



Environmental Assessment

STIP HB-0039

Cape Fear Memorial Bridge Replacement Project

Brunswick and New Hanover Counties, North Carolina

July 2026



STIP PROJECT NO. HB-0039

CAPE FEAR MEMORIAL BRIDGE REPLACEMENT

Cape Fear Memorial Bridge Replacement

Replacement of the Cape Fear Memorial Bridge carrying US 17/US 76/US 421
across the Cape Fear River

Brunswick and New Hanover Counties, North Carolina

Federal Aid Project No. 5060301

NCDOT STIP Project No. HB-0039

WBS No.: 50603.1.1

ADMINISTRATIVE ACTION ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to the National Environmental Policy Act (42 U.S.C. 4332(2)(c))
by

U.S. Department of Transportation, Federal Highway Administration;
North Carolina Department of Transportation

7/28/2026

Date of Approval



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Prepared by HDR Engineering, Inc. of the Carolinas.

7/28/2026

Date



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7/28/2026

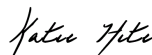
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PROJECT COMMITMENTS

Cape Fear Memorial Bridge Replacement Project

Brunswick and New Hanover Counties

STIP Project No. HB-0039

WBS No.: 50603.1.1

NCDOT Division 3: Essential Fish Habitat/Anadromous Fish

NCDOT will complete the Essential Fish Habitat consultation process with the National Marine Fisheries Service (NMFS) prior to the issuance of the final NEPA document, which is anticipated to be a Finding of No Significant Impact (FONSI). NMFS, Division of Marine Fisheries and Wildlife Resources Commission have agreed to an in-water work moratorium period of February 15 through June 30 for the project.

NCDOT, FHWA and NC HPO: Programmatic Agreement for Cultural Resources

NCDOT, FHWA, and NCHPO have agreed to enter into a project-level Section 106 Programmatic Agreement (PA) that will be executed prior to the issuance of the anticipated FONSI. The Advisory Council on Historic Preservation has been invited to participate in development of the PA, and Section 106 consulting parties identified during project scoping have also been invited to sign the PA as concurring parties and participate in its development and implementation.

Division 3 Construction Office: West Indian Manatee

NCDOT will adhere to “Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters” for this project.

Division 3 Project Development Unit: Threatened and Endangered Species

Three federally protected species were listed by US Fish and Wildlife Service after completion of the project’s Natural Resources Technical Report and as such, surveys have not been conducted for the Eastern Black Rail. NCDOT will conduct surveys for this species prior to construction.

The Southern Hognose Snake and Monarch Butterfly are both listed as proposed threatened as of March 2026. If these species are listed prior to construction, NCDOT will conduct surveys for these species prior to construction.

NCDOT Division 3 and NCDOT GeoEnvironmental Unit: GeoEnvironmental

Sites of concern should be reviewed by the NCDOT GeoEnvironmental Section once the Final Right of Way plans are complete to determine if Phase II Investigations and Right of Way Recommendations are necessary prior to right of way being acquired.

NCDOT Hydraulics Unit: Hydraulics

The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (FMP) to determine status of project with regard to applicability of NCDOT’s Memorandum of Agreement, or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

This project involves construction activities on or adjacent to FEMA-regulated stream(s). Therefore, Division 3 shall submit sealed As-built construction plans to the Hydraulics Unit upon completion of structure construction, certifying that the drainage structure(s) and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

NCDOT Division 3: Traffic Analysis

NCDOT will complete an updated peak hour traffic analysis between the release of this Environmental Assessment (EA) and issuance of the final NEPA document, which is anticipated to be a Finding of No Significant Impact (FONSI), to recognize concentrated commuter traffic and peak hour trends.

NCDOT Division 3: Eagles Island

NCDOT will avoid impacts to Eagles Island Nature Preserve by maintaining the project footprint within the existing right-of-way, in the northwest quadrant of the US 17/US 76/US 421 interchange.

1. Summary of the Proposed Action

The N.C. Department of Transportation (NCDOT) proposes replacing Bridge 13 over the Cape Fear River on US 17/US 76/US 421 in New Hanover and Brunswick counties. The existing bridge was constructed in 1969 and has been classified as functionally obsolete by the National Bridge Inventory (NBI). This document identifies and assesses alternatives for NCDOT State Transportation Improvement Program (STIP) Project HB-0039, the Cape Fear Memorial Bridge Replacement Project in New Hanover and Brunswick Counties, North Carolina.

The HB-0039 Environmental Assessment has been prepared in accordance with the National Environmental Policy Act (NEPA) and at the direction of the Federal Highway Administration (FHWA).

1.1. Project Overview

The proposed project is approximately 0.66 miles in length with a proposed design speed of 50 miles per hour on the bridge. The project is programmed in the 2026-2035 State Transportation Improvement Program (STIP) for preliminary engineering only. The project location is shown in **Figure 1**.

The project is proceeding through the Section 404/National Environmental Policy Act (NEPA) Merger Process, and public input received will be used in conjunction with agency feedback during the project development process. Throughout the Merger Process, there are seven strategic concurrence points involving NEPA project development and permitting. The purpose of the merger process is to establish a transparent and coordinated process for conducting environmental reviews and making authorized decisions for surface transportation projects in North Carolina that merges the requirements of Section 404 of the Clean Water Act (33 U.S.C. 1344) and NEPA (42 U.S.C. 4321, et seq.).

Members of the HB-0039 Merger Team include representatives from the following organizations:

- US Army Corps of Engineers (USACE)
- Federal Highway Administration (FHWA)
- North Carolina Department of Environmental Quality (NCDEQ)
- US Fish and Wildlife Service (USFWS)
- US Environmental Protection Agency (EPA)
- North Carolina Wildlife Resource Commission (NCWRC)
- North Carolina Department of Natural and Cultural Resources, Historic Preservation Office (HPO)
- Metropolitan Planning Organizations (MPOs) – Wilmington Urban Area MPO
- US Coast Guard (USCG)
- NC Division of Coastal Management (NCDCM)
- North Carolina Division of Marine Fisheries (NCDMF)
- National Oceanic and Atmospheric Administration (NOAA) Fisheries

See **Section 4.2.2** for additional details on the merger process.

1.2. Purpose and Need

The primary goal of the project is to address the deteriorating condition of the Cape Fear Memorial Bridge. As of the last structural inspection in December 2025, the bridge is rated in fair condition.

Replacement of the bridge will significantly reduce the level of resources NCDOT must dedicate to maintaining the aging structure. Since 2008, NCDOT has invested at least \$32.8 million in major rehabilitation activities to maintain the deck, superstructure, and substructure in a satisfactory condition. NCDOT also spent a further \$15 million in early 2024 to replace the decking and stringers to keep the bridge operational. In addition to these major rehabilitation projects, NCDOT spends an average of \$550,000 each year on regular maintenance and daily operations to maintain the bridge in its current condition and continue vertical lift operations.

Additionally, the project would expand the capacity of the US 17/76/421 corridor, improving mobility and efficiency between downtown Wilmington, the Port of Wilmington, and New Hanover County with Brunswick County and the greater southeastern North Carolina region. The 2021 annual average daily traffic (AADT) on the bridge was approximately 69,000 vehicles, including 8,280 trucks, according to the NBI. Traffic volumes are projected to increase to 94,900 by 2050.

According to the 2020 US Census, the City of Wilmington's population was 115,456. According to the North Carolina OSMB State Demographer, Brunswick County's 2020 population was 137,789, and New Hanover's was 226,077.¹ The populations of New Hanover County and Brunswick County are projected to increase by 41 percent and 89 percent, respectively, over the next 30 years. These increases will make traffic congestion and unreliable travel times worse without the replacement of the rapidly deteriorating existing structure and the expansion of travel lanes.

As agreed upon at the December 14, 2023 Concurrence Point (CP) 1 merger meeting, the purpose and need is below.

The **need** for this project can be described as follows:

The NCDOT 2020 Feasibility Study for this project states the bridge replacement is needed to accommodate the high growth areas of New Hanover and Brunswick Counties and truck traffic increases that support the growing population, military preparedness, and port activities in southeastern North Carolina. The corridor is a part of the Strategic Highway Network (STRAHNET) for military transportation and serves as a strategic corridor for hurricane evacuation. The 2021 annual average daily traffic (AADT) on the bridge was approximately 69,000 vehicles, including 8,280 trucks, according to the National Bridge Inventory (NBI). Traffic volumes are projected to increase to 94,900 by 2050, based on the 3.27% annual growth rate projected by the NBI. The Cape Fear Memorial Bridge was constructed in 1969 and is also classified as functionally obsolete by the NBI.

Structure Safety Reports compiled for NCDOT indicate the bridge condition was rated fair in 2016, and the deck, superstructure, and substructure Condition Ratings were all rated satisfactory in 2018. These elements were awarded a grade of six out of nine under the National Bridge Inventory Condition Ratings. Repair and maintenance costs are expected to increase as the bridge ages and traffic increases. In 2019, approximately \$15 million was spent on a major rehabilitation for the bridge, and average annual maintenance costs were estimated at \$550,000. NCDOT completed a major deck rehabilitation in Spring 2024 with an estimated construction cost of \$15 million.

¹ NC Office of State Budget and Management, State Demographer, County Population Totals. Web. 2025.
<https://demography.osbm.nc.gov/explore/dataset/county-population-totals/table/?disjunctive.county&disjunctive.region&disjunctive.cog&disjunctive.msa&disjunctive.vintage&disjunctive.estimateprojection>

The **purpose** for the proposed project is to replace the functionally obsolete US 17/76/421 bridge over the Cape Fear River (Cape Fear Memorial Bridge) and to address the forecasted capacity needs of the bridge corridor in the design year.

Project Study Area

The proposed project study area was developed to address the Purpose and Need of HB-0039 and is shown in **Figure 1**. The project study area ranges between approximately 750 - 2,700 feet wide and begins just east of Alligator Creek and extends approximately 3 miles east along US 17/76/421 to the project study area terminus near S 6th Street in downtown Wilmington. The project study area also extends along the following intersecting roads:

- Approximately 2,200 linear feet north along US 17
- Approximately 1,800 linear feet south along S Front Street
- Approximately 900 linear feet south along S 3rd Street, S 4th Street, and S 5th Avenue

2. Alternatives Considered

2.1. No Build Alternative

The No-Build Alternative only includes minor restoration activities to ensure the safety, maintenance, and continued operation of the existing highway. It does not require additional right of way or any improvements to the highway that would generate impacts to human or natural resources. Although it would not provide increased mobility and connectivity required to meet the Purpose and Need of the project, the No-Build Alternative will be carried forward to provide a basis for comparison with other alternatives carried forward for detailed study for this proposed action.

2.2. Build Alternatives

As agreed upon at the April 11, 2024 CP 2 merger meeting, NCDOT considered three build alternatives for project development as listed below. Each alternative includes the following typical section: three 12-foot lanes in each direction separated by a 22-foot median including 11-foot inside shoulders, 15-foot multi-use path on the north side of the bridge, and 12-foot outside paved shoulders (see **Image 1**).

- Alternative A: Movable span 65-135' vertical clearance
- Alternative B: Fixed span 135' vertical clearance with trumpet interchange improvements
- Alternative C: Fixed span 100' vertical clearance (+/- 35' to be determined by the US Army Corps of Engineers (USACE) 408 Section and US Coast Guard (USCG)

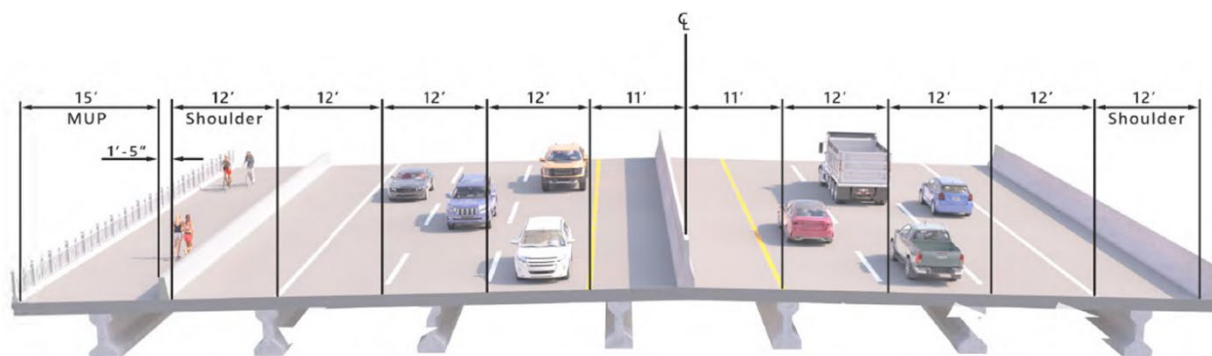


Image 1. Bridge Typical Section

Each alternative would slightly modify the existing eastern loop ramps at S Front Street and tie into the current one-way pair of Wooster Street and Dawson Street in downtown Wilmington. Across the river, the bridging of Eagles Island wetlands would extend to the US 17/US 76/US 421 interchange, with possible ramp modifications to that interchange with Alternative B.

2.3. Alternative Eliminated

In accordance with Section 14 of the Rivers and Harbors Act of 1899, 33 U.S.C. 408 (Section 408), NCDOT coordinated with USACE and USCG in May 2025. A Project Initiation Request (PIR) was provided to the USCG on February 20, 2024. A response was received on February 22, 2024 noting the project will require a USCG permit and NCDOT should prepare a Navigation Impact Report. The NCDOT Project Team prepared a Navigation Impact Report (see **Appendix A**) for the project discussing characteristics of waterways upstream, downstream and within the project study area, identifying and interviewing users of the waterway, and a discussion of potential impacts and improvements to navigation at the proposed bridge site. This report (submitted to USCG in June 2024) was used by USCG to inform their feedback on the proposed alternatives.

The North Carolina State Ports Authority in coordination with USACE is currently studying alternatives to improve navigation of the Wilmington Harbor, as part of the Wilmington Harbor Navigation Improvement Project. The Cape Fear Memorial Bridge is within the limits of the USACE Wilmington Harbor Project which requires coordination with the USACE Section 408 Consultation process. NCDOT submitted the project's Section 408 Application to USACE on January 16, 2025.

Based on a technical analysis and review performed by USACE, it was determined that the construction of a bridge with a vertical clearance less than 135-feet above the current Mean Higher High Water (MHHW) elevation would be injurious to the purposes of the federal project and the usefulness of the federal project would be negatively impacted (see **Appendix A**).²

Similarly, the USCG bridge permit decision is informed by USACE's determination under Section 408. In May 2025, USCG issued a Preliminary Navigation Clearance Determination (PNCD) for the project and determined that there were no foreseeable issues that would prevent a bridge permit from being issued

² Section 408 Letter and Section 408 Technical Analysis from Lt. Colonel Kenneth M. Porter, Acting Commander, US Army Corps of Engineers to Mr. Trevor Carroll, NCDOT. Letter May 15, 2025.

(see **Appendix A**). The PNCD is not binding and expires within three years. The USCG made a PNCD that a drawbridge or fixed bridge will provide for the current and prospective reasonable needs of navigation. The proposed drawbridge or fixed bridge should provide at least 135-feet of vertical clearance above the mean high water and at least 400-feet of horizontal clearance through the main navigation span of the bridge. If a drawbridge is proposed, the drawbridge should provide at least 65-feet of vertical clearance above the mean high water in the closed position. As such, Alternative C, which had a 100-foot vertical clearance, was eliminated from further evaluation, in collaboration with USCG, USACE, FHWA and NCDOT.³

2.4. Traffic Operations Analysis

A Capacity Analysis Report was prepared for the project in February 2024 to assess traffic conditions in the base year (2023) and build year (2050) in the no-build and build scenarios for Alternatives A and B. The Capacity Analysis Report can be found as **Appendix B**. Levels of service (LOS) for each intersection and network statistics for all scenarios can be found in **Table 1** and **Table 2**, respectively.

2023 No-Build Scenario

The 2023 No-Build scenario reflects the base year traffic volumes and roadway network configuration within the project study area and will serve as a “baseline” with which to compare with the future-year scenarios. Two freeway sections out of 12 operate at a Level of Service (LOS) E or F during each AM and PM peak hours. All intersections analyzed operated at an overall LOS D or better, indicating acceptable overall operations.

2050 Future Year No-Build Scenario

The 2050 No-Build scenario was performed to show the impacts on traffic operations of the projected traffic volumes in the project study area if no improvements are made to the roadway network. During the AM and PM peak hours, respectively, 7 of the 12 and 10 of the 12 freeway segments experienced LOS E or worse. All intersections had at least one lane group that was found to operate at LOS E or LOS F during either the AM or PM peak hours, with queuing focused on S Front Street, 3rd Street, Wooster Street, and US 17/76, extending outside the project study area network.

2050 Future Year Build Alternative A Scenario

The 2050 Build Alternative A scenario includes widening Cape Fear Memorial Bridge to six lanes. The new bridge is anticipated to be constructed to the south of its current location. This alternative also includes improvements to S Front Street including widening S Front Street to four lanes within the interchange of the interchange and improvements to the ramp terminals.

During the AM and PM peak hours, 6 of the 11 freeway segments experienced LOS E or worse. The overall LOS for the signalized intersections showed that one of the five signalized intersections operate below acceptable standards at a LOS E or worse in the AM peak hour and three of the five intersections

³ United States Coast Guard Preliminary Navigation Clearance Determination from Hall Pitts, USCG Bridge Program Manager to Mr. Trace Howell, NCDOT. Letter May 28, 2025.

operate below acceptable in the PM peak hour. Queuing is anticipated to occur on 3rd Street, extending outside the project study area network.

2050 Future Year Build Alternative B Scenario

The 2050 Build Alternative B scenario includes widening Cape Fear Memorial Bridge to six lanes and removing access at 3rd Street and 4th Street. The reduced direct access to 3rd Street and 4th Street was due to limitations in the roadway geometry as the bridge is anticipated to be constructed with a clearance of 135 feet versus the 65-foot clearance in Alternative A. The new Cape Fear Memorial Bridge is proposed to be constructed to the south of its current location. Due to the reduced access, turn lane improvements were proposed along S 5th Avenue and the removal of the road diet would be needed to provide a 4-lane typical section in order to accommodate future traffic volumes along this corridor. As part of this alternative, the S Front Street ramp intersections were reconfigured to allow the on and off ramps via one roundabout intersection to be located at the existing S Front Street and US 17/76 On Ramp. Additional modifications were included to allow vehicles traveling southbound on 3rd Street to access the Cape Fear Memorial Bridge directly, rather than having to utilize S 5th Avenue.

