



**NORTH CAROLINA  
STATEWIDE  
MULTIMODAL  
FREIGHT PLAN**  
*Planning for the Future of Freight Movement*

## FREIGHT EQUITY ASSESSMENT - FINAL

North Carolina Statewide Multimodal Freight Plan  
Freight Equity Assessment

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North Carolina Department of Transportation

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## ACRONYMS

APP	Area of Persistent Poverty
BIL	Bipartisan Infrastructure Law
CEQ	Council on Environmental Quality
EO	Executive Order
GHG	Greenhouse Gases
HDC	Historically Disadvantaged Communities
IIJA	Infrastructure Investment and Jobs Act
MHDV	Medium- and Heavy-duty Vehicles
NCDOT	North Carolina Department of Transportation
RAISE	Rebuilding American Infrastructure with Sustainability and Equity
ZEV	Zero Emission Vehicle

# FREIGHT EQUITY ASSESSMENT

Many freight routes pass through traditionally underserved communities. Highway and rail lines may divide these communities, while port and airport facilities are often located adjacent to them. Although the communities are in proximity to the freight facilities, they often do not enjoy the benefits those facilities bring to the local and national general population.

On January 27, 2021, President Biden signed Executive Order (EO) 14008, Tackling the Climate Crisis at Home and Abroad, creating the government-wide Justice40 Initiative. On July 20, 2021, the Office of Management and Budget released Interim Implementation Guidance for the Justice40 Initiative (M-21-28), which has guided the U.S. Department of Transportation's work on Justice40 along with relevant statutory authorities. The Justice40 Initiative aims to deliver 40% of the overall benefits of federal investments in climate and clean energy, including sustainable transportation, to disadvantaged communities.

On January 7, 2022, Governor Cooper issued EO 246, *North Carolina's Transformation to a Clean, Equitable Economy*. In line with EO 80 (*North Carolina's Commitment to Address Climate Change and Transition to a Clean Energy Economy*), The order stated that the Governor's Office and Cabinet agencies shall incorporate environmental justice and equity considerations and benefits in implementing this EO. EO 246 sets goals to reduce statewide greenhouse gas (GHG) emissions to at least 50% below 2005 levels by 2030. The executive order also requires the development of a statewide Clean Transportation Plan, due April 2023, that includes an update to the North Carolina ZEV plan. In addition, North Carolina is a signatory of the July 13, 2020 *Multi-State Medium- and Heavy-Duty Zero Emission Vehicle Memorandum of Understanding*.

The 2021 Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law (BIL), seeks to recognize the often negative impacts existing and planned transportation facilities have had on traditionally underserved populations. Negative impacts may include:

- Fragmenting communities;
- Traffic noise and air quality impacts;
- Limiting active transportation and transit options; and
- Reducing access to employment, cultural, or educational opportunities.

This document will focus on reviewing past and planned projects through an equity lens using a desktop GIS evaluation. By reviewing where the freight network potentially impacts historically disadvantaged communities (HDCs), NCDOT can ensure that future effects are minimized, in addition to assessing the ability of projects to address past damages.

## Existing and Planned Priority Highway Freight Network Equity

The N.C. Department of Transportation (NCDOT) evaluated the current Priority Highway Freight Network as well as projects listed in the 2020-2029 North Carolina State Transportation Improvement Program (STIP) that added capacity to facilities on the North Carolina Priority Freight Network (NCPFN). To identify disadvantaged communities, NCDOT used the U.S. Department of Transportation's data on HDCs and Areas of Persistent Poverty (APPs) using 2010 Census Tract data developed for the Rebuilding American Infrastructure with Sustainability and Equity (RAISE) 2022 Grants.

APPs are defined by the RAISE grant program as (1) territories or possessions of the United States, (2) counties that had greater than 20 percent of the population living in poverty in the 1990 and 200 US Census as well as the (3) 2020 Small Area Income Poverty Estimates or census tracts that had a poverty rate of at least 20 percent as measured by the 2014-2018 5-year data series available from the American Community Survey (ACS). HDCs are tribal lands, territories or possessions of the United States, or census tracts that meet certain defined criteria. The RAISE Grant equity tables were based on 2010 Census data as in-depth assessments had not been completed for 2020 Census data.

