## Appendix 9-1 Cabarrus Rowan MPO Congested Corridors - 2050 E + C Model

| Corridor Segment | Begin Milepost | End Milepost | Length | Total Crashes (Note 2) | Injury Crashes (Note 2) | 2019 AADT Estimates (Note 1) | Total Crash Rate (Note 3) | 2018 Peak Hour V/C Ratio (Note 4) | 2050 Peak Hour V/C Ratio (Note 4) | 2050 Peak Hour Level of Service (LOS) | Comments |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Branchview Dr. from Corban Ave N. to City Limits at I-85 | 2.9 | 6.485 | 3.585 | 434 | 148 | 21,000 | 315.88 | 1.09 | 1.26 | F | |
| Brookwood Ave. NE from Church St. N to Branchview Dr. | 0.66 | 1.35 | 0.69 | 15 | 2 | 3,800 | 313.47 | 0.24 | 0.88 | D | |
| Cabarrus Ave. W from US Hwy 601 to US Hwy 29 | 9.303 | 9.563 | 0.26 | 113 | 30 | 19,000 | 1253.40 | 0.66 | 0.58 | B | Crash rate validates congested corridor issues |
| Cannon Blvd. From Concord City Limits to Rowan Co. Line | 10.14 | 14.01 | 3.87 | 686 | 170 | 23,000 | 422.30 | 0.62 | 0.67 | C | Used Northern city limits just North of I-85 Interchange |
| Cochran Rd. from Roberta Rd. to Pitts School Rd. | 0 | 0.92 | 0.92 | 9 | 1 | 2,500 | 214.41 | N/A | N/A | N/A. | Corridor link was not included in the model data |
| Country Club Dr. NE from US Hwy 29 to Branchview Dr. | 0 | 0.61 | 0.61 | 54 | 19 | 11,000 | 440.97 | 0.59 | 1.05 | D | |
| Dale Earnhardt Blvd. From Main St. to Cannon Blvd. | 8.638 | 10.07 | 1.432 | 259 | 71 | 17,000 | 582.97 | 0.51 | 0.70 | C | |
| NC Hwy 73 from Trinity Church Rd West to the City Limits | 4.35 | 6.01 | 1.66 | 177 | 40 | 27,000 | 216.39 | 0.90 | 1.04 | D | Used Western Kannapolis city limits |
| I-85 from Concord Mills Blvd. To Rowan Co. Line | 0.53 | 14.134 | 13.604 | 3,619 | 875 | 115,000 | 126.75 | 0.68 | 0.85 | D | |
| So. Main St. from Dale Earnhardt Blvd South to City Limits | 0.81 | 3.68 | 2.87 | 180 | 47 | 11,000 | 312.42 | 0.68 | 0.91 | D | Used Southern Kannapolis city limits |
| US Hwy 601 from Miami Church Road to NC Hwy 49 | 12.61 | 13.54 | 0.93 | 107 | 36 | 20,000 | 315.22 | 1.22 | 1.28 | F | |
| Jake Alexander Blvd. from Brenner Ave to Julian Rd. | 15.96 | 17.16 | 1.2 | 572 | 120 | 40,000 | 652.97 | 0.79 | 0.89 | D | |
| | 12.515 | 12.862 | 0.347 | 82 | 22 | 40,000 | 323.71 | 0.79 | 0.89 | D | |

Note 1: AADT values are taken from available NCDOT 2019 count locations that reflect average values for the corridor. For locations where data were not available, 2019 AADT values were estimated by reviewing recent traffic trend.

Note 2: Crash data is from 1/1/2017 through 12/31/21 (last 5 calendar years); This is a high level analysis based on mileposted crashes only.

Note 3: Crash Rate is calculated as total crashes per 100 million VMT

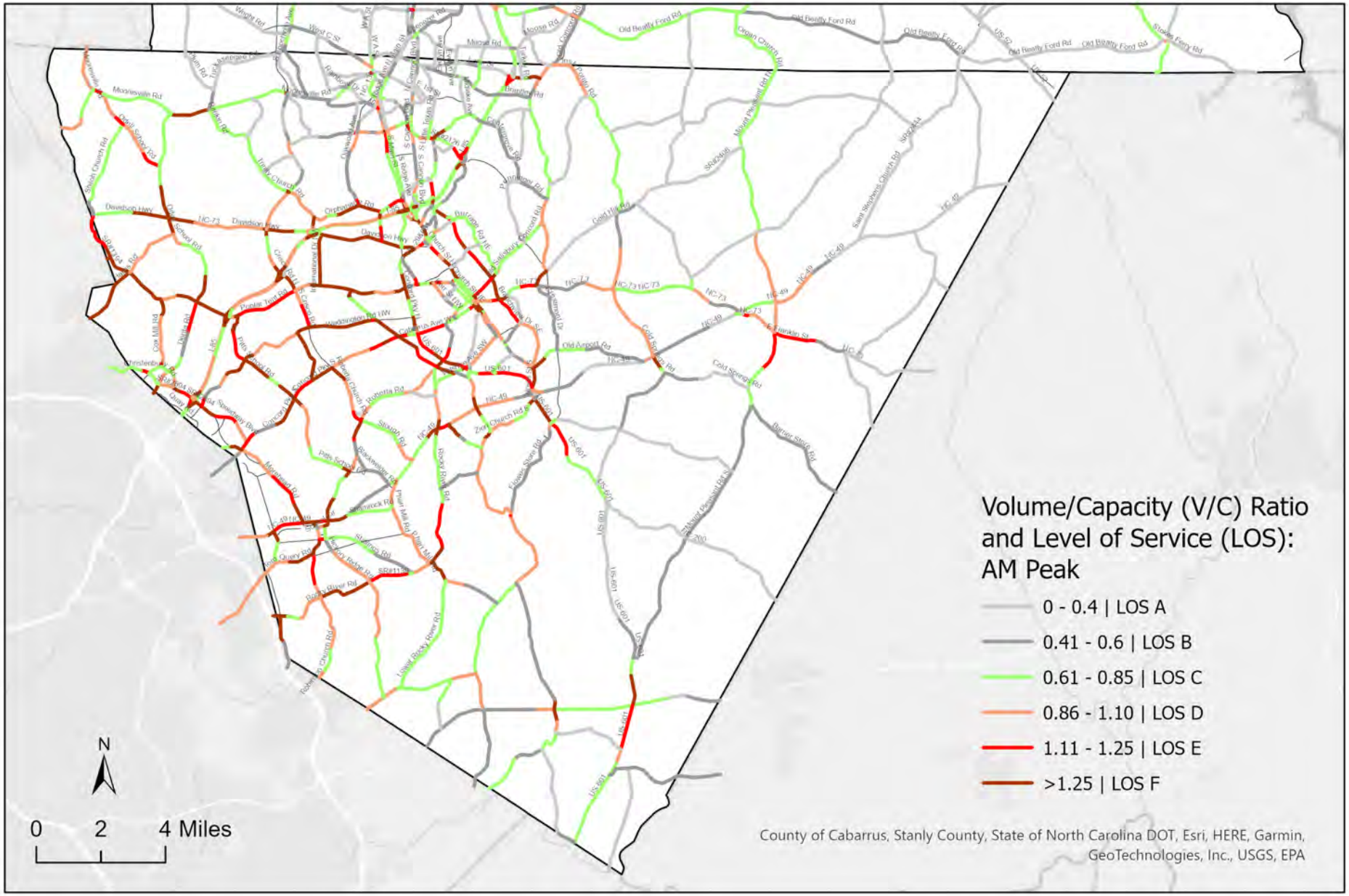
Note 4: Volume over Capacity (V/C) is from Metrolina Regional Model (MRM)

# V/C Ratio and LOS - AM Peak Period

## 2050 E+C Funded Scenario

Cabarrus County

Data Source: MRM2002, Jan 2022 Release

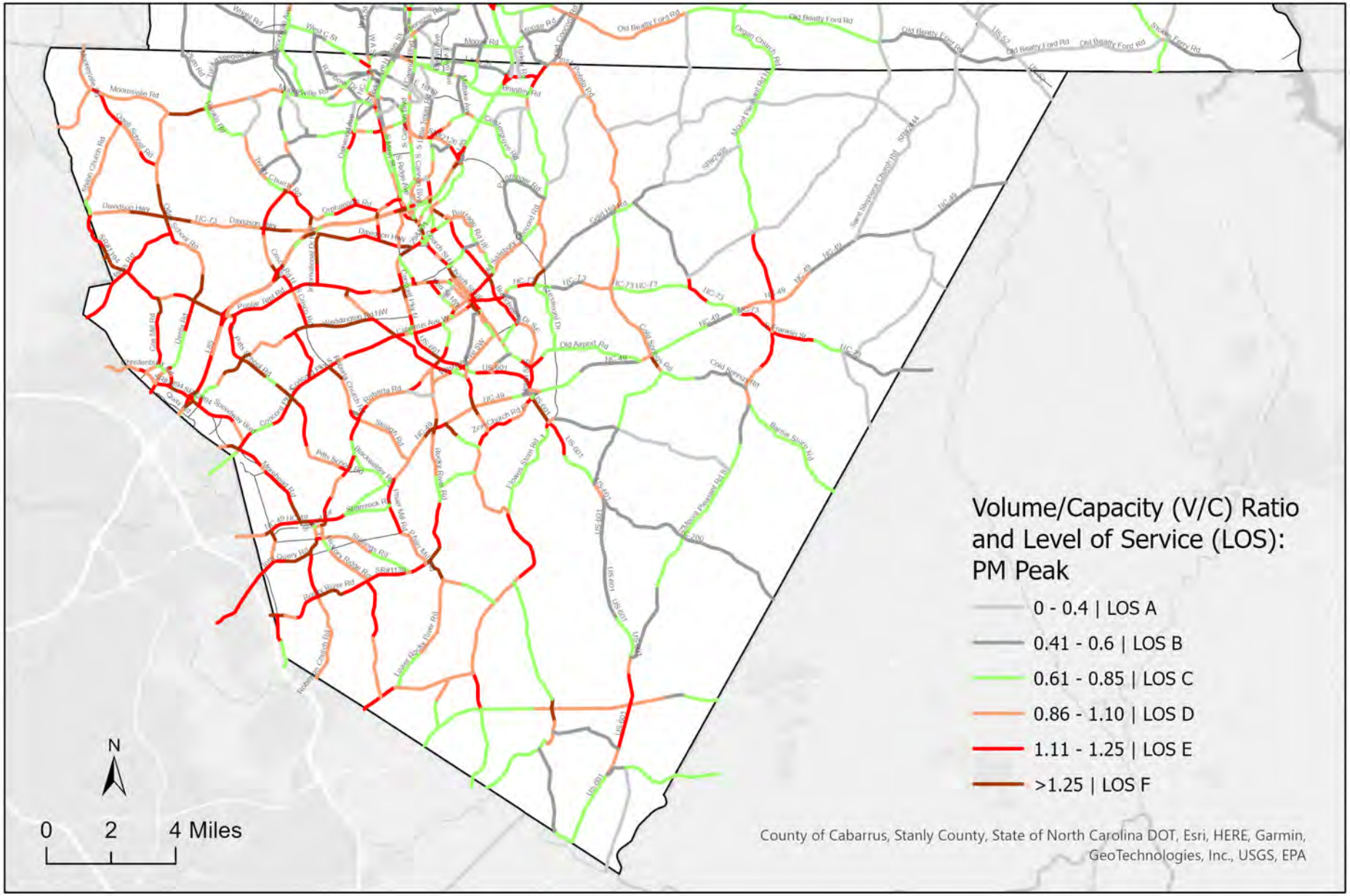


# V/C Ratio and LOS - PM Peak Period

## 2050 E+C Funded Scenario

Cabarrus County

Data Source: MRM2002, Jan 2022 Release

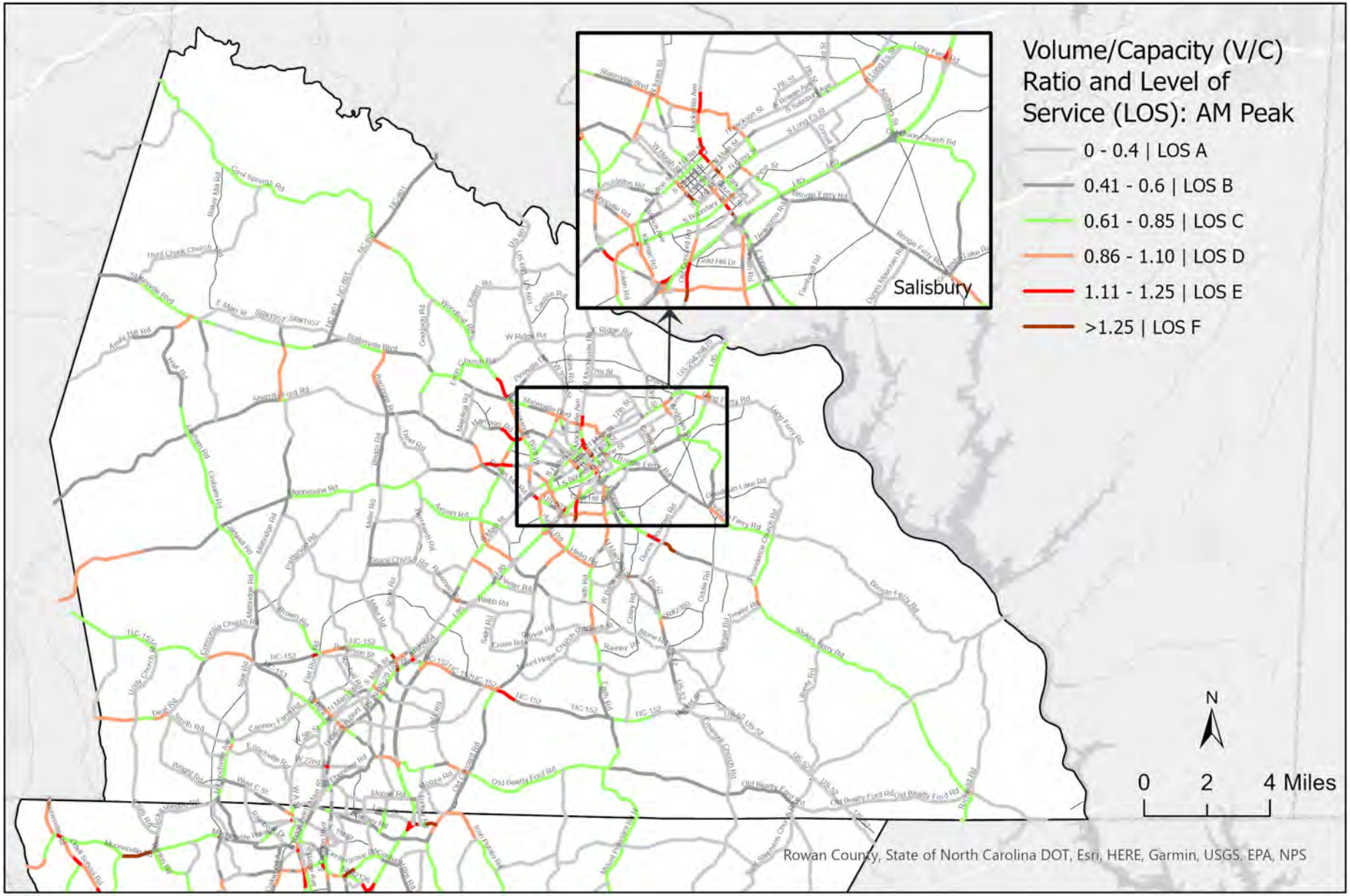


# V/C Ratio and LOS - AM Peak Period

## 2050 E+C Funded Scenario

Rowan County

Data Source: MRM2002, Jan 2022 Release

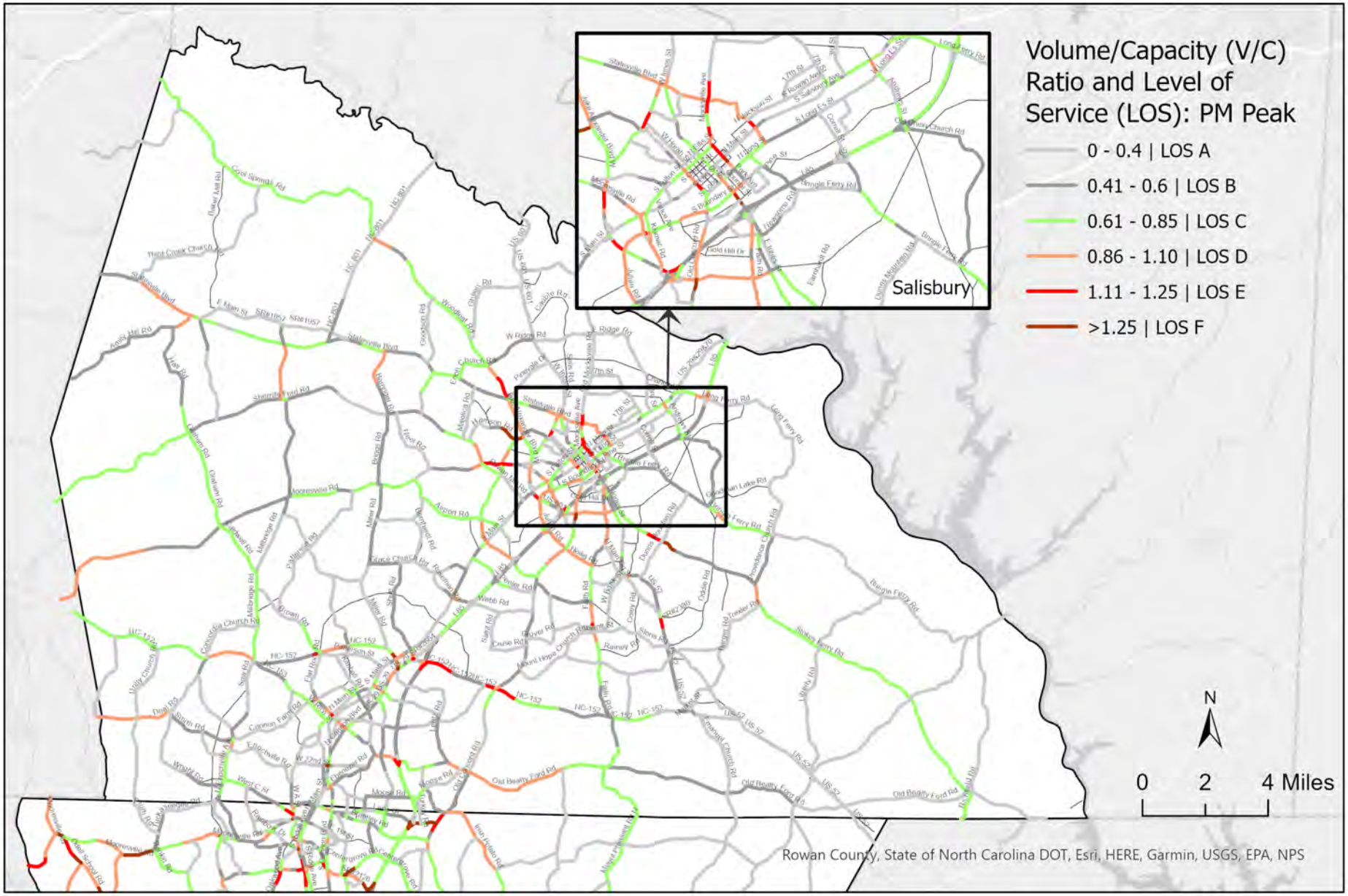


# V/C Ratio and LOS - PM Peak Period

## 2050 E+C Funded Scenario

Rowan County

Data Source: MRM2002, Jan 2022 Release

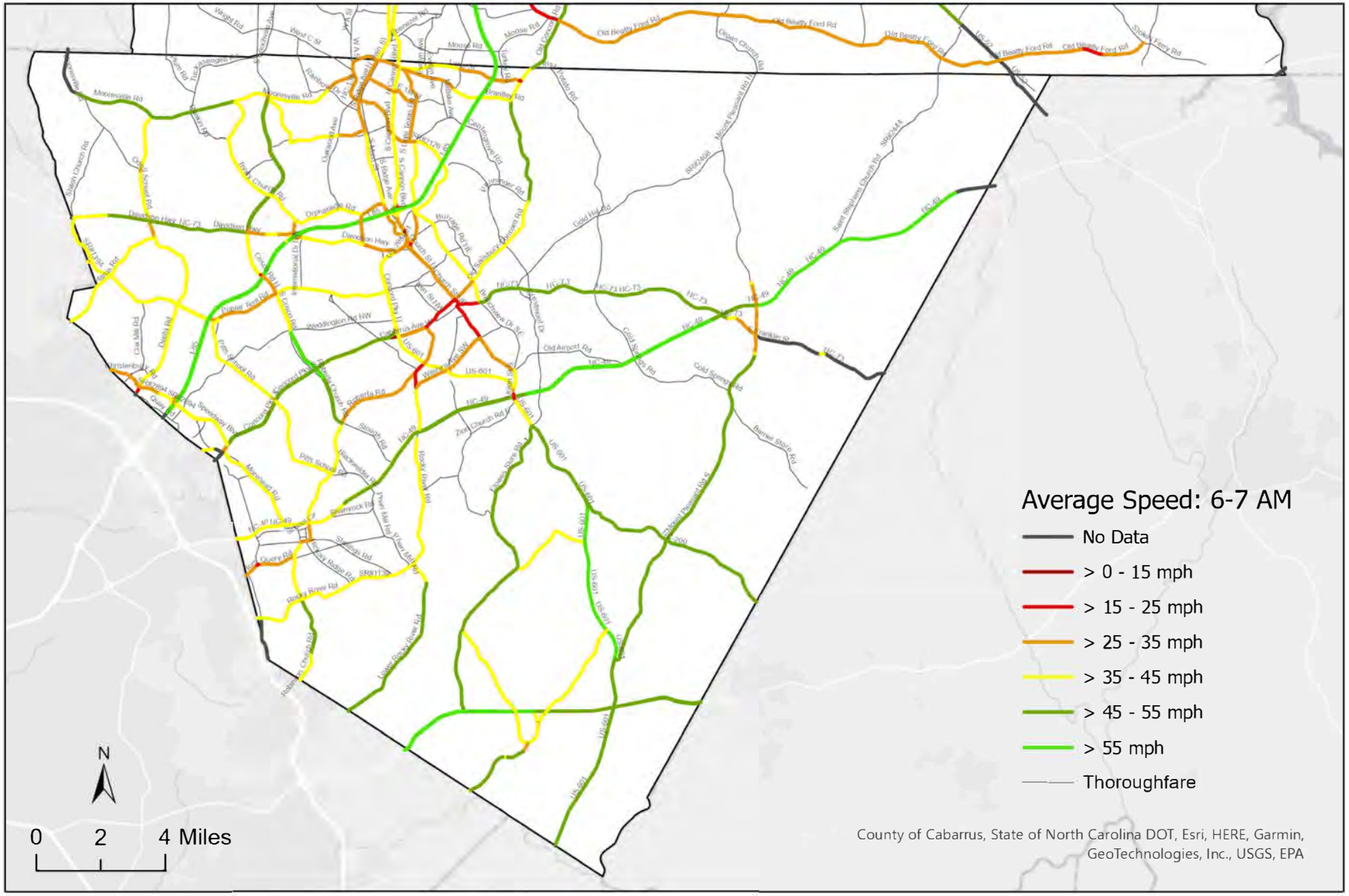


# Traffic Congestion during 6-7 am

October 2021 Weekdays

Cabarrus County

Data Source: HERE Probe Speed (RITIS)

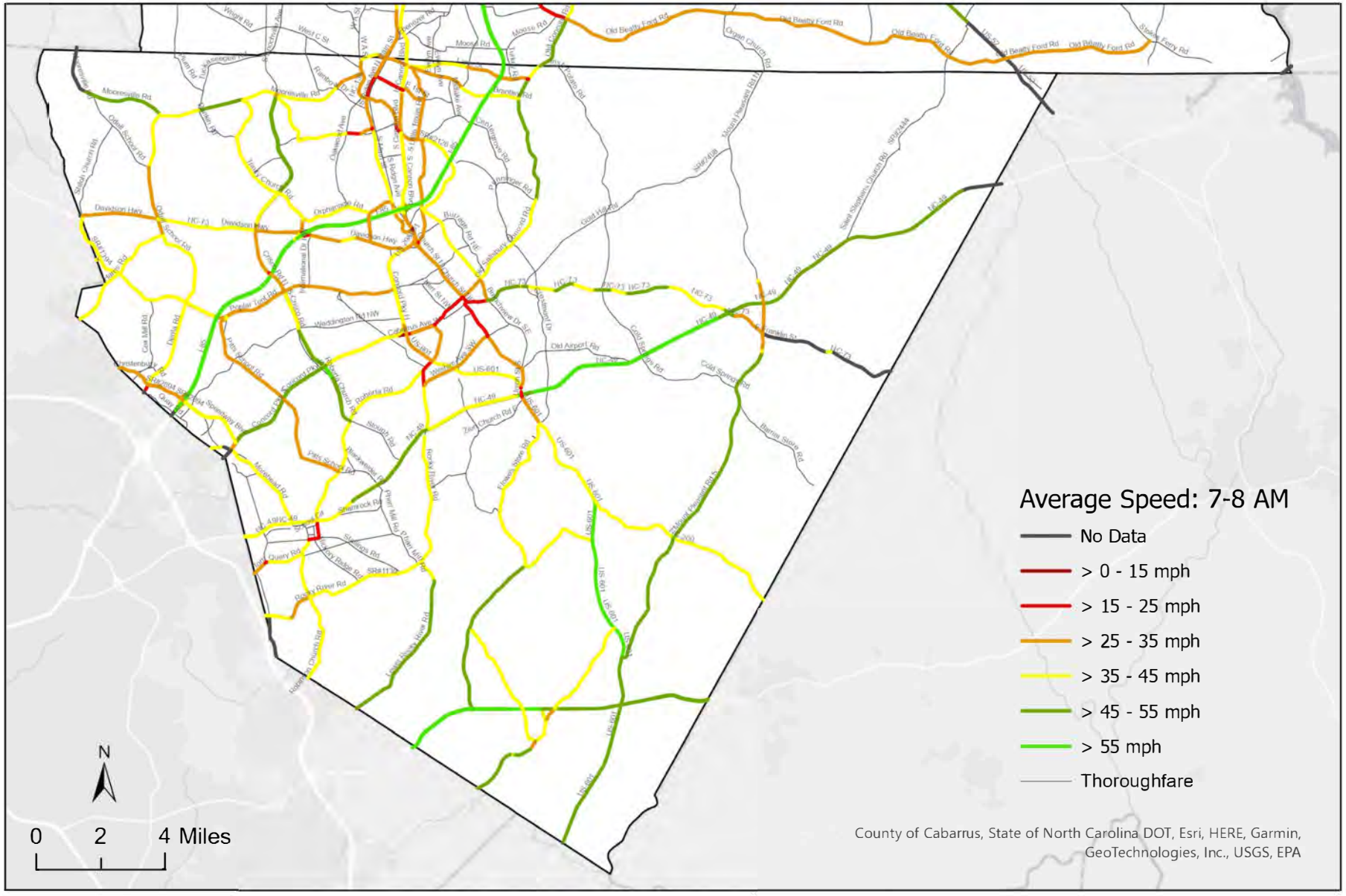


# Traffic Congestion during 7-8 am

October 2021 Weekdays

Cabarrus County

Data Source: HERE Probe Speed (RITIS)

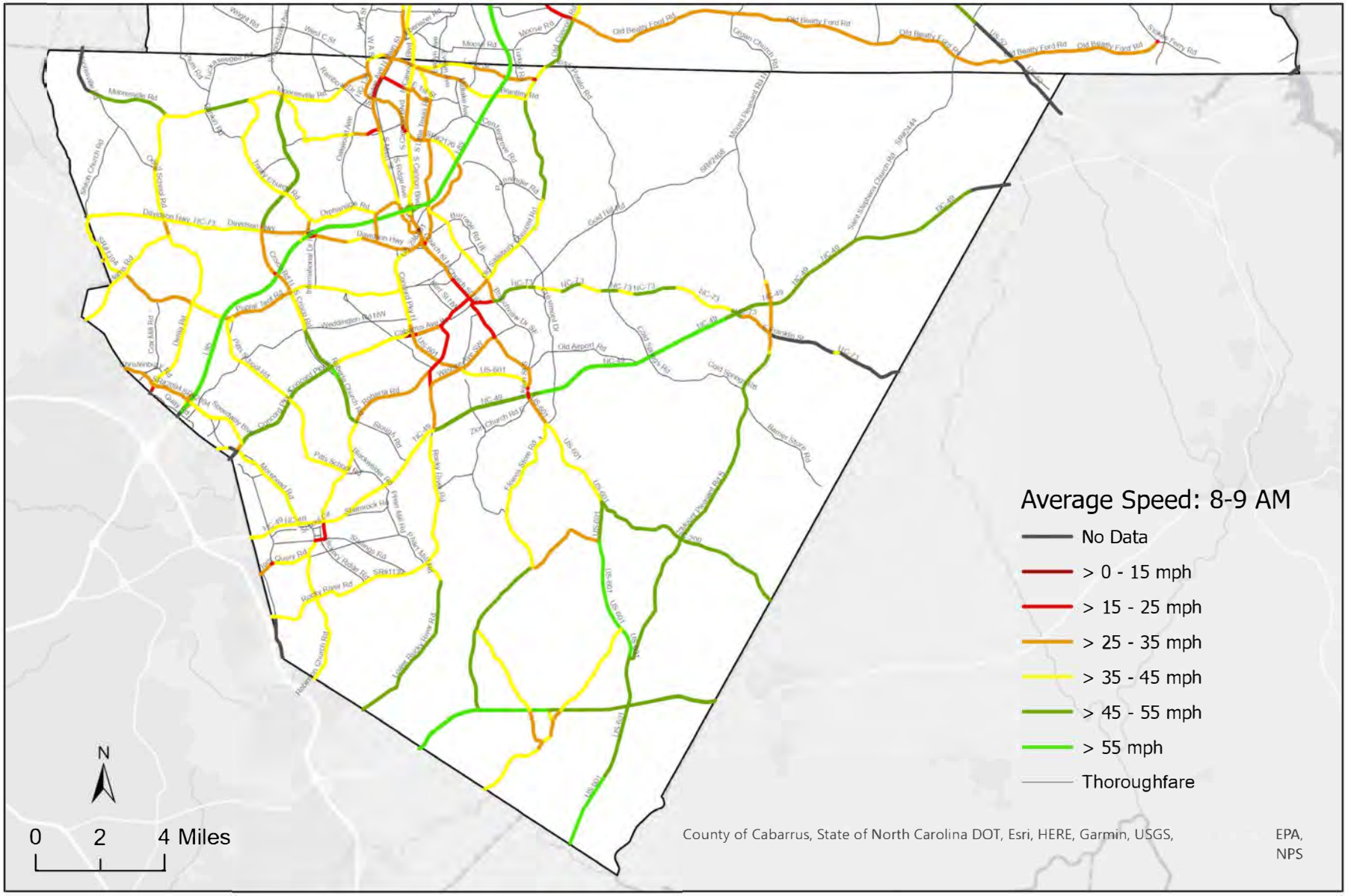


# Traffic Congestion during 8-9 am

October 2021 Weekdays

Cabarrus County

Data Source: HERE Probe Speed (RITIS)

