898 are:

1. To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority and low-income populations;
2. To ensure the full and fair participation by all potentially affected communities in the transportation decision-making process; and
3. To prevent the denial of, reduction in, or significant delay of these protections for minority and low-income populations.

Environmental justice must be considered in all phases of planning. Areas of focus and particular concern are public participation – to ensure that protected populations have real and equitable opportunity to influence decisions – and analysis – to assess the distribution of benefits and impacts on protected populations.

AUTHORITY, REQUIREMENTS, AND STANDARDS OF THE 1964 ACT

The following notations expand on the authority, requirements, and standards of the 1964 Act:

- The Federal Aid Highway Act of 1973 (23 USC 324) established the prohibition of discrimination based on gender.
- The Civil Rights Act of 1987 broadened the scope of Title VI coverage by expanding the definitions of “programs or activities” to include all programs or activities of Federal Aid recipients, sub-recipients and contractors, regardless of whether the programs and

A

APPENDICES

CONTENTS

1. 1994 Executive Order 12898
2. Authority, requirements, and standards of the 1964 Act
- 3 EJ population definitions

activities are federally assisted (Public Law 100259 {S. 557}, March 22, 1988).

- The Americans with Disabilities Act of 1990 (42 USC 12101 et seq. and 49 CFR Parts 27, 37 and 38) and The Rehabilitation Act of 1973, Section 504, (29 USC 794) extended the protections under Title VI of the Civil Rights Act of 1964 to prohibit discrimination of persons with disabilities; and in Title II requires that public transit be accessible to persons with disabilities. The Act states that all new transit vehicles must be made accessible to persons with disabilities, and that para-transit can be used to complement existing fixed-route service.
- The Age Discrimination Act of 1975 prohibits discrimination based on age (42 USC 6101).
- Executive Order 12250 (28 CFR Part 41) requires consistent and effective implementation of various laws prohibiting discriminatory practices in programs receiving federal funding assistance, including Title VI of the Civil Rights Act of 1964.
- Executive Order 12898 (28 CFR 50) from 1994 directs federal agencies to evaluate impacts on low-income and minority populations and ensure that there are not disproportionate adverse environmental, social, and economic impacts on communities, specifically low income and minority populations. This order also directs federal agencies to provide enhanced public participation where programs may affect such populations.
- USDOT Order on Environmental Justice (DOT Order 5610.2) from 1997 describes how the principles in the Executive Order are to be incorporated into programs and activities. The Order states that the USDOT will not carry out any program, policy or activity that will have a disproportionately high and adverse effect on minority or low-income populations unless mitigation measures or alternatives that would avoid the adverse impacts are not practicable.
- FHWA Order 6640.23 from 1998 contains policies and procedures for the FHWA to use

in complying with Executive Order 12898.

- Executive Order 13166 intends to improve access to federally conducted and assisted programs and activities for those who because of national origin have limited English language proficiency (LEP). The Order requires federal agencies to review services, identify any needed services and develop and implement a program so that LEP populations have meaningful access. LEP guidance from the US Department of Justice sets compliance standards that federal fund recipients must follow to ensure that programs and services provided in English are accessible to LEP individuals, and thereby do not discriminate on the basis of national origin (protection afforded under the 1964 Civil Rights Act, Title VI). US Department of Transportation Policy Guidance: Federal Register, Vol. 70, No. 239, pages 74087-74100, Dec. 14, 2005.
- FHWA and FTA Memorandum on Title VI Requirements (October 7, 1999) clarifies Title VI requirements in metropolitan and statewide planning. The memorandum provides division FHWA and FTA staff a list of proposed review questions to assess Title VI capability and provides guidance in assessing Title VI capability. Failure to comply can lead to a corrective action being issued by FTA and/or FHWA, and failure to address the corrective action can affect continued federal funding.
- Administrative Regulations, 23 CFR 200 and 49 CFR 21 from Federal Highway Administration (FHWA) and Federal Transit Administration (FTA) set requirements for state transportation departments to implement Title VI policies and procedures at the state and local levels.

EJ POPULATION DEFINITIONS

The approach to environmental justice developed by the DCHC MPO in this EJ report strives to be a people- and place-based approach that locates selected EJ population groups in the region and determines how the regional transportation system and the DCHC MPO's programs, policies, and investments impact these groups.

ACS five-year estimates from the US Census Bureau were used to conduct the demographic analyses. The ACS is conducted every year to provide current information about the social and economic needs of the country. ACS data is organized in one-year, three-year, and five-year estimates. The five-year data estimates were chosen because they include data for all areas and provide information at the block group level. The five EJ communities evaluated in the development of this EJ report are defined in this section.

Racial Minority Populations:

Racial minority population includes any non-white individual, inclusive of the populations designated in the Department of Transportation's Order on Environmental Justice in Minority Populations and Low-Income Households, as described on this page.

Black: a person having origins in any of the black racial groups of Africa;

Hispanic or Latino: a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race;

Asian American: a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent;

American Indian and Alaskan Native: a person having origins in any of the original people of North America, South America (including Central America), and who maintains cultural identification through tribal affiliation or community recognition; or

Native Hawaiian and Other Pacific Islander: people having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

Elderly Populations:

Elderly population includes any individual age 65 and over. This metric was determined based on a reading of *An Aging Nation: The Older Population in the United States*, published by the US Census Bureau.¹

Limited English Proficiency Households:

As per the US Census Bureau definition a "limited English speaking household" is one in which no member 14 years old and over (1) speaks only English or (2) speaks a non-English language and speaks English "very well." In other words, all members 14 years old and over have at least some difficulty with English.

Low-Income Households:

A household whose annual median household income was less than 60% of the average median household income level of all the Census Block Groups within the DCHC MPO area. The average median household income of the DCHC MPO area as reported in US Census' 2013-2017 Five Year Estimates was \$64,865. Applying the 60% income limit factor to \$64,865 results in a low-income limit of \$38,920 for households in the DCHC MPO area.

The Town of Chapel Hill uses 80% of Median Income as the low-income limit, as defined by the US Department of Housing and Urban Development (HUD), for the Town's inclusionary zoning/affordable housing policy.

The Town of Carrboro uses 80% of Median Income as the low-income limit, as defined by HUD, for the Town's affordable housing density bonus program.

The County and City of Durham each passed a resolution in 2014 that set their low-income limit as 60% of Median Income.

Based on the review of each local jurisdiction's policy for setting low-income limits, 60% of Median Household Income was used as the low-income limit for households.

Additional analysis of lower income populations was also performed to consider the location and concentrations of extremely low-income populations. The extremely low-income limit was determined by applying HUD's standard for extremely low-income limit, which is 30 percent of Median Household Income.²

Zero-Car Households:

The data on vehicles available were obtained from the housing questions in the ACS. These data show the number of passenger cars, vans, and pickup or panel trucks of one-ton capacity or less kept at home and available for the use of household members. Vehicles rented or leased for one month or more, company vehicles, and police and government vehicles are included if kept at home and used for non-business purposes. Dismantled or immobile vehicles are excluded. Vehicles kept at home but used only for business purposes are also excluded.

Endnotes

1. "Title VI & Environmental Justice Plan." *Rogue Valley Metropolitan Planning Organization*, RVMPO, Oct. 2014, http://www.rvmpo.org/images/EJ_Plan_FINAL_Oct_2014.pdf.
2. "Public Involvement Policy." *Durham-Chapel Hill-Carrboro Metropolitan Planning Organization*, DCHC MPO, 14 Nov. 2012, <http://www.dchcmpo.org/civicax/filebank/blobdload.aspx?BlobID=28369>.

County Thresholds

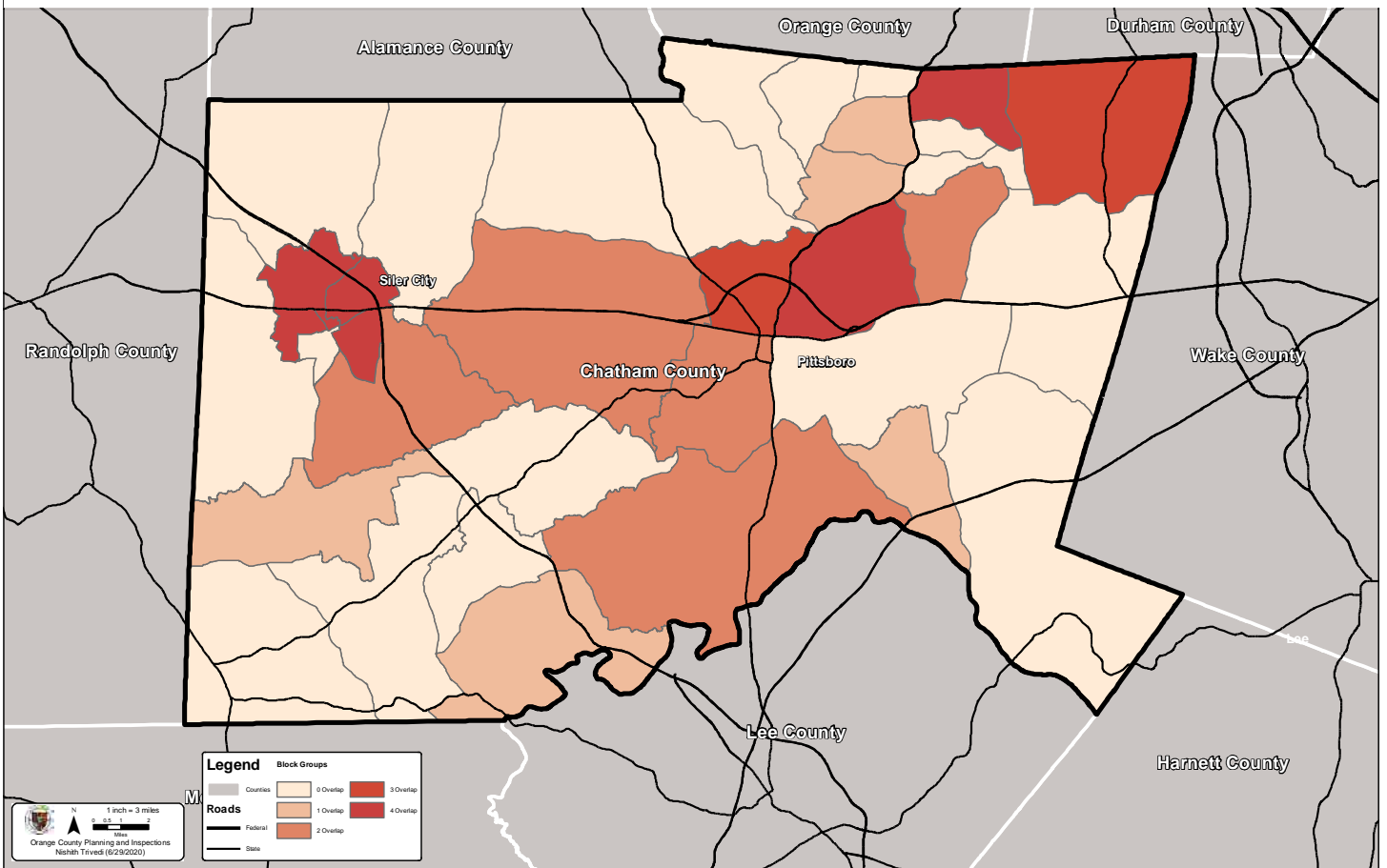
This appendix includes demographic summary data for Chatham, Durham, and Orange counties; thresholds for each county that were developed using the methodology in this report; and mapped communities of concern for each county. These thresholds and mapped communities of concern by county will allow counties to use this report's methodology for county-specific projects, such as Transit Plans.