NCDOT determined the percentage of the NCPHFN miles that run through APP or HDC areas. Facility miles were counted if one or both sides of the facility were in an APP or HDC Census Tract. The results of these analyses are shown in Figures 1 and 2 and Table 1. Based on this assessment, a substantial percentage of the NCPHFN passes through APP or HDC Census Tracts.

The extent to which an APP or HDC community is impacted by current or planned highway infrastructure is highly site/project specific. For example, a past interstate construction project may have acted as a barrier for area residents to access jobs, goods, and services. It may have also reduced air quality, increased traffic noise, and limited active transportation options. These factors are often associated with higher rates of diabetes, asthma, and heart disease. A project to improve these facilities may address some of these past impacts by improving active transportation options on structures crossing the interstate, providing noise walls, and reducing idling traffic.

Figure 1. Existing NC Priority Highway Freight Network and Planned Improvements and Census Tracts Identified as APP

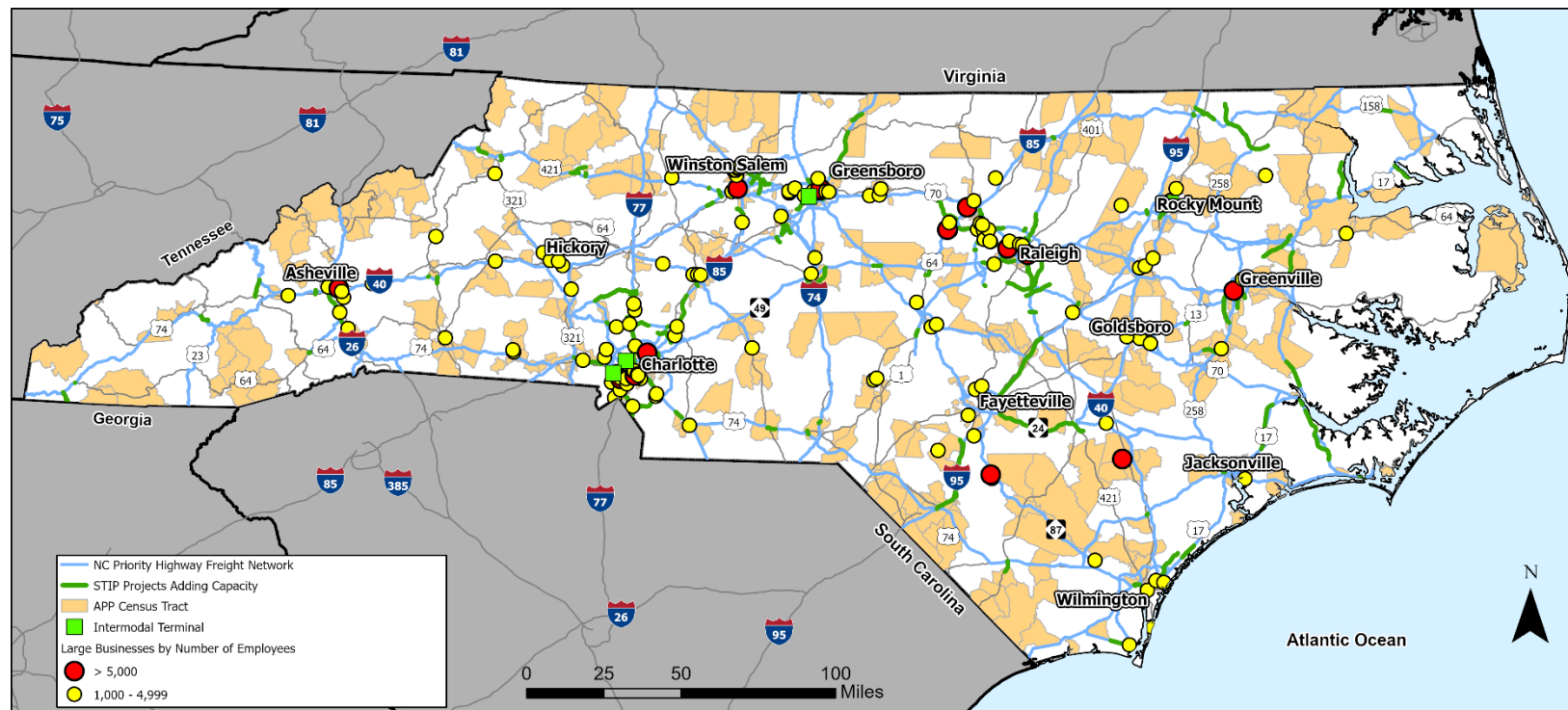
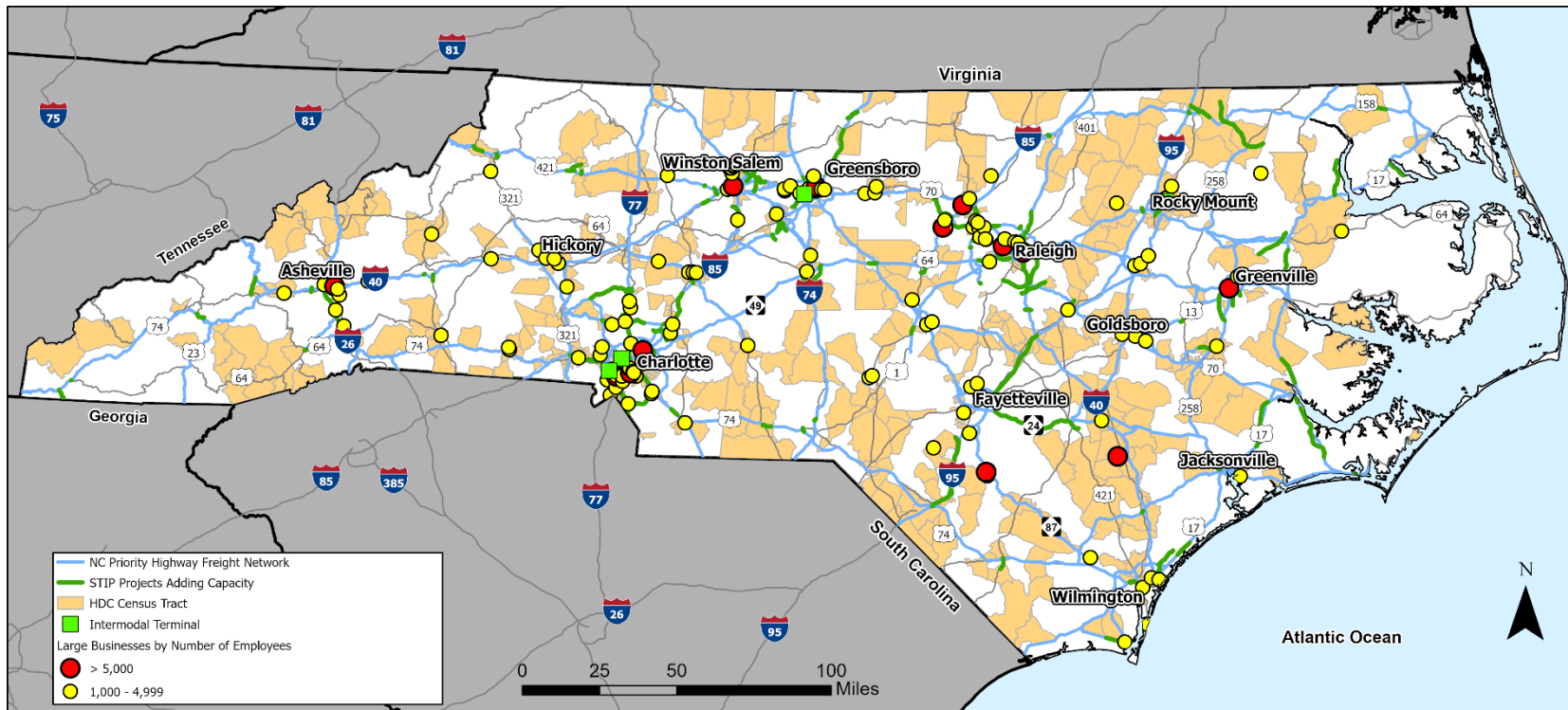


Figure 2. Existing NC Priority Highway Freight Network and Planned Improvements and Census Tracts Identified as HDC