During the AM and PM peak hours, respectively, three of the 11 and two of the 11 freeway segments experienced LOS E or worse. The overall LOS for the signalized intersections shows that both signalized intersections operate below acceptable standards at a LOS E or worse in each the AM and PM peak hour, except the intersection of US 17/76 (Wooster Street) and S 5th Avenue during the AM peak hour. Two signalized intersections were removed as part of this alternative, helping to reduce delays along the corridor, as shown in **Table 2**. Queuing is anticipated on US 17/76 (Wooster Street) and S 5th Avenue, as well as on the northbound approach at the intersection of US 17/76 Ramps and S Front Street.

While vehicles are expected to be rerouted to utilize the adjacent roadway network outside of the approved study area due to the reduced direct access at 3rd Street and 4th Street, Alternative B provides the most improvement to freeway operations and queuing. Signal timing and / or other field adjustments could be considered at adjacent intersections outside of the study area once the project is complete, if needed. Based on NCDOT AADT mapping, most adjacent streets are City-maintained and/or do not have count stations; however, Castle Street had a most recent AADT of 4,500 vehicles per day (vpd) (2023). This indicates that this street likely has the daily capacity to accommodate additional volume. Additional analysis would be needed to determine traffic impacts external to the study area. See **Images 2 and 3** below, which display vehicle routing for Alternative B to and from the north and south. Yellow represents vehicles traveling from Brunswick County, and red represents vehicles traveling from New Hanover County.

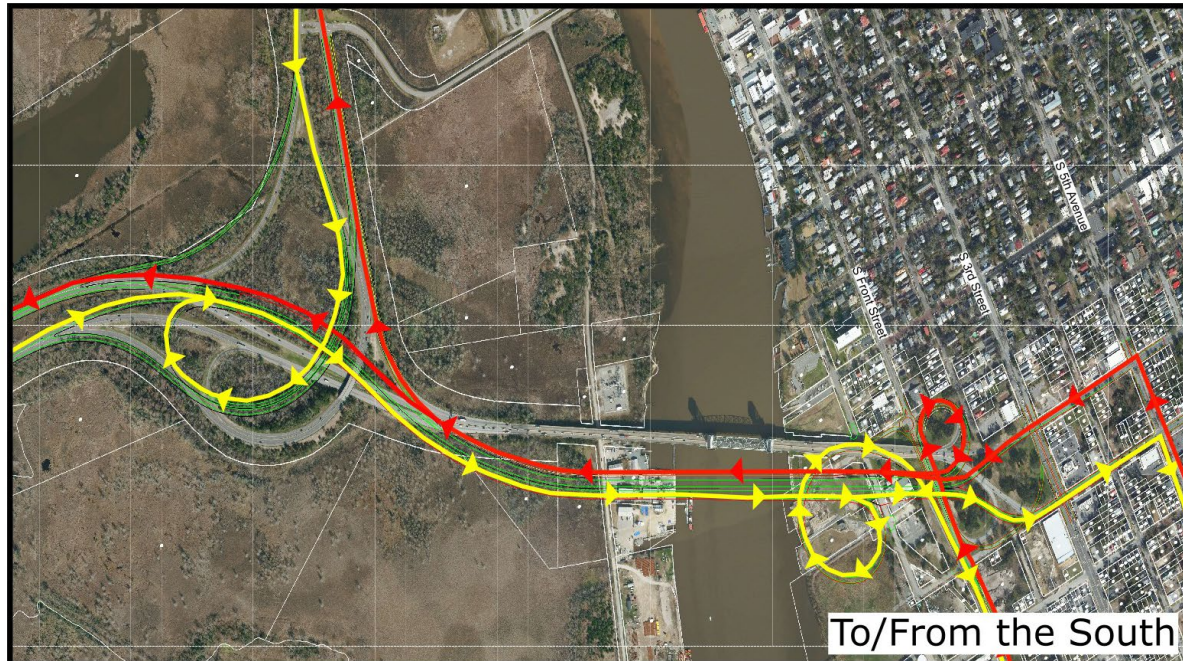


Image 2. Alternative B Routing - to/from the south

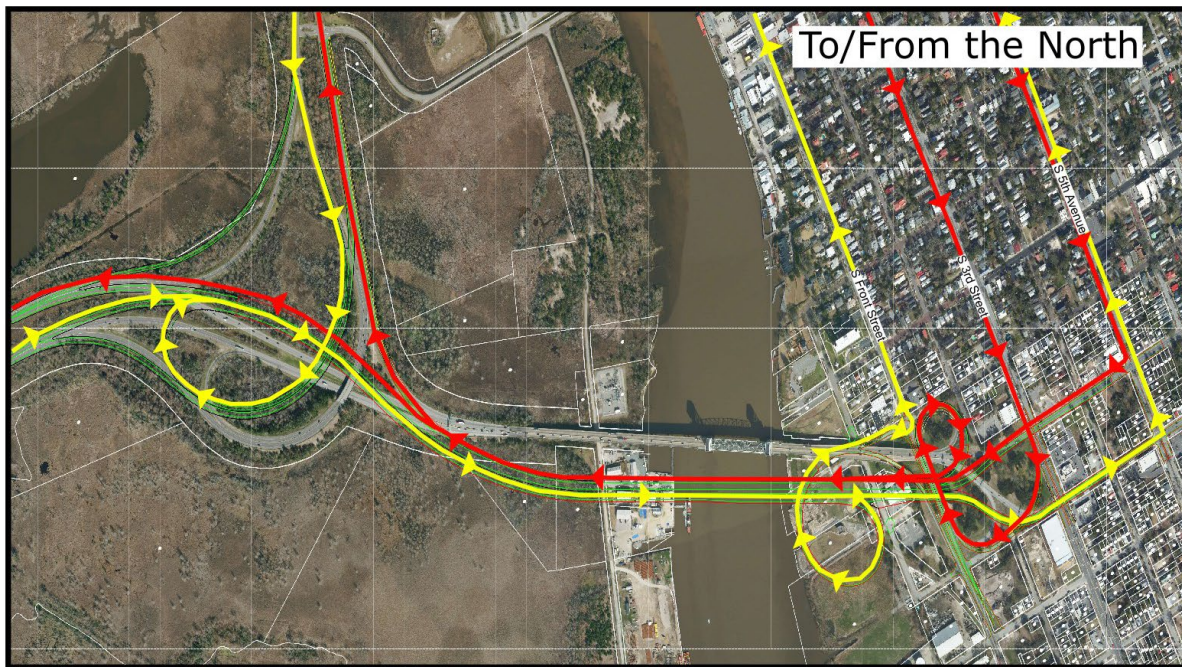


Image 3. Alternative B Routing - to/from the north

Table 1. Levels of Service

Intersection	No Build 2023		No Build 2050		Alternative A Build - 2050		Alternative B Build - 2050	
	LOS AM	LOS PM	LOS AM	LOS PM	LOS AM	LOS PM	LOS AM	LOS PM
US 17 BUS (S 3rd Street) & US 17 / 76 EB	C	C	E	F	E	F	N/A	N/A
US 17 / 76 (Wooster Street) & US 17 BUS (S 3 rd Street)	C	C	E	F	D	F	N/A	N/A
US 17 / 76 (Dawson Street) & S 5th Avenue	A	A	A	B	A	B	E	E
US 17 / 76 (Wooster Street) & S 5th Avenue	A	A	B	E	B	F	D	F
US 17 / 76 (Dawson Street) & S 4th Street	B	B	C	C	E	C	N/A	N/A
S Front Street & US 17 / 76 WB On-Ramp	N/A	N/A	N/A	N/A	A	B	N/A	N/A
S Front Street & US 17 / 76 EB Off-Ramp to NB Front	N/A	N/A	N/A	N/A	A	A	N/A	N/A
US 17 / 76 (Dawson Street) & S 4th Street	N/A	N/A	N/A	N/A	E	C	N/A	N/A
S Front Street & US 17 / 76 Ramps Roundabout	N/A	N/A	N/A	N/A	N/A	N/A	A	A

Table 2. Network Statistics

Peak Hour	No Build 2023		No Build 2050		Alternative A Build - 2050		Alternative B Build - 2050	
	Average Speed (mph)	Total Delay (hrs)	Average Speed (mph)	Total Delay (hrs)	Average Speed (mph)	Total Delay (hrs)	Average Speed (mph)	Total Delay (hrs)
AM	40.7	132.2	30.7	518.3	36.3	318.4	39.0	209.8
PM	39.5	163.6	30.1	796.6	35.1	519.1	35.6	389.4

2.5. Cost Estimates

Based on the 2025 NCDOT approved estimates, estimated costs are included in **Table 3** below. The cost estimates are preliminary and subject to change.

Table 3. Cost Estimates

Phase	Estimated Costs	
	Alternative A: 65-135’ Vertical Clearance Movable Structure	Alternative B: 135’ Vertical Clearance Fixed Structure
Right of Way	\$27,600,000	\$24,500,000
Utilities	\$1,600,000	\$3,000,000
Construction	\$1,081,500,000	\$1,002,300,000
Total	\$1,110,700,000	\$1,029,800,000

NOTE: All cost estimates are preliminary and subject to change.

3. Affected Environment and Environmental Consequences

This chapter describes existing conditions of the project study area and potential environmental consequences of the project for the natural environment, human environment and the physical environment. Impacts for each, by alternative, are described in the section below.

3.1. Natural Environment

This section describes the existing ecological conditions within the project study area and identifies resources that may be affected by the proposed project. Resources considered include water resources, floodplains/floodways, protected species, essential fish habitat, and anadromous fish habitat. The analysis provides the basis for assessing potential impacts and developing appropriate avoidance, minimization, and mitigation measures.

3.1.1. Water Resources

3.1.1.1. Waters of the United States

3.1.1.1.1 Existing Conditions

Water resources defined as Waters of the US are subject to regulation under Section 404 of the Clean Water Act. A Natural Resources Technical Report (NRTR) was completed for the project in October 2023. Water resources in the project study area are part of the Cape Fear River Basin (Hydrologic Unit Code 03030005). One stream, the Cape Fear River, and three wetlands were identified within the project study area. Waters of the United States and other Jurisdictional Features can be seen in **Figure 3.**

The Cape Fear River is designated by the USACE as a Navigable Water under Section 10 of the Rivers and Harbors Act. The portion of the Cape Fear River (AU segments 18-(71)a2a and 18-(71)a2b) within the project study area was identified on the North Carolina 2022 Final 303(d) list. The Brunswick River (AU segments 18-77a, and 18-77b), and Alligator Creek (AU Segment 29-33-1-1) located within one mile of the project study area were identified on the Final 2022 303(d) list.

The Jurisdictional Determination (USACE Action ID: SAW-2023-01730) was provided by USACE on July 31, 2024, which verified and agreed with the accuracy of the water resources delineated within the project study area.⁴

3.1.1.1.2 Alternative A Impacts

Impacts to both the Cape Fear River and wetlands are anticipated as part of the project. Based on a 40-foot buffer of the proposed roadway slope stakes, Alternative A is anticipated to impact approximately 1.2 acres of Section 404 wetlands.

Alternative A would require the removal of the existing Cape Fear Memorial Bridge which would result in temporary impacts to the river while the bridge is being demolished, especially the existing piers in the water. In addition, it would require new bents in the Cape Fear River for the new structure. The exact locations of the bents associated with the structure and subsequent quantifiable impacts to the Cape Fear River have not been produced at this time. Bridge design criteria have not been determined at the time of this document, and therefore exact permanent impacts cannot be quantified.

Construction activities associated with the project will follow NCDOT's Best Management Practices for Construction and Maintenance Activities (BMP-CMA) and Protection of Surface Waters (BMP-PSW).

3.1.1.1.3 Alternative B Impacts

Alternative B is anticipated to impact approximately 10.8 acres of Section 404 wetlands.

Alternative B would also require the removal of the existing Cape Fear Memorial Bridge, and new bents in the Cape Fear River for the new structure. As noted above, bridge design criteria have not been determined at the time of this document, and therefore exact permanent impacts cannot be quantified.

⁴ Notification of Jurisdictional Determination: USACE Action ID SAW-2023-01730 to NCDOT, Letter dated July 2024.

3.1.1.2. CAMA Wetlands

3.1.1.2.1 Existing Conditions

Both New Hanover and Brunswick counties are subject to the rules and policies of the Coastal Resources Commission, which administers the Coastal Area Management Act (CAMA). Two of the three Section 404 wetlands are also classified as CAMA Areas of Environmental Concern (AEC). Approximately 16 acres of CAMA wetlands are located within the project study area.

CAMA Areas of Environmental Concern were identified within the project study area. CAMA wetlands are present at wetland sites 8WA and 9WA (see **Figure 3**).

3.1.1.2.2 Alternative A Impacts

No impacts to CAMA wetlands are anticipated with Alternative A.

3.1.1.2.3 Alternative B Impacts

Alternative B impacts approximately 0.1 acres of CAMA wetlands.

3.1.2. Floodplains/Floodways

3.1.2.1. Existing Conditions

The Federal Emergency Management Agency (FEMA), in coordination with other federal agencies and local jurisdictions, establishes and maintains official floodplain and floodway boundaries. The limits of the 100-year floodplain and associated floodways are depicted on the applicable Flood Insurance Rate Maps (FIRMs).

A Hydraulic Planning Report was completed for the project in February 2024 (see **Appendix C**). The Cape Fear River falls within AE with Base Flood Elevations (BFE) of nine feet. The 100-year floodplain associated with the Cape Fear River falls within the project study area.

3.1.2.2. Alternative A Impacts

Based on a 40-foot buffer of the proposed slope stakes, Alternative A is anticipated to impact approximately 1.4 acres of 100-year floodplain. According to the project Hydraulic Planning Report (**Appendix C**), Alternative A is not hydraulically constrained.

The Hydraulics Unit will coordinate with the NC Floodplain Mapping Program (NCFMP), to determine status of the project with regard to applicability of NCDOT'S State Floodplain Compliance (SFC), or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR). An MOA (SFC) submittal is anticipated.

The project involves construction activities on or adjacent to FEMA-regulated stream(s). This requires the Division to submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structure(s) and roadway embankment that are located within the 100-year floodplain were built as shown in the construction plans, both horizontally and vertically.

3.1.2.3. Alternative B Impacts

Alternative B is anticipated to impact approximately 20.8 acres of 100-year floodplain. According to the project Hydraulic Planning Report (**Appendix C**), Alternative B is not hydraulically constrained.

This alternative will also require coordination with NCFMP, and submission of as-built construction plans to the Hydraulics Unit.

3.1.3. Protected Species

3.1.3.1. Existing Conditions

As of February 2026, there are 17 listed or proposed species under the United States Fish and Wildlife Service (USFWS) jurisdiction within the project study area according to the Information for Planning and Consultation (IPaC) database. Additionally, the National Marine Fisheries Service (NMFS), also known as National Oceanic and Atmospheric Administration (NOAA) Fisheries, lists the Green sea turtle, Kemp's Ridley sea turtle, Shortnose sturgeon, and Atlantic sturgeon. In addition, NMFS has identified the Cape Fear River as critical habitat for the Atlantic Sturgeon. **Table 4**, below, summarizes protected species found within the project study area. Additional information on protected species, habitat presence, and biological conclusions can be found in the NRTR and NRTR Update Memorandum, both of which are included in the project file.

Table 4. Federally Protected Species

Common Name	Scientific Name	Federal Status	Jurisdiction	Habitat Present	Biological Conclusion
Northern long-eared bat	<i>Myotis septentrionalis</i>	E	USFWS	Yes	MA-LAA
Tricolored bat	<i>Perimyotis subflavus</i>	PE	USFWS	Yes	MA-LAA
West Indian manatee	<i>Trichechus manatus</i>	T	USFWS	Yes	MA-NLAA
Piping plover	<i>Charadrius melodus</i>	T	USFWS	No	NE
Eastern Black Rail	<i>Laterallus jamaicensis jamaicensis</i>	T	USFWS	TBD	Unresolved
Red knot	<i>Calidris canutus rufa</i>	T	USFWS	No	NE
Red-cockaded woodpecker	<i>Picoides borealis</i>	E	USFWS	No	NE
American alligator	<i>Alligator mississippiensis</i>	T(S/A)	USFWS	Yes	NR
Green sea turtle	<i>Chelonia mydas</i>	T	USFWS/NMFS	No	NE
Southern Hognose Snake	<i>Heterodon simus</i>	PT	USFWS	TBD	NR
Magnificent Ramshorn	<i>Planorbella magnifica</i>	E	USFWS	No	NE
Monarch butterfly	<i>Danaus Plexippus</i>	PT	USFWS	TBD	NR

Common Name	Scientific Name	Federal Status	Jurisdiction	Habitat Present	Biological Conclusion
Kemp's Ridley sea turtle	<i>Lepidochelys kempii</i>	E	USFWS/NMFS	No	NE
Leatherback sea turtle	<i>Dermochelys coriacea</i>	E	USFWS/NMFS	No	NE
Loggerhead sea turtle	<i>Caretta caretta</i>	T	USFWS/NMFS	No	NE
Shortnose sturgeon	<i>Acipenser brevirostrum</i>	E	NMFS	Yes	MA-NLAA
Atlantic sturgeon	<i>Acipenser oxyrinchus oxyrinchus</i>	E	NMFS	Yes	MA-NLAA
Rough-leaved loosestrife	<i>Lysimachia asperulaefolia</i>	E	USFWS	Yes	NE

E – Endangered, PE – Proposed Endangered, T – Threatened, T(S/A) – Threatened due to Similarity of Appearance, PT – Proposed Threatened
 MA-LAA – May Affect – Likely to Adversely Affect, MA-NLAA – May Affect – Not Likely to Adversely Affect, NE – No Effect, NR – Not Required

3.1.3.2. Alternative A Impacts

Biological conclusions for each species are included in **Table 4** above and described below. Further information regarding the species and their habitats can be found within the NRTR and NRTR Update Memorandum in the project file.