Table A.1: County Summary Data

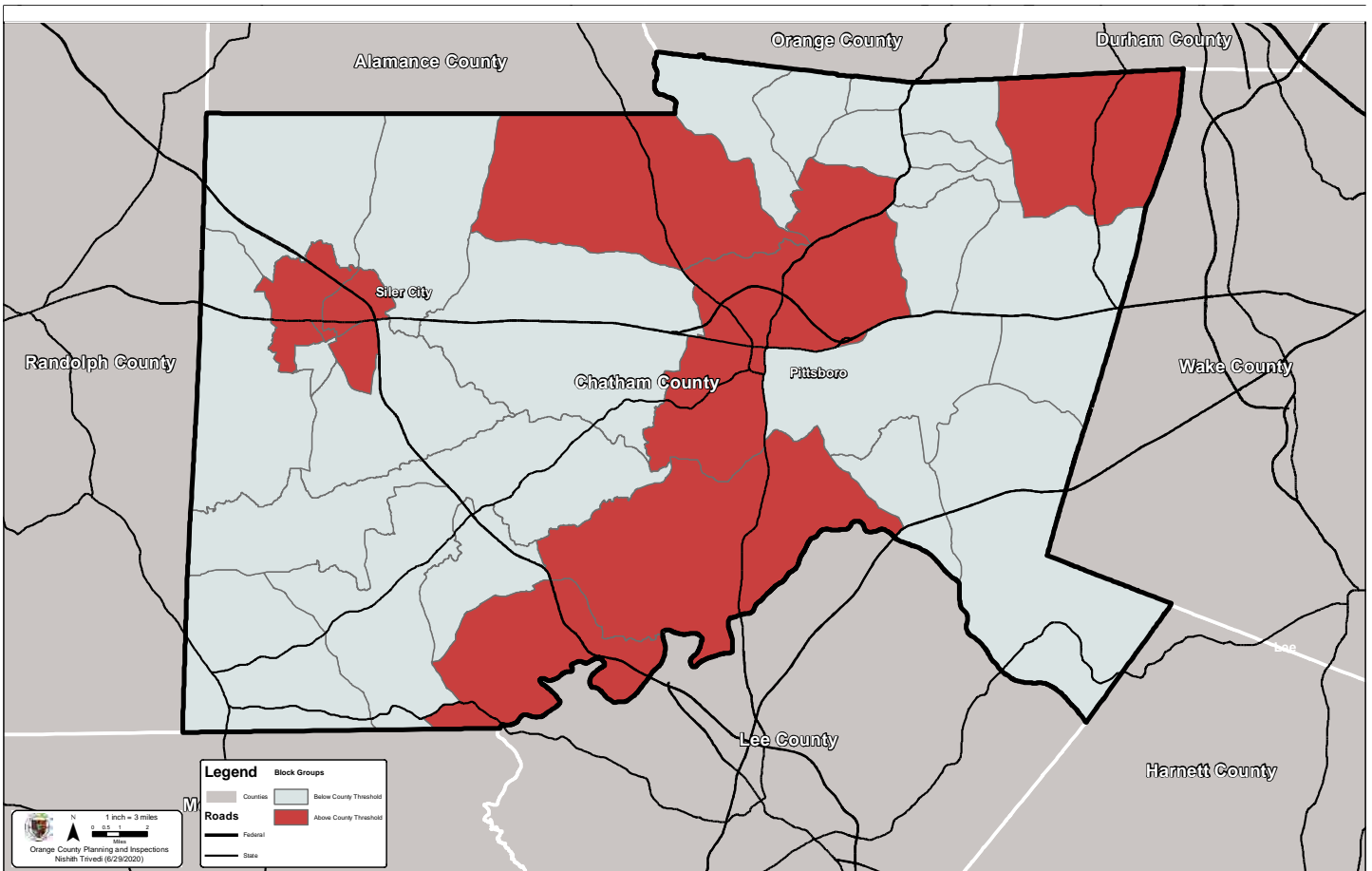
County	Total Pop	Total HH	Med HH Income	Black	Minority	Hispanic/Latino	Below Poverty	Elderly	Zero Car Households	LEP
Chatham	69,791	31,555	\$ 63,531	8,073	13,601	8,626	8,241	16,306	1,283	2,105
Durham	306,457	133,429	\$ 58,190	113,511	149,091	41,189	46,805	37,056	9,936	15,650
Orange	142,938	57,502	\$ 68,211	16,557	36,403	12,014	17,633	18,364	2,644	3,508

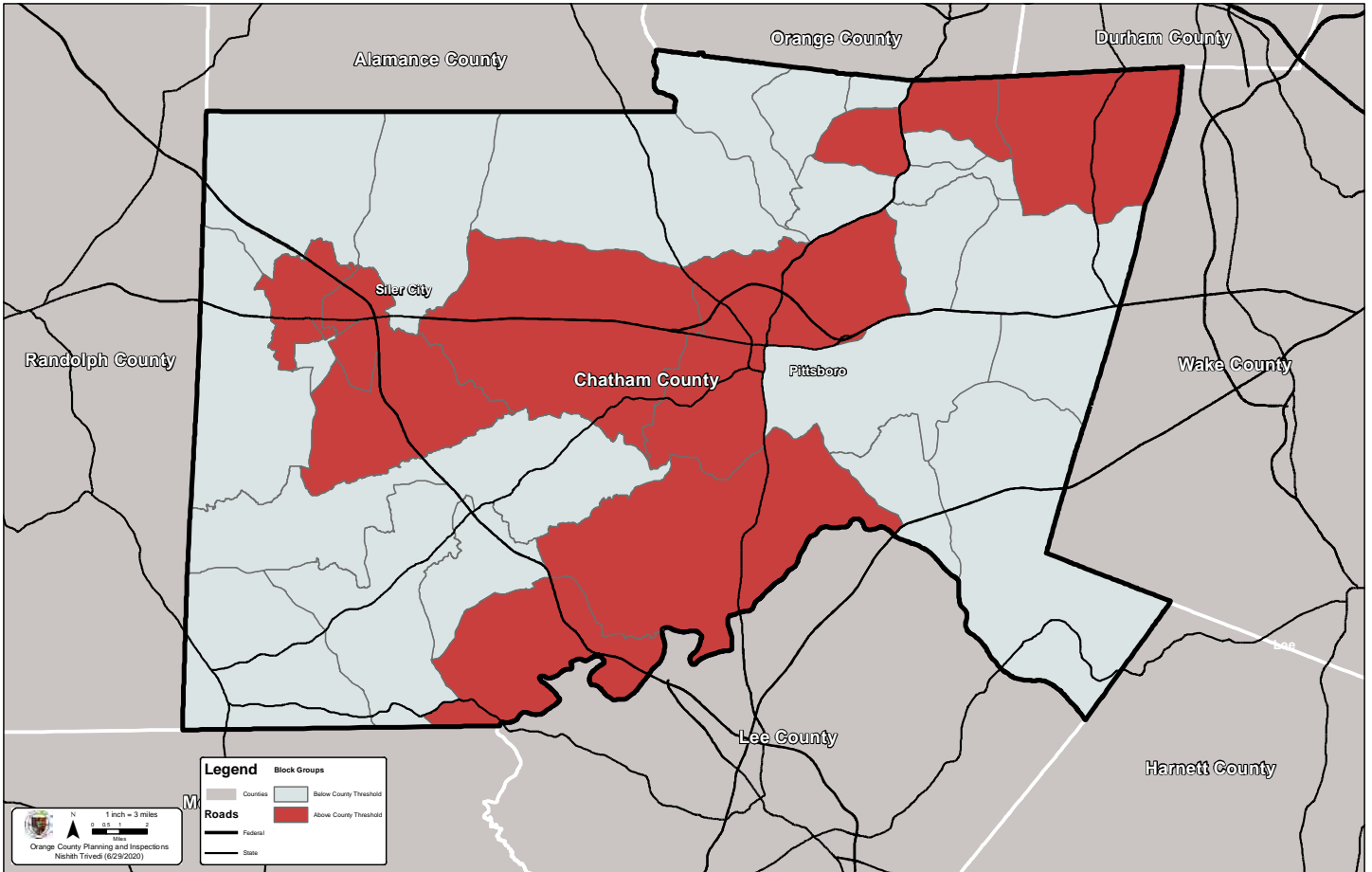
Table A.2: County Thresholds

County	Black	Minority	Hispanic/Latino	Below Poverty	Elderly	Zero Car Households	LEP
Chatham	12%	19%	12%	12%	23%	4%	3%
Durham	37%	49%	13%	15%	12%	7%	5%
Orange	12%	25%	8%	12%	13%	5%	2%