**TABLE 0 APP AND HDC CENSUS TRACTS IN RELATION TO THE NC PRIORITY HIGHWAY FREIGHT NETWORK**

Area of Persistent Poverty (APP) Data for North Carolina and Priority Highway Freight Network		
	Total in APP Census Tracts	Percent in APP
North Carolina Population (2010 Census) in APP	2,251,022 people	25%
Existing Priority Highway Freight Network in APPs	1,204 miles	28%
Planned Priority Highway Freight Network Improvement Projects in APPs	133 miles	18%
Historically Disadvantaged Community (HDC) Data for North Carolina and Priority Highway Freight Network		
North Carolina Population (2010 Census) in HDC	2,887,491 people	28%
Existing Priority Highway Freight Network in HDCs	1,300 miles	31%
Planned Priority Highway Freight Network Improvement Projects in HDCs	171 miles	23%

## Existing and Planned NC Priority Rail Freight Network Equity

Rail transportation networks are often considered to be demarcation zones in communities. The phrase “wrong side of the tracks” dates from 19<sup>th</sup> century England, when it was noted that rail networks often served as a dividing line between prosperous and poor neighborhoods. In a January 2012 report, the [Trade, Health, and Environment Impact Project](#) stated, “Operation of the trucks, locomotives, and yard equipment that service rail yards negatively affects communities’ health and quality of life with increased air pollution, noise, traffic congestion, and industrial blight. Most rail yards operate round-the-clock, with stadium style lights allowing night-time operations. Of particular concern are diesel particulate emissions, which have been linked to lung cancer and other health effects.”

NCDOT determined the percentage of the NC Priority Rail Freight Network miles that run through APP or HDC areas. Facility miles were counted if one or both sides of the facility were in an APP or HDC Census Tract. The results of these analyses are shown in Figures 3 and 4 and Table 2. Based on this assessment, a higher percentage of the NC Priority Rail Freight Network passes through APP or HDC Census Tracts than does the NC Priority Highway Freight Network.

Certain rail projects in the 2020-2029 STIP do not have defined extents at this time. General project locations are shown as points in Figure 3 and 4, but exact lengths of improvements are not yet known. 27 grade separation projects are programmed in the 2020-2029 STIP. These projects include grade separating highways and railroads, as well as pedestrian improvements such as constructing pedestrian underpasses below railroads. Grade separation projects are likely to benefit communities, particularly APP and HDC areas, as they will provide a connection across railroads that were previously a dividing line.



