

## APPENDIX - ENVIRONMENTAL JUSTICE

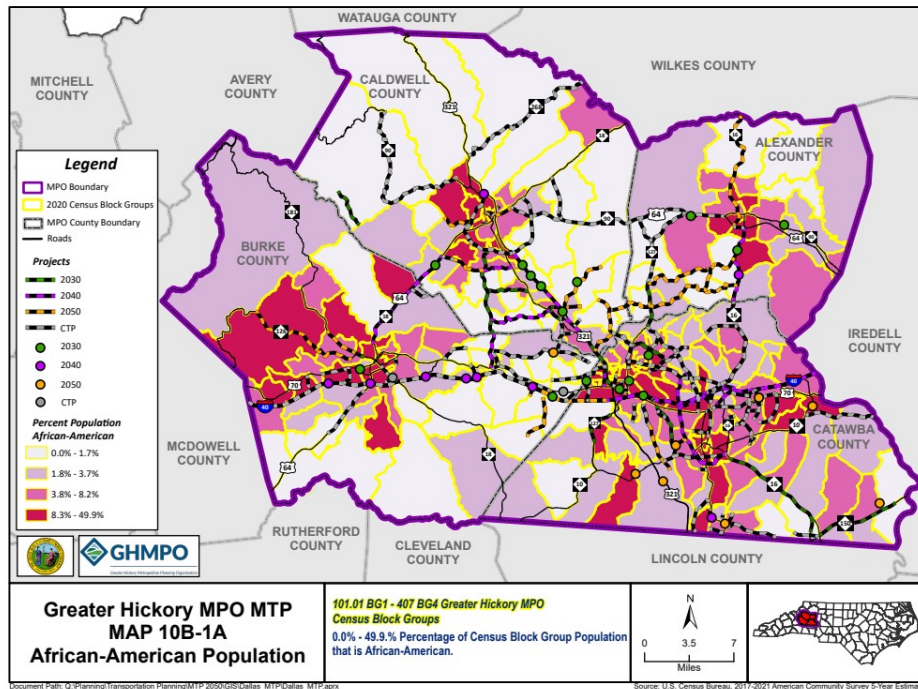
The following is a more in-depth analysis of each EJ population type (African American, Asian, Hispanic or Latino, Multi-race, and Low-Income) in the GHMPO as related to different transportation modes (Highway/Roadway, Bike/Pedestrian Current and Future, and Transit).

The highest concentrated Block Groups within each population Group are noted with the darkest shade of color. As the shade of the color lightens so does the concentration of the population being analyzed. There are four shades of color representing the quartile percentages. A Block Group is considered highly concentrated if it exceeds the regional average (see chart 10-1). This methodology will be used within each of the maps in this document.

### A) Individual EJ Population Group Maps

#### Highway or Roadway Projects - Through Horizon Year 2050

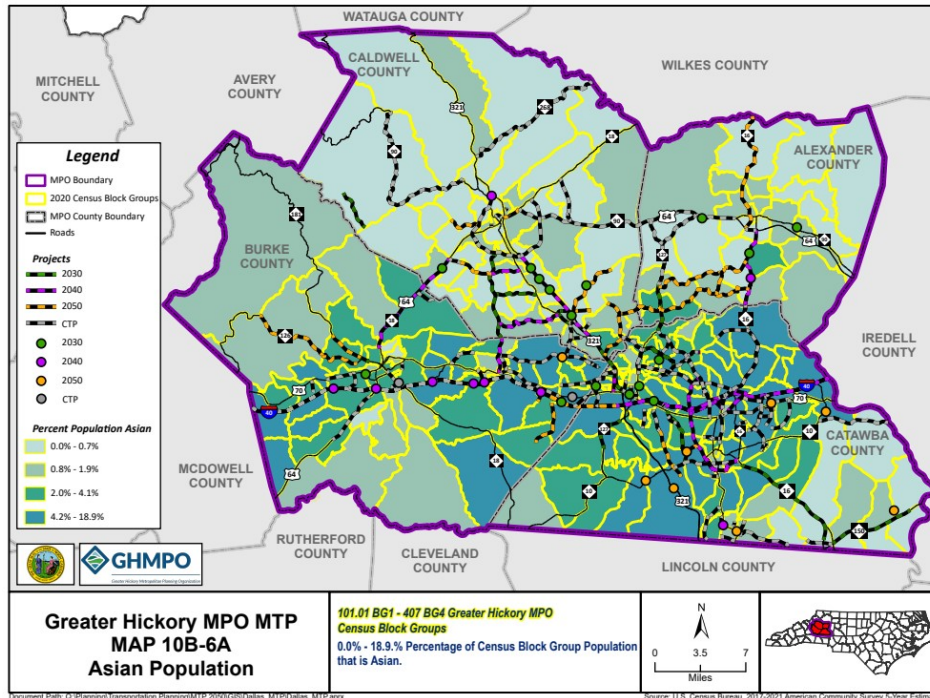
##### African American Population



For this analysis, a Block Group is considered highly concentrated if 8.3% - 49.9% of all residents identify as African American. In total, 85 of 61 highly concentrated Block Groups were intersected (or impacted) by transportation projects.

Projects	Score	Projects	Score	Projects	Score	Projects	Score
<b>Alexander Co.</b>		<b>Catawba Co.</b>		CATA-HD-7	2	CALD-HD-27	2
ALEX-HD-4	1	CATA-HD-1	1	CATA-HD-70	2	<b>Multi-County</b>	
ALEX-HR-2	1	CATA-HD-10	1	CATA-HD-71	2		
ALEX-HR-5	1	CATA-HD-12	1	CATA-HS-1	2		MULT-HS-3 1
ALEX-HR-4	2	CATA-HD-18	1	CATA-LE-1	2		MULT-HS-4 1
ALEX-HR-4	3	CATA-HD-9	1	CATA-HR-2	3		MULT-HR-4 4
<b>Burke Co.</b>		CATA-HR-1	1	CATA-HS-3	3		MULT-HS-2 4
BURK-HR-1	1	CATA-HR-2	1	CATA-HD-6	5		
BURK-HS-1	1	CATA-HR-3	1	CATA-HS-2	5		
BURK-LE-2	1	CATA-HR-4	1	<b>Caldwell Co.</b>			
BURK-HR-23	2	CATA-HR-75	1	CALD-HD-10	1		
BURK-HR-3	2	CATA-HR-8	1	CALD-HD-26	1		
BURK-HR-4	2	CATA-HD-10	2	CALD-HD-9	1		
BURK-HR-5	2	CATA-HD-11	2	CALD-HR-12	1		
BURK-HS-3	2	CATA-HD-15	2	CALD-HS-6	1		
		CATA-HD-55	2				

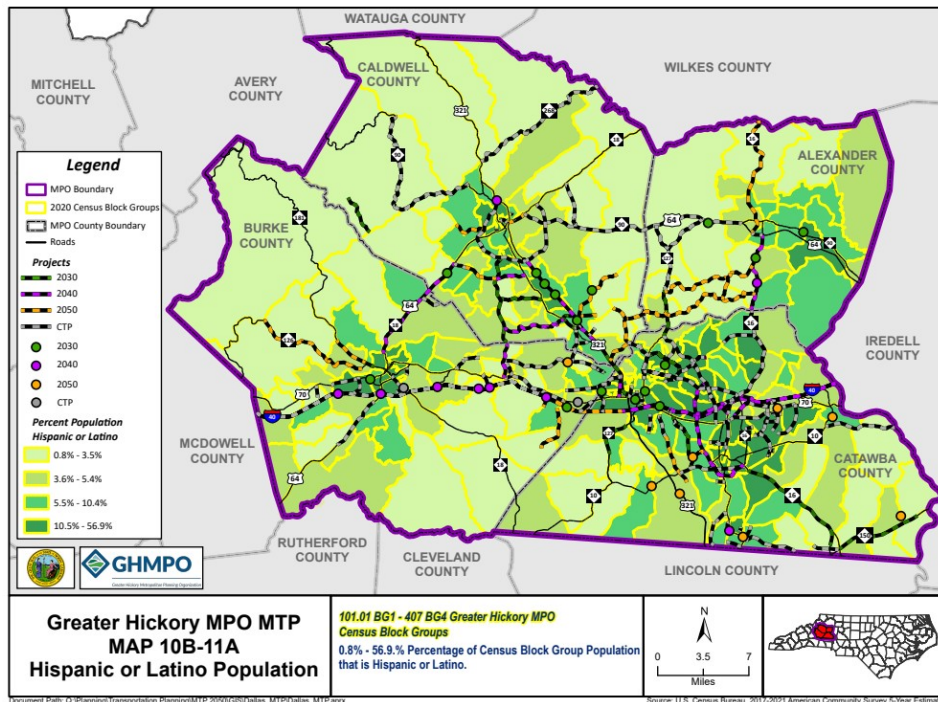
## Asian Population



For this analysis, a Block Group is considered highly concentrated if 4.2% - 18.9% of all residents identify as Asian. In total, 41 highly concentrated Block Groups were intersected (or impacted) by transportation projects.

