



Wilmington Rail Realignment Environmental Assessment

Prepared For:

**Federal Railroad Administration and
the City of Wilmington**

Prepared By:

AECOM

July 2024

Appendices available at www.wilmingtonnc.gov/rail; hard copies available upon request to Aubrey.parsley@wilmingtonnc.gov or Joanna.rocco@aecom.com

Wilmington Rail Realignment Environmental Assessment

Prepared by:
Federal Railroad Administration (FRA)

City of Wilmington

Pursuant to:

National Environmental Policy Act (42 USC § 4321 et seq.) and implementing regulations (40 CFR § 1500 et seq., Section 4(f) of the U.S. Department of Transportation Act (49 USC § 303), FRA Procedures for Considering Environmental Impacts (64 Federal Register 28545, May 26, 1999); National Historic Preservation Act (54 USC § 306101 et seq.) and implementing regulations (36 CFR Part 800); Clean Air Act as amended (42 USC § 7401 et seq.) and implementing regulations (40 CFR Parts 51 and 93); the Endangered Species Act of 1973 (16 USC § 1531 et seq.) and implementing regulations (50 CFR Part 402); and the Clean Water Act (33 USC § 1251 et seq.) and implementing regulations (33 CFR Parts 320 et seq. and 40 CFR Part 230).

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Date: July 22, 2024

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EXECUTIVE SUMMARY

WILMINGTON RAIL REALIGNMENT PROJECT OVERVIEW AND PROPOSED ACTION

In 2018, the Federal Railroad Administration (FRA) awarded the City of Wilmington (City), the Project sponsor, a grant under the Consolidated Rail Infrastructure and Safety Improvements (CRISI) program to complete preliminary engineering and environmental studies for the City's proposed railroad realignment project to reroute existing and future-anticipated freight traffic traveling between the Port of Wilmington in New Hanover County and Davis Yard in the Town of Navassa, Brunswick County from the existing CSX Transportation Inc. (CSXT) Class I rail carrier freight rail line,¹ commonly referred to as the "Beltline", to a new, approximately 4-mile rail alignment with two new crossings of the Cape Fear River (Project). Limited local train traffic could remain on the Beltline.

EXISTING RAIL OPERATIONS

All current freight traffic exchanged between Davis Yard and the Port travels along the Port-owned railroad operated by the Wilmington Terminal Railroad (WTRY), a Class III rail carrier and a subsidiary of Genesee & Wyoming, and CSXT via the Beltline which connects to the WTRY in Wilmington. The Beltline forms an east-west-oriented "V" through the City. There are 32 at-grade crossings (30 public and 2 private crossings) on the Beltline and WTRY lines, the latter of which are generally along South Front Street, where the WTRY industrial freight rail tracks run parallel in the center of the street before crossing over to serve Colonial Oil. The Beltline crosses the Northeast Cape Fear River via the Hilton Bridge north of downtown Wilmington to access Davis Yard via the SE Line (Figure S-1). Existing freight operations along the Beltline vary from day to day depending on shipper demand and CSXT and/or WTRY resource planning; however, all freight trains exchanging traffic between the Port to Davis Yard currently travel the entirety of the Beltline, while other CSXT and WTRY industry switching trains move over portions of the Beltline in the performance of local switching operations for the three existing local shippers along the Beltline and Colonial Terminals served by WTRY.

PROJECT GOAL

The goal of the Project is to improve freight rail operations, regional mobility, and public safety. The Project diverts all current and future anticipated freight traffic traveling from the Port to Davis Yards from the Beltline, which would result in greatly reducing freight train traffic at the Beltline's at-grade crossings, to the new alignment. While the Project is the first phase of a broader vision by the City to improve regional mobility, including possible reuse of the Beltline for alternative transit use, under the Preferred Alternative, the Beltline would remain in place after construction of the Project and very limited train service would continue to operate over

¹ The Surface Transportation Board defines Class I rail carriers as having annual operating revenues of \$900 million or more when adjusted for inflation.

the Beltline to serve the three existing local shippers referenced above and shown in Figure S-1.

NEPA STUDY AREA

FRA and the City prepared this environmental assessment (EA) in accordance with the National Environmental Policy Act of 1969 (NEPA) (42 USC § 4321 et seq.) and its implementing regulations promulgated by the Council on Environmental Quality at 40 CFR parts 1500 -1508; 23 CFR § 771 (Environmental Impact and Related Procedures); FRA Procedures for Considering Environmental Impacts (64 FR 28545, May 26, 1999); Section 4(f) of the US Department of Transportation Act (49 USC § 303); and other applicable laws and regulations. FRA is the lead Federal agency for the oversight of the NEPA process. The Surface Transportation Board (STB), National Marine Fisheries Service (NMFS), Coast Guard (USCG), Environmental Protection Agency (EPA), and Army Corps of Engineers (USACE) are Cooperating Agencies. If Federal funds are used for future phase(s) including final design and construction, additional analysis under NEPA may be required.

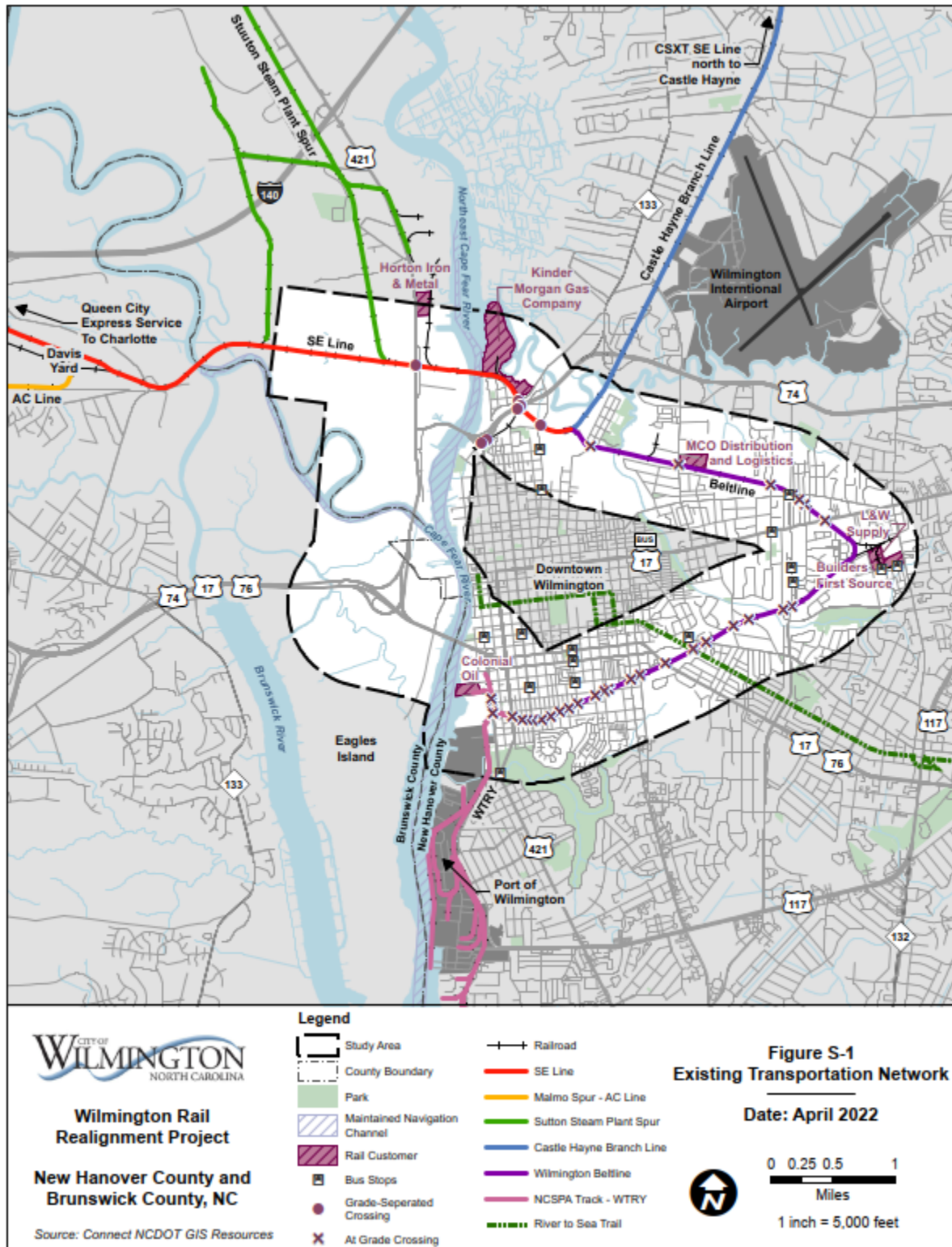
The NEPA Study Area (Study Area) was established as a roughly donut-shaped area which, on the east side of the Cape Fear River/Northeast Cape Fear River², extends approximately one-mile on both sides of the Beltline's centerline within the City; and on the west side of the rivers, includes undeveloped areas on Eagles Island and areas west of US 421 in Brunswick County (Figure S-2). Within the City, land uses include single- and multi-family residential, business, and commercial, but does not include the downtown Wilmington business district. The parcels in Brunswick County are relatively undeveloped or include industrial and/or commercial development along the Cape Fear River and US 421. Eagles Island, between the Cape Fear and Brunswick Rivers, is part dredge spoil and part pristine tracts of wetlands.

The Study Area's built environment includes infrastructure that encompasses regional and local community resources, such as businesses, residential development, transportation networks, services and utilities, parks and recreational resources, cultural and religious resources, and other community gathering places.

There are four operable rail and highway bridges over the Cape Fear River or the Northeast Cape Fear River in the Study Area, consisting of two highway bridges north and south of downtown Wilmington and two railroad bridges north of downtown. The Cape Fear River Bridge carries US 17/US 76/US 421 over the main channel of the Cape Fear River south of downtown and just north of the Port of Wilmington. The Isabel Holmes Bridge carries US 74 over the Northeast Cape Fear River just north of downtown. The Hilton Bridge and Navassa Bridge carry only rail traffic across the Northeast Cape Fear River and the Cape Fear River north of downtown. The Navassa Bridge over the Cape Fear River is manned continuously. The Hilton drawbridge over the Northeast Cape Fear River is remotely operated from the Navassa Bridge. Trains must stop at both bridges unless granted permission by the bridge tender to proceed.

² The confluence of the two rivers is in the center of the Study Area.

Figure S-1: Existing Transportation Network



PURPOSE AND NEED

The purpose of the Project is to improve safety, regional transportation mobility, and freight rail operations while also improving resiliency from storms, regional travel reliability, and operational fluidity of the sole freight rail route connecting the Port of Wilmington and southeastern North Carolina with the national freight rail network.

The Project addresses three main needs: enhanced efficiency of freight movement, improved safety, and improved regional mobility and reliability. The challenges the City faces with rapid population growth and increasing traffic congestion combined with increases in freight train movement between Davis Yard and the Port are straining the existing transportation network. Of concern are the numerous at-grade crossings through the City on the Beltline. To access the Port and/or Davis Yard, freight trains must currently travel over eight miles through Wilmington, crossing 32 at-grade crossings (30 public crossings and two private crossings). The at-grade crossings cause traffic delays, present a safety risk, and reduce the quality of life for the approximately 50,000 residents who reside in the Study Area because of increased auto emissions from longer vehicle idling. Due to increasing volumes at the Port and sustained population growth, compounded impacts are expected to worsen in the coming years.

Alternatives Analysis

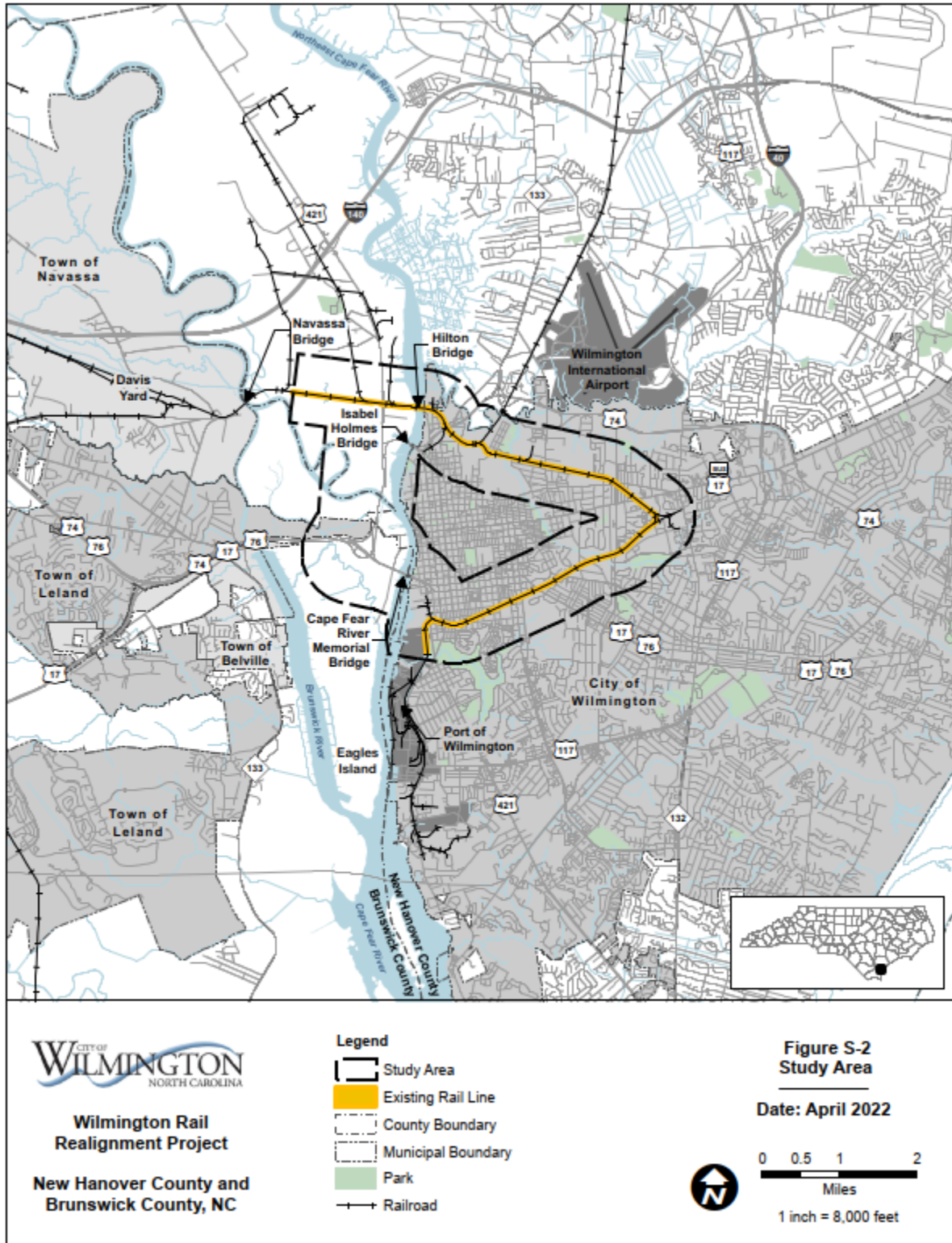
The results of the 2017 *Wilmington Rail Realignment and Right of Way Use Alternatives Feasibility Study*³ (Feasibility Study) served as the basis for alternatives development. The Project then underwent a two-step process to identify a Preferred Alternative – the development of a Corridor Screening Report⁴ followed by the development of an Alternatives Analysis Report (October 2021).⁵ New or modified corridors were also considered based on the Purpose and Need, including engineering feasibility and environmental considerations at a qualitative level during the corridor screening phase.

³ Moffatt and Nichol. 2017. *Wilmington Rail Realignment and Right of Way Use Alternatives Feasibility Study*. June 2017. <https://www.wilmingtonnc.gov/home/showpublisheddocument/11206/637152921723230000>

⁴ AECOM, 2021, *Wilmington Rail Realignment Corridor Screening Report*. January 2021. <https://www.wilmingtonnc.gov/home/showpublisheddocument/12840/637491697093000000>

⁵ AECOM, 2021, *Wilmington Rail Realignment Alternatives Analysis Report*. October 2021. <https://www.wilmingtonnc.gov/home/showpublisheddocument/13660/637720626365230000>

Figure S-2: Study Area



The results of the Corridor Screening Report provided a vetted set of alternatives that were carried forward for more detailed study in the Alternatives Analysis. The Alternatives Analysis Report provided a quantitative analysis of potential alternatives using an enhanced set of evaluation criteria. The result of the Alternatives Analysis Report was the recommendation of a Preferred Alternative to be carried forward for further evaluation through the NEPA process.

The Preferred Alternative (Alternative 2) went through several iterations of design refinements from the Feasibility Study to the Alternatives Analysis; however, it generally follows Corridor B from the Feasibility Study. During virtual meetings, drafts of both the Corridor Screening Report and the Alternatives Analysis Report were made available to the public for review and solicited comments. Preliminary results were also presented to the Cooperating and Participating Agencies to incorporate their feedback and discuss public comments prior to finalizing the identification of the Preferred Alternative.

NO-BUILD ALTERNATIVE

The No-Build Alternative assumes all existing and future-anticipated freight trains would continue to utilize the current route of traveling along the Port-owned railroad operated by the WTRY to connect to the Beltline at South 2nd Street then traveling the approximately eight miles through the City and crossing the 32 at-grade crossings (30 public and 2 private crossings) on the CSXT and WTRY lines, to cross the Northeast Cape Fear River via the Hilton Bridge north of downtown Wilmington to access Davis Yard via the SE Line (Figure S-1). The Project does not propose any new elements or improvements to the existing route under the No-Build Alternative. All existing conditions would remain the same except for improvements planned as part of the Wilmington Beltline Improvement Project (NCDOT STIP Project P-5740) and the Independence Boulevard Project (NCDOT STIP Project U-4434). In general, existing conditions would remain the same as current conditions.

PREFERRED ALTERNATIVE

Under the Preferred Alternative, all existing and future-anticipated freight traffic traveling between Davis Yard and the Port would use the proposed realignment. The Beltline would remain in place and limited freight service could continue to operate over the Beltline to serve three local shippers (Builders First Source, L&W Supply, and MCO Distribution and Logistics) (Figure S-1). However, the connection between the WYTR and Beltline will be severed at South Front Street through the removal of track, meaning that freight trains traveling between Davis Yard and the Port would no longer be able to access the Beltline. The Preferred Alternative is approximately four miles in length and begins at-grade by tying into existing trackage operated by WTRY near Greenfield Street, then follows along the west side of S. Front Street. North of Wright Street, the Preferred Alternative travels northwest across Dawson Street and Surry Street and then crosses the Cape Fear River on a vertical lift bridge. The closed elevation would be approximately 34 feet at top of rail and the partially open position would be 49 feet. The elevated structure continues approximately one mile before turning north and crossing over US 17 just west of the existing US 17/US 421/US 74/US 76 interchange at an approximate

elevation of 41 feet (top of rail). After crossing the existing US 17/US 421/US 74/US 76 interchange, the alignment continues on elevated structure and gradually decreases in elevation and crosses the Cape Fear River again at approximately 21 feet in elevation utilizing a bascule-type moveable span bridge. The Preferred Alternative continues north parallel to US 421/US 74 on embanked fill and ties into the existing CSXT SE Line approximately 0.4 mile west of US 421/US 74. Approximately 50 percent of the alignment is proposed on structure. The rail line would remain single track and have a right-of-way width ranging from approximately 50 feet while on structure up to approximately 200 feet in some locations with embankments. The Preferred Alternative alignment is shown in Figure S-3.

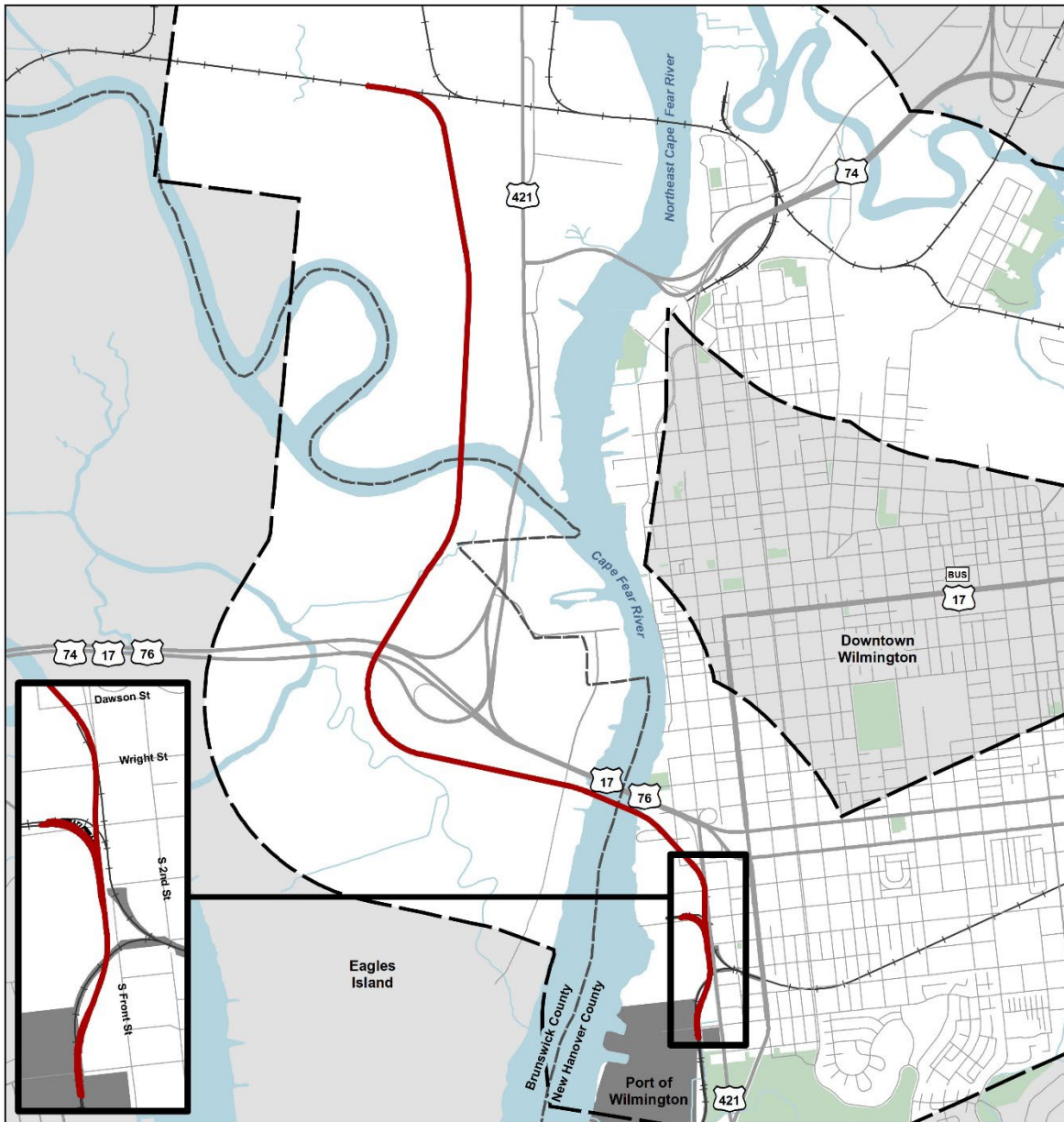
SUMMARY OF PROJECT IMPACTS

The potential direct impacts of the Project are discussed in Table S-1. Mitigation measures have been proposed to ensure, to the greatest extent practicable, that the direct and cumulative effects are minimal.

INDIRECT IMPACTS

Construction of the Project would result in beneficial indirect effects on the economy during the construction period related to construction labor, the production of necessary services and materials, and expenditures by construction workers patronizing local businesses. An additional benefit to the area's economy is associated with the value of residential properties adjacent to the Beltline. These property values could increase in value as noise and safety concerns are reduced by rerouting all freight train traffic traveling between Davis Yard and the Port from the Beltline to the Preferred Alternative. In addition, because the Preferred Alternative saves time for freight trains traveling between Davis Yard and the Port by avoiding a longer route through the City, there may be additional efficiencies gained at the Port, such as supporting quicker truck turnaround times and general surface transportation consistency.

Figure S-3: Preferred Alternative



Legend

- Study Area
- County Boundary
- Park
- Preferred Alternative
- Railroad

**Figure S-3
Preferred Alternative**

Date: April 2022



0 0.125 0.25 0.5
Miles
1 inch = 2,250 feet

CUMULATIVE IMPACTS

Cumulative impacts analysis considered the Project's operational and construction-period impacts with other projects, including several roadway and intersection improvement projects along Shipyard Boulevard, the primary access to the Port, as well as roadway widenings and intersection improvements on truck routes to the Port (included in local plans such as the *2020-2029 STIP*,⁶ the *North Carolina Comprehensive State Rail Plan*,⁷ and the *Cape Fear Moving Forward 2045 Metropolitan Transportation Plan*⁸). The Wilmington Beltline Improvements (STIP P-5740) are targeted at reducing/maintaining the rate of mean travel time for people and freight, reducing vehicle miles traveled (VMT), maximizing throughput for each lane, reducing peak hour delay, and addressing future growth in employment, population, and freight/industry. In addition, several fiscally constrained projects are included in the region, as noted in Table 2-4 in Section 2.2.1. Elements of the Project, in combination with other rail improvement projects, would result in a cumulative transportation benefit. If implemented, the Project would improve system resiliency and connectivity.

⁶ NCDOT. 2021. 2020-2029 State Transportation Improvement Program.

<https://www.ncdot.gov/initiatives-policies/Transportation/stip/Pages/about.aspx>

⁷ NCDOT. 2015. North Carolina Comprehensive State Rail Plan.

<https://www.ncdot.gov/divisions/rail/Pages/rail-plan.aspx>

⁸ Wilmington Urban Area MPO. 2020. Cape Fear Moving Forward 2045 Metropolitan Transportation Plan.

https://www.wmpo.org/wp-content/uploads/2020/11/Cape-Fear-Moving-Forward-2045_ADOPTED-November-2020_Reduced-File-Size.pdf

Table S-1: Summary of Potential Impacts

Resource	Potential Impacts of Preferred Alternative	Proposed Mitigation and Commitments
Transportation	<p>Permanent:</p> <p>While the Preferred Alternative greatly reduces train traffic at 32 at-grade crossings (30 public and 2 private crossings) along the Beltline by removing all current and future-anticipated freight traffic traveling between Davis Yard and the Port, the Preferred Alternative would cross existing transit routes.</p> <p>Temporary:</p> <p>Existing bike lanes and sidewalks along South Front Street may be temporarily impacted by the Project during construction.</p>	<p>No negative Transportation impacts have been identified because of the Preferred Alternative; therefore, no mitigation is required.</p> <p>The City will develop traffic management plans prior to construction activities that layout rerouting roadway as well as bicycle, pedestrian, and transit traffic. Consideration of timing of construction activities would also be given to minimize impacts during peak travel times.</p>
Land Use	<p>Permanent:</p> <p>The Preferred Alternative would be mostly compatible with existing land uses and no long-term significant adverse impacts to land use or zoning is expected.</p> <p>The Preferred Alternative would impact 18.44 acres of areas used for conservation, including the Eagles Island Natural Area Dedicated Nature Preserve and the North Carolina Coastal Land Trust Easement.</p> <p>Temporary:</p> <p>Any construction-related impacts to land use such as restrictions in access or delays would be temporary and minimal.</p>	<p>No land use mitigation is required.</p> <p>The City will work with the localities to obtain variances or apply for rezoning permits in areas where the rail line is determined incompatible with current land uses. The City will continue coordinating with affected communities and stakeholders to avoid or minimize changes in land use.</p> <p>The Preferred Alternative would minimize land used for conservation by using approximately 3,500 feet of former railroad right-of-way, which is excluded from the North Carolina Land Trust Easement conservation area.⁹ In addition, the Preferred Alternative would pass through the Eagles Island Natural Area Dedicated Nature Preserve entirely on an elevated structure, allowing for natural movements under the rail line to continue after construction, further reducing impacts to these conservation areas.</p>
Property Acquisition	<p>Permanent:</p> <p>The Preferred Alternative would require the full or partial acquisition of 35 properties, all but 3 of which are industrial. Of the two that are zoned residential, neither contains any residences. The other property is zoned mixed use.</p>	<p>The City would handle all property acquisitions and relocations in accordance with the Uniform Relocation Act.</p>
Community Facilities	<p>Permanent:</p> <p>The Preferred Alternative would not impact any community facilities (places of worship, EMS facilities, schools, etc.). The Preferred Alternative is expected to improve overall mobility in the City including to community facilities through the realignment of freight traffic traveling between Davis Yard and the Port from needing to cross the 32 at-grade crossing (30 public and 2 private crossings) on the Beltline.</p> <p>Temporary:</p> <p>Temporary detours may be necessary to maintain access to some facilities during construction.</p>	<p>No negative impacts to any community facilities have been identified because of the Preferred Alternative; therefore, no mitigation is required.</p> <p>The City will continue to coordinate with local entities to plan for temporary detours and maintain access to community facilities and services during construction.</p>

⁹ This former railroad right-of-way is documented in the North Carolina Coastal Land Trust's deed dated September 11, 2000 in Book 2814, pages 0769 to 0778.

Resource	Potential Impacts of Preferred Alternative	Proposed Mitigation and Commitments
Demographics and Environmental Justice	<p>Permanent:</p> <p>Since the Preferred Alternative redirects all existing and future-anticipated freight traffic traveling between Davis Yard and the Port away from the City, minority and low-income community will experience positive changes to the current visual and noise impacts from this traffic using the Beltline. The Project would likely provide an overall benefit to the Environmental Justice populations surrounding the Beltline including enhancing community connectivity, reducing noise levels around the Beltline, enhancing visual quality, improving safety, and air quality improvements within the portions of the Study Area in the City.</p> <p>Temporary:</p> <p>Construction of the Project would result in beneficial indirect effects on the economy during the construction period related to construction labor, the production of necessary services and materials, and construction workers patronizing local businesses.</p>	<p>No disproportionately high or adverse impacts to minority or low-income populations is anticipated from the Preferred Alternative; therefore, no mitigation is required.</p> <p>The City will continue to coordinate with community leaders throughout project development to discuss updates to keep them informed about the Project.</p>
Public Health and Safety	<p>Permanent:</p> <p>The Project would not create any anticipated public health and safety impacts. Since the Preferred Alternative redirects all existing and future-anticipated freight traffic traveling between Davis Yard and the Port away from the City and the Beltline, the Preferred Alternative would greatly reduce the potential number of at-grade crossing conflicts between vehicles and freight, thereby improving public health and safety.</p> <p>Temporary:</p> <p>Temporary detours may be necessary to maintain access to some facilities during construction, and would be executed in compliance with all applicable health and safety regulations.</p>	<p>Since the Preferred Alternative would not create any public health and safety impacts, no specific mitigation is required.</p> <p>The City will ensure all construction activities and future operations of the freight rail traffic would be done in compliance with regulations, such as those administered by the Occupational Safety and Health Administration (OSHA) and FRA.</p>
Parks and Recreational Facilities	<p>Permanent:</p> <p>No parks and recreational facilities would be impacted by the Preferred Alternative.</p> <p>Temporary:</p> <p>Existing bike lanes and sidewalks along South Front Street may be temporarily impacted during construction.</p>	<p>No parks or other recreational facilities would be impacted by the Preferred Alternative; therefore, no mitigation is required.</p> <p>The City will coordinate with local entities to plan for temporary detours during construction for the impacted bike lanes and sidewalks along South Front Street.</p>

Resource	Potential Impacts of Preferred Alternative	Proposed Mitigation and Commitments
Historic Architecture	<p>Permanent:</p> <p>The Preferred Alternative will have No Adverse Effect on architecture/history historic properties. No historic properties will be destroyed, moved, neglected, repaired, or rehabilitated, or have a change of use. While 7 contributing resources to the Wilmington Historic District may experience severe noise impacts and 5 may experience moderate noise impacts, FRA found and the SHPO concurred that impacts to such a low percentage of contributing resources in the Wilmington Historic District did not rise to the level of an adverse effect under Section 106. FRA conditioned their finding to have the City address all severe noise impacts to the extent practicable.</p> <p>Temporary:</p> <p>No construction-related noise or vibration impacts are anticipated on any architecture/history historic properties.</p>	<p>Since the Preferred Alternative would not cause any adverse effects under Section 106, no mitigation is required.</p> <p>The City will address severe noise impacts to the 7 contributing resources to the Wilmington Historic District through appropriate noise mitigation (see Noise and Vibration row). If FRA funds are awarded for the final design and construction of the Project, FRA and the City will discuss potential noise mitigation strategies in more detail and coordinate with NCHPO and consulting parties during re-initiation of the Section 106 process.</p>
Section 4(f) Resources	<p>Permanent:</p> <p>The Preferred Alternative will place piers in the Cape Fear River, which was included as a contributing resource in the Wilmington Historic District. FRA used its Section 106 No Adverse Effect finding as the basis of a <i>de minimis</i> finding for the Wilmington Historic District and notified the SHPO as the Official with Jurisdiction (OWJ). There are no other Section 4(f) uses of historic sites by the Preferred Alternative.</p> <p>No parks and recreation areas would be impacted by the Preferred Alternative, and no wildlife and/or waterfowl refuges exist in the Study Area.</p> <p>Temporary:</p> <p>No temporary impacts to Section 4(f) resources are anticipated due to construction of the Preferred Alternative.</p>	<p>The Preferred Alternative would not result in any Section 4(f) use; therefore, no mitigation is required.</p>
Archaeology	<p>There are no archaeological resources in the APE; therefore, no permanent or temporary effects to archaeological resources are anticipated because of the Preferred Alternative.</p>	<p>Since there are no archaeological historic properties in the Project's area of potential effect (APE), no mitigation is required.</p> <p>If FRA funds are award for the final design and construction of the Project, and if archeological historic properties are identified during construction, FRA will follow 36 CFR 800.13 regarding unanticipated discoveries.</p>

Resource	Potential Impacts of Preferred Alternative	Proposed Mitigation and Commitments
Visual Resources	<p>Permanent:</p> <p>The Preferred Alternative would result in visual changes to the Study Area due to the addition of rail line on elevated structure with new lift span bridges. Visual impacts are anticipated to be moderately low and neutral in Landscape Area #1 and moderately low in Landscape Area #2; and therefore, would not be adverse.</p> <p>Temporary:</p> <p>Visual impacts during construction could include vegetation removal, construction lighting, and staging areas.</p>	<p>Visual resources are not anticipated to be adversely impacted because of the Preferred Alternative; therefore, no mitigation is required.</p> <p>Measure are anticipated to be included during the final design process to help minimize visual impacts including overall design criteria with details to address local context in sensitive locations; construction phase requirements to minimize vegetation removal and prevent unintended disturbance; development of construction and operational lighting plans to focus lighting on areas requiring illumination; and the selection of staging areas and staging area design features that limit visual and aesthetic effects on neighboring uses.</p>
Water Quality	<p>Permanent:</p> <p>Impacts on water quality could result from operation of the Preferred Alternative; however no adverse impacts are anticipated.</p> <p>Temporary:</p> <p>Impacts on water quality could result from the construction and operation of the Preferred Alternative through vegetation removal, excavation, fill placement, use of equipment, and installation of water crossing structures. Construction of the Preferred Alternative would require in-water work, resulting in minimal, temporary, and localized effects on the water quality of the Cape Fear River within the LOD. No adverse impacts are anticipated by the Preferred Alternative after implementation of Best Management Practices (BMP) during construction and the adherence to permitting conditions to avoid and minimize potential water quality impacts.</p>	<p>The proposed use of BMP results in no adverse impacts; therefore, no mitigation is required.</p> <p>The City will ensure the implementation of Best Management Practices (BMP) during construction, including preparation of a Stormwater Pollution Prevention Plan, and the adherence to a Clean Water Act Section 404 Individual Permit, a Clean Water Act Section 401 Water Quality Certification (WQC), and a Clean Water Act Section 408 approval from the USACE, as required.</p>
Water Bodies and Waterways	<p>Permanent:</p> <p>The Preferred Alternative would result in impacts to high and medium quality wetlands and streams.</p> <p>Temporary:</p> <p>Construction of the Preferred Alternative would result in minimal temporary impacts to high and medium quality wetlands and streams.</p>	<p>Prior to permitting and final design activities, the USACE would make the final jurisdictional determination for WOTUS, determine what Section 404 permit would be required of the Project, and define the appropriate mitigation requirements.</p>
Navigation	<p>Permanent:</p> <p>No unavoidable impacts to navigation have been identified. The Preferred Alternative proposes two new moveable span, single-track bridges crossing the Cape Fear River in two separate locations. Several commercial waterway users are located downstream of the proposed bridge locations, the largest of which is the North Carolina State Ports Authority's (NCSPA) Port of Wilmington.</p> <p>Temporary:</p> <p>No temporary impacts are anticipated due to construction of the Preferred Alternative.</p>	<p>No impacts to navigation have been identified; therefore, no mitigation is required.</p> <p>Navigation is not anticipated to be impacted because of the Preferred Alternative; therefore, no mitigation is required. However, the City will coordinate any future proposed mitigation with the US Coast Guard during the bridge permitting process.</p>

Resource	Potential Impacts of Preferred Alternative	Proposed Mitigation and Commitments
Floodplains and Flood Zones	<p>Permanent:</p> <p>Potential impacts of the Preferred Alternative to floodplains may result from filling, grading, new bridge structures, and other activities. The exact impact of this activity remains unknown at this time.</p> <p>Temporary:</p> <p>Potential impacts during construction are unknown at this time and will be evaluated further as design progresses.</p>	<p>Since the exact impact of the Project to floodplains and flood zones is unknown, no mitigation is currently identified. As design progresses, a detailed Special Flood Hazard Area (SFHA) evaluation will be prepared. This evaluation would identify specific mitigation measures and required permits for developing the rail line within these areas. The Preferred Alternative would be designed to meet the relevant requirements of Executive Order 11988 and USDOT Order 5650.2, <i>Floodplain Management and Protection</i> for developing in floodplains. All conveyance structures in FEMA 100-year floodplains would be designed to obtain a no-rise certification and carry the 100-year storm event.</p> <p>The City will continue to coordinate with local units of government, the state, and FEMA as the Project progresses.</p>
Coastal Zones and AECs	<p>Permanent:</p> <p>Coastal Area Management Act (CAMA) Areas of Environmental Concern (AEC) would be impacted by the Preferred Alternative, including public trust areas, public trust area shorelines, estuarine waters, coastal shorelines, and coastal wetlands.</p> <p>Temporary:</p> <p>As the Project design progresses, a coastal zone consistency determination will be prepared to assess any temporary impacts to AECs during construction.</p>	<p>The proposed action would be subject to regulation under the CAMA Major Permit program as a non-federal development activity involving work in AECs; therefore, the City would need to acquire a CAMA Major Permit from the NCDEQ DCM for all impacts to designated CAMA AECs. Before the coastal zone consistency determination, the City will need to conduct a topographic survey and analyze with tidal datum to determine the mean high-water line. As design progresses, the City would avoid, minimize, and mitigate impacts to AECs to the maximum extent practicable in coordination with regulatory and environmental resource agencies. During the Project's permitting process compensatory mitigation may be required.</p>
Threatened and Endangered Species	<p>Permanent:</p> <p>Federally protected species have the potential to occur within the Preferred Alternative's limits of disturbance. Suitable habitat for the northern long-eared bat, west Indian manatee, and the American alligator is present within the Limits of Disturbance (LOD). Suitable habitat is also present for the two sturgeon species.</p> <p>Habitat Areas of Particular Concern (HAPCs) for fish species exist within the Preferred Alternative's limits of disturbance and are also identified as Primary Nursery Areas (PNA).</p> <p>Due to the presence of a bald eagle nest approximately 300 feet from the Preferred Alternative, it has been determined that the Project may affect this species.</p> <p>In a letter dated September 8, 2022, the USFWS concurred that the Project is not likely to adversely affect any federally listed endangered or threatened species [under USFWS purview], or species currently proposed for listing under the ESA, and that requirements of Section 7 have been satisfied.</p> <p>Temporary:</p> <p>There is suitable habitat for several species in the study area; however, guidelines will be followed to avoid any adverse impacts to species during construction.</p>	<p>Since the Project is unlikely to adversely affect any federally listed endangered or threatened species, no mitigation under the ESA is required.</p> <p>The City will follow guidelines for avoiding impacts to the west Indian manatee and northern long-eared bats during construction in locations of suitable habitat for these species.</p> <p>The City will obtain an Incidental Take permit as required by USFWS prior to construction due to the presence of the bald eagle nest near the Preferred Alternative.</p> <p>An EFH Assessment has been prepared to assess impacts to EFH and HAPC that may result from the Project and notes the project design incorporates several structural and routing measures to avoid and minimize impacts on EFH/HAPC habitats.</p> <p>The USFWS recommends no in-water work during anadromous fish spawning season from February 15 to June 30. Additional in-water work restrictions may also be applicable for the Project and the City will continue coordination with USFWS to address any restrictions prior to permitting.</p>

Resource	Potential Impacts of Preferred Alternative	Proposed Mitigation and Commitments
Anadromous Species	<p>Permanent: The Cape Fear River contains NCDEQ DMF-designated Primary Nursery Areas (PNA) and anadromous fish spawning areas (AFSA); however, the Preferred Alternative is unlikely to impact any anadromous species.</p> <p>Temporary: Impacts from sedimentation suspension during construction would degrade water quality but are expected to be localized.</p>	<p>Since the Project is unlikely to adversely affect any anadromous species, no mitigation under the ESA is required.</p> <p>The Design Standards for Sensitive Watersheds (15A NCAC 04B .0124) should be considered for erosion and sedimentation control measures, structures, and devices in areas designated as PNA. There would also be a construction moratorium for work in waters designated as PNA, AFSA, and sturgeon spawning waters. USFWS recommended an in-water work construction moratorium during the anadromous fish spawning season from February 15 through June 30. Additional in-water work restrictions may also be applicable for the Project and the City will coordinate with the agencies prior to permitting.</p>
Soils and Prime Farmland	<p>Permanent: The creation of new impervious surfaces would be limited, but where it occurs, it would result in an increase in stormwater runoff and a potential increase in soil erosion. No farmland would be adversely impacted by the Project.</p> <p>Temporary: Construction of the Preferred Alternative would cause potential impacts on soils where excavation and/or fill activities occur and could include small, localized increases in erosion and sedimentation.</p>	<p>No farmland would be adversely impacted by the Project; therefore, no mitigation is required.</p> <p>The City will ensure the use of best management practices such as soil erosion and sediment control measures, to minimize the potential for increased soil erosion. In addition, the City may need to acquire a National Pollutant Discharge Elimination System (NPDES) permit for discharges of stormwater associated with construction activities once final designs have been completed.</p>
Contaminated Sites	<p>Permanent: The Preferred Alternative's LOD revealed the occurrence of approximately 20 sites from which soil and groundwater contamination could originate.</p> <p>Temporary: Prior to any earthmoving activities, more detailed investigations would need to be completed by the City closer to construction to determine where temporary impacts may occur.</p>	<p>There is no mitigation required; however, the City will implement the following strategies : Update information during subsequent phases of project design to account for newly added sites or changed status of known sites; conduct a Phase 2 environmental site assessment for all properties along the Preferred Alternative alignment, including construction staging and laydown areas; review EPA online EJSCREEN database to consider hazardous waste and demographic data to consider potential human health risk factors; consult with regulatory agencies on sites where regulatory status is uncertain or where more information would be needed.</p>

Resource	Potential Impacts of Preferred Alternative	Proposed Mitigation and Commitments
Air Quality	<p>Permanent:</p> <p>The Project would not create any anticipated air quality impacts. Since the Preferred Alternative redirects all existing and future-anticipated freight traffic traveling between Davis Yard and the Port away from the City and the Beltline, the Preferred Alternative would greatly reduce the potential number of at-grade crossing conflicts between vehicles and freight, thereby reducing locomotive running time and the associated emissions (including GHG) as well as cars idling at the 32 at-grade crossings (30 public and 2 private crossings) along the current Beltline route.</p> <p>Temporary:</p> <p>Construction impacts would be temporary and could include the following:</p> <ul style="list-style-type: none"> • Localized increases in emissions from construction equipment, particularly diesel-powered equipment. Increased concentrations could occur in the areas of work activities, access points, and haul routes. • Increases in motor vehicle emissions associated with potential disruption of traffic operations during construction. Effects could occur if temporary lane closures and detours cause congestion and travel delays. • Localized dust and airborne particulate matter are generated by temporarily exposed soils, earth-moving activities, and equipment operating in unpaved areas. Effects could occur in the area of work activities and access points. 	<p>Since there are anticipated air quality impacts from the Project, no mitigation is required.</p> <p>Best management practices will be implemented by the City to control dust and vehicle emissions during construction. The City will include these measures and practices in the Project construction plan. Air quality control measures (such as wetting unpaved surfaces and limiting equipment idle time while on site) are typically utilized to minimize temporary impacts during construction.</p>
Noise and Vibration	<p>Permanent:</p> <p>For all 2,024 receptors, severe noise impacts are predicted at 40 residences under the Preferred Alternative Scenario 1 (10,000-foot trains), while moderate noise impacts are predicted at an additional 27 residences. Similarly, severe noise impacts are predicted at 41 residences under Preferred Alternative Scenario 2 (6,000-foot trains) while moderate noise impacts are predicted at an additional 27 residences. These noise impacts are due completely to the sounding of the train warning horn within 20 seconds of the public grade crossings at Wright and Dawson Streets.</p> <p>No operational vibration impacts are predicted.</p> <p>Temporary:</p> <p>Overall, Project construction activities are not predicted to exceed the FTA 'daytime' or 'nighttime' noise impact criteria at any residences. Overall, construction vibration levels would not be predicted to exceed the Project damage criteria anywhere.</p>	<p>Because FTA severe noise impacts are predicted due to train warning horns at the at-grade crossings at Wright and Dawson Streets during future Project operations, noise mitigation measures have been identified for consideration, which include the closing of Dawson Street and reassignment of Wright Street from a public to private driveway. Both measures would eliminate the need for train warning horns as described in Section 3.19. Reassignment of Wright Street from public access to private access would potentially require approvals from the Wilmington City Council and Planning Boards and agreement with the private property owners accessed by this roadway.</p> <p>The effectiveness and efficacy of these control measures will be investigated in more detail during the future final design phase of the Project when details of the bypass alignment and other engineering considerations are better defined. Additionally, since no operational vibration impacts are predicted, no control measures are required for vibration.</p>

Resource	Potential Impacts of Preferred Alternative	Proposed Mitigation and Commitments
Utilities	<p>Permanent: Construction of the Preferred Alternative requires some adjustment, relocation, or modification of existing public utilities.</p> <p>Temporary: Construction of the Project would require some adjustment, relocation, or modification to existing utilities, which could result in temporary disruption to services provided by existing utilities.</p>	<p>For unavoidable utility conflicts, the City will coordinate with utility owners and operators prior to construction to identify appropriate mitigation measures such as relocating, raising, lowering, burying and protecting utility lines and services.</p>
Energy Resources	<p>Permanent: While increased operations would result in greater energy consumption, the reduction in miles traveled and delays at grade crossings would likely provide an overall net benefit to freight rail energy consumption within the Study Area.</p> <p>Temporary: Energy consumption during the construction period would be temporary and would place minimal additional demand on the local energy supply.</p>	<p>As the Preferred Alternative significantly lessens many of the effects on energy resources, no specific mitigation is proposed.</p>
Resiliency	<p>The Preferred Alternative and its associated structures included in the Project designed with an elevation of two feet above the projected MHHW level in 2100 (10.9 feet) should minimize the risk of sea level rise-induced inundation and promote resiliency for approximately the next 100 years.</p> <p>The Preferred Alternative crosses the Cape Fear River and associated floodplains, an area highly susceptible to inundation for the future year 2040. The majority of the Preferred Alternative would be designed to exceed the elevations needed to be above inundation levels, except for the northern and southern limits where it ties into the existing rail.</p>	<p>There is no mitigation required.</p> <p>The City will ensure the sections of the rail line at grade are designed to resist flood potential by incorporating resilient design measures such as direct fixation track that would be more resistant to saltwater incursion than ballasted track and concrete for the liner and bench walls that would withstand salt water. Resilient adaptation measures would help to mitigate future needs for additional maintenance on the rail line.</p>

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LIST OF ACRONYMS AND ABBREVIATION

AADT	Average Annual Daily Traffic
ACS	American Community Survey
AEC	Areas of Environmental Concern
AFSA	anadromous fish spawning areas
AIS	Automatic Identification System
APE	Area of Potential Effects
AST	aboveground storage tanks
BCA	benefit-cost analysis
BCC	Birds of Conservation Concern
BFE	base flood elevation
BG	Block Group
BGEPA	Bald and Golden Eagle Protection Act
BMP	Best Management Practice
CAA	Clean Air Act
CAMA	Coastal Area Management Act
CCX	Carolina Connector
CEQ	Council on Environmental Quality
CO	carbon monoxide
CRC	Coastal Resources Commission
CRISI	Consolidated Rail Infrastructure and Safety Improvements
CSXT	CSX Transportation
CT	Census Tract
CZMA	Coastal Zone Management Act
dBA	decibel
DCM	Division of Coastal Management
DMF	Division of Marine Fisheries
DSA	Demographic Study Area
EA	Environmental Assessment
EDPNC	Economic Development Partnership of North Carolina
EFH	Essential Fish Habitat
EIS	Environmental Impact Statement
EMS	emergency medical services
ESA	Endangered Species Act
EVAD	Enhanced Voluntary Agricultural Districts
FCC	Federal Communications Commission
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Maps
FONSI	Finding of No Significant Impacts
FPPA	Farmland Protection Policy Act
FRA	Federal Railroad Administration
FRB	federal remediation branch

FTA	Federal Transit Administration
FY	fiscal year
GIS	Geographic Information System
GVW	gross vehicle weight
HAPC	Habitat Areas of Particular Concern
HQW	High Quality Waters
HUC	Hydrologic Unit Code
HW	hazardous waste
IH	inactive hazardous
IPaC	Information for Planning and Consultation
ITS	Intelligent Transportation Systems
KVP	Key Viewpoint
LA	Language Assistance
LEP	Limited English Proficiency
LRTP	long range transportation plans
LUR	Land Use Restriction
LWCF	Land and Water Conservation Fund
MAS	maximum authorized speed
MBTA	Migratory Bird Treaty Act
MHHW	mean higher high water
MHW	mean high water
MPO	Metropolitan Planning Organization
MSL	mean sea level
NAAQS	National Ambient Air Quality Standards
NC SAM	North Carolina Stream Assessment Method
NC WAM	North Carolina Wetland Assessment Method
NCCLT	North Carolina Coastal Land Trust
NCDEQ	North Carolina Department of Environmental Quality
NCDOT	North Carolina Department of Transportation
NCDPS	North Carolina Department of Public Safety
NCHPO	North Carolina Historic Preservation Office
NCNHP	North Carolina Natural Heritage Program
NCOSBM	North Carolina Office of State Budget and Management
NCSPA	North Carolina State Port Authority
NCWRC	North Carolina Wildlife Resources Commission
NEPA	National Environmental Policy Act of 1969
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NHSWCD	New Hanover County Soil and Water Conservation District
NIR	Navigational Impact Report
NMF	National Marine Fisheries
NOAA	National Oceanic and Atmospheric Administration
NOx	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List

NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRP	Notice of Residual Petroleum
O3	ozone
ORW	Outstanding Resource Waters
OSHA	Occupational Safety and Health Administration
PB	lead
PIP	Public Involvement Plan
PJD	preliminary jurisdictional determination
PM	particle matter
PNA	Primary Nursery Areas
QCE	Queen City Express
RFP	Request for Proposals
SFHA	Special Flood Hazard Area
SO2	sulfur dioxide
STB	Surface Transportation Board
STIP	State Transportation Improvement Program
TEU	twenty-foot equivalent unit
TMDL	total maximum daily load
UNCW	University of North Carolina at Wilmington
USACE	United States Army Corps of Engineers
USCG	United States Coast Guard
USDA	United States Department of Agriculture
USDOT	United States Department of Transportation
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	underground storage tanks
VAD	Voluntary Agricultural Districts
VdB	vibration decibel
VMT	vehicle miles traveled
VOC	volatile organic compounds
WMPO	Wilmington Urban Area Metropolitan Planning Organization
WOTUS	Waters of the United States
WQC	Water Quality Certification
WTRY	Wilmington Terminal Railroad

1. PURPOSE AND NEED

1.1 INTRODUCTION

In 2018, the Federal Railroad Administration (FRA) awarded the City of Wilmington (City), the Project sponsor, a grant under the Consolidated Rail Infrastructure and Safety Improvements (CRISI) program to complete preliminary engineering and environmental studies for the City's proposed railroad realignment project to reroute existing and future-anticipated freight traffic traveling between the Port of Wilmington in Hanover County and CSXT's Davis Yard in the Town of Navassa, Brunswick County from the existing CSX Transportation Inc. (CSXT) Class I rail carrier freight rail line¹, commonly referred to as the "Beltline", to a new, approximately 4-mile rail alignment with two new crossing of the Cape Fear River (Project). The goal of the Project is to improve freight rail operations, regional mobility, and public safety.