Northern Long-eared Bat

Biological Conclusion: May Affect – Likely to Adversely Affect

The US Fish and Wildlife Service has issued a programmatic biological opinion (PBO) in conjunction with FHWA, USACE, and NCDOT for the northern long-eared bat (NLEB) (*Myotis septentrionalis*) in eastern North Carolina. The PBO covers the entire NCDOT program in Divisions 1-8, including all NCDOT projects and activities. Although this programmatic covers Divisions 1-8, The USFWS only considers NLEBs to be known or potentially found in 30 counties within Divisions 1-8. NCDOT, FHWA, and USACE have agreed to two conservation measures which will avoid/minimize mortality of NLEBs. These conservation measures only apply to the 30 current known/potential counties shown on Figure 2 of the PBO at this time. The programmatic determination for NLEB for the NCDOT program is *May Affect, Likely to Adversely Affect*. The PBO will ensure compliance with Section 7 of the Endangered Species Act for ten years (effective through December 31, 2030) for all NCDOT projects with a federal nexus in Divisions 1-8, which includes New Hanover and Brunswick Counties, where this project is located.

Tricolored Bat

Biological Conclusion: May Affect-Likely to Adversely Affect

The US Fish and Wildlife Service has issued a programmatic conference opinion (PCO) in conjunction with the Federal Highway Administration (FHWA), the US Army Corps of Engineers (USACE), and NCDOT for the tricolored bat (TCB) (*Perimyotis subflavus*) in eastern North Carolina. The PCO covers the entire NCDOT program in Divisions 1-8, including all NCDOT projects and activities. NCDOT, FHWA, and USACE have agreed to conservation measures which will avoid/minimize take to TCBs. These conservation measures apply to all counties in Divisions 1-8. The programmatic determination for TCB for the NCDOT program is **May Affect, Likely to Adversely Affect**. Once the TCB is officially listed, the PCO will become the

programmatic biological opinion (PBO) by formal request from FHWA and USACE. The PBO will ensure compliance with Section 7 of the Endangered Species Act for approximately five years (effective through December 31, 2028) for all NCDOT projects with a federal nexus in Divisions 1-8, which includes New Hanover and Brunswick Counties, where HB-0039 is located.

West Indian Manatee

Biological Conclusion: May Affect – Not Likely to Adversely Affect

West Indian manatees are found in canals, sluggish rivers, estuarine habitats, and saltwater bays. They utilize freshwater and marine habitats, mainly feeding on aquatic vegetation. The Cape Fear River is located in the project study area, therefore, habitat for the West Indian manatee is present. A review of NC Natural Heritage Program (NCNHP) records on September 11, 2023, indicates no known occurrences of the species within 1.0 mile of the project study area.

Eastern Black Rail

Biological Conclusion: Unresolved

Habitat for the Southern Black Rail is present within and adjacent to the project study area. A review of NCNHP records on February 23, 2026 indicates a known occurrence within the project study area. At the time of this document, surveys for the Eastern Black Rail have not been conducted. Surveys will be conducted prior to construction. Based on the presence of habitat and a known occurrence that overlaps the project study area, the Biological Conclusion is Unresolved for this species.

Southern Hognose Snake

Biological Conclusion: Unresolved

The southern hognose snake was proposed for federal listing under the Endangered Species Act (ESA) in August 2025. However, no regulatory protections will take effect until the listing is finalized. Until that time, proposed species do not receive formal ESA protections. However, federal action agencies are still required to ensure that their actions do not jeopardize the continued existence of the species. Federal action agencies may initiate consultation with the U.S. Fish and Wildlife Service (USFWS) to obtain a conference opinion. If and when the listing is finalized, and at the agency's request, the Service may adopt the conference opinion as a biological opinion—provided no relevant new information has emerged and no substantial changes to the proposed action have occurred.

Monarch Butterfly

Biological Conclusion: Not Required

USFWS proposed to list the monarch butterfly as a threatened species under the Endangered Species Act in December 2024. However, as of December 2025 the final decision has been delayed, and the status has been moved to "long-term action," meaning no final ruling is expected for at least another year. No regulatory protections will take effect until the listing is finalized. Until that time, proposed species do not receive formal ESA protections, though federal action agencies are still required to ensure that their actions do not jeopardize the continued existence of the species. Action agencies may initiate consultation with the USFWS to obtain a conference opinion. If and when the listing is finalized, and at the agency's request, the Service may adopt the conference opinion as a biological opinion—provided no relevant new information has emerged and no substantial changes to the proposed action have occurred.

Atlantic Sturgeon and Shortnose Sturgeon

Biological Conclusion: May Affect – Not Likely to Adversely Affect

The Cape Fear River is identified as Critical Habitat for the Atlantic Sturgeon by NMFS. NCDMF and NMFS have agreed to an in-water construction moratorium from February 15 through June 30 for the project, and as such, a Biological Conclusion of May Affect – Not Likely to Adversely Affect has been suggested for both species.

3.1.3.3. Alternative B Impacts

Both alternatives are anticipated to have the same biological conclusions for protected species.

3.1.4. Essential Fish Habitat

3.1.4.1. Existing Conditions

Essential Fish Habitat (EFH) is defined as “those waters and substrate necessary to fish for spawning, breeding, feeding or growth to maturity” in provisions added to the Magnuson-Stevens Fishery Conservation and Management Act (MSA) in 1996. The NMFS has identified Cape Fear River as an EFH. A consultation with NMFS is required when a federal agency works in an area that will affect EFH.⁵ **Table 5** below lists the fish species that may occur in the project study area that are managed by NMFS, including the life stages which are reported to occur.

Table 5. Managed fish species reported to occur in the project study area

Species	Life Stage
Summer flounder	Larva, Juvenile, Adult
Bluefish	Juvenile, Adult
Atlantic butterfish	Adult
Snapper Grouper	Larva, Juvenile, Adult

3.1.4.2. Alternative A Impacts

While exact locations are not known at this time, the bridge replacement for Alternative A could include footings to be placed within designated EFH. As such, it is anticipated FHWA will initiate the consultation prior to issuance of the final NEPA document, which is anticipated to be a Finding of No Significant Impact (FONSI).

3.1.4.3. Alternative B Impacts

Alternative B may also require footings to be placed within the designated EFH and would also require consultation with NOAA Fisheries.

3.1.5. Anadromous Fish Habitat

3.1.5.1. Existing Conditions

Anadromous fish are those that migrate from saltwater to freshwater to spawn. The Cape Fear River has been designated as an anadromous fish spawning area by NCDMF and the North Carolina Wildlife

⁵ NOAA Fisheries. Consultations for Essential Fish Habitat. Web. <https://www.fisheries.noaa.gov/national/habitat-conservation/consultations-essential-fish-habitat>

Resource Commission (NCWRC). NCDMF has also identified the Cape Fear River as a Primary Nursery Area (PNA).

3.1.5.2. Alternative A Impacts

The Cape Fear River has been designated as an anadromous fish spawning area by NCDMF and NCWRC. As a result, an in-water construction moratorium will be in effect from February 15 to June 30.

3.1.5.3. Alternative B Impacts

Anticipated impacts to Anadromous Fish Habitat for Alternative B are the same as Alternative A. The in-water construction moratorium also applies.

3.2. Human Environment

This section describes the existing human environment within the project study area and identifies resources that may be affected by the proposed project. Resources considered include community characteristics and resources, cultural resources, Section 4(f), traffic noise, air quality, complete streets, access, tolling, hazardous materials, and conservation lands. This section provides the basis for assessing potential impacts and developing appropriate avoidance, minimization, and mitigation measures.

3.2.1. Community Impacts

A Community Characteristics Report (CCR) was completed for the project in February 2024 (see **Appendix D**). Demographic data was gathered and assessed for the demographic study area, including all census blocks within the project study area (see **Image 4**).

Historical American Census Survey (ACS) data was used to compare population changes from 2007 to 2021. The demographic study area experienced a 0.5% annualized growth increase on average compared to New Hanover County (1.2%) and Brunswick County (2.4%) during this time period. A majority of the block groups within the demographic study area saw a decrease in growth with the exception of Census Tract (CT) 202.05 Block Group (BG) 3, CT 113 BG 2, and CT 115.03 BG 2, which had annualized growth rates of 5.0%, 9.8%, and 1.1% respectively.

Census data does not indicate Limited English Proficiency (LEP) populations meeting the US Department of Justice LEP Safe Harbor threshold, but does indicate an Asian/Pacific language-speaking population exceeding 50 persons within the Demographic Study Area that may require language assistance. This

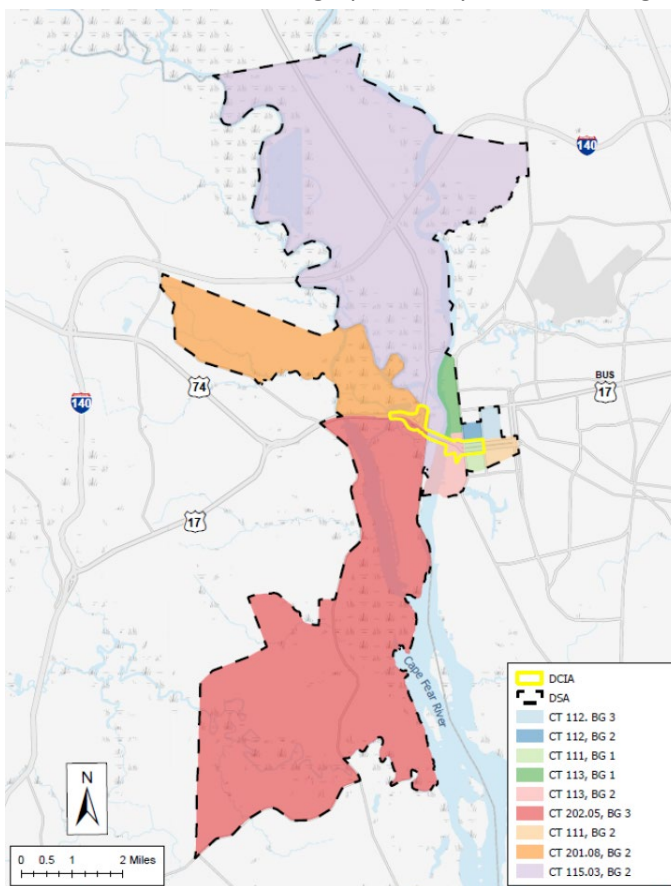


Image 4. Demographic Study Area

population is within the Direct Community Impact Area, located in downtown Wilmington north of the bridge, just east of South 3rd Street.

According to the Wilmington Urban Area Metropolitan Planning Organization (WMPO) Cape Fear Navigating Change 2050 Metropolitan Transportation Plan (MTP), the region has experienced continuous growth since 2021.⁶ Main contributors to continued growth include tourism, industrial developments such as the Leland Innovation Park and Gateway District, the Port of Wilmington, and the current transportation network with railroad, roadway, and Port connections. The NC Department of Commerce estimates projected employment in the Wilmington area (including Brunswick, New Hanover, and Pender counties) will grow 12% between 2022 and 2032, or an annual 1.1% growth rate.⁷ This ranks second statewide behind Raleigh-Durham (1.2%) and matches the Charlotte region’s projected growth rate.

3.2.1.1. Relocations and Right of Way

Based on the functional designs for each alternative and 2025 NCDOT estimates, **Table 6** summarizes the anticipated right of way (ROW) and temporary construction easements (TCE) needed for the project as well as the number of residential and commercial property impacts. Some properties will only have a portion of their land permanently or temporarily needed, but for others, permanent relocation may be necessary.

Table 6. Relocations and Right of Way Impacts

Impact Category	Measure	Alternative A	Alternative B
Right of Way Impacts	ROW (acres)	17.2	19.5
	TCE (acres)	0.3	6.1
	Total (acres)	17.5	25.6
Parcel Impacts	Impacted Parcels (#)	22	63
Relocations	Potential Business Relocations (#)	3	2
	Potential Residential Relocations (#)	0	2
	Total Potential Relocations (#)	3	4

3.2.1.1.1 Alternative A Impacts

As noted in **Table 6**, Alternative A is anticipated to result in the relocation of 3 businesses.

Both alternatives result in the same right of way impacts in Brunswick County south of the interchange. North of the interchange, Alternative B will incur additional impact to the New Hanover Soil and Water Conservation District. For both Alternatives within New Hanover County, multiple parcels are affected along the approach into downtown Wilmington due to construction of the proposed bridge structure. Coordination with affected residents and businesses will be maintained throughout the design and development phases.

⁶ Wilmington Urban Area MPO. Cape Fear Navigating Change 2050. Web. October 29, 2025. <https://www.wmpo.org/mtp/>
⁷ NC Department of Commerce. Industry Projects, Wilmington. Web. <https://analytics.nccommerce.com/projections/ind/#>

3.2.1.1.2 *Alternative B Impacts*

Alternative B is anticipated to result in two business relocations and two residential relocations.

3.2.1.2. Community Resources

3.2.1.2.1 *Existing Conditions*

As the project is located in downtown Wilmington, the project study area contains a number of community resources, including, but not limited to, places of worship, businesses, restaurants, and daycare centers. The CCR (**Appendix D**) included a review of community resources within the project study area. This includes Healing Waters Holy Temple Church, Grandma & Grandpa's Childcare, Davis Funeral Home, and most notably, the Dollar General which serves as a shopping destination for the community and likely serves as a primary grocery store for the area.

Gullah Geechee Cultural Heritage Corridor

The Gullah Geechee are descendants of enslaved Africans who retained common tribal customs from their homelands and blended these traditions with “American” and Christian practices to form distinct cultural traditions in the form of language, arts, crafts, spirituality, and food.⁸ The Gullah Geechee Cultural Heritage Corridor, established by an act of Congress in 2006, spans from Florida to Wilmington (including the project study area) and is a National Heritage Area with a stated purpose to “preserve, share, and interpret the history, traditional cultural practices, heritage sites, and natural resources associated with Gullah Geechee people of coastal North Carolina, South Carolina, Georgia and Florida.”^{9,10} There are several sites associated with the corridor in downtown Wilmington just outside of the project study area.¹¹



Image 5. Gullah Geechee Cultural Heritage Corridor⁵

Several plantations were located on Eagles Island which were used for cotton shipping, shipbuilding, and rice cultivation by enslaved Gullah Geechee. The northernmost 2,000 acres of Eagles Island are the former site of rice fields and 45 irrigation devices have been identified which were developed by

⁸ Gullah Geechee Cultural Corridor. Web. 2025. <https://gullahgeecheecorridor.org/>

⁹ Hilton Head Island. Our Plan 2020-2040. Web. October 2020.

https://hiltonheadislandsc.gov/government/initiatives/comprehensive_plan/index.php

¹⁰ Carolina Public Press. “Park Service to support Gullah Geechee corridor project.” July 21, 2021. Web.

<https://carolinapublicpress.org/47086/park-service-to-support-gullah-geechee-corridor-project/>

¹¹ Interactive Map of Gullah Geechee and Historic Resources. Web. 2025. <https://gullahgeecheecorridor.org/interactive-map-of-gullah-geechee-cultural-and-historic-resources/>

enslaved Gullah Geechee.^{12,13} Researchers have found a network of floodgates, bulkheads, landings, and canal systems in this area, all constructed for rice cultivation by the Gullah Geechee. This area falls outside of the project study area and is not anticipated to be impacted by the project. WMPO in partnership with NCDOT Integrated Mobility Division, Brunswick County, Town of Navassa, and Town of Leland completed the *Gullah Geechee Heritage Trail Feasibility Study* which identifies a recommended alignment for the trail in Brunswick County. The alignment is west of the Brunswick River, running from Navassa in the north to Leland and Brunswick Nature Park in the south.¹⁴ The Study details the proposed alignment and associated typical sections, recommended trail amenities, and potential funding sources.

3.2.1.2.2 *Alternative A Impacts*

One community resource, the Dollar General store located at 406 Dawson Street, will be impacted by Alternative A. The Dollar General serves as a shopping destination for the community which likely serves as a grocery store for the area.

3.2.1.2.3 *Alternative B Impacts*

The Dollar General store will also be impacted by Alternative B.

3.2.2. Cultural Resources

The proposed project is subject to compliance with Section 106 of the National Historic Preservation Act (NHPA), as amended (54 U.S.C. § 300101 et seq.). Section 106 requires federal agencies to take into account the effects of their undertakings on historic properties listed in or eligible for listing in the National Register of Historic Places (NRHP). The review process requires consultation with the State Historic Preservation Office (SHPO), Tribal Historic Preservation Officers (THPOs), as appropriate, and other consulting parties. In North Carolina, the SHPO addresses architectural resources in its Historic Preservation Office (HPO) and archaeological resources in the Office of the State Archaeologist (OSA). Federal agencies must also afford the Advisory Council on Historic Preservation (ACHP) a reasonable opportunity to comment on the undertaking's effects on historic properties, and the ACHP may choose to participate in the resolution of any adverse effects under Section 106 process at its discretion.

Tribal coordination was initiated with the Catawba Indian Nation on August 30, 2023. A response was received on October 3, 2023, noting no immediate concerns but the Catawba should be notified if Native American artifacts and/or human remains are located during ground disturbance for the project. See **Appendix E** for the tribal coordination letter and response.

Consulting party letters were sent on March 15, 2024 to the ACHP, Eagles Island Coalition Conservation Planning Committee, Gullah Geechee Cultural Heritage Corridor Commission, Historic Wilmington Foundation, Inc., National Park Service, Cape Fear River Watch, USS North Carolina Battleship Commission, and the Wilmington Historic Preservation Commission.