Projects	Score	Projects	Score	Projects	Score
<b>Alexander Co.</b>		<b>Catawba Co.</b>		CATA-HD-15	4
ALEX-HR-4	1	CATA-HD-3	1	CATA-HS-52	4
		CATA-HD-55	1	CATA-HD-9	5
<b>Burke Co.</b>		CATA-HR-2	1	CATA-HS-3	5
BURK-HD-3	1	CATA-HD-55	2	CATA-HD-12	6
BURK-HD-4	1	CATA-HD-6	2	CATA-HS-2	6
BURK-LE-1	1	CATA-HD-7	2	CATA-HR-8	7
BURK-HD-5	2	CATA-HD-8	2	CATA-HR-8	3
		CATA-HR-4	2		
<b>Caldwell Co.</b>		CATA-HD-10	3		
None	0	CATA-HD-11	3	<b>Multi-County</b>	
		CATA-HD-38	3	MULT-HD-4	1
		CATA-HD-70	3	MULT-HS-2	3
		CATA-HD-71	3	MULT-HS-3	5
		CATA-HR-2	3	MULT-HS-4	5

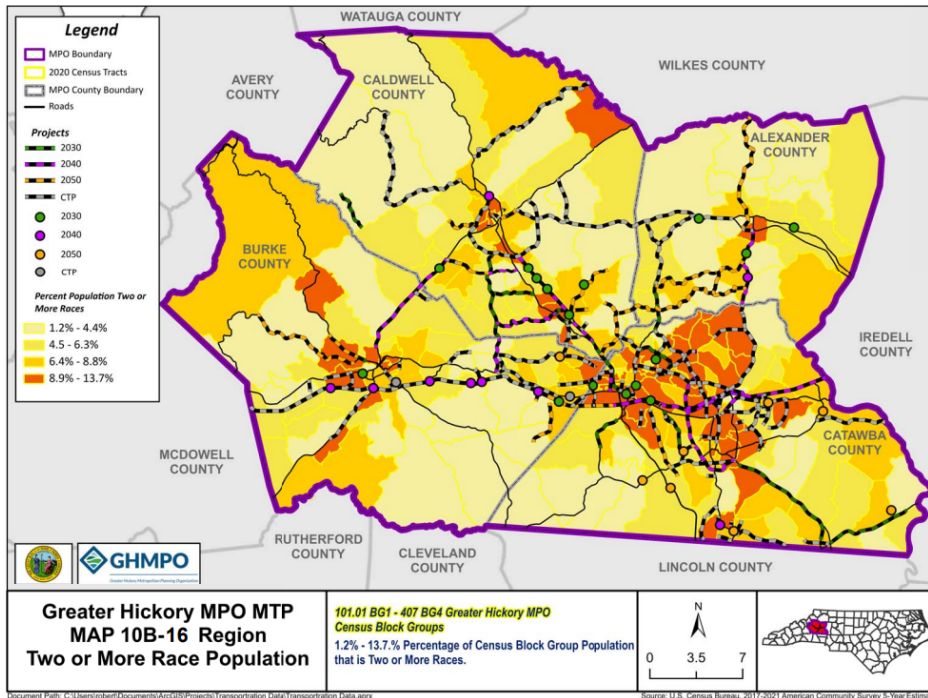
## Hispanic or Latino Population



For this analysis, a Block Group is considered highly concentrated if **10.6% - 57.0%** of all residents identify as Hispanic or Latino. In total, **35 highly** concentrated Block Groups were intersected (or impacted) by transportation projects.

Projects	Score	Projects	Score	Projects	Score
<b>Alexander Co.</b>		<b>Catawba Co.</b>		CATA-HR-2	3
None	0	CATA-HD-1	1	<b>CATA-HR-8</b>	<b>3</b>
		<b>CATA-HR-8</b>	<b>1</b>	CATA-HD-9	4
<b>Burke Co.</b>		CATA-HS-52	1	CATA-HS-3	4
BURK-HR-3	1	CATA-HD-12	1	CATA-HD-6	5
BURK-LE-2	1	CATA-HD-3	2	CATA-HS-2	7
		CATA-HD-55	2		
<b>Caldwell Co.</b>		CATA-HR-2	2	<b>Multi-County</b>	
CALD-HD-27	1	CATA-HD-70	2	MULT-HS-3	1
CALD-HD-5	1	CATA-HD-15	2	MULT-HS-4	1
CALD-HD-6	1	CATA-HD-7	3	MULT-HR-4	2
CALD-HR-12	1	CATA-HD-10	3	MULT-HS-2	5
CALD-HS-5	2	CATA-HD-11	3		
CALD-HS-6	2	CATA-HD-71	3		

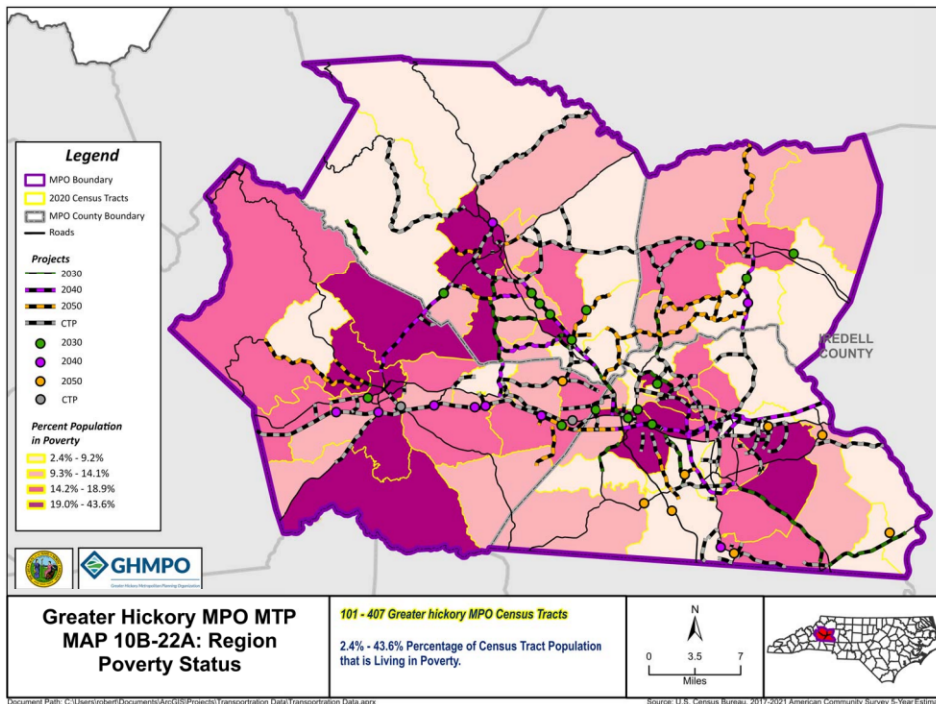
## Multi-race Population



For this analysis, a Block Group is considered highly concentrated if 8.9% - 13.7% of all residents identify as two or more races. In total, 30 highly concentrated Block Groups were intersected (or impacted) by transportation projects.