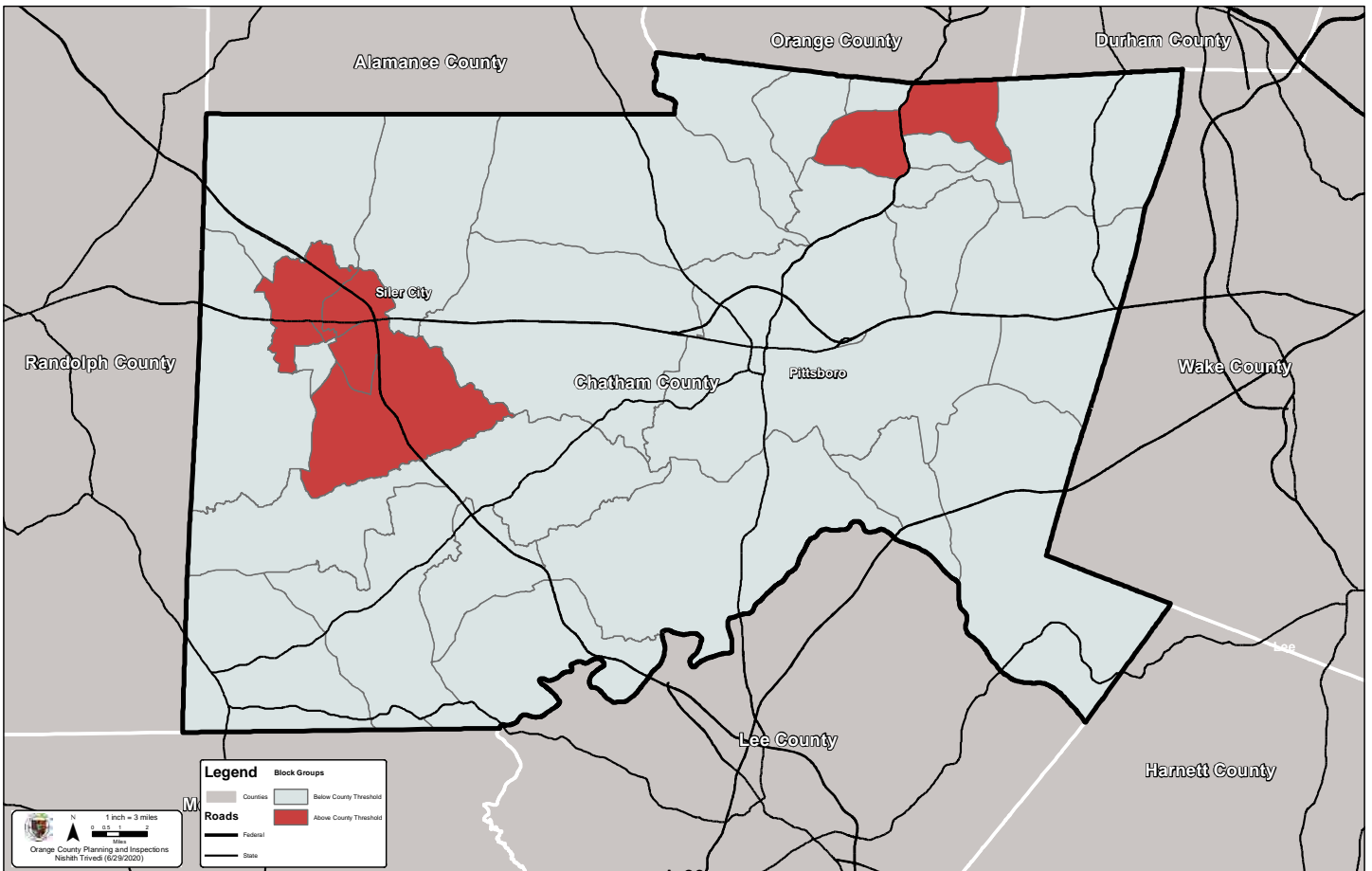


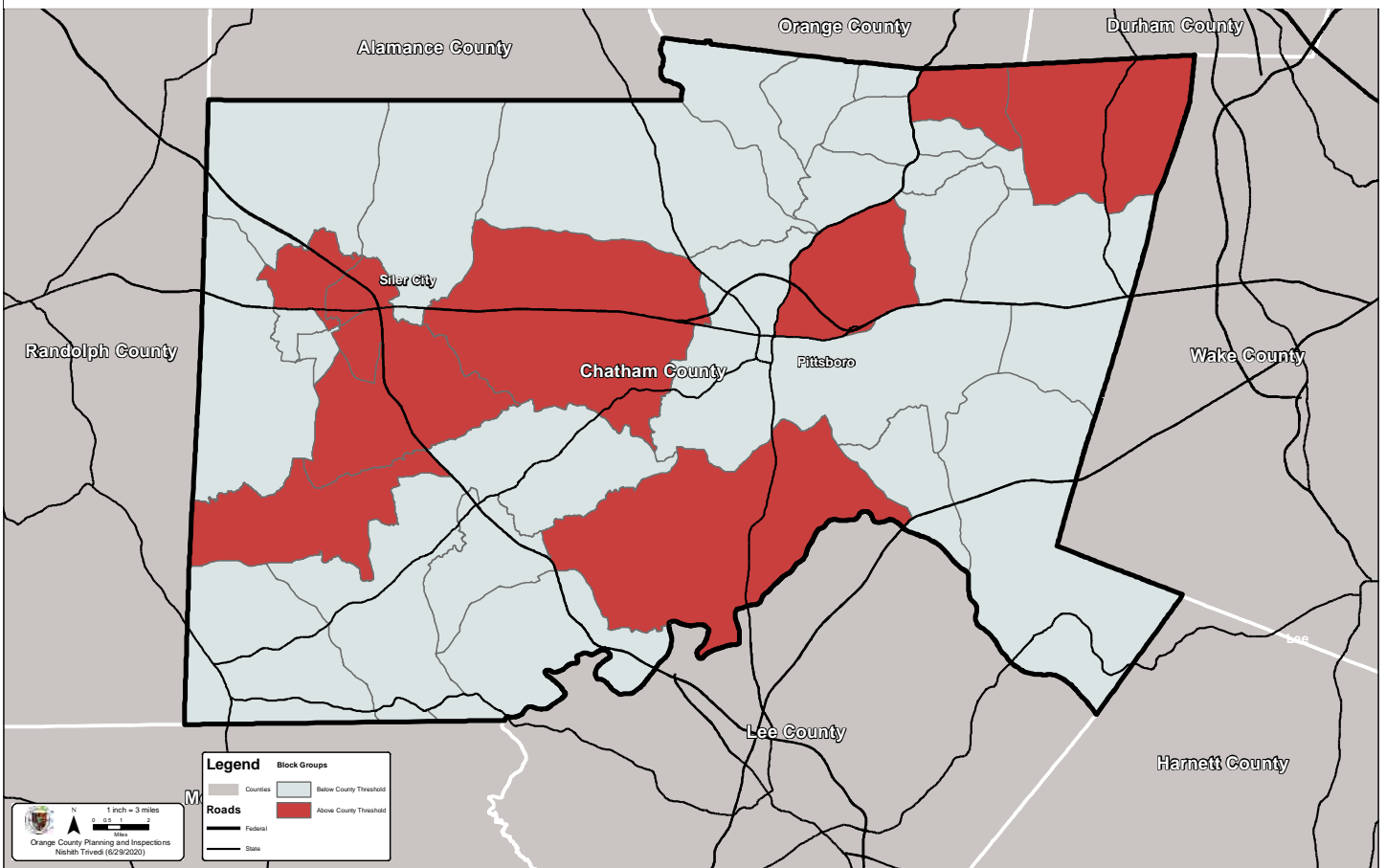
Environmental Justice - County Level Analysis - Black



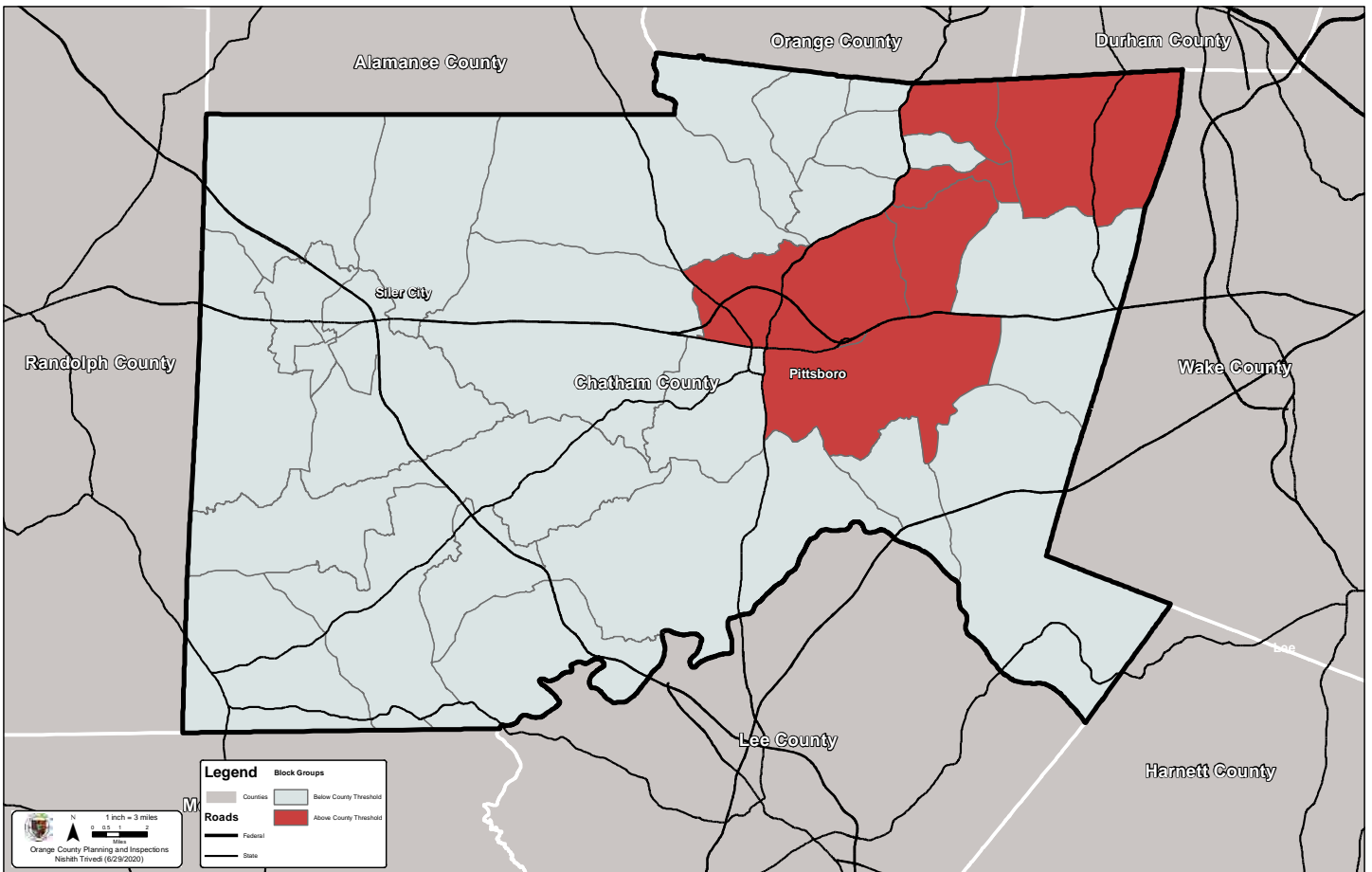


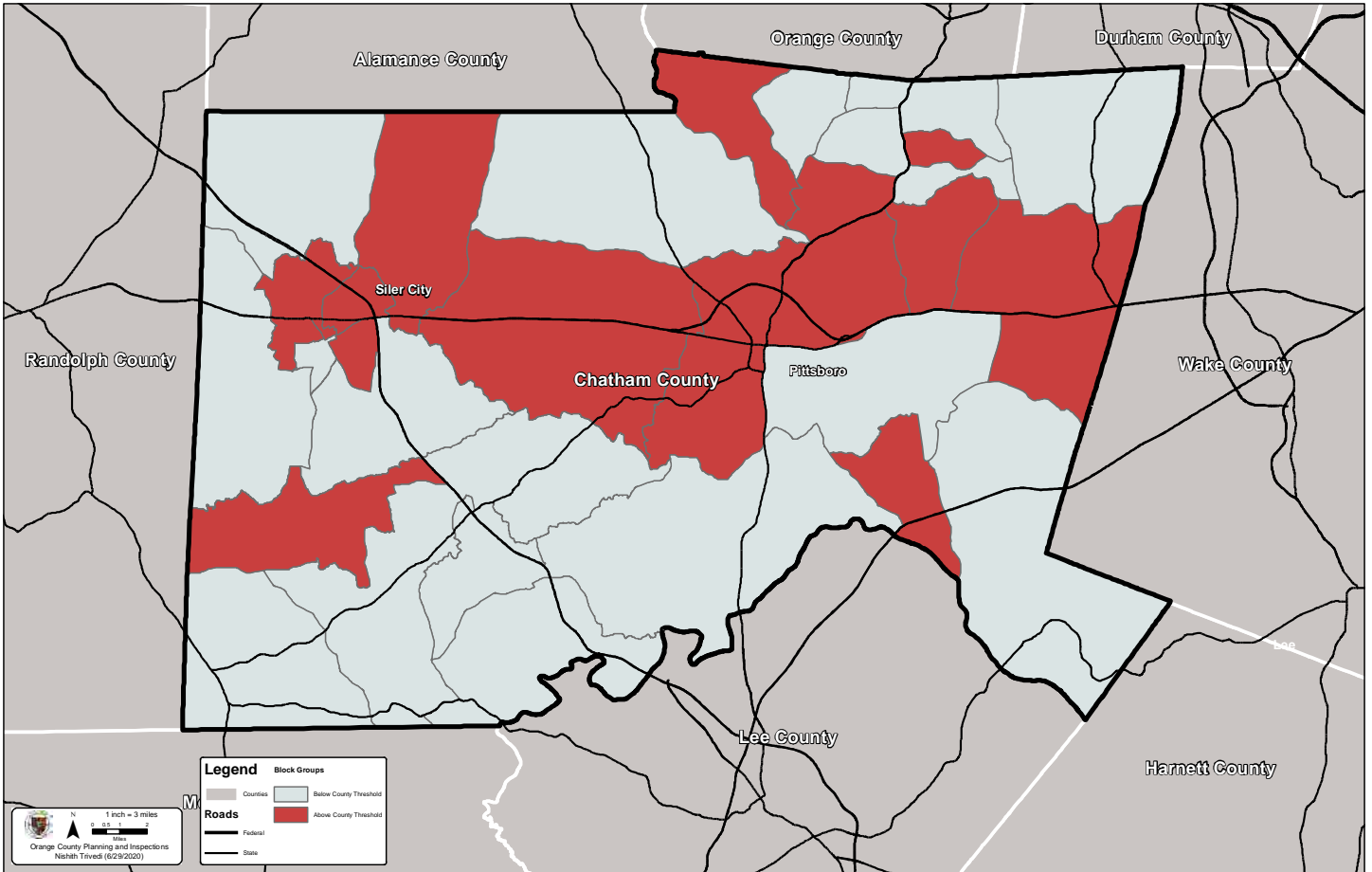
Environmental Justice - County Level Analysis - Hispanic/Latino



