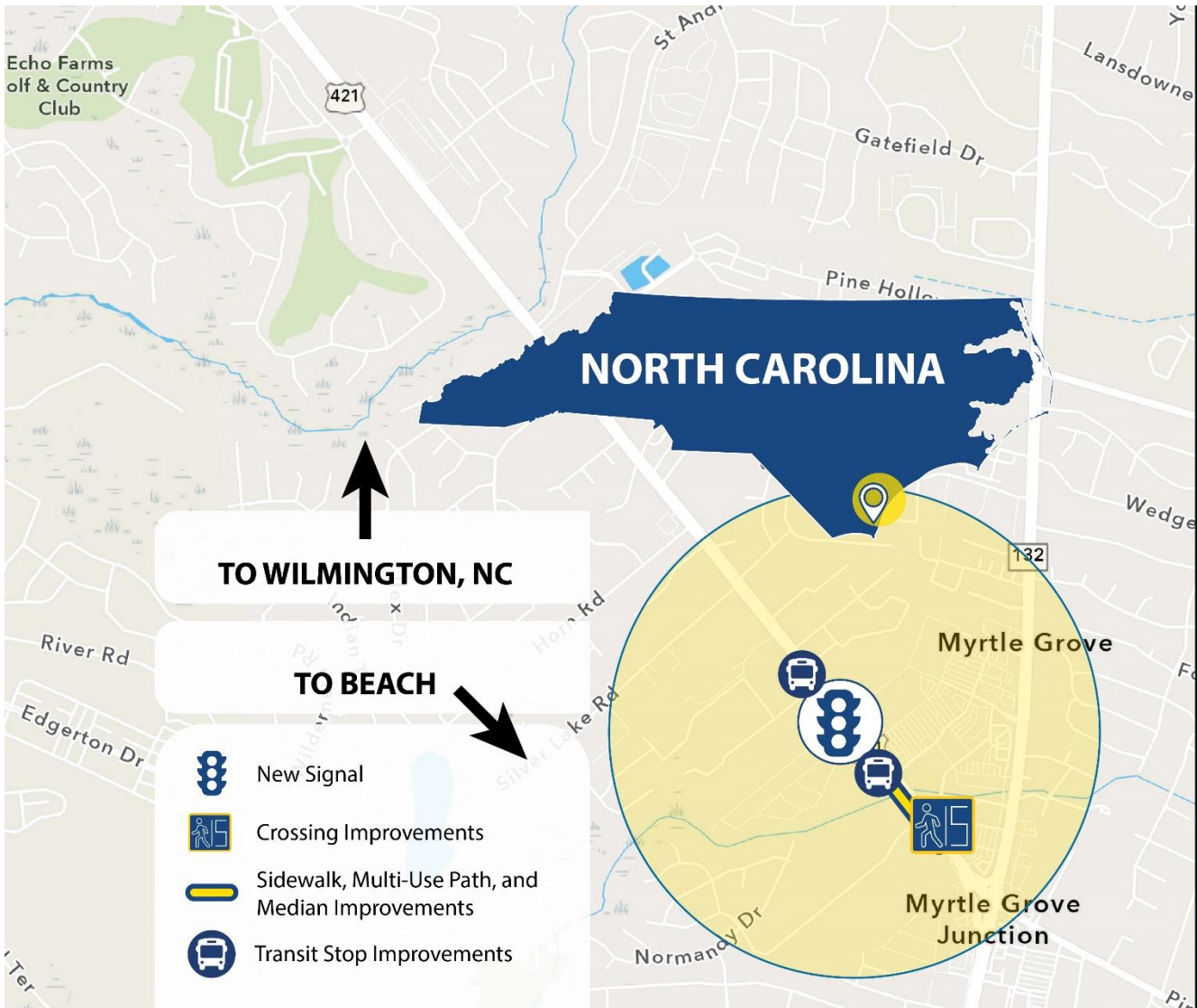




Merit Criteria Narrative



Project info:

Completion Date: 2032

Cost: \$7,555,000

BUILD Funding Request: \$6,044,000

Non-Federal Match: \$1,511,000

Cost Overruns: Covered by NCDOT

Monkey Junction: Residential area on outskirts of Wilmington City limits in unincorporated New Hanover County, North Carolina.