FRA and the City prepared this Environmental Assessment (EA) in accordance with the NEPA (42 USC § 4321 et seq.) and its implementing regulations promulgated by the Council on Environmental Quality at 40 CFR §1500 -1508 from 1978, as amended in 1986 and 2005. CEQ comprehensively updated its NEPA implementing regulations effective September 14, 2020; the revised regulations apply to any NEPA process begun after that date. For NEPA reviews initiated prior to September 14, 2020, the lead Federal agency may continue to apply the prior regulations. FRA initiated the NEPA process for the Project on September 9, 2020, with the issuance of the Class of Action (COA) and is applying the CEQ regulations that were in effect at the time of that COA. FRA and the City also prepared this EA in accordance with 23 CFR § 771 (Environmental Impact and Related Procedures); FRA Procedures for Considering Environmental Impacts (64 FR 28545, May 26, 1999); Section 4(f) of the US Department of Transportation Act (49 USC § 303); and other applicable laws and regulations. FRA is the lead Federal agency for the oversight of the NEPA process. The Surface Transportation Board (STB), National Marine Fisheries Service (NMFS), Coast Guard (USCG), Environmental Protection Agency (EPA), and Army Corps of Engineers (USACE) are Cooperating Agencies.

Currently, there is no funding or Project sponsor identified for the construction of the Project. The City is the current Project sponsor, and the City, or its assignees, as approved by FRA, will be responsible for ensuring compliance with commitments and mitigation measures outlined in this document should FRA funding be used to construct the Project. Should a different project sponsor be identified for future planning and construction, responsibility for implementing mitigation measures would be transferred to that entity. If Federal funds are used for any future phase(s) of the Project, including final design and construction, additional analysis under NEPA may be required.

¹ The Surface Transportation Board defines Class I rail carriers as having annual operating revenues of \$900 million or more when adjusted for inflation.

1.2 PROPOSED ACTION

The Proposed Action would divert all current and future-anticipated freight traffic traveling between the Davis Yard and the Port from the Beltline, resulting in greatly reduce freight train traffic at the Beltline's at-grade crossings, to a new alignment with two new crossings of the Cape Fear River. While the Project is the first phase of a broader vision by the City to improve regional mobility, including possible reuse of the Beltline for alternative transit use, under the Preferred Alternative, the Beltline would remain in place after construction of the Project and very limited freight service could continue to operate over the Beltline to serve the three existing local shippers (Builders First Source, L&W Supply, and MCO Distribution and Logistics). Recognizing that there are three local shippers currently served by CSXT on the Beltline, changes to the Beltline's operation may take place incrementally. Regulatory considerations, as well as coordination between the City and its planning and engineering consultants (the Project team), CSXT, shippers, and other stakeholders, will dictate how changes to local switching operations are carried out. If Federal funds are used for future phase(s) including abandonment of the Beltline, additional analysis under the National Environmental Policy Act (NEPA) may be required.

1.3 NEPA STUDY AREA

The NEPA Study Area (Study Area) was established as a roughly donut-shaped area which, on the east side of the Cape Fear River/Northeast Cape Fear River², extends approximately one-mile on both sides of the Beltline's centerline within the City; and on the west side of the rivers, includes undeveloped areas on Eagles Island and areas west of US 421 in Brunswick County (Figure 1-1).

Within the City, land uses include single- and multi-family residential, business, and commercial, but does not include the downtown Wilmington business district. The parcels in Brunswick County are relatively undeveloped or include industrial and/or commercial development along the Cape Fear River and US 421. Eagles Island, between the Cape Fear and Brunswick Rivers, is part dredge spoil and part pristine tracts of wetlands. The Study Area's built environment includes infrastructure that encompasses regional and local community resources, such as businesses, residential development, transportation networks, services and utilities, parks and recreational resources, cultural and religious resources, and other community gathering places. Additional detail regarding land use and zoning is discussed in Chapter 3.2.

All current freight traffic moving from Davis Yard and the Port travels along the Port-owned railroad operated by the Wilmington Terminal Railroad (WTRY), a Class III rail carrier and a subsidiary of Genesee & Wyoming, to connect to CSXT's Beltline at South 2nd Street in Wilmington. The Beltline forms an east-west-oriented "V" through the City. There are 32 at-grade crossings (30 public and 2 private crossings) on the CSXT and WTRY lines, the latter of which are generally along South Front Street, where the WTRY tracks run parallel in the center of the street before crossing over to serve Colonial Oil. The Beltline crosses the Northeast

² The confluence of the two rivers is in the center of the Study Area.

Cape Fear River via the Hilton Bridge north of downtown Wilmington to access Davis Yard via the SE Line (Figure 1-2). Existing freight operations along the Beltline vary from day to day depending on shipper demand and CSXT and/or WTRY resource planning; however, all freight trains moving from Davis Yard and the Port currently travel the entirety of the Beltline, while other CSXT and WTRY trains move over portions of the Beltline in the performance of local switching operations for the three existing local shippers.

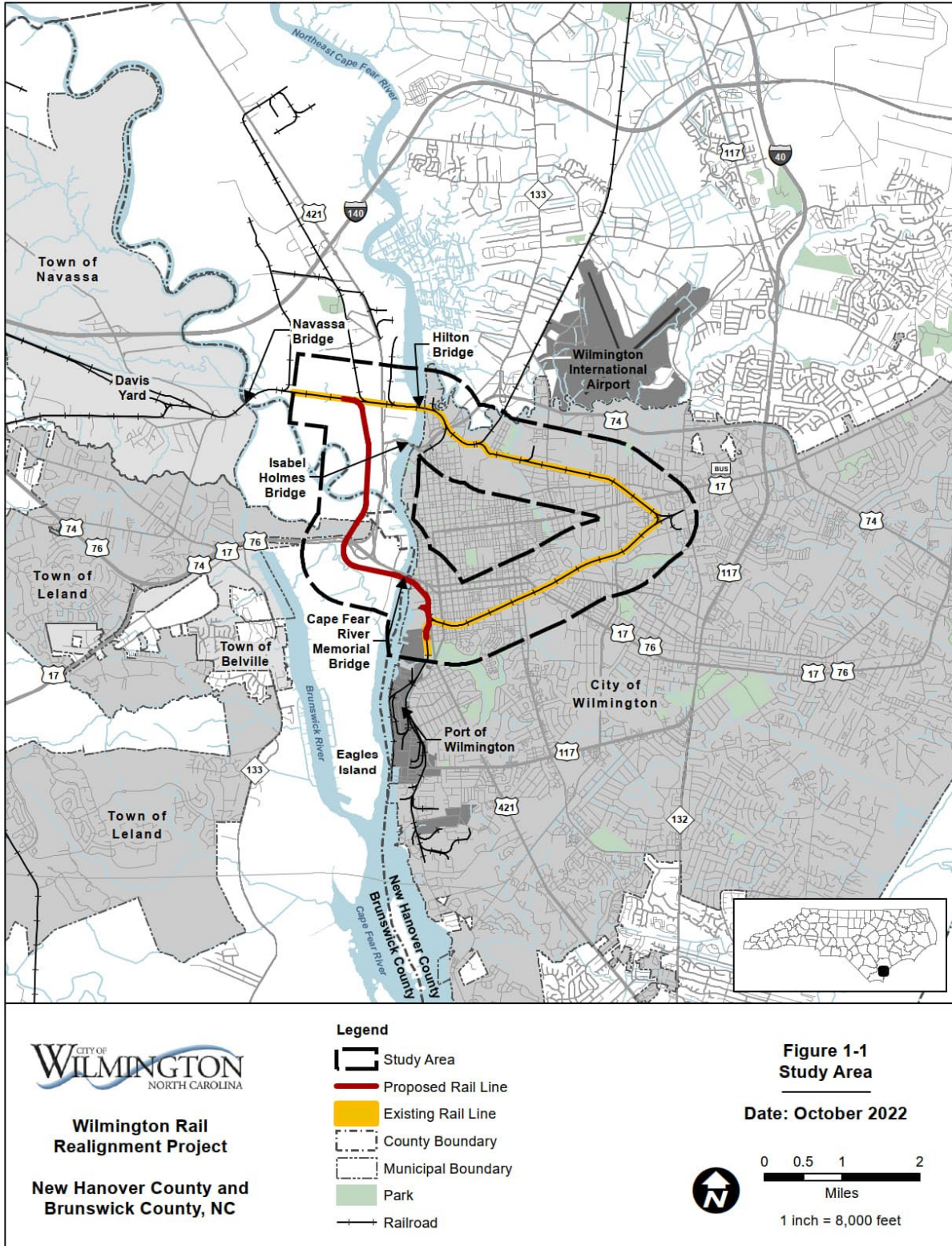
There are four operable rail and highway bridges over the Cape Fear River or the Northeast Cape Fear River in the Study Area, consisting of two highway bridges north and south of downtown Wilmington and two railroad bridges north of downtown. The Cape Fear River Bridge carries US 17/US 76/US 421 over the main channel of the Cape Fear River south of downtown and just north of the Port of Wilmington. The Isabel Holmes Bridge carries US 74 over the Northeast Cape Fear River just north of downtown. The Hilton Bridge and Navassa Bridge carry only rail traffic across the Northeast Cape Fear River and the Cape Fear River north of downtown. The Navassa Bridge over the Cape Fear River is manned continuously. The Hilton drawbridge over the Northeast Cape Fear River is remotely operated from the Navassa Bridge. Trains must stop at both bridges unless permission is granted by the bridge tender to proceed.

1.4 PROJECT HISTORY

When originally constructed, the Beltline was outside the developed limits of the City. However, over time, the City expanded, and today, the rail line is in the most densely populated areas of Wilmington and New Hanover County, passing through numerous neighborhoods and frequently crossing busy city streets. In November 2014, the City passed a resolution encouraging the Wilmington Urban Area Metropolitan Planning Organization (WMPO), North Carolina Department of Transportation (NCDOT), and CSXT to complete a feasibility study to "complete a rail re-alignment feasibility study . . . due to the existing rail conditions in the city." The resolution noted that "a potential solution would be to relocate the existing rail line to a crossing of the Cape Fear River close to the Port property, thereby eliminating rail traffic through the City, and dramatically improving rail access to the Port. A Task Force has been created to study the feasibility of re-locating the CSXT rail lines out of the city."³

³ [City Council Meeting, April 19 | City News | City of Wilmington, NC \(wilmingtonnc.gov\)](#)

Figure 1-1: Study Area



In 2017, the City completed the *Wilmington Rail Realignment and Right-of-way Use Alternatives Feasibility Study* (Feasibility Study)⁴ that investigated "two separate but linked projects: 1) The development of a new freight rail corridor and realignment of the freight traffic to this corridor to provide a more direct route to Navassa and 2) The reconfiguration of the existing tracks to provide a path for a heritage trolley or similar light transit within the City." The study looked at three potential options (Corridors A, B, and C) for a new freight rail corridor west of the Cape Fear River and shifting freight traffic traveling between Davis Yard and the Port to this new freight corridor. Corridor A included a corridor furthest west, Corridor B was a central corridor, and Corridor C most closely followed to the west of the US 17/74 highway corridor. Corridor A was located the furthest to the west on Eagles Island; Corridor B was the central corridor that utilized most of the former railway embankment; and Corridor C closely followed the US 17/74 highway corridor. The Feasibility Study also noted that "moving this line will provide a new location for rail access to the Port and offer the potential of repurposing the existing CSXT railroad corridor [Beltline] for transit use and/or bicycle/pedestrian use within the City." It is important to note that any repurposing of the existing Beltline would be separate from this current Project.

Also in 2017, the NCDOT Rail Division, along with the WMPO, completed a traffic separation study of 26 existing at-grade roadway-railroad crossings along a 6-mile span of the Beltline. The *Wilmington Traffic Separation Study*⁵ evaluated short-, medium-, and long-term improvements to at-grade rail crossings.

A related NCDOT 2017 study, *Landside Rail Improvements Service to the Port and Moving Trains Safely Through the Community*,⁶ evaluated the Port's forecasted demand and existing rail infrastructure, including track capacity and condition of the CSXT Beltline, as well as Port property and concluded that the existing rail infrastructure would not sustain anticipated increased traffic volumes. The report further noted substantial cost savings for shippers if freight was shifted from highway truck to intermodal rail for the Wilmington to Charlotte haul. See Chapter 2. Alternatives for work completed on the Project since 2017.

In 2018, the City prepared a grant application for the FRA's Consolidated Rail Infrastructure and Safety Improvements (CRISI) program to fund preliminary engineering and environmental studies for the Wilmington Rail Realignment Project. FRA selected the application and awarded the City up to \$2 million in Federal funding. In support of the CRISI application, the City prepared

⁴ Moffatt and Nichol. 2017. Wilmington Rail Realignment and Right-of-way Use Alternatives Feasibility Study. June 2017. <https://www.wilmingtonnc.gov/home/showpublisheddocument/11206/637152921723230000>

⁵ STV, Inc. Wilmington Traffic Separation Study. February 2017.

⁶ Mott MacDonald. *Landside Rail Improvements Service the Port and Moving Trains Safely Through the Community*. September 2017. https://connect.ncdot.gov/resources/Rail-Division-Resources/Documents/2017.09.06_Wilmington%20Rail%20Improvements_Optimized.pdf

benefit-cost analysis (BCA)⁷ to demonstrate the potential economic benefits of a project to relocate freight trains traveling between Davis Yard and the Port, which included:⁸

- Effects on system and service performance, including freight train operating cost savings
- Effects on safety, competitiveness, reliability, trip or transit time, and resilience
- Expected crash cost savings by avoiding conflicts with trains
- Value of passenger time saved as a result of avoiding train delay
- Vehicle operating cost savings as a result of avoiding train delay
- Emissions saved as a result of avoiding train delay
- Value of improved fire truck response time
- Value of improved emergency medical services (EMS) response time
- Reliability benefit
- Train emissions savings
- Residual value
- Efficiencies from improved integration with other modes and expected benefits of a transit system in the abandoned corridor. The BCA concluded that the economic net benefit of a potential project would be \$546.7M to \$1.562B (in 2017 dollars).

1.5 AGENCY ROLES AND RESPONSIBILITIES

FRA, as the lead Federal agency, is responsible for ensuring that the environmental review process is conducted in accordance with NEPA and all applicable laws. Cooperating Agencies are those Federal agencies that have jurisdiction by law or other special expertise to resources evaluated in the NEPA document. Participating Agencies are committed to participating throughout the process, providing input on things such as methodologies, analysis, findings, and mitigation. Table 1-1 identifies the Cooperating and Participating Agencies for the Project.

Table 1-1: Agency Roles

Agency	Role
FRA	Lead Federal Agency
Surface Transportation Board (STB)	Cooperating Agency
National Oceanic and Atmospheric Administration (NOAA)/National Marine Fisheries (NMFS)	Cooperation Agency
US Fish and Wildlife Service (USFWS)	Participating Agency
US Coast Guard (USCG)	Cooperating Agency
US Environmental Protection Agency (USEPA)	Cooperating Agency
<i>Federal Highway Administration (FHWA)*</i>	

⁷ AECOM. 2018. Benefit Cost Analysis Memorandum. The Wilmington Rail Realignment Project 2018 CRISI Grant Application

⁸ The 2018 BCA estimated the benefits of relocating up to 10 daily freight trains operating between Davis Yard and the Port and did not consider the continued operation of local train traffic serving the existing customers on the Beltline.

Agency	Role
US Army Corps of Engineers (USACE)	Cooperating Agency
NC Historic Preservation Office (NCHPO)	Participating Agency
NC Department of Environmental Quality, Division of Coastal Management (NCDEQ, DCM)	Participating Agency
NC Department of Environmental Quality, Division of Marine Fisheries (NCDEQ, DMF)	Participating Agency
NC Department of Transportation (NCDOT)	Participating Agency

**Invited to be a Cooperating Agency*

The Project will be reviewed by the USACE in accordance with 33 CFR §§ 320-332, the Regulatory Programs of USACE, based upon an evaluation of the probable impacts, including cumulative impacts, or the proposed action on the public interest. The public interest review is used to evaluate applications under all authorities administered by the Corps. A list of public interest factors considered in this EA is included in Chapter 4, along with the location in the document where these factors are discussed in more detail.

1.6 PURPOSE AND NEED

1.6.1 Purpose of Proposed Action

The purpose of the Project is to improve safety, regional transportation mobility, and freight rail operations while also improving resiliency from storms, regional travel reliability, and operational fluidity of the sole freight rail route connecting the Port of Wilmington and southeastern North Carolina with the national freight rail network.

1.6.2 Need for Proposed Action

The Project addresses three main needs: enhanced efficiency of freight movement, improved safety, and improved regional mobility and reliability. The challenges the City faces with rapid population growth and increasing traffic congestion, combined with increases in freight movement through the Port of Wilmington, are straining the existing transportation network. Of concern are the numerous at-grade crossings through the City that pose a risk to public safety, increase traffic delays, and travel times, and increase auto emissions due to longer idling. To access the Port of Wilmington, freight trains must currently travel through the City, crossing 32 at-grade crossings (30 public crossings and two private crossings) within the Study Area. Daily freight trains traveling over the at-grade crossings frequently cause traffic delays, present a safety risk, and reduce the quality of life for the approximately 50,000 residents in the Study Area. Due to increasing volumes at the Port and sustained population growth, compounded impacts are expected to worsen in the coming years.

Under future conditions, the Project assumes the local transportation system would evolve as currently planned without implementation of the Project. Except for routine maintenance and fiscally constrained programmed projects, such as the Wilmington Beltline Improvements Project (P-5740), no change would take place along the existing corridor within the Study Area.

1.6.2.1 NEED 1: ENHANCED EFFICIENCY OF FREIGHT MOVEMENT

Under the existing conditions, freight trains traveling between the Port of Wilmington and Davis Yard in Navassa navigate through downtown Wilmington with restricted speeds of 10 mph due to movable bridges, curvature of the Beltline at the "V" east of downtown, and general track conditions. Under these constraints, it can take a freight train up to 1.75 hours to travel the 10 miles from the Hilton Bridge, north of the Cape Fear Memorial Bridge, to the Port of Wilmington. According to the *Landside Rail Improvements Service to the Port and Moving Trains Safely Through the Community*³, the existing rail infrastructure of the Beltline and the Port's WTRY line will not sustain anticipated future freight traffic volumes. The report notes that both the Beltline and the WTRY rail lines will require additional investment to increase velocity and capacity to mitigate roadway congestion occurring when trains pass through highway-rail intersections. In addition, rail infrastructure improvements will be needed to accommodate rail volume increases over time. Newer tracks would require less short-term maintenance than current track conditions.

Factors affecting freight movement throughout the City include:

- **Population growth:** Population growth in the region is occurring at a rapid pace. According to the US Census Bureau, between 2000 and 2010, the populations of Brunswick and New Hanover Counties experienced growth of 46.9 percent and 26.4 percent, respectively, compared to 18.5 percent in North Carolina and 9.7 percent in the United States. Growth continued between 2010 and 2020, with the counties growing by 36.0 percent and 18.1 percent, respectively. Growth is expected to continue over the next 20 years based on projections made by the North Carolina Office of State Budget and Management (NC OSBM), with an additional 135,000 people moving to the two counties by 2039.⁹
- **Traffic congestion:** According to the WMPO's long-range plan, future growth projections suggest that congestion levels on the local transportation network could hamper the Port's growth plans and competitiveness.¹⁰ Deficiencies in the existing transportation network diminish the ability to efficiently distribute goods and services from the Port of Wilmington. Access to the Port terminal is critical in creating an efficient and effective supply chain. The roads and rail lines leading into and out of the Port terminal are a critical part of North Carolina's pipeline to the global marketplace.
- **Existing Rail infrastructure:** All current freight traffic moving from Davis Yard and the Port travels north along the Port-owned railroad operated by the Wilmington Terminal Railroad (WTRY), a Class III rail carrier and a subsidiary of Genesee & Wyoming, and CSXT via the Beltline which connects to the WTRY near South Front Street in Wilmington. The Beltline forms an east-west-oriented "V" through the City. There are 32

⁹ NC OSBM. 2021. County/State Population Overview, 2010-2050. https://files.nc.gov/ncosbm/demog/countytotals_populationoverview.html.

¹⁰ City of Wilmington. 2020. Cape Fear Moving Forward 2045 Metropolitan Transportation Plan. November 2020. https://www.wmpo.org/wp-content/uploads/2020/11/Cape-Fear-Moving-Forward-2045_ADOPTED-November-2020_Reduced-File-Size.pdf.

at-grade crossings (30 public and 2 private crossings) on the CSXT and WTRY lines, the latter of which are generally along South Front Street, where the WTRY tracks run parallel in the center of the street before crossing over to serve Colonial Oil. The Beltline crosses the Northeast Cape Fear River via the Hilton Bridge north of downtown Wilmington to access Davis Yard via the SE Line. Existing freight operations along the Beltline vary from day to day depending on shipper demand and CSXT and/or WTRY resource planning; however, all freight trains exchanging traffic between Davis Yard and the Port currently travel the entirety of the Beltline, while other CSXT and WTRY industry switching trains move over portions of the Beltline in the performance of local switching operations for the three existing local shippers along the Beltline and Colonial Terminals served by WTRY. CSXT owns, operates, and maintains the Beltline from Davis Yard to the S. 3rd Street crossing in the City. The Beltline operates under "CSXT Yard Limit Rules," which constrains the speed of operations and requires that trains stop within one-half the range of the engineer's vision. There are no sidings to accommodate long trains to pass each other. As discussed above, track speed is limited to several factors. These constraints, along with the design and condition of the rail infrastructure, require longer travel times for a train traveling 10 miles from the Hilton Bridge to the Port.

- **Port Capacity:** Intermodal capacity at the Port is currently at 600,000 TEUs (twenty-foot equivalent unit) per year, with plans to double this capacity to 1.2 million TEUs per year. An 8,000-foot-long intermodal train carrying single-stack TEUs can carry approximately 30,000 TEUs per year capacity, making one round trip per day. Each additional train or additional round trip would increase the capacity delivered by rail by approximately five percent per train or per round trip (e.g., four trains would carry approximately 120,000 TEUs). In comparison to the number of trucks (upwards of 70,000 depending on truck capacity) that would be required to carry this volume of cargo, freight rail offers a vastly more efficient option. However, the increased train traffic would create additional modal conflicts at highway-railroad crossings, as well as stress existing rail infrastructure.⁴
- **Freight Growth and Port of Wilmington Demand Forecast:** In 2021, the Port reported between five and seven daily interchange trains per week, each with a round trip between the Port and Davis Yard in Navassa. Each daily train executes two train movements – one from Davis Yard to the Port, and a return trip from the Port to Davis Yard. By 2025, forecasted container movements would require each train pairs per week, or 16, weekly movements over the Beltline between the Port and Navassa.

Train lengths today are averaging 3,500 feet or about 70 rail cars per train. However, to enhance operational efficiency, CSXT endeavors to operate trains of 10,000 feet in length by 2050,¹¹ or about 160 rail cars per train. While this change could reduce the number of trains, it would mean longer trains traveling the Beltline through Wilmington. Trains 10,000 feet long may require 10 to 15 minutes or more to pass a given point or pass over a highway crossing.

¹¹ City of Wilmington 2018. Benefit Cost Analysis Memorandum. September 2018.
<https://www.wilmingtonnc.gov/home/showpublisheddocument/11204/63715292171650000>

1.6.2.2 NEED 2: IMPROVED SAFETY

Freight trains traveling between Davis Yard and the Port must currently travel the Beltline, approximately eight miles through the City, and the WTRY crossing 30 public and two private at-grade crossings. These at-grade crossings pose potential risks to public safety, including potential traffic conflicts, the transport of hazardous materials through the City, increased traffic delays, and increased auto emissions due to longer idling. With proposed freight movement growth, these risks could increase in the future. Table 1-2 provides a list of the 32 at-grade crossings (30 public and 2 private crossings) within the Study Area.

Table 1-2: At-Grade Railroad Crossings in the Study Area

Number	Crossing ID	Route
1	902751J	S. Front (center running track)
2	628706L	Intersection of Marstellar St/S. Front (center running track)
3	629448M ¹	S. Front Street (SR 1140)
4	629446Y ¹	S. 3 rd Street (US 421)
5	629445S	S. 4 th Street
6	629443D	Martin Street at Hooper Street ²
7	629442W	S. 5 th Street
8	629441P	S. 6 th Street/Martin Street
8	629440H	S. 7 th Street
10	629439N	S. 8 th Street
11	629438G	S. 9 th Street ²
12	629437A	S. 10 th Street
13	629436T	S. 12 th Street
14	629435L	S. 13 th Street
15	629434E	Marstellar Street
16	629433X	S. 16 th Street (SR 1218)
17	629432R	S. 17 th Street (SR 1219)
18	629431J	Oleander Drive (US 76)
19	629430C	Wrightsville Avenue (SR 1411)
20	629429H	Colonial Drive
21	629428B	Forest Hills Drive
22	629427U	Mercer Avenue
23	629426M	Covil Avenue
24	629291J	Private (Westig Rd)
25	629290C	Market Street (US 17)
26	629289H	Henry Street
27	642724T	Clay Street ²
28	629288B	Princess Place Drive (SR 1301)

Number	Crossing ID	Route
29	629287U	N. 30 th Street (SR 1302)
30	629286M	N. 23 rd Street (SR 1302)
31	629284Y	King Street
32	628739Y	Private (N. 6 th Street)

Sources: Moffat and Nichol 2017; FRA 2020

¹WTRY (all others CSXT)

²At-grade crossing to be closed as part of the STIP-5740 project

Many of the roadways in the Study Area serve as primary emergency response routes. Emergency vehicles can be delayed at crossings as trains cross or by other vehicular congestion near the at-grade crossings. Additionally, due to the proximity of at-grade crossings, longer trains could block several north-south roads between the New Hanover Regional Medical Center and downtown Wilmington. New Hanover Regional Medical Center is the only trauma center in the region. The medical center is located on S. 17th Street, south of the Beltline from Central Wilmington. Other safety considerations at crossings include the following:

- **Train derailment and hazardous materials:** In 2013, a train carrying hazardous materials derailed off the Beltline at King Street, cutting off access to the Love Grove community in Wilmington.
- **Skewed crossing:** Angled railroad crossings at angles greater than or less than 90 degrees create sight restrictions because motorists must turn their heads more to see oncoming trains. Crossings with skews less than 60 degrees include Market Street (US 17), Wrightsville Avenue (SR 1411), Marstellar Street, Martin Street, Front Street (SR 1140), and Myers Street. Market Street, Wrightsville Avenue, and Front Street are also among the highest-volume roadways crossed by the rail line.
- **Humped crossing:** Humped crossings exist where the elevation of the railroad is higher than the crossing roadway, requiring cars or trucks to reduce speed to cross and causing potential "bottoming out" of vehicles with long wheelbases or low clearances. The problem is exacerbated by routine track maintenance that can add about three inches of ballast per occurrence. Forest Hills Drive and S. 12th Street crossings have a humped profile.
- **Poor crossing surface:** The crossing surface can result in a rough ride and cause wear and tear on vehicles, creating a traffic safety hazard and adding to congestion by reducing travel speeds. Crossings that have surfaces in need of improvements or rehabilitation include Marstellar Street, S. 16th Street, S. 17th Street, Wrightsville Avenue, Market Street (US 17), Princess Place Drive, N. 30th Street, N. 23rd Street, and King Street.
- **Automated gate issues:** Drivers may circumvent automated gates, particularly when the gates are lowered but no train is visible; when gates fail and remain in the lowered position; or when gates are lowered and the train is visible, but the motorist is too impatient to wait.

- **Vehicles queuing across railroad tracks:** The presence of nearby traffic signals, intersections, or parallel roadways can result in queues of stopped vehicles extending onto or across a rail crossing.
- **Insufficient warning device:** Typical warning devices include signs, gate arms, flashing lights, and bells, but several crossings along the Beltline do not have any warning devices, or they could benefit from enhanced warning devices.

Population and associated vehicular traffic are expected to continue to increase in Wilmington and its surrounding areas over the next 20 years. Coupled with increased freight rail traffic to the Port, both in the number of trains and length of trains, the exposure index and inherent safety risks will increase over time.

1.6.2.3 NEED 3: IMPROVED REGIONAL MOBILITY AND RELIABILITY

When combined, the needs described above for efficient freight movement and public safety impact regional mobility and reliability. The potential for longer trains and increased frequencies traveling the Beltline, combined with the effects of rapid population growth, will result in longer delays for vehicles at-grade crossings. Additionally, train derailments and flooding (both minor and major storm events) result in substantial delays that can affect mobility for longer periods of time. This results in poor regional mobility and reliability. Such delays impose societal costs, contributing to increased vehicle operating costs as well as the costs associated with increased emissions. The resiliency of the sole freight rail route serving the region would be improved by providing higher river crossings and infrastructure better designed to mitigate flood-related damages. As storms and hurricanes increase in frequency and intensity, flooding becomes a common occurrence. During Hurricane Florence in 2017, I-40, US 421, and other major highway routes into Wilmington, as well as sections of the CSXT railroad, were flooded or washed out, making it difficult to transport supplies into Wilmington. Moving the freight rail line out of the City will improve operational resiliency and likely result in improved regional mobility and reliability over time.

1.7 PROJECT BENEFITS

The Project seeks to provide the following benefits:

- **Improve operational fluidity:** The Project would create a more efficient freight rail route between Davis Yard in Navassa and the Port of Wilmington, resulting in travel time savings and increased throughput capacity.
- **Improve regional transportation mobility and reliability:** The Project proposes to greatly reduce the potential for freight rail operations to obstruct regional public mobility. Vehicular traffic, as well as the length and frequency of freight trains, are expected to grow rapidly in the region. Reliability of travel in the region would improve as crossing conflicts and delays across Wilmington's main thoroughfares are reduced. Also, compared to the existing freight rail route, newer infrastructure would require less downtime for maintenance.

- **Improve safety:** By relocating all current and future-anticipated freight trains traveling between Davis Yard and the Port to the proposed bypass, the Project would considerably reduce the crossing conflicts between vehicles and freight trains on the Beltline, including lessening the risk of fire and emergency responses from being inhibited by passing trains, thereby enhancing the opportunity to save lives and property.

2 ALTERNATIVES

Section 102(2)(E) of the NEPA¹ requires that all reasonable alternatives that could achieve the Purpose and Need for the Project be considered. This chapter reviews the alternatives development process and describes the alternatives considered in this EA.

2.1 ALTERNATIVES DEVELOPMENT

2.1.1 Process

The results of the 2017 *Wilmington Rail Realignment and Right of Way Use Alternatives Feasibility Study*² (Feasibility Study) served as the basis for alternatives development. The Project then underwent a two-step process to identify a Preferred Alternative – the development of a Corridor Screening Report³ followed by the development of an Alternatives Analysis Report (October 2021).⁴ New or modified corridors were also considered based on the Purpose and Need, including engineering feasibility and environmental considerations at a qualitative level during the corridor screening phase.

The results of the Corridor Screening Report provided a vetted set of alternatives that were carried forward for more detailed study in the Alternatives Analysis. The Alternatives Analysis Report provided a quantitative analysis of potential alternatives using an enhanced set of evaluation criteria. The result of the Alternatives Analysis Report was the recommendation of a Preferred Alternative to be carried forward for further evaluation through the NEPA process.

The Preferred Alternative (Alternative 2) went through several iterations of design refinements from the Feasibility Study to the Alternatives Analysis; however, it generally follows Corridor B from the Feasibility Study. During virtual meetings, drafts of both the Corridor Screening Report and the Alternatives Analysis Report were made available to the public for review and solicited comments. Preliminary results were also presented to the Cooperating and Participating Agencies to incorporate their feedback and discuss public comments prior to finalizing the identification of the Preferred Alternative. As discussed further in Chapter 4, agency and public involvement will continue throughout the remainder of project development.

¹ 42 U.S.C. § 4332.

² Moffatt and Nichol. 2017. *Wilmington Rail Realignment and Right of Way Use Alternatives Feasibility Study*. June 2017. <https://www.wilmingtonnc.gov/home/showpublisheddocument/11206/637152921723230000>

³ AECOM, 2021, *Wilmington Rail Realignment Corridor Screening Report*. January 2021. <https://www.wilmingtonnc.gov/home/showpublisheddocument/12840/637491697093000000>

⁴ AECOM, 2021, *Wilmington Rail Realignment Alternatives Analysis Report*. October 2021. <https://www.wilmingtonnc.gov/home/showpublisheddocument/13660/637720626365230000>

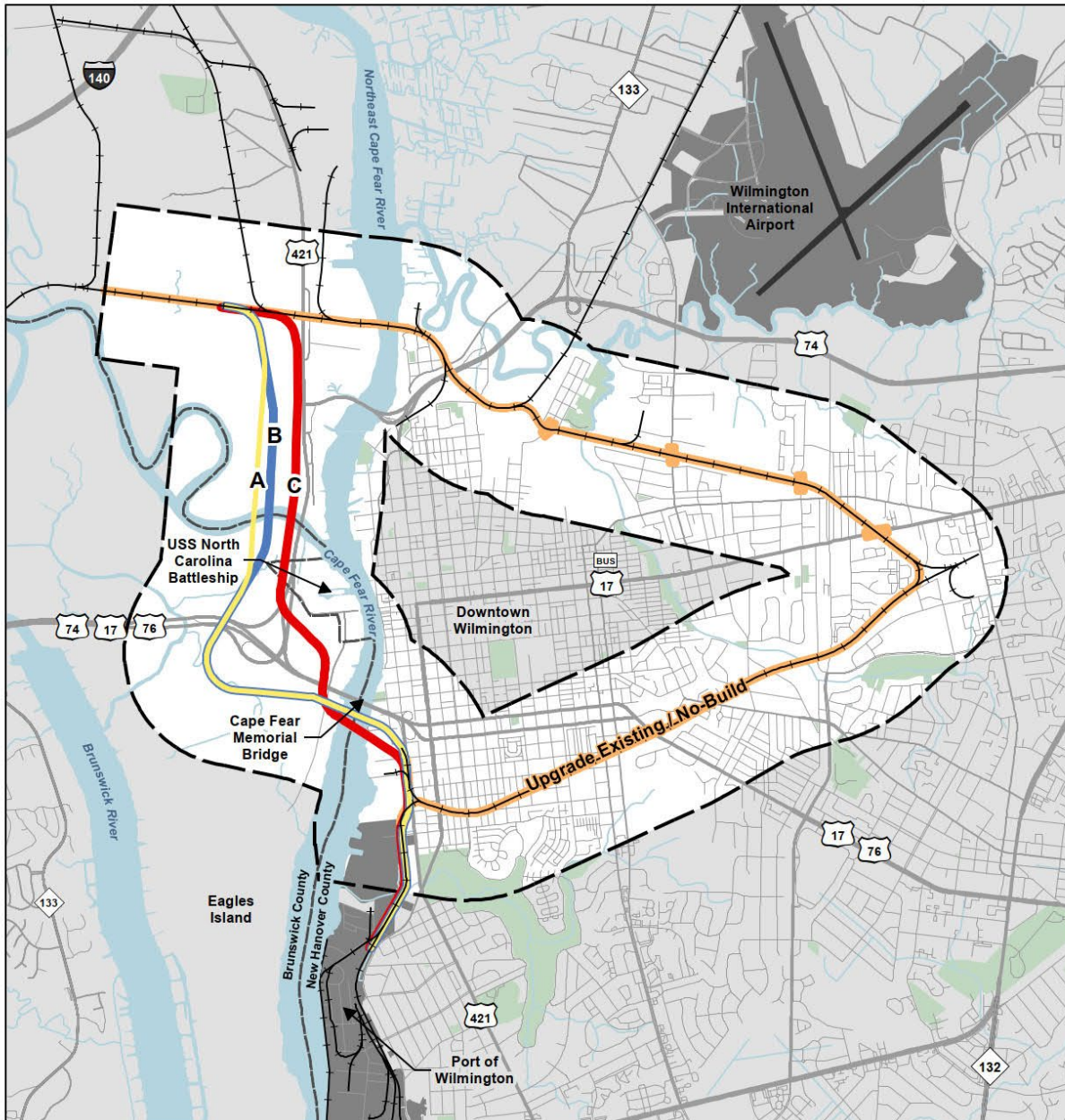
2.1.2 Corridor Screening Report

The Corridor Screening Report considered the three (3) build corridors (Corridors A, B, and C) originally studied and recommended for further analysis in the Feasibility Study, as well as a No-Build Alternative and an Upgrade Existing Alternative (Figure 2-1). A two-step screening process was undertaken during the corridor screening phase – Initial Screening and Secondary Screening.

The Initial Screening provided a qualitative review of Corridors A, B, and C, including an evaluation of whether the corridors met the Purpose and Need of the Project. The screening resulted in the removal of Corridor C from further evaluation due to its inability to meet the Purpose and Need, specifically it did not provide a direct movement to the CSXT SE Line north to the town of Castle Hayne; it was inconsistent with local plans (including the proposed replacement of the Cape Fear Memorial Bridge); it had a higher number of highway crossings; and because of its proximity to the USS North Carolina Battleship, a National Historic Landmark (NHL). Corridors A and B were recommended to advance to Secondary Screening for their ability to meet the Purpose and Need of the Project, one highway crossing, and the distance from the USS North Carolina Battleship. The Initial Screening results are shown in Table 2-1 and are depicted on Figure 2-2.

The Secondary Screening further evaluated Corridors A and B by breaking each corridor into three sections, which created a subset of options, as shown on Figure 2-3. Each corridor was further refined and modified based on environmental and engineering considerations as well as input from Cooperating and Participating agencies and the public. The Secondary Screening process also considered an Upgrade Existing alternative in response to agency comments, which would follow the same alignment as the No-Build scenario from Davis Yard to the Port of Wilmington along the Beltline but would include upgraded features to the extent practicable to meet the Project's Purpose and Need. Upgraded features would include the conversion of at-grade crossings to grade-separated crossings to address automobile traffic congestion and reduce safety conflicts. The Upgrade Existing Corridor would make use of the existing alignment without requiring a new location alignment to accommodate the railroad track.

Figure 2-1: Initial Screening Phase of the Corridor Screening Report



Legend

- Study Area
- County Boundary
- Park
- Railroad
- Corridor A
- Corridor B
- Corridor C
- Upgrade Existing / No-Build

**Figure 2-1
Initial Screening Phase of
the Corridor Screening Report**

Date: April 2022



0 0.25 0.5 1
Miles

1 inch = 4,000 feet

Table 2-1: Initial Corridor Screening

Criterion	Metric	Outcomes			
		No Build	Corridor A	Corridor B	Corridor C
Meets Purpose and Need					
Efficient Freight Movement	Would the corridor improve efficiency of freight movement in the region?	No	Yes	Yes	Yes
Enhance Safety	Would the corridor reduce freight movement through the city?	No	Yes	Yes	Yes
Improves Regional Mobility	Would the corridor reduce freight movement through the city and provide a more direct route from the Port of Wilmington to points north?	No	Yes	Yes	Yes
Consistency with Planned Transportation Projects					
Compatibility with future Cape Fear Memorial Bridge Alternative 4 rail alignment?	Is the corridor consistent with the recommendations of the study?	Yes	No	No	No
Operational Considerations					
Highway Crossing(s)	Would the corridor have more than one crossing of the US 17/74/421 interchange?	N/A	No	No	Yes
Connectivity to CSXT SE Line	Would the corridor allow a direct movement to the CSXT SE Line north to Castle Hayne?	Yes	Yes	Yes	No
Historic Property Considerations					
National Historic Landmark Considerations?	Is the corridor in proximity to the USS North Carolina?	N/A	No	No	Yes
Advance to Step Two – Secondary Screening		Yes	Yes	Yes	No

Figure 2-2: Build Corridors Advanced to Secondary Screening

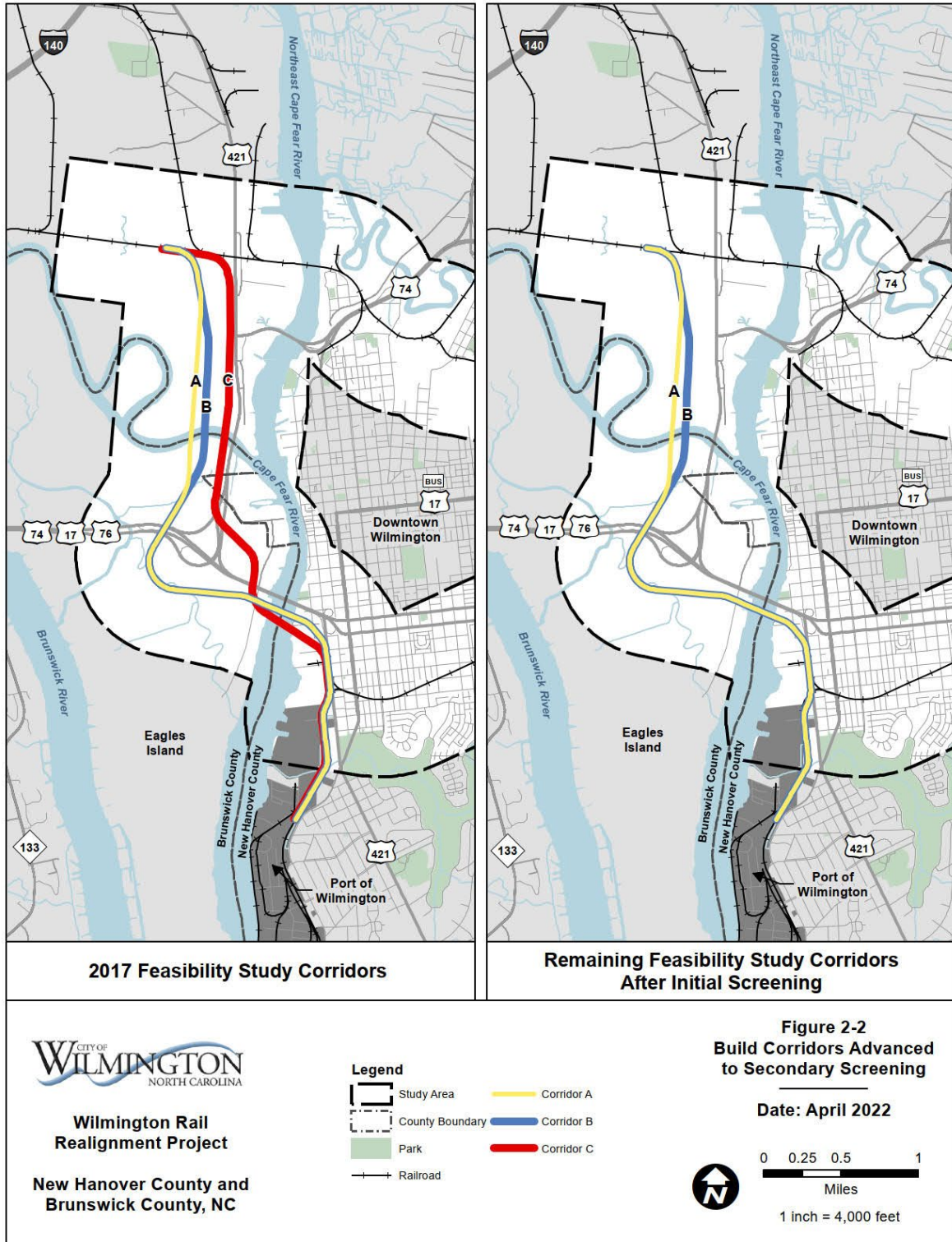
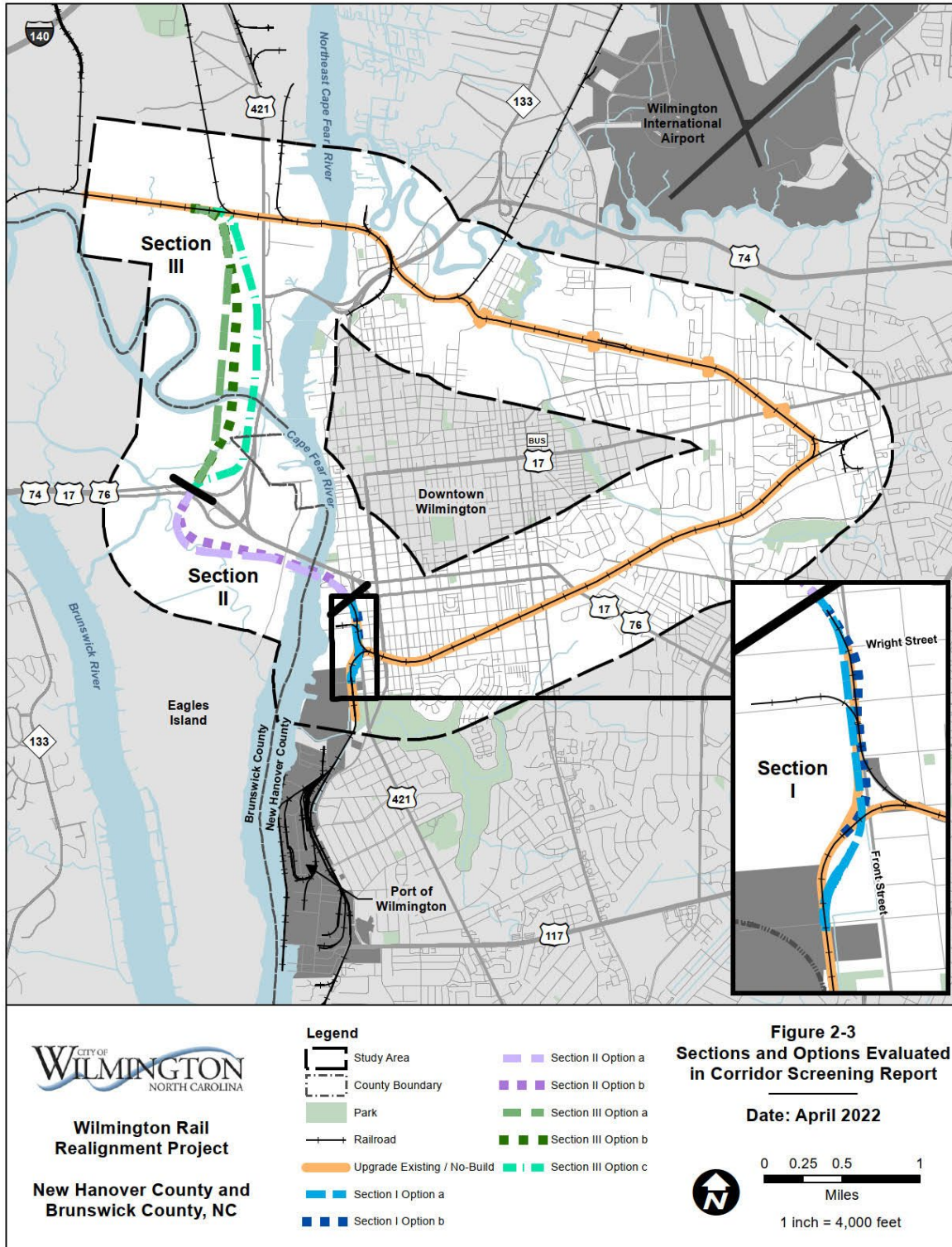


Figure 2-3: Sections and Options Evaluated in Corridor Screening Report



As part of the Secondary Screening, a new corridor crossing the Cape Fear River approximately 3,500 feet south of the existing Cape Fear Memorial Bridge was also considered. This crossing was studied at a conceptual level based on comments received from the public during the November 2020 Public Open House (see Section 5.1 for additional details). Conceptual engineering determined that crossing the Cape Fear River at this location was not feasible because it would require impractical grades to meet clearance requirements for Battleship Road on Eagles Island. Steeper track grades would require additional locomotive power, which would result in additional operating costs. Additionally, soil conditions along Eagles Island are assumed to be poor quality due to the history of the USACE using the land for the placement of dredged materials, thus prohibitively increasing Project costs. These types of soil conditions are not suitable to use as sub-grade or foundation material for the proposed railbed as they are typically high in sand, silt, and organic materials and cannot reliably hold rail loadings. This more southern crossing would likely have more structure length than the other Build Alternatives due to the additional width of the navigational channel at this location, adding to the complexity of design and construction. Also, a connection to shippers located north of the Port of Wilmington, within the Wilmington Historic District, would still need to be constructed to provide a connection between this more southern corridor and the Port. A crossing any further south was determined to be infeasible due to potential interferences with the Port turning basin within the Cape Fear River. A crossing south of the Port was also determined to be infeasible due to bridge height requirements that would be needed to continue to provide access to ships calling to the Port of Wilmington.