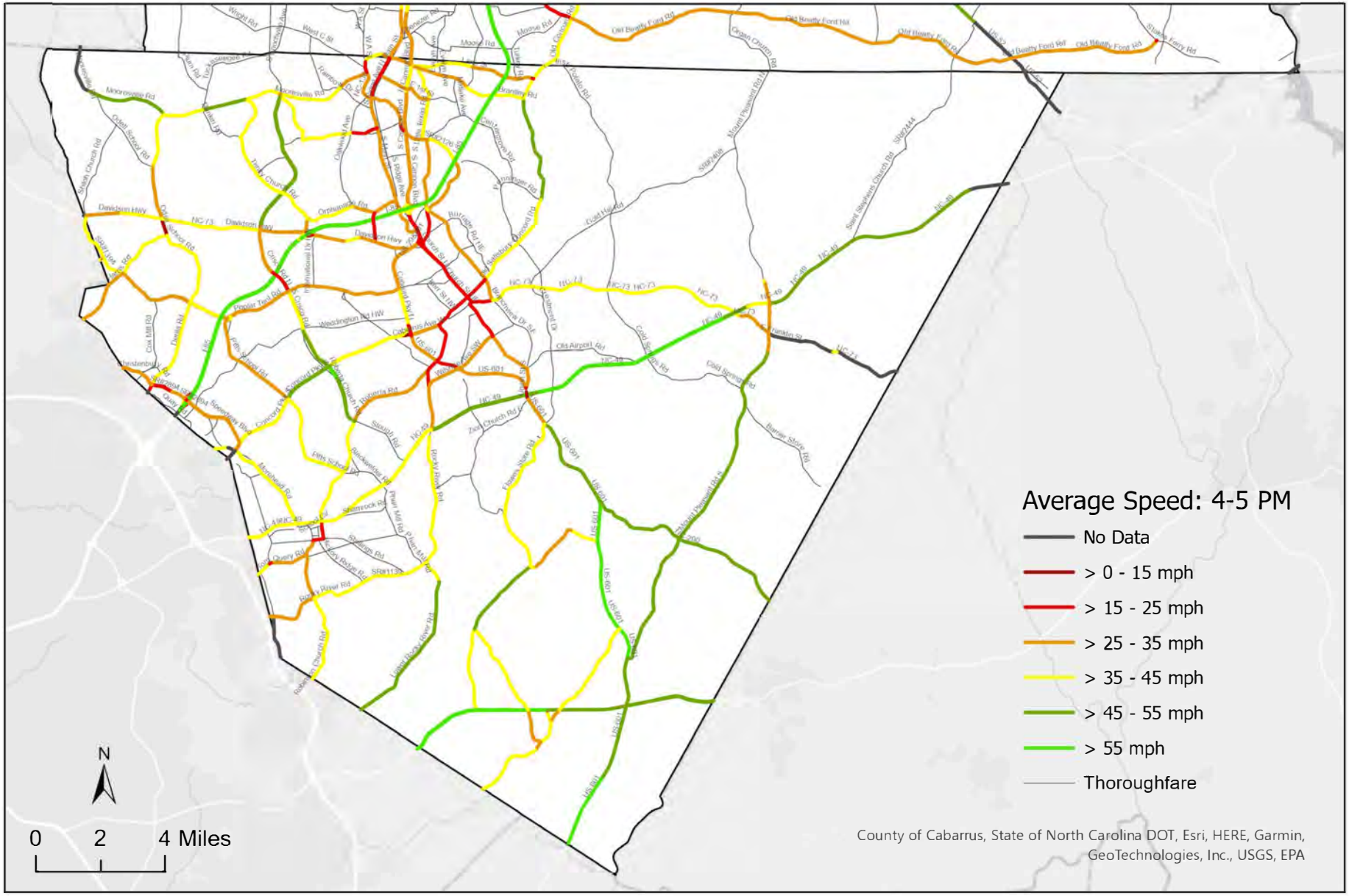


# Traffic Congestion during 4-5 pm

October 2021 Weekdays

Cabarrus County

Data Source: HERE Probe Speed (RITIS)

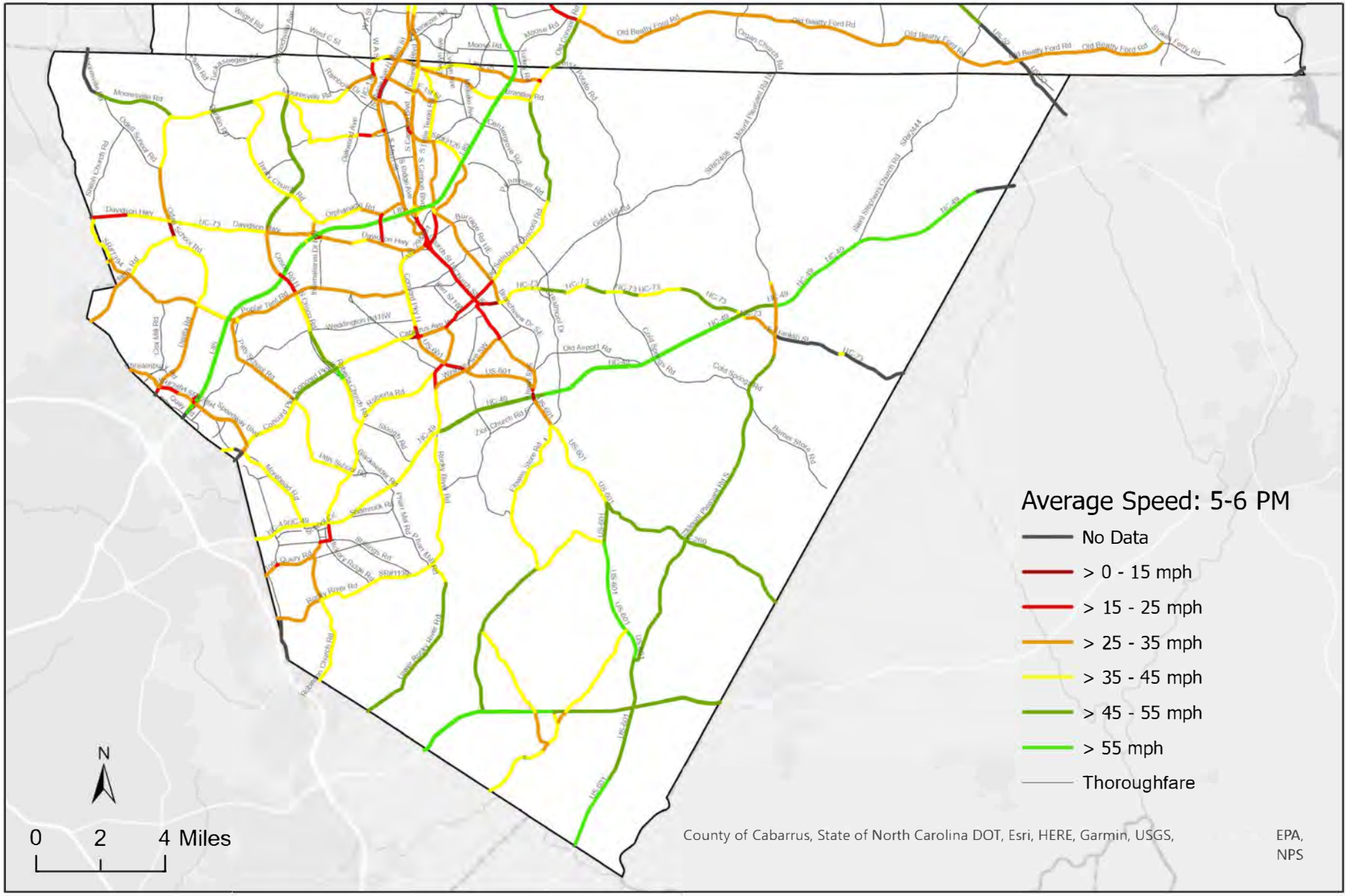


# Traffic Congestion during 5-6 pm

October 2021 Weekdays

Cabarrus County

Data Source: HERE Probe Speed (RITIS)

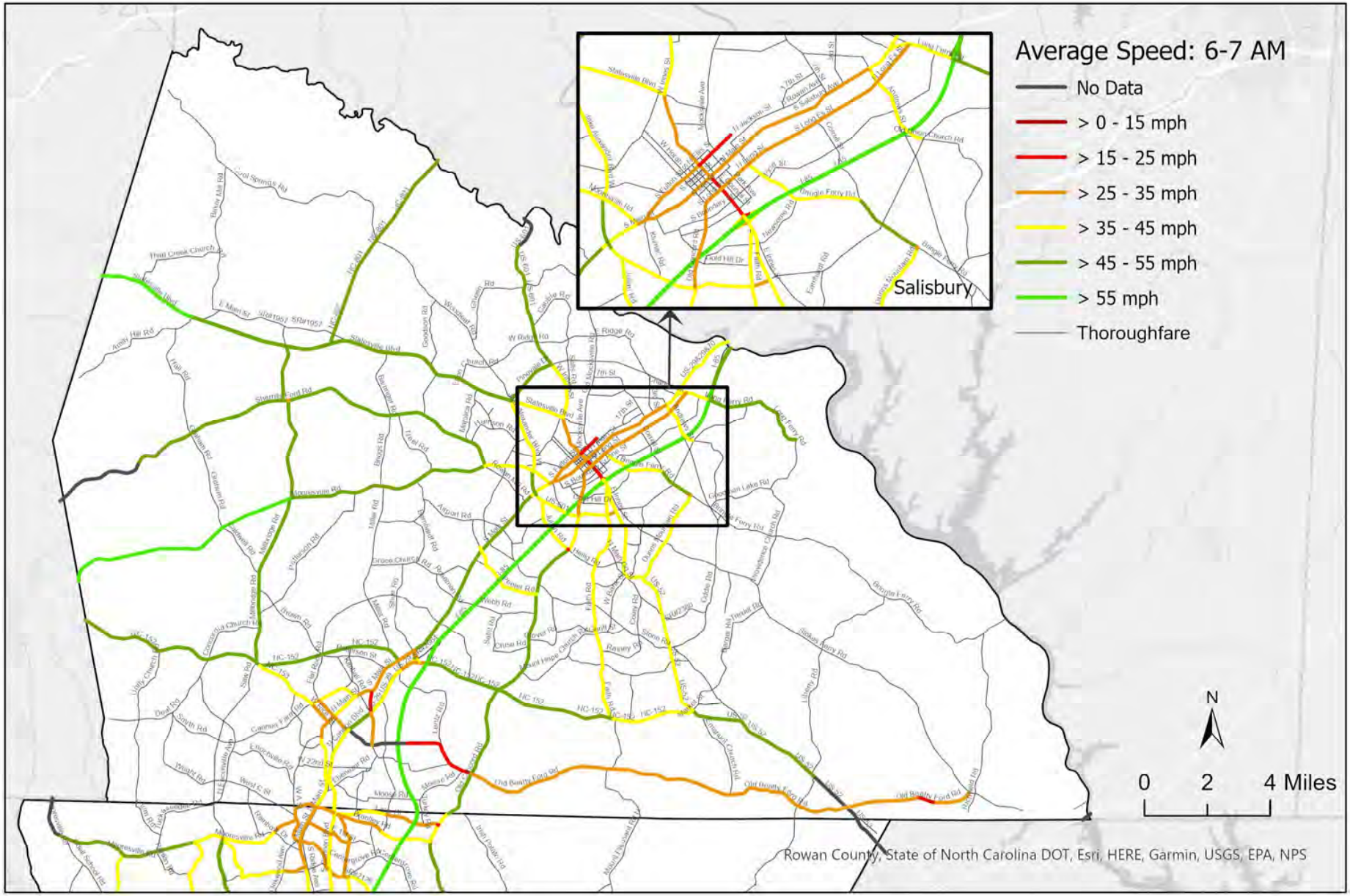


# Traffic Congestion during 6-7 am

October 2021 Weekdays

Rowan County

Data Source: HERE Probe Speed (RITIS)

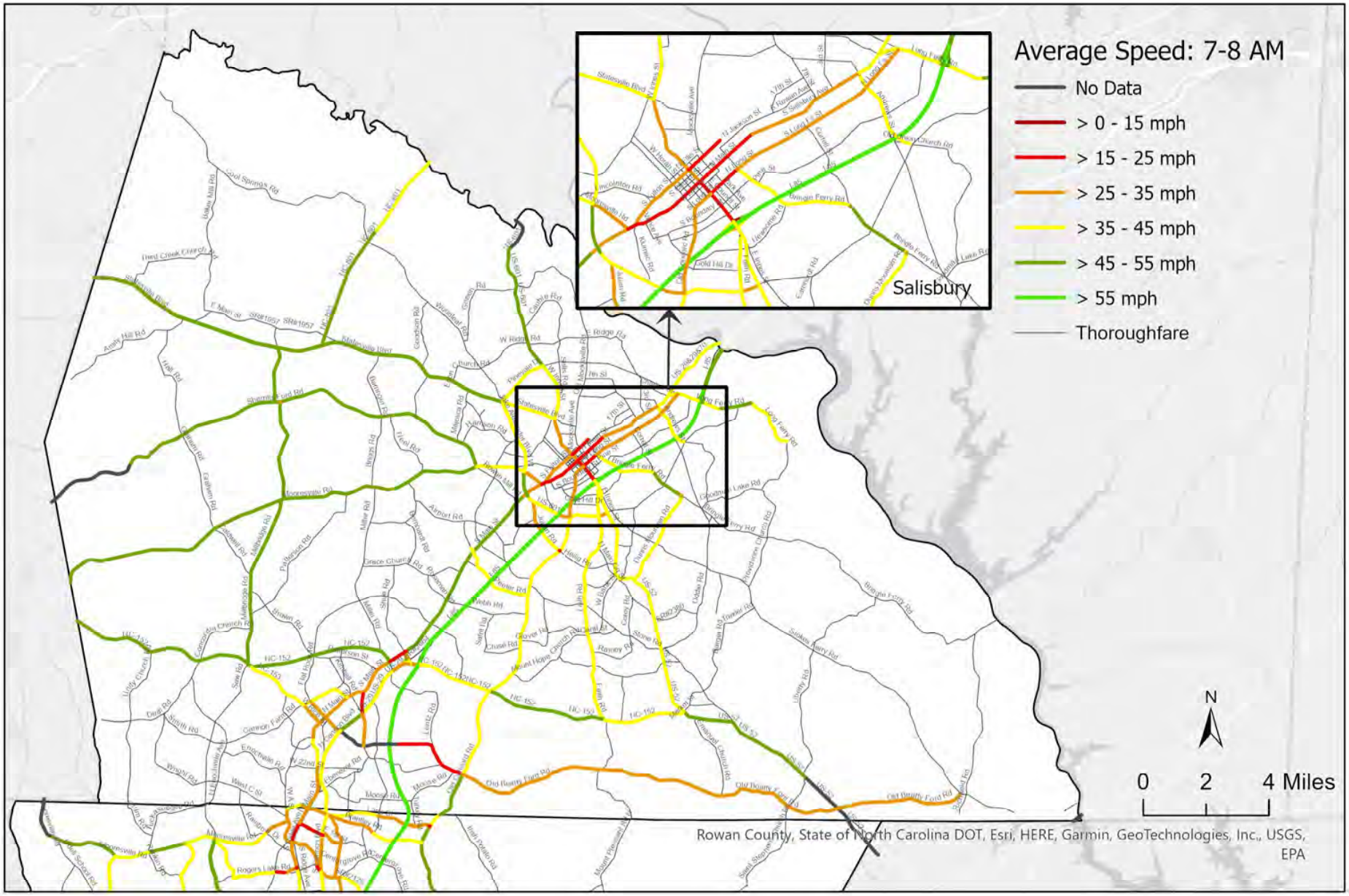


# Traffic Congestion during 7-8 am

October 2021 Weekdays

Rowan County

Data Source: HERE Probe Speed (RITIS)

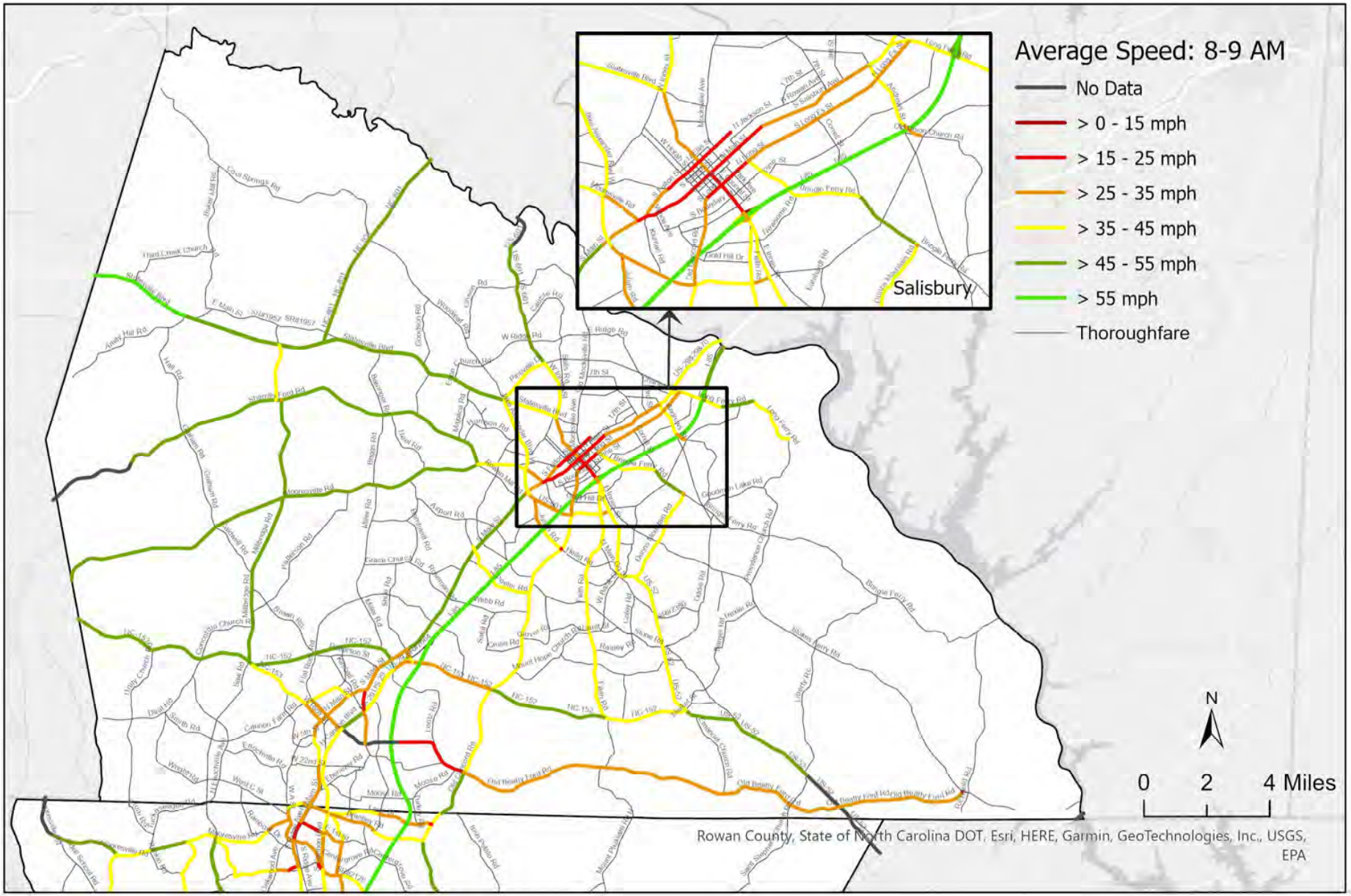


# Traffic Congestion during 8-9 am

October 2021 Weekdays

Rowan County

Data Source: HERE Probe Speed (RITIS)

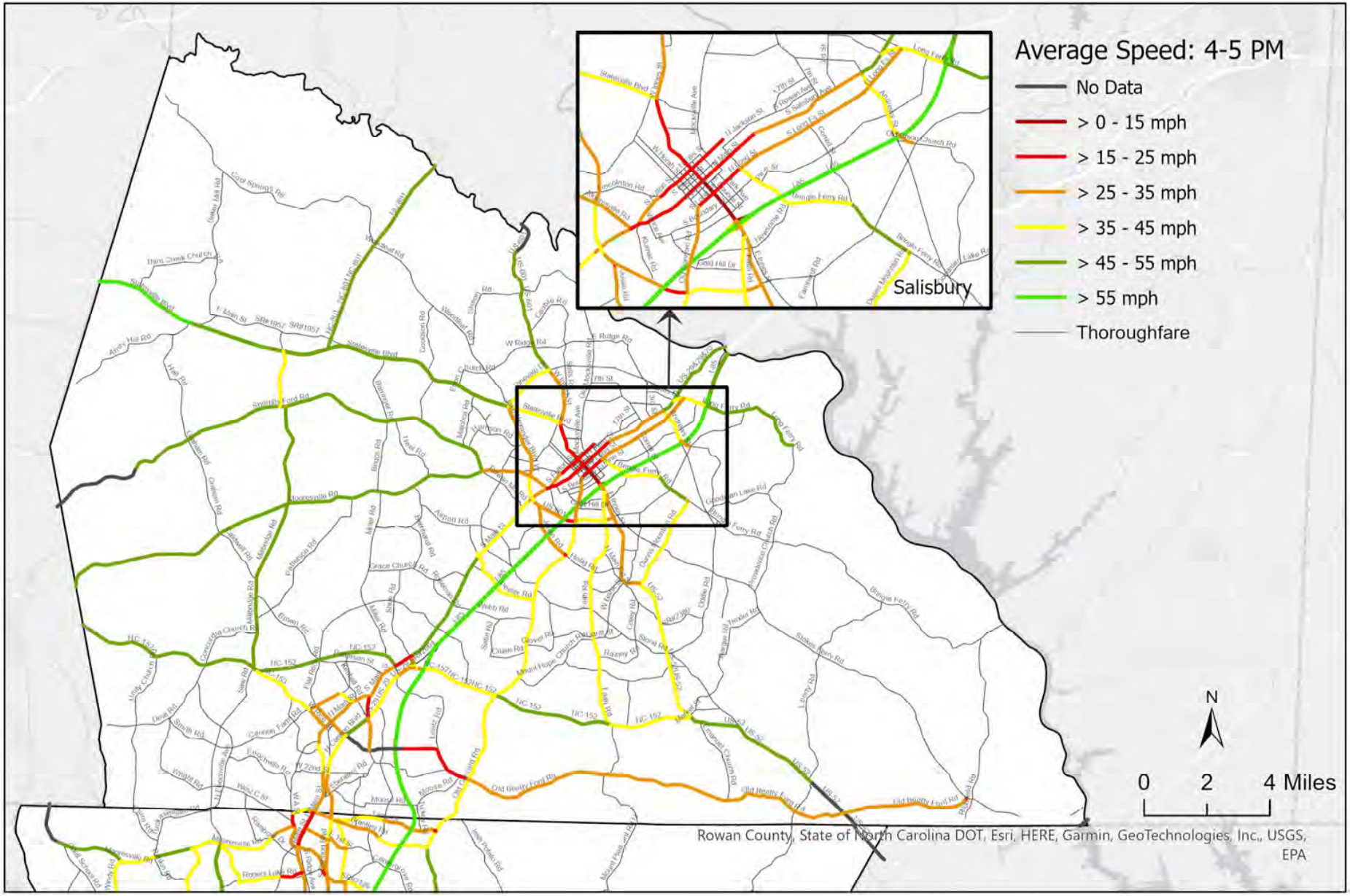


# Traffic Congestion during 4-5 pm

October 2021 Weekdays

Rowan County

Data Source: HERE Probe Speed (RITIS)

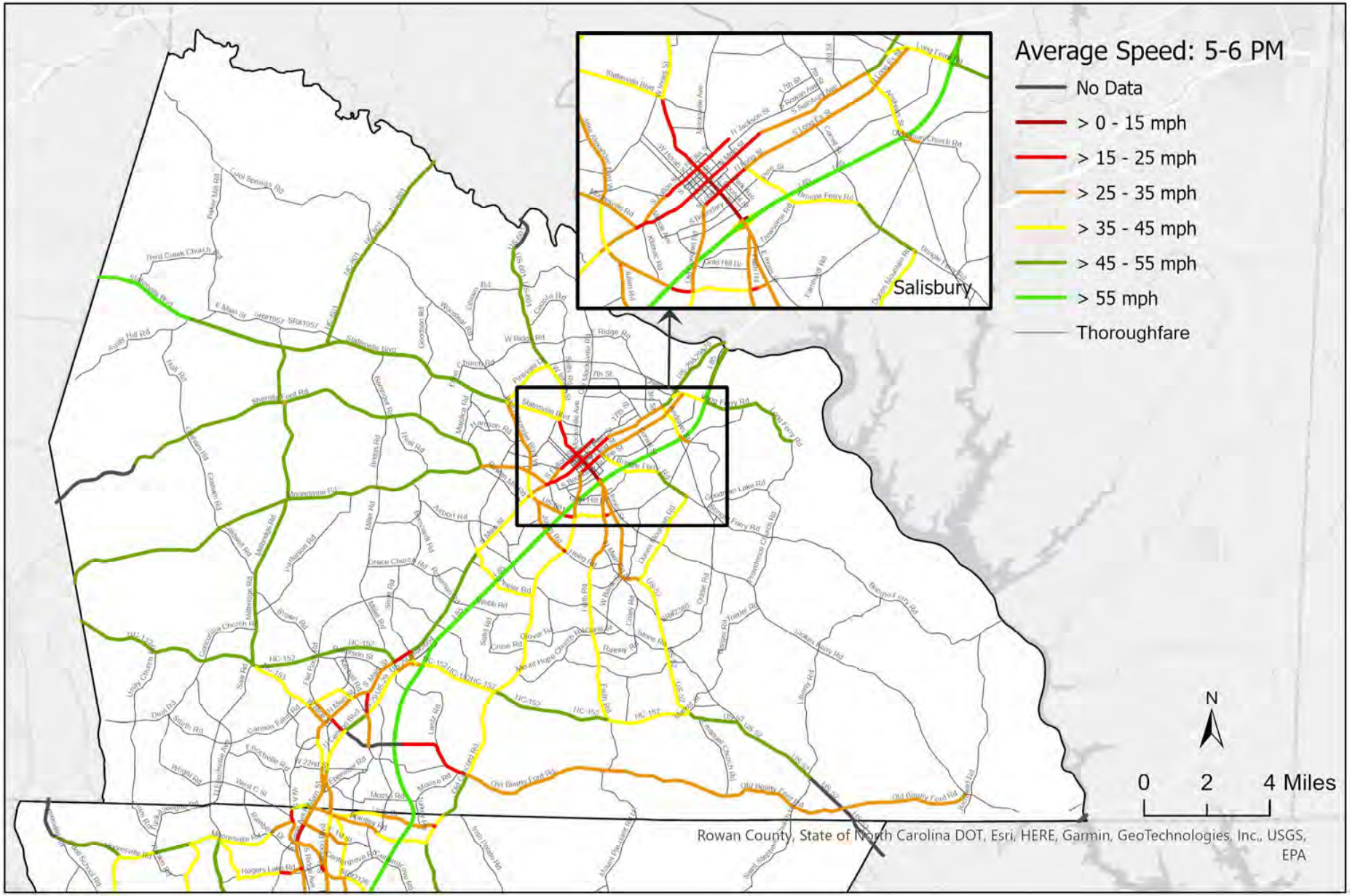


# Traffic Congestion during 5-6 pm

October 2021 Weekdays

Rowan County

Data Source: HERE Probe Speed (RITIS)



## Appendix 10-1 State and Federal Resource Agencies

| Agency | Division of Agency | Contact Information | Available Data | Format/Location |
|---|---|---|---|---|
| N.C. Department of Agriculture and Consumer Services (NC DA&CS) | Environmental Programs Division/ Farmland Preservation | Maximilian (Max) Merrill, Env. Program Specialist<br>1035 Mail Service Center, Raleigh, NC 27699<br>maximilian.merrill@ncagr.gov 919-733-7125 | Livestock Operation Site, Soils, Historical Farm Sites, Land Cover data | Contact person- Emergency Program |
| N.C. Department of Cultural Resources (DCR) | State Historic Preservation Office (SHPO)<br>Office of State Archeology (OSA) | Sarah McBride, Preservation Specialist for Transportation Project<br>Renee Gledhill-Earley, Environmental Review Coordinator<br>4617 Mail Service Center, Raleigh, NC 27699<br>renee.gledhill-earley@ncdcr.gov 919-807-6579<br>Dolores Hall, Deputy State Archaeologist<br>dolores.hall@ncdcr.gov 919-807-6553 | Historic Properties and Archeological Sites | USGS Quad Maps<br>Available in SHPO and OSA Offices by appointment |
| N.C. Department of Environment and Natural Resources (DENR) | CGIA | David Giordano, NC OneMap Database Administrator<br>1601 Mail Service Center, Raleigh, NC 27699<br>david.giordano@ncdenr.gov 919-733-2090 or 919-715-3770 | NC OneMap GIS Database | http://www.nconemap.net |
| NCDENR<br>Division of Water Quality | DWQ / Transportation Permitting Unit | Dave Wanucha<br>450 W Hanes Mill Rd. Ste 300, Winston-Salem, NC 27105-7407<br>Dave.wanucha@ncdenr.gov 336-776-9703<br>Alan Johnson<br>610 East Center Ave. Ste 301 Mooresville, NC 28115<br>alan.johnson@ncdenr.gov 704-663-1699 ext. 2190 | | Contact Person |
| N.C. Department of Crime Control & Public Safety | Division of Emergency Management | William Ray, Director<br>4713 Mail Service Center, Raleigh, NC 27699<br>wray@ncem.org 919-825-2291 | Homeland Security | |
| US Environmental Protection Agency (EPA) | Region 4, Environmental Information Services Branch | Amanetta Somerville, Program Analyst (GIS Contact)<br>Sam Nunn Atlanta Federal Center<br>61 Forsyth Street, S.W., Suite 17T50 Atlanta, GA 30303<br>somerville.amanetta@epa.gov 404-562-8282 | Southeastern Ecological Framework and Region 4 Atlas | http://www.epa.gov/region4/gis or http://geobook.sain.utk.edu |
| US Environmental Protection Agency (EPA) | Region 4, NEPA Program, Raleigh Office | Ntale Kajumba<br>109 TW Alexander Drive, Durham, NC 27709<br>kajumba.ntale@epa.gov 919-856-4206 | NEPA compliance and cross-cutting issues (e.g. CERCLA& RCRA sites) | http://www.epa.gov/compliance/resources/faqs/nepa/index.html |
| US Fish & Wildlife Service (USFWS) | NC Field Offices (Raleigh), Ecological Services | Asheville Field Office - Ecological Services - Lauren B. Wilson and Holland Youngman<br>160 Zillicoa St. Asheville, NC 28801<br>lauren_wilson@fws.gov holland_youngman@fws.gov | 1. Priority natural communities & habitat<br>2. Federally listed species<br>3. Species recovery plans | Contact Person<br>https://www.fws.gov/asheville/htmls/general_information/aboutasheville.html |
| NC Wildlife Resources Commission (WRC) | Inland Fisheries<br>Habitat Conservation | David McHenry, NCWRC Western DOT Coordinator<br>NC Wildlife Resources Commission<br>12275 Swift Rd. Oakboro, NC 28129<br>david.mchenry@ncwildlife.org 828-476-1966 | Western DOT Projects Coordination/Contact; Wildlife Action Plans | http://www.ncwildlife.org/ |
| Federal Highway Administration (FHWA) | NC Division Office<br>Planning & Program Development Unit | Loretta Barren<br>310 New Bern Avenue, Suite 410, Raleigh, NC 27601<br>loretta.barren@dot.gov 919-707-7025<br>Eddie Dancausse<br>eddie.dancusse@dot.gov 919-707-7026 | Legislation/ evidence, Peer exchange programs, linking planning & NEPA, CSS tools, Funding options/ opportunities, air quality | Contact Person |

## Appendix 10-1 State and Federal Resource Agencies Continued

| Agency | Division of Agency | Contact Information | Available Data | Format/Location |
|---|---|---|---|---|
| North Carolina Department of Transportation | Transportation Planning Branch | MPO Coordinators<br>1554 Mail Service Center, Raleigh, NC 27699<br>Roger Castillo - rcastillo@ncdot.gov (and others) | | |
| Federal Transit Authority | Region 4 Administrator | Tajsha LaShore<br>FTA Region IV<br>230 Peachtree Street, Suite 800 Atlanta, GA 30303<br>Tajsha.LaShore@dot.gov 404-865-5606 | | |
| US Army Corp of Engineers (USACE) | USAED, Wilmington District, Regulatory Division | Eric Alsmeyer - Eric.C.Alsmeyer@usace.army.mil<br>6508 Falls of the Neuse Rd. Suite 120, Raleigh, NC 27615<br>John.T.Thomas.Jr@saw02.usace.army.mil 919-876-8441 x 25<br>Steven Kichefski<br>151 Patton Ave. Room 208 Asheville, NC 28801-5006<br>Steven.L.Kichefski@saw02.usace.army.mil 828-271-7980 x 223 | Army permit requirements and wetland information | http://www.saw.usace.army.mil/wetlands |

# Appendix 10-2

# CR MPO 2050 MTP Resource Agency Consultation

**From:** Alsmeyer, Eric C CIV USARMY CESAW (USA) [mailto:Eric.C.Alsmeyer@usace.army.mil]
**Sent:** Monday, February 28, 2022 12:23 PM
**To:** pconrad@mblsolution.com
**Cc:** Hood, Donna <donna.hood@ncdenr.gov>; McHenry, David G <david.mchenry@ncwildlife.org>
**Subject:** RE: Cabarrus-Rowan 2050 MTP

Mr. Conrad: I have reviewed the Cabarrus-Rowan Metropolitan Planning Organization's (CRMPO) draft 2050 Metropolitan Transportation Plan (MTP) and associated documents. I concentrated on new location roadway projects, and interstate and NC Highway improvements with notable, potential, aquatic resource impacts, and have the following comments.