Total mileage: 0.29 miles

Proposed Treatments: Complete Streets improvements, including sidewalks, multi-use paths (MUPs), new traffic signal, new signalized crosswalks, new transit shelters, and lighting improvements.

Snapshot

Safety

LINK NC addresses a critical safety need for all road users in Monkey Junction, particularly pedestrians, bicyclists, and transit users. The project corridor is a hot spot for non-motorized crashes, with nine fatal or serious injury pedestrian and bicyclist crashes since 2014.

Environmental Sustainability

LINK NC reduces transportation-related emissions by promoting a safer community, providing more options for safer walking and bicycling and minimizing vehicular delay. LINK NC also avoid adverse impacts to air quality.

Quality of Life

LINK NC increases affordable transportation choices and increases the safety of residents without a vehicle who do not have a choice but to walk, bicycle, or use transit.

Mobility and Community Connectivity

LINK NC will primarily benefit a small, densely populated, low-income residential community by providing safe connections to essential services (discount retail, grocery, convenience store) and transit facilities on the opposite side of the high-speed US 421 corridor.

Economic Competitiveness and Opportunity

LINK NC will increase access to transit and jobs for area residents and will create safe, protected facilities that support the region's growth, development, and long-range transportation needs.

State of Good Repair

LINK NC is implementing new sidewalks, MUPs, and curb and gutter facilities that will be maintained in good repair and NCDOT is committed to minimizing the impacts and burdens associated with construction and maintenance through efficiencies and traffic control.

Partnership and Collaboration

LINK NC is a strong partnership between NCDOT and local and regional planning and transportation agencies that displays a commitment to the goal of improving safety and eliminating fatal and serious injuries from this corridor. LINK NC is backed by public support and agency support.

Innovation

LINK NC is a model in innovation to minimize the cost burden of this project while maintaining core project elements that reduce the risk of fatal and serious injury pedestrian and bicyclist crashes along the corridor.

Safety

LINK NC is focused on safety and connectivity improvements for all users of the US 421 corridor known as “Monkey Junction” in New Hanover County, North Carolina. LINK NC improvements will enhance a well-used multimodal corridor with a combination of Complete Streets improvements – sidewalks, MUPs, transit shelters, improved lighting, and signalized crosswalks – to help the residents of the Monkey Junction area reach their destinations safely.

The LINK NC corridor is a hot spot for bicyclist and pedestrian-involved crashes. From 2014 to 2023, **there were 16 bicyclist- or pedestrian-involved crashes** within 100 feet of the corridor. Nine of these resulted in a fatality or serious injury. 56% of all bicycle and pedestrian crashes occurring in the project area resulted in a fatality or serious injury. This rate (fatal and serious injury bicycle and pedestrian crash total as a percentage of all-injury crashes) is **more than three times higher** than the statewide non-motorized fatality and serious injury rate during the same period.

This 0.29-mile corridor accounted for approximately 9% of the 58 pedestrian fatalities in New Hanover County from 2014 to 2023. With 8 fatal and serious injury pedestrian crashes, this corridor has a high fatal and serious injury rate compared to county and state averages (Table 1).

Table 1 Pedestrian Fatality and Serious Injury Per Road Mile (2014-2023)

	LINK NC	New Hanover County	NC
Pedestrian Fatality (K)	5	58	2,200
Pedestrian Serious Injury (A)	3	60	2,600
Road Mileage	0.29	1,812	80,483
KA / Mile	28	0.06	0.06

In 2022, NCDOT completed an analysis of all public roads in developed areas of the state to identify the locations considered “high risk” for fatal and serious injury pedestrian crashes. The analysis published segments ranked in the top one percent of all roads assessed – identifying the section of US 421 passing through Monkey Junction as one of the top one percent locations for fatal and serious injury pedestrian crash risk in the state.



Figure 1. LINK NC Corridor 10-Year Bicycle and Pedestrian Crash History

Proposed Countermeasures

LINK NC is using the Federal Highway Administration (FHWA)’s Proven Safety Countermeasures (PSCs) to improve safety for pedestrians along this high injury corridor.