Projects	Score	Projects	Score	Projects	Score	Projects	Score
<b>Alexander Co.</b>		<b>Catawba Co.</b>		CATA-HD-1	1	<b>Multi-County</b>	
ALEX-HR-4	2	CATA-HS-2	4	CATA-LE-1	2	MULT-HR-4	1
(segment A)							
ALEX-HR-4	1	CATA-HD-6	4	CATA-HR-3	2	MULT-HS-2	6
(segment B)							
<b>Burke County</b>		CATA-HD-15	3	CATA-HS-1	2	MULT-HS-3	1
BURK-HR-23	1	CATA-HD-9	3				
BURK-HR-3	2	CATA-HD-10	3	CATA-HD-55	2		
BURK-HR-4	1	CATA-HD-11	2				
BURK-HS-1	1	CATA-HS-3	2	<b>Caldwell Co.</b>			
BURK-HS-3	1	CATA-HD-71	2	CALD-HD-26	1		
BURK-LE-1	1	CATA-HD-70	2	CALD-HS-6	2		
BURK-HR-4	2	CATA-HD-10 (B)	2	CALD-HS-1	1		
BURK-HR-5	2	CATA-HR-1	2	CALD-HS-5	2		
BURK-HS-3	2	CATA-HD-17	1	CALD-HS-3	1		
BURK-LE-1	1	CATA-HD-2	1	CALD-HS-4	1		
		CATA-HD-7	1	CALD-HD-8	1		

## Low-Income Population

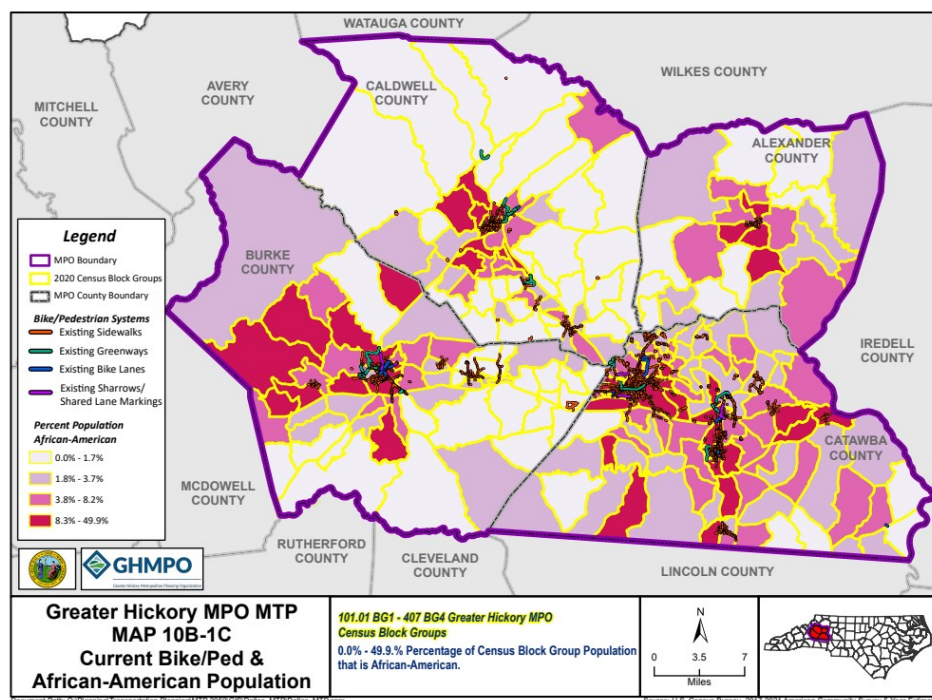


For this analysis, Census Tracts were used because the margin of error was much lower than the U.S Census' Block Group measurement. A tract is considered highly concentrated if 19% - 43.6% of all residents are considered to be in poverty by the U.S. Census. In total, 17 highly concentrated tracts were intersected (or impacted) by transportation projects.

Projects	Score		Projects	Score		Projects	Score	
<b>Alexander Co.</b>			CATA-HS-1	2		CALD-HD-27	1	
None	0		CATA-HD-6	1		CALD-HS-3	1	
			CATA-HD-2	1		CALD-HS-5	1	
<b>Burke County</b>			CATA-HD-11	1		CALD-HS-4	1	
BURK-HS-3	1		CATA-HS-3	1		CALD-HD-11	1	
BURK-HR-1	1		CATA-HD-86	1		CALD-HD-2	1	
BURK-HR-4	1		CATA-HR-2	1		CALD-HR-2	1	
BURK-HR-3	2		CATA-HD-31	1		CALD-HD-8	1	
BURK-HR-23	1		CATA-LE-1	1		CALD-HD-10	1	
						CALD-HD-9	1	
<b>Catawba Co.</b>			<b>Caldwell Co.</b>			<b>Multi-County</b>		
CATA-HS-2	3		CALD-HD-6	2		MULT-HS-2	1	
CATA-HD-9	2		CALD-HD-5	2				
CATA-HD-12	2		CALD-HD-7	2				
CATA-HR-3	2		CALD-HD-26	1				
CATA-HD-15	2		CALD-HR-12	1				

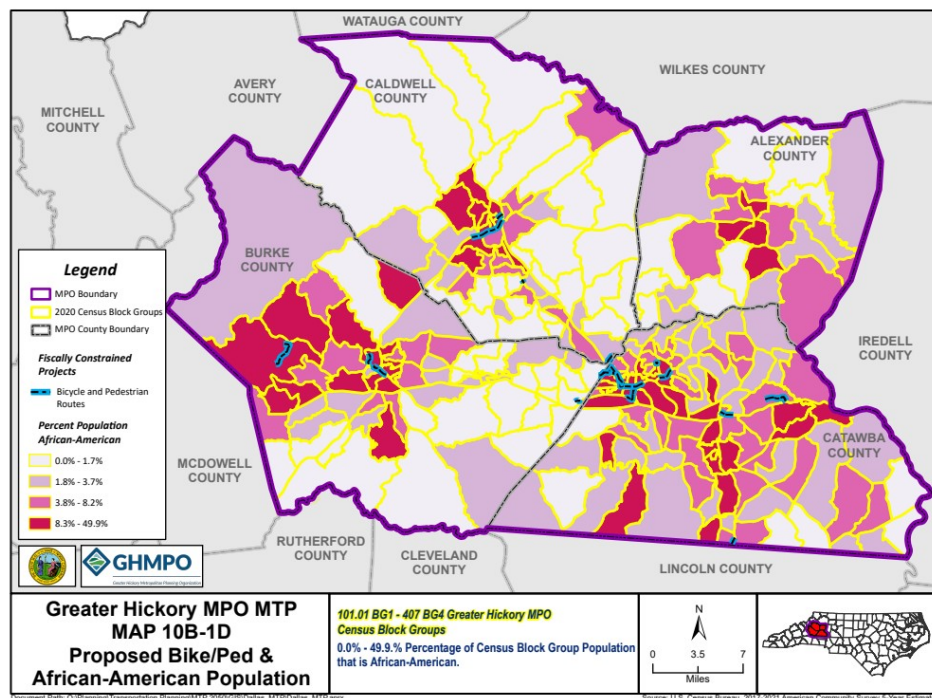
## Bike and Pedestrian Projects

### African American Population – Current Projects



For this analysis, a Block Group is considered highly concentrated if 8.3% - 49.9% of all residents identify as African American. Out of 248 Block Groups, 61 are considered highly concentrated. 46 out of 61 have existing bicycle or pedestrian infrastructure.

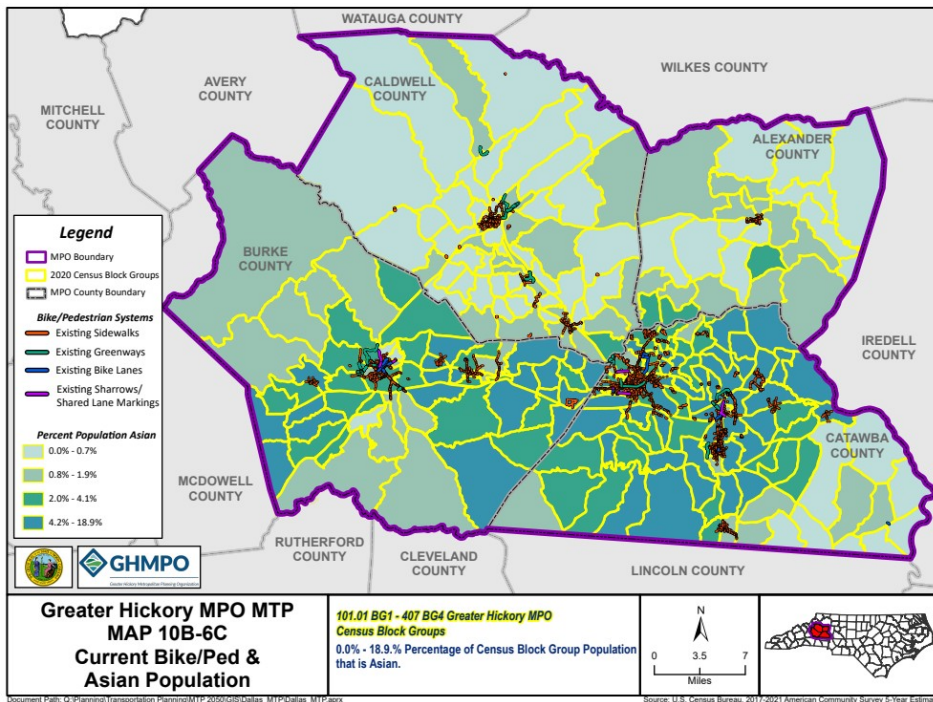
## African American Population – Proposed Projects



For this analysis, a Block Group is considered highly concentrated if 8.3% - 49.9% of all residents identify as African American. In total, **21 highly concentrated Block Groups** were intersected (or impacted) by proposed bicycle and pedestrian infrastructure. Almost all planned bicycle and pedestrian infrastructure improves connectivity within a concentrated Environmental Justice community.