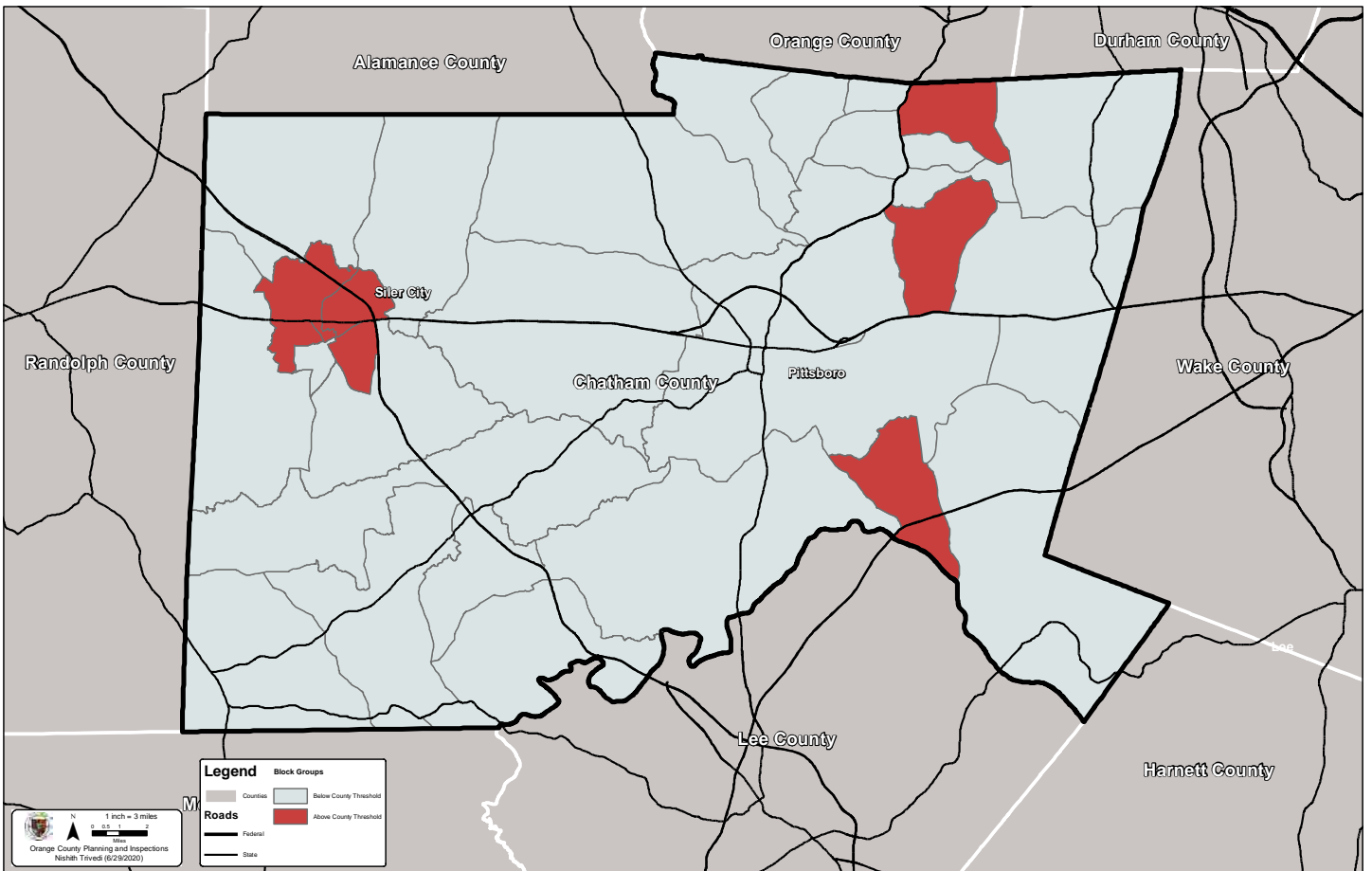


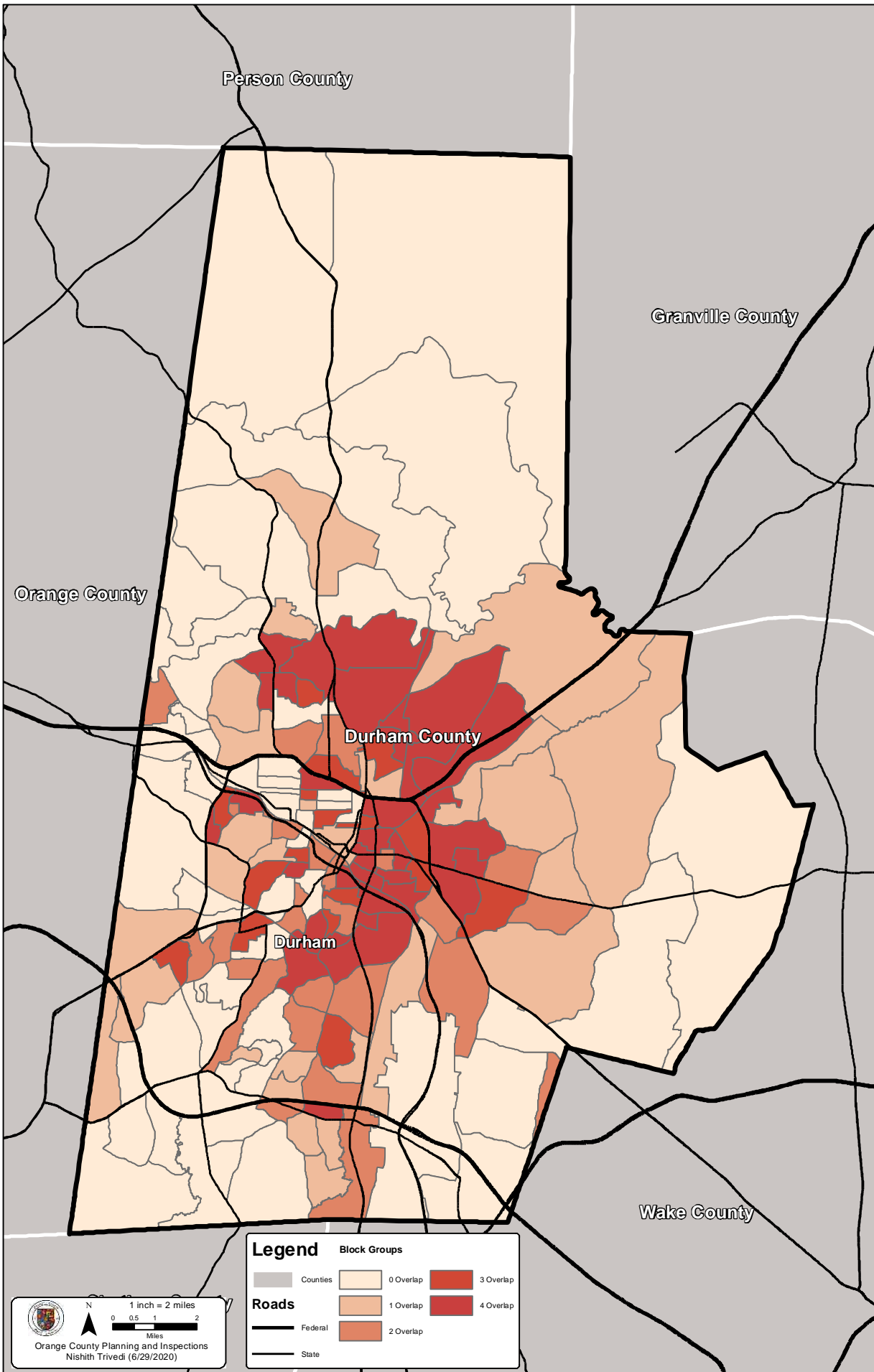
Environmental Justice - County Level Analysis - Elderly