Projects with substantial aquatic resource and/or other resource conflicts are highlighted.

I-85 in Concord, Bruton Smith Blvd (SR 2894) to Poplar Tent Rd (SR 1394), crosses the FEMA floodway and floodplain of Rocky River, and parallels a tributary and its FEMA floodplain, and a City of Concord managed open space.

I-85 in Concord, Poplar Tent Rd (SR 1394) to George Liles Pkwy (SR 2894), crosses the FEMA floodway and floodplain of Coddle Creek, and parallels a tributary and its FEMA floodway and floodplain, and NWI wetlands.

I-85 in Concord, George Liles Pkwy (SR 2894) to NC 73, crosses a NC Division of Mitigation Services managed site, and parallels and crosses a tributary and its FEMA floodway and floodplain, and NWI wetlands, and parallels a headwaters tributary.

I-85 in Concord, NC 73 to US 29, crosses the FEMA floodway and floodplain, and NWI wetlands, of Buffalo Creek, and abuts Cabarrus County's Vietnam Veterans Park, and the National Register eligible Goodman Farm historic site.

I-85 in Concord, US 29 to Centergrove Rd (SR 2114), crosses the FEMA floodway and floodplain of Cold Water Creek and a tributary, and crosses several other tributaries.

I-85 in Concord, Centergrove Rd (SR 2114) - Lane St (SR 2180), abuts a Three Rivers Land Trust easement, and crosses several tributaries.

I-85 in Rowan and Cabarrus Counties, Lane St (SR 2180)-Rowan County to Airport Pkwy- Cabarrus County, parallels and abuts the FEMA floodway and floodplain of Cold Water Creek, and parallels or crosses several tributaries.

I-85 in Cabarrus County, Airport Pkwy to US 70 (Jake Alexander Blvd), abuts a Rowan County managed open space, and crosses or parallels several tributaries and a floodplain.

I-85 in Salisbury, US 52 (Innes St) - Bringle Ferry Rd (SR 1002), parallels and abuts the FEMA floodway and floodplain of Cold Water Creek, and crosses several tributaries.

I-85 in Rowan County, Bringle Ferry Rd (SR 1002) - US 52 Bypass, abuts a Town of East Spencer managed open space, parallels floodplains, and crosses several tributaries and a floodplain.

I-85 Rowan County, US 52 Bypass - Long Ferry Rd (SR 2120), crosses and abuts the FEMA floodway and floodplain, and a large NWI wetland of Cold Water Creek.

I-85 Rowan County, Long Ferry Rd (SR 2120) - Davidson Co, crosses a tributary, and the Yadkin River bridge crosses a FEMA floodway and floodplain, and a large NWI wetland.

Airport Parkway in Salisbury, between Airport Road and Rowan Mill Road, crosses two FEMA floodplains, a Three Rivers Land Trust Easement, and the Grants Creek floodway.

Airport Road in Salisbury, between US 29 (S. Main St) - Peach Orchard Rd (SR 2539), crosses a FEMA floodway and floodplain, and NWI wetlands, at Town Creek, and crosses several other tributaries.

Arlington St. Extension in Salisbury, between Ryan St - Old Concord Rd. (SR 1002), lies almost entirely within a FEMA floodway and floodplain, paralleling Town Creek within the floodway, and crosses NWI wetlands.

Boundary St. Extension N, in E Spencer, between Henderson St - Long Ferry Rd (SR 2120), crosses several tributaries, a FEMA floodplain, and an NWI wetland.

Brenner Ave. Extension, in Salisbury, between US 601 (Jake Alexander Blvd) - Airport Parkway, has non-perpendicular crossings of National Wetland Inventory (NWI) wetlands and the Grants Creek floodway/floodplain, and crosses an additional FEMA floodplain.

The corridor of the CALDWELL CONNECTOR, in Concord, between NC 49 - Hudspeth Rd (SR 1302), parallels a section of Mallard Creek, and a tributary, and crosses NWI wetlands.

Dickens Place Ext corridor, in Kannapolis [not on CTP INVENTORY AND RECOMMENDATIONS], would cross the FEMA floodway and floodplain of Cold Water Creek, two headwaters tributaries, and a pond.

Evelyn Ave Ext, in Kannapolis, between Moose Rd (SR 1308) - Ebenezer Rd (SR 1322), crosses two tributaries, and a large floodplain.

Granite Quarry Bypass in Rowan County, US 52 S to Brown Acres Road, crosses Church Creek FEMA floodway, floodplains and NWI wetlands, and crosses other tributaries, one with a floodplain.

Heilig Rd. Extension, in Salisbury, Faith Rd (SR 1006) to Main St (SR 2300), crosses both Crane Creek, which has an extensive area of FEMA floodway, floodplains, and NWI wetlands, and a tributary with FEMA floodway and floodplain.

Jake Alexander Blvd. N, in Spencer, Long Ferry Rd (SR 2120) to Hollywood Dr (SR 1915), and Hollywood Dr - (SR 1915) to Garrick Rd (SR 1996), cross an extensive area of FEMA floodway, floodplains, and NWI wetlands, and other tributaries.

Jake Alexander Blvd N., in Rowan County, Garrick Rd (SR 1996) to US 601 (W. Innes St), crosses several tributaries.

Jake Alexander Blvd. E, in Rowan County, Stokes Ferry Rd (SR 1004) to Bringle Ferry Rd (SR 1002), crosses both Crane Creek, which has an extensive area of FEMA floodway and floodplains, and other tributaries.

Jake Alexander Blvd. E, in Rowan County, Bringle Ferry Rd (SR 1002) to [Rowan Connector], and [Rowan Connector] to Long Ferry Rd (SR 2120), cross Crane Creek and Town Creek, which both have extensive areas of FEMA floodway, floodplains, and NOW wetlands, and cross other tributaries.

Midland Road Extension, in Midland, Bethel Church Rd (SR 1123) to Pioneer Mill Rd (SR 1134), would cross several headwaters tributaries.

Mt. Pleasant Bypass in Mt. Pleasant, NC 73 East to NC 49 East, would cross at least 2 headwaters tributaries.

Northern Connector, in Mt Pleasant, [east of US 601, as shown on map], would cross two areas of floodplain.

Northern Connector, in Mt Pleasant, [west of US 601, as shown on map], would cross three headwaters tributaries.

PLAZA RD EXT, in Harrisburg, Rocky River Rd (SR 1139) to Tom Query Rd (SR 1166), would cross Fuda Creek's FEMA floodway and floodplain.

ROBERTA RD EXT, in Harrisburg, Tom Query Rd Ext to Stallings Rd (SR 1161), could cross Back Creek's FEMA floodway and floodplain, depending on the location of the Tom Query Rd Ext.

St. Paul's Ch. Rd. Ext., in Faith, Faith Rd (SR 1006) to Kluttz Rd (SR 2315) would cross a headwaters tributary.

STALLINGS RD Ext, in Harrisburg, Caldwell Rd (SR 1173) to Robinson Church Rd (SR 1166) [not on map], would likely parallel Back Creek within its floodplain, and would cross a tributary, and a Town of Harrisburg managed open space.

Stirewalt Rd Ext in Landis, Mt Moriah Church Rd (SR 1197)to Kimball Rd (SR 1211), would cross a tributary, the Town of Landis Lake Corriher managed area, and an NWI wetland.

Stirewalt Rd Ext in Landis, Kimball Rd (SR 1211) to Patterson St (SR 1225), would cross a headwaters tributary.

TOM QUERY RD Ext, in Harrisburg, Robinson Church Rd (SR 1166) to Pharr Mill Rd (SR 1158), would cross Back Creek's FEMA floodway and floodplain, and two headwaters tributaries.

UNION CEMETERY RD Relocation, in Concord, Sunderland Rd to US 29 (Cannon Blvd), would cross a headwaters tributary.

[not on map],
would cross Spencer Airport, and a headwaters tributary.

Westside Bypass corridor in Rowan County, Wright Rd Relocation to Enochville School Rd (SR 1360), parallels and crosses Mill Creek and its FEMA floodplain, and crosses two headwaters tributaries.

Westside Bypass corridor in Rowan County, N Enochville Ave (SR 1351) to Saw Rd (SR 1350), crosses Irish Buffalo Creek and a tributary, and NWI wetlands.

WILSHIRE AVE Ext, in Concord, Union St to NC 3 (Branchview Dr), crosses the FEMA floodway and floodplain of Threemile Branch, and parallels and crosses a headwater tributary.

Wright Rd Relocation, in Rowan County, Russell Farm Rd to Westside Bypass, and Westside Bypass to Enochville Ave (SR 1351), crosses two headwaters tributaries.

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Thank you.

Please reply or call if you have any questions or if I may serve you in any other way.

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at https://regulatory.ops.usace.army.mil/customer-service-survey/.

Eric
Eric Alsmeyer
Project Manager
Work Cell: 919.817.1570

Regulatory Division Office
US Army Corps of Engineers, Wilmington District
3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587
Office Tel: (919) 554-4884, x23 (I am working out of the office most days of the week, but I try to check my voicemails daily)
Regulatory Homepage: http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram.aspx

**From:** pconrad@mblsolution.com [mailto:pconrad@mblsolution.com]
**Sent:** Thursday, March 3, 2022 11:30 AM
**To:** 'Wilson, Lauren B' <lauren_wilson@fws.gov>; 'Hood, Donna' <donna.hood@ncdenr.gov>
**Subject:** RE: Cabarrus-Rowan 2050 MTP

Thank you for this information. Please find the updated maps for the associated environmentally sensitive areas attached. Let me know if there are any questions.

From: Wilson, Lauren B [mailto:lauren_wilson@fws.gov]

Sent: Wednesday, February 23, 2022 8:07 AM

To: pconrad@mblsolution.com

Subject: Fw: RE: Cabarrus-Rowan 2050 MTP

Hi Phil - Please find attached our scoping letter for the Cabarrus-Rowan 2050 MTP. Thanks for the opportunity to review. I have a few other comments that I did not put in the letter, below.

Your report does not include a list of geographic information system (GIS) data layers you are using in your planning process. We recommend the following layers be incorporated during project planning: natural heritage element occurrences and federally listed species current range data layers. Current range GIS layers are available on our Environmental Conservation Online System (https://ecos.fws.gov/ecp/) for each federally listed species. Element occurrence data is available from the state (https://www.ncnhp.org/conservation/natural-heritage-element-occurrences2).

Please update the Service's information on page 70 of the Draft 2050 MTP Report:

1. Replace Marella Buncick with Lauren B. Wilson and Holland Youngman, who are the new NCDOT Transportation Liaisons responsible for reviewing DOT projects. Our office address is the same. Please replace the listed email with the following and delete the telephone number: lauren_wilson@fws.gov and holland_youngman@fws.gov. Marella left for a new job so you can remove her from your distribution list as well.

2. Replace the website with https://www.fws.gov/asheville/htmls/general_information/aboutasheville.html

3. Delete the "by county" parenthetical listed after "information on federally listed species."

4. Marla Chambers is no longer the WRC representative; she's been replaced by Dave McHenry. You may contact him at david.mchenry@ncwildlife.org.

Lauren B. Wilson

Wildlife Biologist and Range Ecologist

U.S. Fish and Wildlife Service Asheville Ecological Services Field Office

160 Zillicoa Street, Asheville, North Carolina 28801

lauren_wilson@fws.gov

o: 828.258.3939 x42221, c: 828.275.8525

(she/her) (Why pronouns matter)

**From:** pconrad@mblsolution.com <pconrad@mblsolution.com>
**Sent:** Thursday, February 3, 2022 10:02 AM
**To:** Marella_Buncick@fws.gov; john.t.thomas.jr@saw02.usace.army.mil; steven.w.lund@saw02.usace.army.mil; militscher.chris@epa.gov; Dave.wanucha@ncdenr.gov; alan.johnson@ncdenr.gov; 'Chambers, Marla J' <marla.chambers@ncwildlife.org>; 'Gledhill-earley, Renee' <renee.gledhill-earley@ncdcr.gov>; 'Wainwright, David' <david.wainwright@ncdenr.gov>; Kichefski, Steven L CIV USARMY CESAW (USA) <Steven.L.Kichefski@usace.army.mil>; 'Kevin Ashley' <ashleyk@concordnc.gov>; 'Hannah Jacobson' <hannah.jacobson@salisburync.gov>; Alsmeyer, Eric C CIV USARMY CESAW (USA) <Eric.C.Alsmeyer@usace.army.mil>; Kajumba.Ntale@epa.gov; Somerville, Amanetta <Somerville.Amanetta@epa.gov>; Youngman, Holland J <holland_youngman@fws.gov>
**Subject:** [URL Verdict: Unknown][Non-DoD Source] RE: Cabarrus-Rowan 2050 MTP

The comment period for the Cabarrus-Rowan Metropolitan Planning Organization's (CRMPO) draft 2050 Metropolitan Transportation Plan (MTP) and draft air quality conformity determination report has begun. The associated documents can be accessed at the following link: http://www.crmpo.org/Plans/Mobility.

The comment period will end on March 9. Adoption of the MTP and the air quality conformity determination by the MPO are scheduled for Wednesday, March 23.

Thank you,

Phil Conrad

Cabarrus-Rowan MPO

www.crmpo.org

**From:** Somerville, Amanetta [mailto:Somerville.Amanetta@epa.gov]
**Sent:** Tuesday, December 1, 2020 4:30 PM
**To:** pconrad@mblsolution.com

**Cc:** Kajumba, Ntale <Kajumba.Ntale@epa.gov>
**Subject:** EPA Comments on the Cabarrus-Rowan 2050 MTP Updates and Amendments

Good afternoon,

After attending the December 1, 2020, 2050 MTP Update and CTP Amendment Virtual Public Meeting and review of the draft 2050 MTP Project Lists, associated maps, CTP Map Amendment EPA does not have any comments on the current MTP at this time. We look forward to reviewing projects as they progress through the merger process.

***Amanetta Somerville***

U.S. Environmental Protection Agency Region 4

61 Forsyth Street SW. Atlanta, Ga 30303

National Environmental Policy Act Section

Strategic Programs Office

Phone: 404-562-9025

E-mail: somerville.amanetta@epa.gov

**From:** Alsmeyer, Eric C CIV USARMY CESAW (USA) [mailto:Eric.C.Alsmeyer@usace.army.mil]
**Sent:** Wednesday, December 2, 2020 7:20 AM
**To:** pconrad@mblsolution.com
**Subject:** Correction RE: Corps comments RE: Cabarrus-Rowan 2050 MTP

Yes – should have said 2050. I apologize for the error.

Please reply or call if you have any questions or if I may serve you in any other way.

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0.

Eric

Eric Alsmeyer

Work Cell: 919.817.1570

Project Manager

Regulatory Division Office

US Army Corps of Engineers, Wilmington District

3331 Heritage Trade Drive, Suite 105, Wake Forest, NC 27587

Office Tel: (919) 554-4884, x23 (I am working out of the office, but I try to check my voicemails daily)

Regulatory Homepage: http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram.aspx

**From:** pconrad@mblsolution.com <pconrad@mblsolution.com>
**Sent:** Tuesday, December 1, 2020 3:40 PM
**To:** Alsmeyer, Eric C CIV USARMY CESAW (USA) <Eric.C.Alsmeyer@usace.army.mil>
**Subject:** [Non-DoD Source] RE: Corps comments RE: Cabarrus-Rowan 2050 MTP

Eric,

Did you mean the 2050 MTP rather than the 2045? Maybe just a typo in your comments.

Thanks,

Phil

**From:** Alsmeyer, Eric C CIV USARMY CESAW (USA) [mailto:Eric.C.Alsmeyer@usace.army.mil]
**Sent:** Tuesday, December 1, 2020 2:22 PM
**To:** pconrad@mblsolution.com
**Cc:** Amanetta Somerville (somerville.amanetta@epa.gov) <somerville.amanetta@epa.gov>; Youngman, Holland J <holland_youngman@fws.gov>; Amschler, Crystal C CIV USARMY CESAW (USA) <Crystal.C.Amschler@usace.army.mil>; Matthews, Monte K CIV USARMY CESAW (USA) <Monte.K.Matthews@usace.army.mil>
**Subject:** Corps comments RE: Cabarrus-Rowan 2050 MTP

Mr. Conrad: Please see our comments attached.

Please reply or call if you have any questions or if I may serve you in any other way.

The Wilmington District is committed to providing the highest level of support to the public. To help us ensure we continue to do so, please complete the Customer Satisfaction Survey located at http://corpsmapu.usace.army.mil/cm_apex/f?p=136:4:0.

Eric

Eric Alsmeyer

Work Cell: 919.817.1570

Project Manager

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Office Tel: (919) 554-4884, x23 (I am working out of the office, but I try to check my voicemails daily)

Regulatory Homepage: http://www.saw.usace.army.mil/Missions/RegulatoryPermitProgram.aspx

**From:** pconrad@mblsolution.com [mailto:pconrad@mblsolution.com]
**Sent:** Wednesday, November 25, 2020 7:17 AM
**To:** 'Marella_Buncick@fws.gov' <Marella_Buncick@fws.gov>; 'john.t.thomas.jr@saw02.usace.army.mil' <john.t.thomas.jr@saw02.usace.army.mil>; 'steven.w.lund@saw02.usace.army.mil' <steven.w.lund@saw02.usace.army.mil>; 'militscher.chris@epa.gov' <militscher.chris@epa.gov>; 'Dave.wanucha@ncdenr.gov' <Dave.wanucha@ncdenr.gov>; 'alan.johnson@ncdenr.gov' <alan.johnson@ncdenr.gov>; 'Chambers, Marla J' <marla.chambers@ncwildlife.org>; 'Gledhill-earley, Renee' <renee.gledhill-earley@ncdcr.gov>; 'Wainwright, David' <david.wainwright@ncdenr.gov>; 'Kichefski, Steven L SAW' <Steven.L.Kichefski@usace.army.mil>
**Subject:** RE: Cabarrus-Rowan 2050 MTP

Please note upcoming virtual public meeting options on Tuesday December 1st at the link below:

www.crmpo.org

**From:** pconrad@mblsolution.com [mailto:pconrad@mblsolution.com]
**Sent:** Monday, November 9, 2020 9:22 AM
**To:** 'Marella_Buncick@fws.gov' <Marella_Buncick@fws.gov>; 'john.t.thomas.jr@saw02.usace.army.mil' <john.t.thomas.jr@saw02.usace.army.mil>; 'steven.w.lund@saw02.usace.army.mil' <steven.w.lund@saw02.usace.army.mil>; 'militscher.chris@epa.gov' <militscher.chris@epa.gov>; 'Dave.wanucha@ncdenr.gov' <Dave.wanucha@ncdenr.gov>; 'alan.johnson@ncdenr.gov' <alan.johnson@ncdenr.gov>; 'Chambers, Marla J' <marla.chambers@ncwildlife.org>; 'Gledhill-earley, Renee' <renee.gledhill-earley@ncdcr.gov>; 'Wainwright, David' <david.wainwright@ncdenr.gov>; 'Kichefski, Steven L SAW' <Steven.L.Kichefski@usace.army.mil>
**Subject:** Cabarrus-Rowan 2050 MTP

Environmental Resource Agency Reps:

The Cabarrus-Rowan Metropolitan Planning Organization (MPO) is working on another update to our Transportation Plan for the MPO area. We have begun to develop a draft list of transportation projects for this update (see attached). To ensure that our Transportation Plan is based upon the best available information, we believe it is important for your agency to review the list and corresponding map (link below) and to provide us with any comments you might have. (Our list of projects is a subset of the existing 2045 MTP projects' list, based on reduced revenue and buying power/inflation over the life of the draft plan.) Your comments will help us as we finalize the projects list for inclusion in the final Transportation Plan report.

http://www.crmpo.org/Portals/0/Files/Documents/Plans-Mobility/2045%20MTP/Horizon%20Year%20Projects.pdf

Please reply to this email with any comments by Friday December 4th, if possible.

Thanks,

Phil Conrad

Cabarrus-Rowan MPO

www.crmpo.org

# North Carolina Wildlife Resources Commission

Cameron Ingram, Executive Director

February 21, 2022

Phil Conrad, AICP
Cabarrus-Rowan Metropolitan Planning Organization
713 Sternbridge Drive, Concord, NC 28025

Subject Comments on Cabarrus-Rowan Metropolitan Planning Organization's Draft 2050 Metropolitan Transportation Plan

Mr. Conrad,

The North Carolina Wildlife Resources Commission (NCWRC) received your February 3, 2022 email notice concerning the open comment period for the Cabarrus-Rowan Metropolitan Planning Organization's (CRMPO) draft 2050 Metropolitan Transportation Plan (MTP). I reviewed the Draft 2050 MTP report as well as the project list and map that you forwarded to me on February 15, 2022. Comments from the NCWRC on the plan are offered in accordance with applicable provisions of the state and federal Environmental Policy Acts (G.S. 113A-1through 113-10; 1 NCAC 25 and 42 U.S.C. 4332(2)(c), respectively) and the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661-667d), as applicable.

Included in the CRMPO planning area are important habitats that should be considered with long term transportation planning, particularly in regard to proposed roadways. The Dutch Buffalo Creek watershed, which is currently not affected by the draft MTP, is classified as WS-II HQW in its upper reaches and supports several rare aquatic mussels such as Carolina Creekshell (State E), eastern creekshell (State SR), and notched rainbow (State T). Other important habitats in the planning area include scattered and less notable wetlands and floodplains such as those associated with the Grants Creek watershed near Salisbury.

While wetlands and floodplains will be evaluated for final alignments of U-5901 and the China Grove bypass (if programmed), impacts of these and other projects can be better minimized before development by implementing, as needed, effective conservation-based development requirements. New roadways and associated development often lead to wildlife habitat fragmentation and stormwater, water quality, and

**Mailing Address:** Habitat Conservation • 1721 Mail Service Center • Raleigh, NC 27699-1721
**Telephone:** (919) 707-0220 • **Fax:** (919) 707-0028

flooding impacts in affected watersheds. Therefore, the NCWRC encourages the CRMPO to consider the potential secondary effects of its future proposals on wildlife habitats, particularly the China Grove bypass and others that may similarly intersect large areas of currently undeveloped land. Several habitat conservation measures can be used to augment existing requirements (see Green Growth Toolbox - Conservation Recommendations ), facilitate later project development, and help maintain the long-term aesthetics and attractiveness of developing areas.

As with new roadways, road widenings increase habitat fragmentation and human-wildlife conflicts. Whitetail deer are involved in many accidents in the planning region due to a high population. Road widenings inherently increases the risk of those hazards. Therefore, the NCWRC often recommends constructing bridges with rip-rap free passages beneath to facilitate the natural movements of wildlife along riparian areas. This is a particularly useful and inexpensive approach in the absence of data needed for more targeted and expensive measures for mitigating wildlife collision, such as fencing and overpasses. On R-5860, a "wildlife-friendly" designed bridge should be appropriate for the additional crossing of Second Creek, and possible replacement of the existing old bridge at the location as well. While these considerations will be evaluated in later project development, they are mentioned here to increase the CRMPO's awareness of the implications of and need for mitigation with existing location improvements.

Thank you for the opportunity to review and provide recommendations on this MTP. Please contact me at david.mchenry@ncwildlife.org or (828)476-1966 if you have any questions about these comments.

Cordially,

Dave McHenry, NCWRC Western DOT Coordinator

ec
Eric Alsmeyer, USACE, Raleigh

February 23, 2022

Phil Conrad
Cabarrus – Rowan Metropolitan Planning Organization
713 Sternbridge Drive
Concord, North Carolina 28025
pconrad@mblsolution.com

Subject: Scoping Request for Cabarrus-Rowan Metropolitan Planning Organization's Draft 2050 Metropolitan Transportation Plan and Draft Air Quality Conformity Determination Report, Cabarrus and Rowan Counties, North Carolina

Dear Phil Conrad:

On February 3, 2022, we received your letter requesting our comments on the subject project. We have reviewed the information that you presented along with the Draft 2050 Metropolitan Transportation Plan (MTP) Report, and the following comments are provided in accordance with the provisions of the National Environmental Policy Act (42 U.S.C.§ 4321 et seq.) (NEPA); the Migratory Bird Treaty Act (MBTA), as amended (16 U.S.C. 703); Bald and Golden Eagle Protection Act (16 U.S.C. 668-668d)(BGEPA); the Fish and Wildlife Coordination Act, as amended (16 U.S.C. 661 - 667e); and section 7 of the Endangered Species Act of 1973, as amended (16 U.S.C. 1531 - 1543) (Act).

**Project Description**

According to the information provided, the Cabarrus-Rowan Metropolitan Planning Organization (MPO) has released the Draft 2050 MTP Report for public comment. The MTP includes financial forecasts, project identification, mapping, goals and objectives, and socioeconomic projects. An air quality conformity determination was also required due to the Clean Air Act's requirements that MPO's plans and programs conform to the purpose of the state implementation plan for achieving air quality standards. Chapter 10 of the 2050 MTP Report, *Environmental Resource Evaluation*, discusses environmental mitigation and environmentally sensitive areas and includes several maps.

Per the Draft 2050 MTP Report, "*The Cabarrus-Rowan MPO is committed to considering the effects of transportation projects on the natural and built environments in order to preserve the quality of life*." Also, "*According to public opinion, there is a high desire to protect the environment and improve the existing transportation infrastructure, as opposed to building new facilities*."

**Federally Listed Species**

The MTP study area is in counties that have potential or known occurrence records of species with federal designations. Below is a list of species that are known to occur— or have the potential to occur— in whole or in part, in Cabarrus and Rowan Counties. You may go to the U.S. Fish and Wildlife Service's (Service) Information for Planning and Conservation (IPaC) website (https://ecos.fws.gov/ipac/), input your study area, and receive an updated version of this list. Note that IPaC does not list at-risk species (ARS) that have not been proposed for federal listing under the Act and does not distinguish between

current and historical occurrences. Species lists are accurate for 90 days so you will want to run an IPaC list periodically throughout your planning process.

| Common Name | Scientific Name | Federal Status[1] | County |
|---|---|---|---|
| Bald eagle | *Haliaeetus leucocephalus* | BGEPA | Both |
| Carolina heelsplitter | *Lasmigona decorata* | E | Cabarrus (historic) |
| Georgia aster | *Symphyotrichum georgianum* | CCA | Rowan |
| Little brown bat | *Myotis lucifugus* | ARS | Cabarrus (potential) |
| Monarch butterfly | *Danaus plexippus* | CAN | Both |
| Northern long-eared bat, NLEB | *Myotis septentrionalis* | T | Both (potential) |
| Robust redhorse | *Moxostoma robustum* | ARS | Rowan (Historic) |
| Schweinitz's sunflower | *Helianthus schweinitzii* | E | Both |
| Tricolored bat | *Perimyotis subflavus* | ARS | Both |

[1]E = endangered species, T = threatened species, ARS = at-risk species, CAN = candidate species, CCA = Candidate Conservation Agreement available; BGEPA = Bald and Golden Eagle Protection Act

Section 7(a)(2) consultation is not required for planning efforts at this early stage, when you conduct no on-the-ground work. The below information is typically provided for scoping efforts on individual projects and could be included in any planning documents that discuss permitting requirements:

> In accordance with section 7 (a)(2) of the Act and 50 CFR Part 402.01, before any federal authorization/permits or funding can be issued for any individual project identified in your planning effort, it is the responsibility of the appropriate federal regulatory/permitting and/or funding agency(ies) to determine whether the project *may affect* any federally endangered or threatened species (listed species) or designated critical habitat. If it is determined that this project *may affect* any listed species or designated critical habitat, you must initiate section 7 consultation with this office.
>
> To determine whether a project *may affect* listed species, we first recommend surveying the action area for suitable habitat for the above species prior to any on-the-ground activities. In the event suitable habitat is present for any species, we recommend that the proponent conduct species-specific surveys during the appropriate timeframe to ensure that no populations of rare species are inadvertently affected by the proposed project. For species listed as having a historic record in the county, suitable habitat and species surveys are not recommended unless the project occurs on or very close to the historic record. If recommended surveys are not performed, you may assume presence of the species and consult with us under section 7(a)(2).
>
> Information on optimal botanical survey windows can be found here: https://www.fws.gov/southeast/pdf/fact-sheet/north-carolina-optimal-survey-windows-for-at-risk-and-listed-plants.pdf. As a reminder, those completing animal surveys must have a section 10(a)(1)(A) permit from the Service in the event an animal is captured and handled. A condition of the permit is to coordinate with the Service at least 15 days prior to surveys so that we can determine if a survey and potentially handling animals is absolutely necessary.