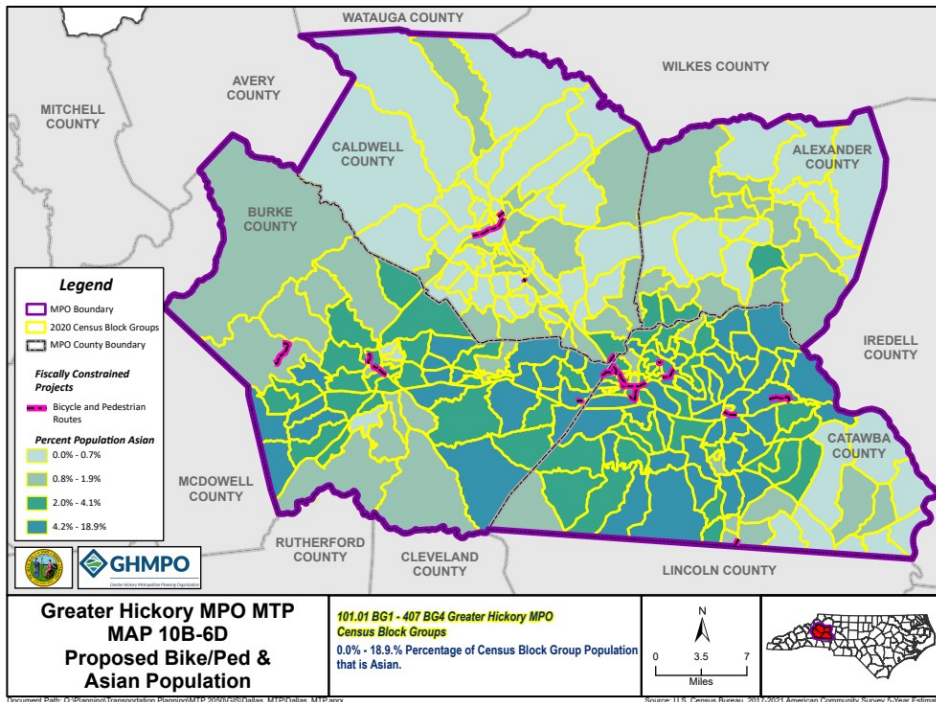
Projects	Score	Projects	Score
<b>Alexander Co.</b>		C5624	1
None	0	EB5937	2
		EB5938	2
<b>Burke County</b>		C5196	2
EB5807	1	EB6038	3
EB5827	1	EB5977	3
EB5978	3	EB5911	3
<b>Catawba Co.</b>		<b>Caldwell Co.</b>	
EB5750	3	EB5806	3
BL0066	3	BL0065	4
EB6038	1		
EB5935	1		

#### Asian Population – Current Projects



For this analysis, a Block Group is considered highly concentrated if 4.2% - 18.9% of all residents identify as Asian. Out of 248 Block Groups, 62 are considered highly concentrated. 32 out of 62 have existing bicycle or pedestrian infrastructure.

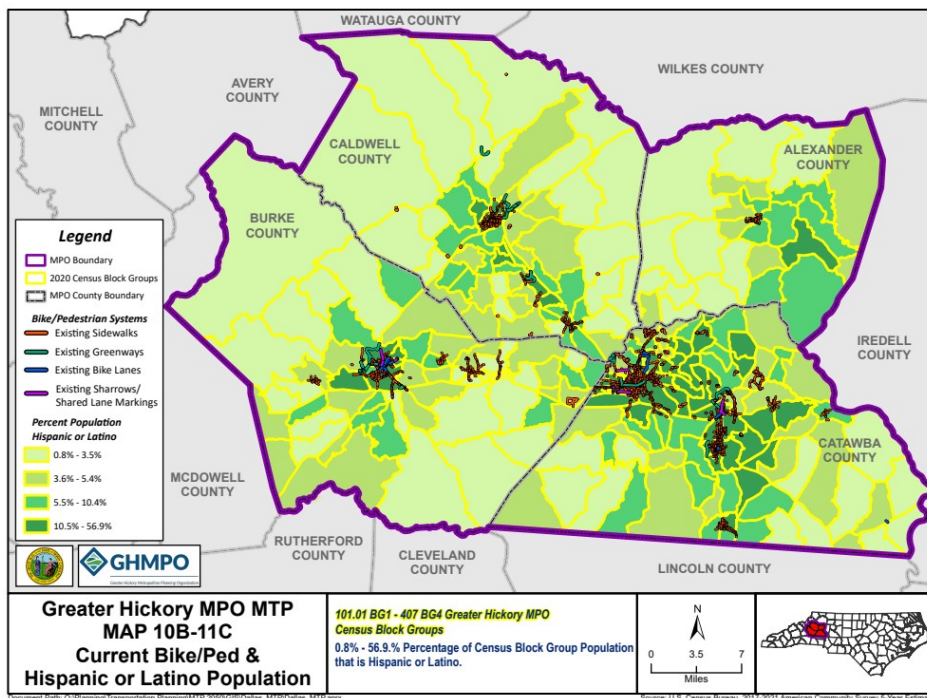
## Asian Population – Proposed Projects



For this analysis, a Block Group is considered highly concentrated if 4.2% - 18.9% of all residents identify as Asian. In total, 10 highly concentrated Block Groups were intersected (or impacted) by proposed bicycle and pedestrian infrastructure. Almost all planned bicycle and pedestrian infrastructure improves connectivity within a concentrated Environmental Justice community.

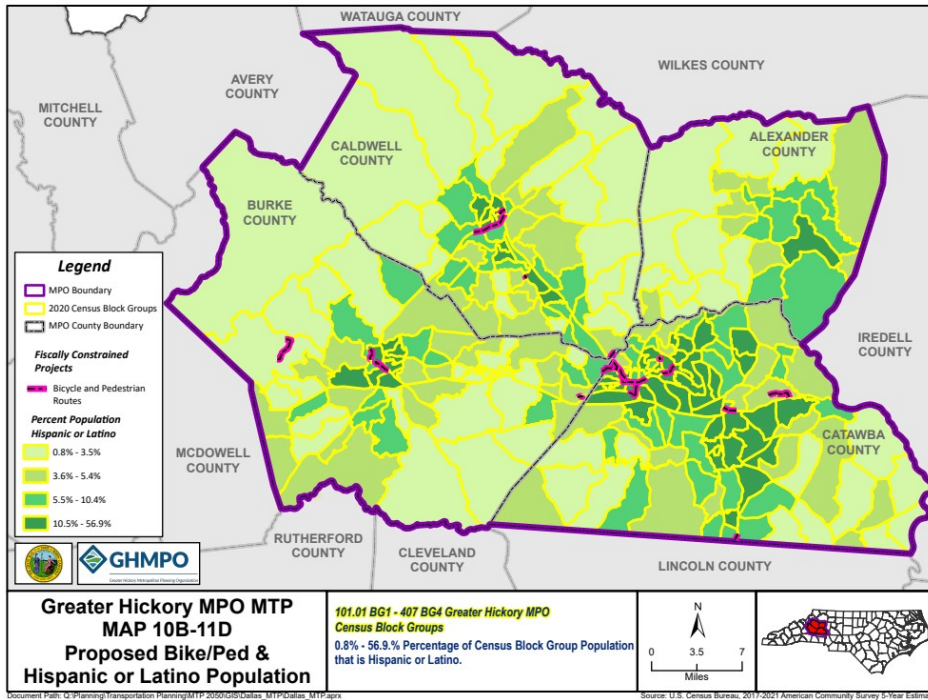
Projects	Score	Projects	Score
<b>Alexander Co.</b>		EB5935	1
None	0	EB5938	1
		C5196	1
<b>Burke County</b>		EB6038	1
BL0001	1	EB5977	1
		EB5911	1
<b>Caldwell Co.</b>		EB5750	1
None	0	C5624	3
		BL0066	4
<b>Catawba Co.</b>			
EB5939	1		
EB5828	1		
EB6038	1		

### Hispanic or Latino Population – Current Projects



For this analysis, a Block Group is considered highly concentrated if 10.6% - 57.0% of all residents identify as Hispanic or Latino. Out of 248 Block Groups, 61 are considered highly concentrated. 51 out of 61 have existing bicycle or pedestrian infrastructure.