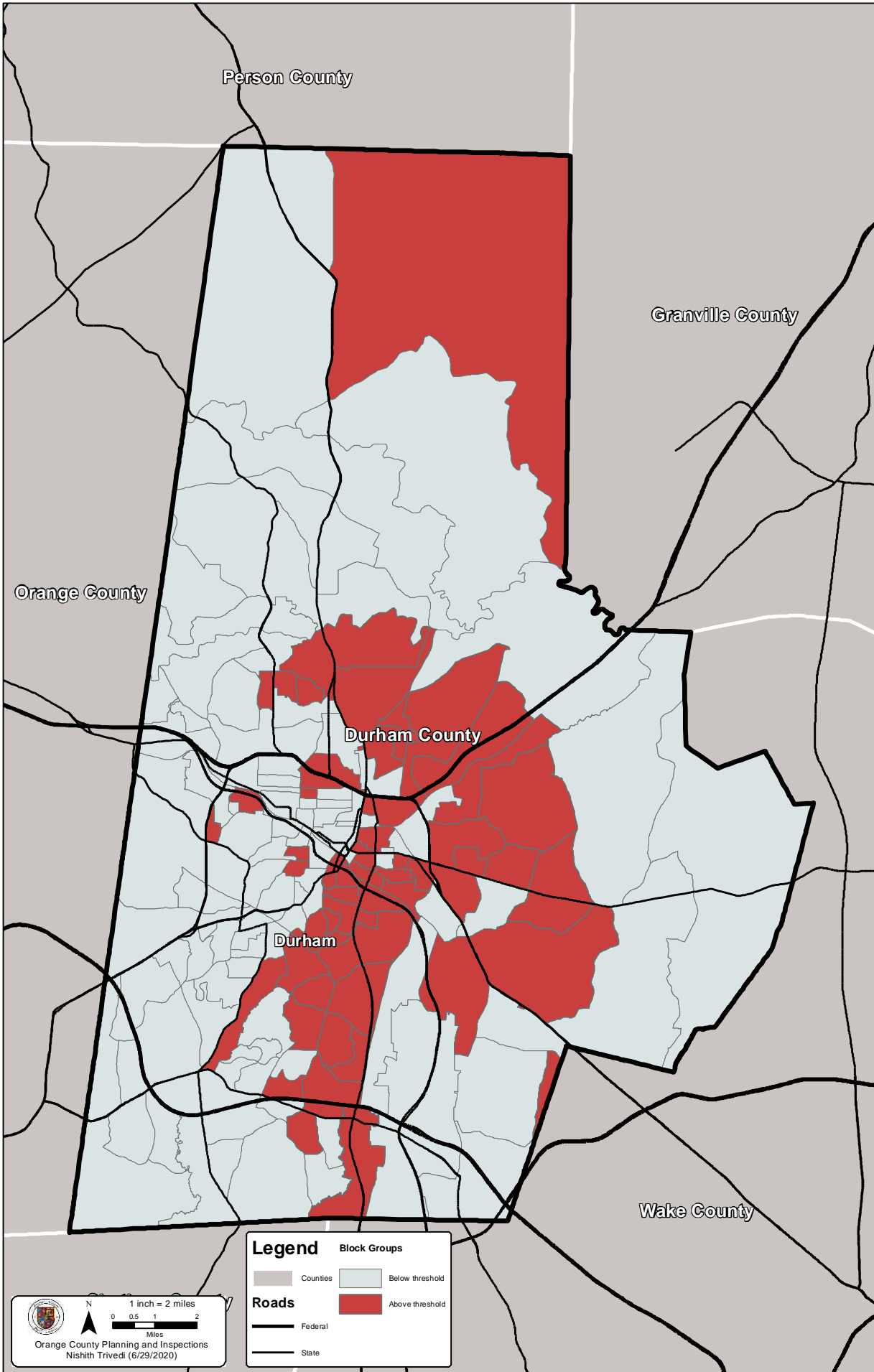


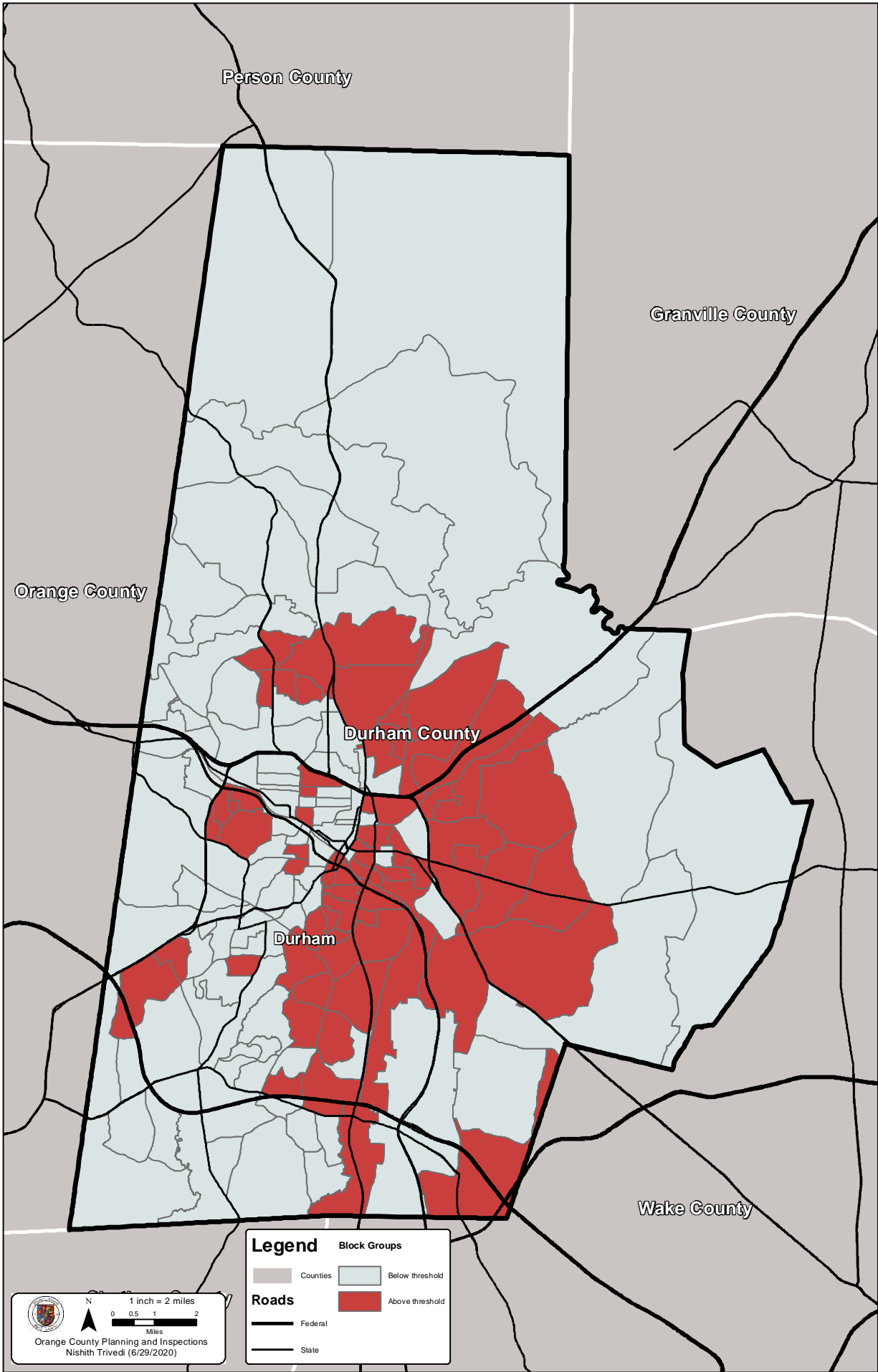


Environmental Justice - County Level Analysis - Limited English Proficiency (LEP)





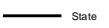





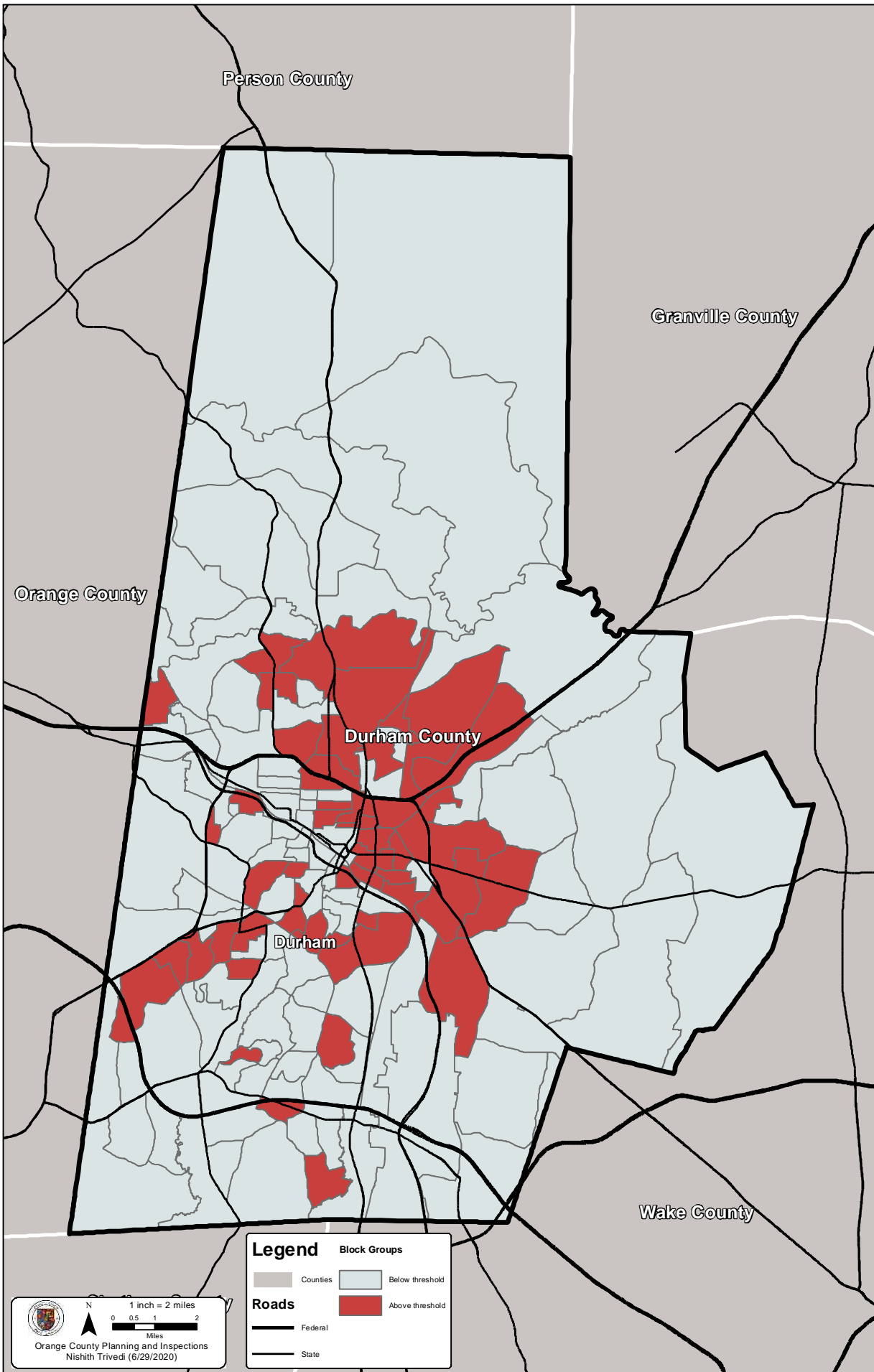


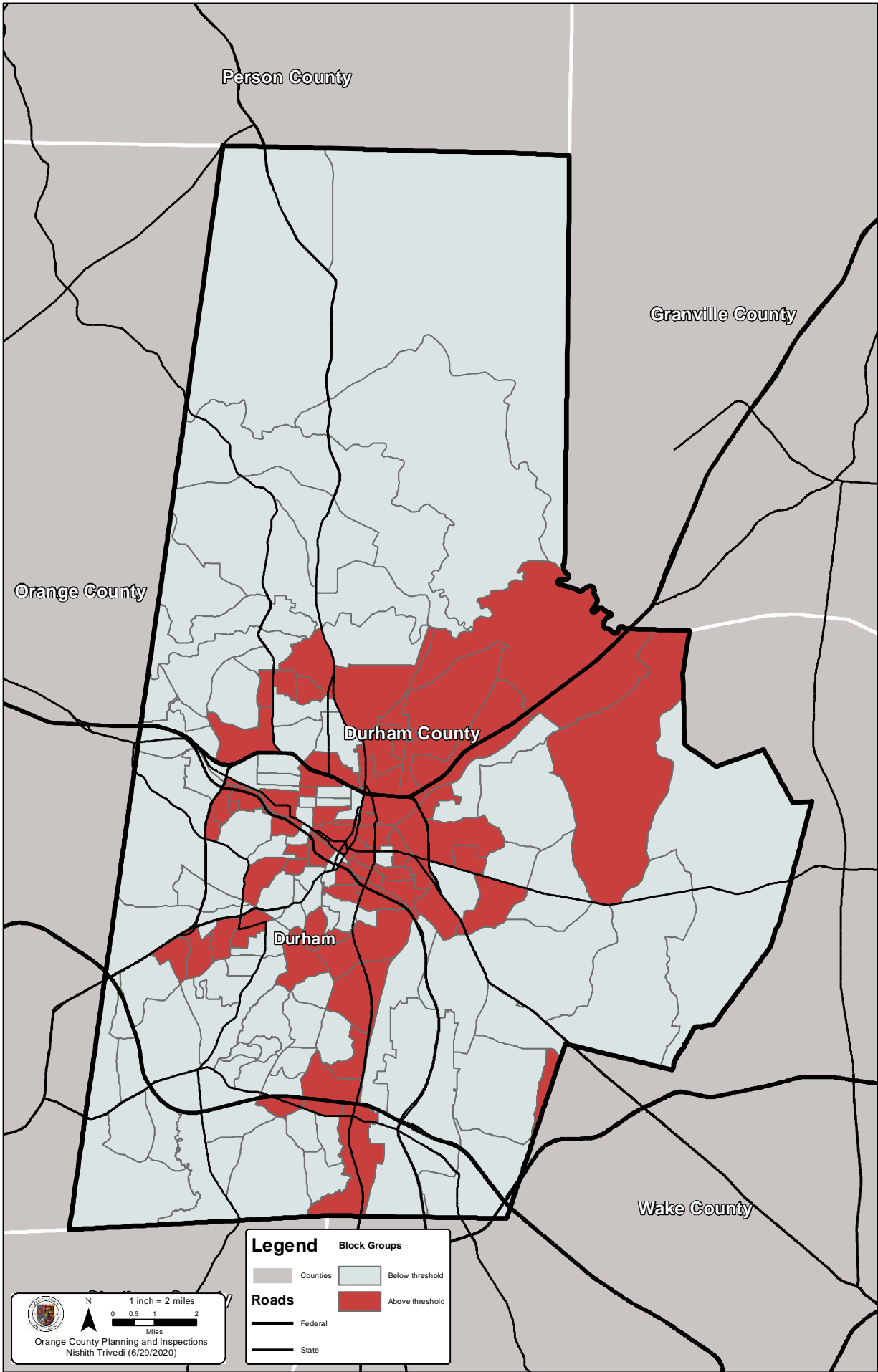


Legend

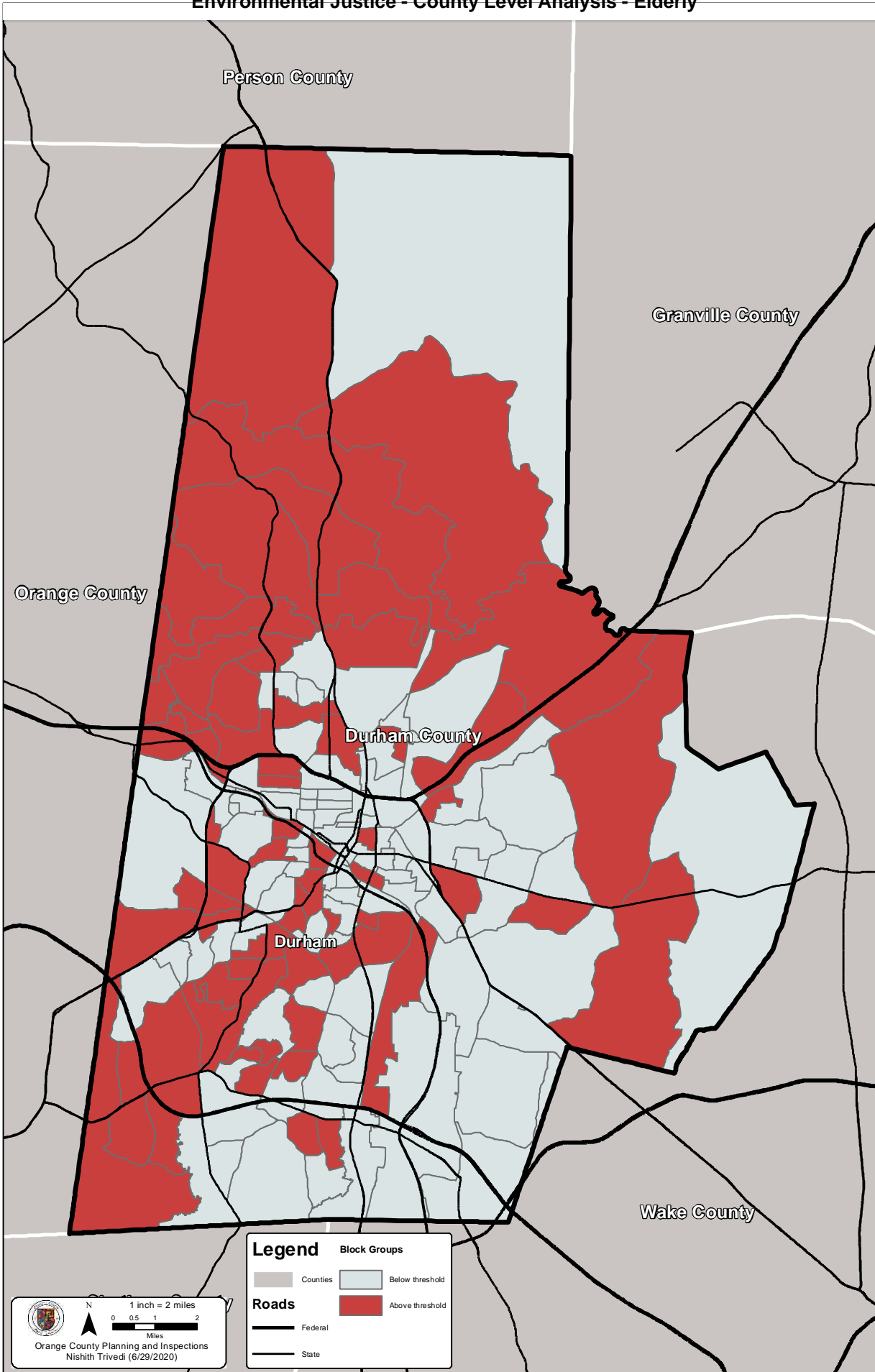
Block Groups	
	Counties
	Below threshold
	Above threshold
Roads	
	Federal
	State