Readily available information in the form of mapping, data, and plans from secondary sources (Federal, state, local) was used to identify the potential impacts of each option evaluated during the Secondary Screening. Resource impacts were calculated based on a 200-foot buffer centered on each corridor option. Engineering considerations and various human, socioeconomic, cultural, physical, and natural environmental metrics were also taken into consideration, the results of which are shown in Table 2-2.

Table 2-2: Corridor Option Comparison Matrix

Criterion	Metric	No Build	Upgrade Existing	Section I		Section II		Section III		
				Option A	Option B	Option A	Option B	Option A	Option B	Option C
Engineering Considerations	Length of new track/length of existing track (miles)	0.0/8.02	0.0/6.38	0.56/0	0.50/0	1.53/0	1.45/0	1.97/0	2.00/0	2.11/0
	Number of curves (8 deg or greater)	5	3	2	3	0	0	0	0	2
	Number of turnouts	7	5	3	1	0	0	1	1	1
	Number of public at-grade crossings	30 ¹	0 ²	0	3	1	1	0	0	1
	Number of grade separations	5	22 ²	0	0	2	2	0	0	1
	Number of bridges over water	3	2	0	0	1	1	2	2	1
	Allows for a direct movement to the CSXT SE Line north to Castle Hayne?	Yes	Yes	n/a	n/a	n/a	n/a	Yes	Yes	Yes
	Potential to accommodate future Cape Fear Memorial Bridge replacement project?	n/a	n/a	n/a	n/a	No	Yes	n/a	n/a	n/a
	Impacts to major utility lines ³	Low	Medium	Medium	Low	Low	Low	Low	High	High

Criterion	Metric	No Build	Upgrade Existing	Section I		Section II		Section III		
				Option A	Option B	Option A	Option B	Option A	Option B	Option C
Cost Considerations	Estimated of ROW cost ⁴	n/a	High	Medium	Low	Low	Low	Low	Low	Low
	Complexity of Construction	n/a	Very High	Medium to High	Medium to High	Medium to High	Medium to High	Medium to High	Medium to High	Medium to High
Land Use Impacts – Zoning	Total acreage of residential	0	57.5	0.4	0.3	3.2	3.1	8.6	9.8	3.8
	Total acreage of mixed use	0	8.0	0.2	1.1	0.2	0.3	0.0	0.0	0.0
	Total acreage of commercial	0	34.3	0.0	0.0	0.0	0.0	0.0	0.1	1.6
	Total acreage of industrial	0	77.8	13.1	8.2	22.1	22.2	30.3	29.8	29.5
	Total acreage of conservation	0	0.0	0.0	0.0	8.1	6.5	5.7	5.8	8.4
	Total acreage of cemetery district	0	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Human Environment and Socioeconomic Impacts	Number of publicly owned parks	0	2	0	0	0	0	0	0	0
	Number of schools	0	1	0	0	0	0	0	0	0
	Number of cemeteries	0	2	0	0	0	0	0	0	0
	Number of churches	0	6	0	0	0	0	0	0	0
	Number of community centers	0	1	0	0	0	0	0	0	0
	EJ Community Presence	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	No

Criterion	Metric	No Build	Upgrade Existing	Section I		Section II		Section III		
				Option A	Option B	Option A	Option B	Option A	Option B	Option C
Physical Environmental Impacts	Hazardous Materials Sites	0	37	7	5	1	1	0	0	0
Cultural Resources	Number of known archaeological sites	0	1	1	1	0	0	1	2	3
	Number of historical properties	0	4	1	1	1	1	0	0	1
Natural Environmental Impacts	Total acreage of NCDWM wetlands	0	20.1	0.2	0.0	20.4	18.7	37.5	35.8	33.9
	Total linear feet of NHD streams ⁵	0	1,680	362	46	2,061	392	853	1,006	221
	Number of NHD streams crossed	0	3	1	1	2	2	4	4	1
	T&E species presence/habitat	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Number of NHP Managed Areas	0	1	0	0	1	1	4	4	5
	Number of NHP Natural Areas	0	0	0	0	2	2	1	1	1
	Total acreage of 100-year floodplain	0	18.5	4.7	0.6	32.0	30.0	47.4	48.2	50.8
	Total acreage of floodway	0	0.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Section 4(f) of the USDOT Act	Number of 4(f) properties	0	7	2	2	1	1	1	2	4

Criterion	Metric	No Build	Upgrade Existing	Section I		Section II		Section III		
				Option A	Option B	Option A	Option B	Option A	Option B	Option C
Land and Water Conservation Fund Act Section 6(f)	Number of 6(f) properties	0	0	0	0	0	0	0	0	0

- 1 The No-Build scenario includes two private at-grade crossings; Section I Option A includes two private at-grade crossings.
- 2 Preliminary estimates are based upon best available information considering existing conditions and constraints and current projects in the Project Study Area. Due to the early status of the Project, designs have not been fully developed to determine the feasibility of which crossings will be grade-separated.
- 3 Low impact considered less than 1; Medium impact considered between 2 and 9; High impact considered more than 10.
- 4 Right-of-way costs generated by a GIS right-of-way cost estimating tool used for estimating purposes only. Low impacts considered \$0-\$20 million; Medium considered \$20M-\$100M; High considered greater than \$100M.
- 5 Stream impacts are calculated using National Hydrography Dataset flowlines and not field verified delineations, therefore, many streams in urban environments may already be impacted and flow through culverts.

The following is a summary of the outcomes of the Secondary Screening and the overall screening process:

- No-Build Alternative advanced for comparison consistent with the NEPA.
- Upgrade Existing was eliminated from further study due to the comparatively high potential impacts on the built environment and the multitude of engineering constraints associated with elevating the rail line through the city to eliminate at-grade rail crossings.
- Section 1: Option A and Option B advanced. While Option A has more impacts from a natural environmental perspective and higher right-of-way costs, it was determined these may be minimized through future design refinements.
- Section 2: Option B advanced due to consistency with the Cape Fear Memorial Bridge Replacement Feasibility Study. Option A was eliminated due to inconsistency with the Cape Fear Memorial Bridge Replacement Feasibility Study and a higher likelihood of impacts to natural resources than Option B.
- Section 3: Option A, Option B, and Option C advanced as there were no considerable differences from an environmental or engineering perspective, and further design refinements could avoid and/or minimize impacts in this area.

2.1.3 Alternatives Analysis

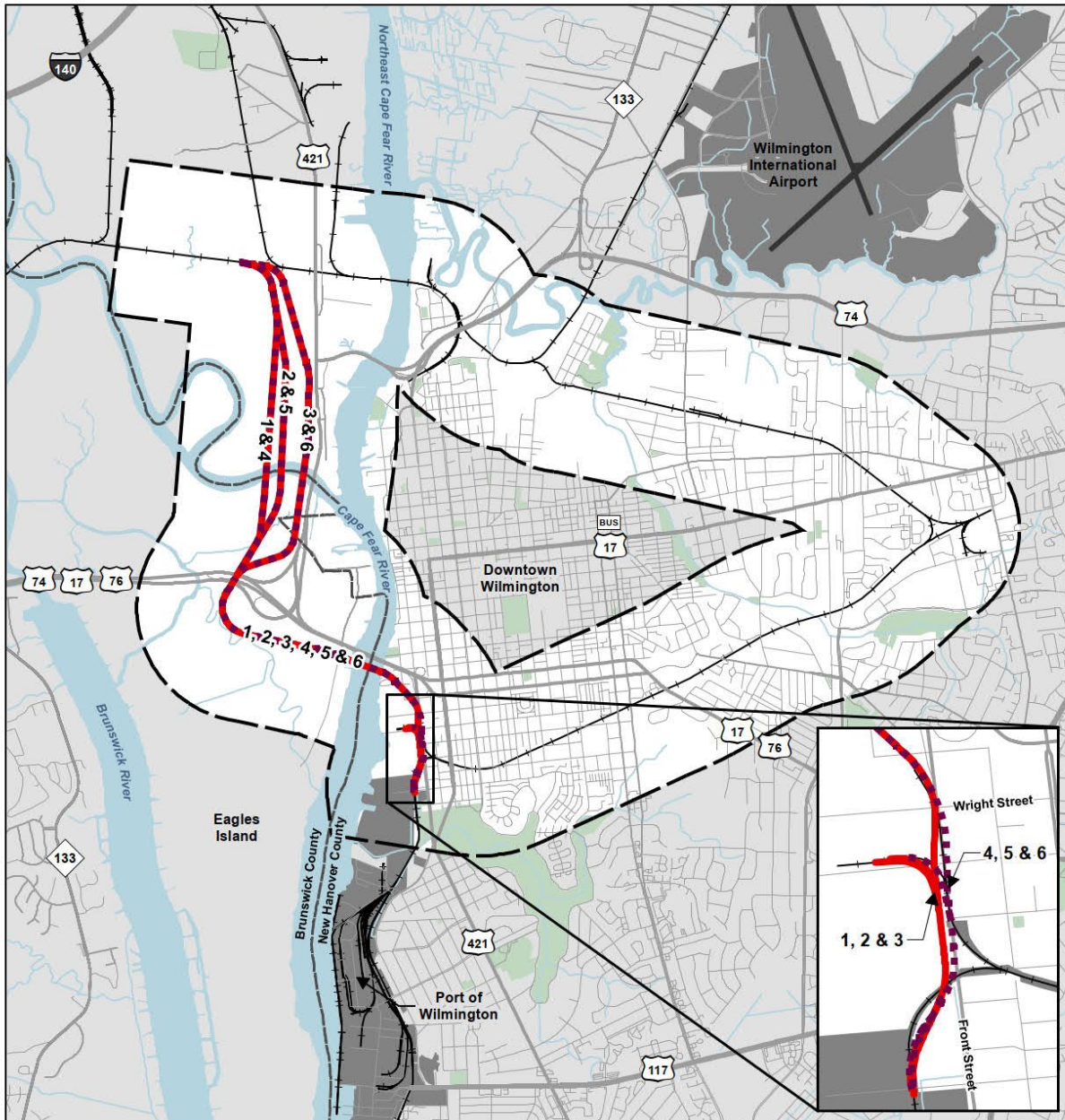
The Alternatives Analysis carried forward the sections and options recommended in the Corridor Screening Report and developed six end-to-end Build Alternatives for further evaluation, resulting in identification of a Preferred Alternative.

BUILD ALTERNATIVE EVALUATION

The Build Alternatives vary at the south end (Front Street area) and north end (Eagles Island area), but all share the same location for the primary Cape Fear River Crossing (see Figure 2-4). Utilizing additional quantitative datasets and analyses, the Build Alternatives were evaluated against a set of refined criteria and compared.

Several engineering factors were considered in evaluating each Build Alternative. The metrics included track length, horizontal and vertical alignment, turnouts, grade crossings, length and type of structures, presence of major utilities, and ongoing transportation projects within the Study Area. During the screening phase, conceptual engineering for the Project considered each conceptual corridor's compatibility with the S. Front Street Widening (NCDOT STIP U-5734) and the Cape Fear Memorial Bridge Replacement Feasibility Study (NCDOT Strategic Prioritization Office of Transportation H185357) projects. After the Corridor Screening Report was complete, the Isabel Holmes Bridge Flyovers Project (NCDOT STIP U-5731) was identified as being in the vicinity of the Project and preliminary design plans for that project were obtained. After evaluation of the preliminary design plans, it was determined that compatibility with the Isabel Holmes Bridge Flyovers Project should also be considered in evaluating the Build Alternatives for the Project.

Figure 2-4: Alternatives Evaluated in Alternatives Analysis Report



**Wilmington Rail
Realignment Project**
New Hanover County and
Brunswick County, NC

Legend

- Study Area
- County Boundary
- Park
- Railroad
- Alternatives 1, 2 & 3
- Alternatives 4, 5 & 6

**Figure 2-4
Alternatives Evaluated in
Alternatives Analysis Report**

Date: April 2022



0 0.25 0.5 1
Miles

1 inch = 4,000 feet

Various other factors were used to evaluate the differences between the Build Alternatives, including impacts to the human, cultural, and natural environment. Table 2-3 provides a comparison of the alternatives for the various characteristics evaluated, which are described below.

Table 2-3: Build Alternative Comparison

Criterion	Metric	No-Build*	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Improves Operational Efficiency	Length of new track/length of existing track (miles)	0/8	4/0	4/0	4/0	4/0	4/0	4/0
	Number of sharp mainline curves (8 deg or greater)	5	1	1	3	2	2	4
	Number of turnouts	7	4	4	4	3	3	3
	Number of public at-grade crossings*	30	1	1	1	4	4	4
	Number of grade separations	5	2	2	3	2	2	3
Minimizes Impacts to Water Resources	Number of bridges over water	3	3	3	2	3	3	2
	Length of track on proposed structure (TF)	N/A	11,049	11,149	12,299	11,049	11,149	12,299
	Reuse of out-of-service railbed (TF)	N/A	1,847	3,354	n/a	1,847	3,354	n/a
	Acres within Special Flood Hazard Area (SFHA)	-	82	83	86	82	83	85
	Total acreage of wetlands	-	61	60	60	61	60	60
	% of total high-quality wetlands	-	87%	77%	77%	87%	77%	77%
	% of total coastal wetlands	-	74%	65%	67%	74%	65%	67%
	Total linear feet of streams	-	2,344	1,608	1,527	2,344	1,608	1,527
Consistency with Planned Isabel Holmes Bridge Flyovers	Avoids impacts to planned bridge interchange at U-5731 US-421?	N/A	Yes	Yes	No	Yes	Yes	No

Criterion	Metric	No-Build*	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Minimizes Crossings of Major Utility Lines	Number of major transmission line crossings	N/A	1	3	3	1	3	3
Minimizes Impacts to Human Environment	EJ community presence	Yes	Yes	Yes	Yes	Yes	Yes	Yes
	Total # of bus routes impacted	-	2	2	2	2	2	2
	Total # of parcels potentially impacted	-	38	40	48	43	45	53
	Total # of noise-sensitive parcels (all categories)	1,851	227	233	263	226	229	261
	Total # of vibration-sensitive parcels (all categories)	253	7	7	7	18	18	18
	# of known hazardous material sites	-	16	16	18	16	16	18
	# of parcels within Wilmington Historic District within 0.25 mile APE	-	20	20	21	23	23	24
	Percentage of high probability areas for archaeology	-	0.9 %	1.4 %	0.9 %	0.9%	1.4%	0.9%
Minimizes Impacts to Natural Resources	Acres of total conservation areas	-	36	22	32	36	22	32
	Acres of NCDOT mitigation areas	-	8	9	3	8	9	3
	Acres of Impact to NHNA (Natural Heritage Natural Areas)	-	74	65	61	74	65	61
	May require Eagle Act Permit	-	x	x	-	x	-	X
	Crosses Essential Fish Habitat (EFH)	-	Yes	Yes	Yes	Yes	Yes	Yes
	Total acreage of primary nursery areas	-	19	6	3	19	6	3

*Notes:

The "No Build" includes the Beltline and so number of crossings and metrics will include a total for both the proposed and existing line.

Each criterion was applied to the Alternative only and the criterion was not applied to continued limited freight operation that would continue on the Beltline under the Build Alternatives.

The two private crossings that are on the Beltline are not included on this table.

- **Improves operational efficiency:** All Build Alternatives provided an advantage over the No--Build Alternative for operational efficiency and provided the same level of improved operational efficiency for freight traffic. The No-Build Alternative is approximately eight miles in length, with freight rail traffic continuing to operate along the Beltline through the city including at 30 public at-grade crossings. This creates a safety concern due to the potential for rail/vehicle conflicts and pedestrians crossing the rail tracks at numerous at-grade crossings. In contrast, each of the Build Alternatives consists of approximately four miles of new track between the Port of Wilmington and the CSXT SE line to connect to Davis Yard and all CSXT freight traffic traveling between these two points will use the Build Alternative. Freight trains would travel half the distance compared to the No-Build Alternative; and the number of at-grade crossings those train would traverse would be greatly reduced. Under the each of the Build Alternatives, limited freight service would continue to operate over the Beltline to serve three existing local shippers. The traffic analysis completed for the Future No-Build Condition, combined with predicted traffic delays and risk exposure under the No-Build Future Condition, would likely result in decreased mobility throughout the city due to more delays at public at-grade crossings. In addition, the increase in train frequencies would increase potential safety risks to the public at each of the at-grade crossings. The Build Alternatives would significantly reduce the risk of exposures throughout the city. Alternatives 1, 2, and 3 were the more desirable of the Build Alternatives as they proposed only one new public at-grade crossing on the bypass, whereas Alternatives 4, 5, and 6 proposed three new public at-grade crossings on the bypass⁴.
- **Consistency with Planned Isabel Holmes Bridge Flyover Project:** All alternatives, except for Alternatives 3 and 6, do not encroach upon the proposed right-of-way limits for the Isabel Holmes Bridge Flyovers Project.
- **Minimizes crossings of major utility lines:** A major transmission line crosses the Study Area in the vicinity of all Build Alternatives. Crossing the utility line requires certain horizontal and vertical clearances that could result in relocation and/or enhancement of the transmission line support towers. Alternatives 2, 3, 5, and 6 required three crossings of the utility line, whereas Alternatives 1 and 4 only required one crossing.
- **Minimizes impacts to water resources:** The No-Build Alternative would not introduce any new impacts to water resources. All Build Alternatives proposed track on structure for a significant portion of the Project's route length to minimize impacts to water resources. Alternatives 2 and 5 incorporated the most length of an out-of-service rail bed, which was noted as potentially more desirable during the Screening Phase by the USACE and NCDWR. Alternatives 2 and 5 presented the least impact to high-quality and coastal wetlands, thus making them more acceptable over the other Build Alternatives.
- **Minimizes impacts to the human environment:** The No-Build Alternative traverses downtown Wilmington through densely developed areas and established communities compared to the Build Alternatives, even with the remaining limited local freight traffic on the Beltline, in which all CSXT freight trains traveling between Davis Yard and the Port bypassed the city almost entirely. The location of the Build Alternatives was primarily in

industrial areas with sparse residences. All Build Alternatives and the No-Build Alternative were proposed within areas identified as having environmental justice populations. However, the Build Alternatives significantly minimized impacts to environmental justice populations by removing freight operations traveling between Davis Yard and the Port from some of the most densely populated areas of the city, even though limited local freight traffic will remain on the Beltline. The Build Alternatives promoted community cohesion and safety and would be a compelling benefit to those living in the city. The Build Alternatives were similar in the number of potential parcels impacted; however, Alternative 6 had the highest total number of parcels potentially impacted. The number of noise and vibration-sensitive receptors was considerably lower for the Build Alternatives than for the No-Build Alternative. The number of receptors for the Build Alternatives ranged from 52 to 61; the No-Build Alternative included 1,499 receptors. All Build Alternatives and the No-Build Alternative fell within a portion of the Wilmington Historic District. Alternatives 2 and 5 had a slightly higher probability (<1.0 percent) of encountering archaeological resources over the other Build Alternatives.

- **Minimizes impacts to natural resources:** Due to the natural setting of Eagles Island, all Build Alternatives had a greater potential to affect natural resources, including conservation areas, than the No-Build Alternative. Alternatives 2 and 5 had the least acreage of conservation areas potentially impacted. Alternatives 3 and 6 had the least acreage of Natural Heritage Natural Areas potentially impacted. All Build Alternatives crossed essential fish habitat and primary nursery areas. Protected species were listed for the counties included in the Study Area. Alternatives 1, 2, 4, and 6 may require an Eagle Act permit due to the proximity of a known and active eagle's nest.

ALTERNATIVES ELIMINATED

The conclusions of the Alternatives Analysis resulted in the elimination of certain alternatives from further consideration and the identification of a Preferred Alternative.

Based on the data collected and analyzed in the Alternatives Analysis process, the following Build Alternatives are eliminated from further study at this time:

- Alternative 1
- Alternative 3
- Alternative 4
- Alternative 5
- Alternative 6

IDENTIFICATION OF PREFERRED ALTERNATIVE

The City and FRA, with the benefit of significant public input and in collaboration with cooperating and participating agencies, identified Alternative 2 as the Preferred Alternative for the Project. Key advantages of Alternative 2 as compared to the other Build Alternatives evaluated are:

- **Supports the Purpose and Need:** Alternative 2 best supports the Project’s Purpose and Need in that it improves safety, regional transportation mobility, and freight rail operations. It also best addresses the need to reduce at-grade crossing conflicts between CSXT freight traffic traveling between Davis Yard and the Port. Alternative 2 has only one public at-grade crossing of an infrequently traversed portion of Dawson Street. In comparison, Alternatives 4, 5, and 6 have four public at-grade crossings over considerably higher volume roadways. Further, compared the No Build, which has 32 at-grade crossings (30 public and two private), Alternative 2 has one, thereby greatly reducing the number of at-grade crossings CSXT freight traffic will traverse between Davis Yard and the Port. Local freight traffic would still need to cross some of the existing at-grade crossings; however, not all 32 at-grade crossings (30 public and 2 private) and at a much-reduced frequency than the current conditions with the CSXT freight traffic traveling between Davis Yard and the Port.
- **Maximizes use of the out-of-service-railbed:** By using more of the out-of-service railbed, Alternative 2 supports less impact to water and natural resources compared to the other Build Alternatives.
- **Minimizes the use of conservation lands:** By using more of the out-of-service railbed, Alternative 2 uses less acreage of conservation lands held by the North Carolina Coastal Land Trust compared to the other Build Alternatives.
- **Results in less impact to coastal and high-quality wetlands:** Alternative 2 results in the least amount of potentially impacted acreage of high-quality wetlands and coastal wetlands identified in the impact area compared to the other Build Alternatives.

The design of Alternative 2 has been further refined since the completion of the Alternatives Analysis Report. Refinements include tightening the curve around the US 17/US 421/US 74/US 76 interchange, shifting the Cape Fear River Crossing north to be closer to the existing footprint of the Cape Fear Memorial Bridge, and adjusting the curve of the industry trackage near Meares Street.

2.2 ALTERNATIVES CONSIDERED

There are two alternatives considered for evaluation in this EA – the No-Build Alternative and the Preferred Alternative.

2.2.1 No-Build Alternative

Under the No-Build Alternative, the current and future-anticipated CSXT freight rail traveling between Davis Yard and the Port would continue to operate on the approximately eight-miles-long existing WTYR and Beltline through the City to connect to the SE line, including traveling over 32 at-grade crossings (30 public and 2 private crossings). On the Beltline, through freight rail traffic is defined as freight rail traffic originating and/or terminating at Davis Yard and the Port. Local freight rail traffic is defined as freight rail traffic with a destination along the Beltline. As illustrated in Figure 2-5, the Beltline serves three local shippers—MCO Distribution and Logistics, L&W Supply, and Builders First Source. One shipper, Colonial Oil, near the Port is

served off WTRY trackage and requires movements on the Beltline to perform switching activities dependent on the length of the train.

Existing freight operations along the Beltline vary from day to day depending on shipper demand and CSXT and/or WTRY resource planning; however, all CSXT freight trains moving from the Port to Davis Yards currently travel the entirety of the Beltline, while other CSXT and WTRY trains move over portions of the Beltline in the performance of local switching operations for the existing local shippers.

The vast majority of rail freight traffic on the Beltline is associated with the Port and surrounding industries served by WTRY. In 2020, WTRY handled approximately 24,000 cars. Commodities included intermodal containers, bulk chemicals, pulp and paper products, petroleum products, lumber and forest products, and steel. In 2017, CSXT began providing intermodal service to/from the Port, dubbed the "Queen City Express" (QCE). CSXT interchanges daily with the WTRY, and containers are handled simultaneously with mixed merchandise traffic. The current QCE schedule provides next-day service to the Port-owned Charlotte Inland Port, which in turn provides direct access to major roadway distribution corridors throughout the southeastern United States. The Carolina Connector (CCX) intermodal terminal recently initiated operations near Rocky Mount, North Carolina. While the new terminal includes rail-to-truck transfer capacity for domestic and international container shipments, CSXT currently moves containers to CCX via truck only. CSXT has no train schedule in place for direct rail service between the Port and CCX. Freight rail traffic would continue to operate along the Beltline at the existing service levels through the city. Table 2-4 summarizes the existing freight operations.

The Project would not propose any new elements or improvements to the existing route under the No-Build Alternative, and any analyses for future scenarios does not include analysis of the local trains. All existing conditions would remain the same as current conditions, except for improvements planned as part of the Wilmington Beltline Improvement Project (NCDOT STIP Project P-5740) and the Independence Boulevard Project (NCDOT STIP Project U-4434). The following relevant projects are planned within the Study Area that have been considered in the development of this Environmental Assessment (EA) and would still be implemented under the No-Build and Build Alternatives.

WILMINGTON BELTLINE IMPROVEMENTS

NCDOT's State Transportation Improvement Program (STIP) Project P-5740 Wilmington Beltline Improvements project includes the removal of three at-grade crossings, as well as improvements to 23 other crossings on the Beltline. The project also contemplates tie and rail rehabilitation, curvature adjustments, and other improvements. This project is currently under construction.

Figure 2-5: Existing Transportation Network

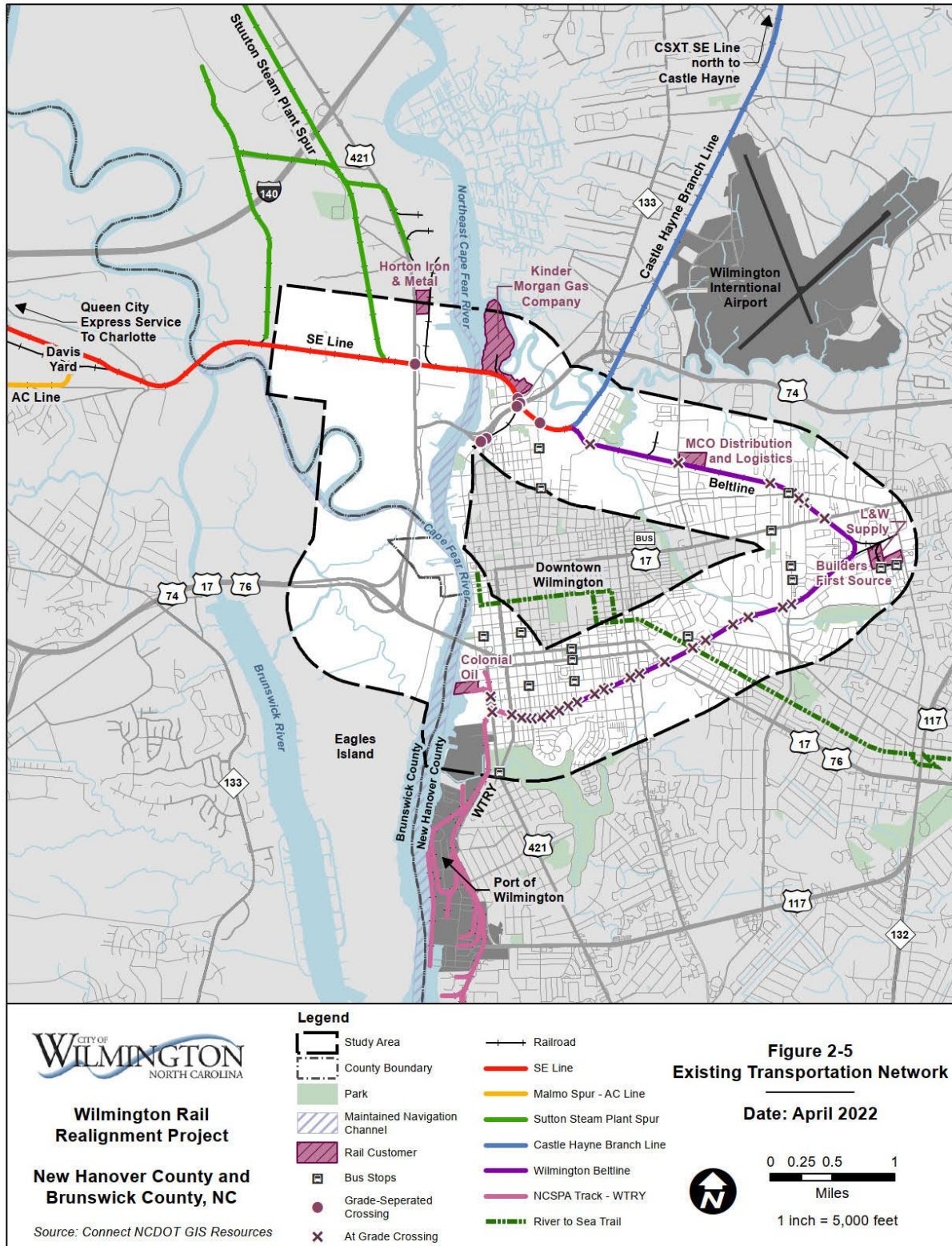


Table 2-4: No-Build Freight Operations

	Distance between Port and Davis Yard	Number of At-Grade Crossings (including private crossings)	Number of Northeast Cape Fear River Crossings	MAS ¹	Average Train Length	Number of Train Movements / day ²	Number of Train Round Trips/Day
Existing (2020)	8 miles	32	1	10mph	3,000 ft–3,500 ft	2	1
Planning Horizon (2040)	8 miles	32	1	25 mph	6,000 ft–10,000 ft	4-6	2-3

¹MAS = Maximum Authorized Speed

²Number of train movements per day represents each portion of a round trip, i.e., 2 train movements per day equals one round trip to and from a serving yard.

WILMINGTON URBAN AREA METROPOLITAN PLANNING ORGANIZATION LONG-RANGE TRANSPORTATION PLANS

The Cape Fear Moving Forward 2045 Metropolitan Transportation Plan was adopted in November 2020.⁵ A key focus of the 2045 plan is improving freight movement within the region by promoting intermodal connections for ports, rail, and highways to improve supply chain reliability. This includes improvements to the US 74 highway corridor and the CSXT rail line connecting the Port of Wilmington to Charlotte, as well as restoration of the rail line between Castle Hayne and Wallace to provide rail access to Raleigh and the Northeast. The plan notes the Wilmington Rail Realignment as an important connection within the region’s transportation network and includes a number of roadway and rail projects to improve freight movement in the region. Truck/roadway projects include several projects along Shipyard Boulevard, the primary access to the Port, as well as roadway widening and intersection improvements on truck routes to the Port. Rail projects include safety improvements at several at-grade crossings of the CSXT Beltline. Other projects listed in the Roadway element of the plan are also targeted at reducing/maintaining the rate of mean travel time for people and freight, reducing vehicle miles traveled (VMT), maximizing throughput for each lane, reducing peak hour delay, and addressing future growth in employment, population, and freight/industry.

CAPE FEAR MEMORIAL BRIDGE FEASIBILITY STUDY (NCDOT SPOT ID H185357)

NCDOT Feasibility Studies Unit completed an express design and environmental screening for replacing the Cape Fear Memorial Bridge, which carries US 17/US 76/US 421 over the Cape Fear River between New Hanover and Brunswick Counties north of Wilmington. The existing bridge is a 4-lane steel center-span vertical lift bridge. The feasibility study proposed

⁵ Wilmington Urban Area MPO. 2020. Cape Fear Moving Forward 2045 Metropolitan Transportation Plan. https://www.wmpo.org/wp-content/uploads/2020/11/Cape-Fear-Moving-Forward-2045_ADOPTED-November-2020_Reduced-File-Size.pdf

expanding to a 6-lane median-divided facility with one alternative (Alternative 4) incorporating a new railroad crossing.

NCDOT COMPREHENSIVE RAIL PLAN

The NCDOT Rail Division developed the *Comprehensive State Rail Plan*,⁶ adopted in August 2015, to help identify needs and guide investments in the state’s freight and passenger rail network for the next 25 years. The data and projects listed in the State Rail Plan are used by NCDOT to help determine which projects will be evaluated and when they are programmed in the STIP. The Port of Wilmington is identified as an area of opportunity for additional freight rail needs. Additionally, the report recommends implementing the recommendations from the Wilmington Traffic Separation Study of rail crossing consolidation and safety upgrades. It also recommends investigating the feasibility of a new rail bridge across the Cape Fear River to improve port rail traffic from Wilmington. The plan identifies the Pembroke to Wilmington line segment as an “Investment Program” prioritization tier, which means the corridor shows promise for passenger/commuter rail improvements. The Investment Program tier is the highest-ranking tier for the results of freight needs.

NCDOT 2024-2033 STATE TRANSPORTATION IMPROVEMENT PROGRAM

The STIP is NCDOT’s plan for funding transportation projects statewide and includes roads, ferries, public transportation, aviation, and passenger rail projects. It is updated every two years. STIP projects are programmed and chosen from Long Range Transportation Plans (LRTP) of the appropriate Metropolitan Planning Organizations (MPO) in the area. The Wilmington Rail Realignment Project was submitted for inclusion in the STIP and received \$500,000 from NCDOT Board Contingency funding. STIP projects in the vicinity of the Project are provided in Table 2-5.

Table 2-5: STIP Projects in the Project Vicinity

STIP No.	Description	ROW/Construction
I-6036	I-140 from US 17 to north of US 74. Pavement rehabilitation.	Under Construction
I-6037	I-140 from US 421 to I-40. Pavement and bridge rehabilitation.	2028
I-6039	I-140 from US 421 to US 74/US 76. Pavement rehabilitation.	2029
U-5863	NC 133 (Castle Hayne Road) from I-140/US 17 (Wilmington Bypass) to SR 1310 (Division Drive) in Wilmington. Widen to multi-lanes.	Not funded
U-5954	NC 133 (Castle Hayne Road) at North 23 rd Street. Construct a roundabout.	2025/2025

⁶ NCDOT. 2015. North Carolina Comprehensive State Rail Plan. <https://www.ncdot.gov/divisions/rail/Pages/rail-plan.aspx>

STIP No.	Description	ROW/Construction
U-5926	New route from SR 1302 (23 rd Street to 26 th Street). Construct new route on new location. Economic development project.	2024/2031
U-4434	SR 1209 (Independence Boulevard Extension) from Randall Parkway to US 74 (MLK, Jr. Parkway) in Wilmington. Multi-lanes on new location.	2027/2031
P-5740	CSXT SE Line. Tie and rail rehabilitation. Improvements to highway grade crossings, curve re-alignments and upgrade switch operations. Close and improve various existing at-grade crossings.	Under Construction
U-3338C	SR 1175 (Kerr Avenue) interchange at US 74 (MLK, Jr. Parkway).	In Progress/2028
U-5731	US 74 at US 17/US 421. Construct a fly-over and free flow ramp at interchange.	2027/2029
U-5734	US 421 (South Front Street) from US 17 Bus/US 76/US 421 (Cape Fear Memorial Bridge) to US 421 (Burnett Boulevard) in Wilmington. Widen to multi-lanes.	2025/2027
U-5729 REG	US 421 from US 421 (Burnett Avenue) to US 117 (Shipyards Boulevard) in Wilmington. Upgrade roadway.	2028/2030
U-5729 SW	US 421 at US 117 (Shipyards Boulevard) intersection improvements.	2028/2030
EB-5600	SR 1219 (South 17 th Street) from Hospital Plaza to Independence Boulevard. Construct multi-use path.	2024/2024
U-5702A	NC 132 (College Road) from SR 1272 (New Centre Drive) to US 117 (Shipyards Boulevard). Access management and travel time improvements.	2028/2030
U-5702B	NC 132 (College Road) from US 117 (Shipyards Boulevard) to US 421 (Carolina Beach Road). Access Management and travel time improvements.	Not funded
U-5790	US 421 (Carolina Beach Road) from NC 132 (South College Road) to Sanders Road in Wilmington. Widen existing roadway and construct flyovers at US 421 and NC 132.	2027/2029
U-5704	NC 132 (College Road) at US 76 (Oleander Drive) intersection improvements.	Not funded
U-6199	Wilmington Citywide Signal System.	2028/2030
U-6201	SR 1175 (Kerr Avenue) from SR 1411 (Wrightsville Avenue) to US 76 (Oleander Drive). Construct roadway on new location.	2028/2030

Source: NCDOT 2023⁷

⁷ NCDOT. 2023. 2024-2033 State Transportation Improvement Program. <https://www.ncdot.gov/initiatives-policies/Transportation/stip/Pages/about.aspx>

INDEPENDENCE BOULEVARD EXTENSION (NCDOT STIP U-4434)

Included as NCDOT STIP project number U-4434, the proposed Independence Boulevard Extension is in the Study Area. The purpose of the proposed extension is to improve north-south connectivity between major routes and shift some motor vehicle traffic away from residential streets. NCDOT asserts that the Independence Boulevard project would improve connectivity between the Port, Wilmington Airport, University of North Carolina at Wilmington (UNCW), and I-40. The design for this project was predicated on the requirement from CSXT that all road improvements over the railroad be grade separated. The 2002 feasibility study assumed the proposed roadway would cross the southern CSXT rail crossing at-grade and the northern crossing would be grade separated. Cost estimates associated with the feasibility study were estimated at \$37 million. The current design for the Independence Boulevard Extension project assumes a grade separated crossing over the southern CSXT crossing and an elevated structure beginning at the Market Street interchange and continuing north of Hurst Street. This design was proposed to eliminate the rollercoaster effect of the roadway due to the requirement from CSXT that all road improvements over the railroad be grade separated and to minimize the barrier effect to communities. Construction cost estimates for this design are estimated to be approximately \$215 million.

ISABEL HOLMES FLYOVERS

Included as NCDOT STIP Project U-5731, the proposed Isabel Holmes Flyover project proposes to improve the intersection of US 74 and US 17/US 421 by constructing a flyover and free-flow ramp interchange. The project is scheduled for right-of-way in FY 2027 and construction in FY 2029.

NORTH CAROLINA MEGASITES

Two of the state's seven proposed Megasites are in the vicinity of Wilmington. The Mid-Atlantic Industrial Rail Park is a 1,100-acre site just outside of Wilmington between US 74/US 76 and the CSXT rail line, approximately 18 miles from the Port of Wilmington. The International Logistics Park is a 1,040-acre site on the border of Brunswick and Columbus counties south of US 74/US 76. These sites have been selected by the Economic Development Partnership of North Carolina (EDPNC) for recruiting new businesses to the state and supporting existing business expansion. The sites offered development opportunities with economic incentives for manufacturing and other industries and were selected based on access to transportation infrastructure, utilities, and workforce.

2.2.2 Preferred Alternative

Under the Preferred Alternative, all existing and future-anticipated CSXT freight traffic traveling between Davis Yard and the Port would use the proposed realignment. The Beltline would remain in place and limited freight service could continue to operate on this line to serve three local shippers (Builders First Source, L&W Supply, and MCO Distribution and Logistics) (Figure S-1). However, the connection between the WTRY and Beltline will be severed near South Front

Street through the removal of track, meaning that CSXT freight trains traveling between Davis Yard and the Port would no longer be able to access the Beltline.

The Preferred Alternative is approximately four miles in length and begins at-grade by tying into existing trackage operated by WTRY near Greenfield Street, then follows along the west side of S. Front Street. North of Wright Street, the Preferred Alternative travels northwest across Dawson Street and Surry Street and then crosses the Cape Fear River on a vertical lift bridge. The closed elevation would be approximately 34 feet at top of rail and the partially open position would be 49 feet. The elevated structure continues approximately one mile before turning north and crossing over US 17 just west of the existing US 17/US 421/US 74/US 76 interchange at an approximate elevation of 41 feet (top of rail). After crossing the existing US 17/US 421/US 74/US 76 interchange, the alignment continues on elevated structure and gradually decreases in elevation and crosses the Cape Fear River again at approximately 21 feet in elevation utilizing a bascule-type moveable span bridge. The Preferred Alternative continues north parallel to US 421/US 74 on embanked fill and ties into the existing CSXT SE Line approximately 0.4 mile west of US 421/US 74. Approximately 50 percent of the alignment is proposed on structure. The rail line would remain single track and have a right-of-way width ranging from approximately 50 feet while on structure up to approximately 200 feet in some locations with embankments. The Preferred Alternative alignment is shown in Figure 2-6. More detailed mapping of the Preferred Alternative is provided in Appendix A, Mapping Atlas.

CAPE FEAR RIVER CROSSINGS

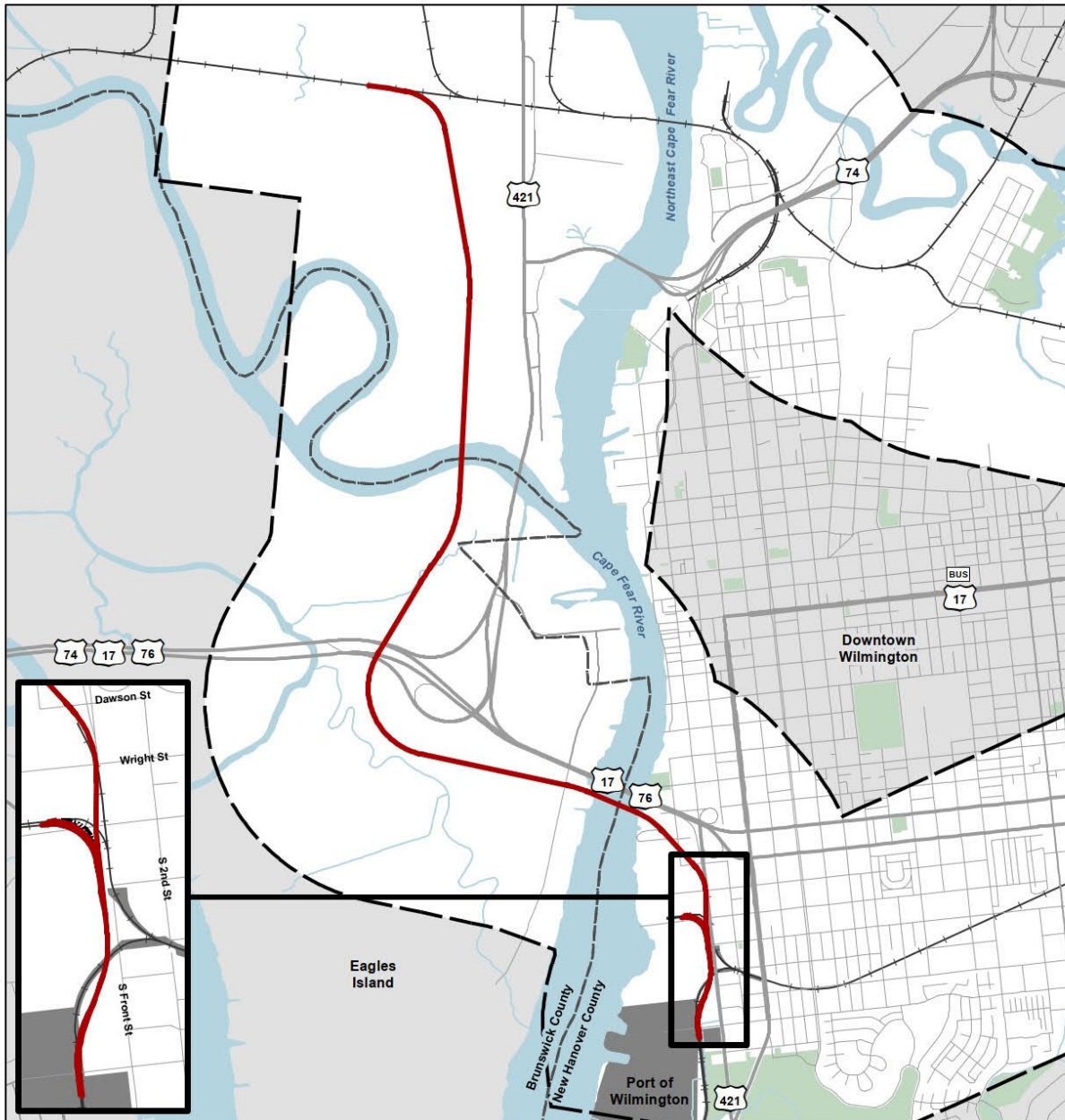
The Preferred Alternative crosses the Cape Fear River in two locations. For the main Cape Fear crossing (Northeast Cape Fear/Wilmington Harbor), a vertical lift span bridge is proposed. The proposed vertical lift span rail bridge is similar in design to the existing Cape Fear Memorial Bridge immediately to the north, which is also a vertical lift span bridge. The moveable section of the bridge that lifts is supported by two towers. The height of those towers has not been determined at this stage of the design process; however, it is expected that the tower heights for the rail bridge would be similar to the existing Cape Fear Memorial Bridge. The second crossing occurs in a section of the river known as the Cape Fear River Above Wilmington, where the river traverses Eagle Island. Another moveable span bridge is proposed for this crossing, which will take the form of a single-leaf bascule type bridge, similar to the CSXT Navassa Bridge just north of the Project. Table 2-6 summarizes the Cape Fear River crossings.

Table 2-6: Cape Fear River Crossings

Cape Fear River Crossings	Approx. Waterway Milepoint	Bridge Type	Horizontal Clearance (feet)	Vertical Clearances (feet)		
				Open	Closed	Partially Open
Northeast/ Wilmington Harbor	26.7	Lift span	250	135	20	40
Cape Fear Above Wilmington	30.2	Bascule	102	Unlimited	9	NA

Source: City of Wilmington. 2021. Navigation Impact Report Wilmington Harbor and Navigation Impact Report Cape Fear Above Wilmington, 2021.

Figure 2-6: Preferred Alternative



Legend

- Study Area
- County Boundary
- Park
- Preferred Alternative
- Railroad

**Figure 2-6
Preferred Alternative**

Date: April 2022



0 0.125 0.25 0.5
Miles

1 inch = 2,250 feet

PRELIMINARY ENGINEERING

The Project will be developed to the 30 percent design phase of preliminary engineering. The preliminary engineering at this stage in the design process provides for horizontal alignment and vertical profile, among other things, such as basic hydraulic analysis. It does not provide detailed design for the bridge structures, location of piers, or span lengths. Those elements will be designed in subsequent phases of project development. For purposes of analysis in this EA, permanent impacts consider potential fill and bridge areas. The permanent impact area for the Project ranges between a total of 50 feet (bridged areas) and 130 feet (fill areas) centered on the alignment and is large enough to accommodate potential structures (spans, piers, track, etc.) and fill. Temporary impact areas assess potential construction limits and staging areas. The impact area for temporary/construction-related impacts is 150 feet centered on the alignment. Figure 2-7, Figure 2-8, Figure 2-9, and Figure 2-10 provide the typical sections assumed for the analysis.