Guidance on conducting surveys for bats in suitable tree roosting habitat and suitable foraging and commuting habitat can be found here: https://www.fws.gov/midwest/endangered/mammals/inba/inbasummersurveyguidance.html. These guidelines are designed to determine whether Indiana bat (*Myotis sodalis*) or NLEB are present or absent at a given site during the summer (May 15 to August 15). They can also be used to survey for little brown bat and tricolored bat following the highest level of effort presented in the guidance document. This guidance is updated annually and will eventually include specific information on additional bat species if any are listed in the future. Structure roost surveys can follow NCDOT's *Standard Operating Procedure (SOP) for Preliminary Bat Habitat Assessments of Structures, Caves and Mines* (2021). We recommend surveys of structural roosts if they may be impacted by the project. Bats in Cabarrus and Rowan Counties can roost in numerous kinds of man-made structures including buildings, bridges, and culverts.

The Service's mission is to work with others to conserve, protect, and enhance fish, wildlife, and plants and their habitat for the continuing benefit of the American people. We appreciate the Draft 2050 MTP Report's commitment to consider effects to the natural environment and to consider appropriate mitigation strategies. We support the use of riparian buffers around perennial and intermittent streams (see Recommendations below for more info). Listed and at-risk bat species use trees and riparian areas to roost, forage, and commute. While records for Carolina heelsplitter and robust redhorse are historic, protection of streams and rivers benefits their habitat.

During the planning phase we encourage early identification of listed species habitat and presence, consideration of design modifications that would reduce or avoid any impacts to those listed species, and, if design modifications cannot be achieved, the development of minimization measures to help reduce impacts to those listed species that cannot be avoided. We are happy to work with individual proponents on individual projects early in the planning phase to help you achieve these goals.

For the protection and management of Schweinitz's sunflower, we encourage NCDOT to implement its existing Roadside Plant Protection guidelines in the NCDOT Rare Roadside Plant Management booklet, which were previously coordinated with the Service. We encourage the tracking, inspection, and reporting of roadside maintenance activities to ensure that NCDOT is in compliance with its own goals. We recommend that Divisions report any violations of the guidelines to the central NCDOT clearinghouse for statewide tracking. Currently, this information is maintained centrally by the Environmental Analysis Unit – Biological Surveys Group. This will benefit listed species management along state roads and highways. NCDOT's point of contact for this effort is Cheryl Knepp (clknepp@ncdot.gov).

Suitable summer roosting habitat for NLEB is present within the study area. However, the final 4(d) rule (effective as of February 16, 2016), exempts incidental take of NLEB associated with activities that occur greater than 0.25 mi from a known hibernation site, and greater than 150 feet from a known, occupied maternity roost during the pup season (June 1 – July 31). Most locations within the study plan area are locations where any incidental take that may result from associated activities is exempt under the 4(d) rule. Although not required, if using the 4(d) rule, we encourage the project proponent to avoid any associated tree clearing activities during the NLEB active season from April 1 – October 15. Project proponents also have the option of conducting consultation without the 4(d) rule; in some cases implementation of a winter tree clearing conservation measure may be enough to make a "may affect, not likely to adversely affect" (NLAA) determination. The Service is currently reevaluating the listing status of NLEB, and a final listing decision is expected in 2022. Consultations that use the 4(d) rule for NLEB may need to be reinitiated if the 4(d) rule is rescinded or the listing status of the species changes. Projects resulting in a concurrence with a NLAA determination would not need to be reinitiated.

Little brown bat, tricolored bat, and robust redhorse are at-risk species (ARS), and monarch butterfly is a candidate species (CAN). ARS and CAN are not legally protected under the Act and are not subject to any of its provisions, including section 7, unless they are formally proposed or listed as endangered or threatened. We will be making listing determinations on several of these species in the near future. While lead federal agencies are not prohibited from jeopardizing the continued existence of an ARS, CAN, or proposed species unless the species becomes listed, the prohibition against jeopardy and taking a listed species under section 9 of the Act applies as soon as a listing becomes effective, regardless of the stage of completion of the proposed action. We are including these species in our response to give you advanced notification and request your assistance in protecting them. Although not required, we recommend that the presence/absence of these species be addressed in any section 7 documentation for this or future projects, depending on your expected completion timeline. Additionally, we encourage you to coordinate projects with the NCWRC on behalf of these species.

**Migratory Birds and Eagles**

The MBTA implements four treaties that provide for the international protection of migratory birds. The MBTA prohibits taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. Bald and golden eagles are afforded additional legal protection under the BGEPA.

For many industries and activities, the Service has developed activity-specific guidance found at the following website: *https://www.fws.gov/birds/management/project-assessment-tools-and-guidance.php*. These guidance documents are designed to help industry and project developers implement measures to reduce activity-specific impacts to migratory birds. These documents provide important background on the applicable laws and policies, helping clarify standards and expectations and/or offering suggested best practices to avoid or minimize negative impacts to birds.

In general, to avoid impacts to migratory birds, we recommend conducting a visual inspection of structures to be demolished or maintained and other migratory bird nesting habitat within the work area during the migratory bird nesting season of March through September. If migratory birds are discovered nesting in the work area, including an existing structure, impacts to the occupied nests should be avoided. If birds are discovered nesting on or in a structure in the years prior to a proposed construction date, the project proponent, in consultation with us, should develop measures to discourage birds from establishing nests by means that will not result in the take of the birds or eggs.

**Fish and Wildlife Resource Recommendations**

We are also concerned about the potential effects the project could have on other natural resources within and surrounding the proposed project location. We offer the following general recommendations for the benefit of fish and wildlife resources:

- **Impervious Surfaces/Stormwater/Low Impact Development (LID)**. Increased development contributes to the increased quantity and decreased quality of stormwater entering project area waterways. Additionally, increased development outside the floodplain increases stormwater flows already caused by the lack of or loss of riparian buffers and floodplain development. Recent studies[1] have shown that areas of 10 percent to 20 percent impervious surface (such as roofs, roads, and parking lots) double the amount of stormwater runoff compared to natural cover and decrease deep infiltration (groundwater recharge) by 16 percent. At 35 – 50 percent impervious surface, runoff triples, and deep infiltration is decreased by 40 percent. Above 75

[1]Federal Interagency Stream Restoration Working Group (15 federal agencies of the United States Government). Published October 1998, Revised August 2001. Stream Corridor Restoration: Principles, Processes, and Practices. GPO Item No. 0120-A; SuDocs No. A 57.6/2:EN 3/PT.653. ISBN-0-934213-59-3.

percent impervious surface, runoff is 5.5 times higher than natural cover, and deep infiltration is decreased by 80 percent. Additionally, the adequate treatment of stormwater at project sites is essential for the protection of water quality and aquatic habitat. Impervious surfaces also collect pathogens, metals, sediment, and chemical pollutants and quickly transmit them (via stormwater runoff) to receiving waters. According to the Environmental Protection Agency, this non-point -source pollution is one of the major threats to water quality in the United States, posing one of the greatest threats to aquatic life, and is also linked to chronic and acute illnesses in human populations from exposure through drinking water and recreational contact. Increased stormwater runoff also directly damages aquatic and riparian habitat, causing streambank and stream channel scouring. Additionally, impervious surfaces reduce groundwater recharge, resulting in even lower than expected stream flows during drought periods, which can induce potentially catastrophic effects for fish, mussels, and other aquatic life. Use of any of the proposed stormwater collection devices described below will dramatically decrease the quantity and increase the quality of stormwater runoff.

  - To avoid any additional impacts to habitat quality within the watershed, we recommend that all new developments, regardless of the percentage of impervious surface area created, implement stormwater retention and treatment measures designed to replicate and maintain the hydrograph at the preconstruction condition.
  - We recommend the use of low impact development techniques,[2] such as reduced road widths, grassed swales in place of curb and gutter, rain gardens, and wetland retention areas, for retaining and treating stormwater runoff rather than the more traditional measures, such as large retention ponds, etc. These designs often cost less to install and significantly reduce environmental impacts from development.
  - Where detention ponds are used, stormwater outlets should drain through a vegetated area prior to reaching any natural stream or wetland area. Detention structures should be designed to allow for the slow discharge of stormwater, attenuating the potential adverse effects of stormwater surges; thermal spikes; and sediment, nutrient, and chemical discharges. Also, because the purpose of stormwater control measures is to protect streams and wetlands, no stormwater control measures or best management practices should be installed within any stream (perennial or intermittent) or wetland.
  - We also recommend that consideration be given to the use of pervious materials (i.e., pervious concrete, interlocking/open paving blocks, etc.) for the construction of roads, driveways, sidewalks, etc. Pervious surfaces minimize changes to the hydrology of the watershed and can be used to facilitate groundwater recharge. Pervious materials are also less likely to absorb and store heat and allow the cooler soil below to cool the pavement. Additionally, pervious concrete requires less maintenance and is less susceptible to freeze/thaw cracking due to large voids within the concrete.

- **Stream Buffers.** Natural, forested riparian buffers are critical to the health of aquatic ecosystems. They accomplish the following: 1) catch and filter runoff, thereby helping to prevent non-point source pollutants from reaching streams, 2) enhance the instream processing of both point and non-point source pollutants, 3) act as "sponges" by absorbing runoff (which reduces the severity of floods) and by allowing runoff to infiltrate and recharge groundwater levels (which maintains stream flows during dry periods), 4) catch and help prevent excess woody debris from entering the stream and creating logjams, 5) stabilize stream banks and maintain natural channel morphology, 6) provide coarse woody debris for habitat structure and most of the dissolved organic carbon and other nutrients necessary for the aquatic food web, and 7) maintain air and water temperatures around the stream. Forested riparian buffers (a minimum 50 feet wide along

[2]We recommend visiting the Environmental Protection Agency's Web site (*http://www.epa.gov/polluted-runoff-nonpoint-source-pollution/urban-runoff-low-impact-development*) for additional information and fact sheets regarding the implementation of low-impact-development techniques.

intermittent streams and 100 feet wide along perennial streams [or the full extent of the 100year floodplain, whichever is greater]) should be created and/or maintained adjacent to all aquatic areas. Within the watersheds supporting federally listed aquatic species, we recommend undisturbed, forested buffers that are naturally vegetated with trees, shrubs, and herbaceous vegetation. These buffers should extend a **minimum** of 200 feet from the banks of all perennial streams and a **minimum** of 100 feet from the banks of all intermittent streams (or the full extent of the 100year floodplain, whichever is greater.) Impervious surfaces, ditches, pipes, roads, utility lines (sewer, water, gas, transmission, etc.), and other infrastructure that requires maintenance, cleared rights-of-way and/or compromise the functions and values of the forested buffers should not occur within these riparian areas.

- **Equipment Use in Riparian Areas and In-Stream.** Equipment should be operated from the streambank. If in-stream work is necessary, stone causeways, work bridges, or mats (designed for the specific location and type of equipment) should be used. Work pads on streambanks or approaches to in-stream work areas should minimize disturbance to woody vegetation. Equipment operated in riparian areas and in/near aquatic resources should be inspected daily and maintained regularly to prevent contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials. Construction staging, toxic material storage, and equipment maintenance, including refueling, should occur outside of the riparian area. The project proponent should report any toxic material spills in riparian areas and/or aquatic resources to the Service within 24 hours.
- **Replacing Structures that Cross Rivers and Streams.** We generally recommend the use of clear-spanning bridge structures designed, at a minimum, to accommodate the active channel width. Use of culverts is discouraged. Properly sized spanning structures will provide for the passage of aquatic species and accommodate the movement of debris and bed material. Furthermore, spanning structures usually: (1) can be constructed with minimal instream impacts, (2) do not require stream channel realignment, and (3) retain the natural streambed conditions; and the horizontal and vertical clearances may be designed to allow for human and wildlife passage beneath the structures.
    - If possible, bridge supports (bents) should not be placed in the streams. Bents can collect debris during flood events, resulting in the scouring of bridge foundations. In-stream bents can also result in hydrologic changes, such as bedload scour or deposition, which may adversely affect in-stream habitat.
    - Deck drains of the spanning structures should not discharge directly into the streams; instead, they should drain through a vegetated area before entering the streams. Removal of vegetation in riparian areas should be minimized.
    - Armoring of the bank with riprap should be minimized. The reseeding of disturbed areas should be performed promptly after grading, and seed mixes should consist of native vegetation in order to prevent the spread of invasive plant species.
    - New structures should be constructed without the use of in-stream causeways or work pads whenever possible. When causeways are necessary, using the largest washed stone practicable for the application will prevent unnecessary damage to in-stream habitat and will facilitate complete removal.
    - We recommend that all equipment be refueled and receive maintenance outside of the riparian zone. Refueling and maintenance should take place in designated refueling sites that are provisioned to quickly contain any spills of fuel, lubricants, and other fluids.
    - If bridges are not possible and culverts are the only option, we suggest using bottomless culverts. Bottomless culverts preserve the natural stream substrate, create less disturbance during construction, and provide a more natural post-construction channel. Culverts should be of sufficient size to leave natural stream functions and habitats at the crossing site unimpeded. Culvert installation and presence should not change water depth, volume (flow), or velocity levels that permit aquatic organism passage; and

accommodate the movement of debris and bed material during bankfull events. Widening the stream channel must be avoided.

- In the event that a traditional culvert is the only option, the culvert design should provide for a minimum water depth in the structure during low flow or dry periods. Sufficient water depth should be maintained in all flow regimes so as to accommodate both the upstream and downstream movement of aquatic species. Water depth inside the culvert must be adequate for fish to be completely submerged and all other aquatic life to move freely, even during low flow periods. The culvert should be designed and installed at the same slope as the stream grade to maintain an acceptable water velocity for aquatic life passage and for stream substrate characteristics to be retained within the culvert.
- Where feasible, we recommend the use of multiple barrels, in addition to a low flow barrel, to accommodate flood flows. Floodplain barrels should be placed on or near stream bankfull or floodplain bench elevations and discharge onto floodplain benches. Where appropriate, install sills on the upstream end of floodplain barrels to restrict or divert the base stream flow to a single barrel. If the culvert is longer than 40 linear feet, alternating or notched baffles should be installed in a manner that mimics the existing stream pattern. This will enhance the passage of aquatic life by: (1) depositing and retaining sediment in the barrel, (2) maintaining channel depth and flow regimes, and (3) providing resting places for fish and other aquatic organisms.

- **Erosion and Sedimentation Control.** Construction activities near aquatic resources, streams, and wetlands have the potential to cause bank destabilization, water pollution, and water quality degradation if measures to control site runoff are not properly installed and maintained. In order to effectively reduce erosion and sedimentation impacts, best management practices specific to the extent and type of construction should be designed and installed prior to land disturbing activities and should be maintained throughout construction. Natural fiber matting (coir) should be used for erosion control as synthetic netting can trap animals and persists in the environment beyond its intended purpose. Land disturbance should be limited to what can be stabilized quickly, preferably by the end of the workday. Once construction is complete, disturbed areas should be revegetated with native riparian grass and tree species as soon as possible. For maximum benefits to water quality and bank stabilization, riparian areas should be forested; however, if the areas are maintained in grass, they should not be mowed. The Service can provide information on potential sources of plant material upon request.

  A complete North Carolina Department of Transportation specific design manual, which provides extensive details and procedures for developing site specific plans to control erosion and sediment and is consistent with the requirements of the North Carolina Sedimentation and Pollution Control Act and Administrative Rules, is available at: *https://connect.ncdot.gov/resources/roadside/SoilWaterDocuments/Erosion%20and%20Sediment%20Control%20Design%20and%20Construction%20Manual.pdf* .
- **Pollinators.** Pollinators, such as most bees, some birds and bats, and other insects, including moths and butterflies, play a crucial role in the reproduction of flowering plants and production of most fruits and vegetables. Over 75 percent of flowering plants and about 75 percent of crops are pollinated by these types of fauna. A recent study of the status of pollinators in North America by the National Academy of Sciences found that populations of honeybees (which are not native to North America) and many wild pollinators are declining. Declines in wild pollinators are a result of disease and the loss, degradation, and fragmentation of habitat. Because loss of habitat and diminished native food sources have decreased the populations and diversity of pollinators throughout the country, we recommend that development projects be sited in areas that are previously disturbed (fallow fields, closed industrial sites, etc.) or sites that do not impact mature forests, streams, or wetlands.

We have records of rare species of pollinators in the area, including monarch butterfly (*Danaus plexippus plexippus*), a federal candidate for listing.3 Monarch butterflies east of the Rocky Mountains used to number in the hundreds of millions but the population has declined by approximately 80 percent. Loss of habitat due to genetically modified crops, overuse of herbicides and insecticides, urban, suburban and agricultural development, disease, climate change, and overwintering site degradation are the leading causes of monarch decline. Adults use a wide variety of flowering plants throughout migration for nectar and breeding. However, milkweed plants (*Asclepias* spp.) are essential to monarch breeding as these are the only genus of plants that can host monarchs in their larval form. For a regional and seasonal list of plants important to monarch butterflies, please visit the Xerces Society website at: *http://www.xerces.org/monarch-nectar-plants/*.

Although the provisions of section 7 of the Act do not currently apply to candidate species or other non-listed pollinators, we would greatly appreciate your assistance in determining if monarch butterflies or suitable habitat for the species is present on the proposed project site. If individuals or suitable habitat is present, impacts should be avoided. More specific information about monarch butterfly can be found at the Service website dedicated to the species at: *https://www.fws.gov/savethemonarch/*.

To reduce development impacts to monarch butterflies and other pollinators and/or to increase the habitat and species diversity within the project area, we recommend the following measures be incorporated into project designs:

- Throughout the site, avoid non-native seed mixes and plants. Instead, sow native seed mixes and plant species that are beneficial to pollinators.
    - Avoid seed mixes and plants that have been pre-treated with insecticides, such as neonictinoids.
    - Taller-growing pollinator plant species should be planted around the periphery of the site and anywhere on the site where mowing can be restricted during the summer months. Taller plants, not mowed during the summer, would provide benefits to pollinators, habitat for ground-nesting/feeding birds, and cover for small mammals.
    - Native low-growing/groundcover species should be planted in areas that need to be maintained. This would provide benefits to pollinators while also minimizing the amount of maintenance, such as mowing and herbicide treatment.
    - Using a seed mix that includes milkweed species is especially beneficial for monarch butterflies. The following website provides additional information and a comprehensive list of native plant species that benefit pollinators: *http://www.xerces.org/pollinator-resource-center/mid-atlantic*. We also offer our assistance with developing seed mixes that can be used in conjunction with fast growing erosion control seed mixes for overall soil stability and pollinator benefits.
    - Additional information regarding plant species, seed mixes, and pollinator habitat requirements can be provided upon request.

3"Taxa for which the [Fish and Wildlife] Service has on file enough substantial information on biological vulnerability and threat(s) to support proposals to list them as endangered or threatened. Proposed rules have not yet been issued because this action is precluded at present by other listing activity. Development and publication of proposed rules on these taxa are anticipated. The Service encourages State and other Federal agencies as well as other affected parties to give consideration to these taxa in environmental planning" (*Federal Register*, February 28, 1996). Taxa formerly considered as "Category 1" are now considered as "candidates."

- Mowing and grounds maintenance, including pesticide use, should be scheduled to not interfere with monarch breeding or nectaring at project sites that occur along the migration route. To reduce harm, we advise mowing in the fall or winter when flowers are not in bloom.
- Provide nesting sites for pollinator species. Different pollinators have different needs for nesting sites. Therefore, we recommend project designs include a diverse array of habitats to accommodate varied pollinators. For example:
  - Hummingbirds typically nest in trees or shrubs.
  - Many butterflies lay eggs on specific host plants.
  - Most bees nest in the ground and in wood or dry plant stems.
  - For additional information and actions that can be taken to benefit pollinators, please visit the following website: *https://www.fws.gov/pollinators/*.

- **Permanent and Temporary Lighting**. Recent studies indicate that artificial lighting disrupts the natural reproduction and feeding patterns of nocturnal pollinators such as beetles and moths. This disruption results in a decrease of pollination rates in plants and a decrease in the health and diversity of nocturnal pollinators. Other studies have shown that bat species richness decreases with the presence of artificial lighting, with *Myotis* species being particularly vulnerable (Spoelstra et al. 2017, Stone et al. 2012, Downs 2003, Linley 2017). Road lighting deters many bat species from approaching the road, notably slow-flying, woodland-adapted species such as *Myotis* sp. (Rydell 1992; Blake et al. 1994; Stone et al. 2009, 2012). The presence of artificial lighting may cause spatial avoidance of preferred commuting routes (Stone et al. 2009) and drinking areas (Russo et al. 2017) and force light-shy bats to use suboptimal flight routes or fly further to reach foraging sites, requiring them to expend more energy (Stone et al. 2009, 2012) resulting in diminished fitness and/or reduced survivorship. Type and color of artificial lighting has been shown to impact bat species differently (Spoelstra et al. 2017, Downs 2003). Artificial lighting of any kind can cause a delay in emergence from roosts and increase the overall duration of emergence (Stone et al. 2009, Rydell et al. 2017), lower the amount of bat activity at a roost (Linley 2017), and cause high colony loss when omnidirectional lighting leaves no dark corridor to and from the roost (Rydell et al. 2017). This in turn decreases available foraging time, juvenile growth rates, and overall colony health (Stone et al. 2015). Finally, per the American Medical Association (AMA 2016) and International Dark-Sky Association (IDA), roadway lighting can have adverse consequences on human health. High-intensity LED lighting designs or poorly shielded outdoor lighting can create nighttime glare, which can decrease vision by reducing contrast. Also, blue-rich LED streetlights can suppress melatonin, impacting circadian sleep rhythms in humans.

  When developing an outdoor lighting plan, installing new outdoor lighting, maintaining or upgrading existing lights, or changing the type of lightings used we recommend consideration of the following measures to minimize potential adverse effects to pollinators and bats. For additional information and actions that can be taken to reduce outdoor light pollution, check out IDA's website[1].
  - For all projects involving the addition or modification of lighting:
    - Lighting should only be on when needed, only light the area that needs it, be no brighter than necessary, minimize blue light emissions, and be fully shielded (pointing downward)(IDA 2022).[4]
    - Avoid lighting landscape features such as trees, shrubs, building facades, adjacent wooded areas, and the surface waters of rivers and streams that provide suitable habitat for bats, pollinators and other wildlife species.
  - For temporary construction lighting between March 15 and November 15:

4 https://www.darksky.org/our-work/lighting/lighting-for-citizens/lighting-basics/

- Limit all construction-related lighting to whatever is necessary to maintain safety in *active* work areas.
- If installing lighting to ensure safe passage for river users, install steady-state, solar-powered red lighting to avoid nighttime noise from generators.

- For permanent lighting:
  - When installing new or replacing existing permanent lights, use downward-facing, full cut-off[5] lens lights (with same intensity or less for replacement lighting); or for those transportation agencies using the Backlight-Uplight-Glare (BUG) system developed by the Illuminating Engineering Society[6], the goal is to be as close to 0 for all three ratings with a priority of "uplight" of 0 and "backlight" as low as practicable.
  - Use light fixtures with a lower lumen output, reducing overall brightness.
  - Use the shortest light poles that meet highway and safety requirements.
  - If using LEDs, use lights with Type I or II distribution patterns[7] that create rectangular lighting patterns that limit light spill into adjacent habitats.
  - For bridge projects, consider features that block automobile headlights from reaching surface waters and surrounding riparian habitats.
  - Prioritize use of low-pressure sodium (LPS), high-pressure sodium (HPS), or light emitting diode (LED) light sources that emit “warm” light. “Warm” light sources are those that contain low amounts of blue light in their spectrum. Choosing light sources with a color temperature of no more than 3,000 Kelvins will minimize the effects of blue light exposure (Downs 2003)[8].

We appreciate the opportunity to provide these comments. Please contact Ms. Lauren B. Wilson of our staff at lauren_wilson@fws.gov if you have any questions. In any future correspondence concerning this project, please reference our Log Number 22-221.

Sincerely,

*- - original signed - -*

Janet Mizzi
Field Supervisor

5 https://www.darksky.org/our-work/grassroots-advocacy/resources/glossary/
6 http://shop.innovativelight.com/media/cms/BUG_ratings_3044A7612FA89.pdf
7 https://eyelighting.com/lighting-technology-education/led-lighting-basics/led-distribution-types
8 https://www.darksky.org/light-pollution/human-health/

**DEPARTMENT OF THE ARMY**
WILMINGTON DISTRICT, CORPS OF ENGINEERS
69 DARLINGTON AVENUE
WILMINGTON, NORTH CAROLINA 28403-1343

REPLY TO
ATTENTION OF: Regulatory Division

Cabarrus-Rowan MPO
Attn: Phil Conrad, AICP
713 Sternbridge Drive
Concord NC 28025

Dear Mr. Conrad:

Thank you for your request for U.S. Army Corps of Engineers' (USACE) input regarding the 2045 Metropolitan Transportation Plan (MTP) for the Cabarrus-Rowan Metropolitan Planning Organization (MPO), which includes Cabarrus and Rowan Counties. While the USACE always endeavors to assist potential applicants and appreciates your request for our input, providing detailed comments at this time is challenging due to the lack of detailed information concerning waters of the United States (U.S.) in the area that will be covered by the MTP. We do, however, offer the following information to clarify USACE considerations and/or requirements for those instances when a Department of the Army (DA) permit will be required for a specific project, as we believe this information will be beneficial in the MTP development process, which will affect later planning and permitting processes.

## USACE Permitting:

There are two federal regulations for DA permitting: Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbor Act (RHA) of 1899. DA authorization (i.e., a permit) under Section 404 of the CWA is required when an applicant will discharge dredged or fill material (e.g., culvert installation, culvert extension, rip rap, soil, etc.) into a jurisdictional water of the U.S., whether this discharge is permanent or temporary. DA authorization under Section 10 of the RHA of 1899 is required when an applicant will construct any structure in, under, or over any navigable water of the U.S., excavate/dredge or discharge fill material into these waters, or place any obstruction in, or alter, a "navigable water", whether these activities are permanent or temporary. A structure or work outside of the limits defined for navigable waters of the U.S. requires a Section 10 permit if the structure or work would affect the course, location, condition, or capacity of the water body.

Note that most streams and wetlands in North Carolina are not Section 10 waters, but wetlands which are subject to the ebb and flow of the tide are considered Section 10 waters. A current check of the Section 10 waters list finds none within the geographical scope of this MTP. Information on Section 10 waters can be found at https://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Jurisdiction/ (scroll down the page to find the list on the righthand side). Please note that the

Wilmington District anticipates publishing a Section 10 Geographic Information System (GIS) layer by the end of 2020, and we recommend that you review this layer for all MTPs when available.

The type of DA authorization required [i.e., general or standard (individual) permit] will be determined by the USACE based on the location, type(s), and extent of jurisdictional waters of the U.S. that are proposed for impact by a project. Stated another way, the extent of USACE review on any given project is commensurate with the amount of impacts to streams and wetlands, among other considerations.

As a project moves from long-range planning to prioritization, an on-site delineation of streams and wetlands will be required by the USACE to ensure that all potential waters of the U.S. are captured and to allow for project/application evaluation. Once an applicant/applicant's consultant conducts a delineation, it should be forwarded to our office along with a request for a jurisdictional determination. The request for jurisdictional determination can be found on our website at https://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/Jurisdiction/.

GIS Data for Planning Efforts:

In addition to the Section 10 GIS layer noted above, National Wetland Inventory (NWI) maps will aid in locating on-site wetlands; however, please be aware that NWI maps often have a high level of error when predicting the location of wetlands so an applicant must be cautious about relying exclusively on this data. It is expected that NCDOT will soon have a wetlands predictive model for the entire state which may have an increased rate of accuracy when compared to the layer. When the predictive model is approved for your area, we strongly suggest that you use NCDOT's modeling results in combination with the NWI layer. Additionally, it is unclear if the stream GIS data sets as shown on your GIS layer list will encompass all jurisdictional streams, so caution is also warranted when using this GIS layer. If you haven't already done so, we encourage the MTP Team to coordinate with NCDOT's ATLAS Team for a list of useful GIS layers for large-scale planning efforts.

Under 33 U.S.C. 408 (Section 408), all proposals to impact waters of the U.S. require a separate assessment if the issuance of a DA permit might alter, or temporarily or permanently occupy or use, a USACE federally authorized Civil Works project. Therefore, it is necessary to consider if any Civil Works projects occur within your MTP area. Previous Civil Works projects are not always evident on today's landscape and can occur in any portion of North Carolina; an example of a proposed project within this MTP area is the CONCORD STREAMS RESTORATION on Stricker Branch (UT to Irish Buffalo Creek), east of US 29 in Concord. Currently, the USACE is working with NCDOT to add the Section 408 information to NCDOT's GIS database. Once the Section 408 information is available for your use, we recommend that you add it to your

data layer review list; until then, please coordinate with the USACE Project Manager identified at the close of this letter for the location of these resources.

In addition, we recommend that you review the GIS information concerning all compensatory mitigation sites (i.e., mitigation banks, mitigation sites, in-lieu mitigation, etc.), including those that are not maintained by NCDOT.