 1 inch = 2 miles
 0 0.5 1 2
 Miles
 Orange County Planning and Inspections
 Nishith Trivedi (6/29/2020)

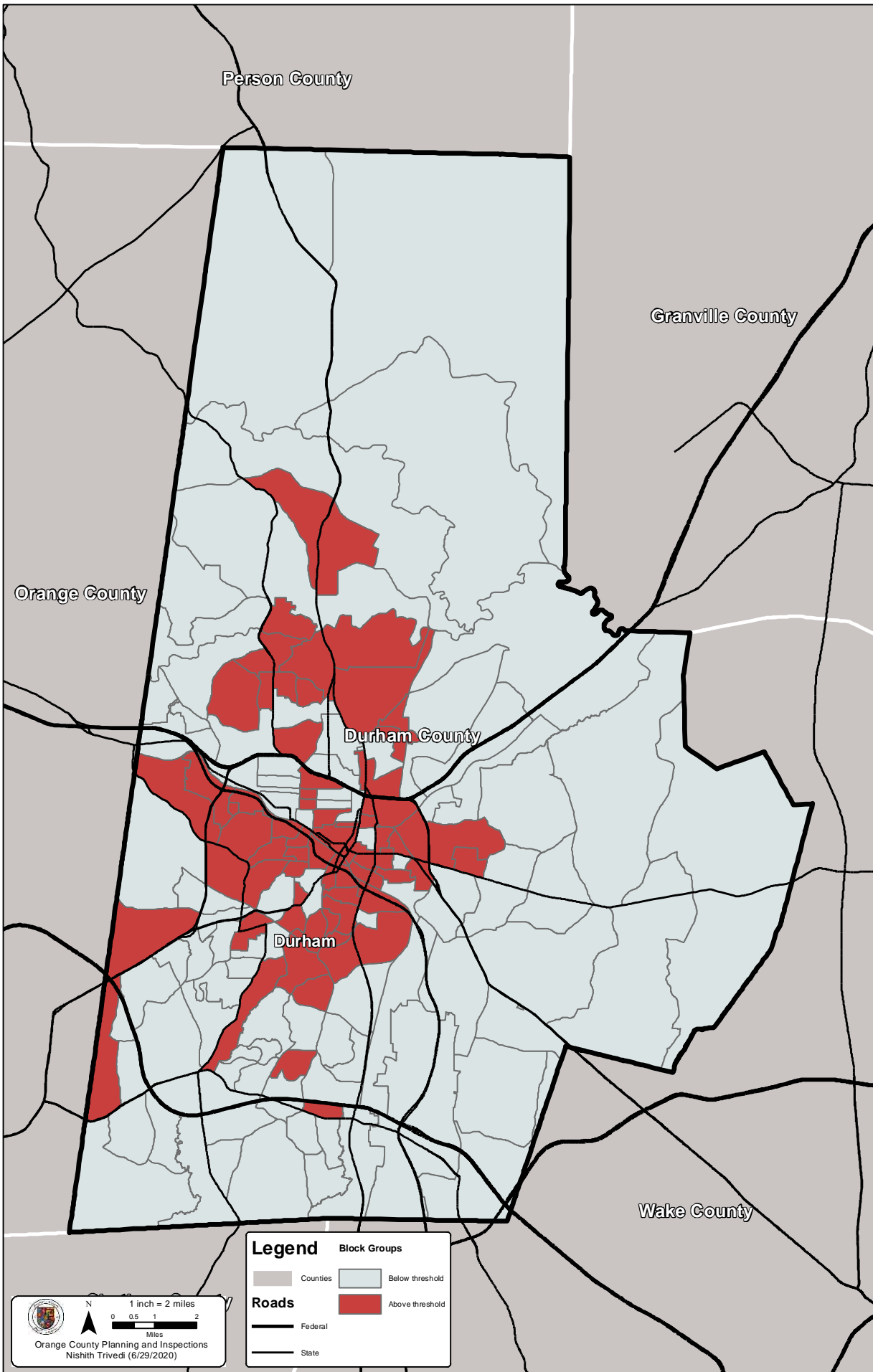




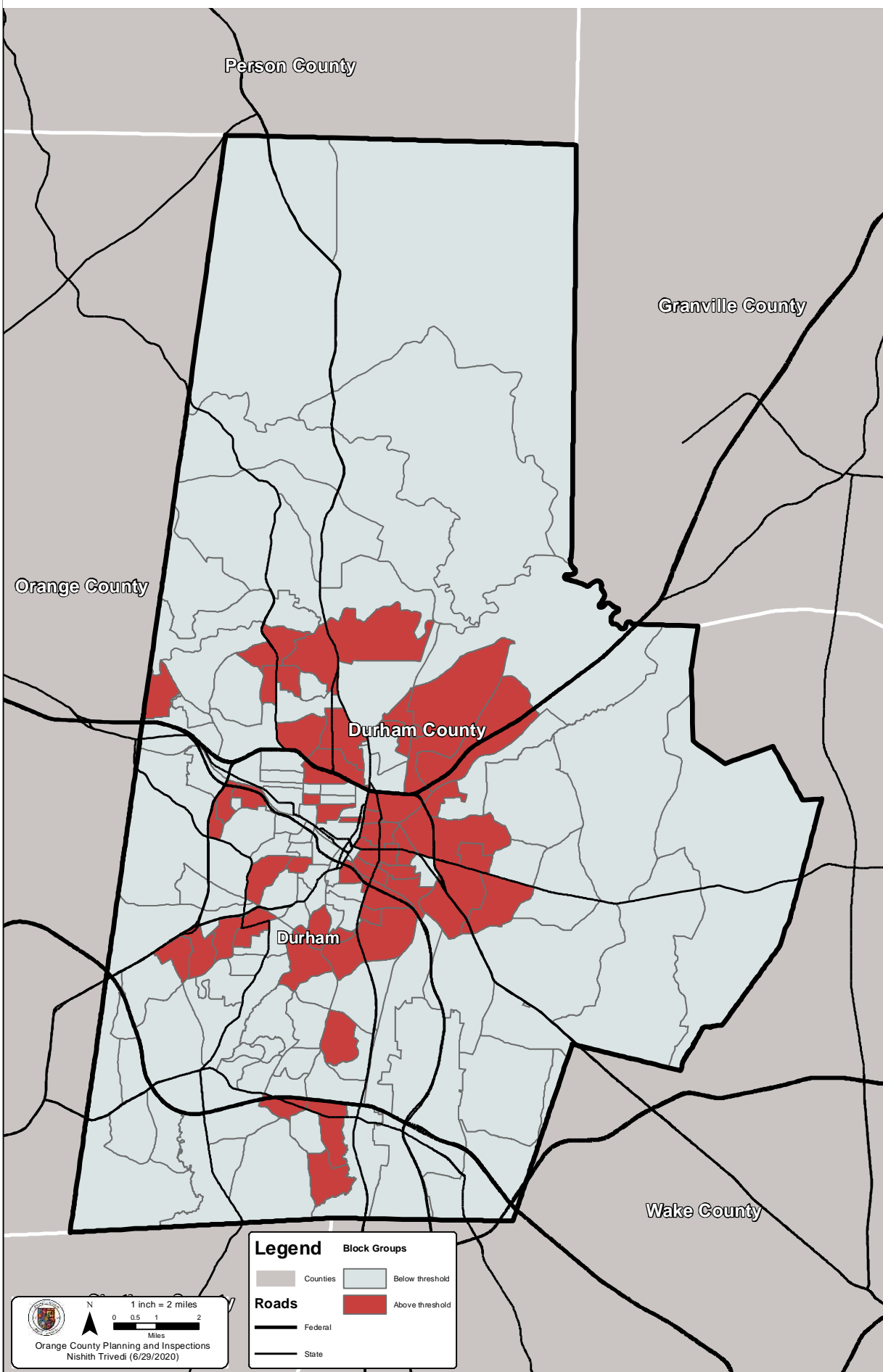
Environmental Justice - County Level Analysis - Elderly



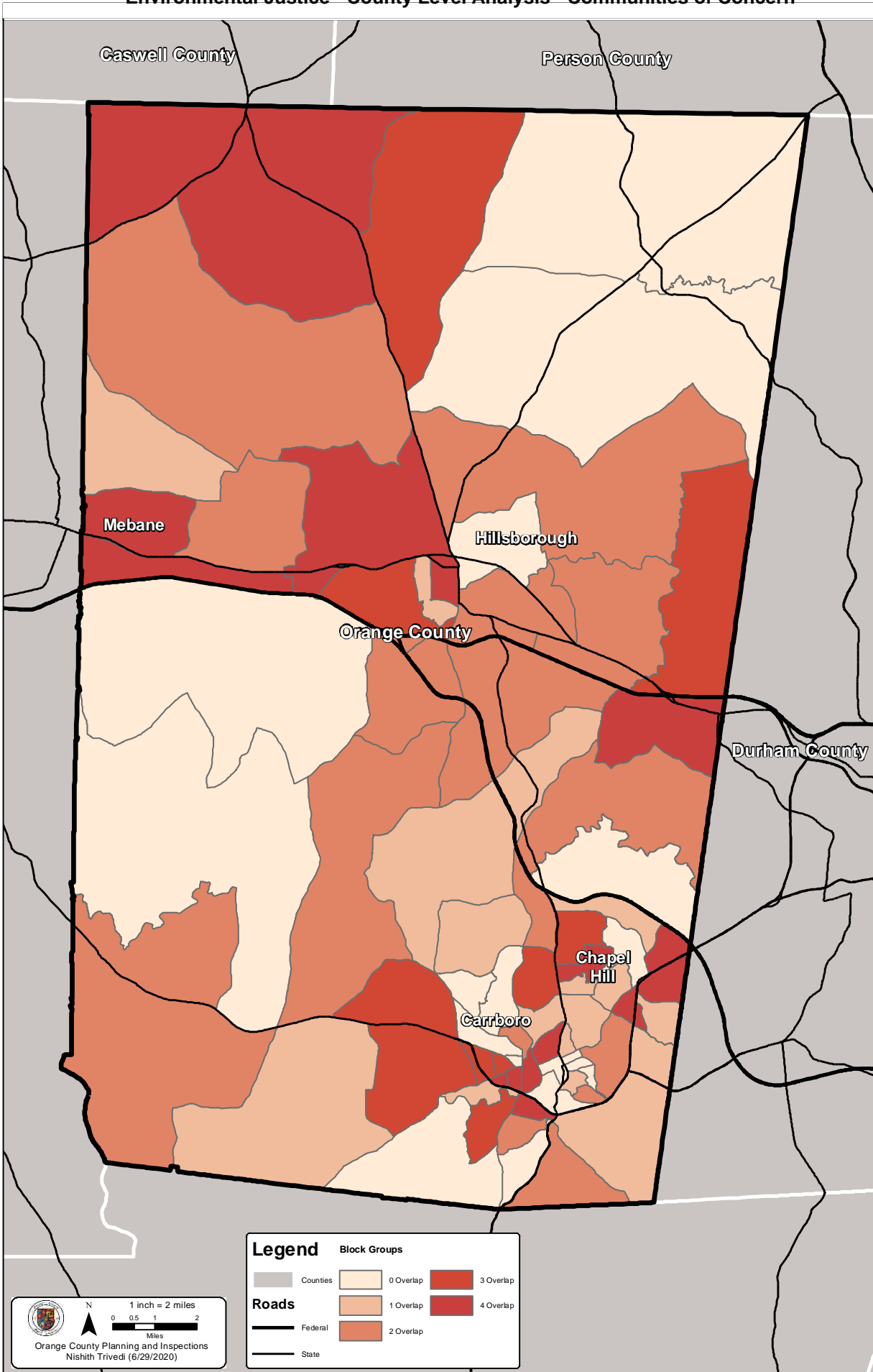
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Nishith Trivedi (6/29/2020)