OPERATIONS

An operations analysis was prepared for the Project. The analysis used a Planning Horizon Year of 2040 and considered Port capacity, existing and projected freight movements, and maximum authorized speed (MAS) (Table 2-7). Under the Preferred Alternative, all existing and future CSXT freight rail traffic traveling between Davis Yard and the Port will travel on the bypass, decreasing the operating distance between Davis Yard and the Port from eight to four miles. The study considered three scenarios for freight train movements between Davis Yard and the Port, represented by an existing scenario from the year 2020 and two future scenarios for freight growth through the year 2040.

- 2020 Operations:
 - Existing: 1 daily round trip train (i.e., 2 train movements per day, one in each direction) estimated from 7 weekly round trip trains (14 train movements per week) averaging 3,000 to 3,500 feet each⁸
- 2040 Scenarios:
 - Scenario 1: 2 daily round trip trains (i.e., 4 trains movements per day, 2 in each direction) estimated from 14 weekly round trip trains (28 train movements per week) averaging 10,000 feet each
 - Scenario 2: 3 daily round trip trains (i.e., 6 trains movements per day, 3 in each direction) estimated from 21 weekly round trip trains (42 train movements per week) averaging 6,000 feet each

⁸ It should be noted that the number and lengths of trains can fluctuate substantially depending on the seasonality of certain commodity flows. The lengths do not exceed 10,000 feet (see Mott MacDonald 2017 Report). The occasional unit trains (unscheduled trains in addition to the daily train set moving to/from the Port) also use the line. A unit train is a train with a single commodity that is shipped from the same origin to the same destination, without being split up or stored en route.

Figure 2-7: Typical Sections 1-3

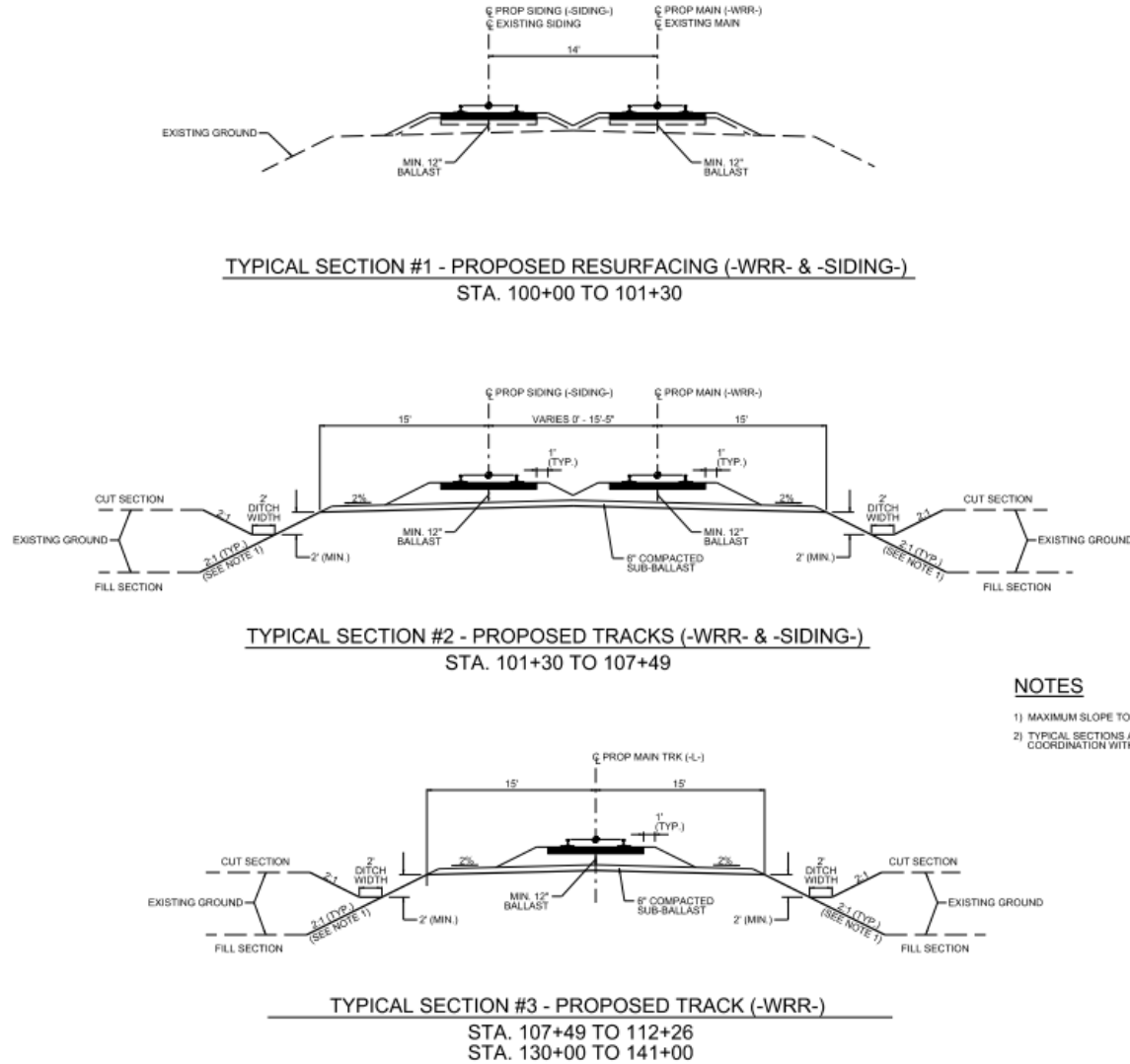
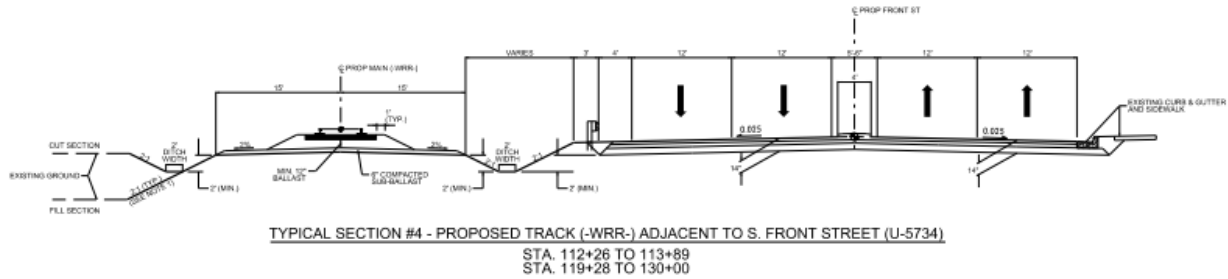


Figure 2-8: Typical Sections 4-6



NOTES

- 1) MAXIMUM SLOPE TO BE DETERMINED BY GEOTECHNICAL ENGINEER
- 2) TYPICAL SECTIONS ARE SUBJECT TO CHANGE BASED ON FUTURE COORDINATION WITH CITY AND NCDOT.

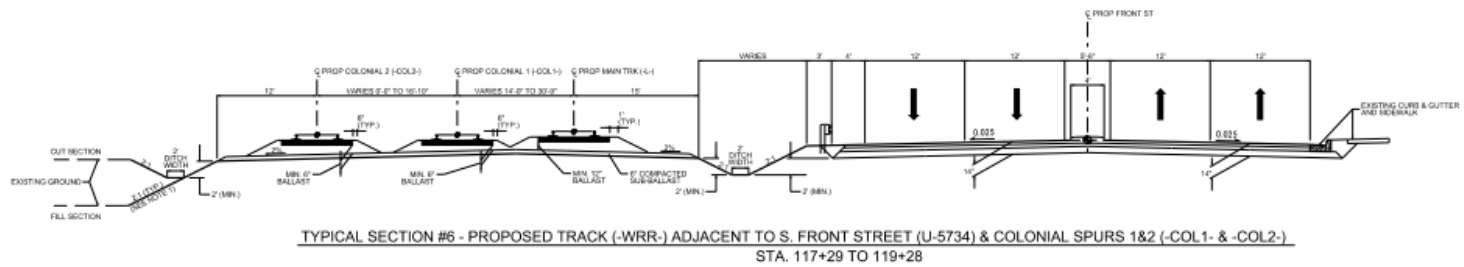
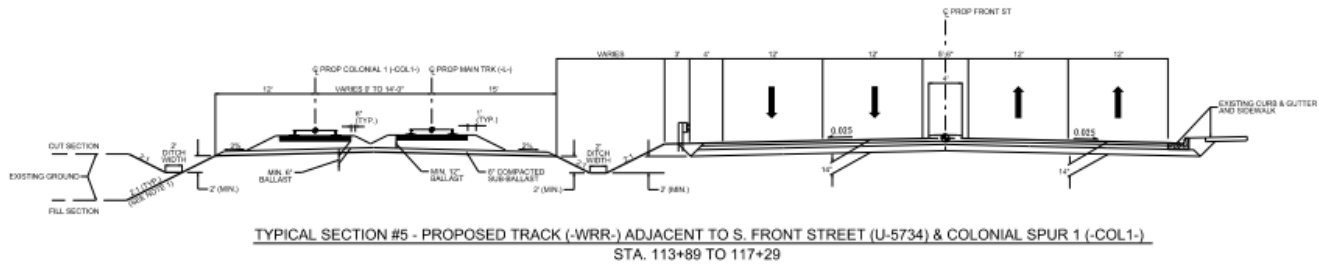
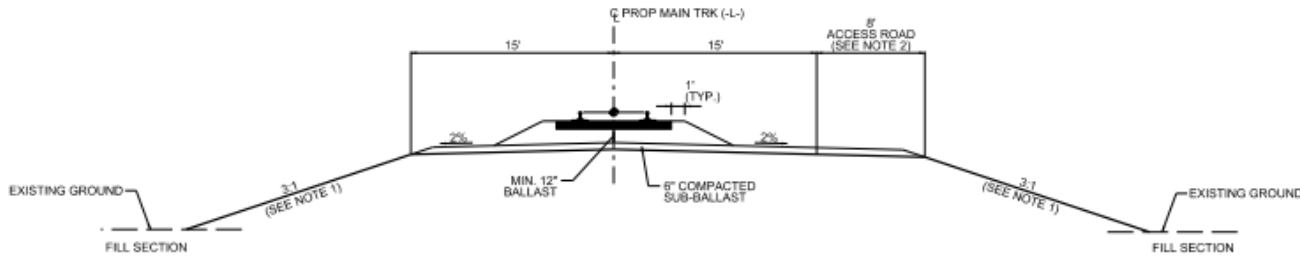


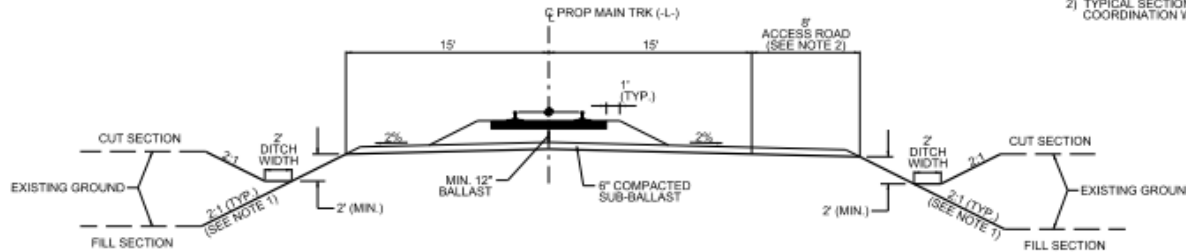
Figure 2-9: Typical Sections 7-8



**TYPICAL SECTION #7 - PROPOSED TRACK (-WRR-) WITH 8' ACCESS ROAD RIGHT
STA. 250+60 TO 291+50**

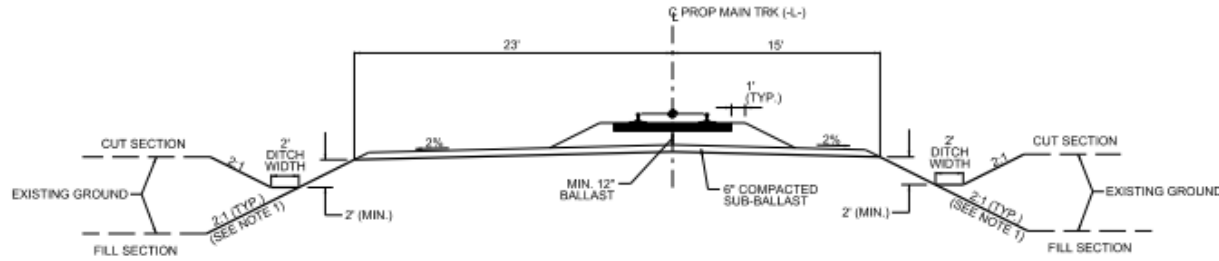
NOTES

- 1) MAXIMUM SLOPE TO BE DETERMINED BY GEOTECHNICAL ENGINEER IN FINAL DESIGN.
- 2) TYPICAL SECTIONS ARE SUBJECT TO CHANGE BASED ON FUTURE COORDINATION WITH CSXT AND NCSPA.

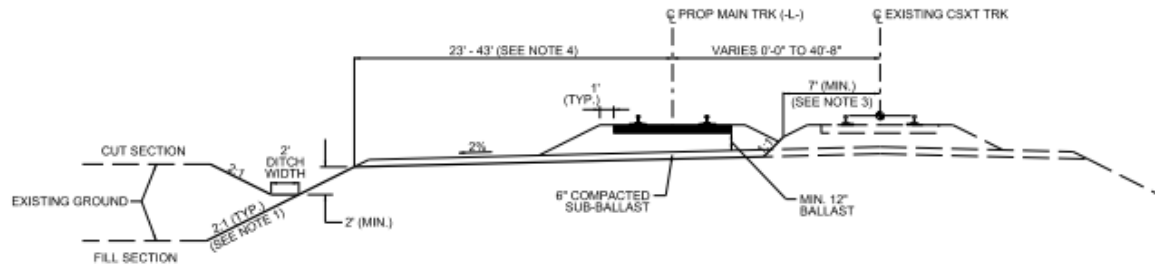


**TYPICAL SECTION #8 - PROPOSED TRACK (-WRR-) AT-GRADE WITH 8' ACCESS ROAD RIGHT
STA. 291+50 TO 303+78**

Figure 2-10: Typical Sections 9-10



**TYPICAL SECTION #9 - PROPOSED TRACK (-WRR-) AT-GRADE WITH 8' ACCESS ROAD LEFT
STA. 303+78 TO 306+00**



**TYPICAL SECTION #10 - PROPOSED TRACK (-WRR-) AT-GRADE ADJACENT TO EXISTING CSXT TRACK
STA 306+00 TO 311+07**

NOTES

- 1) MAXIMUM SLOPE TO BE DETERMINED BY GEOTECHNICAL ENGINEER IN FINAL DESIGN.
- 2) TYPICAL SECTIONS ARE SUBJECT TO CHANGE BASED ON FUTURE COORDINATION WITH CSXT AND NCSFA.
- 3) ACTUAL LOCATION OF EXCAVATION IS TO BE BASED ON FIELD CONDITIONS AS DETERMINED BY THE CSXT REPRESENTATIVE.
- 4) 36' WIDE TURNOUT MATERIAL LAYDOWN PAD BETWEEN STATIONS 309+17 AND 311+07.

These scenarios were developed based on the Ports’ strategic plan and goals established within. The study applied the train traffic volumes in the 2020 Existing and 2040 Future Scenarios 1 and 2 presented above in the resource and impact analyses of both the Beltline and Bypass, since these train volumes either currently operate or would increase in both the No-Build Alternative and the Preferred Alternative. For the purposes of this study, the Project assumes all freight traffic traveling between Davis Yard and the Port occurring on the Beltline would be relocated onto the Preferred Alternative, although local train service could remain on the Beltline. Additionally, CSXT operates approximately one local train up to three days per week on a portion of the Beltline, and WTRY operates one local train up to five days a week on the port lead. Both locals are assumed to remain the same with respect to volume and frequency for the future scenarios. This study did not include the CSXT local and WTRY local trains in the analyses since the operation of these trains would not materially change as part of the Project.

Table 2-7: Preferred Alternative: Future Freight Operations Between Port and Davis Yard

Planning Horizon Year (2040)	Distance between Port and Davis Yard	Number of At-Grade Crossings	Number of Cape Fear River Crossings	MAS ¹	Average Train Length ²	Number of Trains Movements/Day ³	Number of Train Round Trips/Day
Scenario 1	4 miles	1	2	25 mph	10,000 ft	4	2
Scenario 2	4 miles	1	2	25 mph	6,000 ft	6	3

Notes:

Occasional additional frequencies may occur to accommodate special moves or during peak periods to accommodate ship calls.

¹MAS = Maximum Authorized Speed

²Railcar volume was converted to train length using the following assumptions (projected volumes as provided in the 2021 Port Strategic Plan):

- 100,000 non-container railcars and 45,000 container railcars will be handled in the Planning Horizon Year of 2040 (high growth scenario)
- General merchandise (non-container) railcar lengths average 60 feet, coupler face to coupler face.
- Double stacking will be 100% utilized for container traffic, i.e., 2 containers per railcar
- Intermodal railcars will have an assumed length of 65 feet (HS40-70 or HS40-100), coupler face to coupler face.
- Assumes that inbound train movements to the Port must equal outbound train movements to Davis Yard, resulting in an even number of train frequencies.
- Assumes the train(s) operate 350 days per year.

³Number of train movements per day represents each portion of a round trip, i.e., 2 train movements per day equals one round trip to and from a serving yard.

CONSTRUCTION METHODS

Conventional construction methods would be utilized and would likely include the use of barges, cranes, and timber mats. Access for the river sections would likely be from both sides of the river from within the Project right-of-way for constructability purposes. There are several

industrial and undeveloped properties in the Project area that could be used for material laydown, storage, and access.

Transportation of construction materials and access for personnel is likely to take place along numerous routes, which likely include Battleship Road and US Business 17, US 74/US 421. The railroad right-of-way for access will be utilized when practicable with the intent of minimizing disruption to existing operations. For construction in the wetland areas, it is expected that small barges supporting timber mats will be utilized to allow for the elevation of the mats to go up and down based on changes in the water surface elevation. Small barges supporting timber mats will be utilized in wetland areas. By adding and removing timber mats, the elevation of construction equipment can be changed to accommodate tidal shifts where applicable.

Precast concrete piles or reinforced concrete drilled shaft foundations will be installed for the placement of piers throughout the sections of elevated structure. A determination of the foundation type and method of installation will be determined in subsequent phases of the Project in coordination with a geotechnical engineer.

PRELIMINARY COST ESTIMATES

Conceptual level cost estimates were prepared in 2021 as part of the Alternatives Analysis phase of the Project's environmental review. Estimates for track costs were performed on a unit (track-mile) basis, differentiating between flat and rolling terrain as well as stable and potentially unsuitable soils for roadbed construction. Cost estimates for structures were also developed based on a cost per square foot of bridge basis with different unit costs applied toward vertical lift and bascule type moveable spans, as well as the anticipated fixed span structural steel plate girder approach spans. Using that approach, the cost estimate for the Preferred Alternative in 2021 dollars was estimated to be approximately \$760M.

Project estimates will be updated and refined for the Preferred Alternative in the PE phase from a per track-mile quantity to a track-foot quantity to obtain a higher degree of accuracy. Earthwork calculations will also be included in the preliminary engineering estimate to enhance cost-estimating accuracy. More detailed structural cost estimates will be developed based on preliminary engineering estimates. The updated estimate in the preliminary engineering phase will be done in the standard cost category format in line with FRA best practices.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Chapter 3 describes the affected environment, or existing condition, for each resource evaluated and the impacts to each resource. Each section evaluates the potential impacts of the No-Build Alternative and the Preferred Alternative. The No-Build Alternative serves as a baseline for comparison and assumes no changes to the existing freight rail line, the Beltline, other than the planned and programmed projects discussed in Chapter 2. The Preferred Alternative considers a new bypass of the freight traffic traveling between the Port and Davis Yard to the west of the City. The new bypass route extends from the Port to a new bridge over the Cape Fear River, then over Eagles Island west of the river and connecting back to the existing CSXT SE line to Davis Yard while limited local traffic remains on the existing Beltline, while limited local traffic remains on the existing Beltline through the City. A discussion of potential mitigation measures is also provided where applicable.

APPROACH TO ANALYSIS

Readily available information (reports, data, mapping), agency coordination, and field reviews were used to establish the existing conditions within the Study Area. The Study Area is a one-mile swath centered on the existing Beltline between Davis Yard and the Port and the proposed bypass via Eagles Island. The study considered three scenarios for freight train movements between Davis Yard and the Port, represented by an existing scenario from the year 2020 and two future scenarios for freight growth through the year 2040.

- 2020 Operations:
 - Existing: 1 daily round trip train (i.e., 2 train movements per day, one in each direction) estimated from 7 weekly round trip trains (14 train movements per week) averaging 3,000 to 3,500 feet each¹
- 2040 Scenarios:
 - Scenario 1: 2 daily round trip trains (i.e., 4 trains movements per day, 2 in each direction) estimated from 14 weekly round trip trains (28 train movements per week) averaging 10,000 feet each
 - Scenario 2: 3 daily round trip trains (i.e., 6 trains movements per day, 3 in each direction) estimated from 21 weekly round trip trains (42 train movements per week) averaging 6,000 feet each

¹ It should be noted that the number and lengths of trains can fluctuate substantially depending on the seasonality of certain commodity flows. The lengths do not exceed 10,000 feet (see Mott MacDonald 2017 Report). The occasional unit trains (unscheduled trains in addition to the daily train set moving to/from the Port) also use the line. A unit train is a train with a single commodity that is shipped from the same origin to the same destination, without being split up or stored en route.

These scenarios were developed based on the Ports' strategic plan and goals established within. The study applied the train traffic volumes in the 2020 Existing and 2040 Future Scenarios 1 and 2 presented above in the resource and impact analyses of both the Beltline and Bypass, since these train volumes either currently operate or would increase in both the No-Build Alternative and the Preferred Alternative. For the purposes of this study, the Project assumes all freight traffic traveling between Davis Yard and the Port occurring on the Beltline would be relocated onto the Preferred Alternative, although local train service could remain on the Beltline. Additionally, CSXT operates approximately one local train up to three days per week on a portion of the Beltline, and WTRY operates one local train up to five days a week on the port lead. Both locals are assumed to remain the same with respect to volume and frequency for the future scenarios. This study did not include the CSXT local and WTRY local trains in the analyses since the operation of these trains would not materially change as part of the Project.

Physical impacts were assessed using an estimated footprint of the Project with a 25-foot buffer from the proposed construction slope stake limits of the preliminary design and temporary design limits discussed in Chapter 2. The permanent impact area for the Project ranges between a total of 50 feet (bridged areas) and 130 feet (fill areas) centered on the alignment and is large enough to accommodate potential structures (spans, piers, track, etc.) and fill. Temporary impact areas assess potential construction limits and staging areas. The impact area for temporary/construction-related impacts is 150 feet centered on the alignment.

The permanent impact areas and temporary impact areas combined make up the Limits of Disturbance (LOD). The LOD refers to the area where ground disturbance would be likely to occur and includes both permanent and temporary impacts (i.e., construction staging activities) associated with construction of the Project. The LOD used for determining impacts at this phase of analysis has a larger footprint than is expected to be necessary for the Project and would be refined as design for the Project progresses.

Impact calculations were done by overlaying resource data and preliminary design using Geographic Information System (GIS) mapping. Areas of a resource that are included within the LOD or intersected by the alignment are considered as a direct impact. Areas outside of the LOD were considered as potential indirect impacts or proximity effects, where applicable. Both operating scenarios have the same physical LOD.

RESOURCES EVALUATED

Table 3-1 lists each resource in the order in which they appear in Chapter 3. For some resources, additional information is provided in an appendix, also noted in Table 3-1. Appendix A includes a map atlas that depicts the alignment on aerial imagery and shows the locations of physical resources evaluated.

Table 3-1: Resources Evaluated

Section	Resource	Technical Appendix
3.1	Transportation	N/A
3.2	Land Use, Zoning, Property	N/A
3.3	Community Facilities	N/A
3.4	Demographics and Environmental Justice	N/A
3.5	Public Health and Safety	N/A
3.6	Parks and Recreational Facilities	N/A
3.7	Cultural Resources	Appendix B
3.8	Section 4(f)	N/A
3.9	Visual Resources	Appendix C
3.10	Water Quality	Appendix D
3.11	Water Bodies and Waterways	Appendix D
3.12	Navigation	Appendix E
3.13	Floodplains and Flood Zones	Appendix D
3.14	Coastal Zones and Areas of Environmental Concern	Appendix D
3.15	Threatened and Endangered Species/Critical Habitat	Appendix D & Appendix F
3.16	Soils and Prime Farmland	N/A
3.17	Contaminated Sites	N/A
3.18	Air Quality	N/A
3.19	Noise and Vibration	Appendix G
3.20	Utilities	N/A
3.21	Energy Resources	N/A
3.22	Resiliency	N/A
3.23	Construction Impacts	N/A
3.24	Indirect and Cumulative Impacts	N/A

3.1 TRANSPORTATION

3.1.1 Introduction and Methodology

The City of Wilmington is supported by a multimodal transportation network, making it accessible to residents, business travelers, and tourists. This network includes major streets and highways, local streets, freight rail lines, river traffic, airline travel, public transit, bikeways, trails and greenways, and sidewalks. Navigational clearances and approvals associated with bridge crossings are discussed in Section 3.12, Floodplains and Flood Zones.

Existing and proposed freight train operations affect mobility through the City of Wilmington. The analysis presented considers existing and proposed freight operations (as discussed in Chapter 2), effects on local shippers, and focuses on the existing (2020) and proposed freight

operations (future planning year 2040) and the effects on the 32 at-grade crossings (30 public and 2 private crossings) identified along the Beltline between Davis Yard and the Port.

Delays at existing at-grade crossings result from freight trains traveling the Beltline. The analysis presents the existing and expected delay caused by a single freight train at each at-grade crossing and all crossings combined, the number of at-grade crossings, and the total exposure for the No Build Alternative and the Preferred Alternative. Exposure considers the daily traffic crossing the rail multiplied by the number of trains expected for the day.

The Affected Environment for the transportation analysis includes public and private roadways that intersect the Beltline and the alignment of the Preferred Alternative within the Study Area. The future planning year conditions assume both population growth in the area as well as increased freight traffic between Davis Yard and the Port traveling along the Beltline. Commercial freight operators do not typically rely on forecasts out further than a year. The Port puts out a five-year strategic plan with goals, but goals are different than a budget used for operational and financial purposes.

The information used in this analysis included the 2021 Wilmington Rail Realignment Purpose and Need document, WMPO annual average daily traffic (AADT) mapping, and the forecast information from the U-4434 Independence Boulevard extension project. The exposure for each alternative was calculated by multiplying the AADTs by the number of trains expected for the day. The WMPO AADT mapping was used to collect historic volume data in the Study Area. This was used to help determine an overall growth rate for traffic volumes for the area. The Wilmington growth model was not included to account for the expected future growth to the City from people and businesses. Using the WMPO historic volume data showed an expected 5 percent growth rate for the City. For this project, it was determined that the trains traveling the Beltline typically run between 8 p.m. and 8 a.m. To determine the number of vehicles traveling during this time, the forecast for U-4434 was utilized. This forecast included tube counts that collected volumes throughout the entire day in the Project area where the traffic distribution of vehicles could be determined for a specific time range. After reviewing multiple tube counts, a distribution of 25 percent was used to determine how much traffic would be traveling between 8 p.m. and 8 a.m. From there, the volumes were divided evenly to generate an hourly volume that could be impacted by a single train. Vehicle delay was determined based on assumed train length and speed at the crossing. This delay was multiplied by the hourly volume and divided by two for two-way traffic or one for one-way traffic and then divided further by the number of lanes in each direction.

3.1.2 Affected Environment

Several transportation plans include projects that are located within the Study Area, including highway plans, transit plans, as well as bicycle, pedestrian, and greenway plans. Compatibility with planned and fiscally constrained projects would be an important consideration for this

Project as they may alter existing land uses. These plans include: the *2024-2033 STIP*²; the *North Carolina Comprehensive State Rail Plan*³; the *Cape Fear Moving Forward 2045 Metropolitan Transportation Plan*⁴; the *Wilmington-New Hanover County Comprehensive Greenway Plan*⁵; the *Walk Wilmington: A Comprehensive Pedestrian Plan*⁶; and the *Cape Fear Regional Bicycle Plan*.⁷ The existing transportation network is shown on Figure 3-1.

PUBLIC TRANSPORTATION

Public transportation includes multiple Wave Bus routes⁸ and their associated bus stops, including Route 101 Princess Place; Route 105 Medical Center; Route 106 Shipyard Boulevard; Route 108 Market Street; Route 201 Carolina Beach Road; Route 202 Oleander West; Route 203 Port City Trolley; Route 204 Brunswick Connector; Route 205 Long Leaf Park; Route 207 North; and Route 210 South 17th Street.

FREIGHT OPERATIONS

CSXT overhead/interchange//through trains exchange traffic with WTRY via a port lead and at the Port facilities. These CSXT trains travel over the entirety of the Beltline, while other CSXT local and WTRY local trains move over varying portions of the Beltline in the performance of local switching operations for the existing shippers. Table 3-2a, 3-2b and 3-2c provide an estimated daily and weekly average of train activity on the Beltline in the year 2020 and 2040.

² NCDOT. 2023. 2024-2033 State Transportation Improvement Program.

<https://www.ncdot.gov/initiatives-policies/Transportation/stip/Pages/about.aspx>

³ NCDOT. 2015. North Carolina Comprehensive State Rail Plan.

<https://www.ncdot.gov/divisions/rail/Pages/rail-plan.aspx>

⁴ Wilmington Urban Area MPO. 2020. Cape Fear Moving Forward 2045 Metropolitan Transportation Plan.

https://www.wmpo.org/wp-content/uploads/2020/11/Cape-Fear-Moving-Forward-2045_ADOPTED-November-2020_Reduced-File-Size.pdf

⁵ Wilmington Urban Area MPO. 2013. Comprehensive Greenway Plan. https://www.wmpo.org/wp-content/uploads/2016/05/2013_wilmingtongreenwayplan_mainchapters_optimized.pdf

⁶ City of Wilmington. 2009. Walk Wilmington: A Comprehensive Pedestrian Plan. https://www.wmpo.org/wp-content/uploads/2016/06/2009-08_WalkWilmington_PlanFINAL.pdf

⁷ Cape Fear Council of Governments. 2017. Cape Fear Regional Bicycle Plan. https://capefearcog.org/wp-content/uploads/2016/04/Cape_Fear_Bicycle_Plan_FINAL_Main.pdf

⁸ WAVE. Fixed Bus Routes: All Routes Map. Accessed January 2022. <https://www.wavetransit.com/wp-content/uploads/2021/08/WAVE-System-Map-Int-Sept21-web.pdf>

Figure 3-1: Existing Transportation Network

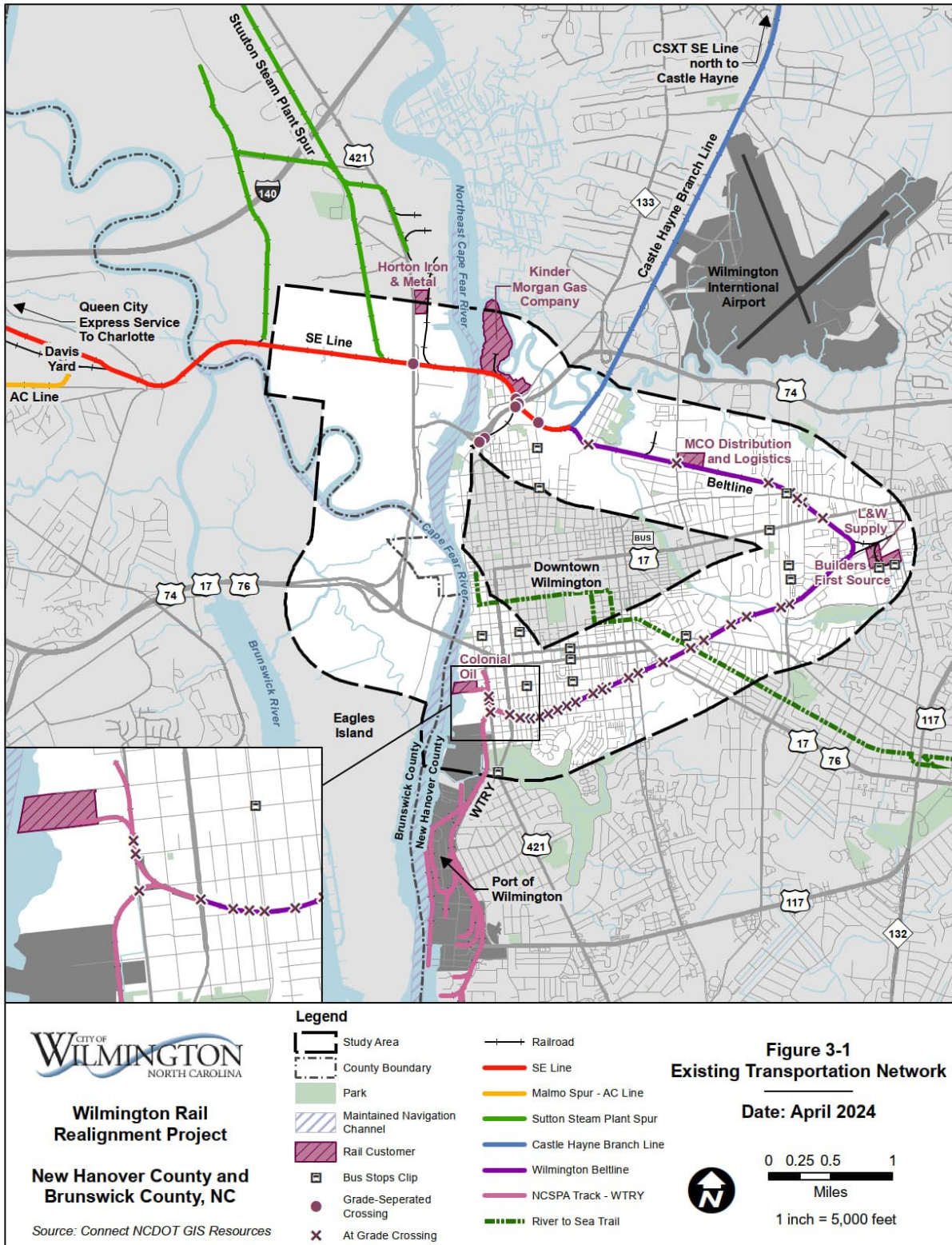


Table 3-2a: Estimated Existing Year 2020 Train Activity in the Project Area

Train Type	Daily Estimated Maximum Train Movements		Weekly Estimated Average Train Movements	
	Round Trips	Single	Round Trips	Single
Beltline: Overhead/Interchange/Through Trains (Davis Yard to/from WTRY)	1	2	7	14
Beltline: CSXT Local* (Switching MCO, L&W & Builders)	1	2	3	6
Port Lead: WTRY Local (Switching Colonial Oil)	1	2	5	10
Subtotal	3	6	15	30

*CSXT Local includes MCO Distribution and Logistics, L&W Supply, and Builders First Source.

Table 3-2b: Estimated Year 2040 Train Activity in the Project Area (Scenario 1)

Train Type	Daily Estimated Maximum Train Movements		Weekly Estimated Average Train Movements	
	Round Trips	Single	Round Trips	Single
Beltline: Overhead/Interchange/Through Trains (Davis Yard to/from WTRY)	2	4	14	28
Beltline: CSXT Local (Switching MCO, L&W & Builders)	1	2	3	6
Port Lead: WTRY Local (Switching Colonial Oil)	1	2	5	10
Subtotal	4	8	22	44

Table 3-2c: Estimated Year 2040 Train Activity in the Project Area (Scenario 2)

Train Type	Daily Estimated Maximum Train Movements		Weekly Estimated Average Train Movements	
	Round Trips	Single	Round Trips	Single
Beltline: Overhead/Interchange/Through Trains (Davis Yard to/from WTRY)	3	6	21	42
Beltline: CSXT Local (Switching MCO, L&W & Builders)	1	2	3	6
Port Lead: WTRY Local (Switching Colonial Oil)	1	2	5	10
Subtotal	5	10	29	58

*Number of train movements per day represents each portion of a round trip, i.e., 2 train movements per day equals one round trip to and from a serving yard.

For the purposes of this study, the Project assumes all freight traffic traveling between Davis Yard and the Port (i.e., the overhead/interchange/through trains which travel entirety of the Beltline with each movement) would be relocated onto the Bypass in the Preferred Alternative.

CSXT Local Trains, which utilize a northern portion of the Beltline, both originate and terminate in Davis Yard absent any movements on Port trackage. Local traffic on the Beltline is not expected to materially change as a result of the Project; therefore, these trains were not included in the analyses in this study. For the year 2020 existing scenario, the CSXT Local Trains operate approximately 6 times per week (3 round-trips), or up to 2 times per day (1 round-trip). This train is not estimated to increase frequency for the 2040 scenarios. Existing customers on the Beltline include:

- Colonial Oil
- Builders First Source
- L&W Supply
- MCO Distribution and Logistics

There also exists a local WTRY train which operates on the port lead and industrial freight rail line connecting to the southern portion of the Beltline. This train both originates and terminates at the Port and only utilizes the connecting section of the Beltline to serve customers along Front Street (Colonial Oil). These trains do not operate over the eastern section of Beltline through the City. They would, however, continue to operate over the new Bypass Route in the Preferred Alternative, only for the section from the Port to Front Street, not to Davis Yard. Local traffic on the Beltline is not expected to materially change because of the Project, except that they will no longer connect from the WTRY port lead via the junction with the Beltline and will serve customers in the same area directly from the new Bypass alignment along Front Street. These trains were not included in the analyses in this study. For the year 2020 existing scenario, the WTRY Local Train operates approximately 10 times per week (5 round-trips), or up to 2 times per day (1 round-trip). This train is not estimated to increase frequency for the 2040 scenarios.

OPERABLE RAIL/HIGHWAY BRIDGES

There are four operable rail and highway bridges over the Cape Fear River in the Project Study Area, including two highway bridges north and south of downtown Wilmington and two railroad bridges north of downtown. The Cape Fear River Bridge carries US 17/76/421 over the main channel of the Cape Fear River south of downtown and just north of the Port of Wilmington. The Isabel Holmes Bridge carries US 74 over the Northeast Cape Fear River just north of downtown. The Hilton Bridge and Navassa Bridge carry only rail across the Northeast Cape Fear River and the Cape Fear River north of downtown. The Hilton drawbridge over the Northeast Cape Fear River is remotely operated from the Navassa Bridge. Trains must stop at both bridges unless granted permission by the bridge tender to proceed. For information on navigation, see Section 3.11.

AT-GRADE CROSSINGS

There are 32 at-grade crossings (30 public and 2 private crossings) throughout the City, many of which are along the Beltline. There are also several at-grade crossings of the WTRY industrial freight rail line, generally along South Front Street, where the tracks run parallel in the center of the street before crossing over to Colonial Oil. Table 3-3 lists the at-grade crossings considered in this evaluation.

Table 3-3: Existing At-Grade Crossings for Evaluation

Number	Crossing ID	Route
1	902751J	S. Front (center running track)
2	628706L	Intersection of Marstellar St/S. Front (center running track)
3	629448M ¹	S. Front Street (SR 1140)
4	629446Y ¹	S. 3 rd Street (US 421)
5	629445S	S. 4 th Street
6	629443D	Martin Street at Hooper Street ²
7	629442W	S. 5 th Street
8	629441P	S. 6 th Street/Martin Street
9	629440H	S. 7 th Street
10	629439N	S. 8 th Street
11	629438G	S. 9 th Street ²
12	629437A	S. 10 th Street
13	629436T	S. 12 th Street
14	629435L	S. 13 th Street
15	629434E	Marstellar Street
16	629433X	S. 16 th Street (SR 1218)
17	629432R	S. 17 th Street (SR 1219)
18	629431J	Oleander Drive (US 76)
19	937501V	River to Sea Bikeway (private)
20	629430C	Wrightsville Avenue (SR 1411)
21	629429H	Colonial Drive
22	629428B	Forest Hills Drive
23	629427U	Mercer Avenue
24	629426M	Covil Avenue
25	629291J	Private (Westig Rd)
26	629290C	Market Street (US 17)
27	629289H	Henry Street
28	642724T	Clay Street ²
29	629288B	Princess Place Drive (SR 1301)
30	629287U	N. 30 th Street (SR 1302)

Number	Crossing ID	Route
31	629286M	N. 23 rd Street (SR 1302)
32	629284Y	King Street

Sources: Moffat and Nichol 2017; FRA 2020

¹ WTRY

²At-grade crossing to be closed as part of the STIP-5740 project.

PEDESTRIAN FACILITIES

Several smaller segments of bike lanes and walking paths exist in the Study Area and are discussed in further detail in Section 3.6. The River to Sea Trail, which traverses New Hanover County, from the foot of Market Street to the Johnnie Mercer’s Pier at the Atlantic Ocean. The Beltline intersects the River to Sea Bikeway once between Wrightsville Avenue and Oleander Boulevard.

3.1.3 Environmental Consequences

NO-BUILD ALTERNATIVE

Under the No-Build Alternative, projects included in the NCDOT’s 2020-2029 STIP within the Study Area will occur. The Wilmington-New Hanover County *Comprehensive Greenway Plan*⁹, the *Walk Wilmington: A Comprehensive Pedestrian Plan*¹⁰, and the *Cape Fear Regional Bicycle Plan*¹¹ provide for improvements to pedestrian and bicycle facilities under this Alternative. Those improvements may result in impacts to the built and natural environment. Addressing those impacts would be the responsibility of the implementing agency.

Freight service and traffic would continue through the City along the Beltline and is expected to increase over time, which would result in greater delays at grade crossings. Vehicle delay was determined based on assumed train length and speed at crossing. This delay was multiplied by the hourly vehicle volume and divided by two for two-way traffic or one for one-way traffic and then divided further by the number of lanes in each direction. For 2020, the existing combined total of vehicle delay at the at-grade crossings would be 56,022 minutes. Under the future No-Build condition in 2040, vehicle delays would increase by approximately 62 percent, assuming no changes to the existing freight operations. This is an expected population growth, as discussed in Chapter 1. When considering both operation scenarios for increased freight traffic, the vehicle delays in 2040 are almost six times higher under Scenario 1 and Scenario 2 over the 2020 vehicle delays. Table 3-4 provides the existing and projected delays for at-grade crossings.

⁹ Wilmington Urban Area MPO. 2013. Comprehensive Greenway Plan. https://www.wmpo.org/wp-content/uploads/2016/05/2013_wilmingtongreenwayplan_mainchapters_optimized.pdf

¹⁰City of Wilmington. 2009. Walk Wilmington: A Comprehensive Pedestrian Plan. https://www.wmpo.org/wp-content/uploads/2016/06/2009-08_WalkWilmington_PlanFINAL.pdf

¹¹ Cape Fear Council of Governments. 2017. Cape Fear Regional Bicycle Plan. https://capefearcog.org/wp-content/uploads/2016/04/Cape_Fear_Bicycle_Plan_FINAL_Main.pdf

Table 3-4: Existing and 2040 Vehicle Delays

#	Crossing Number	Route	2020			2040 No-Build			2040 Scenario 1 (longer, less frequent)			2040 Scenario 2 (shorter, more frequent)		
			AADT	Exposure ³	Vehicle Delay (mins)	AADT	Exposure	Vehicle Delay (mins)	AADT	Exposure	Vehicle Delay (mins)	AADT	Exposure	Vehicle Delay (mins)
1 ¹	902751J	S. Front Street (Center Running Track)	-	-	-	-	-	-	-	-	-	-	-	-
2 ¹	628706L	Marstellar Street/S. Front Street	-	-	-	-	-	-	-	-	-	-	-	-
3 ²	629448M	S. Front Street (SR 1140)	24,820	49,640	4,715	65,850	131,700	12,511	65,850	263,400	28,139	65,850	395,100	27,245
4	629446Y	S. 3 rd Street (US 421)	28,850	57,700	5,481	76,550	153,100	14,544	76,550	306,200	32,711	76,550	459,300	31,672
5	629445S	S. 4 th Street	400	800	76	1,060	2,120	201	1,060	4,240	453	1,060	6,360	439
6	629443D	Martin Street at Hooper Street	540	1,080	103	1,430	2,860	272	1,430	5,720	611	1,430	8,580	592
7	629442W	S. 5 th Street	2,950	5,900	560	7,830	15,660	1,488	7,830	31,320	3,346	7,830	46,980	3,240
8	629441P	S. 6 th Street/Martin Street	800	1,600	152	2,120	4,240	403	2,120	8,480	906	2,120	12,720	877
9	629440H	S. 7 th Street	800	1,600	152	2,120	4,240	403	2,120	8,480	906	2,120	12,720	877
10	629439N	S. 8 th Street	1,070	2,140	203	2,840	5,680	540	2,840	11,360	1,214	2,840	17,040	1,175
11	629438G	S. 9 th Street	800	1,600	152	2,120	4,240	403	2,120	8,480	906	2,120	12,720	877
12	629437A	S. 10 th Street	670	1,340	127	1,780	3,560	338	1,780	7,120	761	1,780	10,680	736
13	629436T	S. 12 th Street	270	540	51	720	1,440	137	720	2,880	308	720	4,320	298
14	629435L	S. 13 th Street	3,750	7,500	715	9,950	19,900	1,890	9,950	39,800	4,252	9,950	59,700	4,117
15	629434E	Marstellar Street	1,880	3,760	357	4,990	9,980	948	4,990	19,960	2,132	4,990	29,940	2,065
16	629443X	S. 16 th Street (SR 1218)	23,050	46,100	4,739	61,160	122,320	11,620	61,160	244,640	26,134	61,160	366,960	25,305
17	629432R	S. 17 th Street (SR 1219)	23,320	46,640	4,431	61,870	123,740	11,755	61,870	247,480	26,438	61,870	371,220	25,599
18	629431J	Oleander Drive (US 76)	36,180	72,360	6,874	96,000	192,000	18,239	96,000	384,000	41,022	96,000	576,000	39,720
19 ¹	937501V	River to Sea Bikeway (private)	-	-	-	-	-	-	-	-	-	-	-	-
20	629430C	Wrightsville Avenue (SR 1411)	24,660	49,320	4,685	65,430	130,860	12,431	65,430	261,720	27,959	65,430	392,580	27,072
21	629429H	Colonial Drive	5,090	10,180	967	13,510	27,020	2,567	13,510	54,040	5,773	13,510	81,060	5,590
22	629428B	Forest Hills Drive	1,070	2,140	203	2,840	5,680	540	2,840	11,360	1,214	2,840	17,040	1,175
23	629427U	Mercer Avenue	1,340	2,680	255	3,560	7,120	676	3,560	14,240	1,521	3,560	21,360	1,473
24	629426M	Covil Avenue	23,180	46,360	4,404	61,500	123,000	11,684	61,500	246,000	26,280	61,500	369,000	25,446
25 ¹	629291J	Private (Westig Road)	-	-	-	-	-	-	-	-	-	-	-	-
26	629290C	Market Street (US 17)	48,240	96,480	9,165	128,000	256,000	24,318	128,000	512,000	54,696	128,000	768,000	52,960
27	629289H	Henry Street	540	1,080	103	1,430	2,860	272	1,430	5,720	611	1,430	8,580	592
28	642724T	Clay Street	400	800	76	1,060	2,120	201	1,060	4,240	453	1,060	6,360	439
29	629288B	Princess Place Drive (SR 1301)	12,330	24,660	2,343	32,720	65,440	6,216	32,720	130,880	13,982	32,720	196,320	13,538
30	629287U	N. 30 th Street (SR 1302)	4,960	9,920	942	13,160	26,320	2,500	13,160	52,640	5,623	13,160	78,960	5,445
31	629286M	N. 23 rd Street (SR 1302)	21,440	42,880	4,073	56,890	113,780	10,808	56,890	227,560	24,310	56,890	341,340	23,538
32	629284Y	King Street	1,470	2,940	279	3,900	7,800	741	3,900	15,600	1,667	3,900	23,400	1,614
Annual Total Delay (minutes)			56,022			148,644			334,325			323,713		

¹These crossings do not have current AADT data; therefore, expected delay is not calculated.

² Preferred Alternative proposes an at-grade crossing near the intersection of Dawson Street and Surry Street with Surry Street being proposed to be closed at this location. Two uninhabited parcels would still require access from Dawson Street however, minimal vehicle traffic is expected.