Table 2. Crash Reduction Factors (CRFs), based on the NCDOT Project Development CRF Information (<https://connect.ncdot.gov/resources/safety/TrafficSafetyResources/NCDOT%20CRF%20Update.pdf>)

Countermeasure	Improvement Location	Description of Treatment	Anticipated Safety Benefit
New Traffic Signal	Restricted crossing U-turn (RCUT) intersection at the shopping center driveway	A new traffic signal to control traffic flow and provide safer opportunities for crossing the intersection.	Reduces all intersection-related crashes by up to 23%.
High-Visibility Crosswalks	RCUT intersection at shopping center driveway, the main entrance to the	Enhanced markings and signing that are visible to both the driver and pedestrian	Reduces pedestrian crossing-related

	manufactured home community, and all four approaches at Antoinette Drive	and is visible from a greater distance.	injury crashes up to 40%.
Sidewalk	Along the western edge of the corridor between Antoinette Drive and the shopping center driveway	A defined and consistent pathway for a person traveling by foot or using a personal mobility device.	Reduces pedestrian crashes along a roadway up to 74%.
Leading Pedestrian Interval (LPI)	Antoinette Drive intersection	A traffic signal timing measure that provides pedestrians a head-start (typically 3-7 seconds) when crossing an intersection before the parallel traffic is given a green indication.	Reduces pedestrian crashes at intersections up to 13%.
Lighting (Pedestrian)	Shopping center driveway RCUT, Antoinette Drive intersection, and transit stops	Enhanced street lighting specifically focused on pedestrian walkways and crossings.	Reduces nighttime pedestrian injury crashes by up to 42% at intersections.
Median Fencing	Full length of corridor	A fence in the median of the roadway that physically separates opposing streams of traffic and discourages midblock crossings in favor of crossings at the marked and signalized intersections.	Reduces cross-median crashes by up to 39%.
Lighting (All)	Shopping Center driveway RCUT and Antoinette Drive intersection	Improved intersection and roadway lighting to enhance visibility for all users.	Reduces all nighttime injury crashes by up to 38%.
Pedestrian WALK phase (modify existing signal)	Shopping center driveway RCUT and Antoinette Drive intersection	Add pedestrian WALK phase and countdown signal heads to existing signal.	Reduces pedestrian crashes by up to 25%.

- Antoinette Drive Intersection: Improve traffic signal with **pedestrian signal heads** and **LPI**. LINK NC is adding pedestrian countdown signals, marked crosswalks, and LPI at the southern end of the corridor (*see location A in figure 2 map*).
- Shopping Center Intersection: Improve midblock intersections with **pedestrian actuated traffic signal, high visibility crosswalks**, and intersection **lighting**. LINK NC is adding a pedestrian actuated signal at the shopping center driveway, a high priority crossing that will safely connect the store and surrounding commercial area to the residential neighborhood across the street. LINK NC will also add two new transit shelters serving the Monkey Junction Wave Transit Route (*see location B in figure 2 map*).
- Improved Connections: Add **sidewalk** and **MUP** facilities along the road and install **median fencing**. LINK NC will connect these primary intersections with sidewalk on the western side and will connect the two primary commercial driveways on the eastern side with a

shared-use path. Median fencing will limit unsafe midblock pedestrian crossings between these two intersections (see location C in figure 2 map).