As for non-USACE information, please ensure you review the layers to address all federal requirements to include the Endangered Species Act (ESA) (16 U.S.C. 1531 *et seq*.), the National Historic Preservation Act (NHPA) of 1966 (16 U.S.C. 470), the Fish and Wildlife Coordination Act of 1956 (FWCA) (16 USC 742a, *et seq.*), Section 401 of the Clean Water Act (33 U.S.C. 1341), Section 307(c) of the Coastal Zone Management Act (CAMA) of 1972, as amended (16 U.S.C. 1456(c)), Section 7(a) of the Wild and Scenic Rivers Act (WSRA) (16 U.S.C. 1278 *et seq*.), Tribal boundaries (e.g., trust land boundaries), etc., and as advised by the GIS professionals at NCDOT, as DA authorization for a project cannot be issued until all applicable federal requirements have been met.

## Project Purpose, the 404(b)(1) Guidelines, and the Least Environmentally Practicable Alternative:

The USACE understands that development of the MTP is the beginning of the planning process; however, we also understand that long-range planners will begin to develop system purpose(s) and need(s), as well as assess some level of alternatives analysis on selected projects. Therefore, we urge you to consider the following information, as decisions made during the MTP process will affect subsequent stages of the planning and permitting processes.

For all projects that will require an Individual Permit or the use of RGP 31, the USACE must conduct a project-specific analysis under the 404(b)(1) Guidelines (Guidelines) (40 CFR Part 230). Note that the Guidelines and the National Environmental Policy Act (NEPA) are separate requirements and contain different obligations.

One difference between the Guidelines and NEPA is the requirement to examine “practicable” alternatives under the Guidelines vs. “reasonable” alternatives under NEPA. As noted in the Guidelines [40 CFR Part 230.10(a)(4)], “For actions subject to NEPA, where the Corps of Engineers is the permitting agency, the analysis of alternatives required for NEPA…will in most cases provide the information for the evaluation of alternatives under these Guidelines. On occasion, these NEPA documents may address a broader range of alternatives than required to be considered under this paragraph or may not have considered the alternatives in sufficient detail to respond to the requirements of these Guidelines. In the latter case, it may be necessary to supplement these NEPA documents with this additional information.” Because during the later stages of planning or permitting, the USACE may inquire about alternatives

that have not been advanced (because the USACE believes that they may be practicable and/or have fewer impacts to the aquatic ecosystem than do the alternatives carried forward for detailed analysis), please ensure that decisions made at all stages of the planning process are adequately documented and justified. If done adequately, this will prevent having to "go back" and consider/analyze an alternative that was discarded earlier in the planning process.

"Practicable" is defined in the Guidelines at 40 CFR Part 230.10(a)(2) as "…available and capable of being done after taking into consideration cost, existing technology, and logistics in light of the overall project purpose..." The agency responsible for determining "practicability" under the Guidelines is the USACE; this responsibility does not change or transfer to another agency (e.g., the Federal Highway Administration, NCDOT, etc.), even if another federal agency is the lead for NEPA, nor does this responsibility change if a project is in the Section 404/NEPA Merger Process.

A second difference is that while NEPA does not require the lead federal agency's decision maker to select the "environmentally preferred alternative" as the "agency's preferred alternative" in the NEPA document, the Guidelines do require that, "…no discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic eco-system, so long as the alternative does not have other significant adverse environmental consequences" [40 CFR part 230.10(a)] – i.e., this is commonly referred to as the "LEDPA" (least environmentally damaging practicable alternative). When the applicant fails to clearly demonstrate that their "preferred alternative" is the LEDPA, the USACE cannot authorize that project/alternative; if this were to happen, it would result in project delays, additional expenses to the transportation agency(ies), possible project revisions, etc., and the travelling public would not be well served. The following paragraphs detail how to avoid this issue.

Under the Guidelines, to satisfactorily demonstrate that the applicant's/agency's preferred alternative is indeed the LEDPA, the applicant is required to assess a range of alternatives and show that the other alternatives are more environmentally damaging than the applicant's preferred alternative and/or are not practicable. Because "practicability" is dependent on the project's purpose, it is vital that the purpose statement, or performance measures/evaluation criteria (evaluation criteria) that support the purposed statement (if used), are clearly presented and measurable. Additionally, if the purpose statement is not measurable, or evaluation criteria that are measurable are not included, the USACE may not be able to authorize an applicant's preferred alternative/project because the applicant will not be able to demonstrate that their preferred alternative is the LEDPA.

For example, if a project's purpose is to "improve vehicular mobility between Point A and Point B to reduce travel time," there likely are a number of alternatives that would "improve" mobility and "reduce" travel times; however, some of these alternatives

may not meet the applicant's unstated goals/measures of a successful improvement project for this particular situation. The applicant then chooses (as their preferred alternative) the alternative that (1) improves mobility and reduces travel time to a certain degree, and (2) has greater impacts to waters of the U.S. than does another alternative that would also improve mobility and reduce travel time to a lesser degree, but has fewer impacts to waters of the U.S. Because the purpose statement did not contain any measures of "improvement" of mobility or "reduction" of travel time needed, and the applicant did not provide supporting evaluation criteria with quantifiable goals/targets (and provided that the alternative with fewer impacts to waters of the U.S. did not have "…other significant adverse environmental consequences"), the USACE would not be able to authorize the applicant's preferred alternative/project because they did not clearly demonstrate that their preferred alternative is the LEDPA.

To avoid such situations from occurring, the USACE encourages all applicants to include measurable goals/targets of the project in either the purpose statement or in evaluation criteria. For example, for the project described above, a Level of Service (LOS) for the design year might have been used as a goal. For a safety project, eliminating road deficiencies to ensure a project does not exceed Statewide Crash Rates for similar road facilities may be a measurable goal for a purpose statement or a performance measure/evaluation criterion. Note that when subjective words such as "improve", "reduce", "limit", etc., are used in purpose statements or evaluation criteria and there are no measurable or quantifiable goals/targets, it becomes difficult, or impossible in some cases, to demonstrate that one alternative that meets the purpose is the LEDPA when there are other alternatives that also meet the purpose of the project and those alternatives have fewer impacts to the aquatic environment.

The concept of evaluation criteria is also explained in the American Association of state Highway Transportation Officials (AASHTO) Practitioner's Handbook #14 (August 2016):

> "Even when agencies agree on a project's basic purposes, there can be significant disagreements about which alternatives meet those purposes. For example, highway projects often are proposed to address congestion problems. Establishing the existence of the congestion need may be relatively straightforward. The more challenging issue often involves determining how much improvement is needed in order for an alternative to meet the project purpose. Evaluation criteria can help to provide a framework for making this judgment. When an individual Section 404(b)(1) Guidelines permit is needed, it is important to engage the Corps as these evaluation criteria are developed."

Also note that while cost may be a factor in determining practicability, the fact that one alternative is more expensive than another does not necessarily mean that the more expensive alternative is not practicable.

In summary, the purpose statement, supported by the need statement, is a critical factor in selecting the LEDPA for a project that is processed under an Individual Permit or RGP 31, and the LEDPA is the only alternative that can be permitted by the USACE. Therefore, it is crucial that the purpose and need statements be well thought out and well written, even as early as MTP development.

## Impacts to waters of the U.S.<br>Avoidance, Minimization, and Compensatory Mitigation:

Please keep the following information in mind while considering alternatives, as these issues are rigorously reviewed during the permitting process:

As noted above, we are required to review proposed projects that would impact waters that are jurisdictional under Section 404 of the CWA in accordance with the Guidelines. In addition to practicability and the LEDPA determinations, the Guidelines require that permits for work in waters of the U.S. can be issued only after all appropriate and practicable steps to avoid and minimize impacts have been taken; this requires the applicant to demonstrate that they have (1) avoided unnecessary environmental impacts by preparing an analysis of available off and on-site alternatives that would potentially result in less adverse impacts than the proposed project, especially regarding site design and construction techniques, and; (2) minimized the unavoidable adverse impacts of your preferred alternative (i.e., information regarding measures you have taken to avoid and minimize impacts to aquatic resources), to the maximum extent practicable. Once these steps have been taken, the applicant must then propose a compensatory mitigation plan that would adequately offset all unavoidable impacts to waters or wetlands. To demonstrate avoidance and minimization measures that are taken during the MTP process, and to support later planning and permitting efforts, please ensure that all measures taken during MTP development are documented in detail.

Hopefully, this information will be useful to you during MTP development. If you have any questions, please contact me by email at eric.c.alsmeyer@usace.army.mil or by phone at 919.554.4884, extension 23. You may also visit our website at https://www.saw.usace.army.mil/Missions/Regulatory-Permit-Program/ for general information on permitting and related issues.

Sincerely,

Eric Alsmeyer
Regulatory Project Manager
Wilmington District

Copies furnished, by email:

Holland Youngman, USFWS, Asheville Ecological Services Field Office

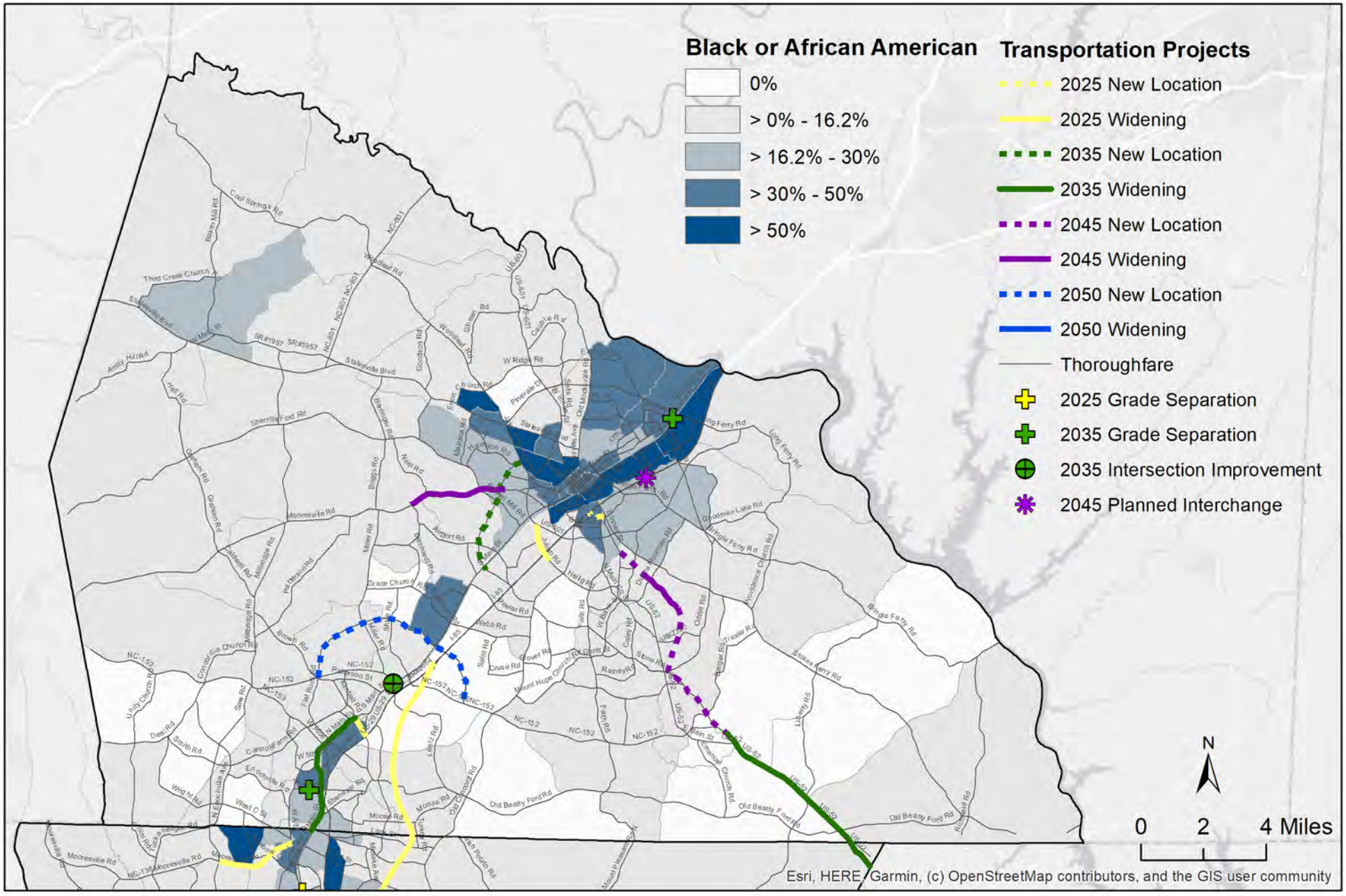
Amanetta Somerville, USEPA Region 4

# Black or African American Population

## Percent in each Census Block Group

Rowan County
County-wide Average 16.2%

Data Source: ACS 5Y2019 B02001

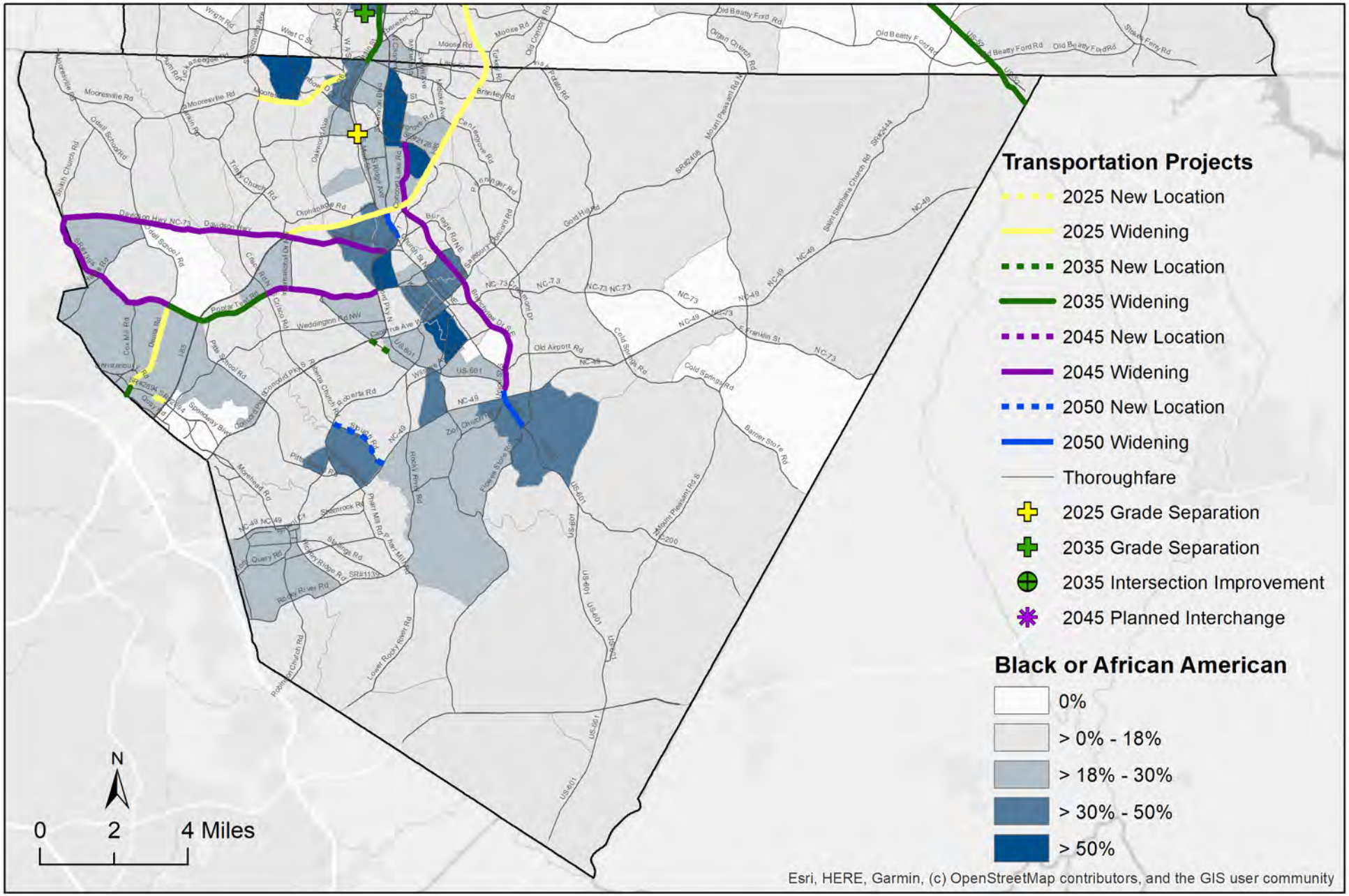


# Black or African American Population

## Percent in each Census Block Group

Cabarrus County
County-wide Average 18%

Data Source: ACS 5Y2019 B02001

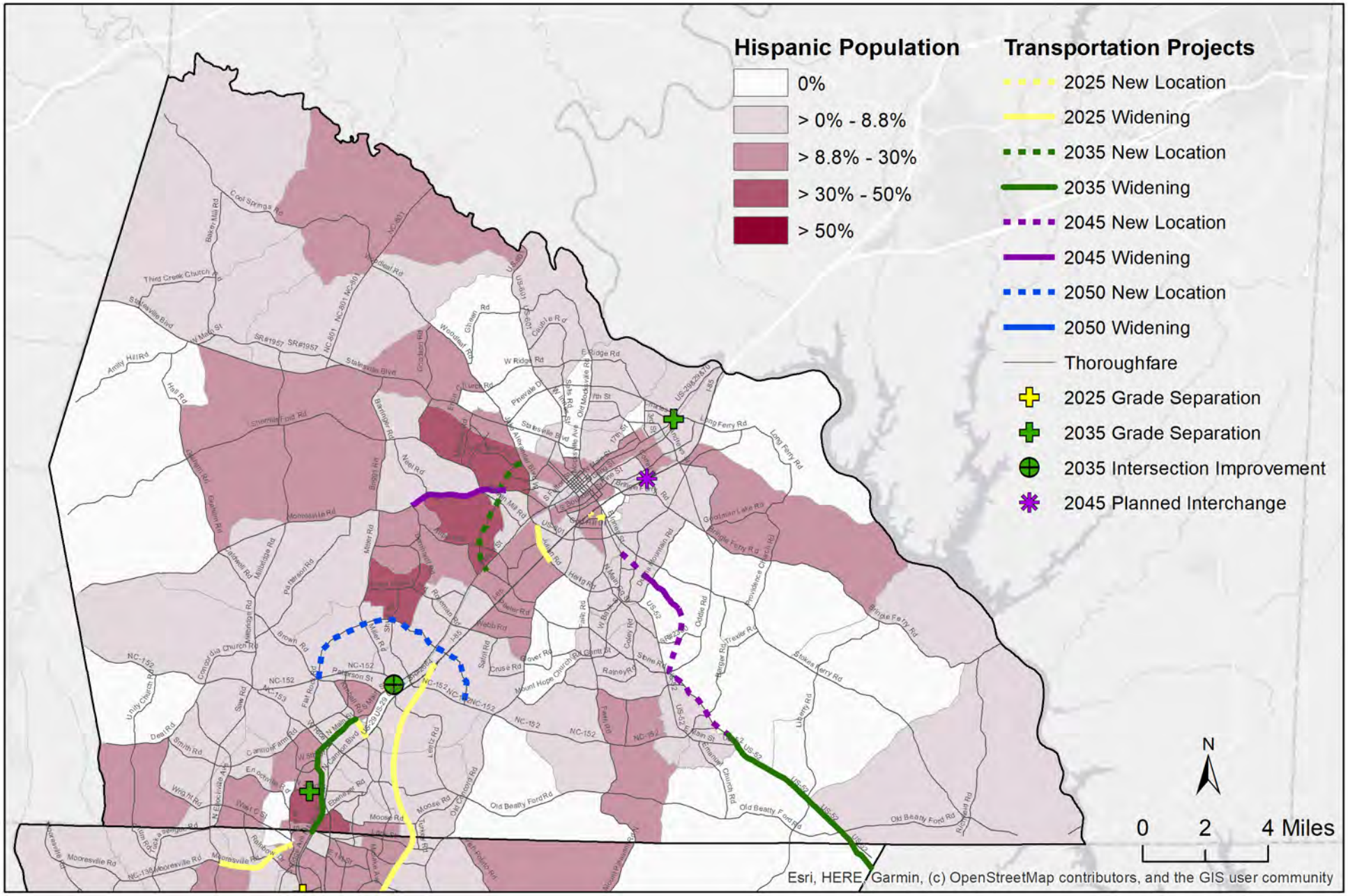


# Hispanic Population

Percent in each Census Block Group

Rowan County
County-wide Average 8.8%

Data Source: ACS 5Y2019 B03003

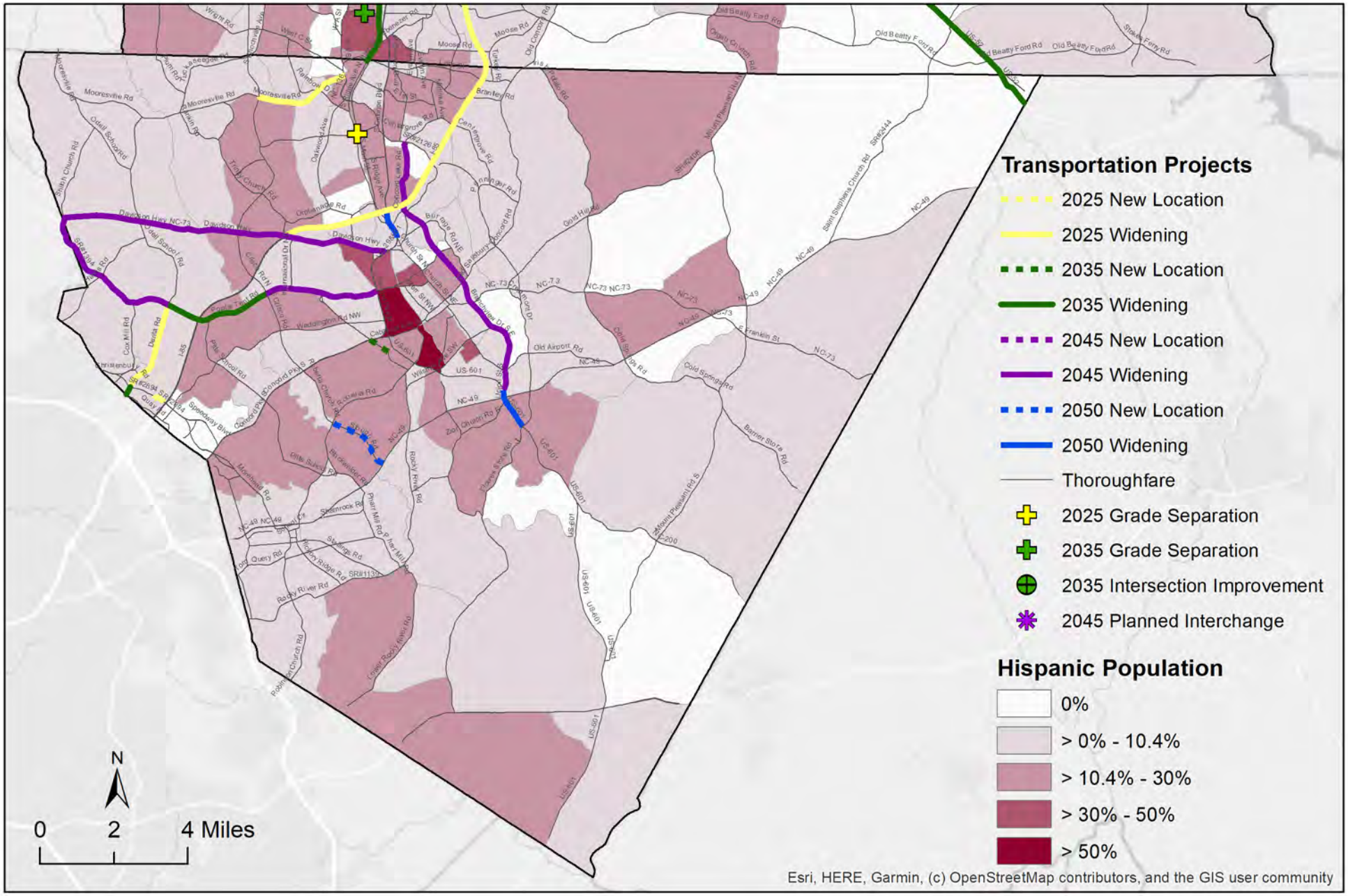


# Hispanic Population

## Percent in each Census Block Group

Cabarrus County
County-wide Average 10.4%

Data Source: ACS 5Y2019 B03003

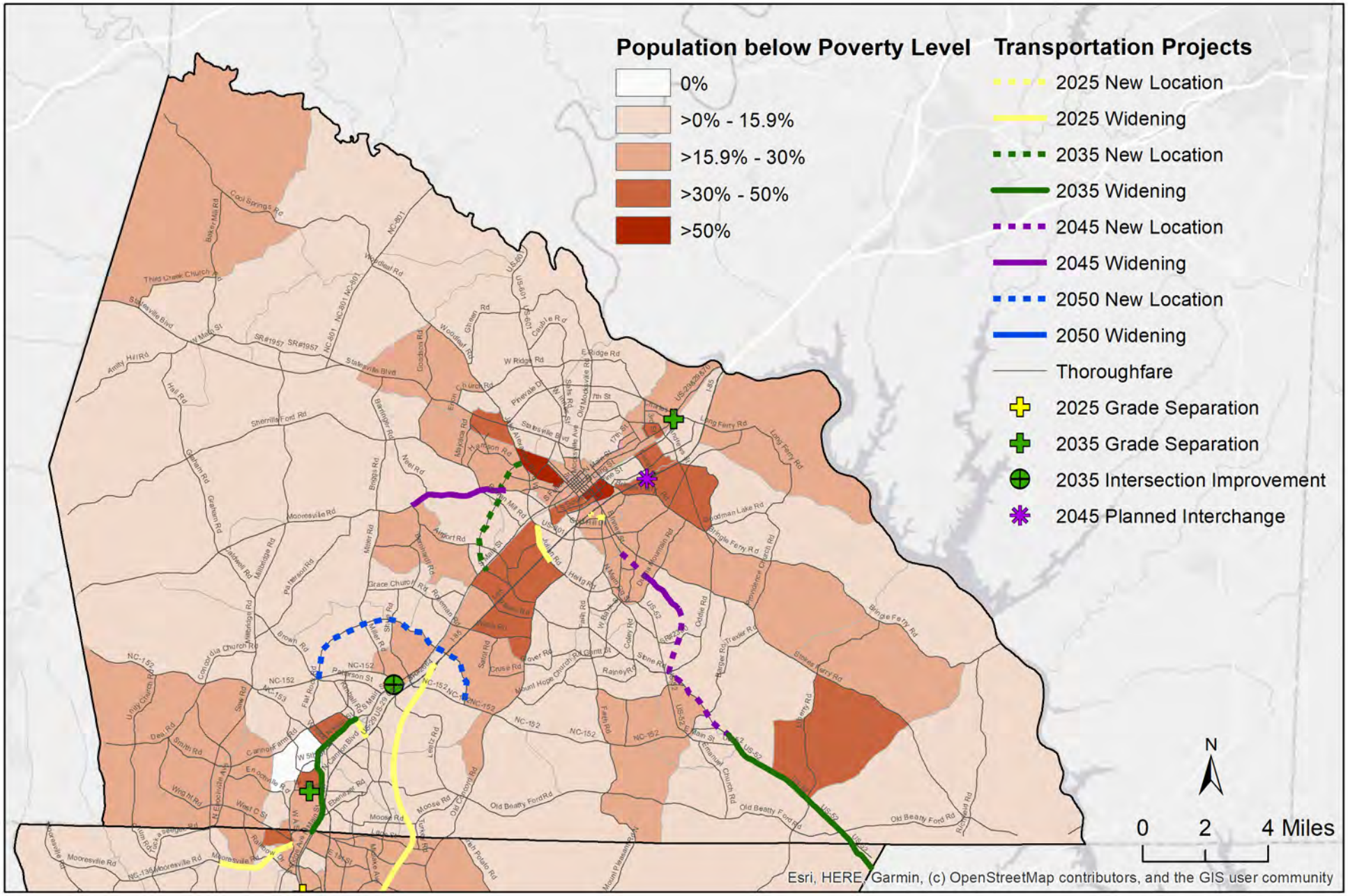


# Population below Poverty Level

Percent in each Census Block Group

Rowan County
County-wide Average 15.9%

Data Source: ACS 5Y2019 B17021

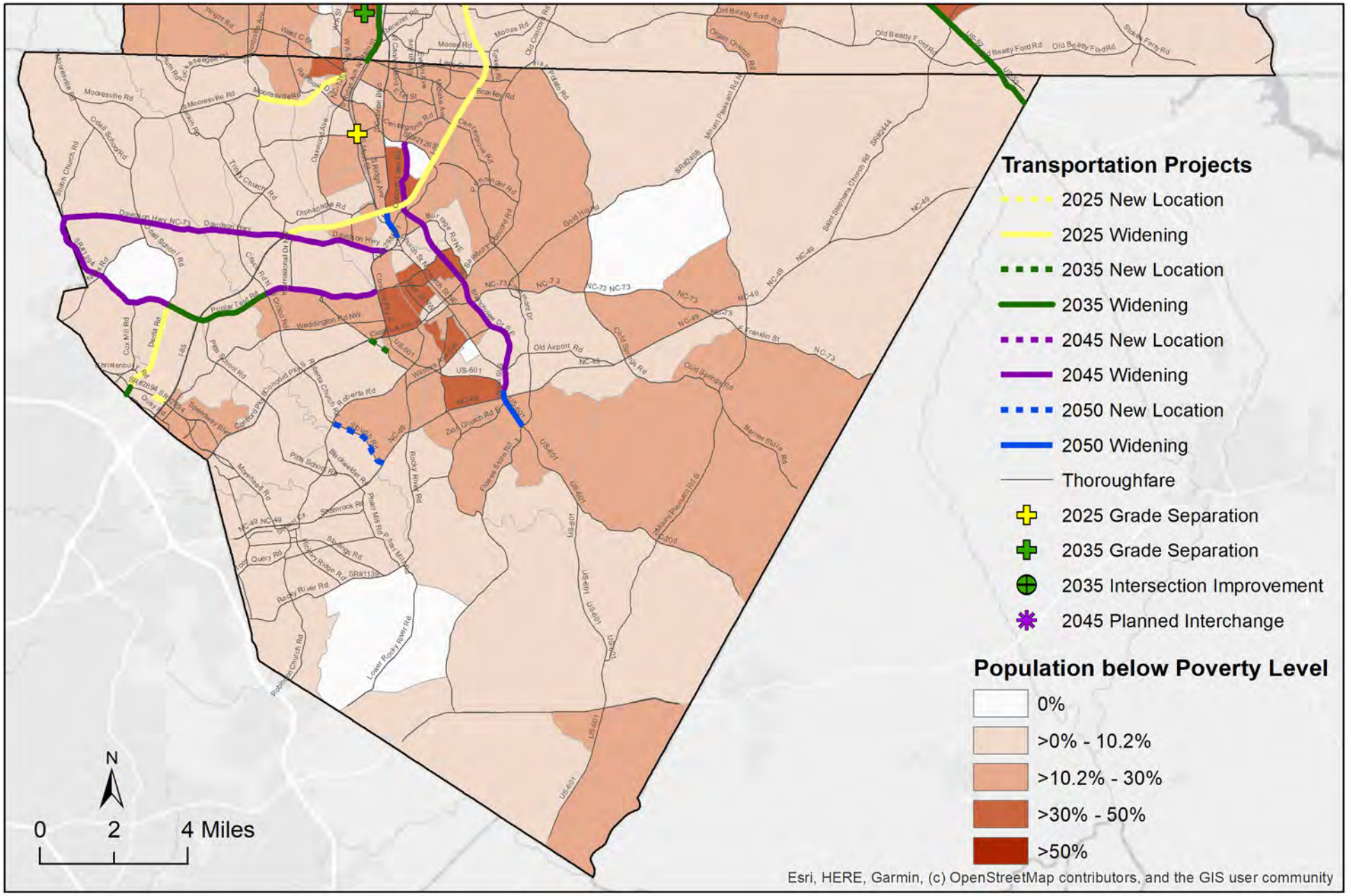


# Population below Poverty Level

## Percent in each Census Block Group

Cabarrus County
County-wide Average 10.2%

Data Source: ACS 5Y2019 B17021

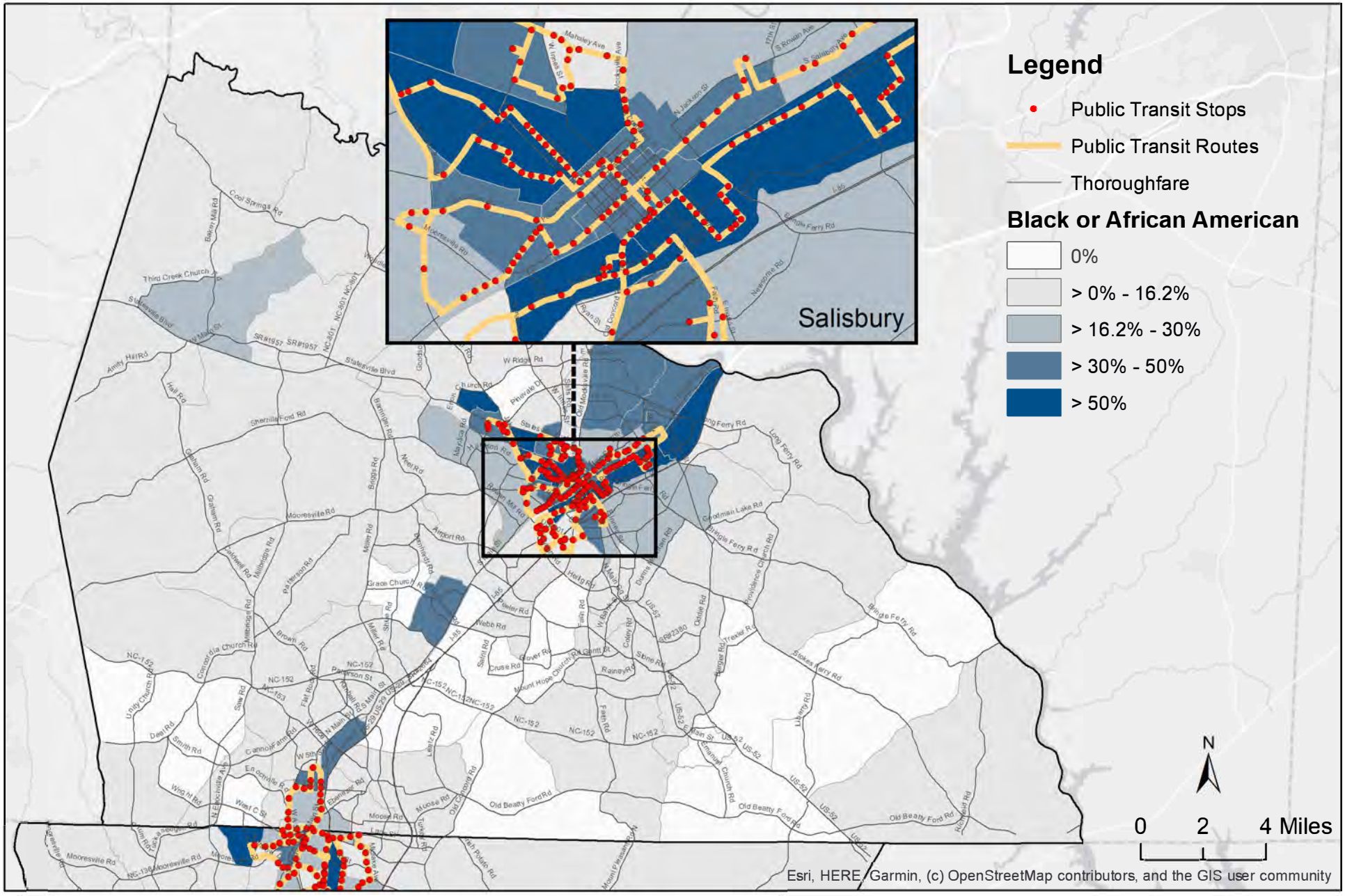


# Black or African American Population

Percent in each Census Block Group

Rowan County
County-wide Average 16.2%

Data Source: ACS 5Y2019 B02001

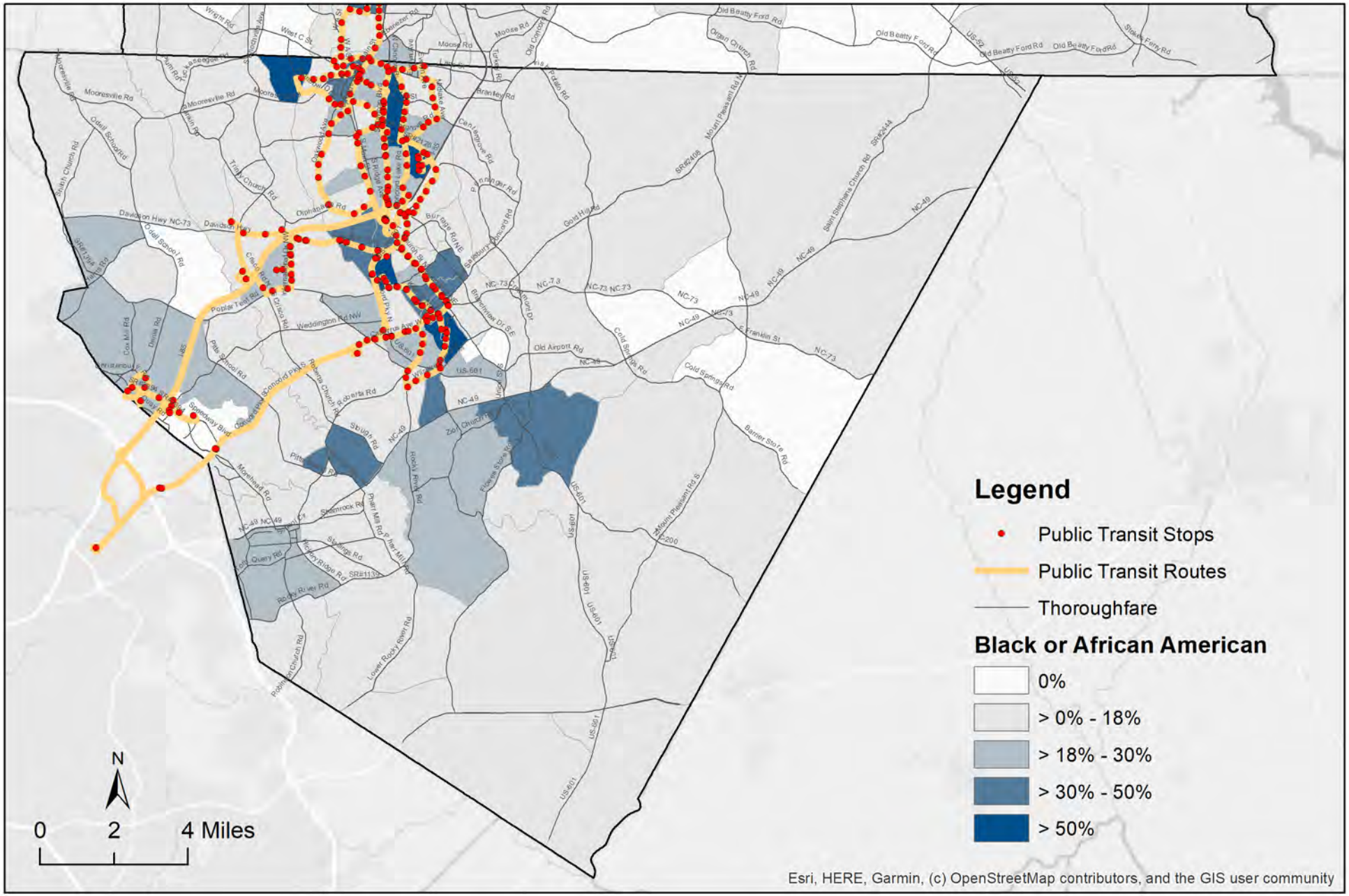


# Black or African American Population

## Percent in each Census Block Group

Cabarrus County
County-wide Average 18%

Data Source: ACS 5Y2019 B02001

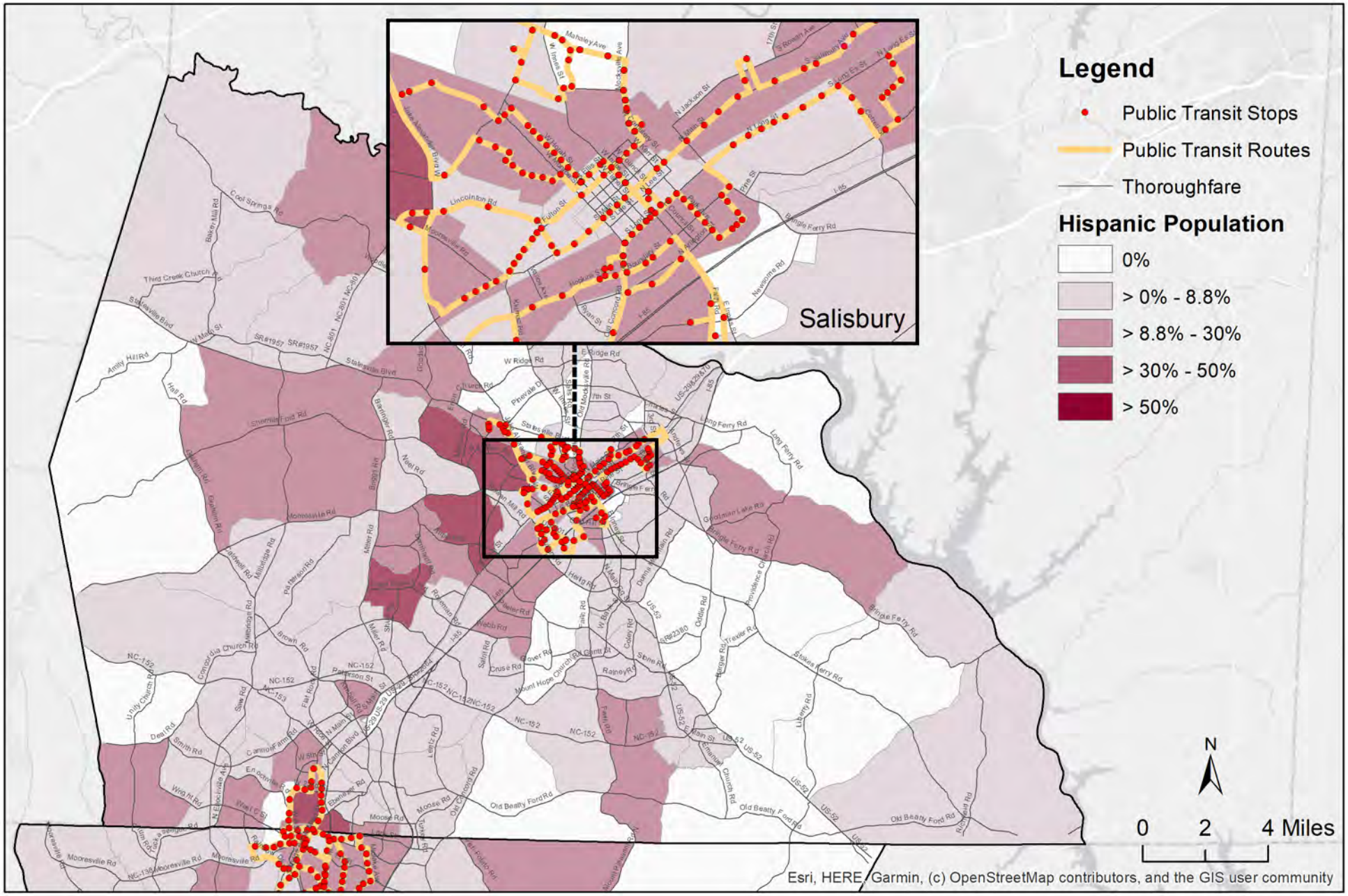


# Hispanic Population

Percent in each Census Block Group

Rowan County
County-wide Average 8.8%

Data Source: ACS 5Y2019 B03003

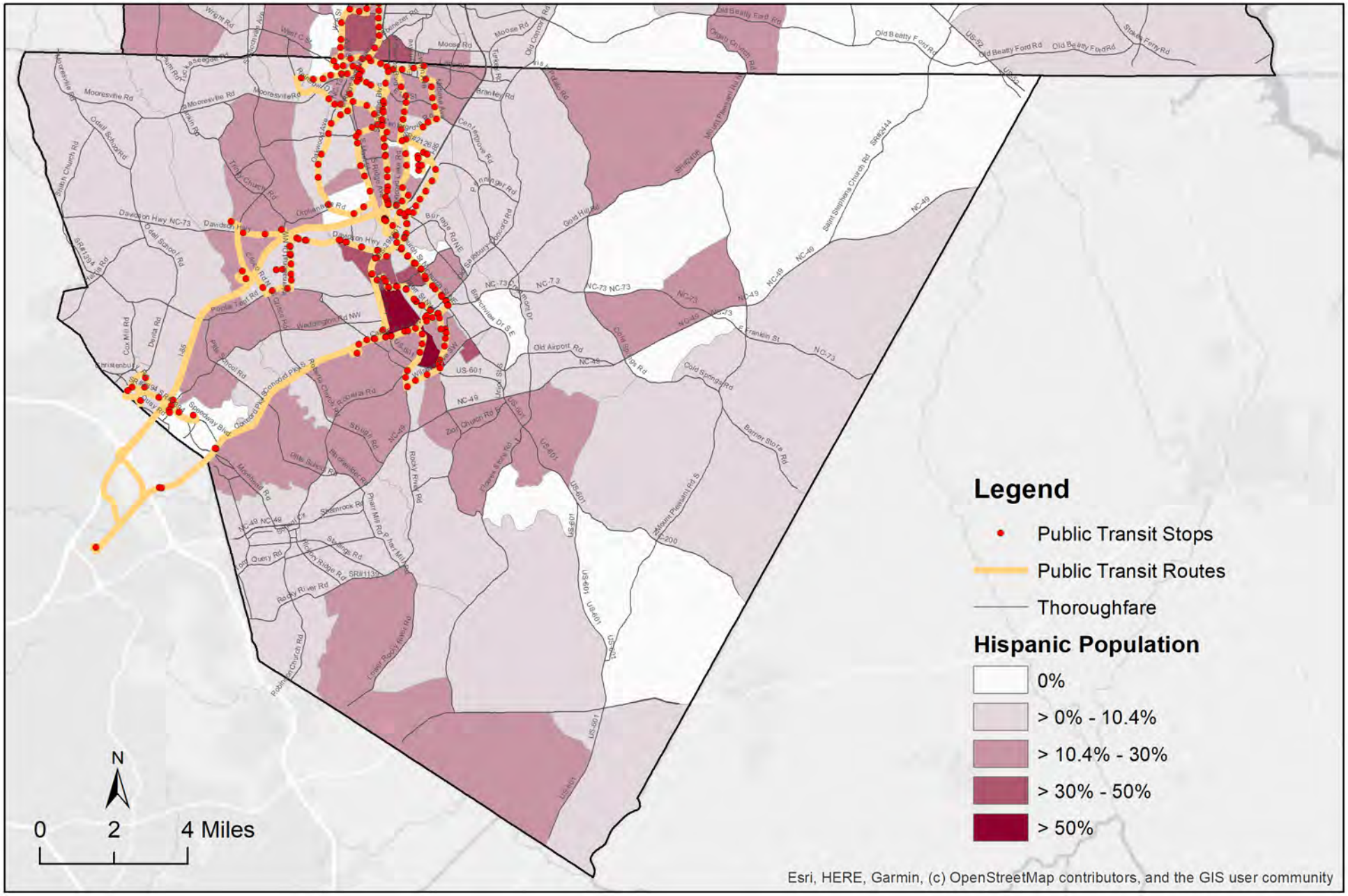


# Hispanic Population

Percent in each Census Block Group

Cabarrus County
County-wide Average 10.4%

Data Source: ACS 5Y2019 B03003

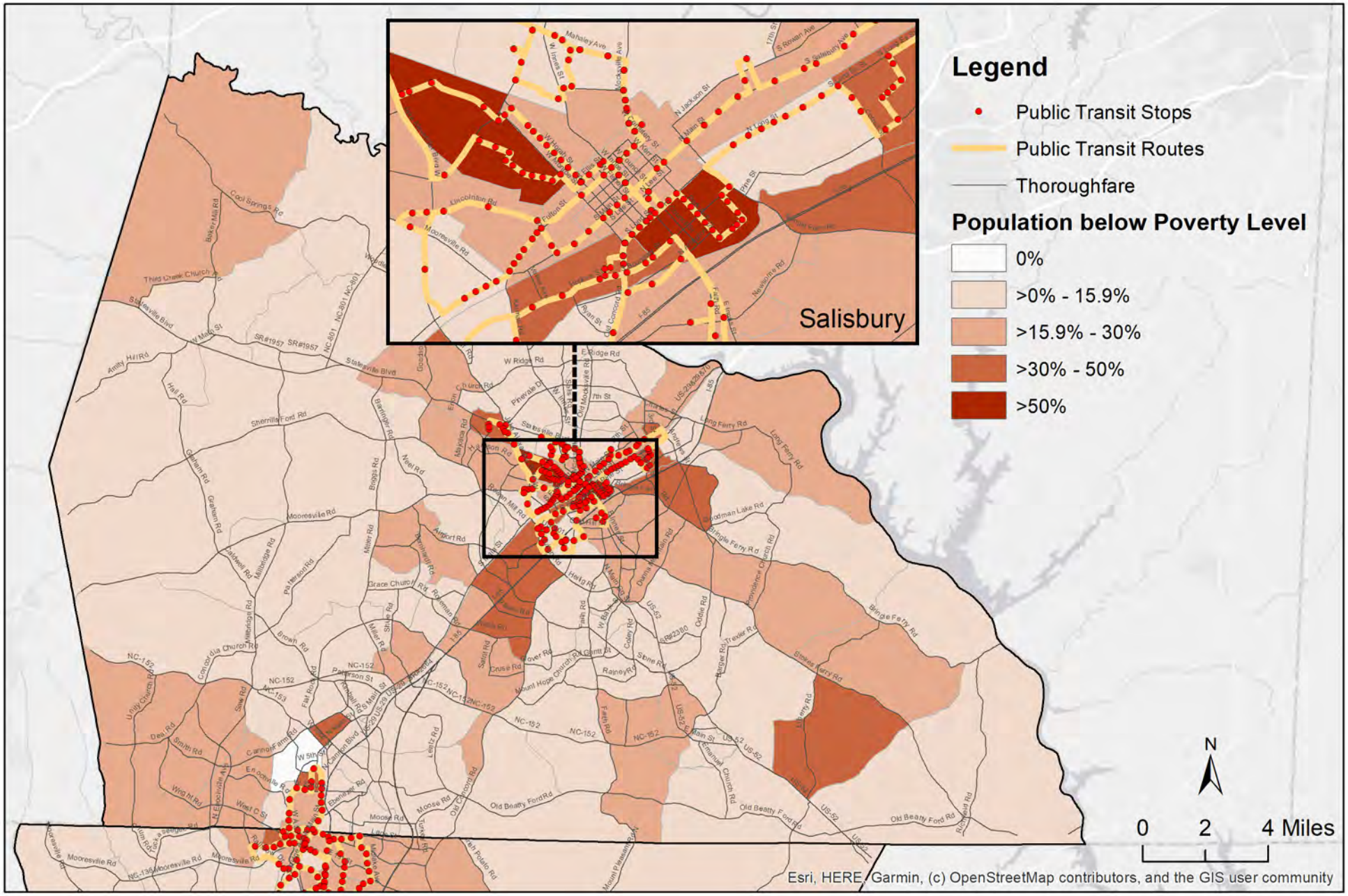


# Population below Poverty Level

Percent in each Census Block Group