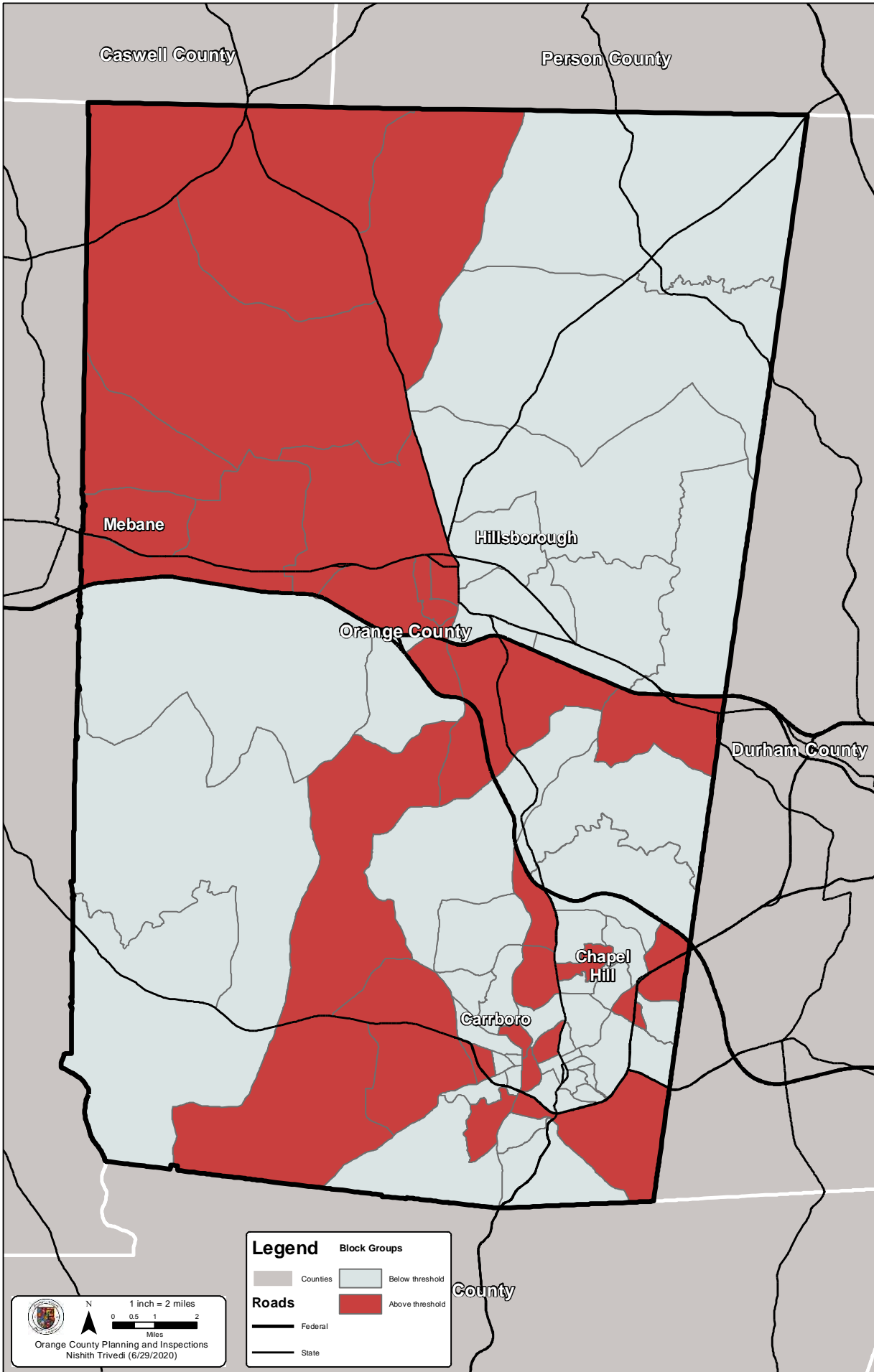


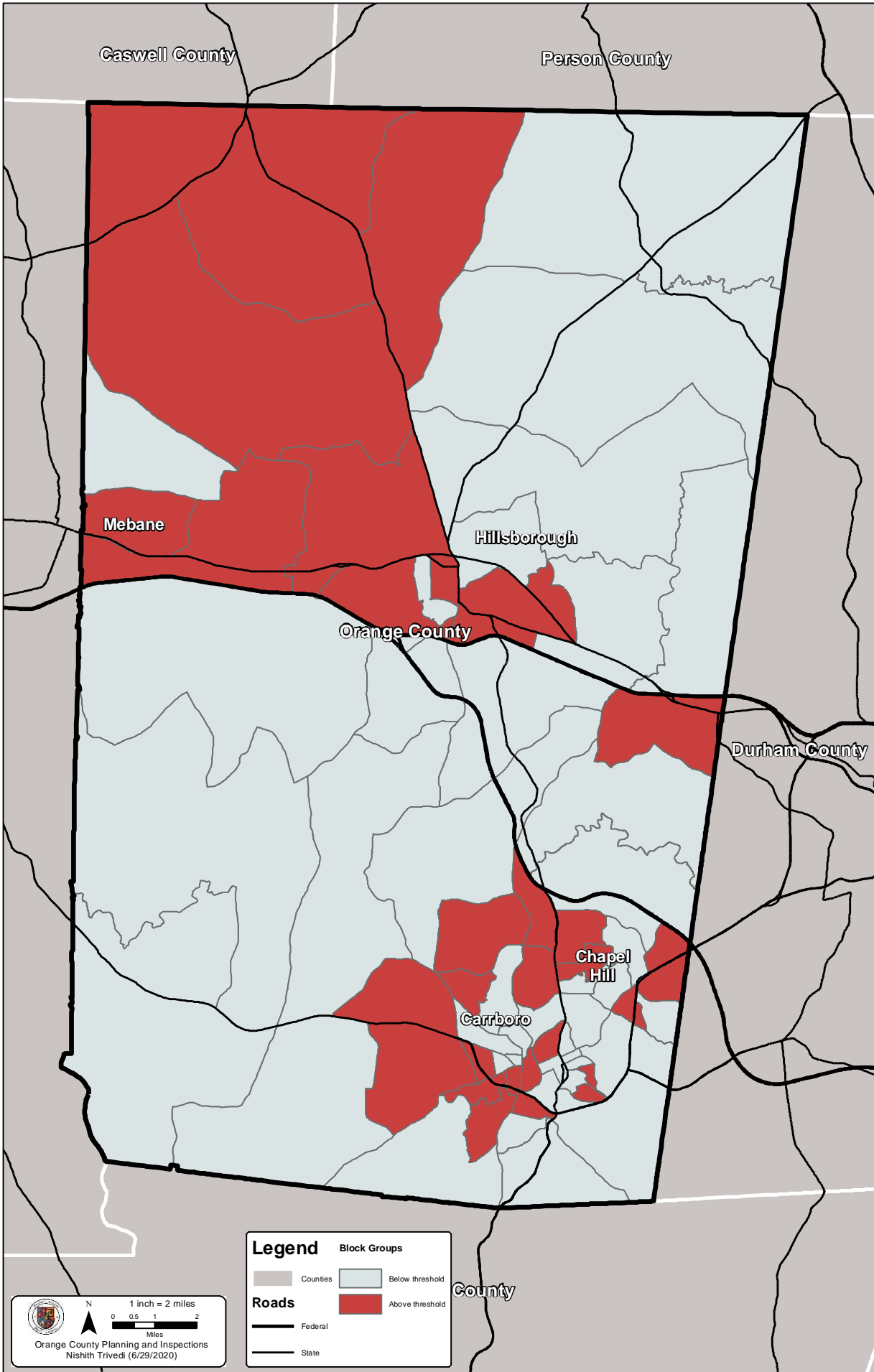
Environmental Justice - County Level Analysis - Limited English Proficiency (LEP)