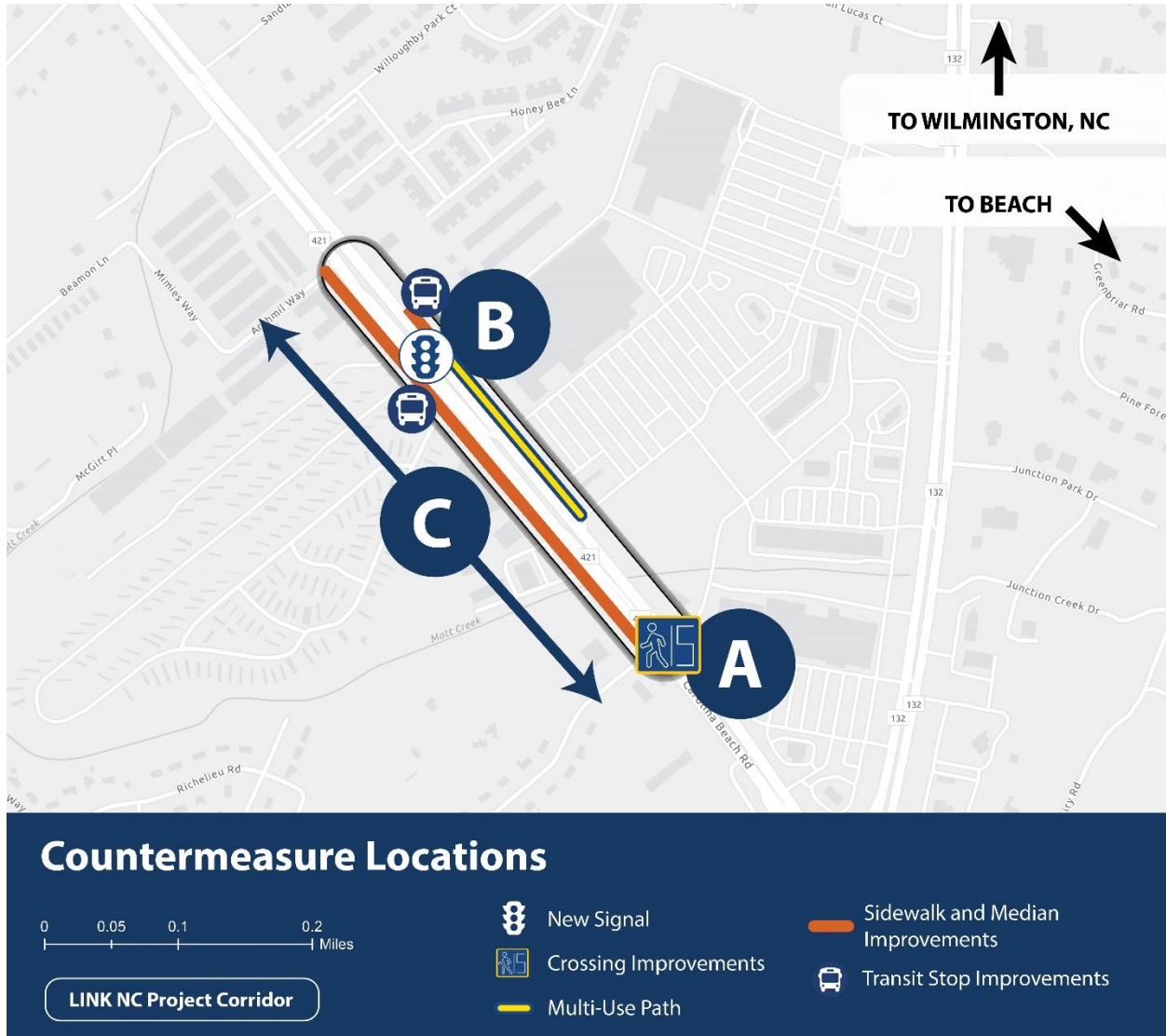


Figure 2. LINK NC Project Countermeasure Locations

Transportation Users

The LINK NC corridor connects a manufactured home neighborhood on the south with critical commercial and transit infrastructure on the north. This neighborhood is made up of more than 100 manufactured homes. While the census data covering this area does not identify this tract as an Area of Persistent Poverty, this is a **low income neighborhood** that includes many youth whose school bus picks up along the LINK NC corridor (Figure 3), and families and workers who cross the corridor to access transit and commerce. The LINK NC improvements, including sidewalks, signalized crossings, lighting, and transit shelters, will greatly improve safety for this group of New Hanover County residents.



Figure 3. Children waiting for school bus in front of residential neighborhood in LINK NC corridor

Environmental Sustainability

LINK NC promotes environmental sustainability primarily through improving safety for walking and bicycling. LINK NC will have negligible negative impacts on air pollution and greenhouse gas emissions. North Carolina's transportation system contributes 36% of the state's gross greenhouse gas emissions.¹ The emissions not only decrease air quality but impact health. LINK NC will create new connections for pedestrians improving access to key destinations. By improving safety for pedestrians, bicyclists, and transit users in the corridor, LINK NC creates positive impacts on greenhouse gas reductions. LINK NC makes no impacts on underground infrastructure, including a critical culvert in the southern portion of the corridor.