Figure 3. Existing Freight Railroad Network and Census Tracts Identified as APP

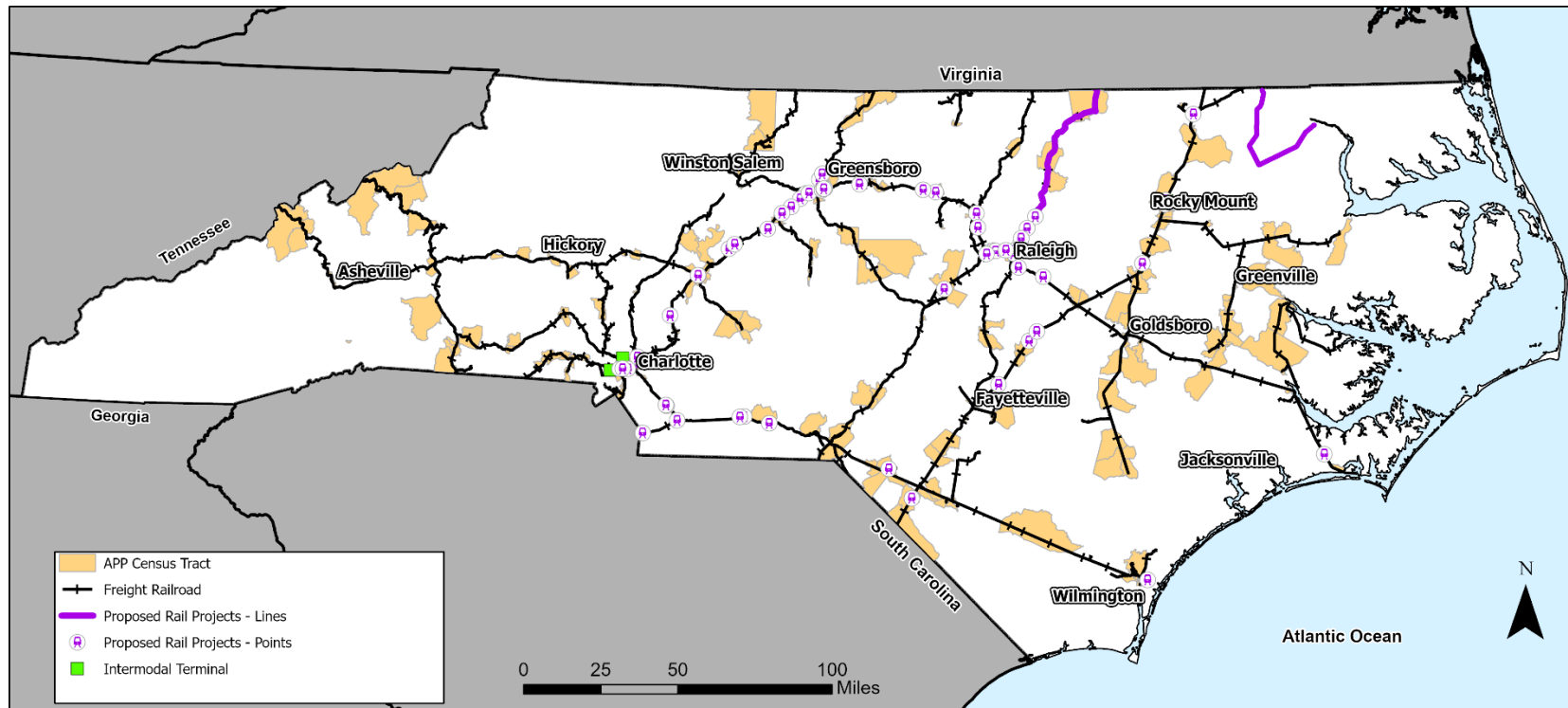


Figure 4. Existing Freight Railroad Network and Census Tracts Identified as HDC