³ The exposure for each alternative was calculated by multiplying the AADT by the number of trains crossings per day (Annual average number of vehicles per day x number of trains per day). NCDOT 2024. North Carolina Department of Transportation Roadway Design Manual; 8.12.1.4 Rail Grade Separation Guidelines. May 2024

PREFERRED ALTERNATIVE

Projects included in the NCDOT's 2020-2029 STIP that are in the LOD include STIP U-5734: US 421 (South Front Street) and STIP R-3601: US 17/US 74/US 76. The Preferred Alternative would be bridged perpendicularly over US 17/US 74/US 76. STIP R-3601 is currently under construction, and the Preferred Alternative would be designed to cross over the completed project in this location. Greater impacts would be anticipated to the STIP U-5734 project, as the proposed alignment would impact the northern portion of South Front Street; however, coordination on design would continue as the Project progresses to reduce impacts on the STIP U-5734 project.

The *Cape Fear Moving Forward 2045 Metropolitan Transportation Plan* includes the STIP U-5734 project. Other projects mentioned in this plan that may be affected by the Preferred Alternative include roadway, freight and freight rail, and bicycle and pedestrian projects including:

- U-4738: Cape Fear Crossing
- RW-127: US76/421/17/17 BUS/Cape Fear Memorial Bridge Replacement
- RW-226: US421/74/NC133 & US17/76 Merge Lane Addition
- RW-20: US17/74/76/Causeway Improvements (Phase 2)
- PROG: Wilmington Beltline Improvement
- FR-12: Front Street RR Crossings (Meares)
- FR-13: Front Street RR Crossings (Marstellar)
- FR-14: Front Street RR Crossings (Kidder)

The *North Carolina Comprehensive State Rail Plan* includes "The Governor's 25-Year Vision" which notes the desire to identify capacity and safety needs and improvements to the CSXT rail system in order to increase freight capacity and enhance connectivity to the Port. The Preferred Alternative addresses the Project's needs of enhanced efficiency of freight movement, improved safety, and improved regional mobility and reliability, which align with the goals of "The Governor's 25-Year Vision".

The Preferred Alternative may conflict with and/or prevent the construction of future planned greenways and bicycle/pedestrian facilities within the City of Wilmington's portion of the Preferred Alternative's LOD. The *Wilmington-New Hanover County Comprehensive Greenway Plan* proposes the Surry Street Trail, a greenway connecting Nun Street to Wright Street, along with proposed bicycle lanes and sharrows along South Front Street. The *Walk Wilmington: A Comprehensive Pedestrian Plan* includes a similar planned multi-use path along the waterfront that turns east and then continues down South Front Street, along with some long-term sidewalk projects on the roads adjacent to South Front Street.

The long-term plan in the *Cape Fear Regional Bicycle Plan* includes proposed off-road shared use paths along US 76, US 17 and following the existing rail line in the northern end of the Study Area. The Preferred Alternative would cross the proposed location of these paths at US 17/US

74/US 76 and along the existing CSXT rail line where the Preferred Alternative connects into the existing rail line at the northern end of the Project.

The Preferred Alternative would also affect existing transit routes: 201 Carolina Beach Road and the 203 Port City Trolley Wave Bus routes on South Front Street. The following bus stops associated with these routes also fall within the Preferred Alternative's LOD: Stops 11021 Front Street (SB) at Hess Industries, and 11055 Front Street (NB) at Laughing Oak Lane (Hess Industries) on Route 201 and Stop 12 Front Street/Laughing Oak Lane on Route 203. NCDOT STIP Project U-5734 (US 421 [South Front Street]) would also impact these community facilities along South Front Street. Relocation and detours of these resources may be necessary during the Project's construction.

Under the Preferred Alternative, all current freight rail traffic traveling between Davis Yard and the Port (14 weekly train movements or seven weekly round trips per Table 3-2a) would be rerouted out of the City. This would equate to 28 weekly train movements or 14 rounds trips in 2040 for Scenario 1 (Table 3-2b) and 42 weekly train movements or 21 round trips in 2040 for Scenario 2 (Table 3-2c). Freight trains leaving the Port would head north on the WTRY port lead and upgraded industrial freight rail line as part of the Bypass parallel to South Front Street, passing through four grade crossings-before turning west and transitioning to embankment as the rail line approaches the Cape Fear River in the vicinity of the US 17 off-ramp. The four (4) grade crossings east of the Cape Fear River include one (1) private crossing serving a private industry (Buckeye Drive), one (1) private crossing serving Colonial Oil (near Wright Street), one (1) public crossing proposed to be converted to private (Wright Street), and one (1) public that would remain open with limited access (Dawson Street). The alignment will also cross Surry Street, which would be permanently closed but two uninhabited parcels would still require access from Dawson Street. Because the parcels are uninhabited, access to them from Dawson Street would be minimal. Freight trains would also cross one private grade crossing at the Duke Access Road serving a Duke Energy transmission tower. To summarize, rerouted freight trains would traverse a total of five (5) grade crossings, three (3) private (Buckeye Drive, Colonial Oil and Duke Access Road), one (1) public to be converted to private (Wright Street), and one (1) public with restricted access (Dawson Street).

The Preferred Alternative addresses the Project need of minimizing the number of at-grade crossings that freight trains traveling between Davis Yard and the Port traverse. Under the No Build, freight trains traveling between Davis Yard and the Port would cross 32 at-grade crossings (30 public and 2 private) along the existing Beltline. Under the Preferred Alternative, freight trains traveling between Davis Yard and the Port on the bypass route would cross five (5) grade crossings, three (3) private and two (2) public. Three (3) of the crossings would be modifications to existing roadway crossings an active WTRY industrial freight rail line, including two (2) private (Buckeye Drive and Colonial Oil) and one (1) public (Wright Street) that would be converted to private. Two (2) of the crossings would be new, including one (1) public with restricted access (Dawson Street) east of the Cape Fear River and one (1) private (Duke Access Road) west of the Cape Fear River. The reduction of the number of at-grade crossings that

freight trains traveling between Davis Yard and the Port traverse would result in improved safety by minimizing the exposure risk of vehicles and trains throughout the City.

Under the Preferred Alternative, the Beltline would remain in place and local traffic is not expected to materially change because of the Project; i.e., the current estimated six weekly train movements or three weekly round trips will continue (Table 3-2a). However, the connection between the WTRY and the Beltline would be severed at South Front Street through the removal of track, meaning that freight trains traveling between Davis Yard and the Port would no longer be able to access the Beltline but could continue up to current customer Colonial Oil (10 weekly single train movements or five weekly round trips per Table 3-2a).

While the Project is the first phase of a broader vision by the City to improve regional mobility, including possible reuse of the Beltline for alternative transit use, under the Preferred Alternative, the Beltline would remain in place after construction of the Preferred Alternative and very limited train service would continue to operate over the Beltline to serve the three existing local shippers referenced above. As noted in Table 3.2a, there are currently six weekly round trips to the three local shippers on the northern portion of the Beltline. To serve existing rail customers on the Beltline, seven of the 32 crossings (30 public and 2 private crossings) will continue to be used; however, all 32 crossings (30 public and 2 private crossings) will remain open for CSXT access and maintenance until such a time that CSXT discontinues service over the line (See Table 3-3; crossings #26 Market Street, #27 Henry Street, #29 Princess Place Drive, #30 N. 30th Street, #31 N. 23rd Street, and #32 King Street; #28 Clay Street will be closed as part of STIP-5740 Project). Discontinuation of service is not part of this Project.

The Preferred Alternative spans Battleship Road and US 17 Business/US 76/US 421 on an elevated structure. Therefore, no effects on vehicular traffic would result from the operation of the Project. However, temporary delays or temporary rerouting of these roadways may occur during construction activities. Access to construction sites would be expected to primarily be along existing roadways to minimize impacts to natural areas on Eagles Island.

3.1.4 Potential Mitigation Strategies and/or Commitments

Traffic management plans would be developed prior to construction activities that lay out rerouting roadway traffic for certain construction activities. Consideration of timing of construction activities would also be given to minimize impacts during peak travel times. The City would coordinate with property owners to maintain access to businesses and private properties. Appropriate coordination with WTRY and CSXT would occur in order to minimize any potential disruptions for freight leaving the Port during construction. As appropriate, the City would ensure compliance with appropriate construction safety standards, such as flagmen on-site to ensure the safety of workers and train operations for work being conducted in the vicinity of active tracks.

3.2 LAND USE, ZONING, AND PROPERTY

3.2.1 Introduction and Methodology

Land use and zoning are determined by municipalities and define allowable uses for property. Land use is defined as the way people use and develop land, such as agricultural, residential, and industrial uses. Many municipalities develop zoning ordinances and planning documents to regulate the direction of development and land use within their jurisdiction. If an activity is not consistent with the existing or planned land use or zoning, a variance may be required to allow for alternative uses.

Existing conditions within the Study Area were determined using current zoning data and land use/land cover data available from New Hanover County and Brunswick County. Within the Study Area, the incorporated areas of New Hanover County are governed by the City of Wilmington Planning, Development and Transportation Department and by the Town of Leland in the incorporated areas of Brunswick County. The unincorporated areas of New Hanover and Brunswick counties in the Study Area are governed by the New Hanover County Planning and Land Use Department and Brunswick County Planning Department, respectively.

The acreage of each type of land use/zoning was calculated by overlaying available land use and zoning GIS data with the Study Area. An impact could occur in the area where the LOD of the Preferred Alternative would be inconsistent with the existing land use/zoning. This section identifies inconsistencies between the Preferred Alternative and existing land uses within the Study Area. Impacts are defined by changes to existing land use as a result of the Project, as well as inconsistencies with future land uses. All available Federal, state, regional, and local plans for the area were used to determine the Project's compatibility with future land uses and/or planned projects in the Study Area. Future land uses in the Study Area are proposed in planning reports, including *The Create Wilmington Comprehensive Plan*,¹² the New Hanover County Comprehensive Plan: *Plan NHC*,¹³ and the Brunswick County *Coastal Area Management Act (CAMA) Core Land Use Plan*.¹⁴ *The Create Wilmington Comprehensive Plan* focuses on the inward and upward redevelopment of its urban areas into safe, walkable, inclusive, and unique mixed-use spaces within the Wilmington portion of the Study Area. The *Plan NHC* covers the unincorporated portions of New Hanover County.

¹² City of Wilmington. 2016. *The Create Wilmington Comprehensive Plan*.
<https://www.wilmingtonnc.gov/departments/planning-development-and-transportation/comprehensive-plan>

¹³ New Hanover County. 2016. *New Hanover County Comprehensive Plan: Plan NHC*.
<https://www.nhcgov.com/DocumentCenter/View/2147/Comprehensive-Plan-PDF?bidId=>

¹⁴ Brunswick County. 2011. *CAMA Core Land Use Plan*.
https://www.brunswickcountync.gov/files/planning/2015/04/CAMA_Core_Land_Use_Plan.pdf

Several transportation plans include projects that are located within the Study Area, including the 2024-2033 STIP,¹⁵ the *North Carolina Comprehensive State Rail Plan*,¹⁶ the *Cape Fear Moving Forward 2045 Metropolitan Transportation Plan*,¹⁷ the *Wilmington-New Hanover County Comprehensive Greenway Plan*,¹⁸ the *Walk Wilmington: A Comprehensive Pedestrian Plan*¹⁹ and the *Cape Fear Regional Bicycle Plan*.²⁰ Compatibility with planned and fiscally constrained projects is an important consideration for this Project as they may alter existing land uses.

Special land uses, such as conservation and mitigation sites, were also identified in the Study Area using current North Carolina Natural Heritage Program (NCNHP) managed areas data. Special land use impacts are defined by acreage present within the Preferred Alternative's LOD and the anticipated changes required for transportation usage in these areas as a result of the Project.

This section also discusses the potential right-of-way acquisitions associated with construction of the Project. Property acquisitions at this stage in the design process are defined as full or partial acquisitions. Full property acquisitions are noted for property parcels with impacts anticipated to more than half of the parcel, or if the parcel would lose its access due to the construction of the Preferred Alternative. The Project would adhere to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970²¹ (Uniform Act), as amended, regarding relocation services related to commercial and residential moving costs and displacement. The Uniform Act ensures fair treatment for people whose property is acquired and for those who are displaced by Federally funded programs and projects.

3.2.2 Affected Environment

EXISTING LAND USE

Existing land uses were reviewed for the entire Study Area. Residential, commercial, and industrial land uses exist mainly within the City of Wilmington's portion of the Study Area. The

¹⁵ NCDOT. 2021. 2020-2029 State Transportation Improvement Program. <https://www.ncdot.gov/initiatives-policies/Transportation/stip/Pages/about.aspx>

¹⁶ NCDOT. 2015. North Carolina Comprehensive State Rail Plan. <https://www.ncdot.gov/divisions/rail/Pages/rail-plan.aspx>

¹⁷ Wilmington Urban Area MPO. 2020. Cape Fear Moving Forward 2045 Metropolitan Transportation Plan. https://www.wmpo.org/wp-content/uploads/2020/11/Cape-Fear-Moving-Forward-2045_ADOPTED-November-2020_Reduced-File-Size.pdf

¹⁸ Wilmington Urban Area MPO. 2013. Comprehensive Greenway Plan. https://www.wmpo.org/wp-content/uploads/2016/05/2013_wilmingtongreenwayplan_mainchapters_optimized.pdf

¹⁹ City of Wilmington. 2009. Walk Wilmington: A Comprehensive Pedestrian Plan. https://www.wmpo.org/wp-content/uploads/2016/06/2009-08_WalkWilmington_PlanFINAL.pdf

²⁰ Cape Fear Council of Governments. 2017. Cape Fear Regional Bicycle Plan. https://capefearcog.org/wp-content/uploads/2016/04/Cape_Fear_Bicycle_Plan_FINAL_Main.pdf

²¹ U.S. Code Title 42-Chapter 61: Uniform Relocation Assistance and Real Property Acquisition for Federal and Federally Assisted Programs. <https://uscode.house.gov/view.xhtml?path=/prelim@title42/chapter61&edition=prelim>

majority of Eagles Island that lies in the Study Area is undeveloped, with a significant portion of that acreage consisting of conservation areas.

Existing zoning in the Study Area is defined by the City of Wilmington, New Hanover County, and Brunswick County. The current zoning districts from these three jurisdictions were generalized into seven major zoning categories including: residential, mixed use, commercial, industrial, conservation, historic, and cemetery zoning. .

Table 3-5 below shows the existing zoning districts that make up the generalized zoning in the Study Area, as shown in Figure 3-2.

As seen in Figure 3-2, the Brunswick County²² portion of the Study Area includes areas zoned as industrial, conservation, and residential. Although residential zoning is present, no residences currently exist within the residential-zoned areas in the Brunswick County portion of the Study Area. In New Hanover County,²³ zoning in the Study Area includes mixed-use, industrial, and commercial zones. Although the New Hanover County portion of Eagles Island is industrial-zoned, the majority of the Study Area in that section is currently used as conservation lands.

Mixed-use, residential, commercial, and industrial zones are the most prevalent zones in the portion of the Study Area in downtown Wilmington²⁴ (Figure 3-2).

FUTURE LAND USE

Within the Study Area, the *Plan NHC's Future Land Use Map*²⁵ shows future conservation, commerce, and urban mixed-use zoning, replacing the current industrial-zoned areas. The *CAMA Core Land Use Plan's Future Land Use Map*²⁶ shows conservation zones replacing the current industrial, residential, and commercial zoning on Eagles Island in the Brunswick County portion of the Study Area.

²² Brunswick County. Geographic Information Systems. Accessed September 2020.

<https://www.brunswickcountync.gov/gis/data/>

²³ New Hanover County. New Hanover County Zoning File. Accessed September 9, 2020.

<https://opendata.nhcgov.com/datasets/zoning-1/explore?location=34.160437%2C-77.875150%2C10.83>

²⁴ City of Wilmington. City of Wilmington Zoning. Accessed January 2022.

<https://wilmingtonnc.maps.arcgis.com/apps/instant/minimalist/index.html?appid=0f6a342924c04a1d83e1fc0b39b6c6ac>

²⁵ New Hanover County. 2016. Plan NHC: Future Land Use Map.

https://laserfiche.nhcgov.com/weblink/0/edoc/3270737/NHC_Future_Land_Use_Map_36x48.pdf

²⁶ Brunswick County. 2011. CAMA Core Land Use Plan: Future Land Use Map.

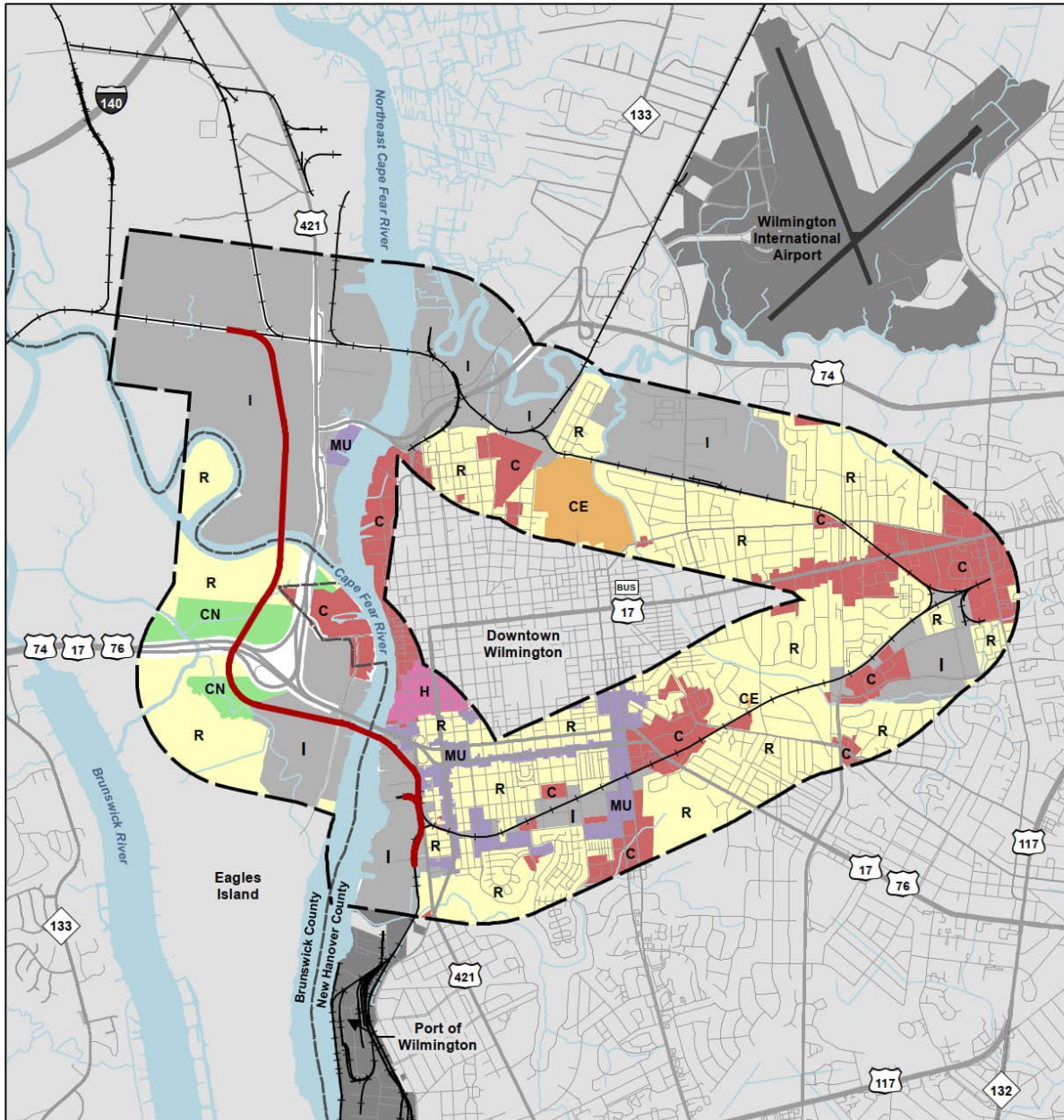
https://www.brunswickcountync.gov/files/planning/2015/04/MAP_26_FLU_County_plan_Map_1.pdf

Table 3-5: Generalized Zoning in the Study Area

Generalized Zoning	Jurisdiction	Current Zoning District ¹
Residential	City of Wilmington	Residential District (R-5, R-7, R-10 & R-15)
		Central City Residential District (R-3)
		Multi-Family Residential Districts: <ul style="list-style-type: none"> • Low Density (MF-L) • Medium Density (MF-M) • Medium-High Density (MF-MH) • High Density (MF-H)
	Brunswick County	Rural Low Density Residential (RR)
Mixed Use	New Hanover County	Riverfront Mixed Use Planned Development (RFMU)
	City of Wilmington	Main Street Mixed Use (MSMU)
		River Front Mixed Use (RFMU)
		Urban Mixed Use (UMX)
Commercial	New Hanover County	Regional Business (B-2)
	City of Wilmington	Office and Institutional District (O&I 1)
		Community Business (CB)
		Regional Business District (RB)
		Central Business District (CBD)
		Commercial Services District (CS)
Industrial	New Hanover County	Light Industrial (I-1)
		Heavy Industrial (I-2)
	City of Wilmington	Airport Industrial District (AI)
		Light Industrial District (LI)
		Industrial District (IND)
	Brunswick County	Industrial-General (I-G)
	Conservation	Brunswick County
Conservation District (Le-CD)		
Historic	City of Wilmington	Historic District (HD)
		Historic District – Residential (HD-R)
Cemetery	City of Wilmington	Cemetery District (CEM)

¹ Current Zoning Districts are defined by the following ordinances:
City of Wilmington. Code of Ordinances: Chapter 18, Article 5 – Zoning District Regulations.
https://library.municode.com/nc/wilmington/codes/code_of_ordinances?nodeId=PTIITECO_CH18LADECO_ART5_ZODIRE
New Hanover County. Unified Development Ordinance: Article 3 Zoning Districts.
https://laserfiche.nhcgov.com/weblink/0/edoc/4775252/Unified%20Development%20Ordinance_Updated%2011-16-2020.pdf
Brunswick County. Unified Development Ordinance: Article 4 Zoning Districts.
<https://www.brunswickcountync.gov/wp-content/uploads/2021/07/UDO-Revised-and-Readopted-March-2015-Revision-17May21.pdf>

Figure 3-2: Generalized Zoning



Wilmington Rail Realignment Project

New Hanover County and Brunswick County, NC

Source: City of Wilmington Zoning, New Hanover County Zoning, and Brunswick County Zoning Data

Legend

- Study Area
- County Boundary
- Railroad
- Preferred Alternative
- Residential Zoning (R)
- Mixed Use Zoning (MU)
- Historic Zoning (H)
- Commercial Zoning (C)
- Industrial Zoning (I)
- Conservation Zoning (CN)
- Cemetery Zoning (CE)

**Figure 3-2
Generalized Zoning**

Date: January 2023

0 0.25 0.5 1

Miles

1 inch = 4,000 feet

SPECIAL LAND USE

There are multiple special land uses identified in the Study Area (Figure 3-3). These include conservation areas such as the Eagles Island Natural Area Dedicated Nature Preserve, the Coastal Land Trust Preserve, and New Hanover Soil and Water Conservation District property. There are also four mitigation sites owned by NCDOT identified in the Study Area, two areas that are spoil and dredge disposal areas, and one preservation area for the USS North Carolina Battleship Memorial. Other special land uses, such as recreational and agricultural land uses, are discussed in Sections 3.6 and 3.17, respectively.

3.2.3 Environmental Consequences

NO-BUILD ALTERNATIVE

Under the No-Build Alternative, no changes to the alignment of the existing freight line would occur; therefore, no changes to zoning, existing land uses requiring special use permits, or variances in the Study Area would occur, and no property acquisitions would be necessary.

Several planned and committed projects within the Study Area by other project sponsors, as identified in Chapter 2, may result in property acquisitions, changes to zoning and land use, special use permits, or variances. Those changes would be the responsibility of the implementing party.

PREFERRED ALTERNATIVE

Existing Land Use

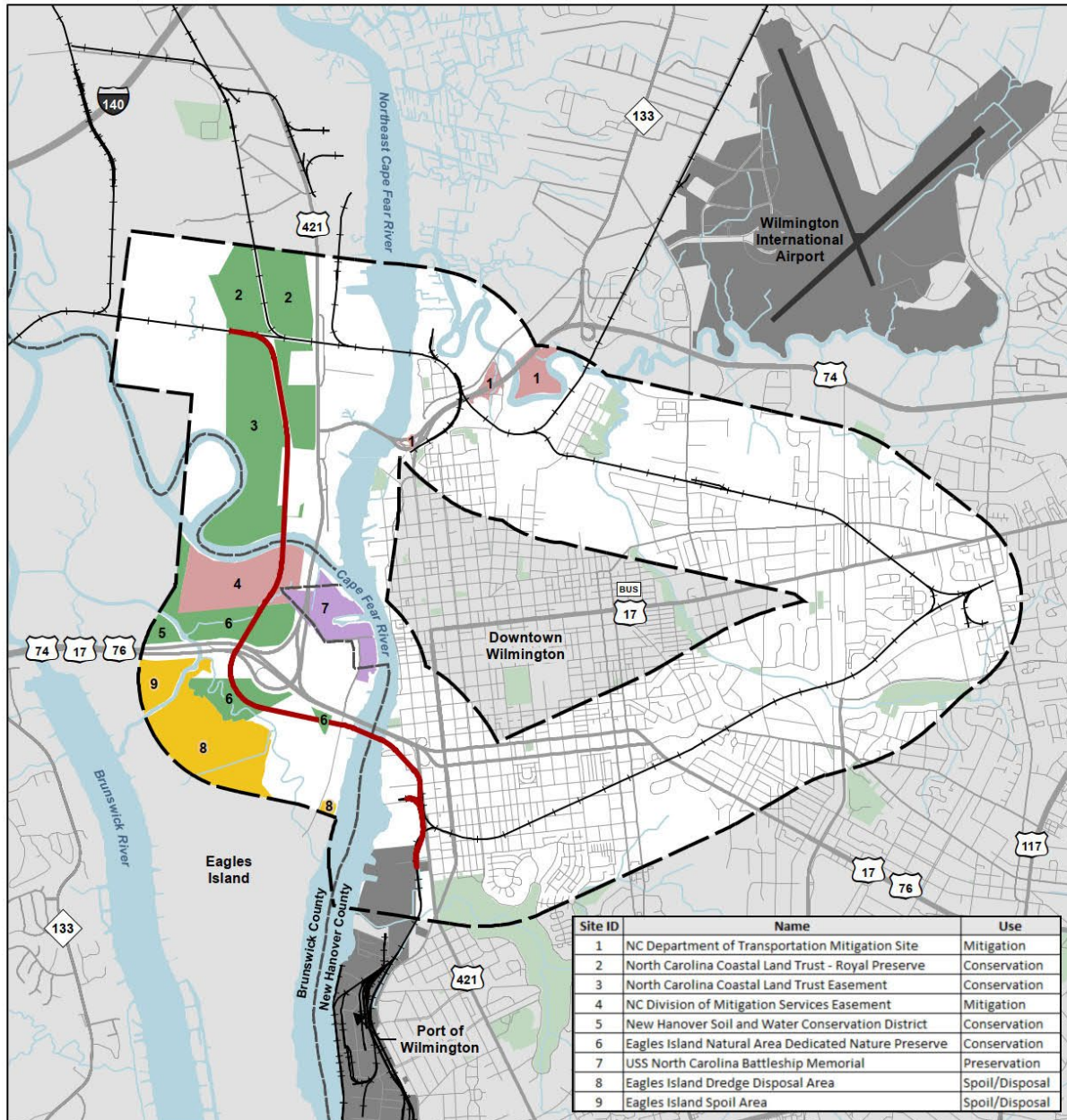
The Preferred Alternative passes through areas currently zoned as industrial, conservation, residential, mixed-use, and commercial within New Hanover County, the City of Wilmington, and Brunswick County. Table 3-6 summarizes the approximate acreage of each generalized zoning area contained within the LOD. The majority of the land use within the LOD is industrial-zoned. The Project would be compatible with the uses allowed within industrial-zoned areas. Although a good portion of the Preferred Alternative’s LOD includes residential-zoned areas, it should be noted that 99 percent of residential-zoned areas within the LOD are on Eagles Island, where no residences currently exist. Overall, the Project would be mostly compatible with existing land uses, and no long-term significant adverse impacts to land use or zoning would be expected from the Project.

Table 3-6: Generalized Zoning Acreage Within the LOD

Generalized Zoning	Acres within the LOD
Residential	10.1
Industrial	54.4
Commercial	0.1
Mixed Use	0.1
Conservation	8.8

Source: New Hanover County zoning, City of Wilmington zoning, and Brunswick County zoning (2021). The table reflects acres within the LOD by generalized zoning type for each of the three jurisdictions combined.

Figure 3-3: Special Land Uses



**Wilmington Rail
Realignment Project**

**New Hanover County and
Brunswick County, NC**

Source: NC OneMap - Managed Areas

Legend

- Study Area
- County Boundary
- Conservation
- Park
- Mitigation
- Preservation
- Spoil/Disposal
- Railroad
- Preferred Alternative

**Figure 3-3
Special Land Uses**

Date: April 2022



0 0.25 0.5 1
Miles

1 inch = 4,000 feet

Future Land Use

Within the Study Area, the *Plan NHC* shows future conservation, commerce zones, and urban mixed-use zones replacing the mostly industrial-zoned areas currently present. Although the Project would cut through areas planned for conservation zoning, the goals of *Plan NHC* would be consistent with the proposed Project. The *Plan NHC*'s long-term initiative to improve freight and passenger rail service in the county would be supported through this Project's efforts.

The *CAMA Core Land Use Plan* shows conservation-zoned areas replacing the industrial, residential, and commercial zoned areas currently present on Eagles Island in the Brunswick County portion of the Study Area. The Preferred Alternative would pass through these planned conservation-zoned areas, which may result in impacts on future land uses.

Special Land Use

The Project would result in impacts to special land uses, including conservation and mitigation areas. Impacts of the Preferred Alternative on special land use areas are presented in Table 3-7.

Table 3-7: Special Land Use Impacts Within the LOD (Acres)

Special Land Use Description	Permanent Impacts	Temporary Impacts	Total Impacts within the LOD
Conservation Areas	6.29	12.15	18.44
Mitigation Areas	2.26	4.88	7.14
Preservation Areas (e.g., Battleship Memorial)	0	0	0
Spoil/Disposal Areas	0	0	0

Source: North Carolina Natural Heritage Program's Managed Areas (2022).

Note: There is no overlap between permanent and temporary impacts in the LOD.

The Preferred Alternative would impact 18.44 acres of areas used for conservation, including the Eagles Island Natural Area Dedicated Nature Preserve and the North Carolina Coastal Land Trust Easement. However, the Preferred Alternative uses approximately 3,500 feet of former railroad right-of-way, which divides this area and is excluded from the North Carolina Land Trust Easement conservation area (see site 3 on Figure 3-3 above), thus reducing impacts to the conservation easement held by the North Carolina Coastal Land Trust.²⁷ In addition, the Preferred Alternative would pass through the Eagles Island Natural Area Dedicated Nature Preserve entirely on an elevated structure, allowing for natural movements under the rail line to continue after construction, further reducing impacts to these conservation areas.

The *Final Phase 1 Restoration Plan and Environmental Assessment for the Kerr-McGee Chemical Corp. Site's Alligator Creek Restoration and Conservation Alternative* includes improvements within the Eagles Island Natural Area Dedicated Nature Preserve. The selected

²⁷ This former railroad right-of-way is documented in the North Carolina Coastal Land Trust's deed dated September 11, 2000 in Book 2814, pages 0769 to 0778.

alternative proposes the restoration of approximately 3,900 feet of Alligator Creek and adjacent tidal wetlands, habitat restoration, invasive species removal, and new public access to the site. The Preferred Alternative would impact this planned restoration project as the Preferred Alternative would pass through this site. However, the Preferred Alternative would be designed to be elevated on structure as it passes through this area, which would not prevent the physical restoration aspects of the restoration project but may overlap with public access plans to these sites. Coordination with the Alligator Creek restoration project sponsors will continue to occur to further reduce impacts as the Project progresses.

Also, the Preferred Alternative would pass through the NC Division of Mitigation Services Easement, a mitigation site owned by the NCDOT; however, the rail would be designed to be elevated on structure as it passes through this mitigation site, further reducing impacts as well.

Property Acquisitions

The Preferred Alternative would require the full or partial acquisition of multiple properties. Properties that may need to be acquired for the construction of the Preferred Alternative are listed in Table 3-8 below and shown on Figure 3-4 (1-3) and on the Mapping Atlas in Appendix A. Property acquisitions and displacements have been determined based on conceptual engineering. As project designs advance, property acquisition would be more defined and additional acquisitions could be required. The City would coordinate with the potentially affected property owners to ensure that the schedule for land acquisition is consistent with the overall project schedule and that all acquisitions follow the Uniform Act.

3.2.4 Potential Mitigation Strategies and/or Commitments

The City will work with the localities to obtain variances or apply for rezoning permits in areas where the rail line is determined incompatible with current land uses. The City will continue coordinating with affected communities and stakeholders to avoid or minimize changes in land use.

The City will handle all property acquisitions and relocations in accordance with the Uniform Act.

Table 3-8: Potential Land Acquisitions

Map ID	Property Parcel Number	Parcel Area (Acres)	Parcel Generalized Zoning	Potential Acquisition ¹
New Hanover County				
1	3118-26-9387.000	291.3	Industrial	Partial
2	3118-45-3989.000	1.4	Industrial	Partial
3	3118-45-6926.000	1	Industrial	Partial
4	3118-46-6395.000	4.8	Industrial	Partial
5	3118-42-3942.000	44.5	Industrial	Partial
6	3118-41-3656.000	4.2	Industrial	Partial

Map ID	Property Parcel Number	Parcel Area (Acres)	Parcel Generalized Zoning	Potential Acquisition ¹
Brunswick County				
7	10569481	127.6	Residential ²	Partial
8	10569479	79.2	Conservation	Partial
9	10569478	13.5	Residential ²	Partial
10	10569477	35.5	Conservation	Partial
11	10569465	125.7	Industrial	Partial
12	10569468	5.4	Industrial	Partial
13	10569469	5.1	Industrial	Partial
14	10569467	2.8	Industrial	Full
City of Wilmington				
15	3117-75-2163.000	0.8	Industrial	Partial
16	3117-74-3980.000	4.3	Industrial	Full
17	3117-74-3710.000	2	Industrial	Full
18	3117-74-6760.000	0.3	Mixed Use	Partial
19	3117-74-4203.000	15.4	Industrial	Partial
20	3117-74-9444.000	1.4	Industrial	Partial
21	3117-74-8283.000	0.2	Industrial	Partial
22	3117-83-0874.000	2.4	Industrial	Partial
23	3117-84-1056.000	0.3	Industrial	Full
24	3117-83-1993.000	0.1	Industrial	Full
25	3117-73-5378.000	10.7	Industrial	Partial
26	3117-83-1508.000	1.9	Industrial	Partial
27	3117-83-1339.000	1.6	Industrial	Partial
28	3117-73-9279.000	0.4	Industrial	Full
29	3117-83-1045.000	15.4	Industrial	Partial
30	3117-82-2319.000	34.3	Industrial	Partial
31	3117-82-1589.000	2.4	Industrial	Full
32	3117-82-5673.000	1.4	Industrial	Partial
33	3117-82-3017.000	1.4	Industrial	Full
34	3117-81-2779.000	0.8	Industrial	Partial
35	3117-81-3607.000	2.2	Industrial	Partial

Notes:

This table does not include parcels owned by the Port of Wilmington or existing rights-of-way.

¹ Potential acquisition is identified as an anticipated full property acquisition or a partial property acquisition. Full property acquisitions are noted for property parcels that have more than half of the parcel fall within the Preferred Alternative's LOD or if the parcel would lose its access due to the construction of the Preferred Alternative.

² Although zoned as residential, these properties do not contain any residences.

Figure 3-4 (1): Property Impacts

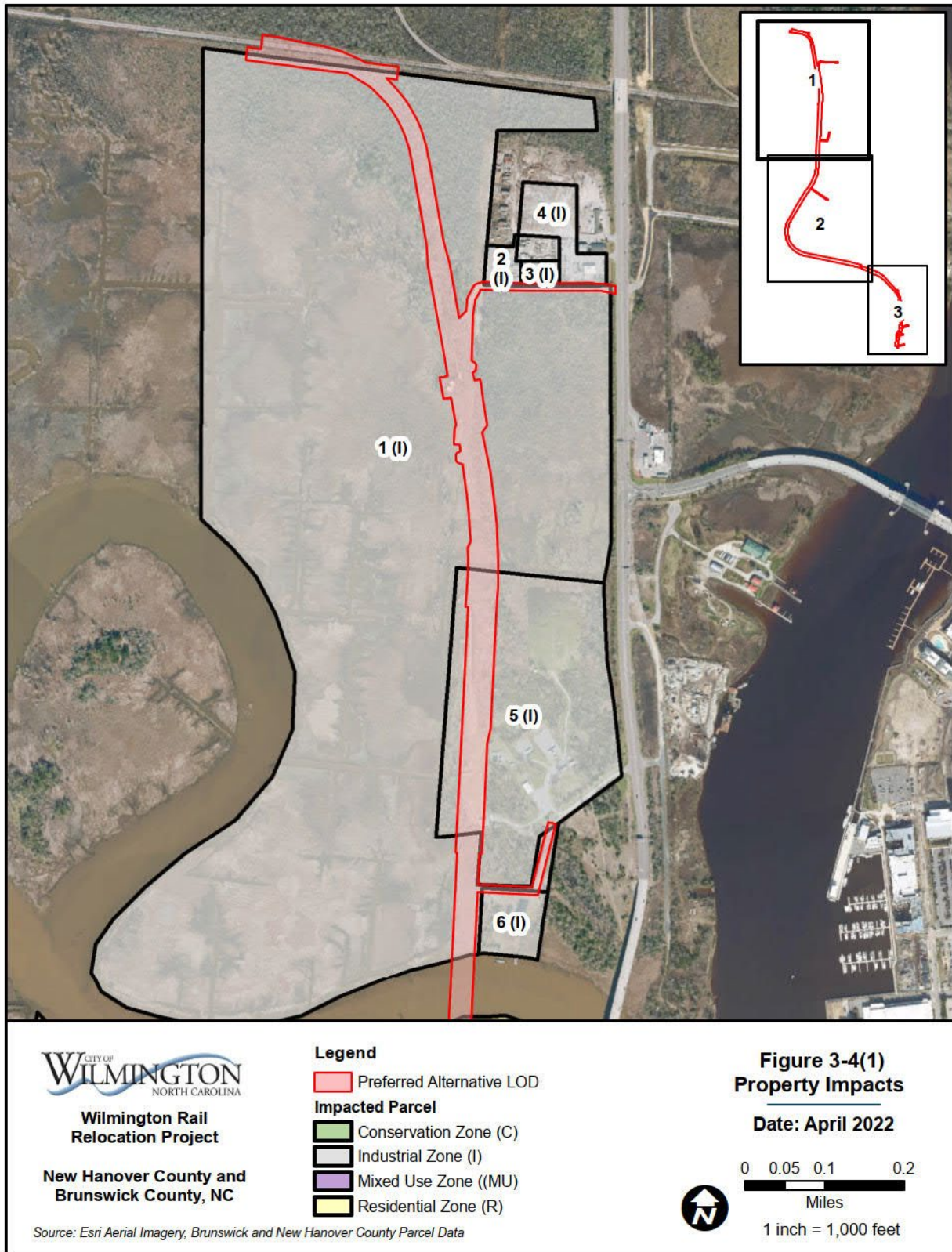


Figure 3-4 (2): Property Impacts

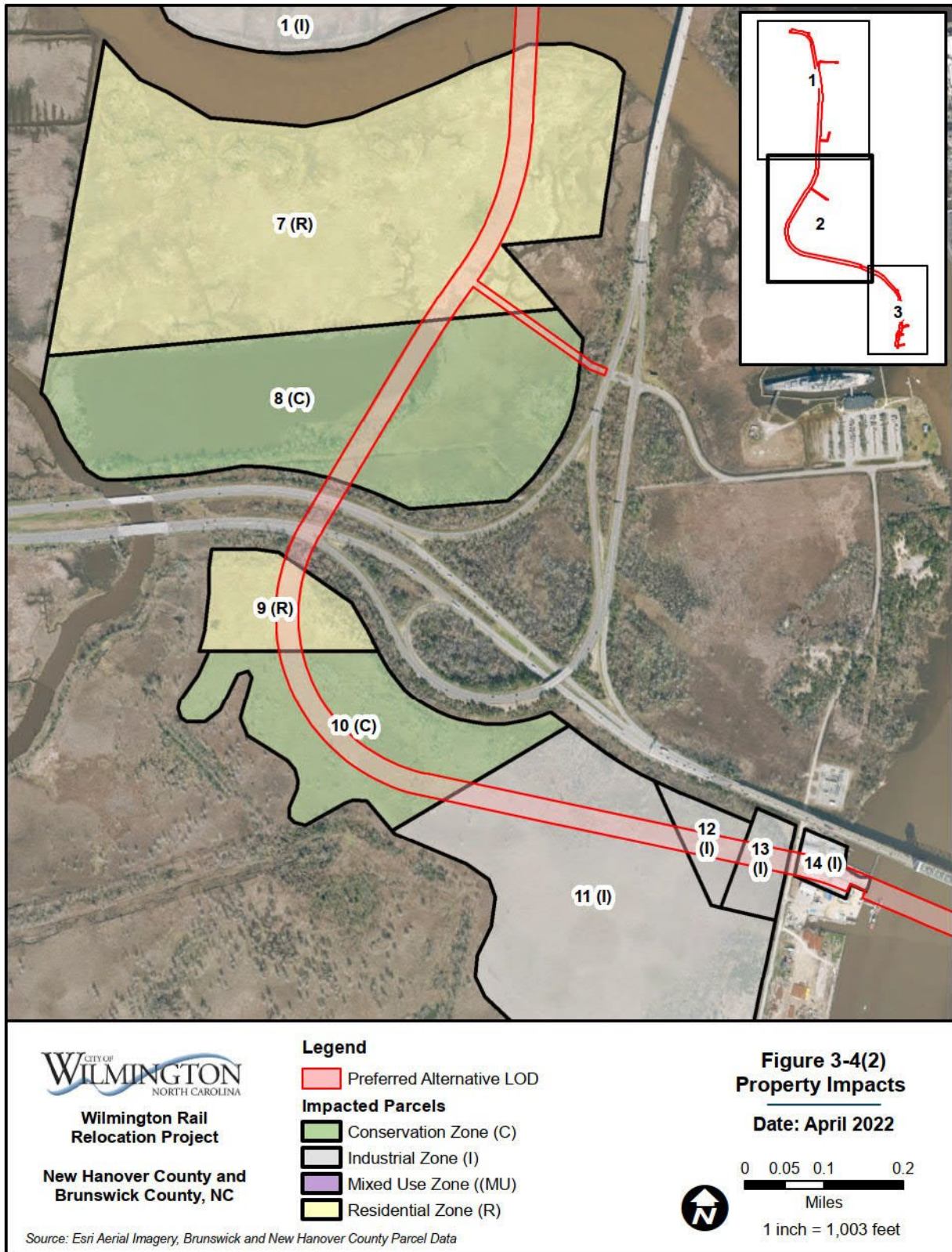
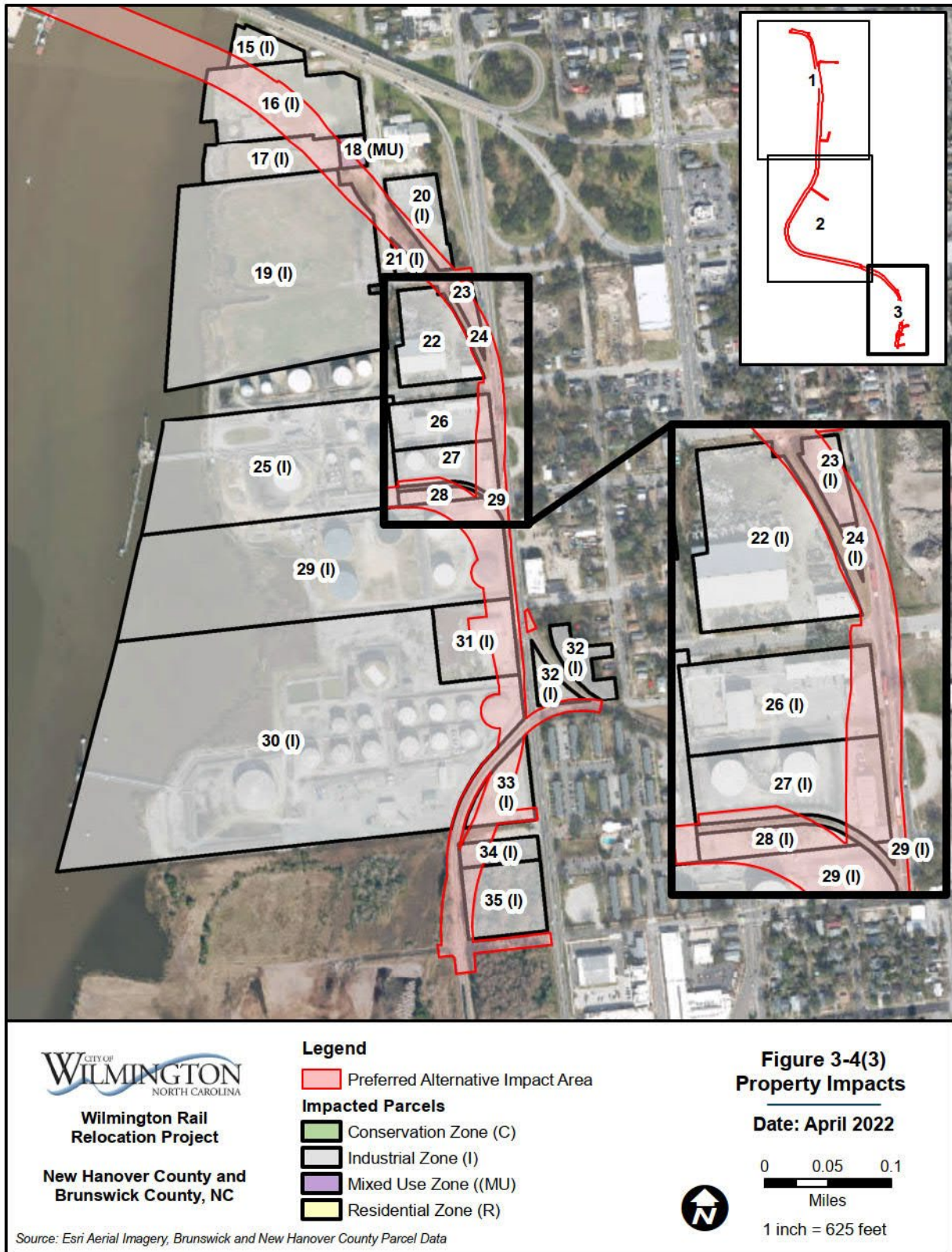


Figure 3-4 (3): Property Impacts



3.3 COMMUNITY FACILITIES

3.3.1 Introduction and Methodology

Community resources include government buildings, libraries, places of worship, cemeteries, EMS, fire/police stations, schools, colleges/universities, community centers, and childcare facilities. Existing conditions were determined through a desktop review of current mapping data available from NC OneMap²⁸ to identify all community resources present in the Study Area. Existing community resources were defined by the number of resources present within the Study Area. Potential impacts to these resources were defined by the required removal or altering of the resource's buildings/structure and property, including an assessment of changes in access and accessibility to these resources as a result of the Project.

3.3.2 Affected Environment

Several community resources are found throughout the Study Area in New Hanover County. No documented community resources are located in the Brunswick County portion of the Study Area. Documented community resources within the Study Area include places of worship (62), cemeteries (14), EMS (1), fire stations (1), police stations (4), schools (11), colleges (1), community centers (2), and childcare facilities (12). Figure 3-5 shows these resources.

3.3.3 Environmental Consequences

NO-BUILD ALTERNATIVE

Numerous community facilities are located along the existing rail line through Wilmington. Existing facilities would not be physically altered by the No-Build Alternative. However, freight traffic would be expected to increase, resulting in greater delays at grade crossings, which may result in longer commuting times to access community facilities.

PREFERRED ALTERNATIVE

The Preferred Alternative would not impact any community facilities (places of worship, EMS facilities, schools, etc.). Even though limited local traffic would operate on the Beltline, the reduction in overall freight rail service through the rerouting of freight rail traffic traveling between Davis Yard and the Port would improve traffic flow through the city, thus allowing for easier access to community facilities.