Quality of Life

LINK NC's primary objective is to improve safety and quality of life for the residents of the Monkey Junction area. With nearly 3,000 linear feet of new sidewalk and MUP, crossing enhancements, lighting improvements, and enhanced transit shelters, LINK NC **increases affordable transportation choices** and increases the safety of residents without a vehicle who do not have a choice but to walk, bicycle, or use transit. Increasing affordable transportation options is associated with health benefits such as reduction in chronic disease, improved mental health, and stress reduction.

Increasing access to affordable transportation choices is a key focus of LINK NC, especially considering the corridor's proximity to a low-income neighborhood. LINK NC will provide safe connections to retail, grocery, jobs, healthcare, schools, and other essential services and destinations.

LINK NC will install lighting at the marked pedestrian crossings and intersections in the corridor, which will improve access for pedestrians and transit users and provide more visibility for users traveling during dawn, dusk, and nighttime. In addition to the neighboring residents, people experiencing homelessness also use and cross the LINK NC corridor regularly. The existing conditions do not provide safe access for these residents. LINK NC provides much needed safety improvements for all residents and users.

¹ <https://deq.nc.gov/media/27070/download?attachment>

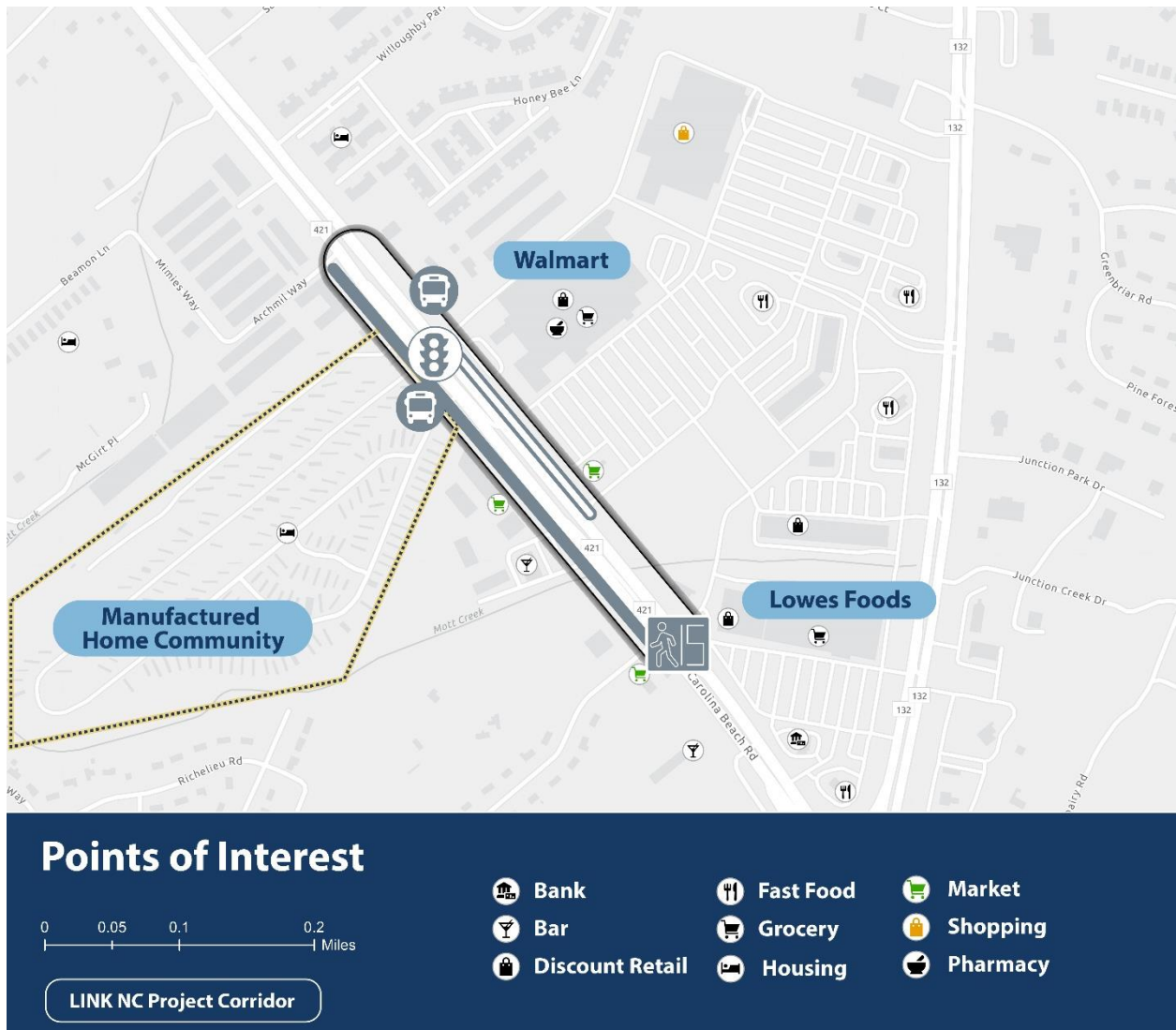


Figure 4. Key connections between residences and points of interest in the LINK NC corridor

Mobility and Community Connectivity

LINK NC's focus is to improve mobility and community connectivity in Monkey Junction. The project will add facilities to fill a critical void in infrastructure. LINK NC will install nearly 3,000 feet of new sidewalk and MUP in this unincorporated area of New Hanover County. The project is addressing the absence of this critical infrastructure, not connecting a gap in existing facilities – the nearest marked crosswalk on Carolina Beach Road (US 421) is more than 2 miles north of the shopping center driveway; sidewalk and other protected linear facilities exist sporadically in the area, mostly in the commercial