¹² The Guardian, Walker, Adria. "'I didn't realize the role rice played': the ingenious crop cultivation of the Gullah Geechee people". December 2024. Web. <https://www.theguardian.com/news/2024/dec/21/gullah-geechee-rice-fields-north-carolina>

¹³ Wrightsville Beach Magazine. Carolina Gold. Web. September 26, 2024. https://www.wrightsvillebeachmagazine.com/archive/carolina-gold/article_0132eebc-0333-5411-b4d6-b8a7d5add38d.html

¹⁴ WMPO. Gullah Geechee Heritage Trail Feasibility Study. Web. July 2024. <https://www.wmpo.org/wp-content/uploads/2023/06/Gullah-Geechee-Heritage-Trail-Feasibility-Study.pdf>

3.2.2.1. Summary of Resources

3.2.2.1.1 Existing Conditions

According to the Effects Required form prepared for the project in August 2023 (see **Appendix E**), the project study area falls within the NRHP-listed Wilmington Historic District. The existing Cape Fear Memorial Bridge is a contributing resource within this district and has been recommended for individual eligibility as well. Many other structures in downtown Wilmington are also considered contributing resources. Additionally, the USS North Carolina Battleship, a NRHP-listed resource and National Historic Landmark (NHL), is located approximately 0.6 miles north of the project on the west side of the Cape Fear River, within the viewshed of the existing and proposed bridges.

NCDOT Archaeology conducted a screening of the project on August 4, 2023, and issued a No Archaeological Survey Required Form as a majority of the project study area has already been surveyed for other adjacent projects (terrestrial and underwater). Over forty archaeological sites have been recorded within 1/2 mile of the proposed project, most of which are elements of the Wilmington Historic Shipwreck District, which falls within the boundary for the NRHP-listed Wilmington Historic District. Notably, two shipwrecks fall within the project study area – BW1113 – Little Barge and BW1114 – Government Barge) on the west bank of the Cape Fear River north of US 421.

3.2.2.1.2 Alternative A Impacts

A Section 106 Effects Meeting was held for the project on August 28, 2025, where NCDOT, NCHPO, FHWA, and USACE were in attendance. It was determined the project would have an adverse effect on the existing Cape Fear Memorial Bridge, which is a contributing resource, as both action alternatives would include its demolition as part of the bridge replacement project. Effect findings were not made for the Wilmington Historic District or USS North Carolina. The agencies agreed that final effects findings for those resources would be premature at this time for the following reasons: 1) design modifications are ongoing in order to avoid or minimize effects to historic properties, 2) additional discussions with consulting parties have yet to occur, and 3) effects are contingent on which action alternative is chosen, which will not be known until after completion of this EA.

Given these complexities, NCDOT, FHWA, and NCHPO have agreed to enter into a project-level Section 106 Programmatic Agreement (PA). A PA is appropriate when it is difficult to fully determine how a particular undertaking may affect historic properties prior to making a decision. The intent of the PA is to continue to work toward avoiding and minimizing adverse effects to historic properties to the greatest extent possible while meeting the project's purpose and need, and to have an agreed upon framework to resolve any adverse effects that may be unavoidable. The PA will be executed prior to the anticipated FONSI. The PA will outline procedures, roles and responsibilities, and continued consultation through final design, right of way and construction.

According to the NCDOT Archaeology No Survey Required form, there is a low probability for significant prehistoric and/or historic archaeological materials to be present within the project study area and unlikely to contain intact and significant archaeological resources. Design plans, once available, should be provided to NCDOT Archaeology as additional consultation is required due to the presence of known resources along the west bank of the river.

3.2.2.1.3 *Alternative B Impacts*

During the initial round of public involvement, historic property impacts were noted as a primary concern by members of the public. Alternative B as presented to the public was anticipated to impact 63 properties, many of which are located in the Downtown Wilmington Historic District.

Following the public comment period, avoidance and minimization measures were implemented for Alternative B. This included reducing the size of the ramp near Queen Street and the addition of a retaining wall to avoid the potential need to acquire right of way from parcels located near the intersection of Queen Street and 2nd Street, many of which have been determined to contribute to the historic district. Based on the preliminary design, Alternative B is not anticipated to impact any of the contributing structures within the Downtown Wilmington Historic District.

The project will proceed through the Section 106 PA regardless of alternative, which, as noted above, will outline procedures, responsibilities, and continued consultation through construction.

3.2.2.2. Visual Elements

3.2.2.2.1 *Existing Conditions*

The FHWA Guidelines for the Visual Impact Assessment of Highway Projects (FHWA 2015)¹⁵ was referenced as guidance in conducting analyses related to visual and aesthetic conditions and impacts of the proposed project. The FHWA guidelines recognize three types of visual perception that determine the visual quality. Visual quality is evaluated by identifying the vividness, intactness, and unity in the project. The three criteria for evaluating visual quality include Natural Harmony, Cultural Order and Project Coherence.

The project study area is located partially within the Wilmington Historic District east of the Cape Fear River. The current visual setting is characterized by a mixture of preserved historic homes including 19th and 20th-century buildings, brick-lined streets and sidewalks, street trees, and ornamental light fixtures. Many of the homes in the district have ground-level porches, ornamental trim, and recessed doors underneath a canopy over the porch. The district has a mix of uses; including residential homes, shops, restaurants, galleries, and small offices. The City of Wilmington maintains *Design Standards for Historic Districts and Landmarks*, which includes guidelines on landscaping, buildings, signs, and more, to promote historic preservation and character.¹⁶ The existing bridge cannot be seen from entire historic district but can be seen along the Wilmington Riverwalk and buildings along South Water Street. The Wilmington Riverwalk runs parallel to the Cape

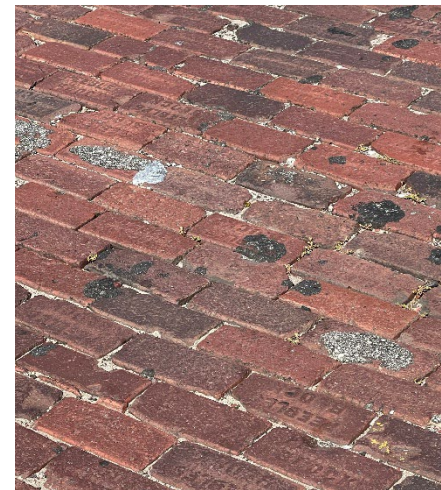


Image 6. Brick-lined street located in Wilmington Historic District

¹⁵ FHWA Guidelines for the Visual Impact Assessment of Highway Projects, January 2015.

https://www.environment.fhwa.dot.gov/env_topics/other_topics/VIA_Guidelines_for_Highway_Projects.aspx

¹⁶ City of Wilmington. *Design Standards for Historic Districts and Landmarks*. Web. February 8, 2024.

<https://www.wilmingtonnc.gov/files/assets/city/v/3/development-amp-business/documents/historic-preservation/historic-districts-design-standards.pdf>

Fear River and serves as a primary pedestrian corridor with unobstructed views of the existing Cape Fear Memorial Bridge to the south, and partially obstructed views of USS North Carolina and Isabel Holmes Bridge to the north.

The USS North Carolina Battleship is approximately 0.6 miles from the base of the existing bridge structure on the west side of the Cape Fear River. At present, the existing bridge towers are partially visible from the dock leading onto the Battleship and from the deck of the Battleship. There are vegetation and trees partially blocking the viewshed from the Battleship to the bridge. Additionally, the bridge is visible from the Battleship when in the raised position, at 135 feet of vertical clearance above MHHW.

3.2.2.2.2 Alternative A Impacts

Because Alternative A would replace the existing bridge with a movable span of the same type and maintain the same vertical clearance, no changes in visual impacts are anticipated from the Wilmington Historic District or the USS North Carolina.

3.2.2.2.3 Alternative B Impacts

For Alternative B, the bottom of the bridge superstructure would be set at an elevation of 135 feet above MHHW to satisfy the vertical clearance requirements established by the USCG PNCD. The total depth of the superstructure has not yet been determined; however, it would add to the overall bridge height and would influence views from the USS North Carolina and portions of the Wilmington Historic District.

Additionally, while avoidance and minimization measures were implemented with Alternative B to avoid historic homes on Queen Street and 2nd Street, these resulted in the addition of a retaining wall that will affect views from these homes, which are currently primarily comprised of vegetation, overhead power lines, and the Cape Fear Memorial Bridge on-ramp from S Front Street. The retaining wall is located along the westbound bridge loop ramp, generally in the vicinity of Queen Street and S 2nd Street. With this proposed Alternative, views from the homes would primarily be of the retaining wall, subject to aesthetic enhancements anticipated to be included in the PA.

3.2.3. Section 4(f)/Land and Water Conservation Fund (LWCF)

3.2.3.1. Section 4(f)

Section 4(f) of the U.S. Department of Transportation Act of 1966 establishes protections for publicly owned parks, recreation areas, wildlife and waterfowl refuges, and public or private historic sites of national, state, or local significance eligible or listed on the NRHP.

3.2.3.1.1 Existing Conditions

Cultural resources eligible or listed on the NRHP are described above in **Section 3.2.2.**

Dram Tree Park is located partially within the project study area and adjacent to the current bridge alignment on the north side of the Cape Fear River accessed from Surry Street. The park is located on three acres and includes a parking area and boat ramp providing year-round access to the Cape Fear River.

3.2.3.1.2 Alternative A Impacts

As noted above, NCDOT and FHWA have agreed to enter into a project-level Section 106 PA. Proposed demolition of the existing Cape Fear Memorial Bridge, which has been determined to be individually NRHP-eligible as well as a contributing element of the NRHP-listed Wilmington Historic District, would constitute a ‘use’ as defined in USDOT Section 4(f) regulations. It is anticipated that FHWA would apply its Programmatic Section 4(f) Evaluation and Approval for FHWA Projects that Necessitate the Use of Historic Bridges.

Other than the existing Cape Fear Memorial Bridge, current efforts to avoid and minimize effects to historic properties have resulted in designs that do not require acquisition of easements or right of way parcels that could be considered a Section 4(f) ‘use.’ Additionally, FHWA has reviewed current project design and does not anticipate that any indirect impacts to historic properties would rise to a level of Section 4(f) ‘constructive use,’ i.e. – be of such magnitude as to effectively act as a permanent incorporation of the historic property into the transportation facility.

As NCDOT, FHWA, NCHPO, and other potential consulting parties fulfill the stipulations of the Section 106 PA, they will continue to assess how effect findings for historic properties inform FHWA’s Section 4(f) analysis. The PA is currently underway and will be finalized prior to issuance of the anticipated FONSI, along with Section 4(f) determinations for the project as applicable.

Alternative A is located to the south of the existing bridge in an effort to avoid impacts to Dram Tree Park. No impacts are anticipated to the park with Alternative A.

3.2.3.1.3 Alternative B Impacts

As noted above, all impacts to NRHP resources will be identified through the Section 106 PA process.

Alternative B is located to the south of the existing bridge in an effort to avoid impacts to Dram Tree Park. No impacts are anticipated to the park with Alternative B.

3.2.3.2. LWCF Stewardship Protections

Section 6(f) of the Land and Water Conservation Fund (LWCF) Act of 1965 protects public outdoor recreation resources acquired or developed with LWCF grants.

3.2.3.2.1 Existing Conditions

Dram Tree Park received \$51,250 in LWCF funds in 1982, making it eligible for Section 6(f) protections.¹⁷

3.2.3.2.2 Alternative A Impacts

No impacts are anticipated to Dram Tree Park with Alternative A due to early project avoidance and minimization.

3.2.3.2.3 Alternative B Impacts

No impacts are anticipated to Dram Tree Park with Alternative B due to early project avoidance and minimization.

¹⁷ The Land and Water Conservation Fund. Past Projects Map. Web. 2026. <https://lwcf.tplgis.org/mappast/>

3.2.4. Traffic Noise

3.2.4.1. Existing Conditions

In accordance with Title 23 Code of Federal Regulations (CFR) Part 772, Procedures for Abatement of Highway Traffic Noise and Construction Noise and the North Carolina Department of Transportation Traffic Noise Policy, a Type I highway project must be analyzed for predicted traffic noise impacts. In general, Type I projects are proposed State or Federal highway projects that construct a highway on new location, add new through lanes to an existing highway, substantially change the horizontal or vertical alignment of an existing highway, add an auxiliary lane 2,500 feet long or longer, add or relocate interchange ramps or loops to complete an existing partial interchange, or involve new construction or substantial alteration of transportation facilities such as weigh stations, rest stops, ride-share lots or toll plazas.

3.2.4.2. Alternative A Impacts

Traffic noise impacts are determined through implementing the current Traffic Noise Model (TNM®) approved by FHWA and following procedures detailed in Title 23 CFR 772, the NCDOT Traffic Noise Policy and the NCDOT Traffic Noise Manual. Measures for reducing noise levels must be considered everywhere where traffic noise impacts occur. Construction noise impacts may occur if noise-sensitive receptors are in proximity to project construction activities. All reasonable efforts should be made to minimize exposure of noise sensitive areas to construction noise impacts. Additional information on traffic noise impacts can be found in the project's Traffic Noise Report (see project file).

The number of noise sensitive receptors in Alternative A predicted to become impacted by future traffic noise is shown in the table below. **Table 7** includes those receptors expected to experience traffic noise impacts by either approaching or exceeding the FHWA Noise Abatement Criteria or by a substantial increase in exterior noise levels as defined in the NCDOT Traffic Noise Policy.

Table 7. Predicted Traffic Noise Impacts for Alternative A

	Traffic Noise Impacts ¹			
Alternative	Residential (NAC B)	Places of Worship/Schools, Parks, etc. (NAC C & D)	Businesses (NAC E)	Total
Build Alternative A	49	0	1	50

1. Per TNM 2.5 and in accordance with 23 CFR Part 772 and the NCDOT Traffic Noise Policy

Traffic Noise Abatement Measures

Measures for reducing traffic noise levels were considered for all impacted receptors in each alternative. The primary noise abatement measures evaluated for highway projects include noise barriers, i.e., earth berms or noise walls. Noise barriers that preliminarily meet the feasibility and reasonableness criteria in the NCDOT Traffic Noise Policy are considered likely to be constructed. For noise barriers, benefits versus allowable abatement quantity, engineering feasibility, and acoustic effectiveness were included in the noise abatement considerations.

Other measures that may be considered where applicable are highway alignment changes, traffic system management measures, and noise insulation (NAC D only). Substantially changing the highway alignment to minimize noise impacts is not considered to be a viable option for this project due to engineering and/or environmental factors. Traffic system management measures are not considered viable for noise abatement due to the negative impact they would have on the capacity and level of service of the proposed roadway.

Noise Barriers

Noise barriers include two basic types: earthen berms and noise walls. These structures act to diffract, absorb and reflect highway traffic noise. Earthen berms are typically not found to be a viable abatement measure because the additional right of way, materials and construction costs are estimated to exceed the NCDOT maximum allowable base quantity of 4,200 cubic yards per benefited receptor plus an incremental increase as defined in the NCDOT Traffic Noise Policy.

Evaluation of noise barriers in the form of noise walls was conducted for this project utilizing the Traffic Noise Model (TNM 2.5) software developed by the FHWA. The following table summarizes the results of the evaluation for Alternative A.

Table 8. Preliminary Noise Barrier Evaluation Results for Alternative A

Alternative/ NSA	Noise Barrier and Location Description	Length / Height ¹ (feet)	Square Footage	Number of Benefited Receptors	Square Feet per Benefited Receptor / Allowable Square Feet per Benefited Receptor	Preliminarily Feasible and Reasonable ("Likely") for Construction ²
Alt. A/ NSA 03	NW03 – Along Outer Shoulder of the Off-Ramp from NB S Front St. to Cape Fear Memorial Bridge	330 ft / 14 ft	4,514	4	1,129 / 1,500	Yes
Alt. A/ NSA 10	NW10 – Along outer shoulder of EB US 17/76/421 ramps connecting to 3rd St and S Front St	590 ft / 16 ft	9,325	9	1,036 / 1,500	Yes

¹Average wall height. Actual wall height at any given location may be higher or lower.

²The likelihood of a barrier's construction is preliminary and subject to change, pending completion of final design and the public involvement process.

Summary

A preliminary traffic noise evaluation was performed, and two noise barriers preliminarily meet the feasibility and reasonableness criteria found in the NCDOT Traffic Noise Policy and are therefore considered likely to be constructed for Alternative A. A more detailed analysis will be completed during project final design. Noise barriers preliminarily found to be feasible and reasonable during the preliminary noise analysis may not be found to be feasible and reasonable during the final design noise analysis due to changes in design, traffic conditions, utilities, surrounding land use development, or other factors. Conversely, noise barriers that preliminarily were not considered feasible and reasonable may in final design be found to meet the feasibility and reasonableness criteria and be recommended for construction.

In accordance with the NCDOT Traffic Noise Policy, Federal/State governments are not responsible for providing noise abatement measures for new development for which building permits are issued after the Date of Public Knowledge. The Date of Public Knowledge of the proposed highway project will be the approval date of the anticipated FONSI. NCDOT strongly advocates the planning, design and construction of noise-compatible development and encourages its practice among planners, building officials, developers and others.

3.2.4.3. Alternative B Impacts

The number of noise sensitive receptors in Alternative B predicted to become impacted by future traffic noise is shown in the table below. **Table 9** includes those receptors expected to experience traffic noise impacts by either approaching or exceeding the FHWA Noise Abatement Criteria or by a substantial increase in exterior noise levels as defined in the NCDOT Traffic Noise Policy. Additional information on traffic noise impacts can be found in the project's Traffic Noise Report (see project file).

Table 9. Predicted Traffic Noise Impacts for Alternative B

	Traffic Noise Impacts ¹			
Alternative	Residential (NAC B)	Places of Worship/Schools, Parks, etc. (NAC C & D)	Businesses (NAC E)	Total
Build Alternative B	102	0	0	102

1. Per TNM 2.5 and in accordance with 23 CFR Part 772 and the NCDOT Traffic Noise Policy

In addition, it should be noted that the Battleship North Carolina is not predicted to be impacted by traffic noise under either Build Alternative.

Traffic Noise Abatement Measures

As noted above, measures for reducing traffic noise levels were considered for all impacted receptors in each alternative.

Noise Barriers

The following table summarizes the results of the evaluation for Alternative B.