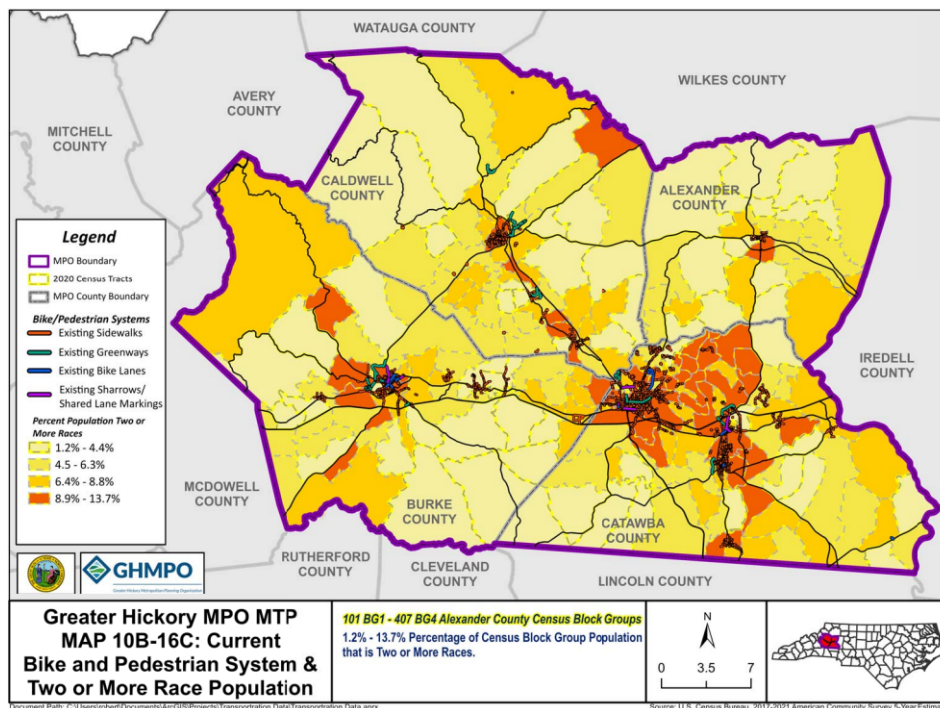
## Hispanic or Latino Population – Proposed Projects



For this analysis, a Block Group is considered highly concentrated if 10.6% - 57.0% of all residents identify as Hispanic or Latino. In total, 23 highly concentrated Block Groups were intersected (or impacted) by proposed bicycle and pedestrian infrastructure. Almost all planned bicycle and pedestrian infrastructure improves connectivity within a concentrated Environmental Justice community.

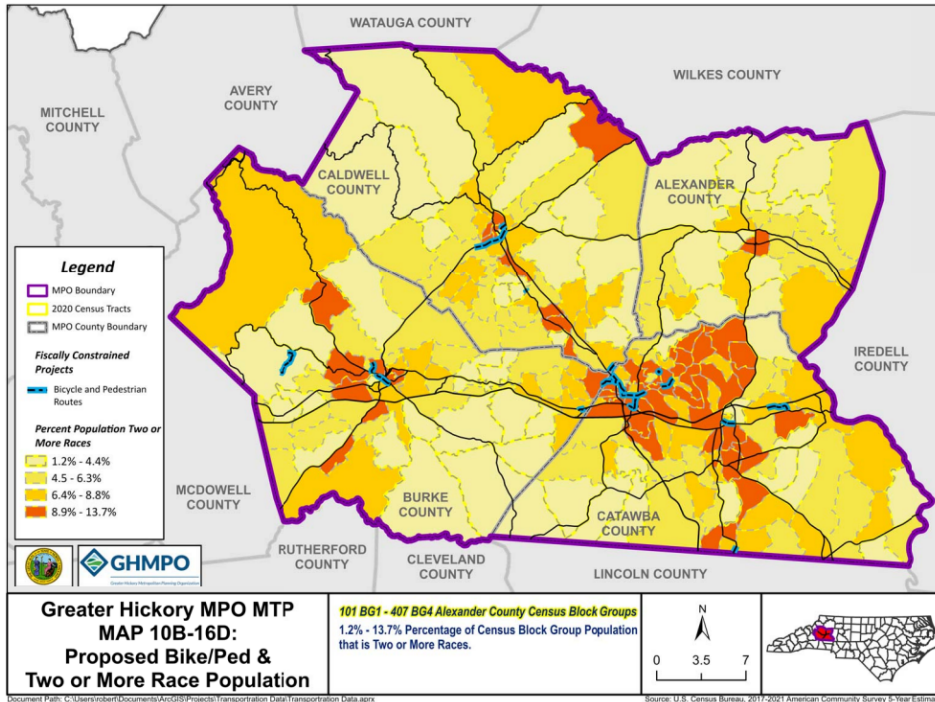
Projects	Score	Projects	Score
<b>Alexander Co.</b>		<b>Catawba Co.</b>	
None	0	EB5937	1
		EB6038	1
<b>Burke County</b>		EB5935	1
EB5807	1	EB5750	1
EB5978	3	EB5938	2
		EB6038	2
<b>Caldwell Co.</b>		EB5977	2
BL0002	1	EB5911	2
EB5806	3	C5624	2
BL0065	3	C5196	3
		BL0066	5

### Multi-race Population – Current Projects



For this analysis, a Block Group is considered highly concentrated if 8.9% - 13.7% of all residents identify as Two or More Races. Out of 248 Block Groups, 60 are considered highly concentrated. 45 out of 60 have existing bicycle or pedestrian infrastructure.

## Multi-race Population – Proposed Projects

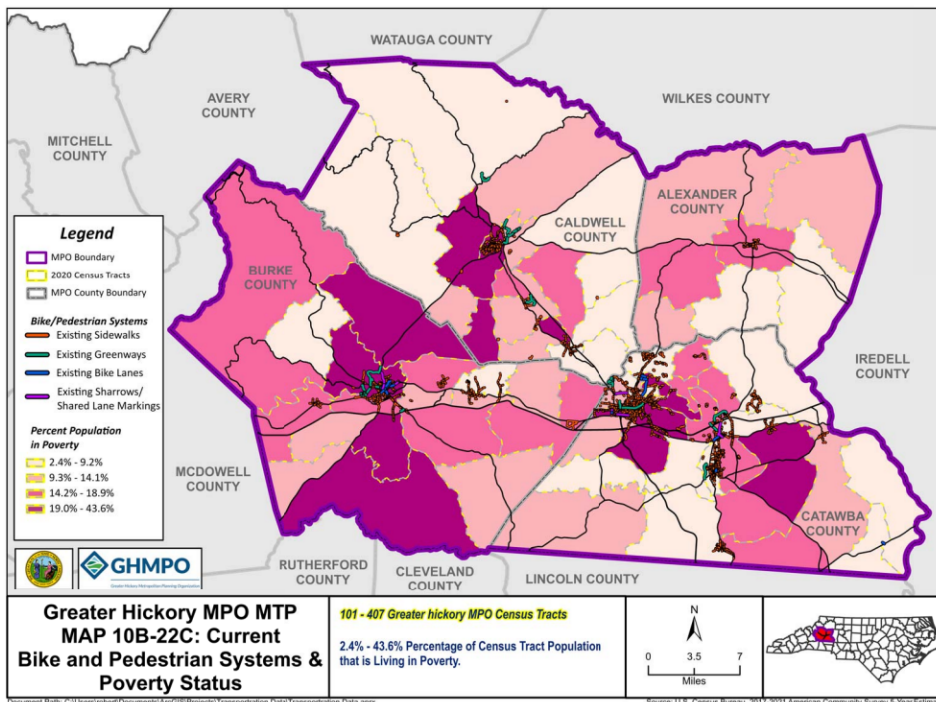


For this analysis, a Block Group is considered highly concentrated if 8.9% - 13.7% of all residents identify as Two or More Races. In total, 27 highly concentrated Block Groups were intersected (or impacted) by proposed bicycle and pedestrian infrastructure. Almost all planned bicycle and pedestrian infrastructure improves connectivity within a concentrated Environmental Justice community.