parking areas and near new developments. The LINK NC corridor has “goat paths”, or worn walkways in the grass, on both sides of the corridor and across the vegetative median near the shopping center. Pedestrian traffic is high between this low-income neighborhood, retail, and connections to the downtown area. Adding accessible, high-visibility crossings will create safer conditions for all travelers, especially younger and older pedestrians or those that are mobility impaired. LINK NC is responding to a critical need for safe infrastructure in a neighborhood with observed vulnerabilities.



Figure 5 Crossing concept for new signalized crossing at the shopping center driveway

Transit and ADA Connections

LINK NC improvements will create a new northbound transit stop – in the direction of schools, healthcare and downtown Wilmington – and relocate an existing southbound transit stop. With the LINK NC improvements, both transit stops will be within 100 feet of the new signalized crosswalk at the shopping center driveway, will have covered shelters, and will incorporate ADA improvements including curb ramps and truncated domes.

Regional Connectivity

The Wilmington Urban Area Metropolitan Planning Organization (WMPO)'s MTP, Cape Fear Moving Forward, ranks Carolina Beach Road and Antoinette Drive crosswalk improvements in the top 10 fiscally constrained pedestrian projects of regional significance and transit upgrades along the 201 route on Carolina Beach Road as a top four priority. These goals are reflected in the LINK NC improvements. Additionally, New Hanover County, the (WMPO), and NCDOT's long term bicycle plans for the Monkey Junction area include a MUP connection to College

Road. Incorporating an MUP in LINK NC supports these long-term plans and would build the first portion of this critical regional multimodal connection (Figure 6). This also supports the region’s goals for broad multimodal connectivity between Monkey Junction, downtown Wilmington, and the University of North Carolina at Wilmington. Of the network identified in the County’s Comprehensive Greenways Plan, the College Road MUP is funded, and the LINK NC MUP provides a nexus of connectivity for that future portion of the greenway network (Figure 7).