Rowan County
County-wide Average 15.9%

Data Source: ACS 5Y2019 B17021

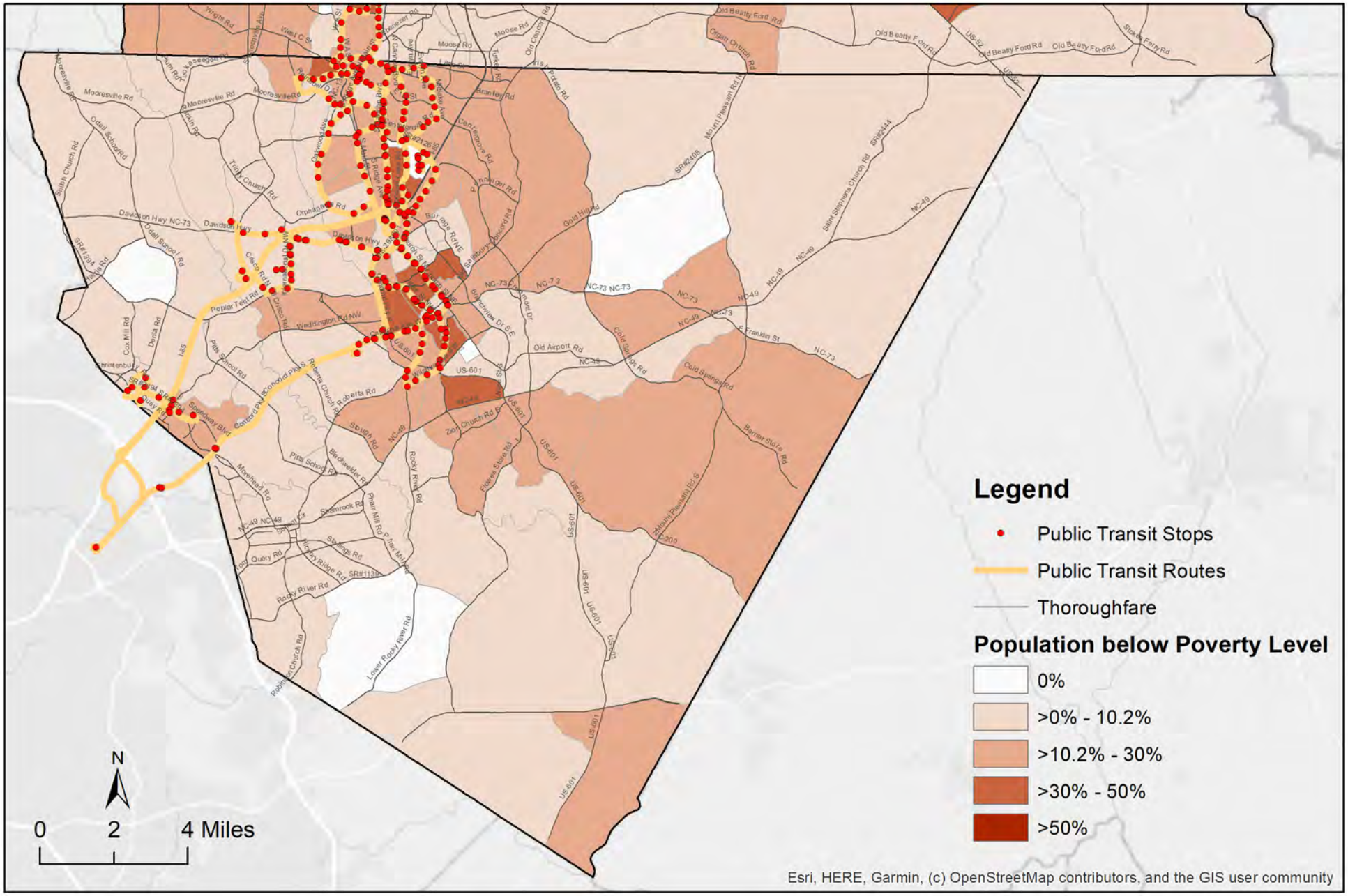


# Population below Poverty Level

## Percent in each Census Block Group

Cabarrus County
County-wide Average 10.2%

Data Source: ACS 5Y2019 B17021

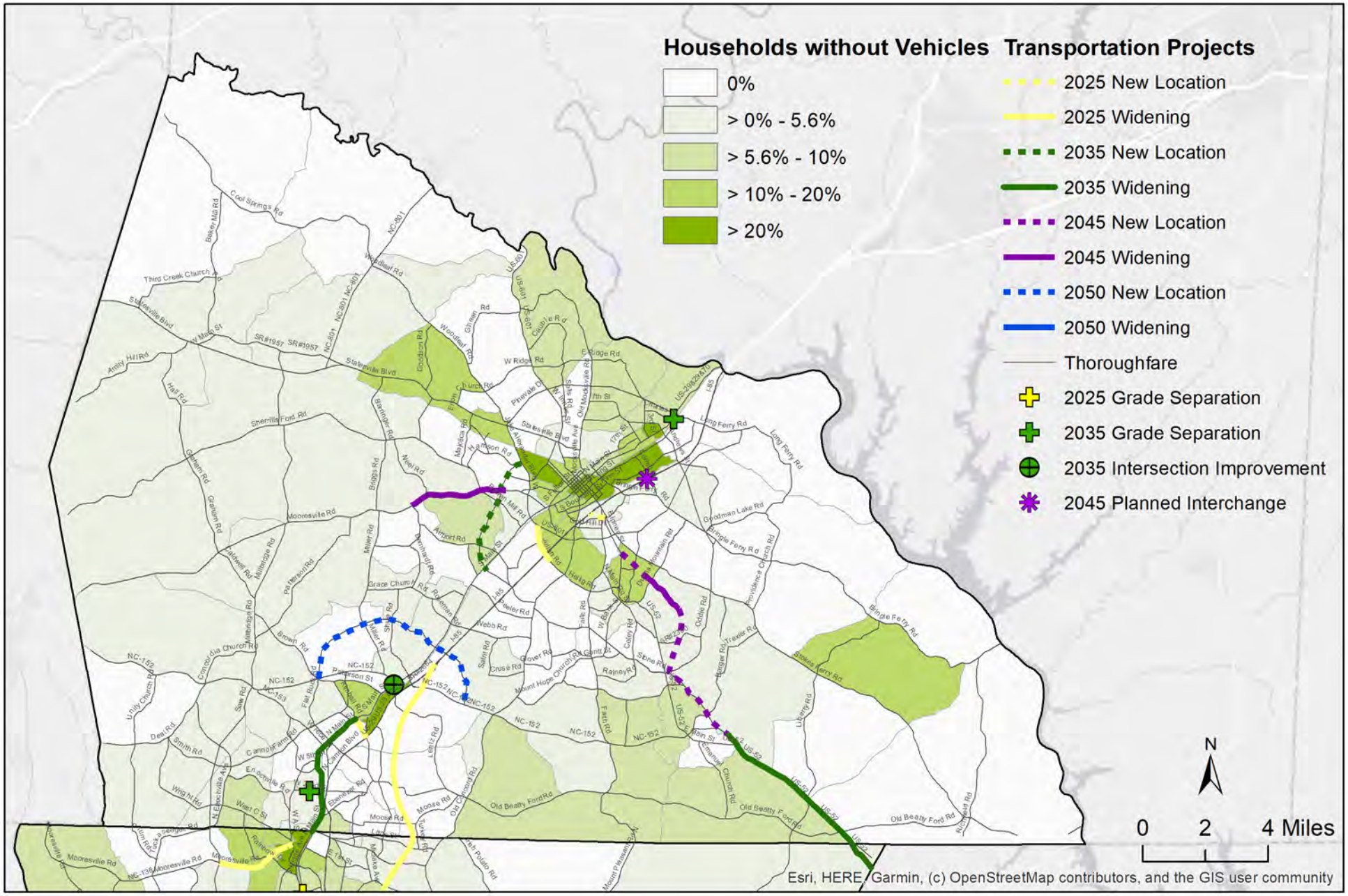


# Households with Zero Vehicle Ownership

Percent in each Census Block Group

Rowan County
County-wide Average 5.6%

Data Source: ACS 5Y2019 B25044

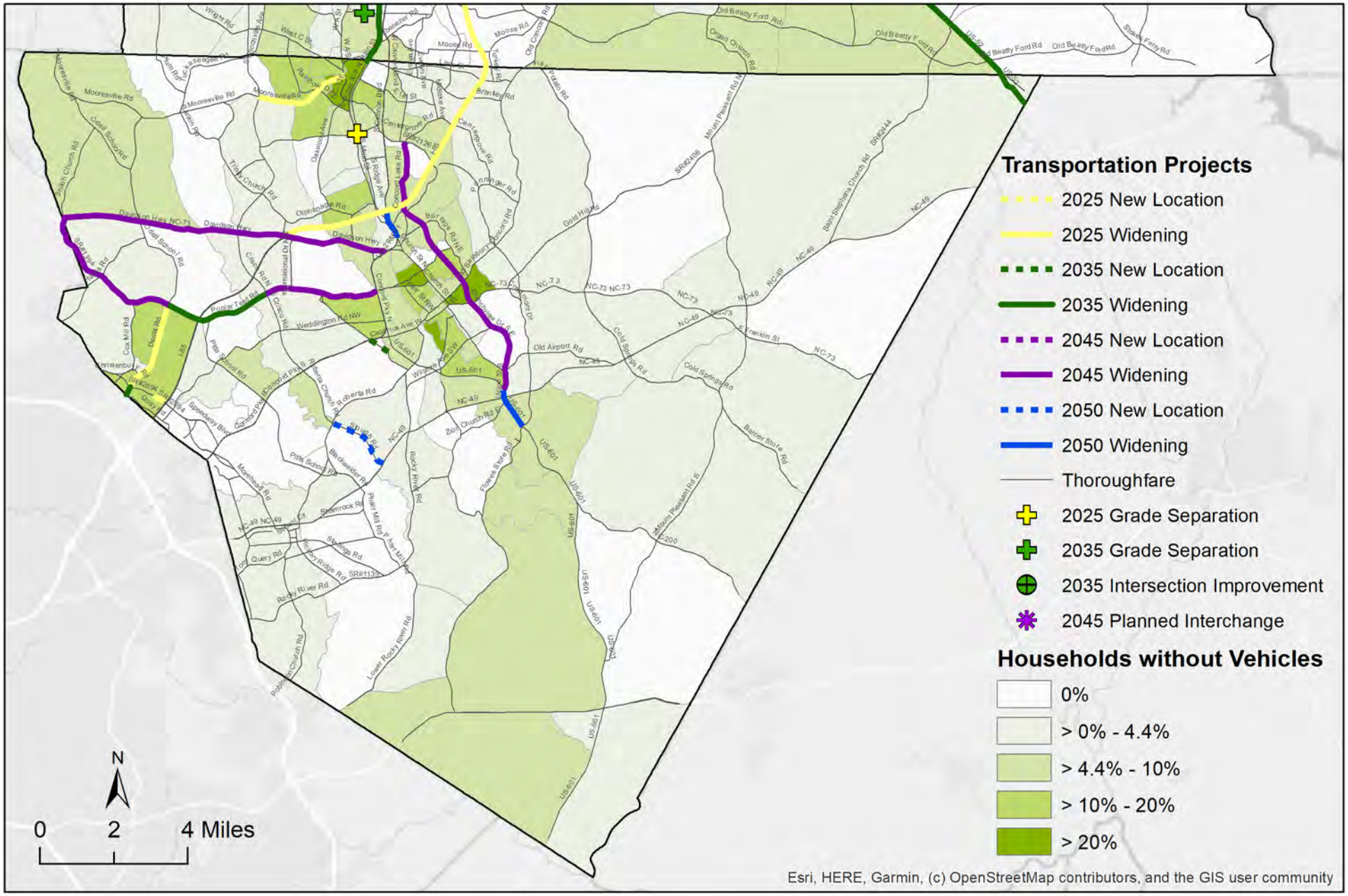


# Households with Zero Vehicle Ownership

Percent in each Census Block Group

Cabarrus County
County-wide Average 4.4%

Data Source: ACS 5Y2019 B25044

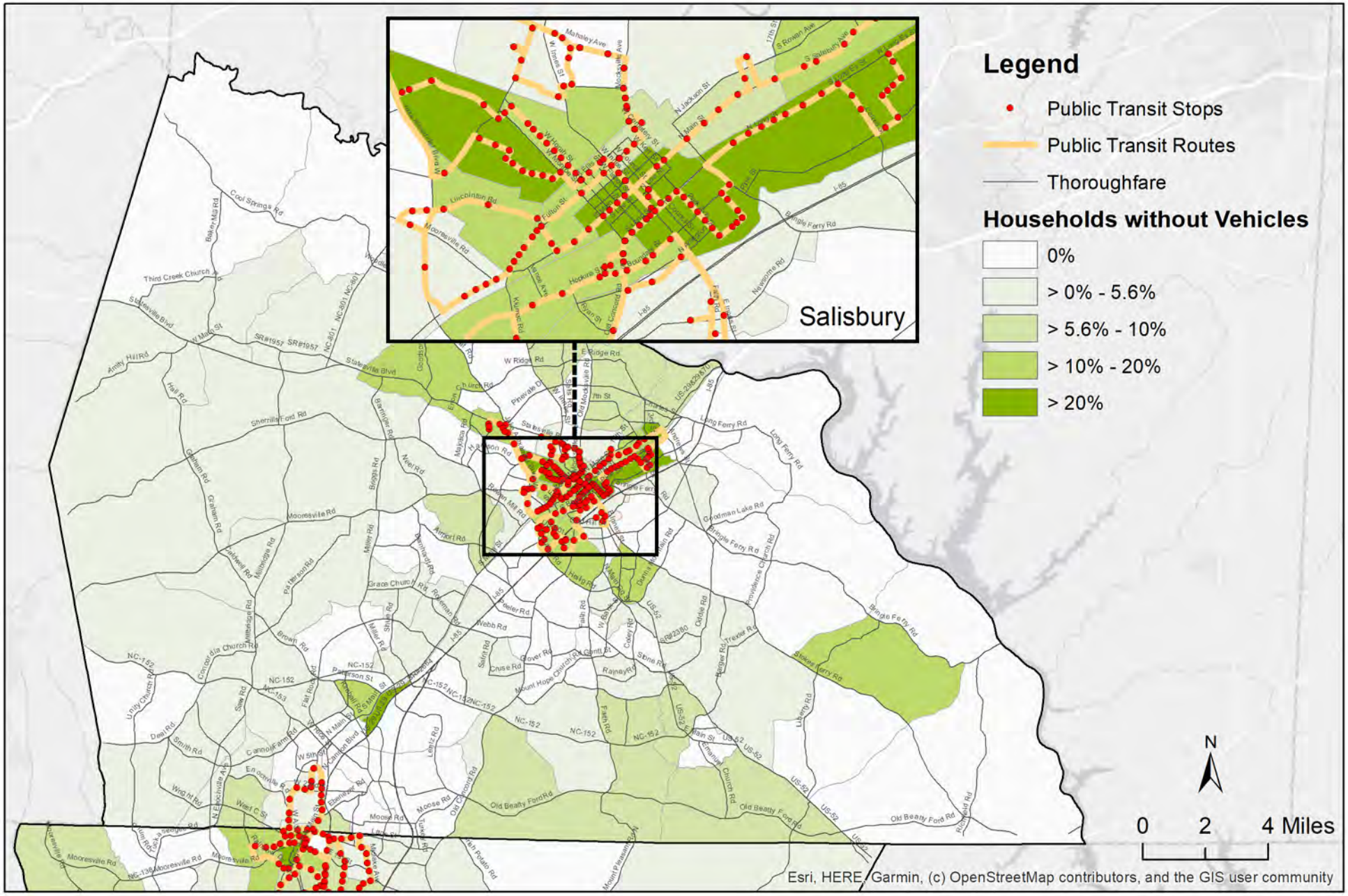


# Households with Zero Vehicle Ownership

Percent in each Census Block Group

Rowan County
County-wide Average 5.6%

Data Source: ACS 5Y2019 B25044

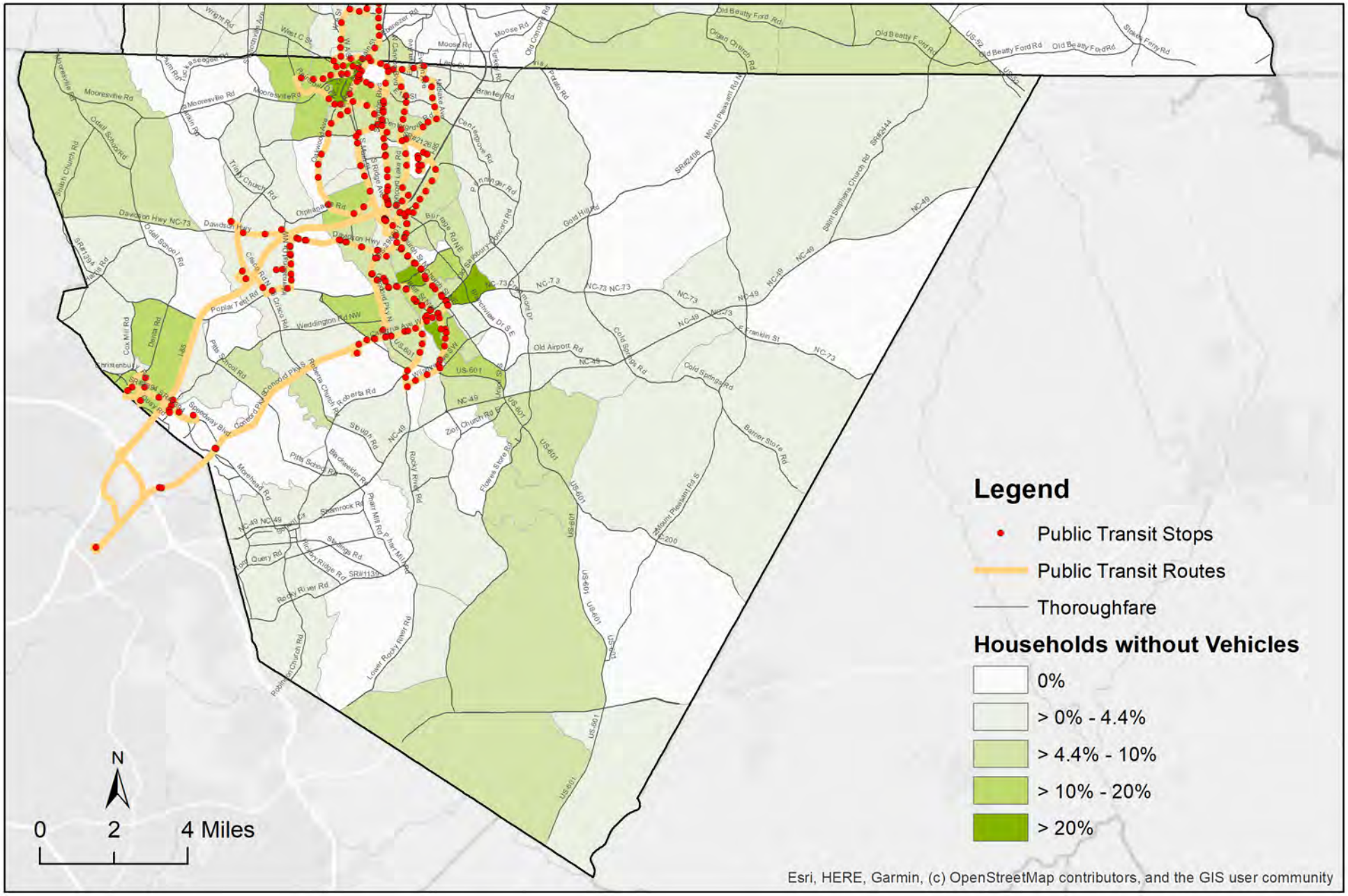


# Households with Zero Vehicle Ownership

## Percent in each Census Block Group

Cabarrus County
County-wide Average 4.4%

Data Source: ACS 5Y2019 B25044

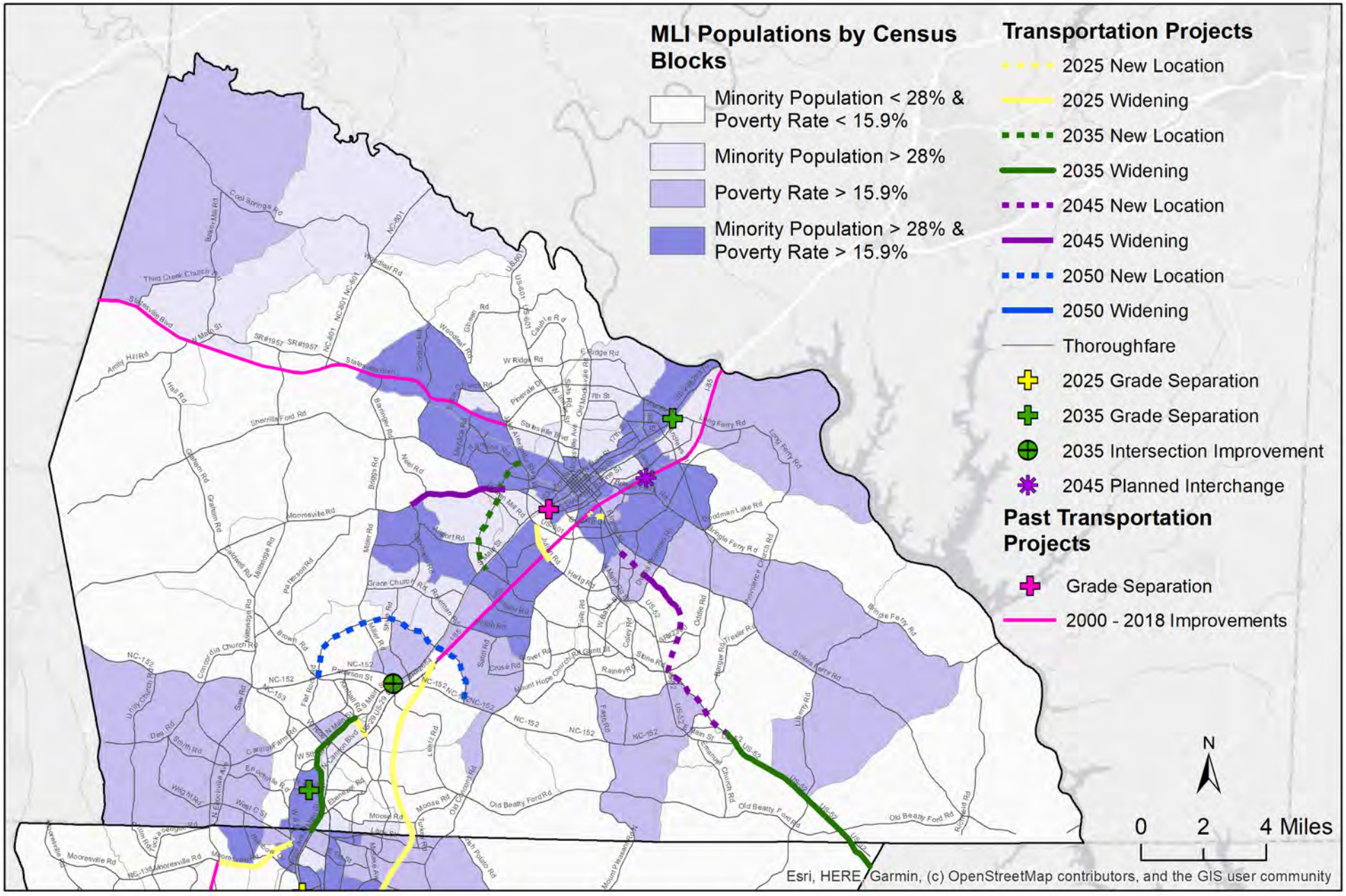


# Minority and Low Income Population (MLI)

Percent in each Census Block Group

Rowan County
County Avg. 28% & 15.9%

Data Source: ACS 5Y2019 B03002, B17021

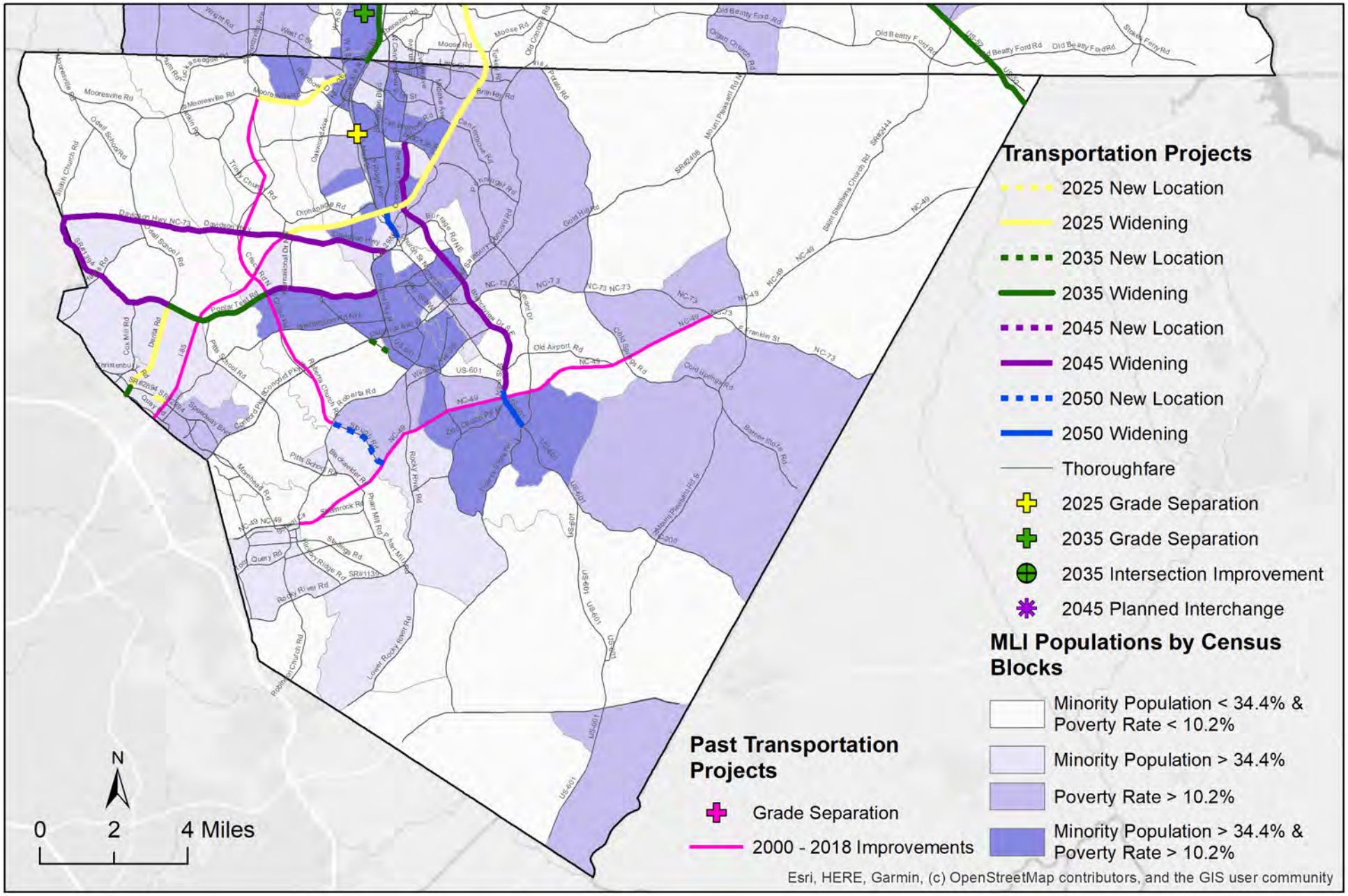


# Minority and Low Income Population (MLI)

Percent in each Census Block Group

Cabarrus County
County Avg. 34.4% & 10.2%

Data Source: ACS 5Y2019 B03002, B17021

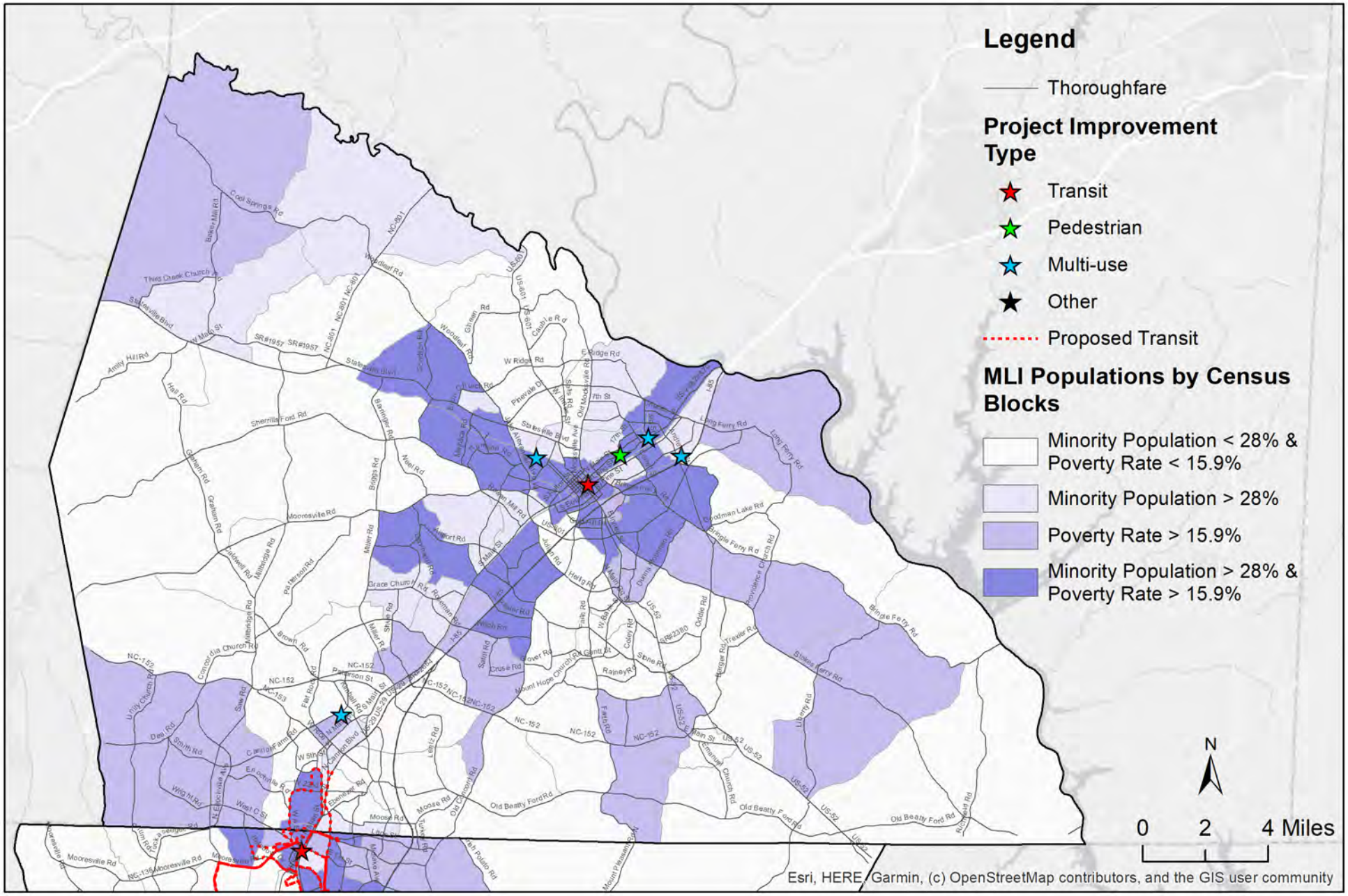


# Minority and Low Income Population (MLI)

Percent in each Census Block Group

Rowan County
County Avg. 28% & 15.9%

Data Source: NCDOT; ACS 5Y2019 B03002, B17021

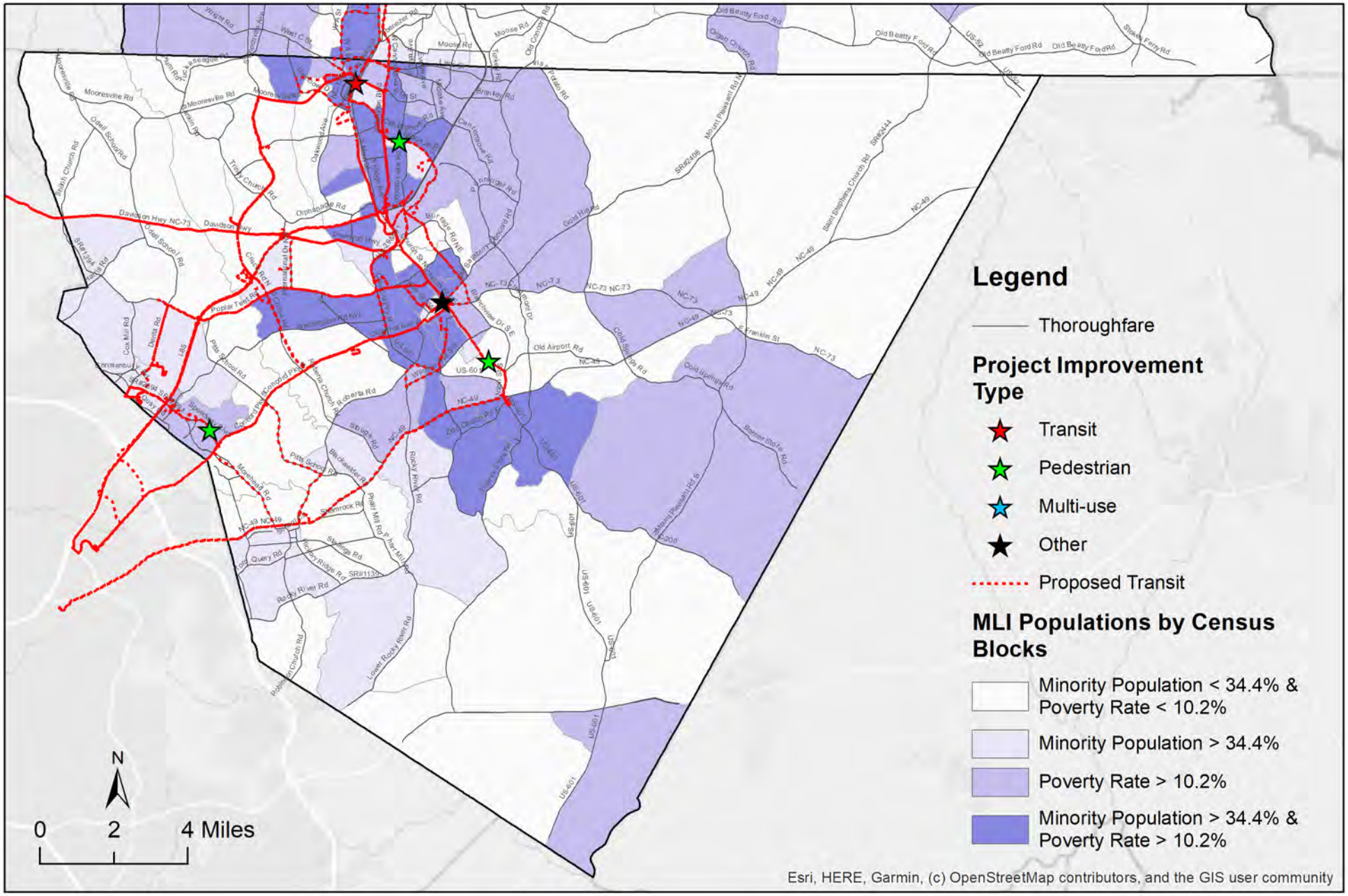


# Minority and Low Income Population (MLI)

Percent in each Census Block Group

Cabarrus County
County Avg. 34.4% & 10.2%

Data Source:NCDOT; ACS 5Y2019 B03002, B17021



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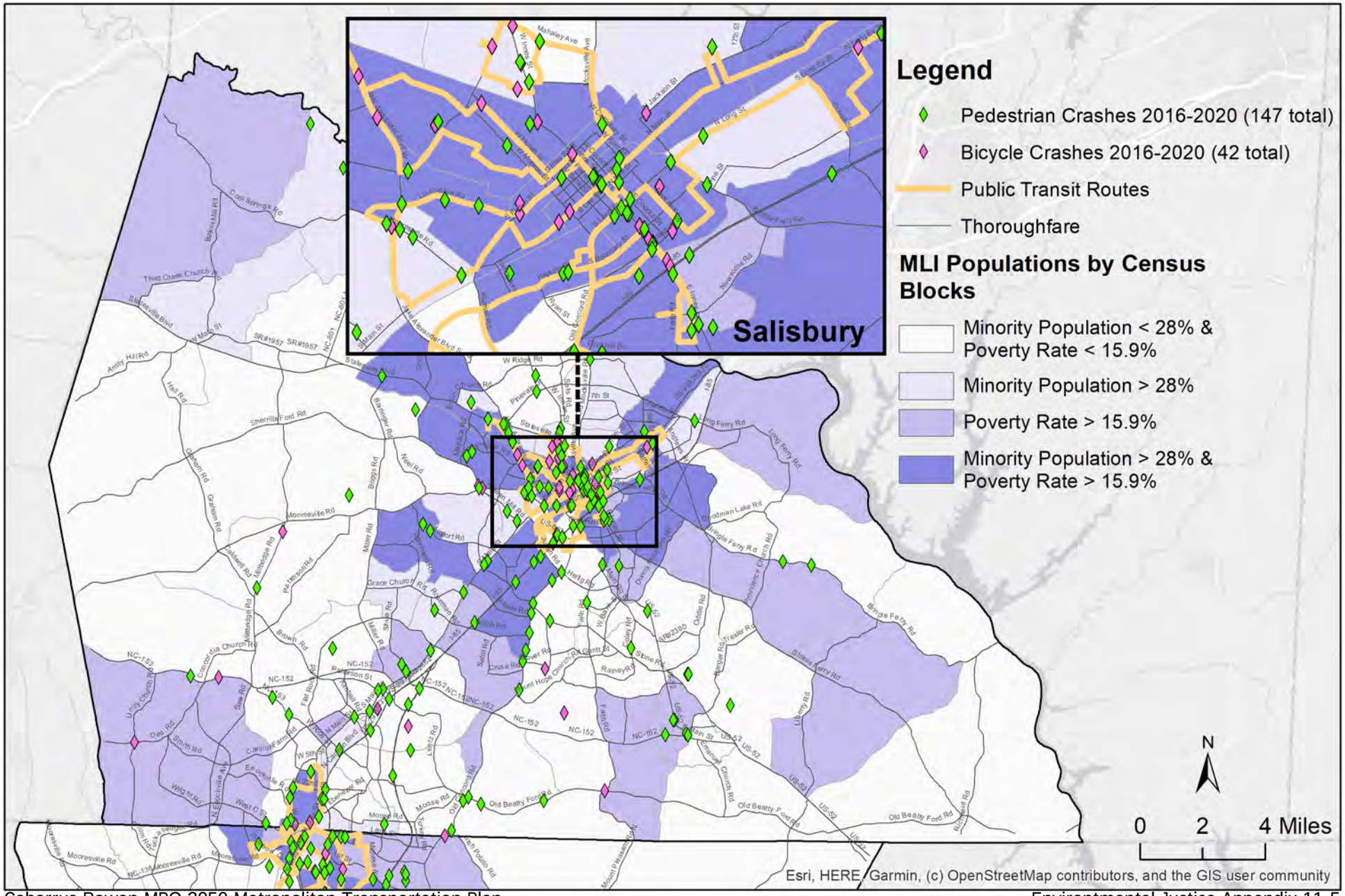
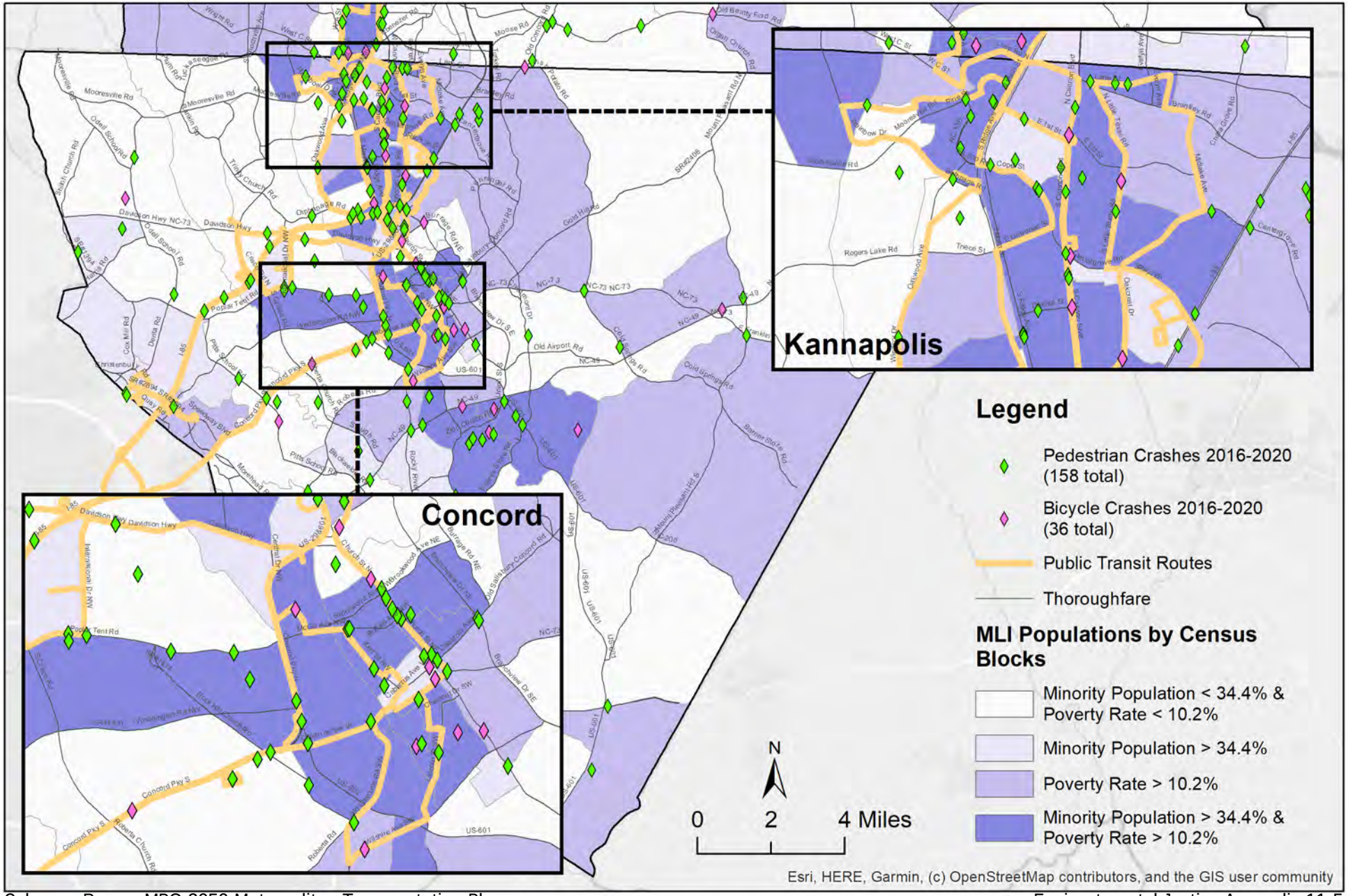