Projects	Score	Projects	Score
<b>Alexander Co.</b>		<b>Catawba Co.</b>	
None	0	EB-5939	1
		EB-6038	3
<b>Burke County</b>		EB-5911	2
EB-5978	1	EB-5750	2
EB-5807	1	EB-5937	1
		EB-5938	2
<b>Caldwell Co.</b>		C-5196	3
BL-0065	2	BL-0066	4
EB-5806	2	C-5624	2
		EB-5935	1

\*\*\*Proposed Bike/Ped Projects

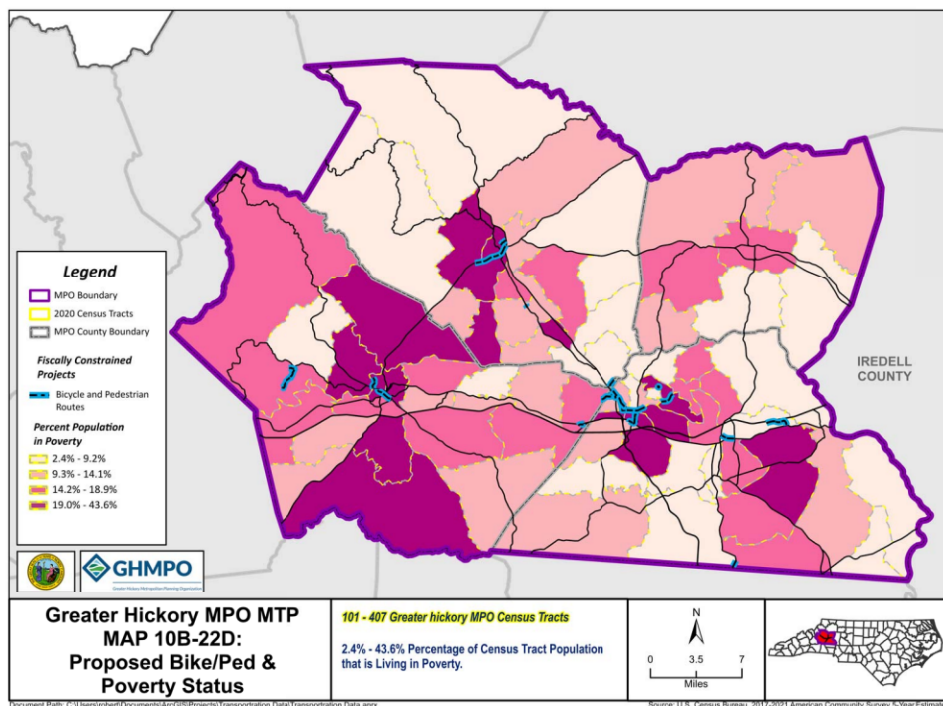
### Low-Income Population – Current Projects



Census Tracts were used because the margin of error was much lower than the U.S Census' Block Group measurement. For this analysis, a Census Tract is considered highly concentrated if 19% - 43.6% of all residents are considered poverty status by the U.S. Census. Out of 102 tracts, 19 are

considered highly concentrated. 16 out of 19 highly concentrated tracts have existing bicycle or pedestrian infrastructure.

### Low-Income Population – Proposed Projects



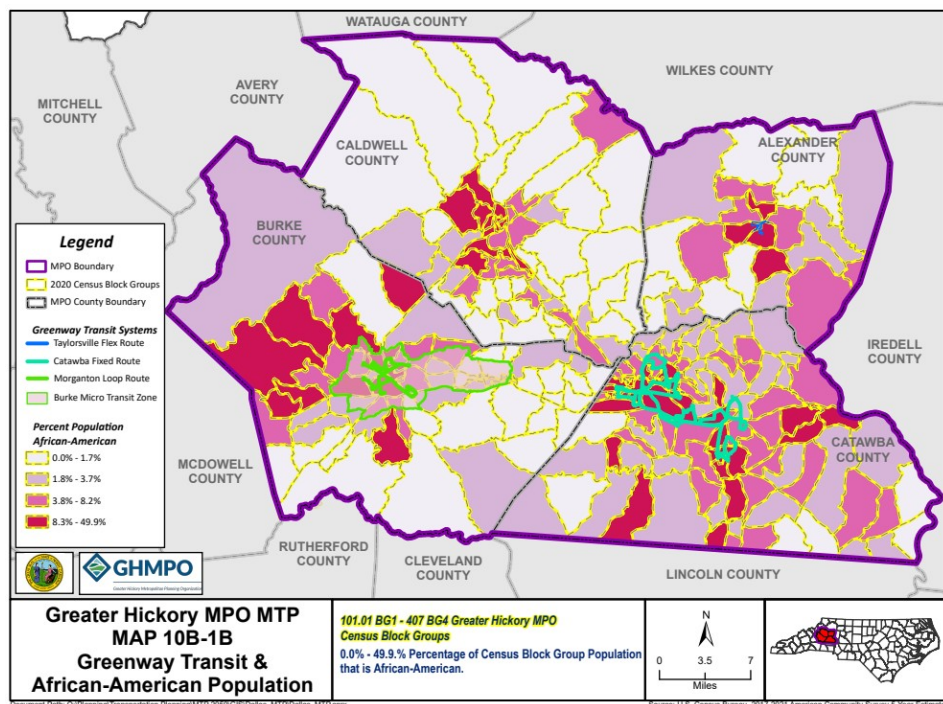
For this analysis, Census Tracts were used because the margin of error was much lower than the U.S Census' Block Group measurement. A Census Tract is considered highly concentrated if 19% - 43.6% of all residents are considered poverty status by the U.S. Census. In total, 11 highly concentrated tracts were intersected (or impacted) by the proposed bicycle and pedestrian infrastructure. Almost all planned bicycle and pedestrian infrastructure improve connectivity within a concentrated Environmental Justice community.

Projects	Score	Projects	Score
<b>Alexander Co.</b>		<b>Catawba Co.</b>	
None	0	EB-6038	1
		EB-5937	1
<b>Burke County</b>		EB-5938	1
EB-5807	1	C-5196	1
EB-5978	1	BL-0066	2
		EB-5935	1
<b>Caldwell Co.</b>			
EB-5806	1		
BL-0065	3		