Table 10. Preliminary Noise Barrier Evaluation Results for Alternative B

Alternative/ NSA	Noise Barrier and Location Description	Length / Height ¹ (feet)	Square Footage	Number of Benefited Receptors	Square Feet per Benefited Receptor / Allowable Square Feet per Benefited Receptor	Preliminarily Feasible and Reasonable ("Likely") for Construction ²
Alt. B/ NSA 09	NW09– South of westbound US Hwy 17/76/421	818 ft / 10 ft	8,176	0	N/A ³	No ³

¹Average wall height. Actual wall height at any given location may be higher or lower.

²The likelihood of a barrier's construction is preliminary and subject to change, pending completion of final design and the public involvement process.

³Barrier is not feasible due to an inability to achieve a minimum of 5 dB(A) of noise reduction for at least two impacted receptors.

Summary

A preliminary traffic noise evaluation was performed, and no noise barriers were evaluated to potentially benefit predicted impacts for Alternative B. Noise barriers for Alternative B do not meet the feasibility and reasonableness criteria and are unlikely to be constructed. A more detailed analysis will be completed during project final design.

3.2.5. Air Quality

3.2.5.1. Existing Conditions

A Qualitative Air Quality Analysis Report was prepared for the project and can be found in the project file. Air pollution originates from various sources. Emissions from industry and internal combustion engines are the most prevalent sources. The impact resulting from highway construction ranges from intensifying existing pollution problems to improving ambient air quality. Changing traffic patterns are a primary concern when determining the impact of a new highway or bridge facility. Motor vehicles emit carbon monoxide (CO), nitrogen oxide (NO), hydrocarbons (HC), particulate matter, sulfur dioxide (SO₂), and lead (Pb).

The Federal Clean Air Act of 1970 established the National Ambient Air Quality Standards (NAAQS). These were established in order to protect the public health, safety and welfare from known or anticipated effects of air pollutants. The NAAQS contain criteria for SO₂, particulate matter, CO, nitrogen dioxide (NO₂), ozone (O₃), and Pb.

The primary pollutants from motor vehicles are unburned HC, NO_x, and particulates. HC and NO_x can combine in a series of reactions catalyzed by sunlight to produce photochemical oxidants such as O₃ and NO₂. Because these reactions take place over a period of several hours, maximum concentrations of

photochemical oxidants are often found far downwind of precursor sources. These pollutants are considered regional problems.

The project is located in Brunswick and New Hanover Counties, which complies with the National Ambient Air Quality Standards. The proposed project is located in an attainment / unclassified area; therefore, 40 CFR Parts 51 and 93 are not applicable.

3.2.5.2. Alternative A Impacts

Vehicles are a major contributor to decreased air quality because they emit a variety of pollutants into the air. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. New highways or the widening of existing highways increase localized levels of vehicle emissions, but these increases could be offset due to increases in speeds from reductions in congestion and because vehicle emissions will decrease in areas where traffic shifts to the new roadway. Progress has been made in reducing criteria for pollutant emissions from motor vehicles and improving air quality, even as vehicle travel has increased. The proposed project is located in New Hanover and Brunswick Counties, which is in attainment with the NAAQS. Therefore, the proposed project is not expected to create any adverse effects on air pollutants. Adverse effects are also not anticipated for Alternative A mobile source air toxics due to their projected substantial decrease over time.

3.2.5.3. Alternative B Impacts

Adverse effects are also not anticipated for Alternative B mobile source air toxics due to their projected substantial decrease over time.

3.2.6. Complete Streets

3.2.6.1. Existing Conditions

The project's CCR (**Appendix D**) assessed bicycle, pedestrian, and transit facilities within the project study area. All bicycle and pedestrian facilities within the project study area are located within the City of Wilmington surrounding the project's eastern terminus. Based on the NCDOT Pedestrian and Bicycle Infrastructure Network (PBIN) online mapping the existing facilities within the project study area includes the NC 5- Cape Fear Run, a state bicycle route, which travels through the project study area along South Front Street, and sidewalks on both sides of: Castle Street, portions of Queen Street, South 2nd Street, South 3rd Street, South 4th Street, and South 5th Avenue.

The Cape Fear Public Transportation Authority, operating as Wave Transit, is the public transportation operator for the metro area of Wilmington, North Carolina. Fixed routes within the project include the below, where bus or trolley stops are located on both sides of each street:

- Route 201 (Carolina Beach Road) which travels along South Front Street and South 3rd Street,
- Route 202 (Oleander West) which travels along South 3rd Street and Dawson Street,
- Route 203 (Port City Trolley) which travels along South Front Street and South 5th Avenue,
- Route 205 (Long Leaf Park) which travels along South 5th Avenue, and
- Route 210 (South 17th Street) travels along Wooster Street, Dawson Street, and South 3rd Street.

Wave Transit also offers a point-to-point service (Microtransit) available to anyone traveling within the designated service network. This rideshare service can be connected to Wave Transit's fixed-route

service or riders brought to their destination. Wave Transit online mapping indicates Zone 1 (Northern Brunswick) Microtransit service crosses the Cape Fear Memorial Bridge between Wilmington and Brunswick County.

Brunswick Transit System, a non-profit community transportation system, provides non-emergency on-demand transportation services to the general public and to various agency clients.

3.2.6.2. Alternative A Impacts

A Complete Streets Review Assessment and signed Complete Streets Project Sheet was prepared for the project by NCDOT Integrated Mobility Division on March 20, 2023. NCDOT IMD noted concurrence with the proposed multi-use path on the bridge, which is included with both alternatives. Additional recommendations were provided that should be considered as the project progresses through later stages of design.

3.2.6.3. Alternative B Impacts

As previously noted, NCDOT noted concurrence with the proposed multi-use path on the bridge, which is included with both Alternative A and Alternative B.

3.2.7. Surrounding Roadway Network and Access Changes

3.2.7.1. Existing Conditions

Arterials within the Wilmington portion of the project study area consist of the one-way pair of Wooster Street and Dawson Street (US 17/US 76), and South 3rd Street (US 421). Approaches to/ from the bridge in Wilmington include South Front Street, South 3rd Street, Queen Street, Wooster Street and Dawson Street. US 17/US 76/US 421 provides access to the bridge from Brunswick County.

Cross streets in Wilmington include Surry Street, South Front Street, South 2nd Street, South 3rd Street, South 4th Street, South 5th Avenue, South 6th Street, Queen Street, Wooster Street, Dawson Street, and Wright Street. Brunswick County cross streets include USS North Carolina Road.

The USS North Carolina Road provides access from US 74 to the Battleship North Carolina. Additionally, USS North Carolina Road intersects Battleship Road which provides the only access to businesses along the western bank of the Cape Fear River, which are located within the project study area.

3.2.7.2. Alternative A Access Changes

Alternative A could include minor access change impacts to the roadway network. Roadway improvements, and subsequent access changes associated with Alternative A include widening US 17/76/421 to six lanes from US 17/74/NC 133 to S Front Street utilizing a new movable bridge with 65-foot vertical clearance. This alternative also includes improvements to S Front Street including widening to four lanes from the U-5734 project limits to S Front Street at US 17/76/421 westbound on-ramp and a new signal at S Front Street at US 17/76/421 westbound on-ramp.

3.2.7.3. Alternative B Access Changes

Alternative B would have additional access changes to the surrounding roadway network as it will alter how users access the bridge. Roadway improvements, and subsequent access changes associated with Alternative B include widening US 17/76/NC 133 to S Front Street and removing access at 3rd Street and 4th Street. The removal of access to 3rd Street and 4th Street was due to limitations in the roadway geometry as the replacement bridge structure under this alternative is anticipated to be constructed

with a vertical clearance of 135-feet verses the 65-foot clearance in Alternative A. Due to the reduced access, turn lane improvements were proposed along S 5th Avenue to accommodate future traffic volumes. As part of this alternative, the S Front Street ramp intersections were reconfigured to allow for the on and off ramps via one roundabout intersection to be located at the existing S Front Street and US 17/76 on ramp. Additionally, Alternative B proposes the construction of cul-de-sacs on Surry Street on both sides of the proposed bridge at Queen Street and Wooster Street, eliminating through traffic.

3.2.8. Project Funding – Toll Option

3.2.8.1. Existing Conditions

The proposed project was awarded a \$242 million Large Bridge Project Grant in July 2024.¹⁸ To date, NCDOT is providing a match of \$85 million. Combined, this funding totals \$327 million, approximately 30% of the current estimated project costs. In January 2024, the WMPO voted to include a toll option in the prioritization process for the NCDOT STIP. May 2025, the WMPO reaffirmed their vote to include tolling as a potential funding source for the project.¹⁹ The project study area does not currently have any toll facilities or roadways. According to NC General Statute Article 6H, Public Toll Roads and Bridges, § 136-89.187, the NC Turnpike Authority is prohibited from converting any segment of the non-tolled state highway system to a toll facility. Additionally, the legislation states that no segment may be converted to a toll route pursuant to this section unless first approved by the Metropolitan Planning Organization (MPO) or Rural Planning Organization (RPO) of the area in which that segment is located. NC legislature approval is needed to utilize tolling as a funding source for the Cape Fear Memorial Bridge replacement.²⁰

When a toll is added to an existing non-tolled facility, there will be some diverted traffic from customers who are unwilling to pay the toll. This tends to be a small percentage of total traffic, since many customers will be inclined to pay the toll due to travel time savings benefit of the tolled facility. The Traffic and Revenue Study prepared by CDM Smith in January 2024, and updated in February 2026, included an assessment of existing and historical conditions in the project study area and surrounding area including travel times, traffic volumes, observed speed, and origin-destination travel patterns, with a focus on the Cape Fear Memorial Bridge and parallel Isabel Holmes Bridge. This data was used to help determine potential impacts associated with implementing tolling on the Cape Fear Memorial Bridge replacement, discussed below.

3.2.8.2. Alternative A Impacts

Alternative A would require additional funding outside of the Large Bridge Investment Program Grant and NCDOT funds, and it is therefore assumed the alternative would be tolled for the purposes of impact assessment. According to the Cape Fear Memorial Bridge Traffic and Revenue Study prepared by CDM Smith in January 2024, tolls would be charged using cashless all-electronic toll collection methods including electronic toll collection (ETC), NC Quick Pass, and a license plate image program named Bill by

¹⁸ FHWA. "Biden-Harris Administration Invests \$242 Million for Cape Fear Memorial Bridge Project in Wilmington, North Carolina." July 17, 2024. Web. <https://highways.dot.gov/newsroom/biden-harris-administration-invests-242-million-cape-fear-memorial-bridge-project>

¹⁹ WMPO. Board Meeting Minutes. May 28, 2025. Web. <https://www.wmpo.org/wp-content/uploads/2025/06/5.-May-Board-Minutes-5-28-2025.pdf>

²⁰ North Carolina General Assembly. "Article 6H. Public Toll Roads and Bridges." North Carolina General Statutes, Chapter 136, North Carolina General Assembly. www.ncleg.net/EnactedLegislation/Statutes/HTML/ByArticle/Chapter_136/Article_6H.html

Mail (BBM). Assumed toll rates would begin at \$2 for Class 1 (2-axle vehicles) via ETC in 2030 and \$6 for Class 2 and 3 (3 or more axle vehicles) via ETC in 2030 and increase annually based on the consumer price index. Additional traffic and revenue analyses and forecasts need to take place to support financing of the project. Furthermore, actual toll rates would be determined closer to when the project would open to traffic and are set by the NCTA Board of Directors.

The presence of a tolled facility will likely result in diverted traffic for users unwilling to pay the toll. According to the Traffic and Revenue Study, approximately 90% of traffic diverting from the Cape Fear Memorial Bridge would divert to the Isabel Holmes Bridge, which would likely be accessed via 3rd Street in Wilmington. It is expected that average weekday traffic diverted to the Isabel Holmes Bridge increases by approximately 43% in 2030. It is anticipated that other routes, such as I-140, US 74 (Martin Luther King Jr. Parkway), US 421 and S 3rd Street will also be more heavily utilized as a result of diverting traffic. However, as traffic growth increases, less traffic would divert from the Cape Fear Memorial Bridge as travel time savings may make the tolled facility more appealing.

As detailed in the Traffic and Revenue Study, vehicles traveling to/from the Silver Lake area south of Wilmington to/from west of the Cape Fear River (Leland/Belville or Navassa) would be most likely to utilize the Cape Fear Memorial Bridge over the Isabel Holmes Bridge as it provides the most travel time savings. However, vehicles traveling to/from east Wilmington (University of North Carolina at Wilmington/Wilmington Marketplace) to/from west of the Cape Fear River (Navassa) would be most likely to use the Isabel Holmes Bridge, accessed via Martin Luther King Jr. Parkway.

Traffic evaluations were conducted to determine anticipated adjacent network impacts for the Cape Fear Memorial Bridge project with both a toll and non-toll scenario. These evaluations consist of a planning level review of anticipated arterial levels-of-service for the grid-like network to the north of Cape Fear Memorial Bridge using generalized service volume capacities based on road type. Base year volumes were collected from NCDOT and City databases and were projected to the design year (2050) using comparable growth rates included in the project traffic forecast.

The evaluation area includes segments of Front Street, 3rd Street, 5th Street, Castle Street, Market Street, and the Isabel Holmes Bridge in New Hanover County, as well as segments along US 74/421 in Brunswick County, due to potential traffic volume reroutes as a result of the potential tolling scenario. Under the potential tolling scenario, volume reroutes were estimated in combination with the Traffic and Revenue Study prepared, existing traffic patterns, and standard practice.

Segment-based volume-to-capacity (V/C) ratios less than 0.70 were defined to be under capacity, 0.70 – 0.90 was defined to be nearing capacity, 0.90 – 1.00 was defined to be at capacity, and over 1.00 was defined to be over capacity. This methodology is commonly used to determine planning level operations, and an updated peak hour analysis will be performed between the release of this EA and issuance of the final NEPA document, which is anticipated to be a Finding of No Significant Impact (FONSI), to recognize concentrated commuter traffic and peak hour trends.

Overall, three segments were noted to approach capacity in the potential toll scenarios. Only one segment was showing slightly over capacity (V/C of ~1.03-1.05) which is located along US 74/421. This includes a worst-case approach because the southbound volumes were not reduced along US 74/421, even though a portion of vehicles from the north that are using Cape Fear Memorial Bridge would likely utilize Isabel Holmes Bridge if Cape Fear Memorial Bridge is tolled; however, limited data and

information from that direction was available, so no reductions were made in order to provide conservative results. Under Alternative A (toll), 3rd Street from Market Street to Front Street was shown to operate at capacity. All other segments within the study area were expected to operate below or nearing capacity. Outside of this project, NCDOT STIP Project U-5731 proposes improvements to the US 74/421 intersection which would address capacity along this segment and is included in the 2026-2035 North Carolina State Transportation Improvement Program (STIP) with construction scheduled to begin in Fiscal Year (FY) 2030. The purpose of U-5731 is to relieve traffic congestion, improve travel time through the existing intersection, and reduce the number of conflicting movements.

The toll scenario showed an overall reduction in volumes within the vicinity of Cape Fear Memorial Bridge (see **Table 11**). For Alternative A, the introduction of tolling lowers AADT and V/C ratios across several segments, shifting conditions from near capacity to under capacity, including along S 3rd Street from Wooster Street to Market Street. However, US 421 from the Cape Fear Memorial Bridge to the Isabel Holmes Bridge shows an increase in V/C under the tolled condition, exceeding capacity, likely due to traffic diversion as a result of the toll. S 5th Avenue is anticipated to remain under capacity with both the tolled and non-tolled scenarios, reflecting an increase in capacity from two to four lanes under future conditions.

Additional traffic forecasting and analysis would be needed to capture anticipated weekday AM and PM peak hour performance, as well as anticipated individual intersection performance, within this expanded network. The project traffic forecast does not include tolling scenarios, and 3rd Street and 5th Street impacts were limited to Wooster Street and Dawson Street. The traffic forecast will be updated following the approval of the EA, and FHWA, NCTA, and NCDOT will evaluate the updated forecast to help determine whether to move forward with the approval of the anticipated FONSI.

Refer to **Table 11** on the following page for an overview of adjacent roadway conditions for Alternative A. **Figures 4 and 5a-b** display the estimated V/C ratios for the adjacent roadway network for the projected base, Alternative A (non-toll), Alternative A (toll), conditions, respectively.

Table 11. Anticipated Adjacent Network Traffic Impacts – Alternative A Generalized Daily Volume Capacities

Existing/Projected Conditions						Alternative A (No Toll)				Alternative A (Toll)				
Street Name	From	To	# of Through Lanes	2050 V/C Daily	Under, Near, or Over Capacity	Through Lanes	Generalized Service Capacity*	2050 V/C Daily	Under, Near, or Over Capacity	Through Lanes	Generalized Service Capacity*	Adjusted 2050 AADT***	2050 V/C Daily	Under, Near, or Over Capacity
S 3rd Street	Wooster Street	Castle Street	4	0.77	Near	4	36100	0.77	Near	4	36100	20686	0.57	Under
	Castle Street	Church Street	4	0.71	Near	4	36100	0.71	Near	4	36100	18553	0.51	Under
	Church Street	Market Street	4	0.72	Near	4	36100	0.72	Near	4	36100	19042	0.53	Under
	Market Street	Campbell Street	4	0.82	Near	4	30100	0.82	Near	4	30100	29222	0.97	At
	Campbell Street	Front Street	4	0.80	Near	4	30100	0.80	Near	4	30100	28603	0.95	At
	North of Front Street		4	0.44	Under	4	70300	0.44	Under	4	70300	35266	0.50	Under
S 5th Avenue	Wooster Street	Castle Street	2	0.52	Under	4**	36100	0.25	Under	4**	36100	8042	0.22	Under
	Castle Street	Church Street	2	0.63	Under	4**	36100	0.31	Under	4**	36100	10033	0.28	Under
Castle Street	East of S 3rd Street		2	0.39	Under	2	17600	0.39	Under	2	17600	6870	0.39	Under
Market Street	S 3rd Street	S 5th Avenue	4	0.38	Under	4	38300	0.38	Under	4	38300	14416	0.38	Under
Front Street	Church Street	Nun Street	2	0.12	Under	2	17600	0.12	Under	2	17600	2113	0.12	Under
	Walnut Street	Hanover Street	2	0.26	Under	2	16000	0.26	Under	2	16000	8804	0.55	Under
US 421	CFMB	IHB	4	0.82	Near	4	70300	0.82	Near	4	70300	72170	1.03	Over
US 74 (IHB)	US 421	S 3rd Street	4	0.60	Under	4	70300	0.60	Under	4	70300	56704	0.81	Near

*Based on FDOT Generalized Service Volumes Capacity
**Based on current plans
***Assumes 30% of vehicles will utilize the Isabel Holmes Bridge (IHB) to travel to the north of the Cape Fear Memorial Bridge. The T&R report assumed approximately 16.5% would be diverted from CFMB in total; however, this includes all destinations, whereas destinations to the north are anticipated to be more likely to utilize IHB

A Community Studies Tolling Considerations Memorandum was prepared for the project (**Appendix I**). This memorandum evaluates the potential community and socioeconomic effects associated with implementing a toll on the Cape Fear Memorial Bridge including considerations related to low-mobility populations, poverty populations, goods and employment movement, and potential avoidance and minimization measures.