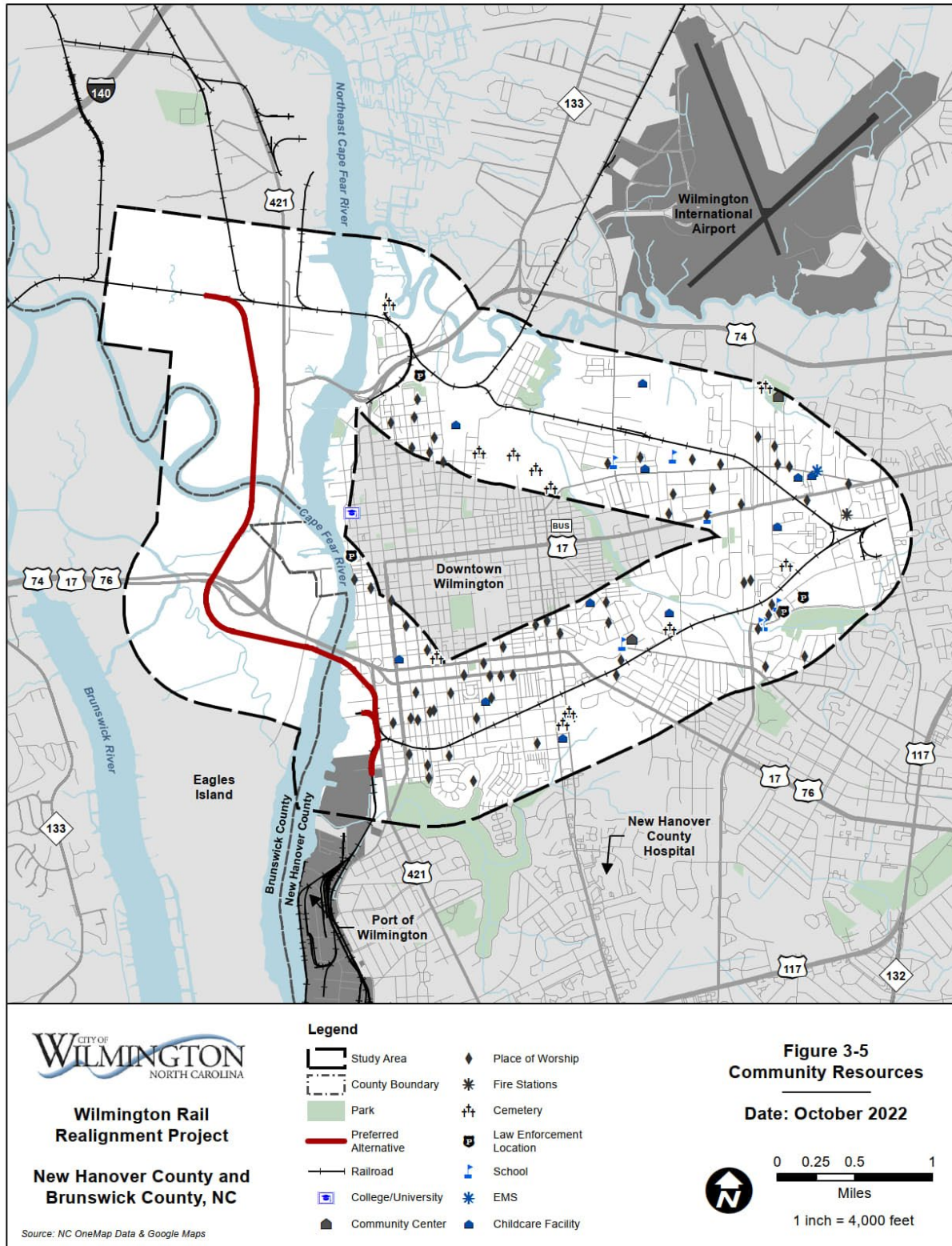
No notable community facilities are present on Eagles Island; therefore, impacts would not be anticipated in this area. Overall, no long-term significant adverse impacts to community facilities would be expected from the Project.

3.3.4 Potential Mitigation Strategies and/or Commitments

The City will coordinate with local entities to plan for temporary detours and maintain access to community facilities and services during Project construction.

²⁸ NC OneMap. Data Downloads. Accessed January 2022. <https://www.nconemap.gov/>

Figure 3-5: Community Resources



3.4 DEMOGRAPHICS AND ENVIRONMENTAL JUSTICE

3.4.1 Introduction and Methodology

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*,²⁹ directs that "each federal agency shall make achieving Environmental Justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health and environmental effects of its programs, policies, and activities on minority populations and low-income populations. . . ." Executive Order 14096, *Revitalizing Our Nation's Commitment to Environmental Justice for All*, was enacted on April 21, 2023. Executive Order 14096 on environmental justice does not rescind Executive Order 12898, which has been in effect since February 11, 1994 and is currently implemented through DOT Order 5610.2C. This implementation will continue until further guidance is provided regarding the implementation of the new Executive Order 14096 on environmental justice.

DOT Order 5610.2C³⁰ provides that disproportionately high and adverse effects on minority and low-income populations means an adverse effect that:

- Is predominately borne by a minority population and/or low-income population or
- Will be suffered by a minority population and/or low-income population and is appreciably more severe or greater in magnitude than the adverse effects that will be suffered by the non-minority population and/or non-low-income population.

DOT Order 5610.2C defines a minority person as a person who is:

- Black: (having origins in any of the black racial groups of Africa);
- Hispanic or Latino: a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
- Asian American: a person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent;
- American Indian and Alaskan Native: a person having origins in any of the original peoples of North America, South America (including Central America), and who maintains cultural identification through tribal affiliation or community recognition; or
- Native Hawaiian and Other Pacific Islander: people having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands.

²⁹ EPA. 1994. Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. https://www.epa.gov/sites/production/files/2015-02/documents/exec_order_12898.pdf

³⁰ DOT Order 5610.2C: Department of Transportation Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. <https://www.transportation.gov/regulations/dot-order-56102b-department-transportation-actions-address-environmental-justice>

Based on demographic data available from the 2015-2019 American Community Survey (ACS)³¹ and guidance from the Council on Environmental Quality (CEQ)³², thresholds were used to determine the presence of Environmental Justice communities at the block group level. Block groups are defined by the U.S. Census Bureau as statistical divisions of census tracts and are used to present data and control block numbering. The thresholds were determined based on the percentage of minority and low-income populations living in the county. Thresholds developed by NCDOT were used for identifying minority populations, which is met if the minority population is 10 percentage points above the county average, or above 50 percent, whichever is less. For this Project, the minority threshold was determined to be 32.9 percent. Thresholds developed by NCDOT were used to identify low-income populations, which is met if the low-income population is five percentage points above the county average, or above 25 percent, whichever is less. For this Project, the low-income threshold was determined to be 21 percent.

Community-based demographic data was gathered from the 2010 U.S. Census and the 2015-2019 ACS 5-year estimates. Census data was gathered for Census block groups that are located within or intersect the Study Area. The block groups listed below are evaluated in this section and are shown on Figure 3-6. For the Block Groups that extend beyond the Study Area boundary, data for the entire Block Group was analyzed in this evaluation.

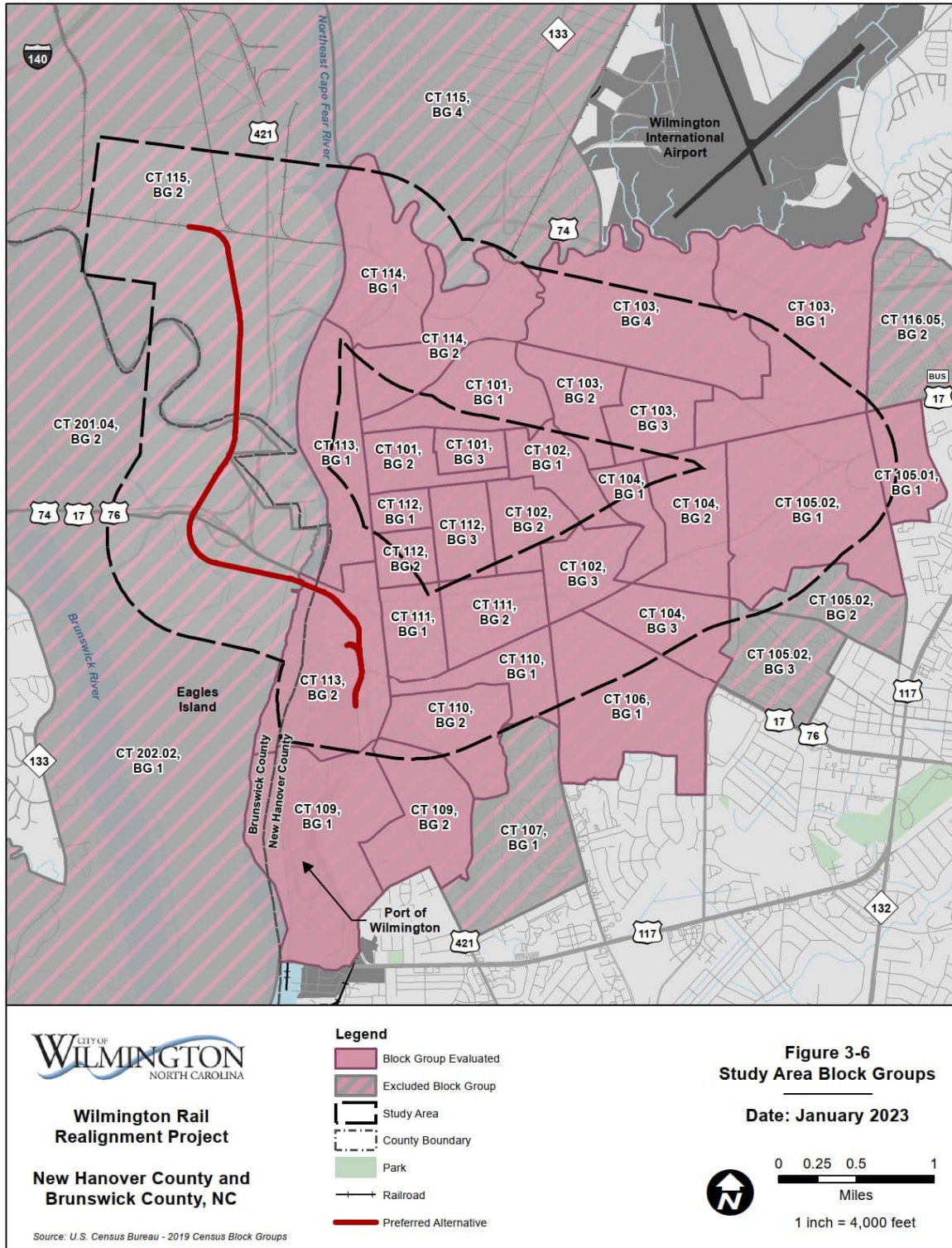
Block groups evaluated within the Study Area:

- Census Tract 101, Block Group 1
- Census Tract 101, Block Group 2
- Census Tract 101, Block Group 3
- Census Tract 102, Block Group 1
- Census Tract 102, Block Group 2
- Census Tract 102, Block Group 3
- Census Tract 103, Block Group 1
- Census Tract 103, Block Group 2
- Census Tract 103, Block Group 3
- Census Tract 103, Block Group 4
- Census Tract 104, Block Group 1
- Census Tract 104, Block Group 2
- Census Tract 104, Block Group 3
- Census Tract 105.01, Block Group 1
- Census Tract 105.02, Block Group 1
- Census Tract 106, Block Group 1
- Census Tract 109, Block Group 1
- Census Tract 109, Block Group 2
- Census Tract 110, Block Group 1
- Census Tract 110, Block Group 2
- Census Tract 111, Block Group 1
- Census Tract 111, Block Group 2
- Census Tract 112, Block Group 1
- Census Tract 112, Block Group 2
- Census Tract 112, Block Group 3
- Census Tract 113, Block Group 1
- Census Tract 113, Block Group 2
- Census Tract 114, Block Group 1
- Census Tract 114, Block Group 2

³¹ US Census Bureau. 2021. 2015-2019 American Community Survey. <https://www.census.gov/programs-surveys/acs/technical-documentation/table-and-geography-changes/2019/5-year.html>

³² EPA. 1997. Environmental Justice Guidance under the National Environmental Policy Act. https://www.epa.gov/sites/production/files/2015-02/documents/ej_guidance_nepa_ceq1297.pdf

Figure 3-6: Study Area Block Groups



Block groups that only had a small portion fall within the Study Area and block groups whose area is unpopulated within the Study Area were excluded from this evaluation. The block groups that were excluded include:

- Census Tract 105.02, Block Group 2
- Census Tract 105.02, Block Group 3
- Census Tract 107, Block Group, 1
- Census Tract 115, Block Group 2
- Census Tract 115, Block Group 4
- Census Tract 116.05, Block Group 2
- Census Tract 201.04, Block Group 2
- Census Tract 202.02, Block Group 1

3.4.2 Affected Environment

According to the U.S. Census Bureau, between 2000 and 2010, the population of Brunswick and New Hanover counties experienced a population growth of 36.6 percent and 15.7 percent, respectively.³³ Based on projections made by the NC Office of State Budget and Management (OSBM), the upward trend of growth is expected to continue through 2040 for both counties (Table 3-9). The projected population growth in the two counties, coupled with physical indicators of recent growth observed within the Study Area, indicate notable growth and development in the vicinity of the Project. The *Cape Fear Change in Motion 2020 Short-Range TDM Plan 2021-2025* also indicates both the population and economy in the Greater Wilmington Area have grown significantly in recent years.³⁴

Table 3-9: Population Trends and Forecasts

	Brunswick County	New Hanover County	North Carolina
Population			
2010	108,069	203,284	9,574,323
2020	147,644	235,231	10,587,440
2030	180,776	267,340	11,677,603
2040	213,371	300,389	12,821,708
Growth (2010 to 2040)			
Difference	105,302	97,105	3,247,385
Percent Change	97.4%	47.8%	33.9%
Annualized Growth	3.2%	1.6%	1.1%

Source: NC OSBM: County/State Population Overview, 2010-2050 (2021).

According to 2015-2019 ACS data, approximately 36,000 residents live within the Study Area and 120,000 within the City of Wilmington. The percentage of the Black or African American population within the Study Area is over 20 percent higher than that of both Brunswick and New Hanover Counties. The population within the Study Area is also notably younger than both

³³ NC OSBM. 2021. County/State Population Overview, 2010-2050. https://files.nc.gov/ncosbm/demog/countytotals_populationoverview.html

³⁴ WMPO. 2020. Cape Fear Change in Motion 2020 Short-Range TDM Plan 2021-2025. <https://www.wmpo.org/plans/>

counties, with a higher percentage of the population being under 18 years of age and a lower percentage of the population being older than 65 years of age (Table 3-10).

Table 3-10: Population Characteristics

	Study Area	City of Wilmington	Brunswick County	New Hanover County	North Carolina
Population	36,222	120,194	131,815	227,938	10,264,876
Race					
White	57.3%	76.5%	84.2%	81.1%	68.7%
Black or African American	37.9%	18.4%	9.8%	13.7%	21.4%
American Indian and Alaska Native	0.2%	0.3%	0.7%	0.3%	1.2%
Asian	0.7%	1.3%	0.6%	1.3%	2.9%
Native Hawaiian/Pacific Islander	0.5%	0.2%	0.0%	0.1%	0.1%
Other Race	0.6%	1.0%	2.3%	1.3%	3.1%
Two or More Races	2.7%	2.3%	2.4%	2.2%	2.7%
Hispanic or Latino					
Hispanic or Latino	4.1%	6.3%	4.8%	5.6%	9.4%
Disability					
Persons with Disability	14.5%	13.0%	16.4%	12.5%	13.4%
Age					
Under 18 Years	21.6%	17.8%	15.6%	18.7%	22.4%
18 to 64 Years	65.2%	65.6%	53.8%	64.1%	61.8%
65 Years or Older	13.2%	16.5%	30.5%	17.2%	15.9%

Source: U.S. Census Bureau, American Community Survey 5-year Estimates (2015-2019).

According to 2015-2019 ACS data, most workers commute by automobile within the Study Area, with only 7.4 percent of commuters using other means such as public transportation, walking, or biking to work (Table 3-11).

The unemployment rate in the Study Area is 1.0 percent to 1.2 percent higher than the rates in the City of Wilmington, Brunswick and New Hanover Counties, and North Carolina overall (Table 3-11). The median household income is lower in the Study Area compared to the City of Wilmington, Brunswick and New Hanover Counties, and North Carolina (Table 3-12).

Table 3-11: Employment and Commuter Characteristics

Demographic	Study Area	City of Wilmington	Brunswick County	New Hanover County	North Carolina
Unemployment rate	6.8%	5.7%	5.8%	5.0%	5.6%
Workers that work in the state of residence	99.1%	98.8%	94.2%	98.8%	97.4%
Workers that work outside the state of residence	0.9%	1.2%	5.8%	1.2%	2.6%
In-state workers that work in the county of residence	92.1%	92.2%	69.9%	91.7%	73.0%
In-state workers that work outside the county of residence	7.9%	7.8%	30.1%	8.3%	27.0%
Commute alone by auto	82.8%	85.5%	86.2%	88.0%	85.9%
Commute by carpool	9.9%	8.2%	10.7%	8.0%	9.7%
Commute by public transportation	2.6%	1.1%	0.4%	0.6%	1.1%
Commute by bike/ped	4.2%	4.1%	1.1%	2.7%	2.1%
Commute by other mode	0.6%	1.1%	1.5%	0.8%	1.2%

Source: U.S. Census Bureau, American Community Survey 5-year Estimates (2015-2019).

Table 3-12: Housing Characteristics

Demographic	Study Area	City of Wilmington	Brunswick County	New Hanover County	North Carolina
Median household income*	\$44,094	\$47,580	\$58,236	\$54,891	\$54,602
Occupied housing units	85.3%	89.0%	62.7%	86.1%	85.7%
Vacant housing units	14.7%	11.0%	37.3%	13.9%	14.3%
Median housing value*	\$206,889	\$246,400	\$212,200	\$243,600	\$172,500

Source: U.S. Census Bureau, American Community Survey 5-year Estimates (2015-2019).

*Medians reported as an average of the medians of the block groups comprising the DSA.

According to the U.S. Census Bureau’s American Community Survey 5-year Estimates (2015-2019) the Study Area does not exceed the threshold for Limited English Proficiency (LEP). The LEP threshold used is 1,000 adults that “speak English less than very well” or constitute more than 5 percent of the aggregate population within a language group (with at least 50 adults). Although there are no block groups evaluated with LEP populations, three block groups exceeded the threshold for Language Assistance (LA). These include Census Tract 103, Block Group 3, Census Tract 105.01, Block Group 1, and Census Tract 105.02, Block Group 1. The LA threshold used is 50 or more adults of a Block Group’s population within a language group who speak English less than very well. Census Tract 103, Block Group 3’s primary language is noted as Other Indo-Euro, while Census Tract 105.01, Block Group 1, and Census Tract 105.02, Block Group 1’s primary language is Spanish.

There are populations within the Study Area that meet the thresholds of low-income and/or minority populations and are therefore considered potential Environmental Justice populations. According to 2015-2019 ACS data, there are block groups within the Study Area that exceed the threshold for both minority and low-income populations. The Block Groups with minority and/or low-income populations exceeding county thresholds are shown on Figure 3-7 and summarized in Table 3-13.

Table 3-13: Block Groups with Minority and/or Low-Income Populations

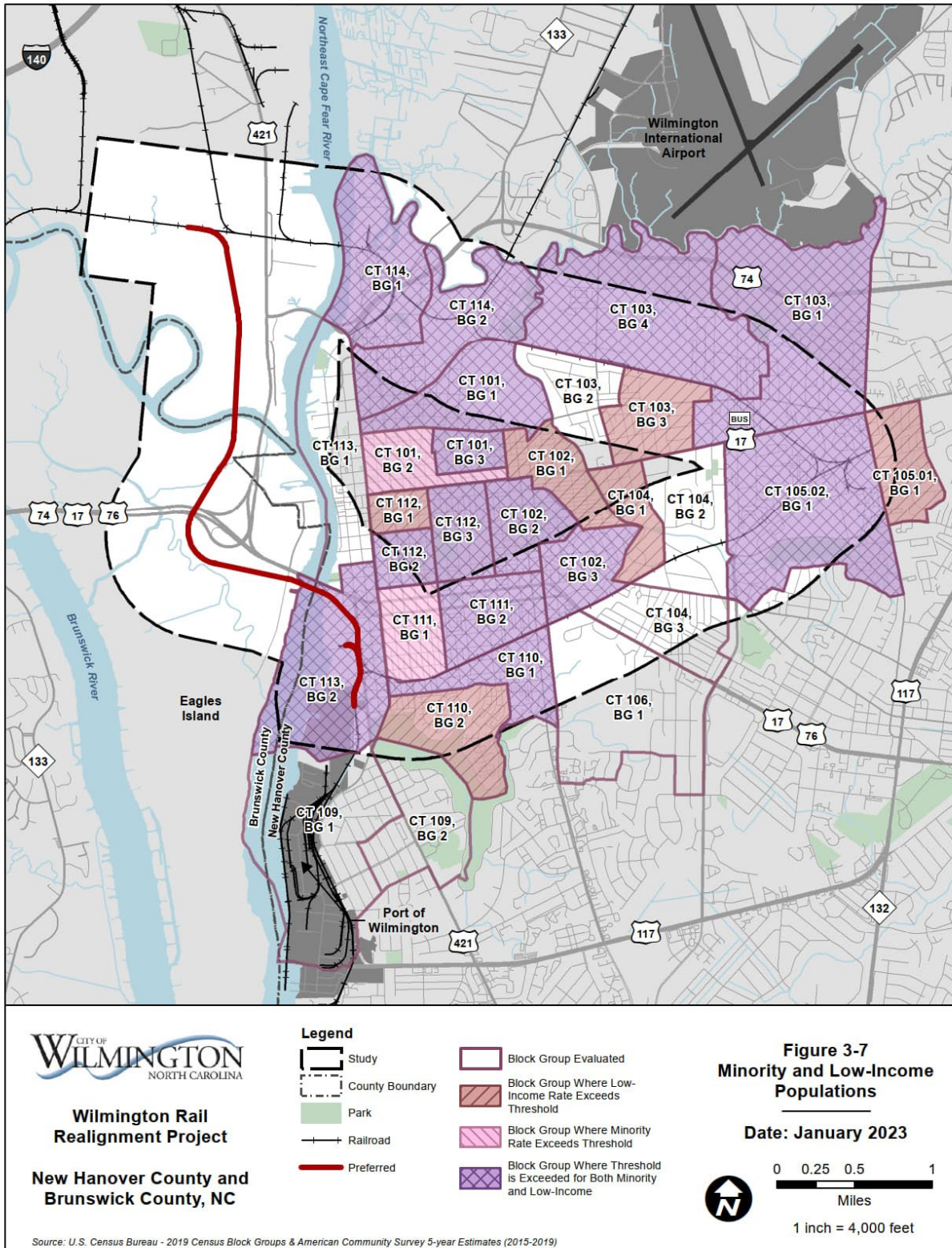
Block Group	Minority Population (Threshold 32.9%)	Low Income Population (Threshold 21%)
CT 101, BG 1	85.5%	39.4%
CT 101, BG 2	37.1%	18.2%
CT 101, BG 3	60.3%	44.6%
CT 102, BG 1	16.9%	21.0%
CT 102, BG 2	67.9%	27.5%
CT 102, BG 3	51.7%	43.6%
CT 103, BG 1	62.5%	27.8%
CT 103, BG 3	22.0%	28.1%
CT 103, BG 4	80.1%	55.0%
CT 104, BG 1	24.3%	21.3%
CT 105.01, BG 1	31.9%	39.4%
CT 105.02, BG 1	39.7%	44.9%
CT 110, BG 1	86.8%	90.1%
CT 110, BG 2	23.2%	21.7%
CT 111, BG 1	73.6%	14.1%
CT 111, BG 2	94.1%	53.7%
CT 112, BG 1	15.1%	22.6%
CT 112, BG 2	51.0%	45.7%
CT 112, BG 3	78.7%	36.5%
CT 113, BG 2	34.6%	41.1%
CT 114, BG 1	92.2%	47.4%
CT 114, BG 2	63.2%	28.3%

Source: U.S. Census Bureau, American Community Survey 5-year Estimates (2015-2019)

Notes: CT = Census Tract; BG = Block Group

Block Groups exceed the county thresholds for both minority and low income.

Figure 3-7: Minority and Low-Income Populations



3.4.3 Environmental Consequences

NO-BUILD ALTERNATIVE

The existing freight line through the City of Wilmington currently runs through or adjacent to numerous block groups containing minority and/or low-income populations. Under the No-Build Alternative, freight traffic traveling between Davis Yard and the Port is expected to increase and continue to move through these communities, resulting in continued and increasing emissions from idling vehicles stopped at crossings, continued and increasing safety concerns at crossings, and continued and increasing noise and vibration from passing trains.

PREFERRED ALTERNATIVE

The Preferred Alternative passes through Census Tract 113, Block Group 2, which includes both a minority and low-income population. Although a minority and low-income population exists within the block group, the Preferred Alternative goes through predominantly industrial areas, avoiding residential areas in this block group. This community has the potential to experience visual and noise impacts as a result of the Project. While the Project may be visible to this community, the Project runs through an industrial area and would, therefore, blend in with the adjacent areas and would not adversely impact the existing views of this community. Visual impacts are covered in more detail in Section 3.9. While this community may experience some increased noise due to the sounding of the warning horn nearby, noise reduction mitigation measures would be implemented to reduce noise impacts to this community. Section 3.19 covers impacts from noise in more detail. Any potential impacts affecting Environmental Justice communities would be reduced and mitigated, if necessary, to the maximum extent practicable as the Project develops.

Although impacts to the Environmental Justice community in Census Tract 113, Block Group 2 may occur, redirecting freight train movements between Davis Yard and the Port outside the City would likely provide an overall benefit to the Environmental Justice populations surrounding the Beltline. Benefits would include enhancing community connectivity, reducing noise levels around the existing track, enhancing visual quality, and improving safety. The Project would also result in beneficial air quality impacts within the Study Area. Therefore, disproportionately high and adverse effects on minority and low-income populations would not be anticipated as a result of the Project.

3.4.4 Potential Mitigation Strategies and/or Commitments

No disproportionately high or adverse impacts to minority or low-income populations are anticipated as a result of the Project; therefore, no mitigation is proposed. However, the City will coordinate with community leaders to discuss the potential impacts and benefits of the Project on Environmental Justice populations as the Project design progresses. See Section 5.1.2 for specialized outreach to these populations to date.

3.5 PUBLIC HEALTH AND SAFETY

3.5.1 Introduction and Methodology

This section provides an assessment of the effects on public health and safety related to the Project. The primary area of focus is on at-grade crossings, which affect the mobility of emergency responders through the City, as well as the potential derailment of hazardous materials being transported through the City and potential train conflicts with vehicles and pedestrians.

There are 32 (30 public and two private) at-grade crossings along the existing WTYR and Beltline through the City within the Study Area. The Project Team conducted a quantitative review of exposure risk for all 32 at-grade crossings (30 public and 2 private crossings). The exposure index at grade crossings is one measure of the overall safety risk. The exposure index is calculated by multiplying the AADT (annual average number of vehicles per day) by the number of trains per day. As a rule, grade separations should be considered when the exposure index is 30,000 or more in urban areas or 15,000 or more in rural areas.³⁵

3.5.2 Affected Environment

Up to six scheduled train movements (i.e., three round trips) operate on the Beltline per day, including the interchange train to/from the Port, a CSXT local train, and a Port local train, as described in Section 3.1. Each trip to and from the Port involves crossing one or more of the 32 at-grade crossings (30 public and 2 private crossings). Interactions between the freight trains and road users at grade crossings generate negative community impacts through two primary highway-rail intersections: accidents and highway delays while crossings are blocked by trains. Highway delays at at-grade crossings increase travel times, vehicle operating costs, and emissions while vehicles idle at blocked grade crossings. These interactions decrease quality of life and are a safety concern for the community by impeding EMS, police, or fire response times, as well as being a drain on its economic competitiveness, as productivity and access are negatively impacted. Due to increasing volumes at the Port and sustained population growth, compounding impacts would be expected to worsen in the coming years.

Based on the AADT (see Section 3.1 Transportation), nine of the at-grade crossings evaluated exceeded the 30,000-exposure index criterion for 2020. Table 3-14 provides a list of the at-grade crossings, AADT, and exposure risks for the 2020 Build and 2040 No-Build scenarios.

³⁵ NCDOT 2024. North Carolina Department of Transportation Roadway Design Manual; 8.12.1.4 Rail Grade Separation Guidelines. May 2024

Table 3-14: At-grade Crossing Exposure Risks

#	Crossing Number	Route	2020		2040 No-Build		2040 Scenario 1		2040 Scenario 2		Exceeds Exposure Index Criterion (30,000+)
			AADT	Exposure	AADT	Exposure	AADT	Exposure	AADT	Exposure	
1	902751J	S. Front Street (Center Running Track)	-	-	-	-	-	-	-	-	-
2	628706L	Marsteller Street/S. Front Street (Center Running Track)	-	-	-	-	-	-	-	-	-
3	629448M ¹	S. Front Street (SR 1140)	24,820	49,640	65,850	131,700	65,850	263,400	65,850	395,100	Yes
4	629446Y ¹	S. 3 rd Street (US 421)	28,850	57,700	76,550	153,100	76,550	306,200	76,550	459,300	Yes
5	629445S	S. 4 th Street	400	800	1,060	2,120	1,060	4,240	1,060	6,360	-
6	629443D	Martin Street at Hooper Street	540	1,080	1,430	2,860	1,430	5,720	1,430	8,580	-
7	629442W	S. 5 th Street	2,950	5,900	7,830	15,660	7,830	31,320	7,830	46,980	-
8	629441P	S. 6 th Street/Martin Street	800	1,600	2,120	4,240	2,120	8,480	2,120	12,720	-
9	629440H	S. 7 th Street	800	1,600	2,120	4,240	2,120	8,480	2,120	12,720	-
10	629439N	S. 8 th Street	1,070	2,140	2,840	5,680	2,840	11,360	2,840	17,040	-

#	Crossing Number	Route	2020		2040 No-Build		2040 Scenario 1		2040 Scenario 2		Exceeds Exposure Index Criterion (30,000+)
			AADT	Exposure	AADT	Exposure	AADT	Exposure	AADT	Exposure	
11	629438G	S. 9 th Street	800	1,600	2,120	4,240	2,120	8,480	2,120	12,720	-
12	629437A	S. 10 th Street	670	1,340	1,780	3,560	1,780	7,120	1,780	10,680	-
13	629436T	S. 12 th Street	270	540	720	1,440	720	2,880	720	4,320	-
14	629435L	S. 13 th Street	3,750	7,500	9,950	19,900	9,950	39,800	9,950	59,700	Yes
15	629434E	Marstellar Street	1,880	3,760	4,990	9,980	4,990	19,960	4,990	29,940	-
16	629433X	S. 16 th Street (SR 1218)	23,050	46,100	61,160	122,320	61,160	244,640	61,160	366,960	Yes
17	629432R	S. 17 th Street (SR 1219)	23,320	46,640	61,870	123,740	61,870	247,480	61,870	371,220	Yes
18	629431J	Oleander Drive (US 76)	36,180	72,360	96,000	192,000	96,000	384,000	96,000	576,000	Yes
19	937501V	River to Sea Bikeway	-	49,320	-	-	-	-	-	-	Yes
20	629430C	Wrightsville Avenue (SR 1411)	24,660	10,180	65,430	130,860	65,430	261,720	65,430	392,580	Yes
21	629429H	Colonial Drive	5,090	2,140	13,510	27,020	13,510	54,040	13,510	81,060	Yes
22	629428B	Forest Hills Drive	1,070	2,680	2,840	5,680	2,840	11,360	2,840	17,040	-

#	Crossing Number	Route	2020		2040 No-Build		2040 Scenario 1		2040 Scenario 2		Exceeds Exposure Index Criterion (30,000+)
			AADT	Exposure	AADT	Exposure	AADT	Exposure	AADT	Exposure	
23	629427U	Mercer Avenue	1,340	46,360	3,560	7,120	3,560	14,240	3,560	21,360	Yes
24†	629426M	Covil Avenue	23,180	-	61,500	123,000	61,500	246,000	61,500	369,000	Yes
25	629291J	Westing Road (Private)	-	-	-	-	-	-	-	-	-
26	629290C	Market Street (US 17)	48,240	96,480	128,000	256,000	128,000	512,000	128,000	768,000	Yes
27	629289H	Henry Street	540	1,080	1,430	2,860	1,430	5,720	1,430	8,580	-
28	642724T	Clay Street	400	800	1,060	2,120	1,060	4,240	1,060	6,360	-
29	629288B	Princess Place Drive (SR 1301)	12,330	24,660	32,720	65,440	32,720	130,880	32,720	196,320	Yes
30	629287U	N. 30 th Street (SR 1302)	4,960	9,920	13,160	26,320	13,160	52,640	13,160	78,960	Yes
31	629286M	N. 23 rd Street (SR 1302)	21,440	42,880	56,890	113,780	56,890	227,560	56,890	341,340	Yes
32	629284Y	King Street	1,470	2,940	3,900	7,800	3,900	15,600	3,900	23,400	-

Sources: AECOM 2022 WMPO AADT Data (January 2022).

Note: Shaded rows include crossings with exposure index criteria above 30,000.

† WTRY.

Seven schools are located within the Study Area, as previously seen on Figure 3-5. The Rachel Freeman School of Engineering is located adjacent to the existing railway. School and transit buses are required to come to a complete stop at all rail crossings, even those with no passengers, and therefore contribute to delay and congestion on roadways, particularly during morning and afternoon runs. Of the 32 at-grade crossings (30 public and 2 private crossings) within the Project Study Area, 23 interact with dozens of school buses each day. Highway-rail at-grade crossings also increases safety hazards near schools where children walk or bike to school. These at grade crossing also pose safety hazards to other pedestrians walking or biking through the Study Area.

Many of the roadways in the Study Area serve as primary emergency response routes. Emergency vehicles can be delayed at crossings as trains cross or by other vehicular congestion near crossings. Emergency responders caught in traffic can either wait the additional time for the crossing to open or choose to travel around to the closest open crossing. Either option adds significantly to the response time incurred by waiting residents for receipt of service. Additionally, due to the proximity of at-grade crossings, longer trains could block several north-south roads between the hospital and downtown Wilmington. New Hanover Regional Medical Center is the only trauma center in the region. The medical center is located on S. 17th Street, south of the Beltline from Central Wilmington.

3.5.3 Environmental Consequences

NO-BUILD ALTERNATIVE

As part of the No-Build Alternative, the existing rail line through the City would remain in its current location. Safety hazards identified with blocked street crossings throughout the Study Area when trains pass would remain and would likely increase due to expected freight volume increases. Vehicle, emergency responder, and pedestrian interactions would remain as described, with an increased potential remaining for accidents as trains cross through the City. Generally, the conditions described above would worsen by 2040, as shown in Table 3-14.

Additionally, Port growth would increase the number and/or length of trains traveling along the Beltline. Population and associated vehicular traffic are expected to continue to increase in Wilmington and the surrounding areas over the next 20 years. Coupled with increased freight rail traffic to the Port, both in number and length of trains, the exposure index and inherent safety risks would increase over time.

PREFERRED ALTERNATIVE

Under the Preferred Alternative, all current freight rail traffic traveling between Davis Yard and the Port (14 weekly train movements or seven weekly round trips per Table 3-2a) would be rerouted out of the City. This would equate to 28 weekly train movements or 14 rounds trips in 2040 for Scenario 1 (Table 3-2b) and 42 weekly train movements or 21 round trips in 2040 for Scenario 2 (Table 3-2c). Freight trains leaving the Port would head north on the WTRY port lead and upgraded industrial freight rail line as part of the Bypass parallel to South Front Street, passing through four grade crossings-before turning west and transitioning to embankment as

the rail line approaches the Cape Fear River in the vicinity of the US 17 off-ramp. The four (4) grade crossings east of the Cape Fear River include one (1) private crossing serving a private industry (Buckeye Drive), one (1) private crossing serving Colonial Oil (near Wright Street), one (1) public crossing proposed to be converted to private (Wright Street), and one (1) public that would remain open with limited access (Dawson Street). The alignment will also cross Surry Street, which would be permanently closed but two uninhabited parcels would still require access from Dawson Street. Because the parcels are uninhabited, access to them from Dawson Street would be minimal. Freight trains would also cross one private grade crossing at the Duke Access Road serving a Duke Energy transmission tower. To summarize, rerouted freight trains would traverse a total of five (5) grade crossings, three (3) private (Buckeye Drive, Colonial Oil and Duke Access Road), one (1) public to be converted to private (Wright Street), and one (1) public with restricted access (Dawson Street).

The Preferred Alternative addresses the Project need of improving safety by minimizing the number of at-grade crossings that freight trains traveling between Davis Yard and the Port traverse. Under the No Build, freight trains traveling between Davis Yard and the Port would cross 32 at-grade crossings (30 public and 2 private) along the existing Beltline. Under the Preferred Alternative, freight trains traveling between Davis Yard and the Port on the bypass route would cross five (5) grade crossings, three (3) private and two (2) public. Three (3) of the crossings would be modifications to existing roadway crossings an active WTRY industrial freight rail line, including two (2) private (Buckeye Drive and Colonial Oil) and one (1) public (Wright Street) that would be converted to private. Two (2) of the crossings would be new, including one (1) public with restricted access (Dawson Street) east of the Cape Fear River and one (1) private (Duke Access Road) west of the Cape Fear River. The reduction of the number of at-grade crossings that freight trains traveling between Davis Yard and the Port traverse would result in improved safety by minimizing the exposure risk of vehicles and trains throughout the City.

Under the Preferred Alternative, the Beltline would remain in place and limited freight service could continue to operate over the Beltline to serve three local shippers (Builders First Source, L&W Supply. And MCO Distribution and Logistics). However, the connection between the WTRY and the Beltline will be severed at South Front Street through the removal of track, meaning that freight trains traveling between Davis Yard and the Port would no longer be able to access the Beltline.

While the Project is the first phase of a broader vision by the City to improve regional mobility, including possible reuse of the Beltline for alternative transit use, under the Preferred Alternative, the Beltline would remain in place after construction of the Preferred Alternative and limited train service would continue to operate over the Beltline to serve the three existing local shippers referenced above. As noted in Table 3.2a, there are currently three weekly round trips to the three local shippers on the northern portion of the Beltline.³⁶ To serve existing rail

³⁶ WTRY traffic to Colonial Oil is not altered by the Preferred Alternative, therefore it is not discussed here.

customers on the Beltline, six of the 32 at-grade crossings (30 public and 2 private crossings) will continue to be used, and all 32 at-grade crossings (30 public and 2 private crossings) will remain open (See Table 3-3; crossings #26 Market Street, #27 Henry Street, #29 Princess Place Drive, #30 N. 30th Street, #31 N. 23rd Street, and #32 King Street; #28 Clay Street will be closed as part of STIP-5740 Project). These and the remaining crossings on the southern portion of the Beltline will remain in place for CSXT access and maintenance until such a time when CSXT discontinues service over the line, which is not included in this Project.

Vehicular traffic, as well as the length and frequency of freight trains, is expected to grow rapidly in the region. Reliability of travel in the region would improve as crossing conflicts and delays across Wilmington's main thoroughfares would be reduced under the Preferred Alternative. The reduced number of trains traveling over the rail crossings would improve safety along school routes and general pedestrian movement through the Study Area. EMS responses would also experience fewer traffic delays from passing trains throughout the Study Area. Also, compared to the existing freight rail route, newer infrastructure would require less downtime for maintenance. Reducing the impacts of cars idling for substantial periods due to long freight trains would reduce vehicle operating costs and fuel use and result in emissions savings at the grade crossings.

3.5.4 Potential Mitigation Strategies and/or Commitments

As the Preferred Alternative significantly lessens many of the risks to public health and safety, no specific mitigation is proposed. All construction activities and future operations of the freight rail traffic would be done in compliance with regulations, such as those administered by the Occupational Safety and Health Administration (OSHA) and FRA.

3.6 PARKS AND RECREATIONAL FACILITIES

3.6.1 Introduction and Methodology

This section provides an assessment of the Project's effects on parks and recreational facilities. Parks and Recreational facilities subject to Section 4(f) evaluation are further discussed in Section 3.8. Parks and recreational facilities, including greenways, trails, bicycle paths, pedestrian paths, and boat/beach access sites were identified using a desktop review of current mapping data available from NC OneMap.³⁷ Existing parks and recreational resources are defined by parkland present within the Preferred Alternative's Study Area. Potential impacts are defined by the required removal or altering of the resource's property. Changes to the accessibility of these resources because of the Project are also discussed.

³⁷ NC OneMap. Data Downloads. Accessed January 2022. <https://www.nconemap.gov/>

3.6.2 Affected Environment

Numerous existing parks and recreational facilities exist in the Study Area, and include the following (Figure 3-8):

- Anne McCrary Park*
- Archie Blue Park
- Beaumont Park
- Church & Nun Park
- Claude Howell Park
- Dram Tree Park*
- Empie Park*
- Greenfield Lake Park and Gardens*
- Hilton Park
- Kennedy Park
- Maides Park
- MarStella Park
- Mary Bridgers Park
- 1898 Park
- Mothers Park
- North Waterfront Park
- Northside Park & Pool
- Parks Annex & Greenhouse
- Riverfront Park*
- Thomas and Willie E. Jervay Freedom Walk
- Thomas B. Lilly Park
- Tower Park
- Triangle Park
- Wallace Park
- Riverwalk
- Gary Shell Cross City Trail
- River to the Sea Trail
- East Coast Greenway
- Boat and beach access sites

Parks marked with an asterisk (*) are locations where Land and Water Conservation Fund (LWCF) funding has been used, according to the LWCF Past Projects map.³⁸ Properties, usually parks that have received any amount of financing from Land and Water Conservation Funds, need to be documented and cleared through the U.S. Department of the Interior. The properties are known as Section 6(f) properties. Section 6(f) of the Land and Water Conservation Act (54 U.S.C. § 200305(f)(3)) and its implementing rules at 36 C.F.R. part 59³⁹ address recreational resources that are acquired or developed with LWCFs. According to the City of Wilmington’s Bicycle Facilities and Trails map,⁴⁰ smaller segments of bike lanes and walking paths exist in the Study Area as well.

³⁸ Land and Water Conservation Fund. Past Projects Map. Accessed January 2022.

<https://lwcf.tplgis.org/mappast/>

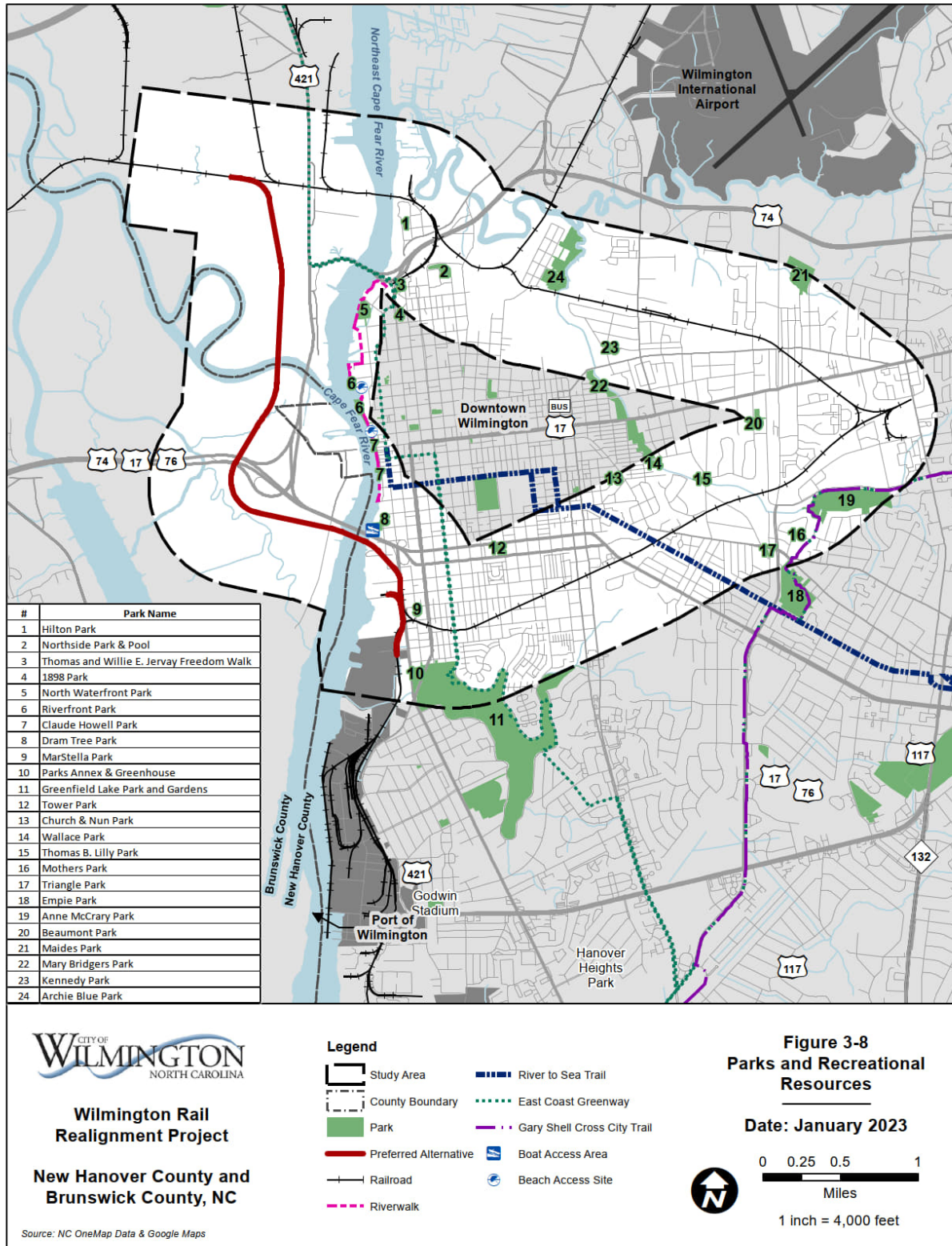
³⁹ CFR Title 36, Chapter 1, Part 59. 1986. Land and Water Conservation Fund Program of Assistance to States.

<https://www.ecfr.gov/current/title-36/chapter-1/part-59>

⁴⁰ City of Wilmington. Bicycle Facilities and Trails. Accessed January 2022.

<https://wilmingtonnc.maps.arcgis.com/apps/OnePane/basicviewer/index.html?appid=8fb451dafcb74e93818ac50db64df6da>

Figure 3-8: Parks and Recreational Resources



3.6.3 Environmental Consequences

NO-BUILD ALTERNATIVE

The No-Build Alternative maintains freight rail service in the existing corridor. Under the No-Build Alternative, existing freight traffic conditions would be expected to continue and increase in the future, thus resulting in further traffic delays for individuals attempting to access these recreational facilities. Impacts, such as traffic delays, air pollution from idling cars, and noise from passing trains, would remain and potentially worsen for the recreational facilities adjacent to the existing corridor as freight traffic increases. This includes recreational facilities like the River to Sea Trail, which currently crosses the existing rail line.

PREFERRED ALTERNATIVE

No parks or Section 6(f) properties would be impacted by the Preferred Alternative. However, existing bike lanes and sidewalks along South Front Street may be temporarily impacted by the Project during construction.

3.6.4 Potential Mitigation Strategies and/or Commitments

The City will coordinate with local entities to plan for temporary detours during Project construction for the impacted bike lanes and sidewalks along South Front Street. No parks or other recreational facilities would be impacted by the Preferred Alternative; therefore, no mitigation would be recommended for this Project. All parks and other recreational facilities within the Study Area would remain accessible during construction.

3.7 CULTURAL RESOURCES

3.7.1 Introduction and Methodology

Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) requires Federal agencies to consider the effect of their funded, permitted, or approved projects on historic properties. Section 106 defines historic property as "any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in the National Register [of Historic Places (NRHP)]." (54 U.S.C. § 300308.) An effect on a historic property is considered an alteration, directly or indirectly, of the characteristics that qualify it for inclusion in the NRHP (36 CFR § 800.5). Section 106 implementing regulations at 36 CFR § 800, subpart B, lay out a four-step process for Section 106 compliance.

1. Initiate consultation.
2. Determine the area of potential effects (APE) and identify historic properties within the APE that may be affected by the project and determine if the property or properties are eligible for or listed in the NRHP.
3. Determine if the undertaking will have an adverse effect on those historic properties; and
4. Resolve any identified adverse effects on historic properties by developing and evaluating alternatives that could avoid, minimize, or mitigate those effects.

FRA is the lead agency for Section 106 consultation. FRA initiated Section 106 consultation and proposed an APE with the NCHPO on February 19, 2021. All Section 106 correspondence is included in Appendix B1. FRA identified and invited parties that may be interested in the Project's effects on historic properties to be consulting parties in a letter dated July 27, 2021. These interested parties included: North Carolina Commission of Indian Affairs, USS North Carolina Commission, Historic Wilmington Foundation, US Coast Guard, USACE, City of Wilmington, Eagles Island Coalition, Gullah Geechee Cultural Heritage Corridor Commission, and Catawba Indian Nation. Parties that accepted the invitation to be a consulting party include Historic Wilmington Foundation, City of Wilmington, Eagles Island Coalition, and USS North Carolina Commission.