\*\*\*Proposed Bike/Ped Projects

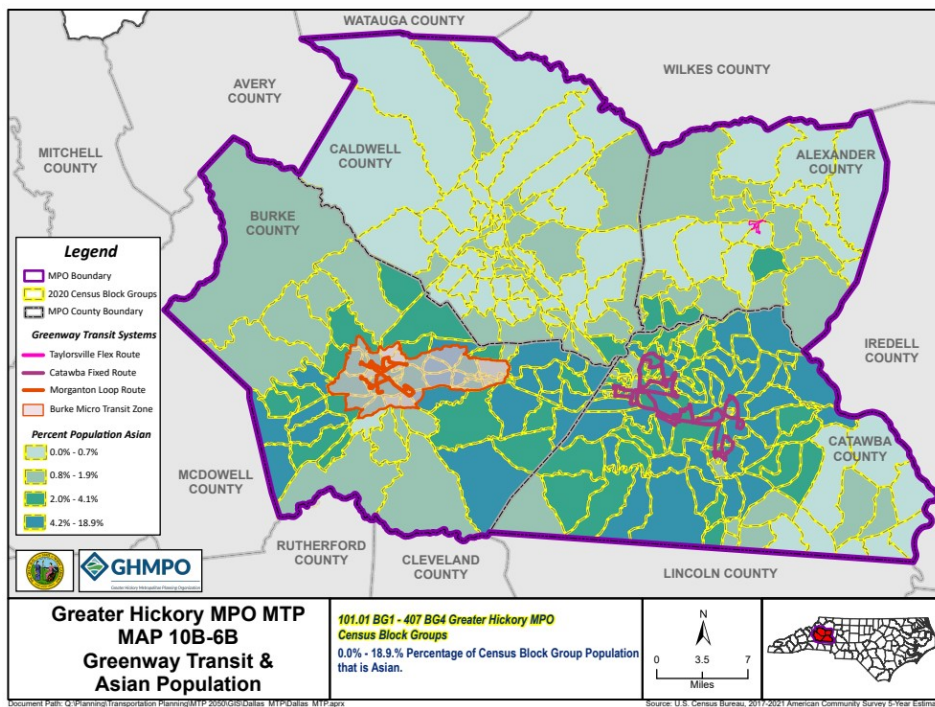
## Transit Projects

### African American Population



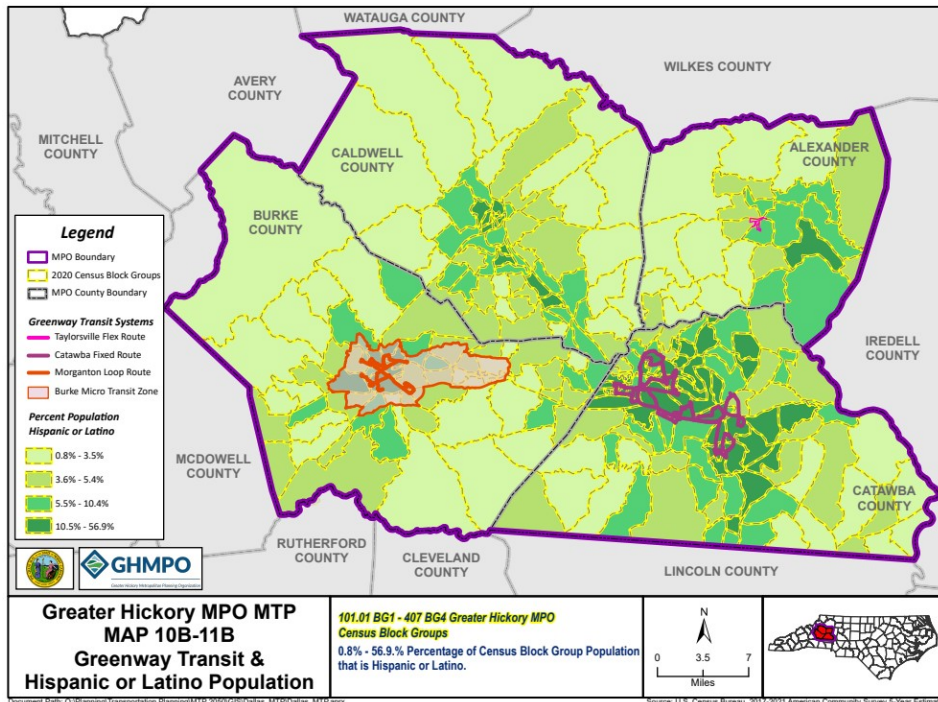
For this analysis, a Block Group is considered highly concentrated if 8.3% - 49.9% of all residents identify as African American. 100% of routes and microtransit service areas intersect (or impact) one or more highly concentrated Block Group.

## Asian Population



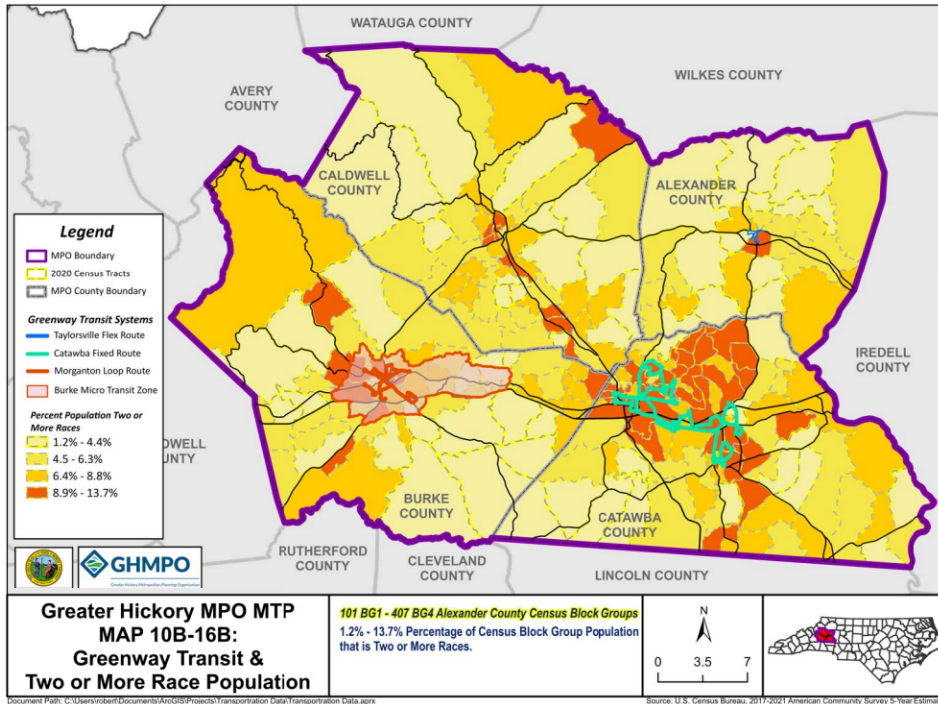
For this analysis, a Block Group is considered highly concentrated if 4.2% - 18.9% of all residents identify as Asian. 40% of routes and microtransit service areas intersect (or impact) one or more highly concentrated Block Group.

## Hispanic or Latino Population



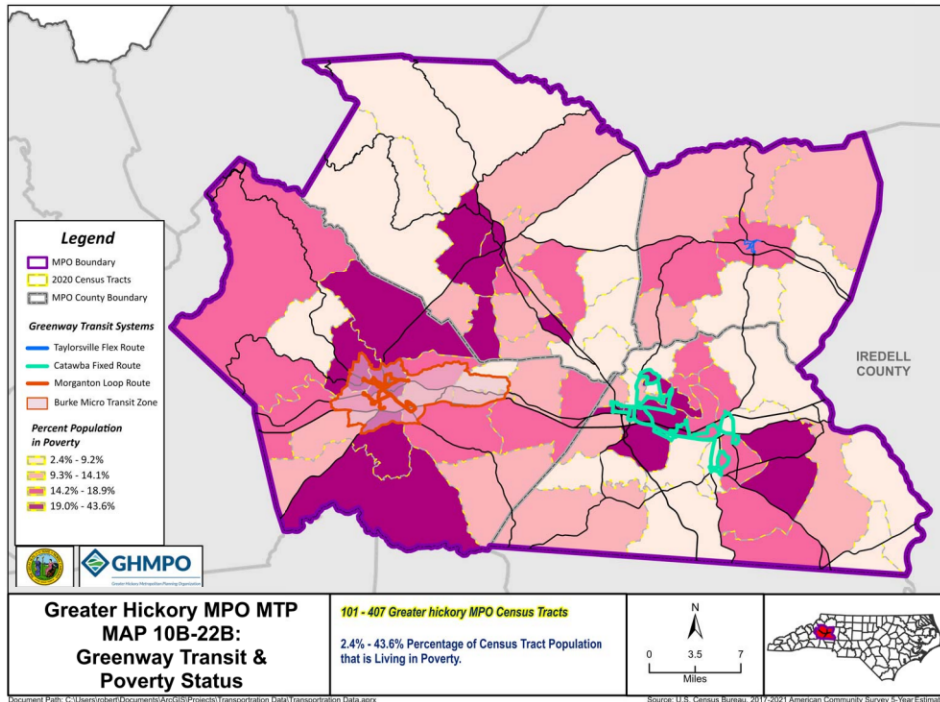
For this analysis, a Block Group is considered highly concentrated if 10.6% - 57.0% of all residents identify as Hispanic or Latino. 90% of routes and microtransit service areas intersect (or impact) one or more highly concentrated Block Group.

## Multi-race Population



For this analysis, a Block Group is considered highly concentrated if 8.9% - 13.7% of all residents identify as two or more races. 100% of routes and microtransit service areas intersect (or impact) one or more highly concentrated Block Group.

## Low-Income Population



Census Tracts were used because the margin of error was much lower than the U.S Census' Block Group measurement. For this analysis, a Census Tract is considered highly concentrated if 19% - 43.6% of all residents are considered poverty status by the U.S. Census. 90% of routes and microtransit service areas intersect (or impact) one or more highly concentrated tracts.

## **B) Methodology - for all modes of transportation compiled**

### **Analysis Study Area**

The Greater Hickory MPO planning area includes all jurisdictions within Alexander, Burke, Caldwell, and Catawba Counties. The region's population is approximately 363,000 and consists of 1,666 square miles. The region is further divided into 248 Block Groups.