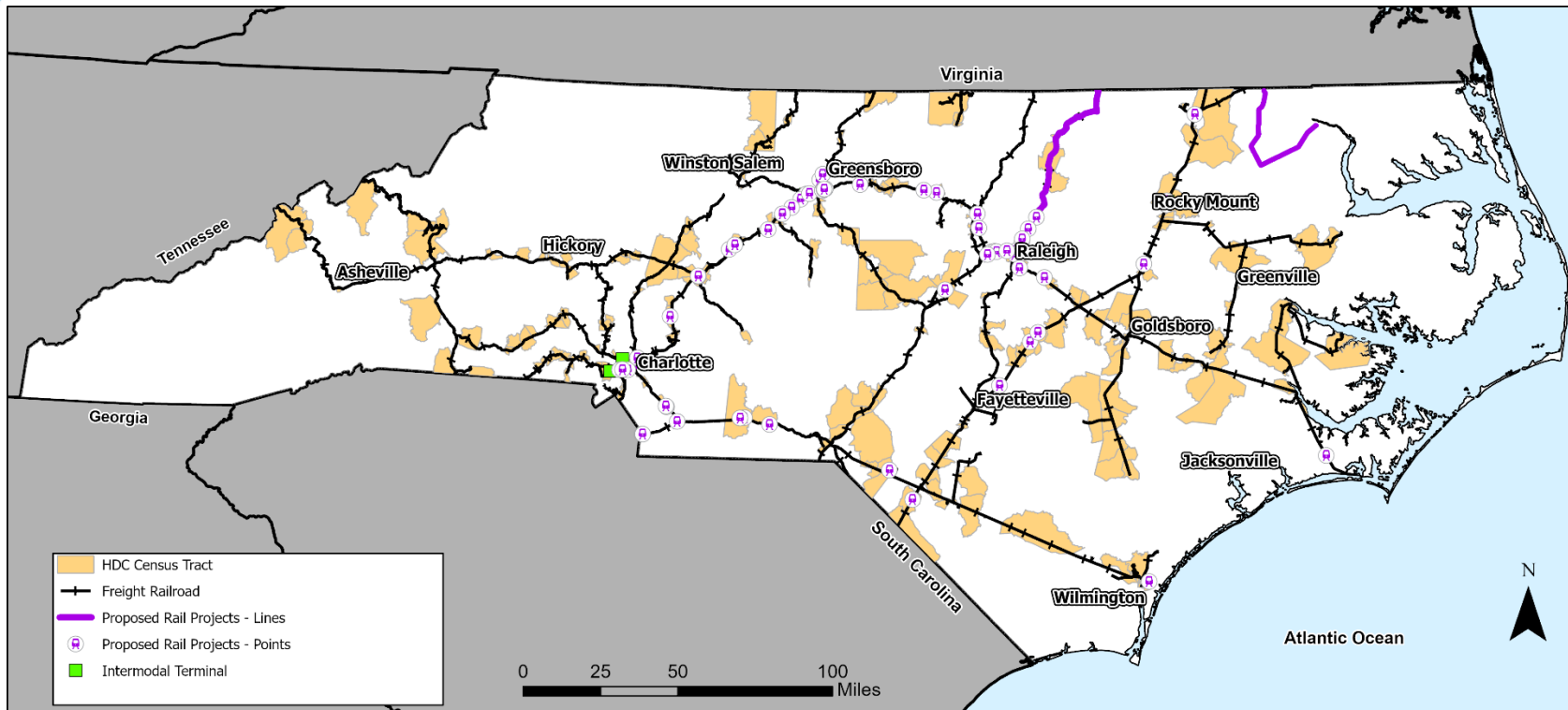


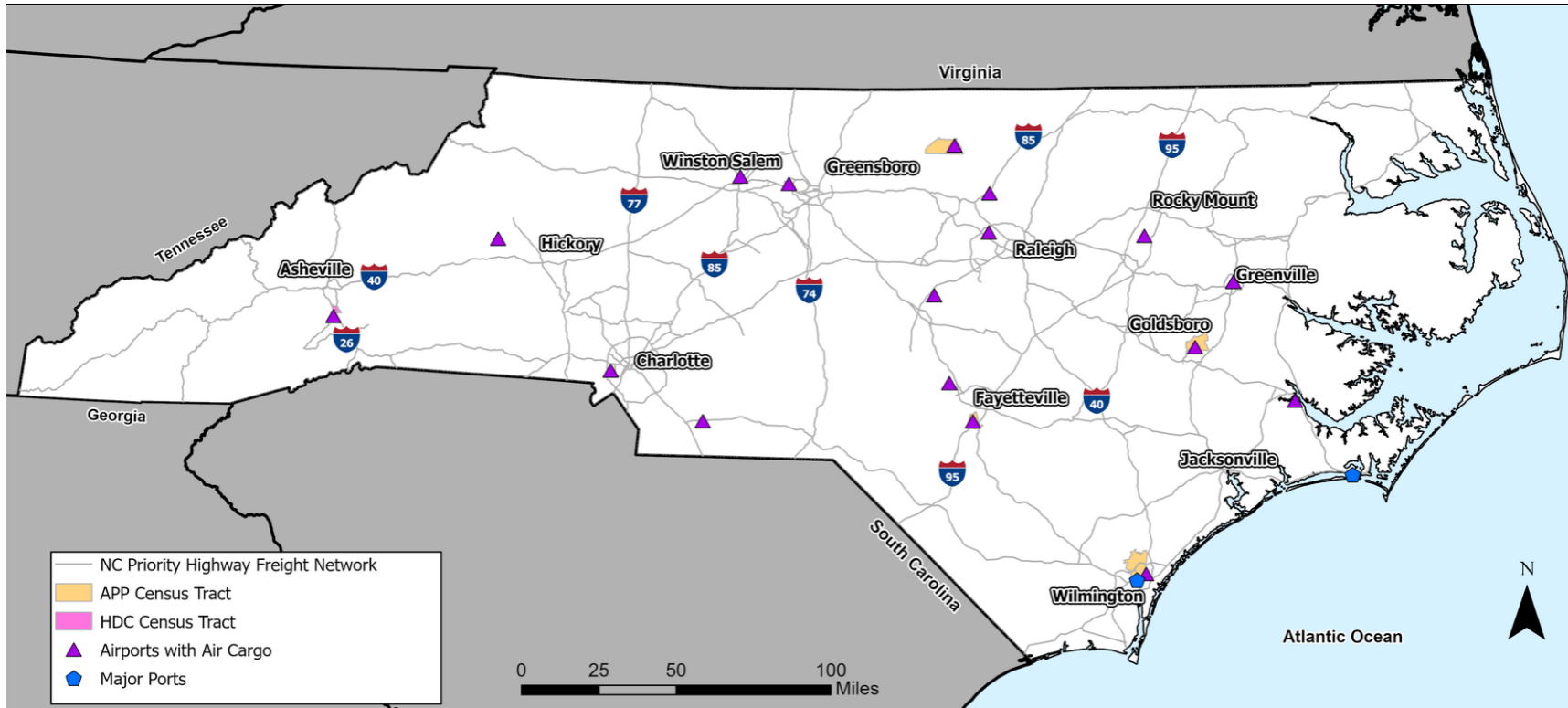
TABLE 2 APP AND HDC CENSUS TRACTS IN RELATION TO THE PRIORITY RAIL FREIGHT NETWORK