Figure 6. LINK NC Projects Identified in Local and Regional Plans



Figure 7. Proposed Regional Greenways Network Aligned with LINK NC Corridor

Economic Competitiveness and Opportunity

While LINK NC is primarily focused on safety and related improvements, the project will positively affect economic competitiveness and opportunity for the region. The project is expected to have negligible effects on vehicle or freight travel time through the corridor and will not decrease the capacity of this primary travel corridor. The project will increase access to transit and jobs for area residents. As the region expands, Monkey Junction and the surrounding area is expected to see continued investment in residential, commercial, industrial, and mixed-use developments. The new sidewalk network, MUP connectivity to long range planned facilities, improved lighting, and enhanced crossings will support this growth and provide current and future residents of the area safe access to jobs, retail, and residential opportunity.

State of Good Repair

LINK NC will install nearly 3,000 feet of new sidewalk and MUP in this unincorporated area of New Hanover County. These facilities, along with the crosswalk, lighting, and transit improvements will be maintained in good repair.

NCDOT has evaluated the construction and timelines of the LINK NC project, as mentioned in the [Project Readiness section](#), and will ensure that the project minimizes impacts and burdens associated with construction and maintenance through efficiencies and traffic control. Improvements to signals will extend the life of traffic control systems.

Partnership and Collaboration

Initial conceptualization for LINK NC began in 2016 as NCDOT conducted investigations of pedestrian fatalities in the area. Monkey Junction is located outside of the city limits of Wilmington but in a developed area of the county, perpetuating a key challenge for project implementation – the location is easily overlooked as a priority without a city “owner” but nonetheless demonstrates significant safety problems.

NCDOT enlisted several partners between 2016 and 2023 to increase support and awareness for the safety and project needs in the Monkey Junction area. In 2019, the Federal Highway Administration (FHWA) supported a Road Safety Assessment (RSA) through the Safe Transportation for Every Pedestrian (STEP) program. The US 421 corridor was selected per the request and in consultation with the City of Wilmington, WMPO, and NCDOT. The 2019 RSA looked at sections of US 421 north of Willoughby Park Ct toward US 117 (Shipyards Boulevard). The FHWA-supported RSA confirmed the lack of connectivity and frequent pedestrian crossings in this high-risk area.

In the years since the project began, the community, local and regional planning partners, Wave Transit, and NCDOT have had many meaningful collaborations on interventions, plans, and designs. New Hanover County, WMPO, and Wave Transit are all partners in LINK NC, actively in support of the proposed improvements.

NCDOT distributed a newsletter about this effort to local residents in 2021 and received no negative feedback. The residents of the area most directly impacted by the LINK NC improvements, the manufactured home neighborhood, have not engaged in public meetings about this project or others in the area. Because of this, NCDOT has thoughtfully crafted a project design and refined scope that meets the observed needs of the residents with negligible negative impacts on traffic or other elements of residential and commercial life and access in the area.

Monkey Junction displays notable volumes of pedestrians and bicyclists traveling along the road and crossing at the shopping center driveway, despite the current lack of appropriate facilities for these users. Because of these regularly observed crossings, the documented safety concerns, and the thoughtful and refined approach to project scope, NCDOT is confident that this project will reinforce the goals of the local community. When implementing the project, NCDOT will use the

local bus route to continue to promote the project and offer continued opportunity for residents to voice concerns or support for the project. LINK NC will leverage construction work schedules to minimize impacts on surrounding traffic to important destinations in the area, such as the Port of Wilmington and retail centers along US 421 and College Road.

Innovation

NCDOT has been innovative in how it has planned, value engineered, and will deliver LINK NC. LINK NC will leverage Federally-promoted Proven Safety Countermeasures, taking a considered approach to enhance the safety of the corridor for all road users, maintain or improving the existing level of operational efficiency, and best serve the needs of the immediate community. NCDOT has a proven track record of delivering projects on time and within budget.

NCDOT's partnership through LINK NC with New Hanover County, WMPO, and Wave Transit, and the inclusion of an MUP segment on the eastern side of the corridor to align with local and regional plans, is a testament to the collaborative and innovative way that these partners are working in support of a collective goal in LINK NC.

LINK NC is a model in innovation for prioritizing vulnerable road user safety amid escalating construction costs. NCDOT has diligently worked to minimize the cost burden of this project while maintaining the absolute imperative of reducing the risk of continued pedestrian and bicyclist fatal and serious injury crashes along this key corridor.