# Minority and Low Income Population (MLI)

Percent in each Census Block Group

Cabarrus County
County Avg. 34.4% & 10.2%

Data Source: ACS 5Y2019 B03002, B17021

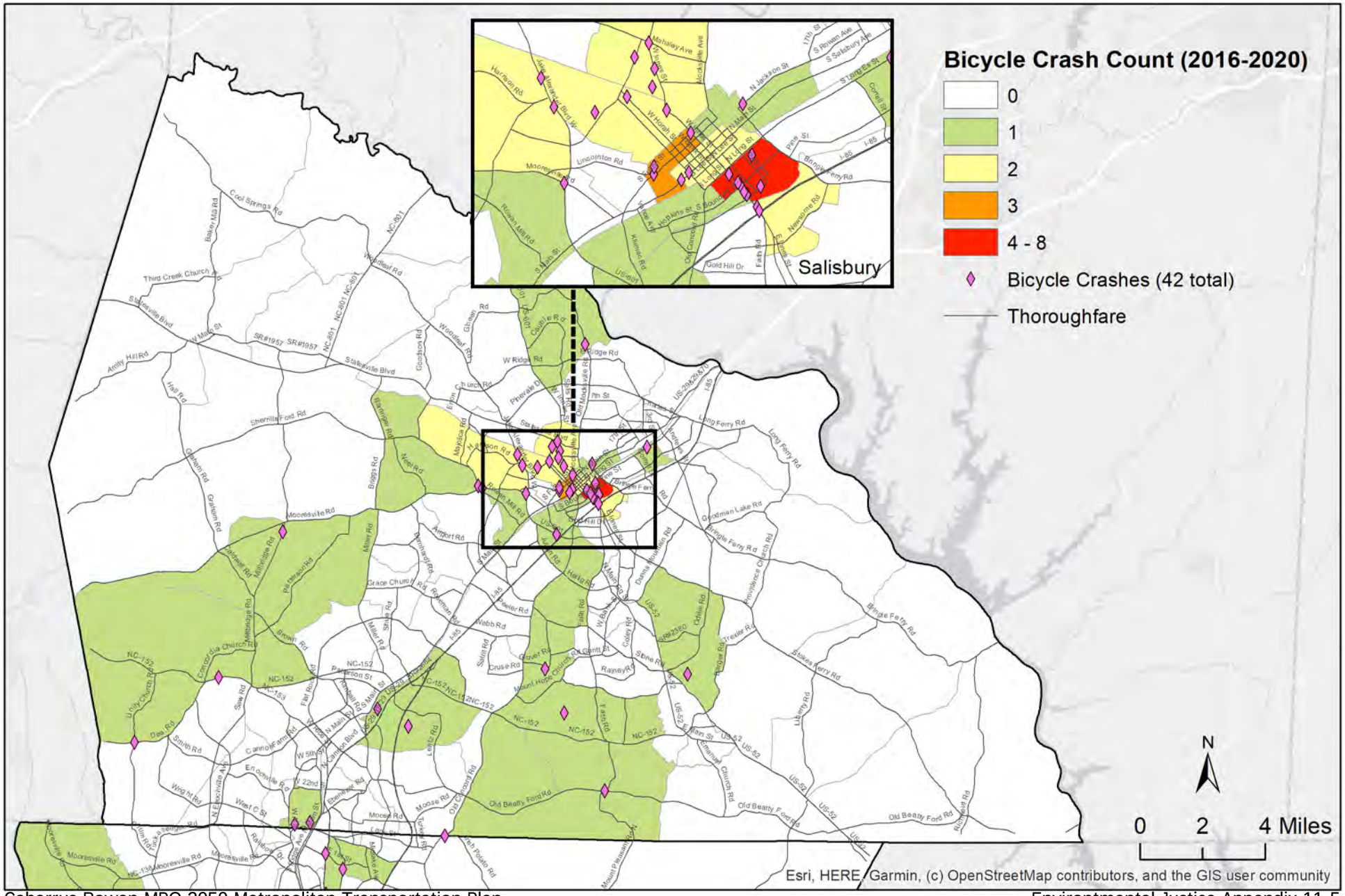


# Bicycle Crashes on Roadway (2016-2020)

## Count in each Census Block Group

Rowan County

Data Source: NCDOT

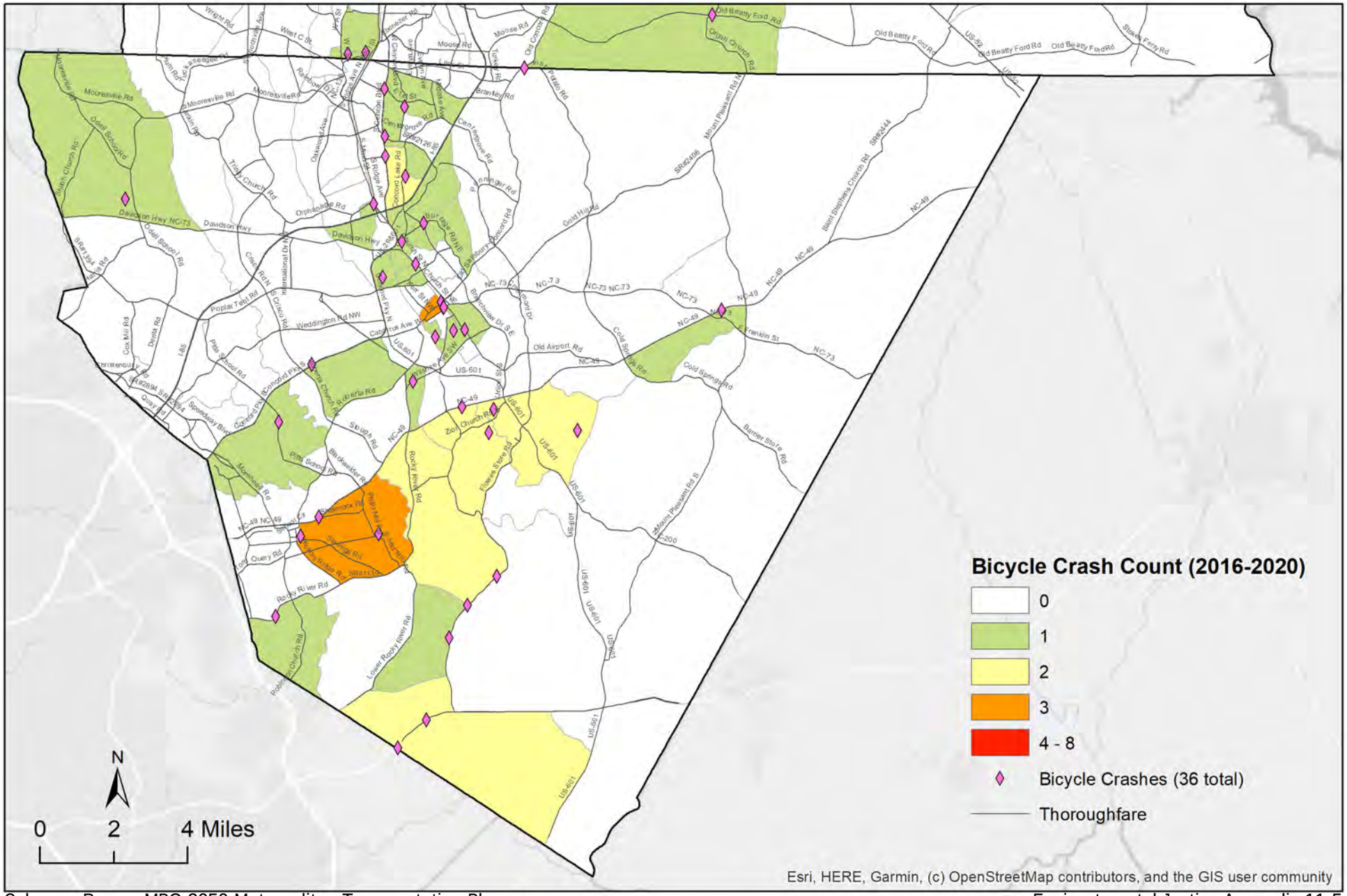


# Bicycle Crashes on Roadway (2016-2020)

## Count in each Census Block Group

Cabarrus County

Data Source: NCDOT

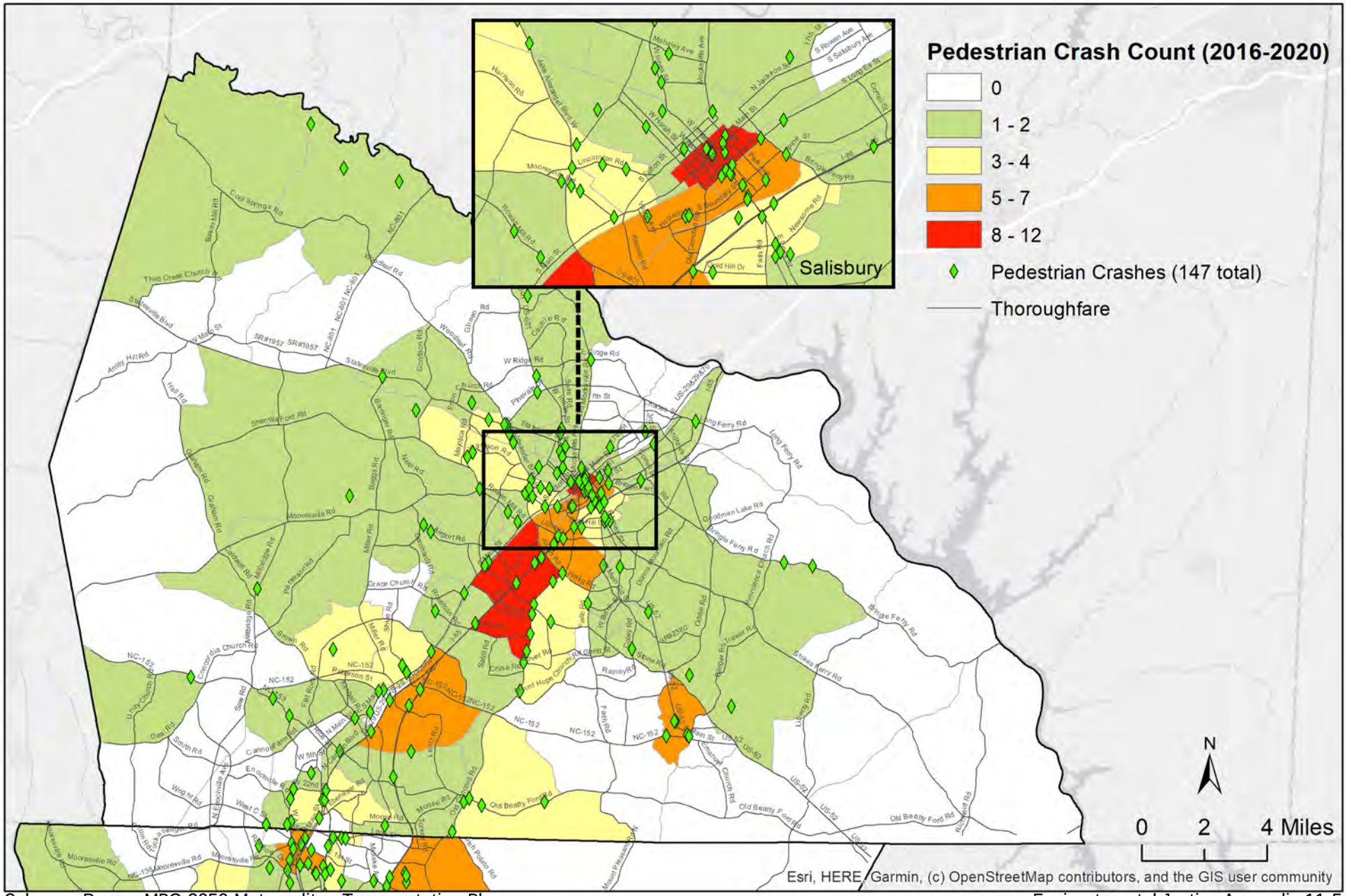


# Pedestrian Crashes on Roadway (2016-2020)

## Count in each Census Block Group

Rowan County

Data Source: NCDOT

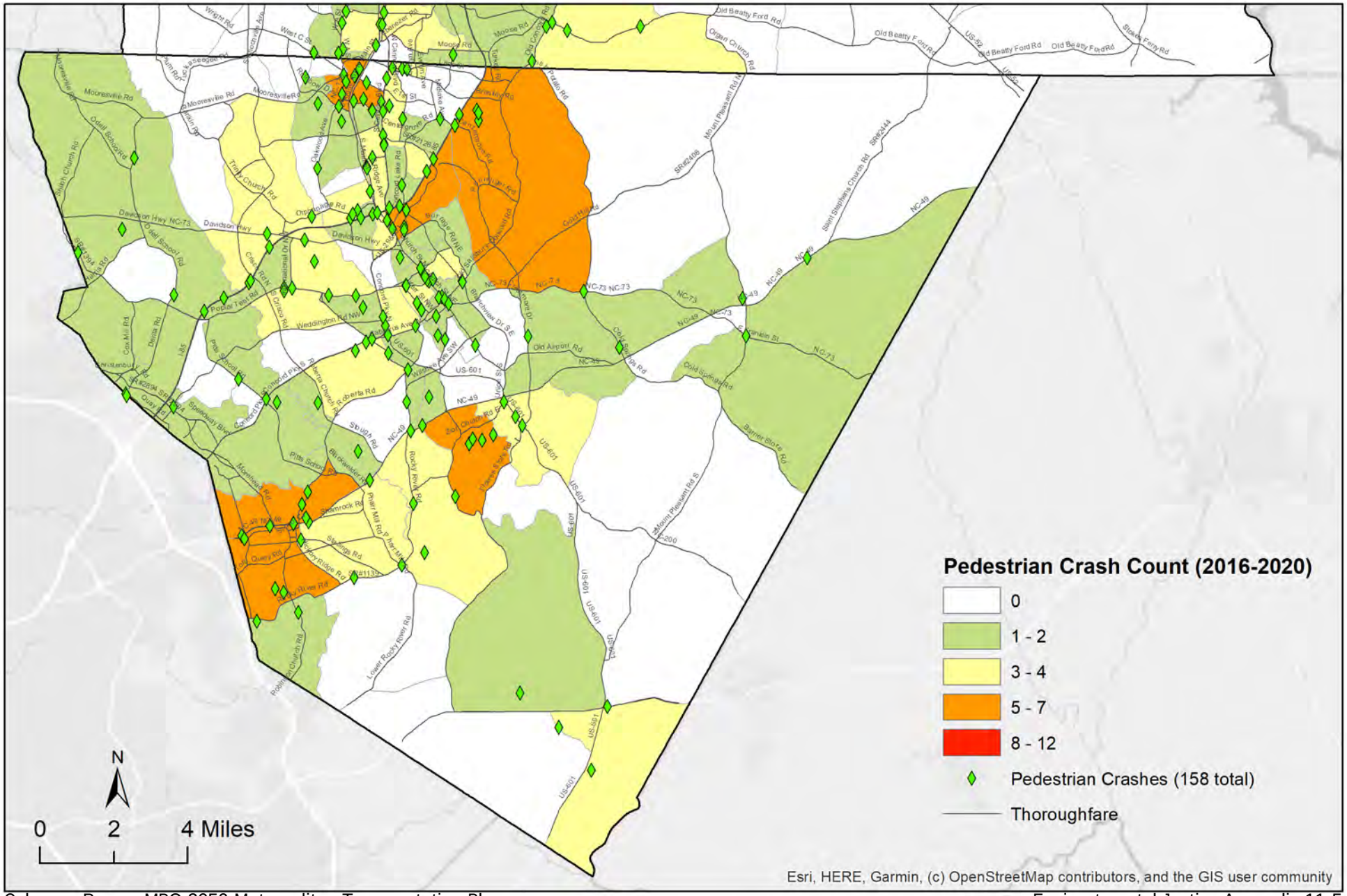


# Pedestrian Crashes on Roadway (2016-2020)

## Count in each Census Block Group

Cabarrus County

Data Source: NCDOT

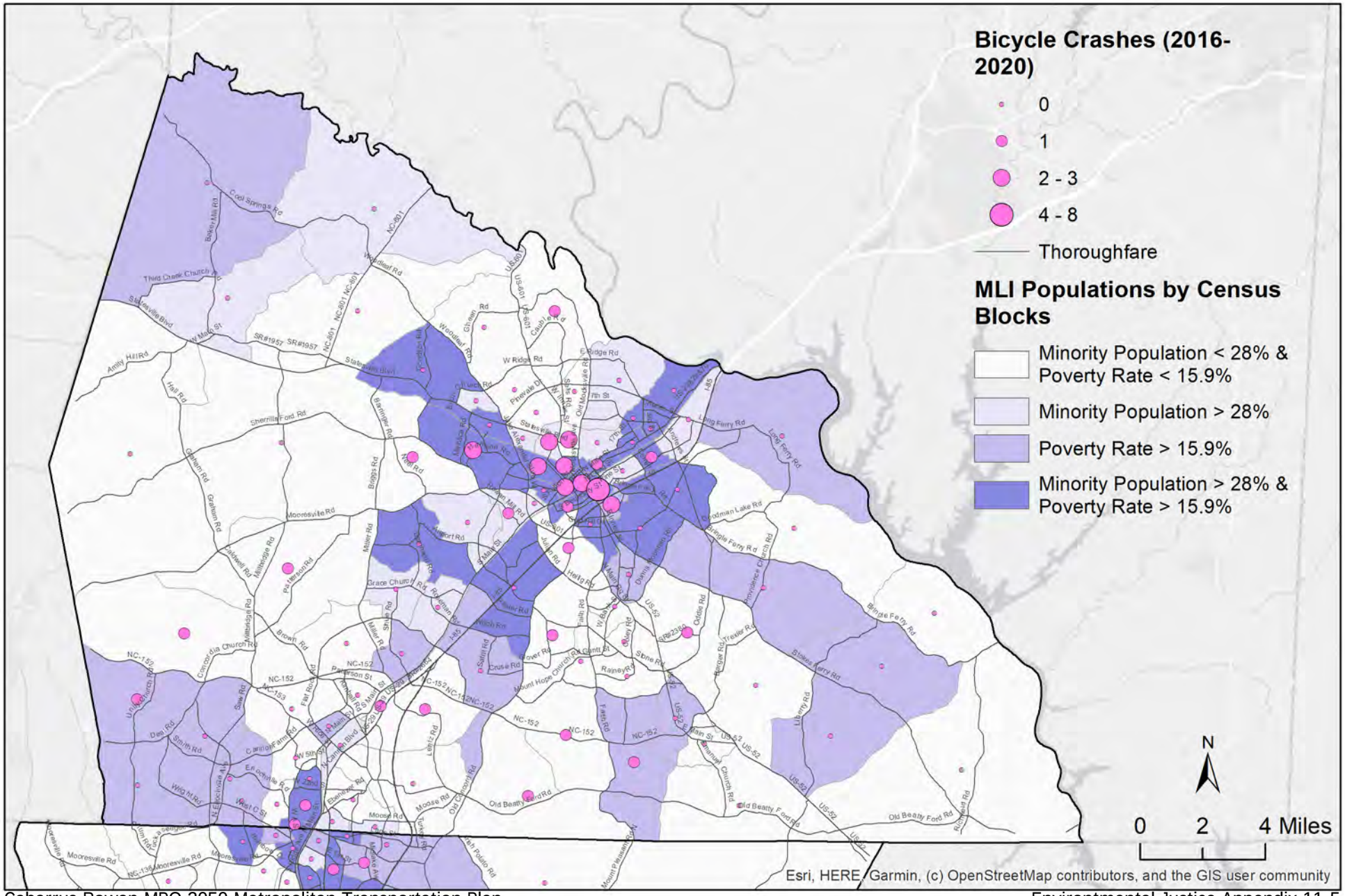


# Bicycle Crashes on Roadway (2016-2020)

## Count in each Census Block Group

Rowan County

Data Source: NCDOT; ACS 5Y2019 B03002, B17021



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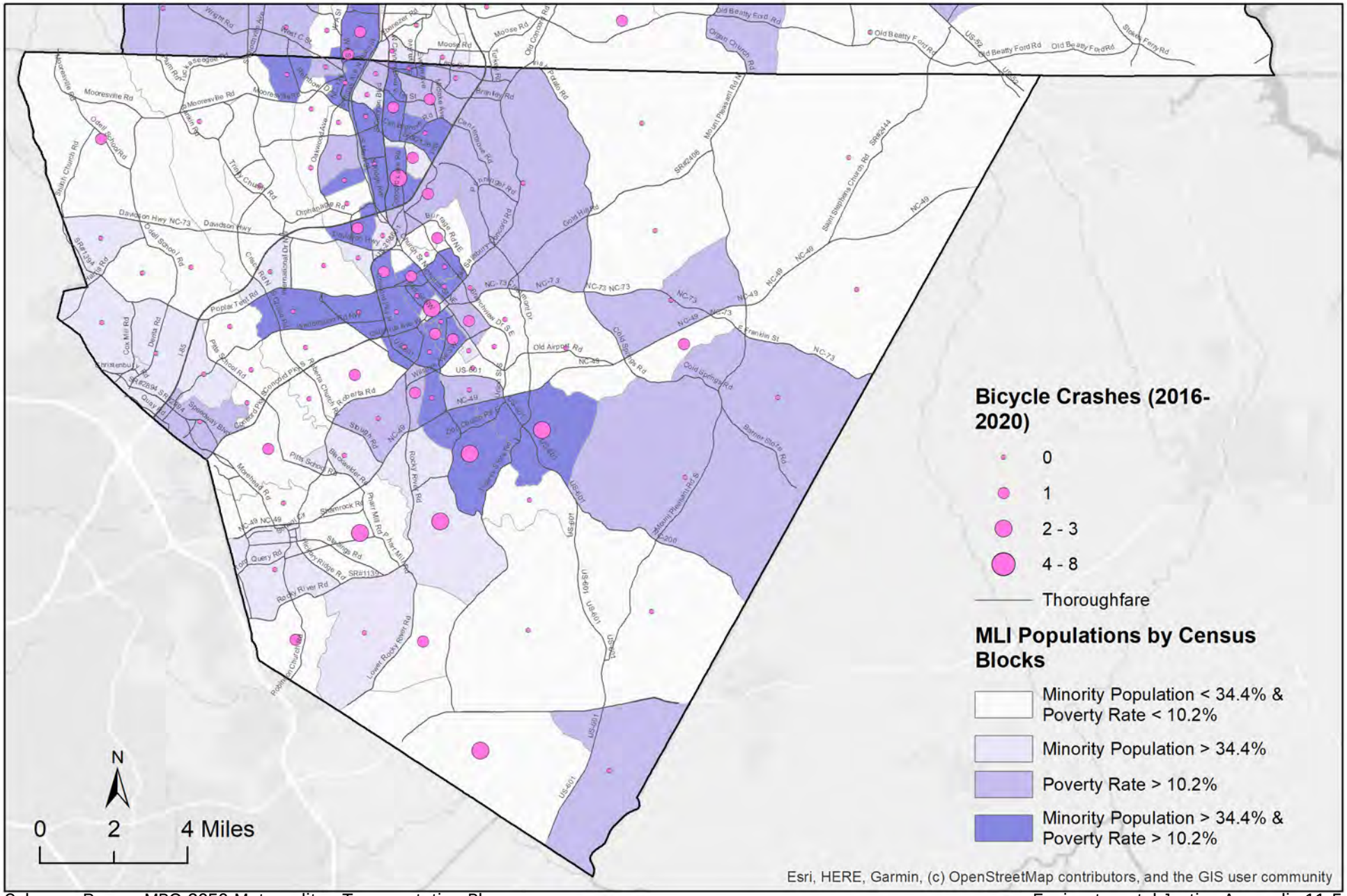

# Pedestrian Crashes on Roadway (2016-2020)

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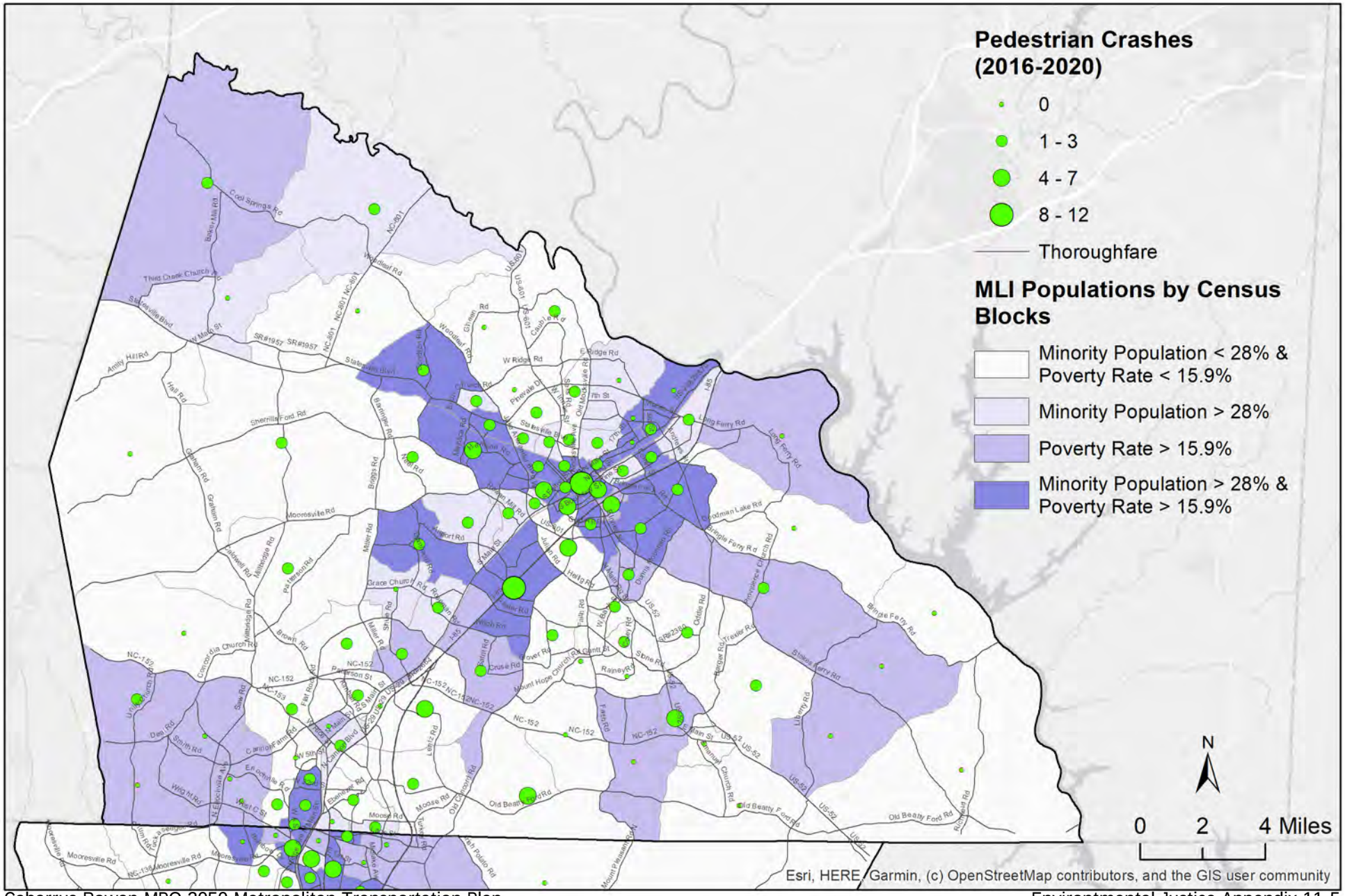
Rowan County

Data Source: NCDOT; ACS 5Y2019 B03002, B17021



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## Count in each Census Block Group

Cabarrus County

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