A tolled roadway facility can impose uneven burdens across income groups as toll costs represent a larger share of disposable income for lower-income travelers, effectively making the same trip more expensive for them relative to higher-income users. This is particularly relevant within the project's Demographic Study Area, where poverty rates exceed those of Brunswick and New Hanover counties, and several census block groups contain populations experiencing economic hardship. A toll could also create additional transportation challenges for low-mobility populations, such as older adults, persons with disabilities, and households without access to a vehicle.

Implementation of a toll along the Cape Fear Memorial Bridge could influence travel behavior, and goods movement by changing route choices, travel costs, and overall system efficiency. Freight may choose alternative, non-tolled routes to avoid toll costs, potentially increasing traffic volumes on local roadways affecting travel reliability. Similarly, tolling could create an additional transportation expense for workers who commute regularly between Brunswick County and employment centers in Wilmington. Over time, recurring travel costs could reduce the attractiveness of certain employment opportunities, and commuters seeking to avoid toll costs may also experience longer travel times and reduced commute reliability if they divert to alternative routes. Additional information on the potential impacts of a toll to the surrounding community in **Appendix I**.

As noted previously, NC legislature approval would be needed for the proposed project to be tolled, and as such, if tolling were included in the project it would require NC state legislature approval to utilize tolling for the Cape Fear Memorial Bridge replacement project. At the time of this document, tolling has not been definitively determined as a funding source for the project.

3.2.8.3. Alternative B Impacts

Alternative B would also require additional funding outside of the Large Bridge Investment Program Grant and NCDOT funds, and it is therefore assumed the alternative would be tolled for the purposes of impact assessment.

As noted above, traffic evaluations were conducted to determine anticipated adjacent network impacts for the Cape Fear Memorial Bridge project with both a toll and non-toll scenario.

The evaluation area includes segments of Front Street, 3rd Street, 5th Street, Castle Street, Market Street, and the Isabel Holmes Bridge in New Hanover County, as well as segments along US 74/421 in Brunswick County, due to potential traffic volume reroutes as a result of Alternative B, as well as the potential tolling scenario. Under the potential tolling scenario, volume reroutes were estimated in combination with the Traffic and Revenue Study prepared, existing traffic patterns, and standard practice.

Overall, three segments were noted to approach capacity in the potential toll scenarios. Only one segment was showing slightly over capacity (V/C of ~1.03-1.05), which is located along US 74/421. This includes a worst-case approach because the southbound volumes were not reduced along US 74/421, even though a portion of vehicles from the north that are using Cape Fear Memorial Bridge would likely

utilize Isabel Holmes Bridge if Cape Fear Memorial Bridge is tolled; however, limited data and information from that direction was available, so no reductions were made in order to provide conservative results. As also noted above, outside of this project, NCDOT STIP Project U-5731 proposes improvements to the US 74/421 intersection which would address capacity along this segment and is included in the 2026-2035 North Carolina State Transportation Improvement Program (STIP) with construction scheduled to begin in Fiscal Year (FY) 2030. Under Alternative B (toll), 3rd Street from Market Street to Campbell Street was shown to operate at capacity. All other segments within the study area were expected to operate below or nearing capacity.

The toll scenario showed an overall reduction in volumes within the vicinity of Cape Fear Memorial Bridge (see **Table 12**). Under Alternative B, tolling similarly reduces AADT and V/C ratios, including S 5th Avenue from Castle Street to Church Street and Castle Street east of S 3rd Street. As with Alternative A, US 421 from the Cape Fear Memorial Bridge to the Isabel Holmes Bridge is anticipated to be over capacity in the tolled scenario. S 5th Avenue is anticipated to remain under capacity with both the tolled and non-tolled scenarios, reflecting an increase in capacity from two to four lanes under future conditions.

Refer to **Table 12** on the following page for an overview of adjacent roadway conditions for Alternative B. **Figures 4 and 6a-b** display the estimated V/C ratios for the adjacent roadway network for the projected base, Alternative B (non-toll), and Alternative B (toll) conditions, respectively.

Table 12. Anticipated Adjacent Network Traffic Impacts – Alternative B Generalized Daily Volume Capacities

Existing/Projected Conditions						Alternative B (No Toll)					Alternative B (Toll)				
Street Name	From	To	# of Through Lanes	2050 V/C Daily	Under, Near, or Over Capacity	Through Lanes	Generalized Service Capacity*	Adjusted 2050 AADT****	2050 V/C Daily	Under, Near, or Over Capacity	Through Lanes	Generalized Service Capacity*	Adjusted 2050 AADT***	2050 V/C Daily	Under, Near, or Over Capacity
S 3rd Street	Wooster Street	Castle Street	4	0.77	Near	4	36100	16176	0.45	Under	4	36100	16176	0.45	Under
	Castle Street	Church Street	4	0.71	Near	4	36100	17544	0.49	Under	4	36100	17544	0.49	Under
	Church Street	Market Street	4	0.72	Near	4	36100	18396	0.51	Under	4	36100	18396	0.51	Under
	Market Street	Campbell Street	4	0.82	Near	4	30100	24567	0.82	Near	4	30100	27087	0.90	At
	Campbell Street	Front Street	4	0.80	Near	4	30100	23948	0.80	Near	4	30100	26468	0.88	Near
	North of Front Street		4	0.44	Under	4	70300	30611	0.44	Under	4	70300	35651	0.51	Under
S 5th Avenue	Wooster Street	Castle Street	2	0.52	Under	4**	36100	22218	0.62	Under	4**	36100	17178	0.48	Under
	Castle Street	Church Street	2	0.63	Under	4**	36100	27046	0.75	Near	4**	36100	22006	0.61	Under
Castle Street	East of S 3rd Street		2	0.39	Under	2	17600	13398	0.76	Near	2	17600	10878	0.62	Under
Market Street	S 3rd Street	S 5th Avenue	4	0.38	Under	4	38300	16005	0.42	Under	4	38300	15501	0.40	Under
Front Street	Church Street	Nun Street	2	0.12	Under	2	17600	4918	0.28	Under	2	17600	4918	0.28	Under
	Walnut Street	Hanover Street	2	0.26	Under	2	16000	9656	0.60	Under	2	16000	12176	0.76	Near
US 421	CFMB	IHB	4	0.82	Near	4	70300	57309	0.82	Near	4	70300	73551	1.05	Over
US 74 (IHB)	US 421	S 3rd Street	4	0.60	Under	4	70300	41843	0.60	Under	4	70300	58085	0.83	Near

*Based on FDOT Generalized Service Volumes Capacity

**Based on current plans

***Assumes 30% of vehicles will utilize the Isabel Holmes Bridge (IHB) to travel to the north of the Cape Fear Memorial Bridge. The T&R report assumed approximately 16.5% would be diverted from CFMB in total; however, this includes all destinations, whereas destinations to the north are anticipated to be more likely to utilize IHB

****Assumes 50% of vehicles diverted to/from S 5th Avenue in Alt B will use Castle Street to travel to/from S 3rd Street, 20% from Market Street, 30% from the surrounding grid like network, and 50% to the surrounding grid like network

As discussed under Alternative A above, implementation of a toll on the Cape Fear Memorial Bridge could result in socioeconomic and community impacts for some travelers. Tolling may create an additional transportation cost burden for populations experiencing poverty and other economically disadvantaged users and could affect low-mobility populations, including older adults, persons with disabilities, and households with limited vehicle access. Tolling may also influence route choice, commute patterns, and goods movement within the project area. Additional information regarding tolling considerations is provided in **Appendix I**.

3.3. Physical Environment

This section describes the existing physical environment within the project study area and identifies resources that may be affected by the proposed project. Resources considered include hazardous materials and conservation lands.

3.3.1. Hazardous Materials

3.3.1.1. Existing Conditions

A Phase I GeoEnvironmental Report was prepared for the project in January 2024 (see **Appendix F**). Nine sites of concern were identified in the project study area (see **Figures 2a-2c**). These sites are summarized in **Table 13** below.

Table 13. Hazardous site of concerns within the project study area

Name	Resource Type	Location
Eagles Island Engineer Yard	Petroleum contaminated soil & groundwater	232 Battleship Rd. Leland, NC 28541
Former Wilmington Coal Gas Plant	Superfund – inactive hazardous waste site	606 Surry St. Wilmington, NC 28401
NCDOT Property (Former Riverman II LLC Property)	Soil & groundwater contamination	712 Surry St. Wilmington, NC 28401
Vacant Lot (Former City Gas & Transmission)	Superfund	801 Surry St. Wilmington, NC 28401
Southern Metals Recycling	Superfund – inactive hazardous waste site	13 Wright St. Wilmington, NC 28401
Colonial Terminals	Superfund – inactive hazardous waste site, Underground Storage Tank (UST), Abandoned Storage Tank (AST)	1002 S Front St Wilmington, NC 28401
DTS LLC Property	Former USTs and UST incident	102 Wright St Wilmington, NC 28401
Scotchman #3325	USTs, UST incidents, abandoned monitoring wells	901 S 3rd St Wilmington, NC 28401
Vacant Lot Former Exxon # 4-3957	Former USTs and UST incident, inactive hazardous waste (contaminated groundwater), brownfield site	315 Wooster St Wilmington, NC 28401

3.3.1.2. Alternative A Impacts

Based on a 40-foot buffer of the proposed slope stakes, Alternative A is anticipated to impact two Underground Storage Tanks (USTs) sites. Low monetary and schedule impacts are anticipated with these sites.

3.3.1.3. Alternative B Impacts

Based on a 40-foot buffer of the proposed slope stakes, Alternative B is anticipated to impact three sites. All these sites are USTs. Low monetary and schedule impacts are anticipated with these sites.

Sites of concern should be reviewed by the NCDOT GeoEnvironmental Section once the Final Right of Way plans are complete to determine if Phase II Investigations and Right of Way Recommendations are necessary prior to right of way being acquired. The Phase I GeoEnvironmental Report can be found in **Appendix F**.

3.3.2. Conservation Land

3.3.2.1. Existing Conditions

Eagles Island is located at the base of the existing Cape Fear Memorial Bridge to the west, where the Cape Fear River and Brunswick River meet. Portions of Eagles Island are designated as a conservation district, owned by the State of North Carolina and the New Hanover Soil and Water Conservation District (see **Figure 2a**).²¹ These areas of conservation land are also classified as ‘state owned’ per the North Carolina Natural Heritage Program (NHP).²²

3.3.2.2. Alternative A Impacts

Based on the proposed right-of-way, Alternative A is anticipated to impact 2.6 acres of conservation land on Eagles Island to Parcel 8, as identified in the project public meeting maps.

3.3.2.3. Alternative B Impacts

Based on the proposed right-of-way, Alternative B is anticipated to impact 2.6 acres of conservation land on Eagles Island to Parcel 8, as identified in the project public meeting maps.

3.3.2. Construction

3.3.2.4. Alternative A Impacts

During construction of the project, impacts to travel are anticipated throughout the duration of construction. The following assumptions are subject to change if the proposed design is modified. A traffic control plan will be prepared for the project during the final design phase, which would include additional details on impacts to existing traffic patterns, road closures or realignments, and demolition of the existing bridge.

- Reduced speed to 45 mph posted from 55 mph posted
- Daily lane closures will occur overnight for the roads that are control access. City streets may have lane closures during the daylight hours.
- Frequent overnight road closures – one traffic movement per night closure

²¹ New Hanover County. Land Conservation. Web. <https://diversity.nhcgov.com/272/Land-Conservation>

²² NCNHP. Online Map. Web. 2025. <https://ncnhde.natureserve.org/content/map>

- Occasional weekend closures (up to one closure per calendar quarter) – one traffic movement per closure
- All construction would begin away from traffic, which includes the majority of the mainline bridge.
- Existing bridge and roadway approaches would be demolished away from traffic once it is shifted onto the newly constructed bridge and associated roadway approaches.

Additional short-term impacts associated with both alternatives would occur during right of way acquisition and construction. This could include, but is not limited to, hauling, noise, vibration, lighting, and/or dust.

3.3.2.5. Alternative B Impacts

The assumptions listed above are presumed to also apply to Alternative B construction phasing. As noted above, should the design be modified for Alternative B, the assumptions and therefore impacts during construction may change.

3.4. Alternative Comparison Matrix

Table 14 summarizes the estimated impacts to the natural and human environment associated with the remaining build alternatives.

Table 14. Evaluation Matrix

	Alternative A (65-135' movable)	Alternative B (135' fixed)
Length [bridge length] (mile)	1.47 [1.24]	1.85 [1.31]
Natural Environment¹		
100-Year Floodplain (acres)	1.4	20.8
Section 404 Wetlands (acres)	1.2	10.8
Section 404/CAMA Wetlands (acres)	0	0.1
Human Environment		
Parcels	22	63
Churches/Cemeteries (#)	0	0
Community Resources (#)	1 (Dollar General)	1 (Dollar General)
Historic Resource Effects (yes/no) ²	TBD	TBD
Section 4(f) (yes/no) ³	TBD	TBD
Noise Receptors Impacted (#)	50	102
Physical Environment¹		
Hazardous Material Sites (#)	2	3

NOTES:

1. Measurements quantified using a 40-foot buffer of the slope stakes of the roadway approaches. Bridged areas are not included at this time.
2. Both alternatives fall within the National Register of Historic Places (NRHP) Wilmington Historic District. The CFMB is a contributing resource within this district and has been recommended for individual eligibility. Additionally, the USS North Carolina NRHP-listed resource is located approximately 0.6 miles north of the project on the west side of the Cape Fear River. Effects determinations have not been made by FHWA, NCDOT, and NCHPO at this time.
3. Resources eligible for listing on the National Register are subject to Section 4(f) protections. As Section 106 effects have not been determined at this time, Section 4(f) impacts are to be determined.

3.5. Avoidance and Minimization Measures

Avoidance and minimization measures have been and will continue to be implemented throughout the project development process, and are currently reviewed by NCDOT, FHWA, and the Merger team at each merger meeting (see **Section 4.2.2** for additional information on merger). As mentioned previously, all alternatives were placed to the south of the existing bridge to avoid impacts to Dram Tree Park and the power substation off Battleship Road Northeast, just northwest of the existing bridge. Additionally, the project has utilized the existing fill section of roadway approaches to minimize impacts. As noted in **Section 3.2.2.1**, avoidance and minimization measures were implemented with Alternative B to reduce the size of the ramp near Queen Street and the addition of a retaining wall to avoid impacts to homes at the intersection of Queen Street and 2nd Street.

The Community Studies Tolling Considerations Memorandum also identifies several potential avoidance and minimization measures for consideration to offset the impacts of tolling on surrounding communities. See **Appendix I** for additional information.

3.6. Anticipated Permits and Actions

Based on the impacts summarized above, the following are permits anticipated to be needed by the project. Applicable federal and state agencies hold final discretion of permit type and issuance, and the below is subject to change based on project design and impacts.

Section 404 of the Clean Water Act regulates discharge of dredged or fill material into waters of the US, including wetlands. While it is anticipated that a Section 404 permit will be required, as impacts to the Cape Fear River have not been determined at this time, it is unknown what type of permit is applicable.

Section 401 of the Clean Water Act requires entities pursuing a federal permit for activities that discharge pollutants into navigable waters to obtain certification from the state. It is anticipated a Section 401 Water Quality Certification will be needed for the project from the NC Department of Water Resources (NCDWR).

Under the authority of Section 9 of the Rivers and Harbors Act of 1899 and the General Bridge Act of 1946, USCG is responsible for approving the locations and plans for bridges and causeways over navigable waterways. The Cape Fear River is a navigable waterway and thus, the project will require a Coast Guard Bridge Permit Application.

Section 10 of the Rivers and Harbors Act of 1899 requires authorization from USACE for the construction of any structure in or over any navigable water, the excavation/dredging or deposition of material in these waters, or any obstruction or alteration in a navigable water. Structures or work outside the limits defined for navigable waters of the US require a Section 10 permit if the structure or work affects the course, location, condition, or capacity of the water body.

Section 408 (33 US Code 408) authorizes alternations or modifications to existing USACE civil works projects. The project will continue to utilize the Section 408 Consultation process with USACE, especially as it pertains to vertical and horizontal clearance of the bridge.

A CAMA Major Permit from North Carolina Division of Coastal Management would be required for both alternatives and all impacts to designated AECs within the project study area.

Section 7 of the Endangered Species Act requires federal agencies to ensure actions they authorize are not likely to jeopardize federally protected species. Section 7 consultation with USFWS and NMFS will be required should the project affect a listed species. As noted previously, an in-water work moratorium will apply for the project from February 15 through June 30 as the project contains critical habitat for Atlantic sturgeon.

The Magnuson-Stevens Act requires NMFS to identify and protect EFH. As noted previously, while exact locations are not known at this time, the bridge replacement could include footings to be placed within designated EFH. As such, FHWA and NCDOT will initiate the consultation prior to issuance of the anticipated FONSI.