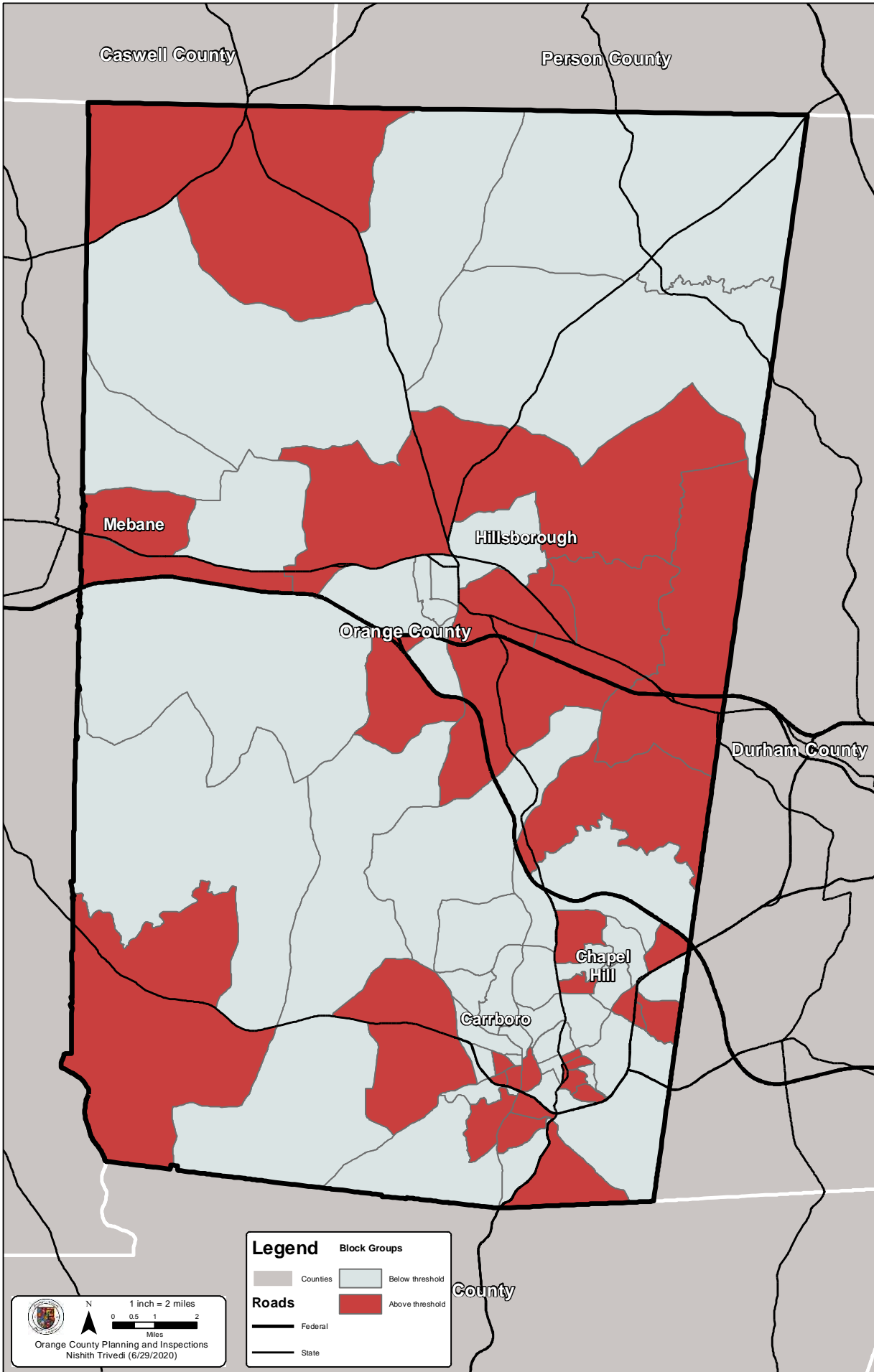


Environmental Justice - County Level Analysis - Communities of Concern

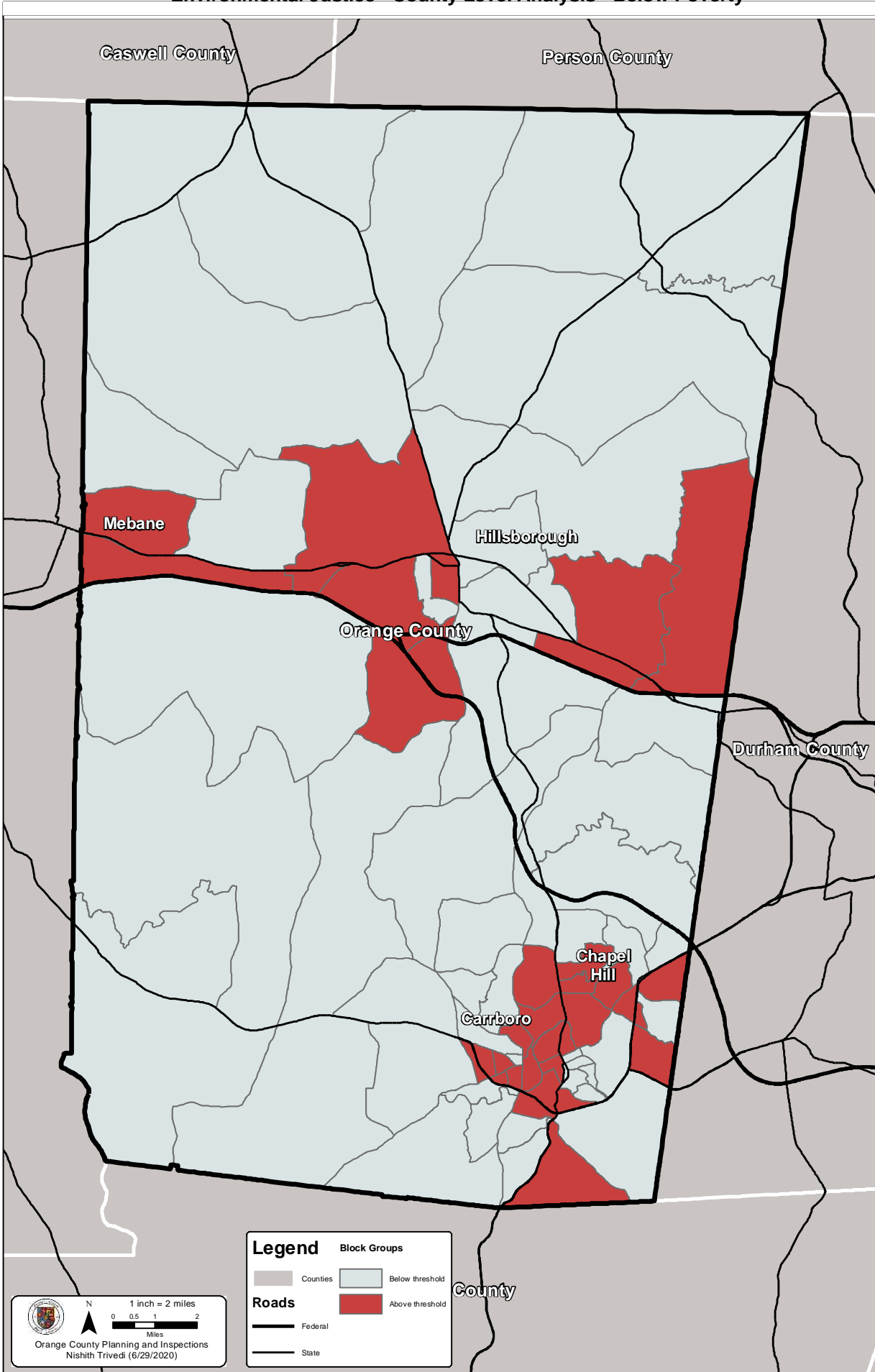


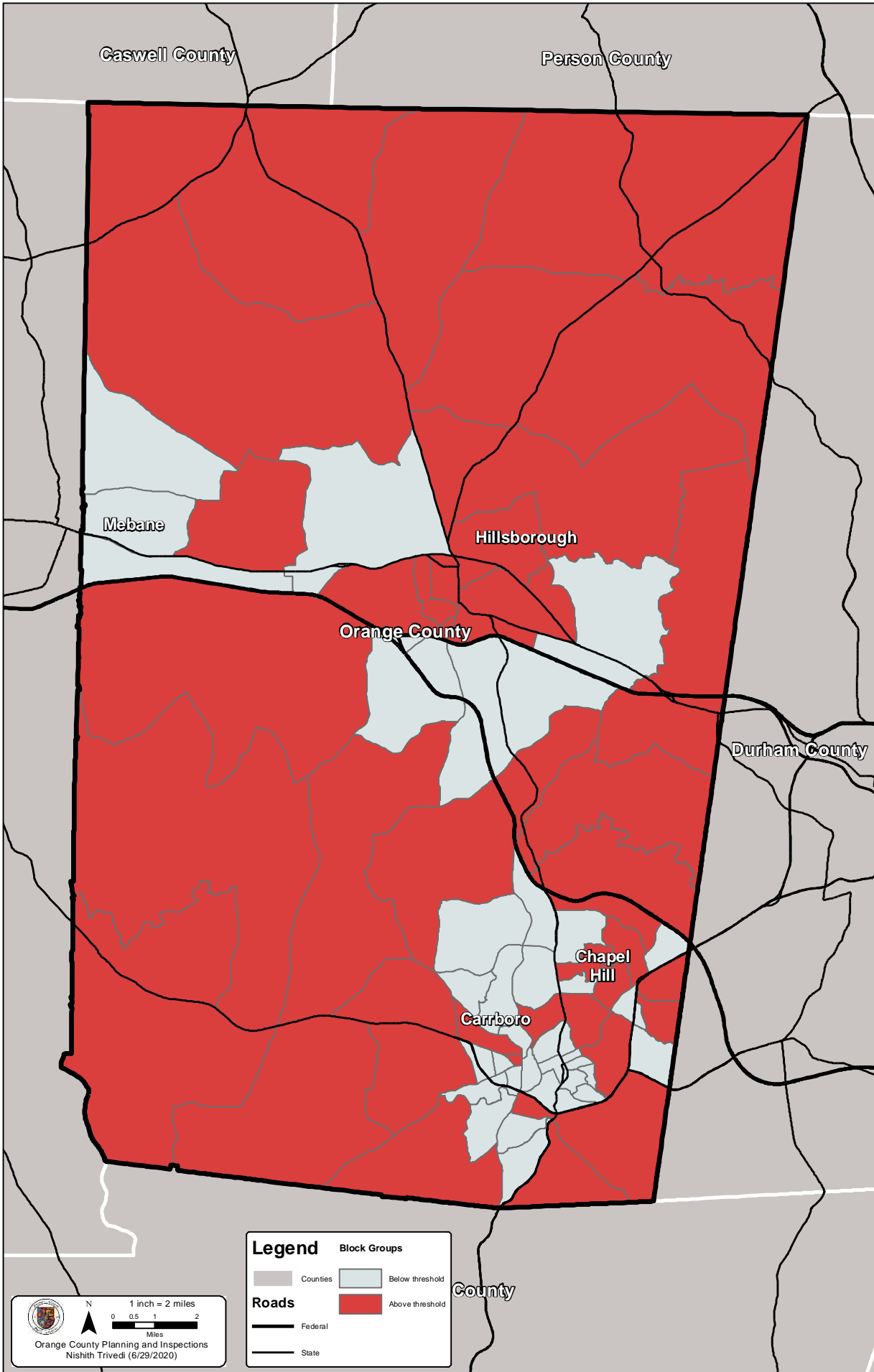


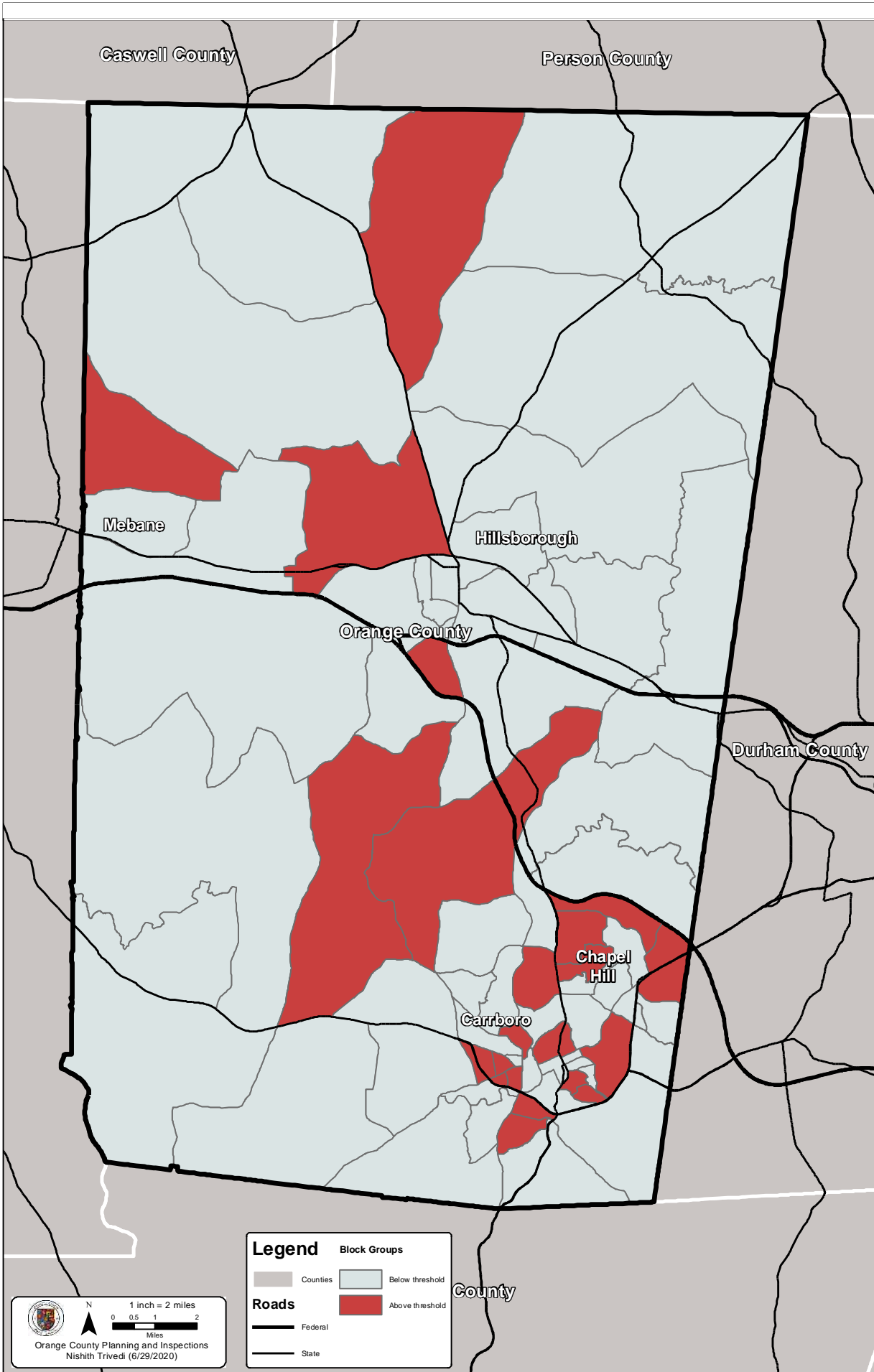




Environmental Justice - County Level Analysis - Below Poverty







Environmental Justice - County Level Analysis - Limited English Proficiency (LEP)