### **Regional Averages**

Each Block Group was compared to regional population percentages for African-American, Asian, Hispanic or Latino, Mixed Race, and Low-Income Environmental Justice (EJ) communities. The regional averages provide a threshold for analyzing EJ population concentrations in each Block Group and helps focus outreach efforts and services accordingly. Table 10-1 shows the regional population percentages for the five EJ Groups. At 14.1%, the Low-Income population represents the largest EJ Group. African-Americans comprise 6.4% of the region's population; Hispanic or Latino, 8.6%; Mixed Race, 6%; and Asian, 3%.

**Table 10-1.**

<b>Greater Hickory MPO Environmental Justice Population Percentages</b>		
<b>Group</b>	<b>Population</b>	<b>Percentage</b>
African-American	23,535	6.4%
Asian	11,127	3.0%
Mixed Race	21,978	6.0%
Hispanic (or Latino)	31,320	8.6%
Low-Income	50,322	14.1%

*Source, 2020 Census and 2017-2021 American Community Survey 5-Year Estimates, US Census Bureau.*

### **Block Group Averages vs. Regional Averages**

The number of Block Group Environmental Justice categories that exceed regional percentages are shown in Table 10-2. Nearly 35% of the African-American Block Group percentages were higher than the regional average. Approximately 38% of the Asian Block Group percentages were higher than the regional average. 32% of Block Groups had higher Hispanic or Latino percentages than the regional average. Nearly half the Block Groups in the region had Low-Income percentages that were higher than the regional average.

**Table 10-2.**

Group	High-Concentrated Block Groups	# of Block Groups Over Regional Percentages	% of Block Groups Over Regional Percentages
African-American	61	85	34%
Asian	62	93	38%
Hispanic or Latino	61	79	32%
Mixed Race	60	101	41%
Low-Income	61	114	46%

### Concentration Scale

The total area and number of Block Groups for the categorized concentration levels are shown in Table 10-3.

The *No Concentration Level* had zero Block Group averages that exceed the regional average and consists of almost 40% of the MPO's planning area. The *No Concentration Level* is primarily located between northwest and southwest Alexander County, the Jonas Ridge (northeast) area of Burke County, northern Caldwell County, and the Lake Norman (southeast) area of Catawba County.

The *Moderate Concentration Level* is the region's second largest in terms of square mileage (nearly 616 square miles).

The *High Concentration Level* covers just over 63 square miles – mostly within Catawba County and the Morganton area.

**Table 10-3.**

Concentration Level	Area (Square Miles)	Area(%)	Number of Block Groups	Block Groups(%)
No	645.2	38.7%	36	15%
Low	344.18	20.6%	71	29%
Moderate	615.87	36.9%	114	46%
High	63.24	3.8%	27	11%
Total	1,668.50	100.0%	248	100%

Source, 2020 Census and 2017-2021 American Community Survey 5-Year Estimates, US Census Bureau.

2050 MTP Highway Network

Table 10-4 shows how much of the MTP Highway Network is contained within each Concentration Level. Maps 10-33 through 10-36 display how the network roads intersect these Levels. If a roadway project intersects (or impacts) a highly concentrated Block Group, that entire project's mileage is included in the "high" category. The highest percentage of the MTP's Highway Network (44.6%) is located within the High Concentration Level.

Table 10-4.

Concentration Level	Road Miles	Road Miles (%)
No	0	0.0%
Low	27.8	11.5%
Moderate	106	43.9%
High	107.9	44.6%
Total	241.7	100.0%

Source: Greater Hickory Metropolitan Planning Organization, U.S. Census Bureau, 2017-2021 American Community Survey 5-Year Estimates.

Bicycle and Pedestrian Network

Maps 7-7 through 7-10 show the locations of existing and proposed bicycle and pedestrian infrastructure within the MPO's planning area. The tables below describe how much linear feet of existing and proposed bike and pedestrian infrastructure are contained in each concentration level.

Table X.

Existing Sidewalk Network Length and Percentages by Concentration Level		
Concentration Level	Linear Feet	Linear Feet (%)
No	79,732.20	5.03%
Low	238,813.10	15.06%
Moderate	833,564.80	52.57%
High	433,656.00	27.35%
Total	1,585,766.10	100.00%

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Table X.

Existing Bicycle Network Length and Percentages by Concentration Level		
Concentration Level	Linear Feet	Linear Feet (%)
No	0.00	0.00%
Low	9,475.80	15.18%
Moderate	30,931.00	49.56%
High	22,006.00	35.26%
Total	62,412.80	100.00%

Table X.

Existing Greenway Network Length and Percentages by Concentration Level		
Concentration Level	Linear Feet	Linear Feet (%)
No	8,079.55	7.01%
Low	6,728.11	5.83%
Moderate	24,728.97	21.44%
High	75,792.11	65.72%
Total	115,328.74	100.00%

Table X.

Proposed Walkway Network Length and Percentages by Concentration Level		
Concentration Level	Linear Feet	Linear Feet (%)
No	0.00	0.00%
Low	17,583.53	14.77%
Moderate	45,619.54	38.33%
High	55,802.06	46.89%
Total	119,011.40	100.00%

Table X.

Proposed Sidewalk Network Length and Percentages by Concentration Level		
Concentration Level	Linear Feet	Linear Feet (%)
No	0.00	0.00%
Low	3,355.16	8.88%
Moderate	2,602.46	6.89%
High	31,810.15	84.23%
Total	37,767.77	100.00%

Table X.

Proposed Multi-Use Path Network Length and Percentages by Concentration Level		
Concentration Level	Linear Feet	Linear Feet (%)
No	0.00	0.00%
Low	537.28	0.80%
Moderate	43,017.08	63.69%
High	23,991.91	35.52%
Total	67,546.27	100.00%

Table X.

Proposed Greenway Network Length and Percentages by Concentration Level		
Concentration Level	Linear Feet	Linear Feet (%)
No	0.00	0.00%
Low	13,691.09	100.00%
Moderate	0.00	0.00%
High	0.00	0.00%
Total	13,691.09	100.00%

For the purpose of this analysis, a walkway includes sidewalks, greenways, and multiuse paths. Other tables provide a more specific breakdown of bicycle and pedestrian infrastructure. As shown in the tables above, much of the existing and proposed bicycle and pedestrian infrastructure falls within moderate and highly concentrated Block Groups. Greenways located within parks are not included in this analysis.

## Public Transit Network

The transit maps shown previously in the analysis section show the current public transportation routes that serve the cities of Conover, Hickory, Newton and Morganton. Morganton is provided with flex route service, and microtransit serves Morganton and eastern Burke County. Greenway Public Transportation also has a flex route in the downtown Taylorsville area.

Transit access is generally good for urban residents of Catawba County's largest cities (Hickory, Newton, and Conover), and urban residents of Morganton and eastern Burke County. Lenoir (Caldwell County), however, are currently without transit routes or microtransit. Demand response service is currently the only service for Caldwell County. Greenway Public Transportation does serve all four counties with demand response van service, which is often used by low-moderate income and older populations.

Table 10-7 lists the percentage of public transit service by concentration level as well as bus stops per concentration level. More than 90% of the region's public transit network is located within *Moderate to High Concentration* areas. Approximately 3% of the public transit network is located in areas of *Low Concentration* and zero percent is located in zero concentrated areas.

**Table 10-7.**

Concentration Level	Route (%)	Number of Bus Stops
No	0.0%	0
Low	2.7%	9
Moderate	48.8%	165
High	48.5%	164
Total	100.0%	338

Table 10-8 shows a summary of the range of public transit services provided in the GHMPO, and the extent to which public transit is available in High Concentration EJ areas. The table also provides information on the location of air quality monitoring stations in relation to EJ areas.

**Table 10-8.**

Public Transit Service and Air Quality Monitoring Stations					
	Fixed/Flex Route Transit	Fixed Route Transit Service to High Concentration EJ Blocks	Rural Fixed Route Transit	Rural Demand Response Transit	Air Quality Monitor in EJ Blocks
Alexander	Yes - Flex, Taylorsville	Yes	None	Yes	Yes - Tract 404, Block Group 2
Burke	Yes - Flex, Morganton Microtransit - Morganton/Eastern Burke	Yes	None	Yes	No Monitors
Caldwell	None	N/A	None	Yes	Yes - Tract 305, Block Group 1
Catawba	Yes - Hickory, Newton, Conover	Yes	None	Yes	Yes - Tract 109, Block Group 1

Source: GHMPO, NCDEQ.