NCDOT and FHWA have agreed to enter into a project-level Section 106 PA. The intent of the PA is to continue to work toward avoiding and minimizing adverse effects to historic properties to the greatest extent possible while meeting the project's purpose and need, and to have an agreed upon framework to resolve any adverse effects that may be unavoidable. The PA is currently underway and will be finalized prior to issuance of the anticipated FONSI, along with Section 4(f) determinations for the project.

As noted in Section 3.2.3.1, as NCDOT, FHWA, NCHPO, and other potential consulting parties fulfill the stipulations of the Section 106 PA, they will continue to assess how effect findings for historic properties inform FHWA's Section 4(f) analysis.

4. Public and Agency Involvement

Public and Agency involvement is an important part of the project development process. The following chapter discusses past and future public involvement initiatives and activities pertaining to the proposed project.

4.1. Public Involvement

4.1.1. Public Meeting

NCDOT held in-person public meetings on October 8th, 2024 and October 9th, 2024 in Wilmington, New Hanover County and Leland, Brunswick County. On October 8th there were 163 total attendees and on October 9th there were 83 total attendees.

The comment period for the project extended from October 1, 2024 to October 28, 2024. 763 comments were received during this time by 532 members of the public through the project's publicinput.com website, project phone line, e-mails to the project e-mail address, or comment sheets left at the public meetings.

The public comments from the October 2024 public meeting generally yielded support for Alternative B and a concern for historic preservation. In addition, concern regarding opposition to a movable bridge, opposition to tolling, and project cost concerns were expressed.

Regarding opposition to the movable bridge option, primary concerns were traffic operations on a movable option as well as operations and maintenance costs. The project is being designed to address future traffic volume needs which include both local and regional growth in traffic. The scale of the project is appropriate to meet future traffic needs and to maintain adequate traffic operations for all road users. NCDOT will continue to make efforts to further avoid and minimize impacts due to the

project to the greatest extent practicable during final design and construction. In addition, operations and maintenance costs are expected to increase as the bridge ages and traffic increases. In 2019 NCDOT completed a major deck rehabilitation in Spring 2024 with an estimated construction cost of \$13 million. Maintenance costs are anticipated with any infrastructure project. The funds allocated for the project are to be used specifically for the proposed project. NCDOT maintenance funds are allocated from a separate source within NCDOT and cannot be transferred.

In regard to tolling, in January 2024, the WMPO Board voted to modify the WMPO's Prioritization 7.0 submittal to evaluate a toll option. A tolling option was included in the 2026-2035 DRAFT State Transportation Improvement Plan (STIP). Future affirmation by the Wilmington Urban Area Metropolitan Planning Organization (WMPO) Board would be required for the replacement bridge to be delivered as a tolled facility. And the WMPO Board can withdraw any approval of a toll option up until NCDOT advertises the bridge replacement contract. Additionally, as noted previously, NC legislature approval is needed to utilize tolling as a funding source for the Cape Fear Memorial Bridge replacement.

The Public Comment Summary associated with the October 2024 Public Meeting, including comment responses, can be found in **Appendix G**.

4.1.2. Future Public Hearing

A public hearing will be held following publication of this document. The format for the hearing will include a formal presentation followed by an opportunity for any member of the public to submit a formal comment for the public record during the meeting. Written comments will be accepted throughout the public hearing comment period, which will be at least 45 calendar days. Two alternatives will be presented to the public for final public comments before determining the Preferred Alternative.

The hearing will be held in the evening to enhance public availability and participation. Comments received will be documented and formal responses will be provided. A transcript of the public hearing will be prepared and made available to the public. All comments submitted will be a part of the public record. Information on the project presented at the hearing will also be translated. Interpreters will be provided at all public meetings for non-English speaking populations, and advanced notification will be provided.

4.2. Agency Coordination

4.2.1. Scoping

A scoping meeting was held on October 18, 2023, to discuss scoping and merger screening for the project with NCDOT, FHWA, USACE, USFWS, USEPA, WMPO, NCDWR, NCDCM, NCWRC, and NCHPO. NCDOT distributed, on September 29, 2023, an informational packet to the participating agencies and team members for their review prior to the meeting. Attendees agreed the project would proceed through the Merger Process and discussed potential resources and permitting requirements for the project. Additional information on the merger process can be found below in **Section 4.2.2**.

In addition to the meeting, a Start of Study letter was sent by NCDOT to state and federal agencies in September of 2023. The letter included the Scoping Fact Sheet, Project Vicinity Map, and Environmental Features Map. The purpose of distributing the letter was to solicit comments and collect pertinent project information early in the project development process.

In addition to agencies’ standard comments submitted for the project, several responses included comments related directly to the project. **Table 15** lists the agencies that provided comments, along with any project-specific commitments.

Table 15. Agency Start of Study Comments

Agency	Date	Project Comment
NCHPO	December 1, 2023	Our files indicate numerous previously archaeological sites located within the vicinity of the Cape Fear Memorial Bridge, as well as a high potential for previously undisturbed cultural resources within the possible APE. However, while the need for an archaeological survey is likely, we withhold our comments until the final design is submitted and known ground and/or river bottom activities within the APE are identified. We look forward to coordinating and reviewing this project with NCDOT Archaeology prior to construction once the design plans are available.
USCG	October 31, 2023	Attached above is your signed letter from the Coast Guard establishing bridge permit project for the Cape Fear Memorial Bridge. The next step is for the Coast Guard to receive a Project Initiation Request (PIR) letter, below are the instructions from the Bridge Permit Application Guide (BPAG).

In December 2023, USCG provided a formal response to FHWA accepting Cooperating Agency/Consulting Party status for the project, with FHWA serving as the Lead Federal Agency.

4.2.2. NEPA/Section 404 Merger Process

As noted in **Chapter 1**, NCDOT, FHWA, and the Merger Team agreed the project should proceed through the NEPA/Section 404 merger process.

The proposed project has completed the first three concurrence points. On December 14, 2023, a Concurrence Point (CP) 1 meeting was held to establish Purpose & Need and Study Area limits for the project. NCDOT distributed the meeting packet to the participating agencies and team members for their review prior to the meeting on November 30, 2023.

As a result of this meeting, a follow-up meeting with representatives from FHWA, NCDOT, USACE and the NCHPO was held on January 25, 2024 to address NCHPO’s comments regarding the proposed study area for the project. NCHPO expressed reservations in the CP1 meeting that the proposed study area was not large enough to fully address potential effects to historic properties, particularly visual, traffic, and noise impacts. The CP1 form was signed by the entire merger team in February 2024. See **Appendix H** for merger packets, summaries, and signature forms.

On April 11, 2024, a combined CP2 and 2A meeting was held to gain concurrence on Detailed Study Alternatives (CP2) and Bridging Decisions and Alignment Review (CP2A) for the project. NCDOT distributed the meeting packet to the participating agencies and team members for their review prior to the meeting on March 28, 2024. At this meeting, the Merger team concurred with the following alternatives for study:

- Alternative A: 65-135' Vertical Clearance Movable Structure
- Alternative B: 135' Vertical Clearance Fixed Structure
- Alternative C: 100' Vertical Clearance Fixed Structure

Based on comments received from NCHPO, a +/- 35' vertical clearance range was added to the Alternative C 100' fixed alternative on the CP2 signature form, to clarify that 100' fixed vertical clearance is for study comparison and the final vertical clearance will be determined by the USACE 408 Section and USCG.

The project team will meet with the Merger Team following the Environmental Assessment and Public Hearing for the CP3 meeting. The purpose of CP3 is to establish the Least Environmentally Damaging Practicable Alternative (LEDPA) / Preferred Alternative. The LEDPA will be selected based on satisfying the project purpose and need, considering environmental and community resources, and meeting the US Army Corps of Engineers' (USACE) Section 404 (b)(1) guidelines for the Clean Water Act (CWA) regulatory requirements.

4.2.3. Local Officials Coordination

In addition to ongoing coordination and collaboration with local officials as part of the project development process, local officials meetings are held on the same day as, but before the public meeting and public hearing. The purpose of the local officials meeting is to inform local officials of the technical details of the project in order to be able to respond to any specific questions from the public regarding the project, as well as to solicit feedback and input from the local officials. The local officials meeting will be a formal presentation with a question-and-answer session at the end.

On October 8, 2024, a Local Officials Informational Meeting was held in Wilmington and attended by staff members or representatives from the City of Wilmington, WMPO, New Hanover County, Wilmington Police Department, FHWA, and NCDOT. On October 9, 2024, a Local Officials Informational Meeting was held in Leland and attended by staff members or representatives from Brunswick County, Town of Leland, Cape Fear Council of Governments, WMPO, and NCDOT.

5. Conclusion and Next Steps

It is anticipated from the findings of this Environmental Assessment that a FONSI would be appropriate for this project. However, the determination on the format for the final NEPA documentation for this project will be based on the comments received at the Public Hearing and the comments received on this document.

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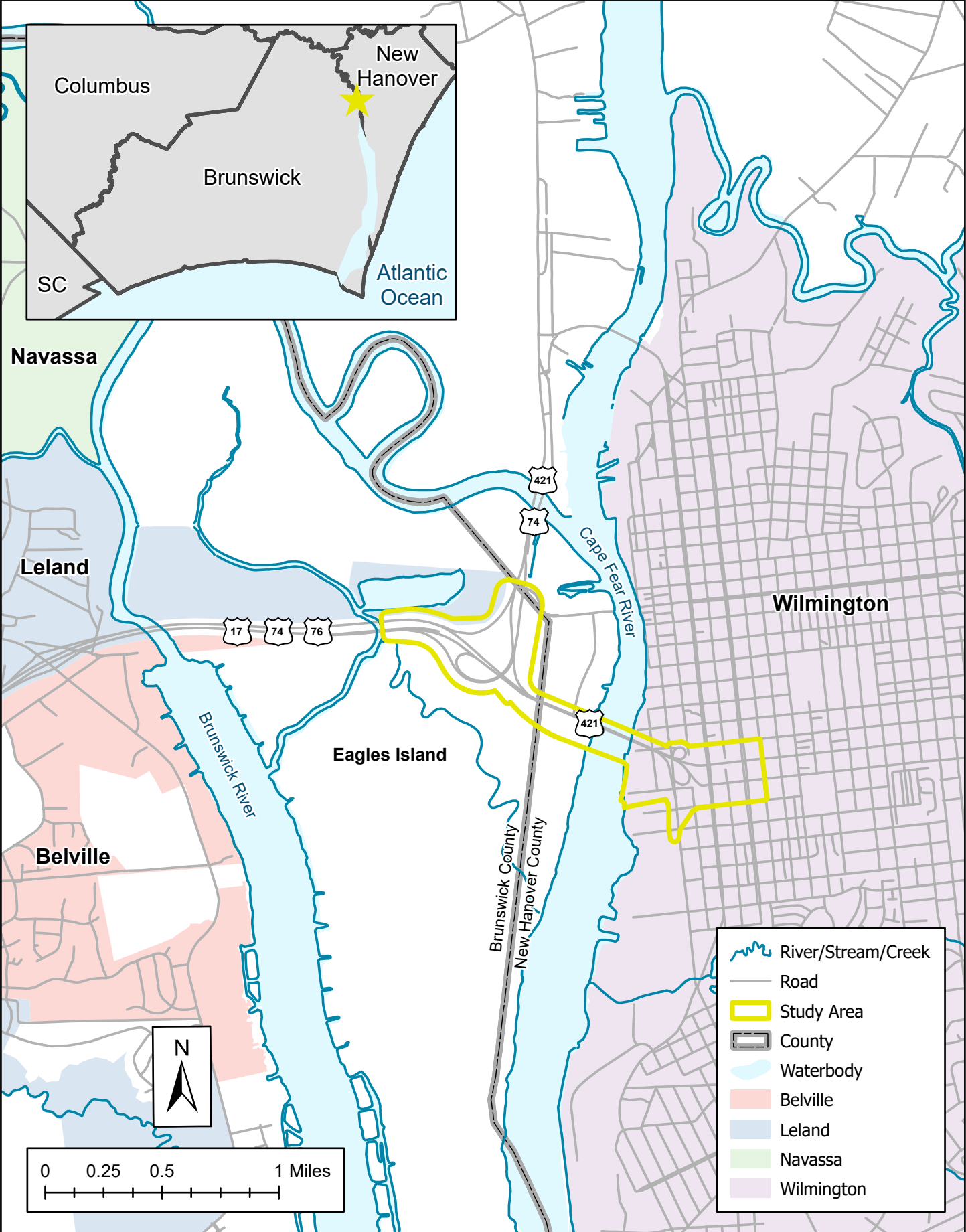
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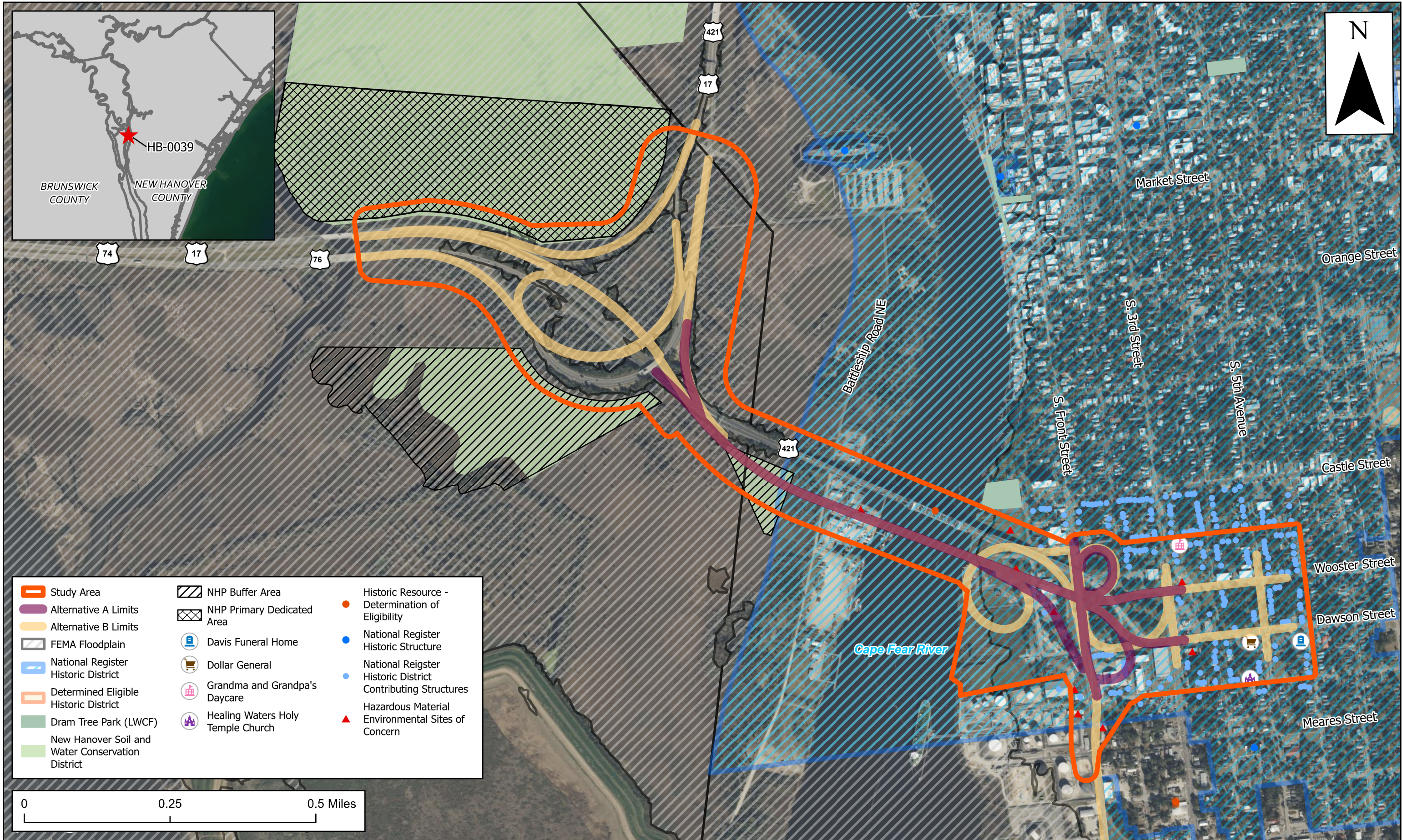
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Figures