An APE is the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties. FRA initially identified an APE of 0.25 mile centered on the centerline of the build alternatives. In consultation with the NCHPO and consulting parties on November 17, 2021, FRA expanded the APE to 0.50 mile around the towers of the proposed vertical lift span bridge for the main Cape Fear River crossing. FRA expanded the APE to accommodate potential visual effects due to the anticipated tower height (see Figure 3-9).

3.7.2 Historic Architecture

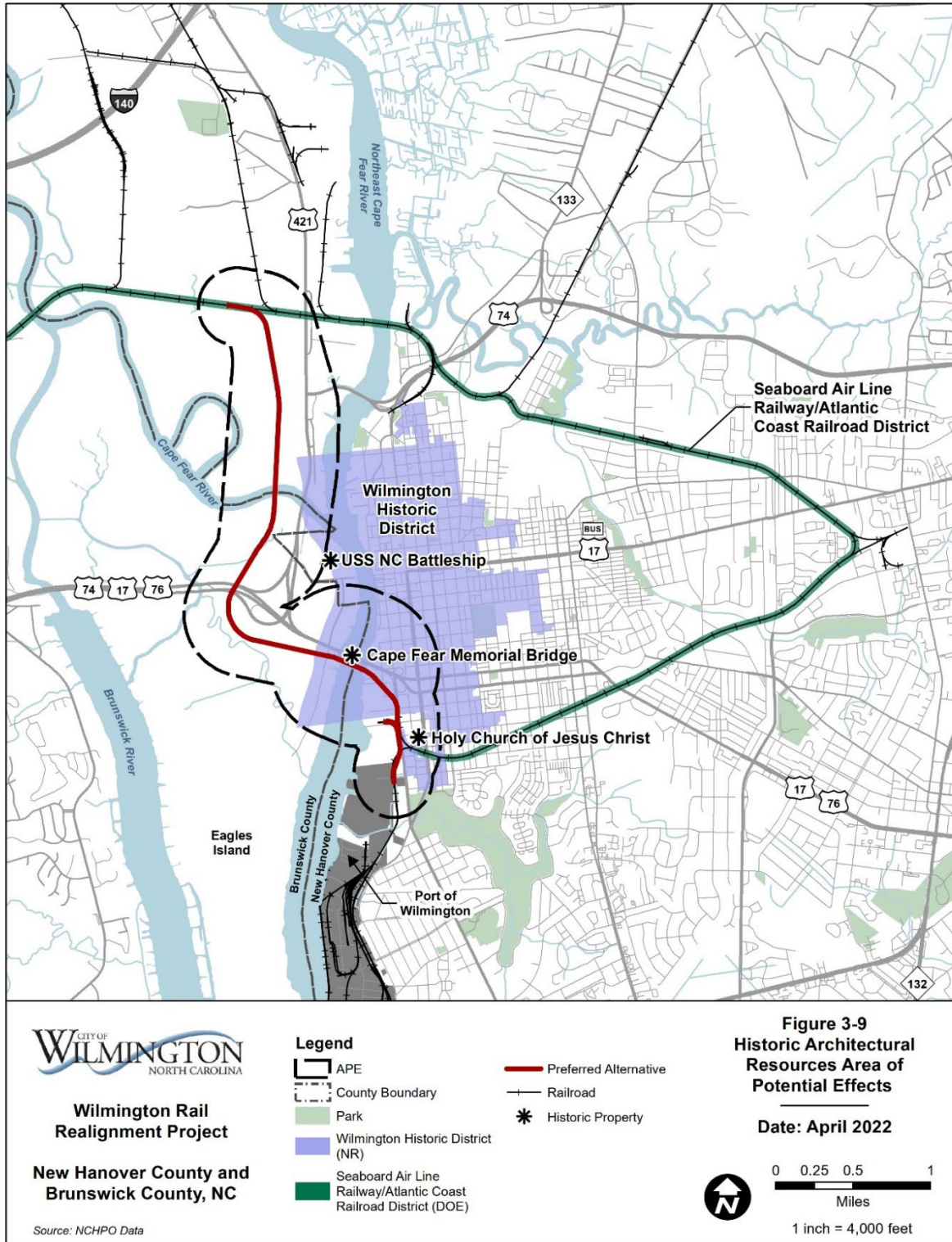
Results of this survey are detailed in the *Wilmington Rail Realignment Intensive-Level Historic Architectural Survey* (see Appendix B).

AFFECTED ENVIRONMENT

The *Wilmington Rail Realignment Reconnaissance-Level Historic Architectural Survey*⁴¹ identified two properties within the project's proposed historic architecture APE: (1) the Wilmington Historic District, listed in the NRHP in 1974 and expanded in 2003; and (2) the Seaboard Air Line Railway/Atlantic Coast Railroad District, determined eligible for NRHP listing in 2020. The report also recommended that one individual resource and one group of resources be further assessed at the intensive level to determine whether they may be eligible for NRHP listing: (1) the former Holy Church of Jesus Christ (NH2591) at 216 Marsteller Street; and (2) a potential expansion of the Wilmington Historic District (NH0093 and NH2548) within the Project's APE to the south of Wright Street, east of South Front Street, west of Burnett Boulevard/South 3rd Street, north of Greenfield Street and west of South 4th Street (Figure 3-9). In a letter dated August 23, 2021, to FRA (included in Appendix B), the NCHPO agreed with FRA's determination to do an additional intensive-level assessment of these two resources.

⁴¹ AECOM 2021. *Wilmington Rail Realignment Reconnaissance-Level Historic Architectural Survey*. July 2021.

Figure 3-9: Historic Architectural Resources Area of Potential Effects



During the intensive-level survey, FRA found that the former Holy Church of Jesus Christ was eligible for NRHP listing under Criterion C as a rare surviving example in the Wilmington area of the basic, traditional, rectangular form and frame construction of Protestant meetinghouses in the late 19th and early 20th centuries. The resources within the Wilmington Historic District-potential expansion area located within the southern APE were found not to have sufficient overall integrity to support significance or merit NRHP-listing under any of the four NRHP criteria. As such, FRA determined these resources not be added to the Wilmington Historic District.

The USS North Carolina Battleship is located on the west bank of the Cape Fear River and is considered a contributing resource within the Wilmington Historic District (i.e., the resource has properties that are significant to the historic value of the Wilmington Historic District). The Battleship is listed by the National Park Service as a National Historic Landmark (NHL). The Historic Architecture APE is located to the west of the NRHP and NHL boundaries associated with the battleship. While not within the Historic Architecture APE, the USS North Carolina Battleship will be an important element being considered by the Project due to its proximity to the APE.

The *Intensive-Level Historic Architectural Survey Report*⁴² was submitted to the NCHPO on July 12, 2022, and identified the five architecture/history historic properties within the APE: the NRHP-listed Wilmington Historic District; the NRHP-listed USS North Carolina Battleship Memorial Site (Battleship), which is also a National Historic Landmark (NHL); the Seaboard Air Line Railway/Atlantic Coast Railroad District (Beltline District), which is assumed eligible for the purposes of this Project only; the NRHP-eligible Holy Church of Jesus Christ; and the NRHP-eligible Cape Fear Memorial Bridge (Memorial Bridge). On August 4, 2022, the NCHPO agreed by letter with FRA's determinations of eligibility for architecture/history properties. Additional details regarding historic properties are documented in the *Wilmington Rail Realignment Intensive-Level Historic Architectural Survey*.

ENVIRONMENTAL CONSEQUENCES

No-Build Alternative

Under the No-Build Alternative, the Project would not be built, and existing freight rail service would continue to pass through the Seaboard Air Line Railway/Atlantic Coast Railroad Historic District. However, resources could be affected by other planned and committed projects as defined in the No-Build Alternative. Any effects associated with other projects would be the responsibility of the parties implementing those projects.

Preferred Alternative

Adverse effects are found when a proposed action "may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the NRHP in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association" 36 CFR § 800.5(a)(1). Adverse effects can include the

⁴² AECOM 2022. Wilmington Rail Realignment Intensive-Level Historic Architectural Survey. July 2022.

destruction or alteration of the property, isolation of the property from its surrounding environment, and the introduction of visual, audible, or atmospheric elements that are out of character with the property.

In accordance with 36 CFR § 800.5, FRA found that the proposed Project will have no adverse effect on architecture/history historic properties and submitted these findings in a letter dated July 3, 2023. No historic properties will be destroyed, moved, neglected, repaired, or rehabilitated, or have a change of use. The Project will not diminish the seven aspects of integrity identified by the NRHP – location, design, setting, materials, workmanship, feeling, and association – of architecture/history historic properties. The SHPO concurred with FRA's finding by letter on August 9, 2023.

While the project will substantially reduce noise impacts within the Wilmington Historic District by moving freight traffic traveling between Davis Yard and the Port to the Preferred Alternative, the NCHPO and Section 106 consulting parties have concerns about noise impacts to 12 contributing resources (Eight individual residences and four as part of a residential complex) within the district along South Front Street. Per noise criteria guidelines, as discussed in Section 3.19.2, seven of those 12 contributing elements are predicted to have a severe noise impact and the remaining 5 are predicted to have a moderate noise impact due to their proximity to the future rail line and associated sounding of warning horns from future rail traffic.

POTENTIAL MITIGATION STRATEGIES

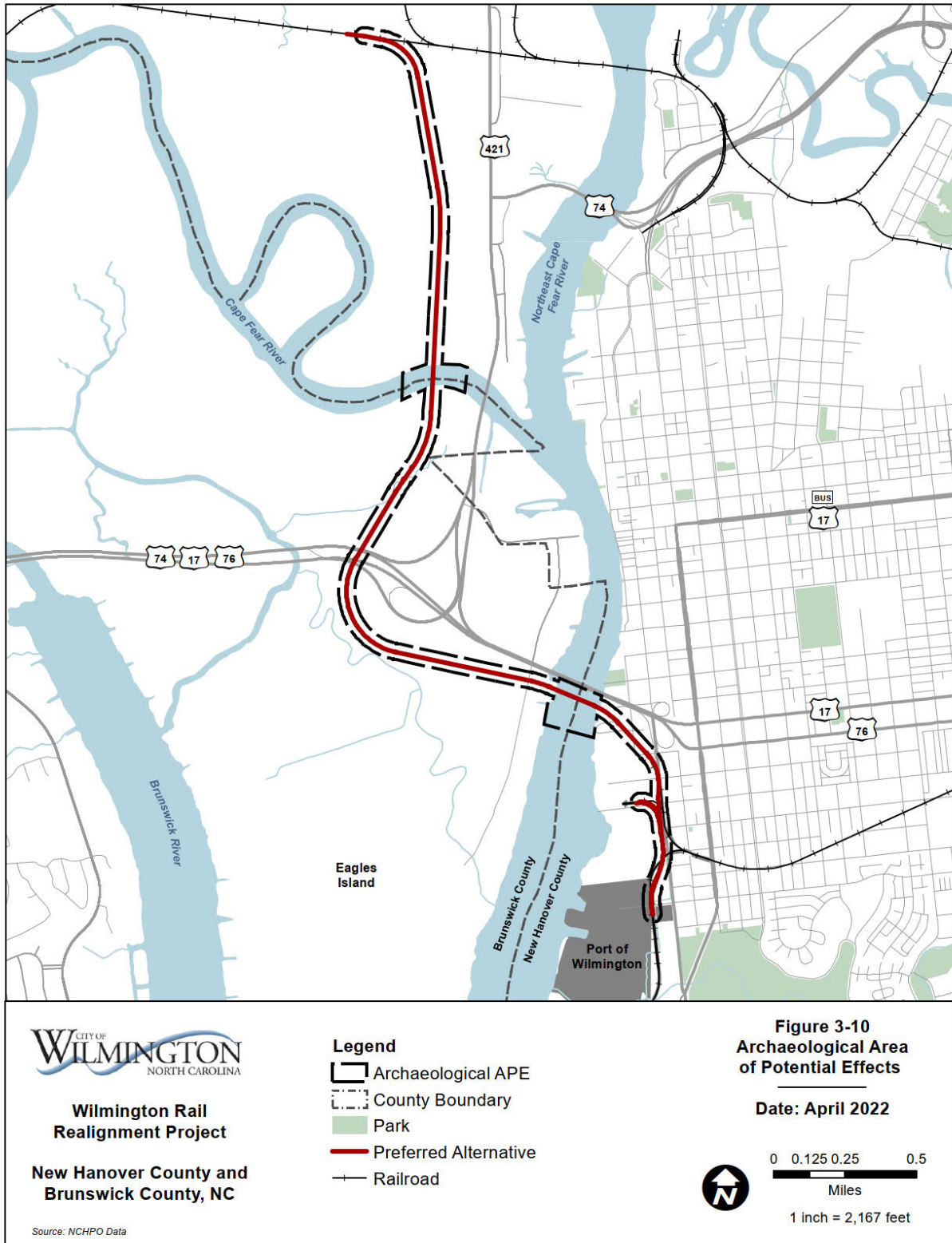
In order to mitigate noise impacts to the resources to the contributing resources noted above, the City will address severe noise impacts to these resources through appropriate noise mitigation. Mitigation measures will likely include closing Dawson Street and reassigning Wright Street to private driveways to eliminate the need for sounding warning horns along the bypass. Such measures require City Council approval, which would be obtained during the final design process. Additional mitigation measures for the Preferred Alternative may also be considered during the final design process and will be coordinated with NCHPO and consulting parties.

3.7.3 Archaeology

INTRODUCTION AND METHODOLOGY

The Project Team performed a Phase I survey of the Preferred Alternative in August 2022 to identify terrestrial and underwater archaeological resources in accordance with Section 106 of the NHPA. FRA defined the Archaeological APE in coordination with NCHPO and consulting parties as extending 150 feet in either direction from the proposed Project centerline (300 feet) for its 3.98-mile length. The underwater survey APE is 1,500 feet in width at the Cape Fear River crossing and 1,000 feet in width at the Northeast Cape Fear River crossing. The APE totals approximately 148 acres (60 hectares) (Figure 3-10).

Figure 3-10: Archaeological Area of Potential Effects



A Phase I survey is used to identify the archaeological resources present within an APE and the probable effects of the proposed Project on archaeological sites. Archaeological investigations began by identifying known and probable sites of terrestrial archaeological resources for the Project, as detailed in the *Wilmington Rail Realignment Archaeological Resources Technical Study*⁴³ completed in June 2021. This study used an archaeological predictive model developed by subject matter experts to assess the potential for archaeological resources. Phase I surveys include a literature review, site records review, local interviews with archaeologists and historians, examination of maps, aerial photographs, title searches, and other pertinent cultural resources records. Additional details regarding the methodology and findings of the survey are included in the *Terrestrial and Underwater Archaeological Survey for Wilmington Rail Realignment* (Appendix B). The Project Team conducted terrestrial fieldwork in November 2021 and underwater fieldwork was conducted in November 2021 and March 2023.

AFFECTED ENVIRONMENT

The terrestrial survey revisited one previously recorded site and identified one new archaeological site - Site 31NH686 - originally defined as a 20th century railroad causeway and turntable. The current survey refined Site 31NH686's boundary, refined the temporal affiliation as a late-19th to early 20th century causeway, and identified an isolated prehistoric component. Site 31NH895 is a newly identified 19th century domestic scatter and 20th century railroad causeway with an isolated prehistoric component. FRA determined that Sites 31NH686 and 31NH895 are not eligible for the NRHP due to the low densities of artifacts present and/or lack of integrity of the sites. NCHPO concurred with this determination by letter on May 5, 2022.

The underwater survey identified a total of 24 magnetic anomalies, 25 side-scan sonar targets, and no sub bottom paleo features. The NCHPO requested additional diver investigations be performed on seven targets of interest for areas that showed magnetic anomalies via remote sensing. The additional investigation showed that all seven targets consisted of modern debris and single-point ferrous objects; therefore, none are considered archaeological or historic in nature. NCHPO concurred with FRA's determination that no historic properties are present within the archaeological APE for the Project's two river crossings.

ENVIRONMENTAL CONSEQUENCES

No-Build Alternative

The No-Build Alternative would have no effect on archaeological resources as no work is proposed under this alternative and since FRA determined there are no archaeological historic properties in the APE. However, resources could be affected by other planned and committed projects as defined in the No-Build Alternative. Any effects associated with other projects would be the responsibility of the parties implementing those projects.

⁴³ AECOM 2021. *Wilmington Rail Realignment Archaeological Resources Technical Study*. June 2021.

Preferred Alternative

FRA determined there are no archaeological historic properties in the APE.

POTENTIAL MITIGATION STRATEGIES

Since there are no archaeological historic properties are present in the APE, no mitigation is warranted. If FRA funds are award for the final design and construction of the Project, and if archeological historic properties are identified during construction, FRA will follow 36 CFR § 800.13 regarding unanticipated discoveries.

3.8 SECTION 4(f)

Section 4(f) of the U.S. Department of Transportation Act of 1966 provides protection for publicly owned parks, recreation areas, and wildlife and waterfowl refuges, as well as significant historic sites. Historic sites protected by this the U.S. Department of Transportation Act of 1966's implementing regulations at 23 CFR part 774 include sites that are eligible for listing or are listed on the NHRP. The policy states the Secretary of Transportation may approve a transportation program or project requiring the use of the aforementioned lands only if:

- There is no feasible or prudent alternative to such use and the project includes all possible planning to minimize harm to the resource resulting from such use; or
- A finding can be made that the project has a *de minimis*, or minimal, impact on the Section 4(f) resource. This provision allows avoidance, minimization, mitigation, and enhancement measures to be considered in making a *de minimis* determination which is defined in 23 CFR § 774.17.

For parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that would not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f). For historic sites, *de minimis* impact means that FRA has determined, in accordance with 36 CFR § 800, that no historic property is affected by the Project, or the project would have "no adverse effect" on the property in question. If a project does not physically take historic property but causes an adverse effect, FRA must evaluate the proximity impacts if they will substantially impair the features or attributes that contribute to the NRHP eligibility of the historic site.

A Section 4(f) use of property is determined by the criteria within 23 CFR § 774.17. Use of Section 4(f) property occurs when land is permanently incorporated into a transportation facility, there is temporary occupancy of land that is adverse in terms of the statute's preservation purpose, there is a constructive use of a Section 4(f) property as determined by the criteria at § 774.15.

A permanent use occurs when property is permanently incorporated into the proposed transportation facility, either by full or partial acquisition or through easements for transportation-related purposes. A temporary use of Section 4(f) property may be necessary for activities such as regrading slopes or to provide staging or access areas. Even though temporary, these actions could be considered adverse, such as the removal of mature trees

and other vegetation or disruption of facilities or activities on the property. Once the easement is no longer needed, the Section 4(f) property must be restored to the condition in which it was originally found. Constructive use involves an indirect impact to the property of such magnitude as to effectively act as a permanent incorporation. The Project would not physically incorporate the resource but is close enough to severely impact key features.

Historic architectural properties would be the only Section 4(f) resources affected by the Project. While there are numerous existing parks within the Study Area, no parks nor recreation areas would be impacted by the Preferred Alternative, as discussed in Section 3.6.2. No archaeological sites are impacted, as discussed in Section 3.7.3. No wildlife and/or waterfowl refuges exist in the Study Area.

3.8.1 Section 4(f) Use Assessment

The Project will place piers in the Cape Fear River, which was included as a contributing resource in the Wilmington Historic District. While rivers are typically excluded from categorization as a contributing resource under the National Register of Historic Places because it was included in the nomination for the historic district, FRA needed to assess its use under Section 4(f). No other historic properties or portions of the Wilmington Historic District will have a Section 4(f) use.

As noted in Section 3.7, the NCHPO concurred with FRA's finding that the proposed Project will have No Adverse Effect on architecture/history historic properties. Therefore, NCHPO was notified on August 10, 2023, of FRA's intention to use their concurrence of No Adverse Effect as the basis of a *de minimis* finding for the Wilmington Historic District.

3.9 VISUAL RESOURCES

3.9.1 Introduction and Methodology

NEPA identifies aesthetics as one of the factors in the human environment that must be considered in determining the effects of a project. As FRA does not provide specific criteria for visual impact assessments, this document utilizes FHWA's *Guidelines for the Visual Impact Assessment of Highway Projects* for guidance in conducting analyses related to visual conditions, aesthetic conditions, and potential impacts of the Project.⁴⁴ Federal regulations require that visual impacts be addressed for compliance with Section 106 of the NHPA⁴⁵ and with Section 4(f) of the United States Department of Transportation (USDOT) Act⁴⁶ for the protection of publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites. The methodology for identifying and assessing visual impacts generally includes the following steps:

⁴⁴ FHWA. 2015. *Guidelines for the Visual Impact Assessment of Highway Projects*. Prepared by U.S. Department of Transportation, Federal Highway Administration. January 2015.

⁴⁵ NHPA. 1966. National Historic Preservation Act of 1966. Section 106. <https://ncshpo.org/resources/section-106/>.

⁴⁶ USDOT. 1966. United States Department of Transportation Act of 1966. Section 4(f).

- Define the Affected Environment:
 - Establish Viewshed
 - Collect Data
 - Define Landscape Units, Key Viewpoints (KVP), and Visual Resources
 - Assess Existing Visual Quality
 - Define Viewer Groups
- Assess Visual Impacts:
 - Determine Viewer Sensitivity
 - Determine Visual Change
 - Assess Visual Impact
- Develop Reasonable Mitigation Measures:
 - Develop mitigation measures for adverse impacts

After establishing the viewshed, Landscape Units, KVPs, visual resources, and viewers, a visual quality assessment was performed on the existing environment. Landscape units were determined by identifying similar characteristics within the viewshed and often corresponded with land use types. KVPs were designated within each Landscape Unit to provide examples of the existing views within the Landscape Unit and to provide a location for evaluating visual changes resulting from the Project.

Visual quality is a result of the interactive experience between viewers and their environment – it serves as the baseline for determining the degree of visual impacts and provides the design and management goal for determining the need to mitigate adverse impacts. Furthermore, visual quality serves to assess the potential for incorporating beneficial impacts into the design. The following three conditions are generally used to describe visual quality, as set forth in FHWA's *Guidelines for the Visual Impact Assessment of Highway Projects*:

- **Vividness:** The degree of memorable, dramatic, or distinctive components of the landscape.
- **Natural Harmony:** The visual coherence and compositional harmony of the landscape are considered.
- **Cultural Order:** How viewers perceive the organization of the cultural visual environment or the man-made built environment, labeling the built environment as orderly or disorderly.

The exposure and awareness of the primary viewers or viewer groups within each Landscape Unit determine the viewers' sensitivity to the proposed changes. Potential visual impacts are the combination of the degree of visual changes to the existing visual quality and the potential viewer response. For each Landscape Unit, visual impacts are first assigned a degree from low, moderate, or high. Visual impacts can be beneficial, neutral, or adverse. Low refers to areas lacking value or having degraded visual resources with no aesthetically pleasing composition. Moderate refers to areas comprised primarily of visual resources combined in an aesthetically pleasing composition with low levels of disruptive visual detractors. High refers to areas

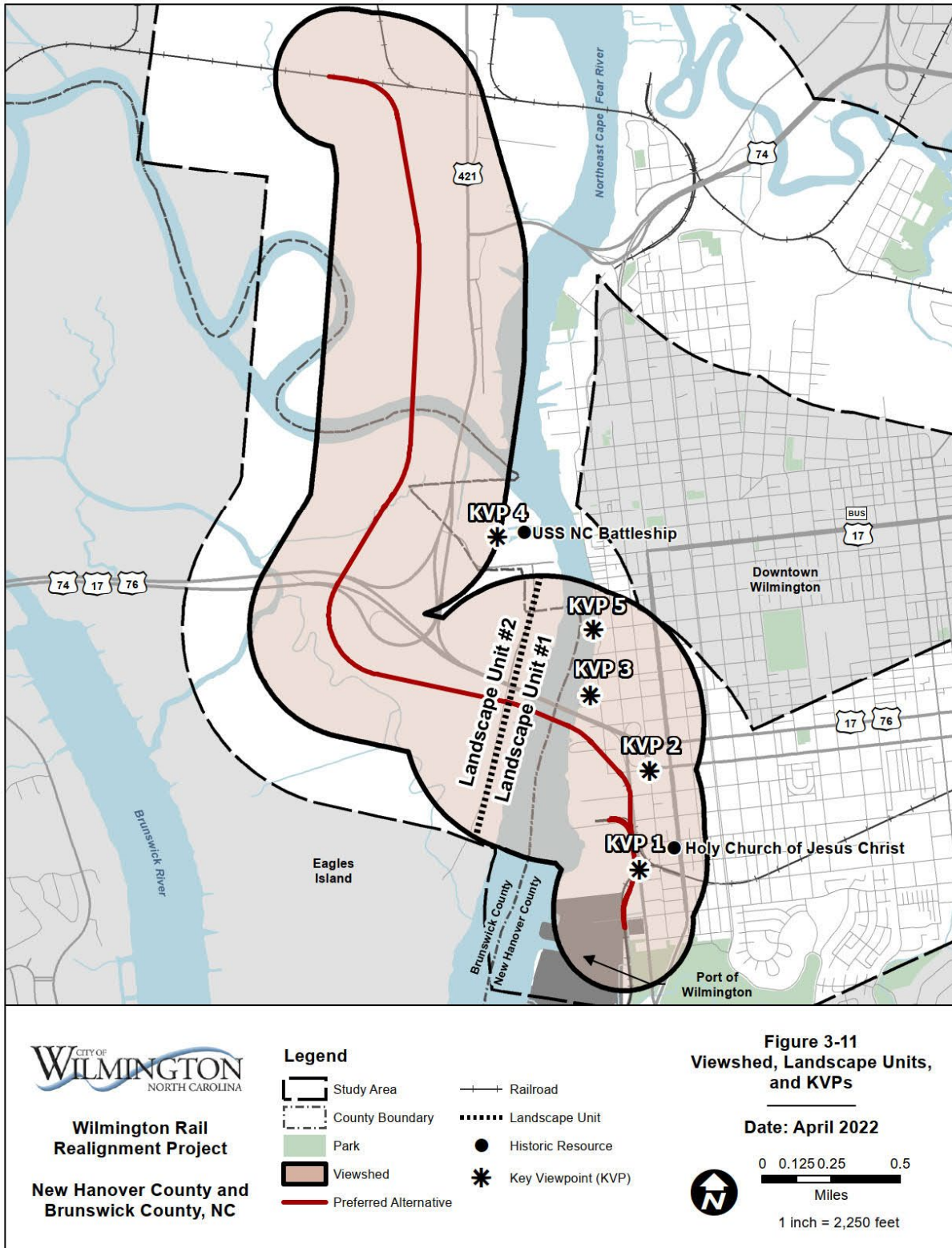
comprising visual resources free of disruptive visual detractors and with a strong sense of place. Beneficial impacts improve the experience for the viewer and may enhance visual resources or create improved views of those resources. Neutral impacts occur when the existing visual quality is not perceived to be enhanced or degraded. Impacts that adversely impact visual quality degrade the quality of the visual resource, obstruct sensitive views, or change desired views. Mitigation measures are developed for adverse impacts.

3.9.2 Affected Environment

The viewshed extends 0.25-mile in each direction centered on the alignment of the Preferred Alternative and 0.50-mile around the towers for the vertical lift span bridge for the southern proposed Cape Fear River crossing. The viewshed was broken into two Landscape Units. Landscape Unit #1 extends from the southern terminus of the Project at the Port of Wilmington to Battleship Road on the west bank of Cape Fear River and is comprised of dense urban and industrial development, existing rail lines, and the Cape Fear Memorial Bridge. Residential areas within Landscape Unit #1 are generally located along the east side of Front Street. Landscape Unit #2 extends from Battleship Road to the northern terminus of the Project (Figure 3-11) and is comprised of undeveloped and natural areas. Major highway crossings are located in this Landscape Unit, including elevated bridge structures.

Key viewpoints within Landscape Unit #1 include views from residential areas on Front Street, areas within the Wilmington Historic District, Dram Tree Park on the eastern bank near the Cape Fear Memorial Bridge, and the Wilmington Riverwalk. Views in this area are multi-dimensional, combining a variety of man-made elements and land uses. Industrial land uses and an existing rail line are located to the west, east, and through the center of Front Street, while residential land uses, historic structures, and scattered vegetation are located to the east of Front Street within the viewshed. The Cape Fear Memorial Bridge is a structure within the City, and the architecture in the Wilmington Historic District is distinctive. The steel vertical lift bridge can be raised to provide 135 feet of navigational clearance to allow ships to pass. The vividness of the Landscape Unit is high due to the distinctive features of the Cape Fear Memorial Bridge and the Wilmington Historic District. The natural harmony and cultural order lack some cohesiveness due to the proximity of residential areas and heavy industrial land uses north of the Port, resulting in a rating of moderately high as opposed to high. Therefore, the existing visual quality within Landscape Unit #1 is considered moderately high.

Figure 3-11: Viewshed, Landscape Units, and KVPs



The key viewpoint within Landscape Unit #2 is from the USS North Carolina Battleship. Views in this Landscape Unit contain few man-made structures to the west within sight of the battleship and the downtown Wilmington riverfront to the east across the Cape Fear River. A fixed-span highway bridge crossing over the Cape Fear River carrying US 74/US 421(S. Thomas Rhodes Bridge) and multiple high-capacity transmission towers and lines are prominent features within the Landscape Unit. The fixed S. Thomas Rhodes Bridge is approximately 65 feet above the water, and the transmission towers are approximately 125 feet above the water. These structures are visible from the USS North Carolina Battleship and historic downtown Wilmington River front. Much of the Landscape Unit traverses undeveloped wetland areas. The natural harmony and cultural order of the surrounding landscape are relatively cohesive and can be considered an aesthetically pleasing composition. However, elements such as the existing highway crossings and utility towers through the Landscape Unit are detractors, resulting in a rating of moderately high. The vividness of the Landscape Unit is high, given the vast natural landscape, coupled with the views of the downtown Wilmington waterfront. Overall, the existing visual quality within Landscape Unit #2 is moderately high.

Viewers include neighbors and travelers. Neighbors are those adjacent to the Project and have views of the Project. Travelers are those who use the existing roadway facilities. Neighbors generally include residential, recreational, or pedestrian viewers and have moderate to high exposure and awareness of the Project. Travelers generally have low to moderate exposure and awareness of the Project.

3.9.3 Environmental Consequences

NO-BUILD ALTERNATIVE

Under the No-Build Alternative, no changes in the aesthetics or visual setting would occur. However, other planned and committed projects within the Study Area that may occur could change existing or introduce new visual elements. Aesthetic and visual changes associated with those projects would be the responsibility of the implementing party.

PREFERRED ALTERNATIVE

Visual changes in Landscape Unit #1 would include the addition of the proposed rail line along the west side of Front Street, an elevated rail structure, and a new lift span bridge crossing the Cape Fear River. The construction of the elevated rail structure and lift span bridges would introduce new visual elements within Landscape Unit #1. However, the Project would be compatible with the existing scale and form of the transportation network and the existing Cape Fear Memorial Bridge. The overall visual quality would remain moderately high. Viewer sensitivity in Landscape Unit #1 is anticipated to be low. Travelers and neighbors in this area are accustomed to viewing rail structures and bridging. Overall, the visual impact in Landscape Unit #1 is anticipated to be moderately low and neutral.

Visual changes in Landscape Unit #2 would include the addition of the proposed rail line on elevated and fill structure as well as a new bridge crossing the US 74/US 76/US 421 interchange and the Cape Fear River. The rail line on the structure over wetlands in Landscape Unit 2 would

introduce a visual element slightly incompatible with the existing scale of some views; however, transportation structures, including the S. Thomas Rhodes Bridge and utility transmission line support towers, are within current views. The rail line would be minimally visible from the USS North Carolina Battleship due to the distance between the rail line and the battleship, the existing roadway, and existing vegetation. The overall visual quality within Landscape Unit #2 may be degraded to moderate, with an aesthetically pleasing composition and low levels of disruptive visual detractors. Viewer sensitivity in Landscape Unit #2 is anticipated to be moderately low. Travelers and neighbors in the Landscape Unit would have low exposure and awareness of the Project, which would result in moderately low exposure and awareness as they are accustomed to viewing transportation structures in the area. Overall, the visual impact in Landscape Unit #2 is anticipated to be moderately low and neutral. While the visual quality of the Landscape Unit may be degraded, viewer sensitivity remains moderately low.

Visualizations of the Project were generated to provide examples of what the Project could look like once constructed and are included in Appendix C.

3.9.4 Potential Mitigation Strategies and/or Commitments

While there are not anticipated to be visual impacts, and therefore no mitigation is required, the City will include the following measures to minimize the visual and aesthetic impacts of the Project as necessary. These measures will be refined as the Project final design progresses.

- Approve overall design criteria with details to address local context in sensitive locations.
- Include construction phase requirements to minimize vegetation removal and prevent unintended disturbance.
- Develop construction and operational lighting plans to focus lighting on areas requiring illumination.
- Select staging areas and staging area design features that limit visual and aesthetic effects on neighboring uses.

3.10 WATER QUALITY

3.10.1 Introduction and Methodology

As defined by the EPA, water quality standards form a legal basis for controlling pollutants entering the Waters of the United States (WOTUS). Water quality standards consist of three core components: designated uses of a waterbody, criteria to protect designated uses, and antidegradation requirements to protect existing uses and high-quality/high-value waters. Designated uses and water quality criteria are the primary tools used to achieve the objectives and goals of the Clean Water Act, while antidegradation requirements complement these tools

by providing a framework for maintaining existing uses, for protecting higher quality waters (HQW), and for protecting waters identified as Outstanding Resource Waters (ORW).⁴⁷

The Clean Water Act,⁴⁸ as amended, is the primary law regulating pollution of the nation's waterways and was enacted to maintain and restore the chemical, physical, and biological integrity of WOTUS. Under the Clean Water Act Section 303(d),⁴⁹ the North Carolina Department of Environmental Quality (NCDEQ), in coordination with EPA, developed a list of water bodies that do not meet water quality standards for designated uses, referred to as "impaired" waters. These "impaired" waters have designated uses such as protection and propagation of fish, shellfish and wildlife, recreation, public drinking water supply, or agricultural, industrial, navigational, and other purposes. Impaired waters have Total Maximum Daily Load (TMDL) standards set in order to improve water quality. A TMDL establishes the maximum amount of a pollutant allowed in a waterbody and serves as the starting point or planning tool for restoring water quality. The North Carolina 2020 Final 303(d) list of impaired waters and NCDEQs Surface Water Classifications were reviewed for waterways within 1 mile downstream of the Preferred Alternative.

3.10.2 Affected Environment

No designated ORWs, HQWs or water supply watersheds (WS-I or WS-II) are located within the LOD.⁵⁰ The North Carolina 2020 Final 303(d) list of impaired waters identifies the section of the Cape Fear River from the CSXSE Line Navassa Drawbridge to the Cape Fear Memorial Bridge [#18-(71)a2a on the 2020 Final 303(d) list] as impaired due to dissolved oxygen, hexavalent chromium fish tissue advisory, and arsenic fish tissue advisory and the section of the Cape Fear River from the Cape Fear Memorial Bridge south to Greenfield Creek [#18-(71)a2b on the Final 303(d) list] as impaired due to dissolved oxygen.⁵¹

3.10.3 Environmental Consequences

NO-BUILD ALTERNATIVE

Under the No-Build Alternative, no changes to the alignment of the existing freight line would occur; therefore, no changes to the water quality in the Study Area would occur.

⁴⁷ EPA. What are Water Quality Standards? <https://www.epa.gov/standards-water-body-health/what-are-water-quality-standards>

⁴⁸ US Code Title 33: 1251–1387. Clean Water Act. <https://www.govinfo.gov/content/pkg/USCODE-2018-title33/pdf/USCODE-2018-title33-chap26.pdf>

⁴⁹ EPA. Clean Water Act Section 303(d): Impaired Waters and Total Maximum Daily Loads. [https://www.epa.gov/tmdl#:~:text=Section%20303\(d\)%20of%20the%20Clean%20Water%20Act%20authorizes%20EPA,\(TMDLs\)%20for%20these%20waterbodies](https://www.epa.gov/tmdl#:~:text=Section%20303(d)%20of%20the%20Clean%20Water%20Act%20authorizes%20EPA,(TMDLs)%20for%20these%20waterbodies)

⁵⁰ NCDEQ, DWR. 2021. NC Surface Water Classifications. <https://deq.nc.gov/about/divisions/water-resources/water-planning/classification-standards/classifications>

⁵¹ NCDEQ, DWR. 2021. 2020 NC Category 5 Assessments "303(d) List" Final. https://files.nc.gov/ncdeq/Water%20Quality/Planning/TMDL/303d/2020/NC_2020_Category5_303dlist.pdf

Other planned and committed projects within the Study Area may result in changes to water quality. However, those changes would be the responsibility of the implementing parties for those projects.

PREFERRED ALTERNATIVE

Impacts on water quality could result from the construction and operation of the Preferred Alternative through vegetation removal, excavation, fill placement, use of equipment, and installation of water crossing structures. Construction of the Preferred Alternative would require in-water work, resulting in minimal, temporary, and localized effects on the water quality of the Cape Fear River within the LOD. Construction and operation of the Preferred Alternative would be unlikely to result in adverse impacts to water quality after implementation of Best Management Practices (BMP) during construction and the adherence to permitting conditions to avoid and minimize potential water quality impacts. Freight operations and any standard maintenance activities of the rail line would be carried out in a manner consistent with EPA and NCDEQ regulatory requirements and is not expected to result in water quality impacts.

3.10.4 Potential Mitigation Strategies and/or Commitments

The Project is subject to Federal and state stormwater regulations requiring railroads and other industrial facilities to take steps to prevent stormwater pollution. The City will prepare a Stormwater Pollution Prevention Plan as part of BMPs and in support of the Clean Water Action Section 401 Water Quality Certification (WQC).

A Clean Water Act Section 404 Individual Permit would likely be required for this Project; however, the USACE holds the final discretion as to what type of Section 404 permit would be necessary to authorize Project impacts. A Clean Water Act Section 401 Water Quality Certification (WQC) from the NCDEQ - DWR would also be required. The Cape Fear River crossings are designated as USACE civil works projects, and as such, a Clean Water Act Section 408 approval from the USACE would be required for the alteration, occupation, or use of any civil works projects.

3.11 WATER BODIES AND WATERWAYS

3.11.1 Introduction and Methodology

Water resources were evaluated through desktop analyses utilizing GIS data, web-based applications, online resources, and data collected in the field for the LOD. Field work was conducted between February 22 and February 26, 2021, as well as between March 1 and March 5, 2021. Field work activities included delineating potential jurisdictional WOTUS (i.e., wetlands, streams, rivers, etc.) and conducting functional assessments of those resources.

Functional assessments for wetlands were conducted utilizing the North Carolina Wetland Assessment Method (NC WAM).⁵² Functional assessments for streams were conducted utilizing the North Carolina Stream Assessment Method (NC SAM).⁵³ Wetland types were determined using a combination of field evaluation and desktop analysis. Desktop resources used to distinguish between brackish marsh and tidal freshwater marsh included aerial imagery, LiDAR, and the mean higher high water (MHHW) tidal datum as shown on the Coastal Resilience mapping program that uses data from the NC Department of Public Safety (NCDPS) Emergency Management.⁵⁴ The USACE issued a preliminary jurisdictional determination (PJD) on May 28, 2021, for potential jurisdictional WOTUS evaluated in the Alternatives Analysis Report. The PJD included the majority (67.2 acres or approximately 85 percent) of the LOD. Approximately 12 acres (15 percent) of the LOD were not included in the PJD. Within these 12 acres, wetlands and streams were determined using GIS data, including aerial photography and LiDAR, and visual observations made during fieldwork. The Preferred Alternative's design was refined following the issuance of the PJD. The design refinements included the addition of construction access areas and alignment adjustments that fall outside of the PJD's study area.

See the Natural Resources Technical Report (NRTR) included in Appendix D for more detail on water resources for this Project.

3.11.2 Affected Environment

Water resources in the vicinity of the existing Beltline are part of the Lower Cape Fear River basin (U.S. Geological Survey [USGS] Hydrologic Unit Code [HUC] 03030005) and Northeast Cape Fear River basin (USGS HUC 03030007). The existing railroad crosses two unnamed upper tributaries of the Cape Fear River and three named streams: Northeast Cape Fear River, Burnt Mill Creek, and Mineral Springs Branch. Additional streams may be present that are not identified in the National Hydrography Dataset (NHD) and NCDEQ DWR Surface Water Classifications data.

Water resources around the Preferred Alternative are part of the Lower Cape Fear River basin (USGS Hydrologic Unit 03030005). Eleven jurisdictional streams, including the Cape Fear River and the open water of Alligator Creek (OWA), were identified in the LOD (Table 3-15). Several features identified as streams are likely the result of the modification of an existing stream channel or the creation of a ditch through tidal and brackish/saltwater marsh. OWA was created

⁵² NC Wetland Functional Assessment Team. 2016. NC Wetland Assessment Method (NC WAM) User Manual Version 5.

<https://files.nc.gov/ncdeq/Water%20Quality/Environmental%20Sciences/ECO/Wetlands/NC%20WAM%20User%20Manual%20v5.pdf> (Accessed February 11, 2021).

⁵³ NC Stream Functional Assessment Team. 2015. NC Stream Assessment Method (NC SAM) User Manual Version 2.1.

<https://ncaep.wildapricot.org/resources/Documents/NCSAM/NC%20SAM%20User%20Manual%20v2.1.pdf> . (Accessed February 11, 2021).

⁵⁴ The Nature Conservancy. 2021. Coastal Resilience Mapping Portal.

<https://maps.coastalresilience.org/northcarolina> (Accessed March 24, 2021).

during the construction of the US 17/US 421 interchange in the 1960s.⁵⁵ According to the NCDEQ DWR surface water classifications, this feature is considered part of Alligator Creek.

Table 3-15: Waterways in the LOD

Stream Name	Map ID	DWR Index Number	Best Usage Classification
Alligator Creek	OWA	18-75	SC; Sw
UT to Alligator Creek	SA	18-75	SC; Sw
UT to Alligator Creek	SB (2)	18-75	SC; Sw
UT to Alligator Creek	SX	18-75	SC; Sw
Cape Fear River	Cape Fear River	18-(71)a2a;18-(71)a2b	SC
UT to Cape Fear River	SD	18-(71)a2	SC
UT to Cape Fear River	ST	18-(71)a2	SC
UT to Cape Fear River	SU	18-(71)a2	SC
UT to Cape Fear River	SV	18-(71)a2	SC
UT to Cape Fear River	SW	18-(71)a2	SC
UT to Cape Fear River	SAA	18-(71)a2	SC

The best usage classification of Alligator Creek and the Cape Fear River, as defined by NCDEQ DWR, is Class SC. Class SC waters include all tidal salt waters protected for secondary recreation such as fishing, boating, and other activities involving minimal skin contact; fish and noncommercial shellfish consumption; aquatic life propagation and survival; and wildlife. Alligator Creek also has the supplemental classification of SW (Swamp Waters), which includes those waters which have low velocities and other natural characteristics which are different from adjacent streams.⁵⁶ The unnamed tributaries draining to Alligator Creek and the Cape Fear River are not included on the NC Surface Water Classifications web application and are identified in Table 3-15 as having the same classification as the receiving waters.⁵⁷

In addition to the water resources summarized above, two man-made ditches, TA and TB, were identified as jurisdictional surface waters at the southern end of the Preferred Alternative. Nine jurisdictional wetlands were identified within the LOD and are shown on Figure 3-12 (1-6) and Figure 3-13 (1-6).

⁵⁵ NETR Online. 2021. Historic Aerials. <https://www.historicaerials.com/viewer> (Accessed March 24, 2021).

⁵⁶ NCDEQ, DWR. n/d. Classifications & Standards, Classifications. <https://deq.nc.gov/about/divisions/water-resources/planning/classification-standards/classifications> (Accessed January 12, 2022).

⁵⁷ NCDEQ, DWR. 2021b. NC Surface Water Classifications.

3.11.3 Environmental Consequences

NO-BUILD ALTERNATIVE

Under the No-Build Alternative, no changes to the alignment of the existing freight line would occur; therefore, no changes to WOTUS would occur.

Other planned and committed projects within the Study Area may result in impacts to WOTUS. However, those potential impacts would be the responsibility of the implementing parties for those projects.

PREFERRED ALTERNATIVE

Characteristics of jurisdictional streams/surface waters and jurisdictional wetlands within the LOD are included in Table 3-16 and Table 3-17, respectively, and shown on Figure 3-13 and Figures 3-13(1-6). The NC WAM wetland type classifications and ratings are also included in Table 3-17 and shown on Figure 3-13 (1-6).

Table 3-16: Characteristics of Jurisdictional Streams and Surface Waters Within the LOD

Map ID	Classification	Overall NC SAM Rating
Cape Fear River (1) ¹	Perennial	High
Cape Fear River (2) ¹	Perennial	Medium
OWA	Perennial	High
SA	Perennial	High
SB (2)	Perennial	High
SD	Perennial	High
ST ²	Perennial	High
SU ²	Perennial	High
SV ²	Perennial	High
SW ²	Perennial	High
SX ²	Perennial	High
SAA ³	Perennial	High
TA (ditch)	Perennial	N/A
TB (ditch)	Perennial	N/A

¹Cape Fear River (1) and (2) are considered one stream, but the assessment areas were evaluated separately.

²Due to site inaccessibility, stream was assessed using GIS resources.

³Stream was not evaluated in the field and was assessed using GIS resources.