Area of Persistent Poverty (APP) Data for North Carolina and Priority Rail Freight Network		
	Total in APP Census Tracts	Percent in APP
North Carolina Population (2010 Census) in APP	2,251,022 people	25%
Existing Priority Rail Freight Network in APPs	1,405 miles	38%
Planned Priority Rail Freight Network Improvement Projects in APPs	51 miles	43%
Historically Disadvantaged Community (HDC) Data for North Carolina and Priority Rail Freight Network		
North Carolina Population (2010 Census) in HDC	2,887,491 people	28%
Existing Priority Rail Freight Network in HDCs	1,560 miles	42%
Planned Priority Rail Freight Network Improvement Projects in HDCs	44 miles	37%

# Port and Airport Equity

Due to security and other concerns, port and airport facilities are generally isolated from adjoining communities. For this reason, these facilities often serve as barriers to transportation, especially for communities that lack access to personal vehicles. Also, as is the case with other modes of freight transportation, these facilities tend to be located in low-income areas.

Figure 5. Existing Port and Airport Facility Census Tracts Identified as APP or HDC



## Effects of Freight Networks and Facilities on Equity

Negative health, educational, and income disparities are often associated with APP and HDC areas. The U.S. Council on Environmental Quality (CEQ) developed the [Climate and Economic Justice Screening Tool](#) as part of the Justice40 Initiative. The tool allows users to review specific Census Tracts to determine APP and HDC status, as well as assessing demographic factors including:

- Vulnerability to climate change (anticipated agricultural, building, and population losses);
- Energy burden;
- Clean transit (diesel particulate matter and traffic proximity);
- Affordable and sustainable housing;
- Legacy pollution;
- Clean water and wastewater infrastructure;
- Health burdens (ranking in percentile in terms of asthma, diabetes, heart disease, and low life expectancy); and
- Workforce training and development.

## Next Steps

While it is not the purpose of the North Carolina Statewide Multimodal Freight Plan to address all the causes of inequity for APP and HDC areas, there are steps that can be taken to repair past damage and avoid or minimize future impacts associated with freight transport. These steps include:

- Reducing emissions;
- Noise mitigation;
- Improving active transportation options (especially for facilities that intersect freight networks); and
- Installing broadband on freight corridors.

Any improvement projects associated with the freight network should explore these options to the extent practicable.

The 2020 *Multi-State Medium- and Heavy-Duty Zero Emission Vehicle Memorandum* notes that “transportation is now the nation’s largest source of GHG emissions, and, after light-duty vehicles, medium- and heavy-duty trucks are the next largest source of transportation sector GHG emissions.” Signatory States agreed to “develop a multi-state action plan to identify barriers and propose solutions to support widespread electrification of medium- and heavy-duty vehicles (Zero Emission Medium- and Heavy-Duty Vehicle Action Plan).” The Zero Emission Medium- and Heavy-Duty Vehicle Action Plan will consider:

- Financial vehicle and infrastructure incentives;
- Non-financial vehicle and infrastructure incentives;
- Actions to encourage public transit and public fleet zero emission MHDV deployment;
- Effective infrastructure deployment strategies;
- Funding sources and innovative financing models to support incentives and other market enabling programs;

- Leveraging environmental and air quality benefits associated with adoption of the California Advanced Clean Trucks rule under Section 177 of the Clean Air Act;
- Coordinated outreach and education to public and private MHDV fleet managers;
- Utility actions to promote zero emission medium- and heavy-duty vehicles (MHDVs), such as electric distribution system planning, beneficial rate design and investment in “make-ready” charging infrastructure;
- Measures to foster electric truck use in densely populated areas;
- Addressing vehicle weight restrictions that are barriers to zero emission MHDV deployment;
- Uniform standards and data collection requirements; and
- Any other initiative the Task Force deems appropriate.

North Carolina is working to implement the plan and is currently developing a deployment strategy for ZEV charging stations.