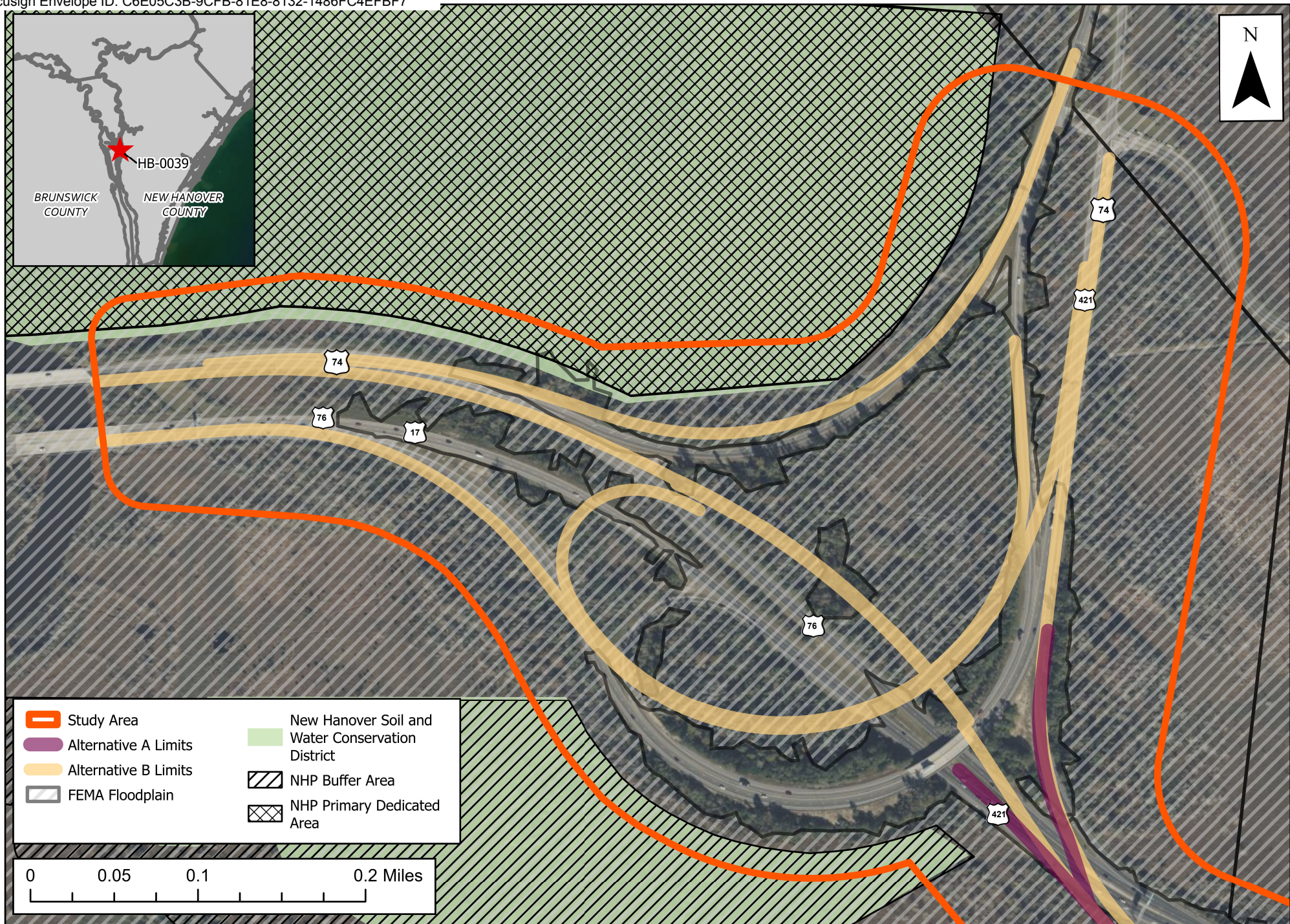


CAPE FEAR MEMORIAL BRIDGE VICINITY MAP
HB-0039 | BRUNSWICK & NEW HANOVER COUNTY
FIGURE 1

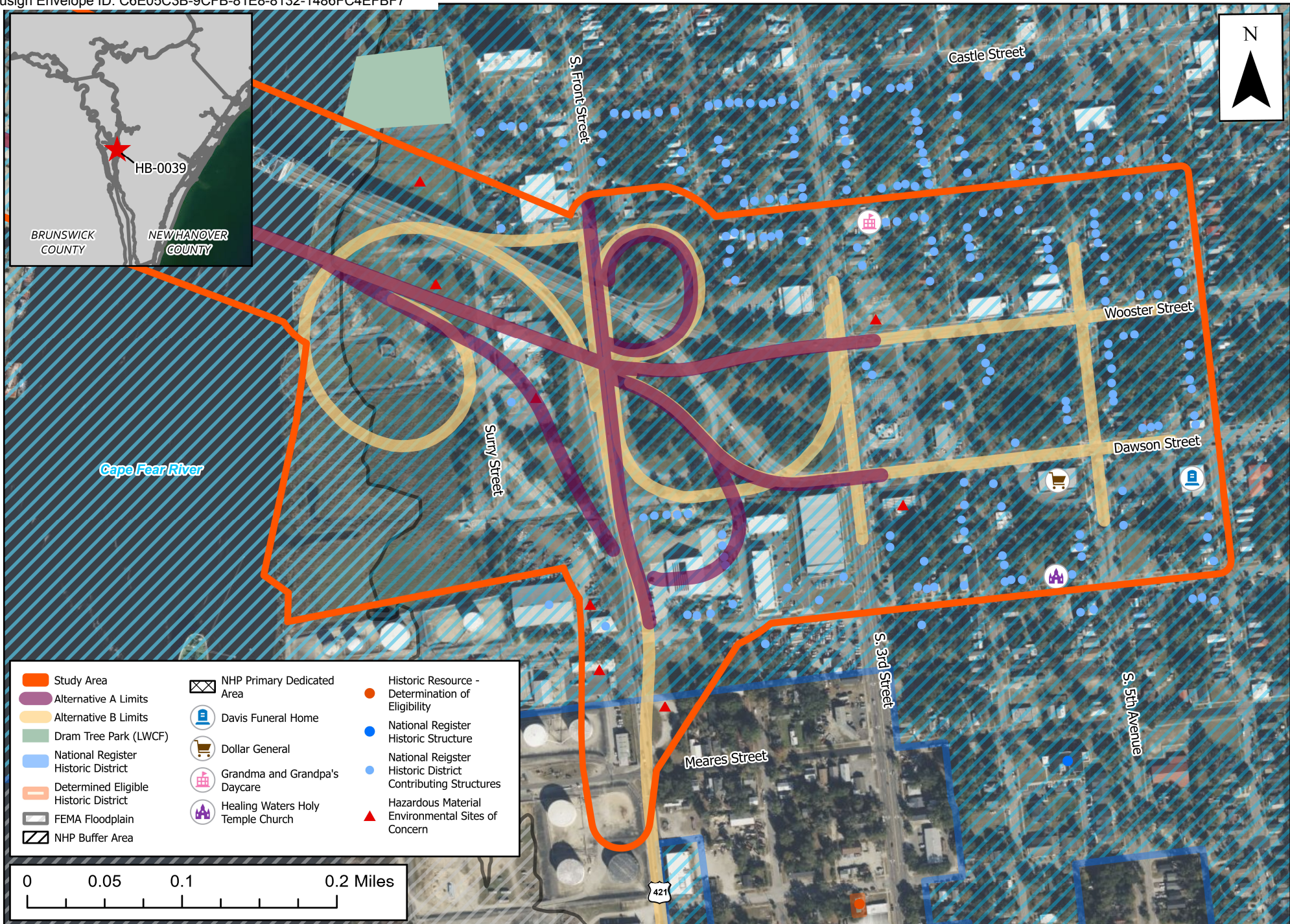


HB-0039 | CAPE FEAR MEMORIAL BRIDGE REPLACEMENT PROJECT
ENVIRONMENTAL FEATURES

FIGURE 2A



HB-0039 | CAPE FEAR MEMORIAL BRIDGE REPLACEMENT PROJECT
 ENVIRONMENTAL FEATURES
 FIGURE 2B

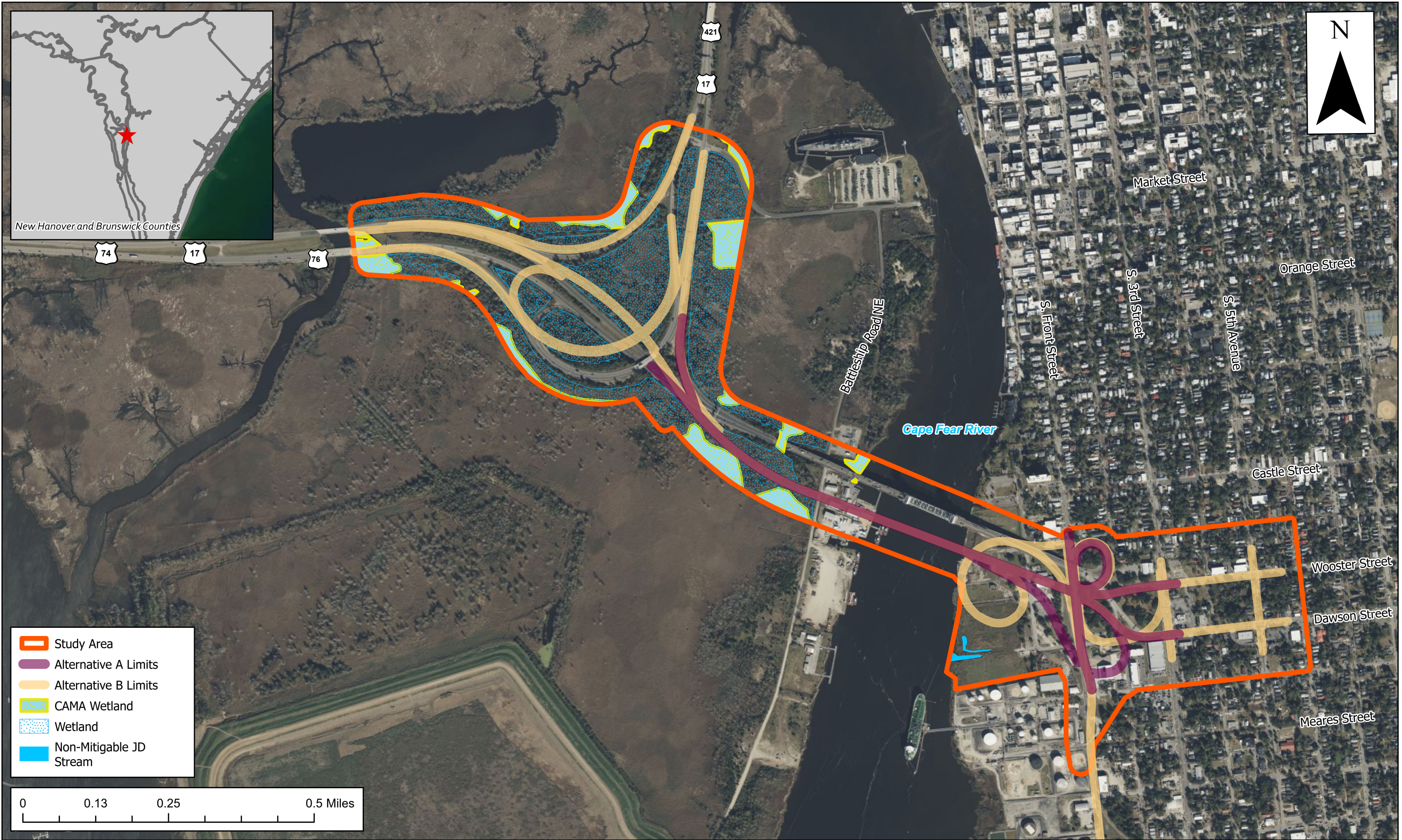


HB-0039 | CAPE FEAR MEMORIAL BRIDGE REPLACEMENT PROJECT

ENVIRONMENTAL FEATURES

FIGURE 2C

MARCH 2026



CAPE FEAR MEMORIAL BRIDGE REPLACEMENT PROJECT
WATERS OF THE UNITED STATES AND JURISDICTIONAL FEATURES
FIGURE 3



FIGURE 4



FIGURE 5A

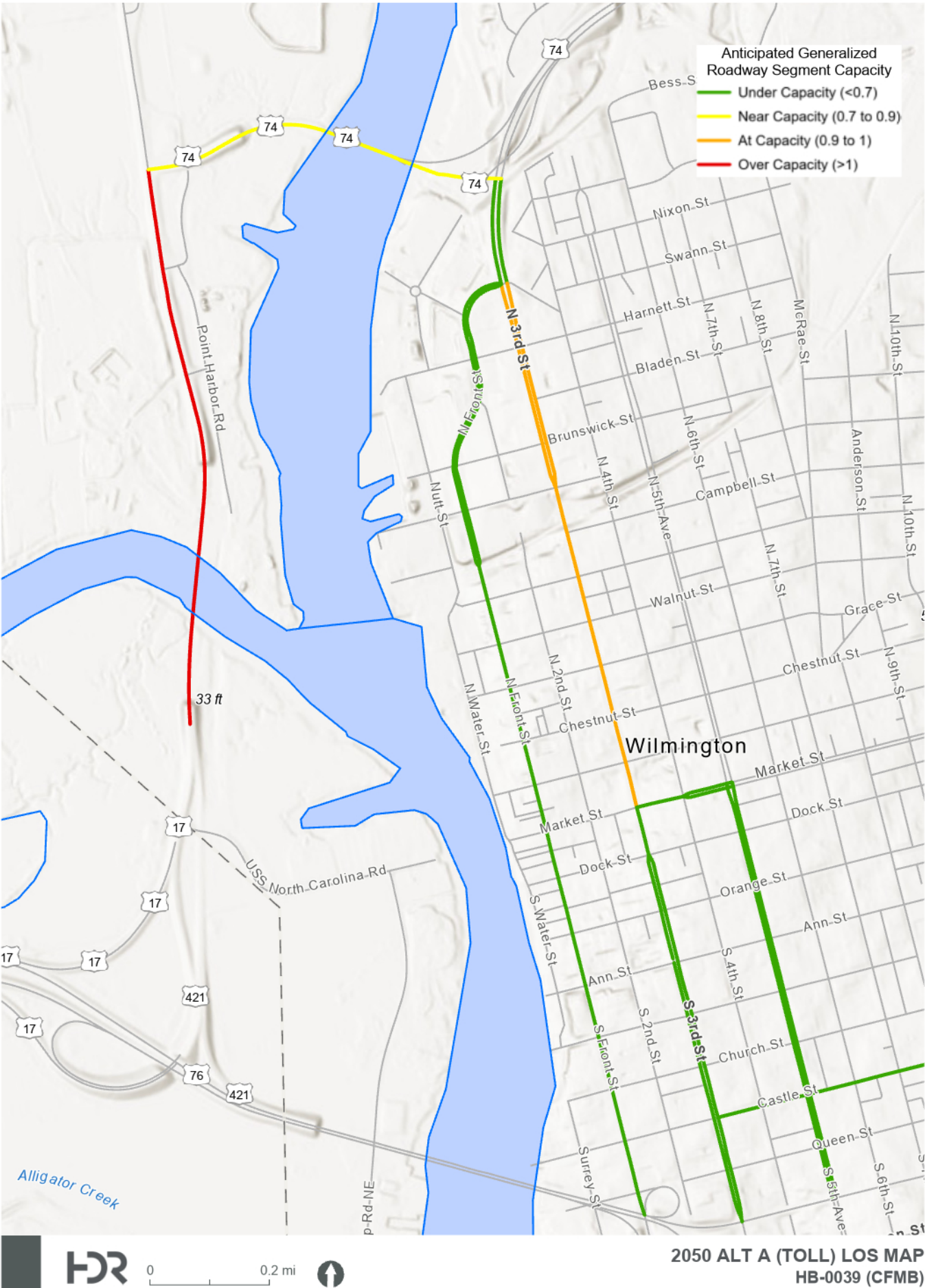


FIGURE 5B

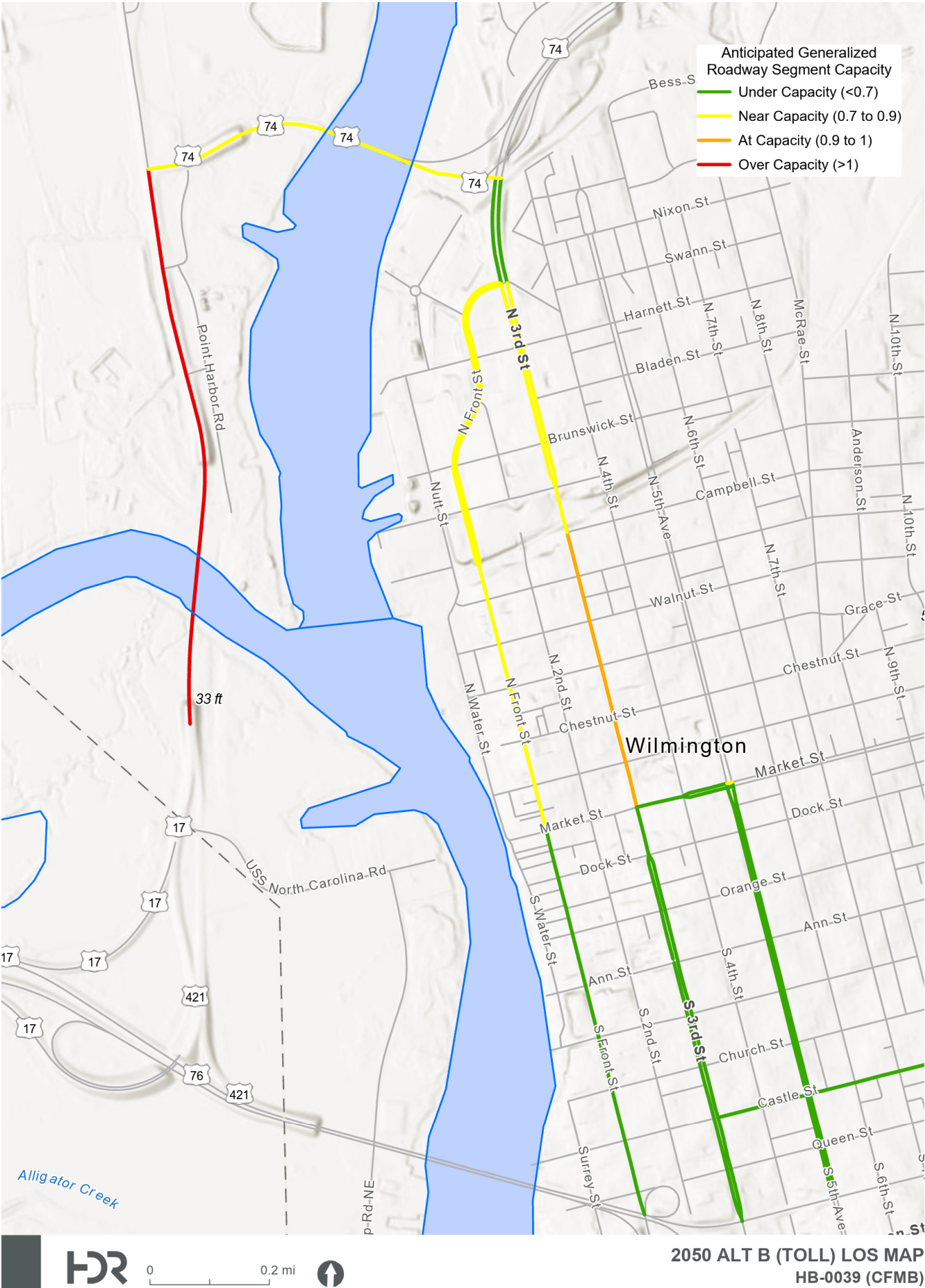


FIGURE 6B