Figure 3-12 (1): Potential WOTUS in the LOD

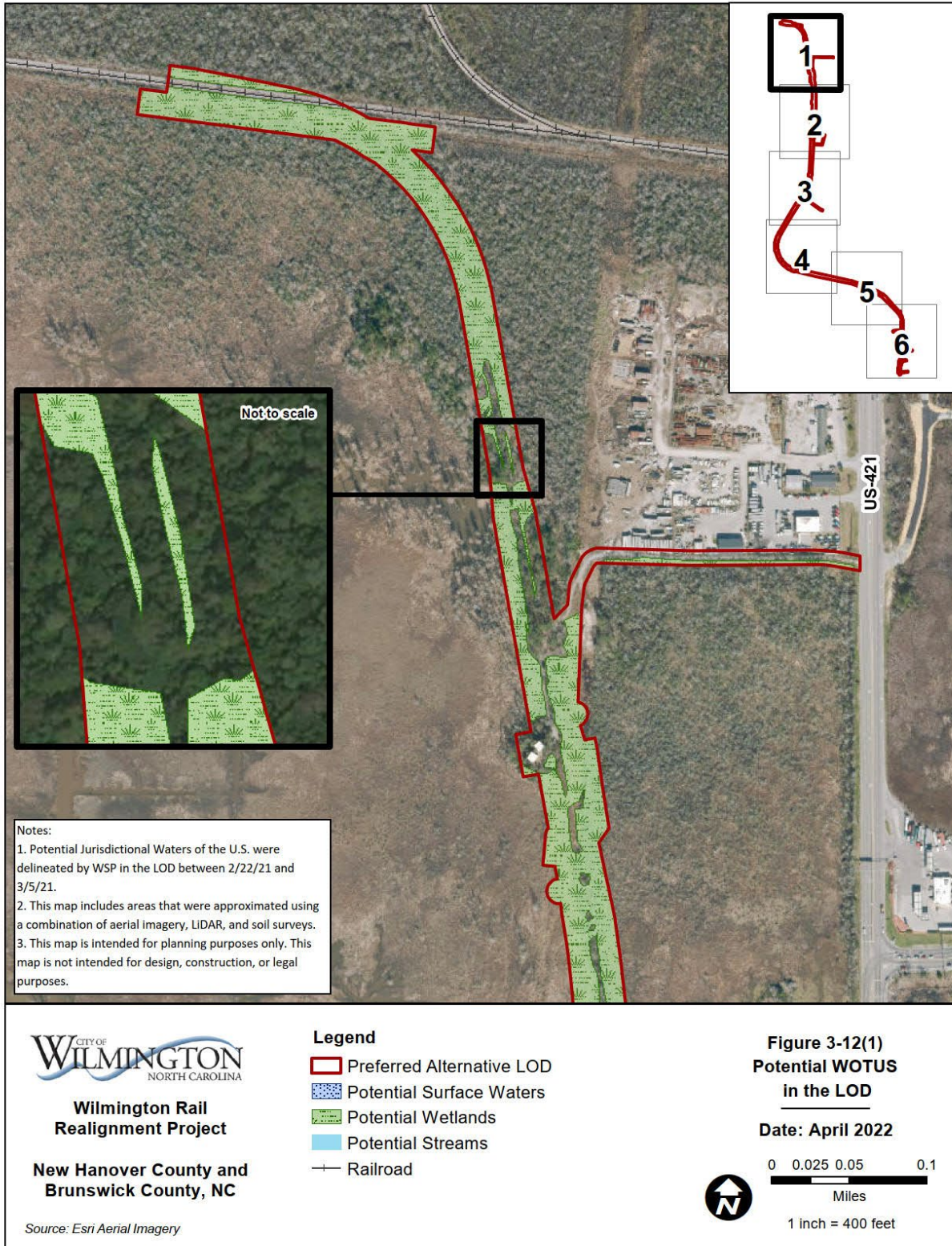


Figure 3-12 (2): Potential WOTUS in the LOD



Figure 3-12 (3): Potential WOTUS in the LOD

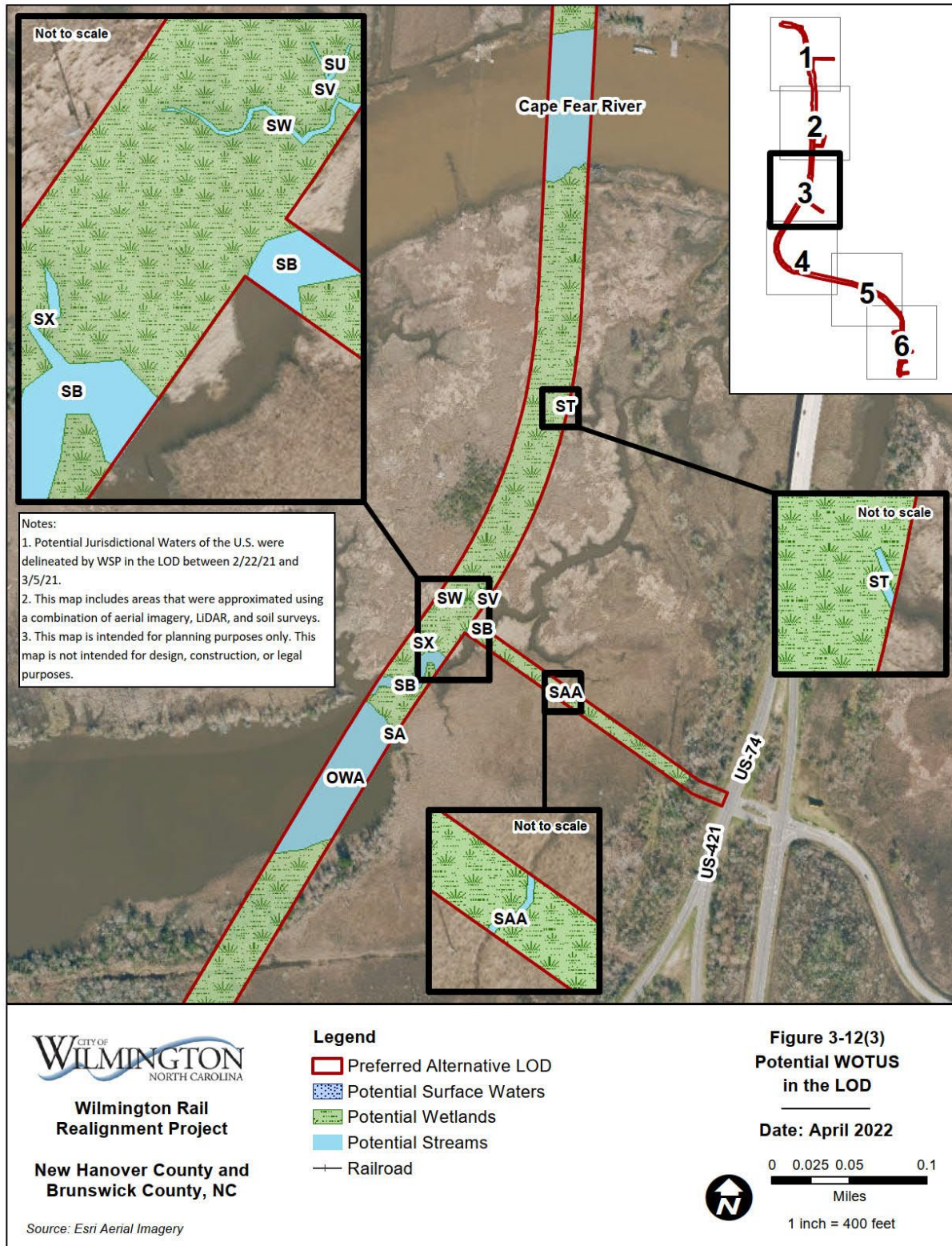


Figure 3-12 (4): Potential WOTUS in the LOD

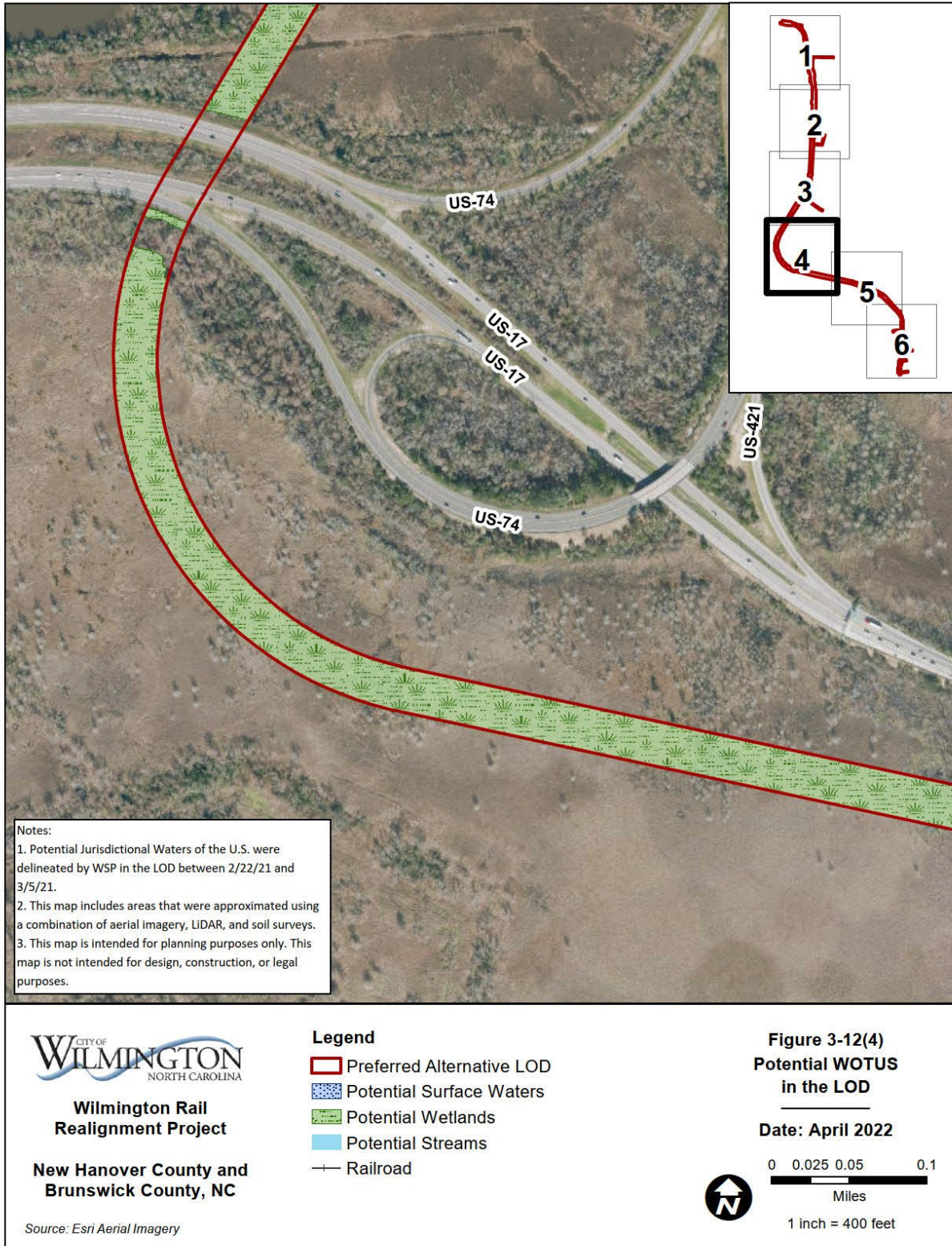


Figure 3-12 (5): Potential WOTUS in the LOD



Figure 3-12 (6): Potential WOTUS in the LOD

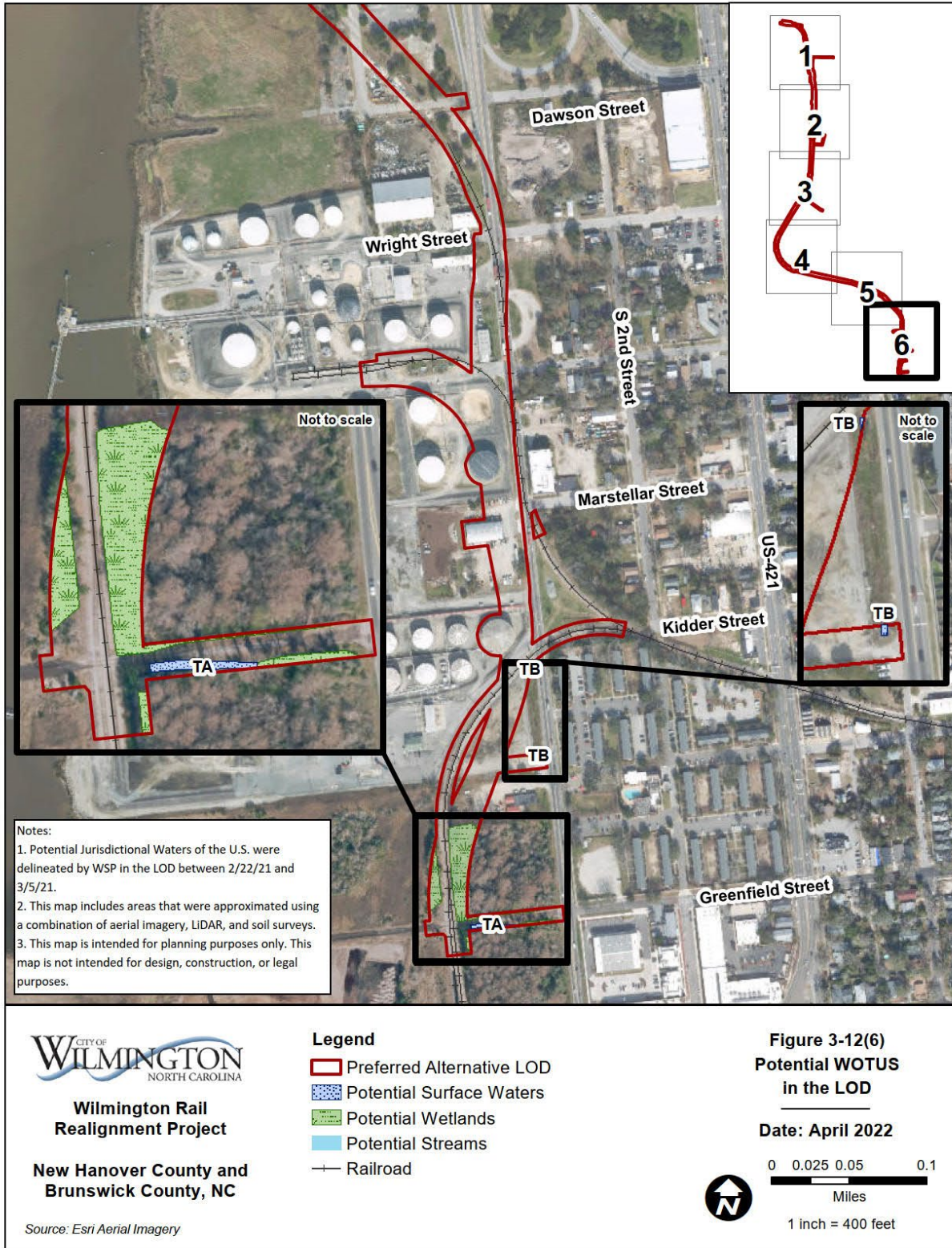


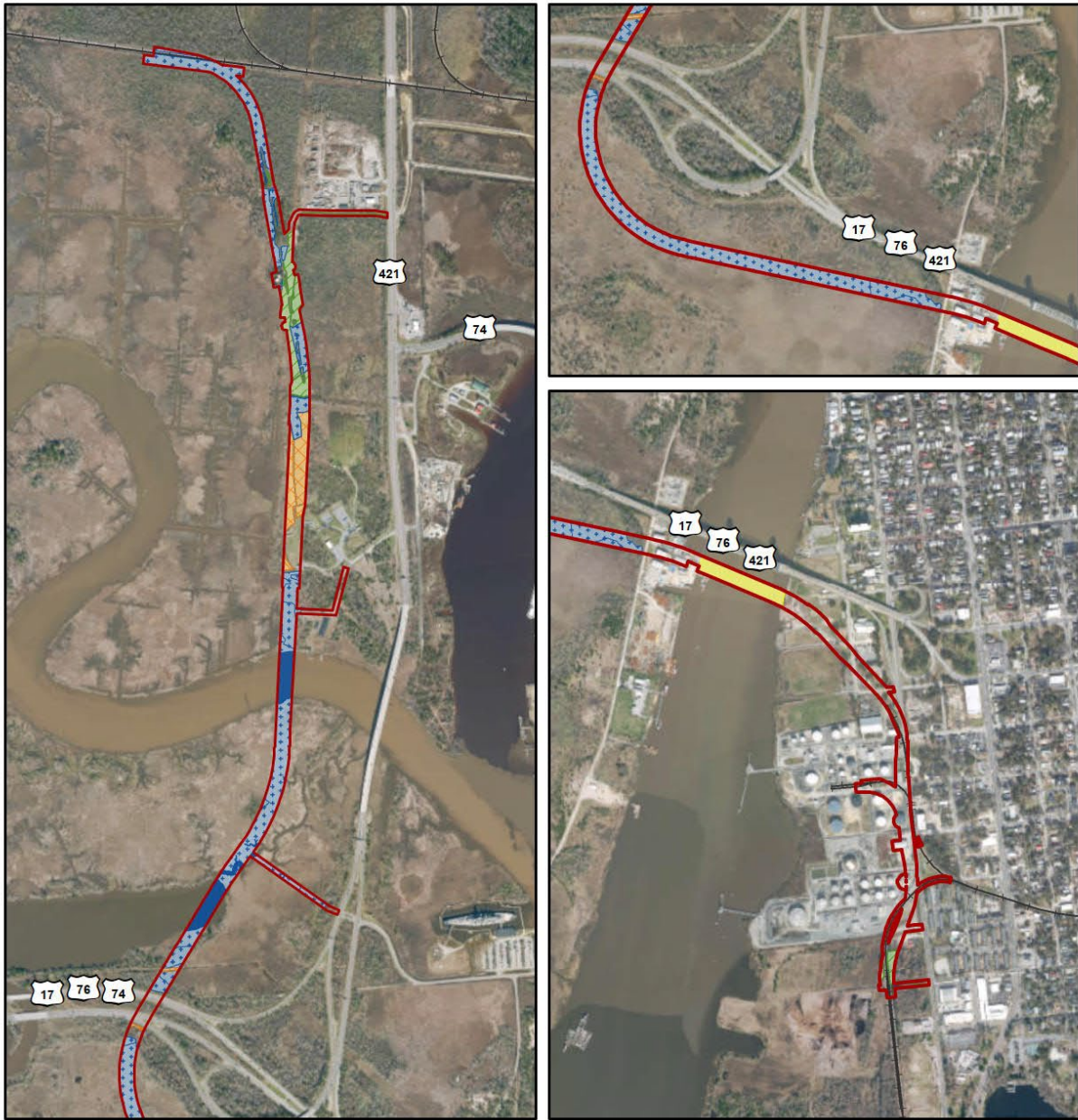
Table 3-17: Characteristics of Jurisdictional Wetlands Within the LOD


Map ID	NC WAM Classification	NC WAM Rating	Hydrologic Classification	
WA	Riverine Swamp Forest	Medium	Riparian	
WB	Brackish/Salt Marsh	Low	Riparian	
	Estuarine Woody Wetland	Medium	Riparian	
WC	Riverine Swamp Forest	Medium	Riparian	
WD	Riverine Swamp Forest	High	Riparian	
	Tidal Freshwater Marsh	High	Riparian	
WE	Riverine Swamp Forest	Low	Riparian	
WF	Brackish/Salt Marsh ¹	High	Riparian	
	Estuarine Woody Wetland ²	High	Riparian	
	Riverine Swamp Forest	High	Riparian	
	Tidal Freshwater Marsh	Low	Riparian	
High				
WI	Brackish/Salt Marsh	High	Riparian	
		Riverine Swamp Forest		Low
				Medium
	Tidal Freshwater Marsh	High	Riparian	
		Low		
		Medium		
WJ	Riverine Swamp Forest	High	Riparian	
		Medium		
		Low		
WK	Basin	Medium	Non-Riparian	

¹Due to site inaccessibility, a portion of the wetland was assessed based on field observations of the brackish marsh in WF and GIS resources.

²Due to site inaccessibility, wetland was assessed at a distance using binoculars and GIS resources.

Figure 3-13: Stream and Wetland Assessment Ratings





Wilmington Rail Realignment Project
New Hanover County and Brunswick County, NC

Source: Esri Aerial Imagery

Legend

- Preferred Alternative LOD
- Railroad

NCSAM Rating


- High
- Medium

NCWAM Rating

- High
- Low
- Medium

Figure 3-13
Stream and Wetland Assessment Ratings

Date: April 2022



0 0.1 0.2 0.4

Miles

1 inch = 1,250 feet

Figure 3-13 (1): Stream and Wetland Assessment Ratings

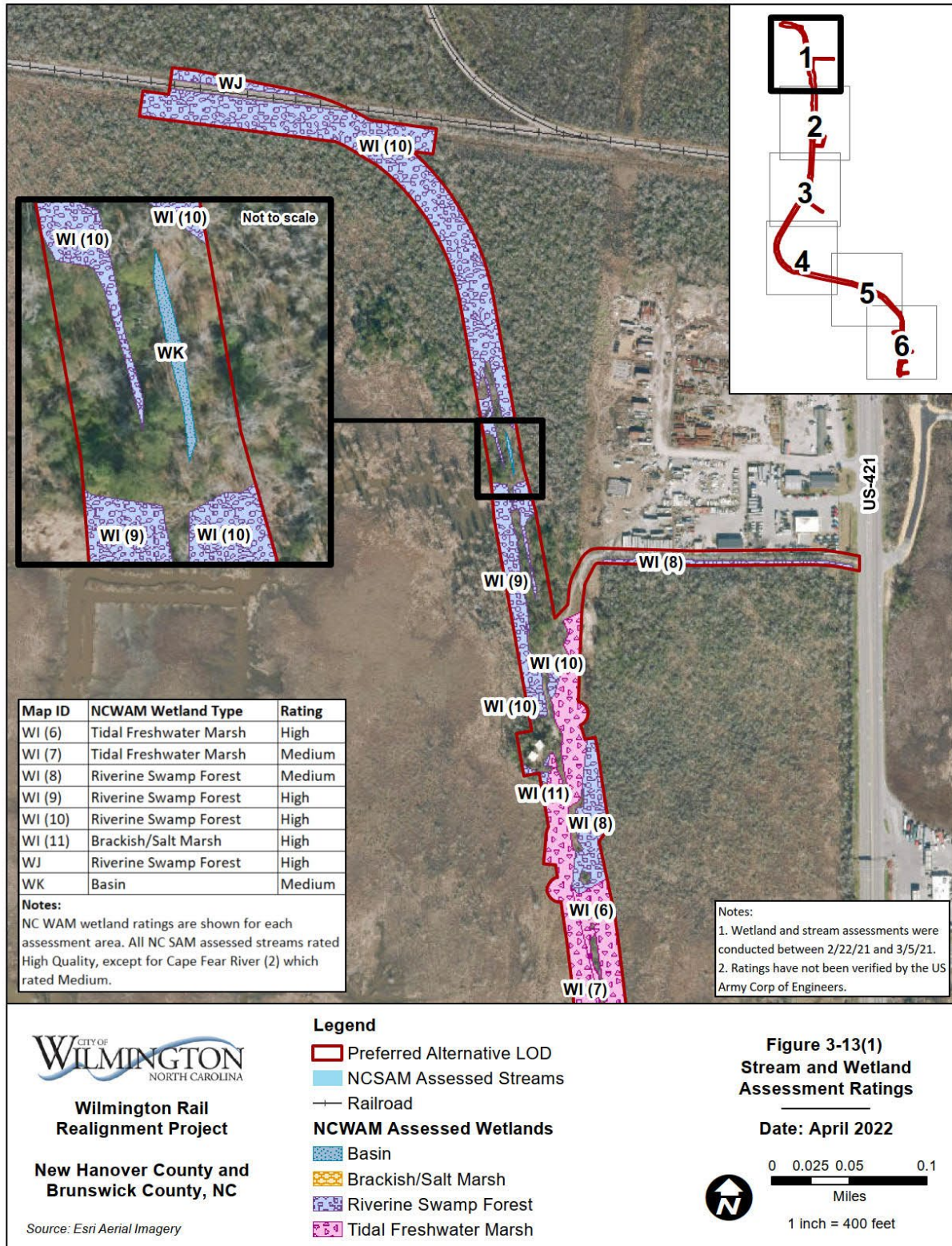


Figure 3-13 (2): Stream and Wetland Assessment Ratings



Legend

- Preferred Alternative LOD
- NCSAM Assessed Streams
- Railroad
- NCWAM Assessed Wetlands**
- Brackish/Salt Marsh
- Riverine Swamp Forest
- Tidal Freshwater Marsh

**Figure 3-13(2)
Stream and Wetland
Assessment Ratings**

Date: April 2022

0 0.025 0.05 0.1

Miles

1 inch = 400 feet



Figure 3-13 (3): Stream and Wetland Assessment Ratings

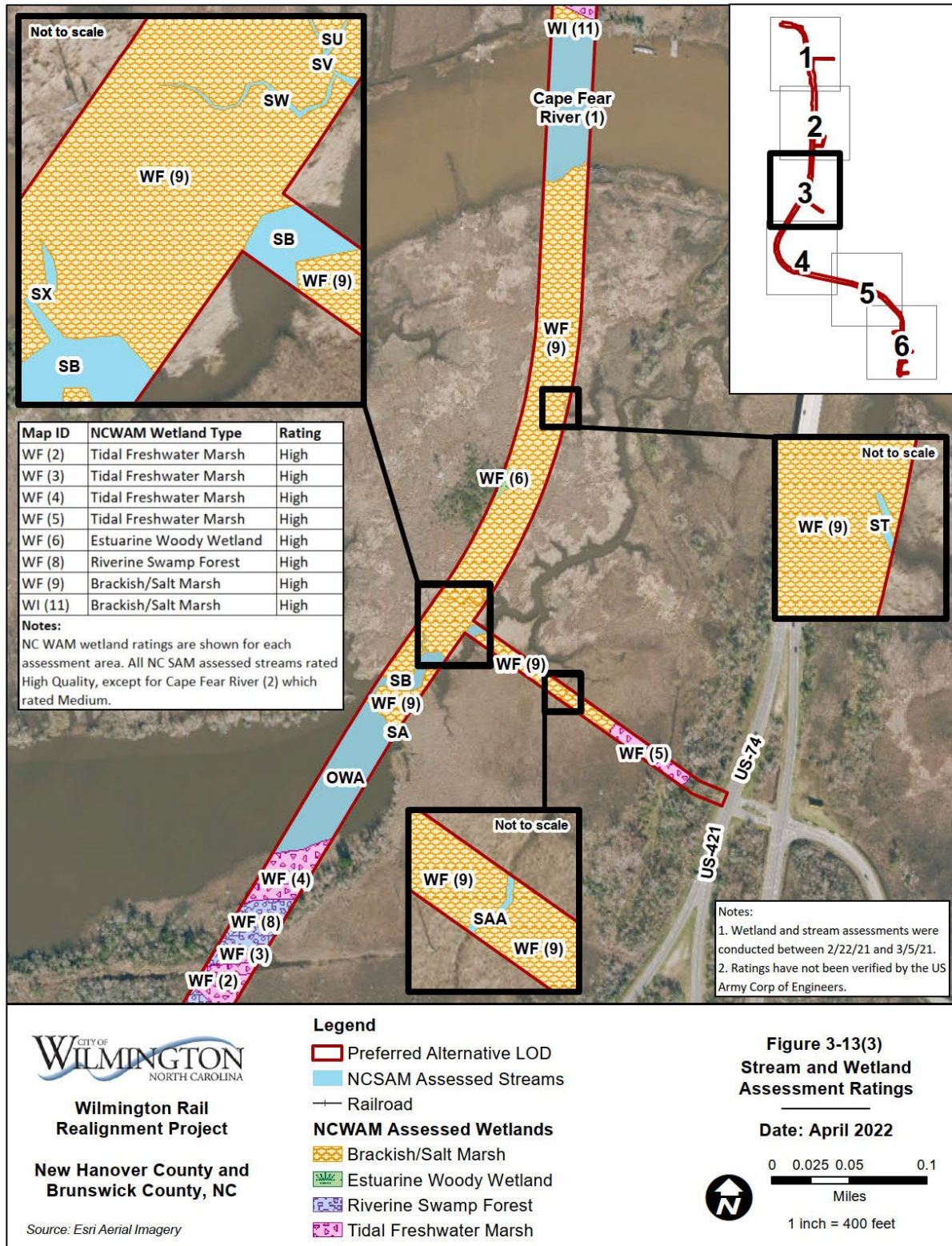


Figure 3-13 (4): Stream and Wetland Assessment Ratings

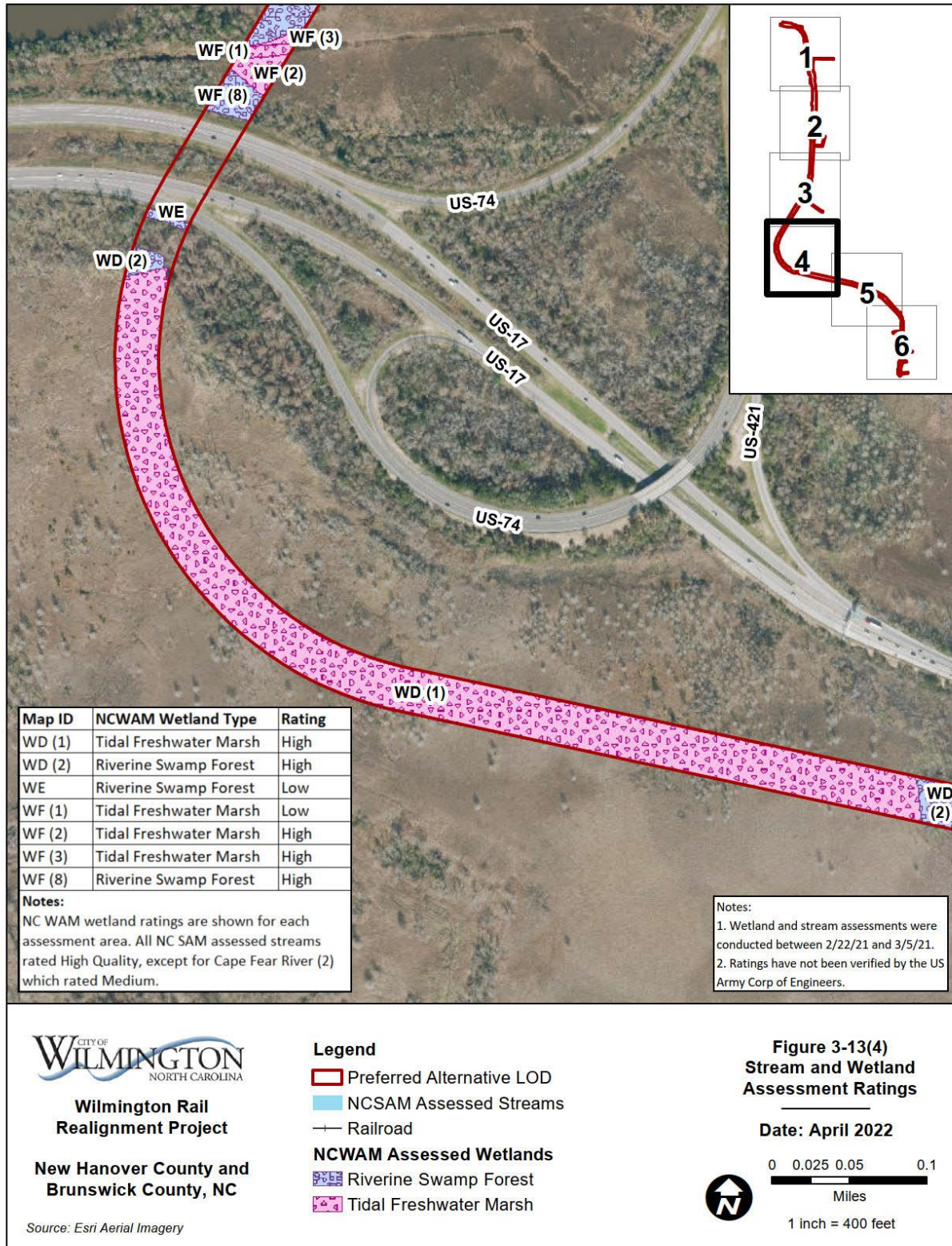
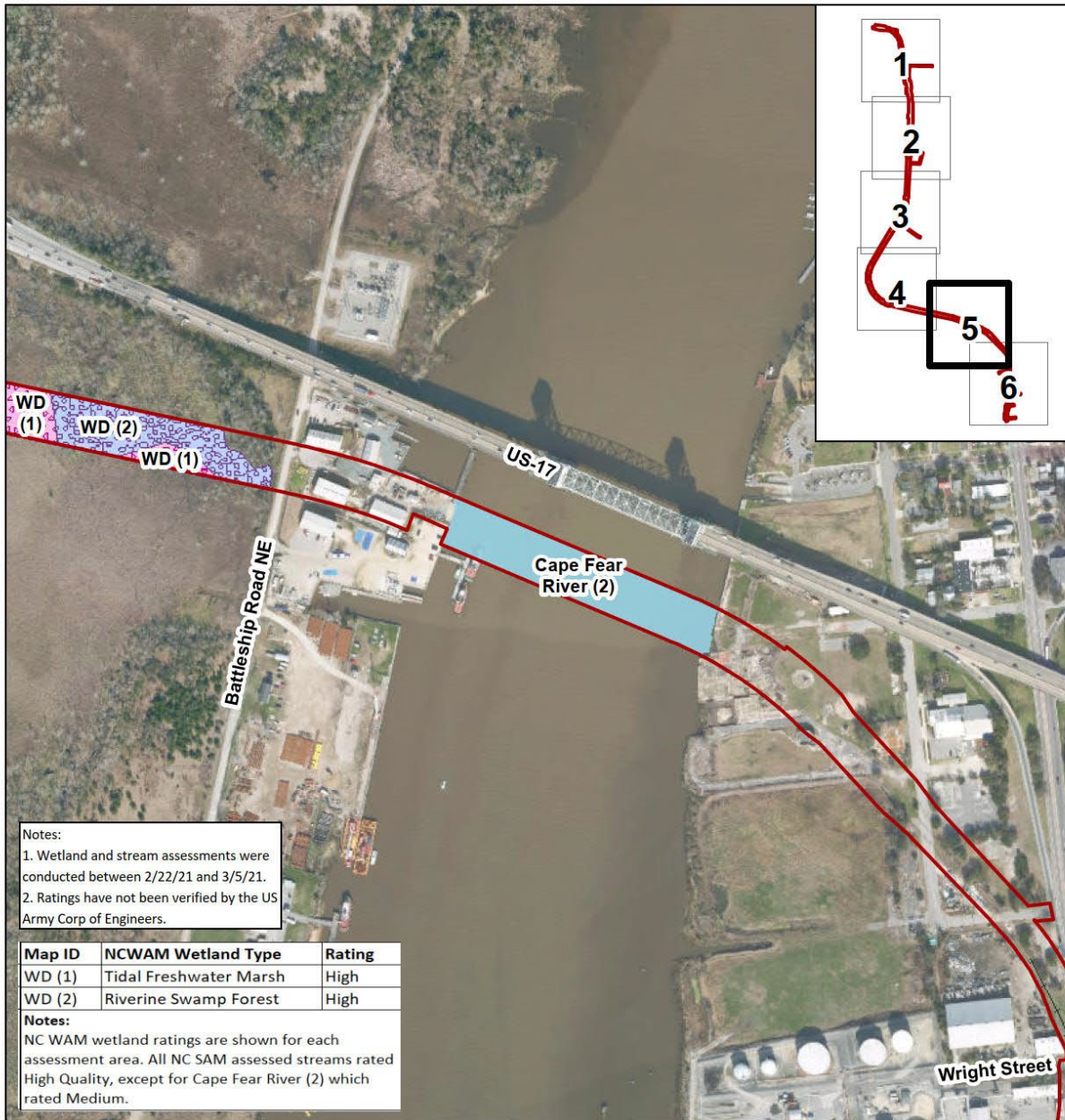


Figure 3-13 (5): Stream and Wetland Assessment Ratings



Legend

- Preferred Alternative LOD
- NCSAM Assessed Streams
- Railroad
- NCWAM Assessed Wetlands**
- Riverine Swamp Forest
- Tidal Freshwater Marsh

**Figure 3-13(5)
Stream and Wetland
Assessment Ratings**

Date: April 2022

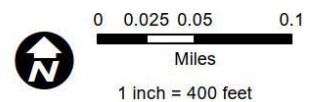
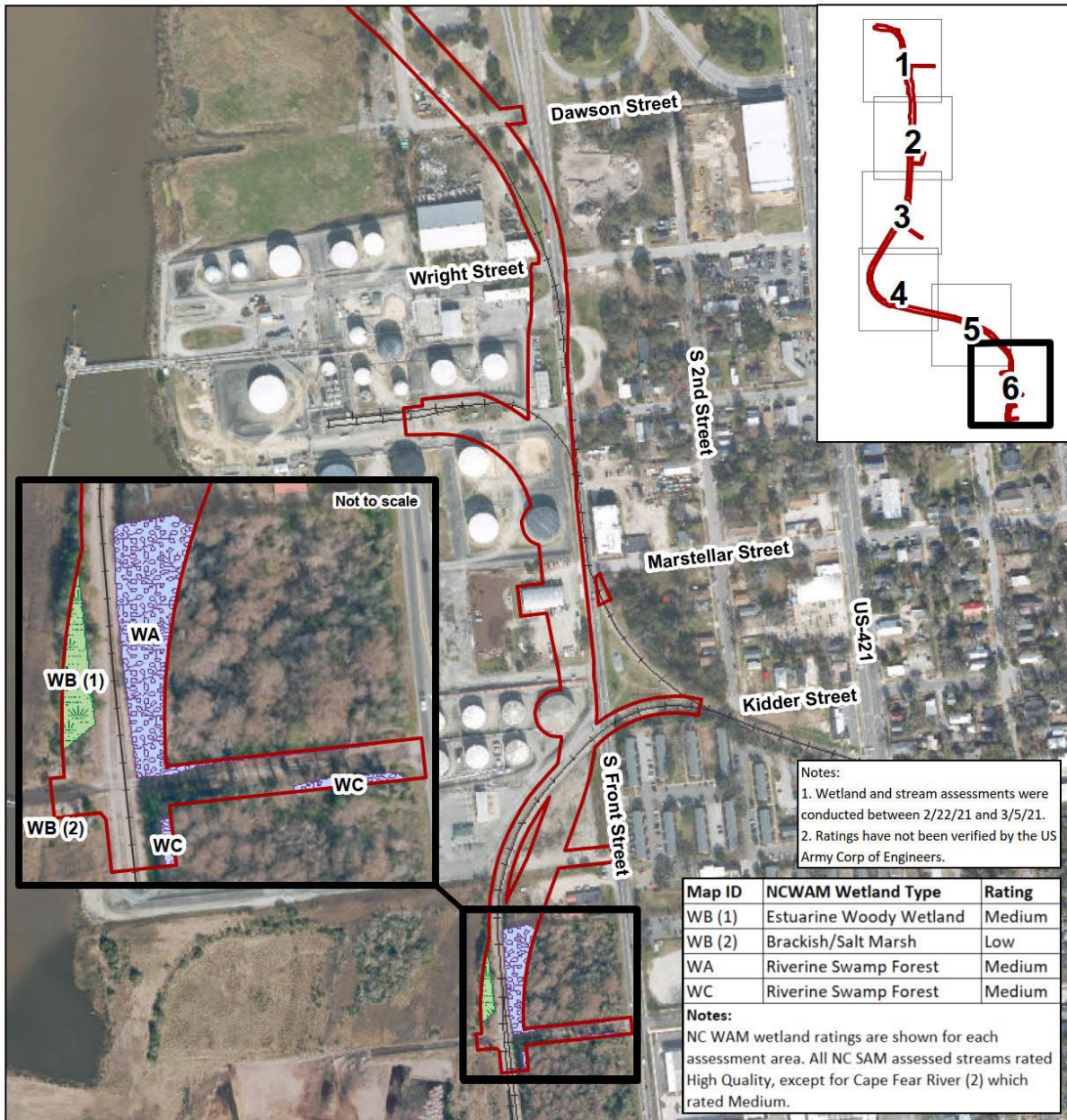


Figure 3-13 (6): Stream and Wetland Assessment Ratings



Legend

- Preferred Alternative LOD
- NCSAM Assessed Streams
- Railroad
- NCWAM Assessed Wetlands**
- Brackish/Salt Marsh
- Estuarine Woody Wetland
- Riverine Swamp Forest

Figure 3-13(6)
Stream and Wetland
Assessment Ratings

Date: April 2022

0 0.025 0.05 0.1



Miles

1 inch = 400 feet

The Preferred Alternative would result in impacts to high and medium-quality wetlands and streams. Potential impacts to water resources are shown in Table 3-18 below and can be seen on the Mapping Atlas included in Appendix A. At this stage in the Project development, the impacts reflected in Table 3-18 would constitute a direct impact within the LOD. The location, configuration, and size of the bridge substructure (e.g., bents, columns, footings, etc.) would be determined during later phases of the design and Project development.

Table 3-18: Summary of Potential Impacts for the Preferred Alternative ¹

Metric Category	Impacts ⁴		
	Permanent	Temporary	LOD Total
Wetlands			
Total acreage of wetlands ⁴	26.5	20.6	47.1
Total acreage of high-quality wetlands ²	17.4	19.4	36.8
Total acreage of medium quality wetlands ²	4.5	1.1	5.5
Total acreage of low-quality wetlands ²	4.6	0.2	4.8
Streams			
Total linear feet of streams ⁴	560.0	863.0	1,423.0
Total linear feet of high-quality streams ³	510.0	763.0	1,273.0
Total linear feet of medium quality streams ³	50.0	100.0	151.0
Total acreage of streams ⁴	2.4	4.5	6.9
Total acreage of high-quality streams ³	1.4	2.6	4.0
Total acreage of medium quality streams ³	1.0	2.0	3.0
Surface Waters (ditches)			
Total linear feet of surface waters	15	166	181
Total acreage of surface waters	0.0	0.0	0.0

Notes:

There is no overlap between permanent and temporary impacts within the LOD.

¹ Areas have been rounded to the nearest tenth place. Lengths have been rounded to the nearest whole number.

² Quality of wetlands was based on results from the NC WAM functional assessment ratings. Wetland functional ratings have not been verified by USACE.

³ Quality of streams was based on results from the NC SAM functional assessment ratings. Stream functional ratings have not been verified by USACE.

⁴The discrepancy in totals is due to rounding. Totals were calculated using GIS.

3.11.4 Potential Mitigation Strategies and/or Commitments

Prior to permitting and final design activities, the USACE would determine what Section 404 permit would be required of the Project and would define the appropriate mitigation requirements for the Project.

If it is determined that compensatory mitigation would be required for impacts to WOTUS as a result of the Project, mitigation opportunities would be investigated in consultation with USACE as part of the Section 404 permitting process.

3.12 NAVIGATION

3.12.1 Introduction and Methodology

In coordination with the USCG, the City of Wilmington and FRA performed extensive research and analysis on waterway usage as well as the sizes and frequencies of vessels that navigate the Cape Fear River within the Study Area. The Navigational Impact Reports (NIRs) prepared by the City and submitted to USCG⁵⁸ document this information and are included in Appendix E. Since two new bridge crossings over the Cape Fear River are proposed as part of the Preferred Alternative in two distinct locations, two separate NIRs were developed to accurately reflect the particular waterway characteristics at each proposed bridge location.

The two primary data sources utilized for both NIRs were Automatic Identification System (AIS) data made available by the Bureau of Ocean Energy Management (BOEM) and the National Oceanic and Atmospheric Administration (NOAA) at marinecadastre.gov for coastal planning purposes and bridge lift logs. As part of the development of the NIRs, the City posted draft versions of the documents online and solicited comments from both the maritime community and the general public from June 28 through July 26, 2021. Stakeholder coordination took place throughout the development of the NIRs and culminated with a 30-day public comment period. The City advertised the opportunity to provide feedback via direct communications with numerous stakeholders, issuing a press release that generated media coverage, advertising on various social media platforms, presenting at public meetings, and various other means of traditional advertisement.

Based on the existing navigational clearances provided by the existing structures over the waterway, as well as numerous other variables and considerations analyzed in the NIRs, recommendations for navigational clearances were proposed for the Project by the City of Wilmington. A summary of the public comments received and the formal response from USCG are included in Appendix E.

3.12.2 Affected Environment

The Cape Fear River has been designated by the USACE as a Navigable Water under Section 10 of the Rivers and Harbors Act (33 U.S.C. §403). The existing bridges upstream and downstream of the Preferred Alternative Crossings are included in Table 3-19 and shown on Figure 3-14. Four of these structures are moveable span bridges offering varying horizontal and vertical clearances for navigation in the open, closed, and resting positions (note that the closed and resting positions are the same for the existing bridges). No bridge crossings currently exist downstream of the Cape Fear Memorial Bridge within the Study Area. However, it should be noted that there is a downstream overhead transmission line crossing the Cape Fear River with a vertical clearance of 216 feet.

⁵⁸ City of Wilmington. 2021. Navigation Impact Report Wilmington Harbor and Navigation Impact Report Cape Fear Above Wilmington, 2021

Table 3-19: Existing Bridges Upstream and Downstream of the Preferred Alternative Crossings

Bridge	Crossing	Approximate Waterway Milepost	Chanel Depth (MHW)	Vertical Clearance (MHW)	Horizontal Clearance
Cape Fear Memorial Bridge	Wilmington Harbor/Northeast Cape Fear River	26.8	32 feet	65' Closed/ 135' Open	350 feet
Isabel Holmes Bridge	Wilmington Harbor/Northeast Cape Fear River	1.5	32 feet	40' Closed/ Unlimited Open	200 feet
CSXT Hilton Bascule Bridge	Wilmington Harbor/Northeast Cape Fear River	1.0	25 feet	4' Closed/ Unlimited Open	200 feet
US 421 / 74 Bridge	Cape Fear River Above Wilmington	30	25 feet	55'	120 feet
CSXT SE Line Navassa Drawbridge	Cape Fear River Above Wilmington	34	12 feet	9' Closed/ Unlimited Open	102 feet

Note: MHW= Mean High Water

Analysis of AIS data and NCDOT’s bridge lift logs revealed that all vessels of significant size use the waterway to serve the single active industry upstream of the CSXT Hilton Bascule Bridge. Thus, all of the largest vessels using the waterway transit the Cape Fear Memorial Bridge, the Isabel Holmes Bridge, and the CSXT Hilton Bascule Bridge. The limiting clearances across these three bridges are 200 feet horizontal and 135 feet vertical.

Several commercial waterway users are located downstream of the proposed bridge locations, the largest of which is the NCSPA’s Port of Wilmington. The Port sees the largest vessels in the area, but these vessels do not operate further north than the turning basin, which is located approximately one mile downstream of the proposed bridge site. Between the proposed bridge location and the turning basin are two facilities receiving commercial freight vessels – Buckeye Terminal and Colonial Terminal – however, these vessels never transit the Cape Fear Memorial Bridge.

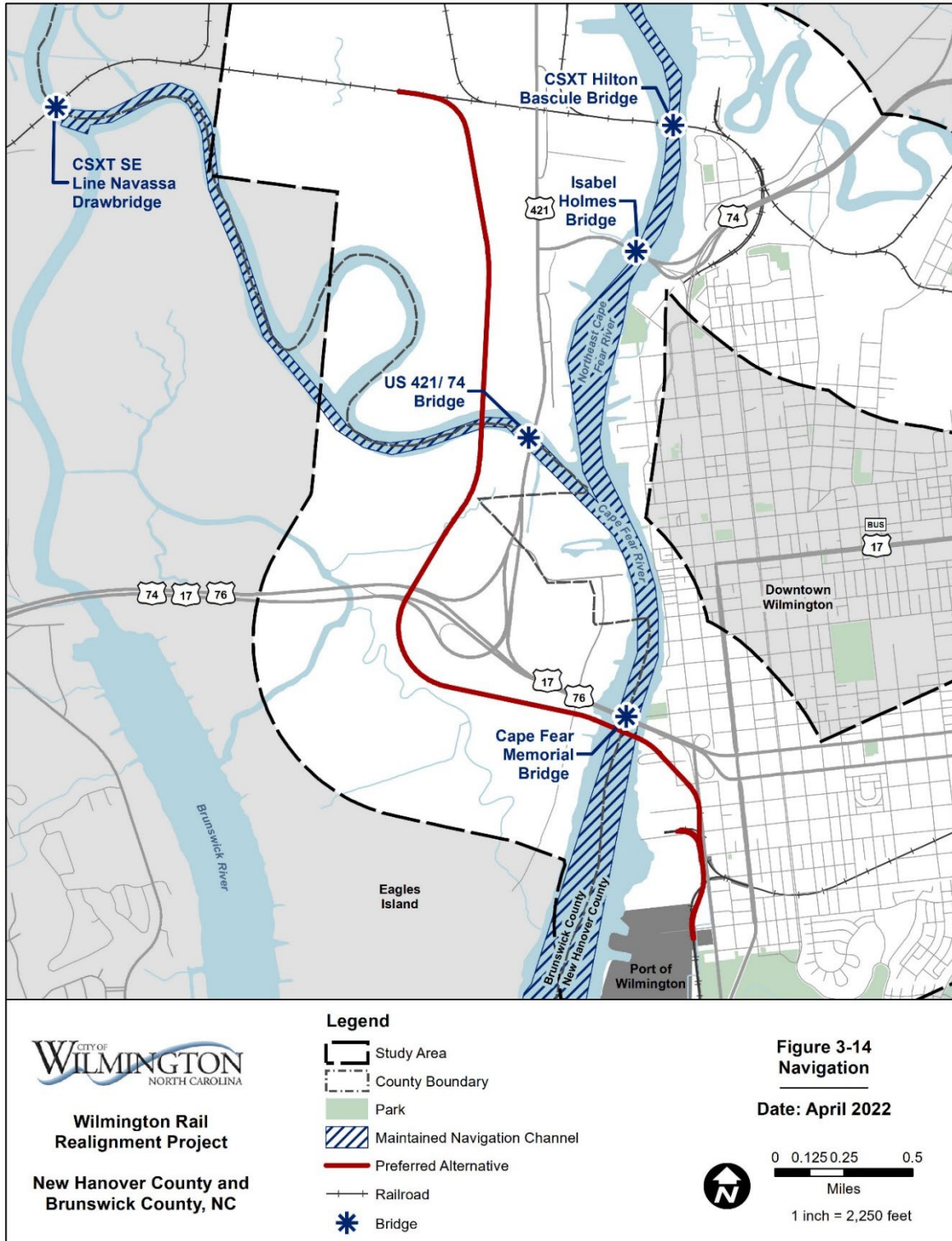
3.12.3 Environmental Consequences

NO-BUILD ALTERNATIVE

Under the No-Build Alternative, no changes to the alignment of the existing freight line occur; therefore, maritime traffic would continue to navigate the Cape Fear River under existing conditions, and no impacts to navigation would occur.

Other planned and committed projects within the Study Area could have navigation impacts. However, any impacts to navigation because of those projects would be the responsibility of the implementing parties for those projects.

Figure 3-14: Navigation



PREFERRED ALTERNATIVE

The Preferred Alternative proposes two new moveable span, single-track bridges crossing the Cape Fear River in two separate locations. The first proposed railroad bridge site would be located immediately south (downstream) of the Cape Fear Memorial Bridge (see Figure 3-14). The proposed location of the bridge was primarily driven by coordination with NCDOT and the WMPO related to the planned replacement of the Cape Fear Memorial Bridge. Four options were considered by NCDOT for the replacement of the Cape Fear Memorial Bridge. One of the four options from the feasibility study includes an independent rail superstructure adjacent to the highway structure, both of which would be supported by a shared substructure. The Project Team determined the proposed bridge was compatible with all of NCDOT's feasibility study options for the replacement of the Cape Fear Memorial Bridge, which is to say the proposed bridge location presented in the NIR would be expected to be compatible with the replacement of the Cape Fear Memorial Bridge as either a stand-alone railroad bridge or as a dual mode bridge with a shared substructure.

The NIR noted that the curvature of the channel immediately upstream of the proposed bridge location is approximately 15 degrees more severe than the curvature of the channel further upstream, where the existing structures with 200-foot horizontal navigational clearances are located. Under non-ideal conditions, additional horizontal clearance beyond 200 feet was recommended at the proposed bridge location to compensate for the waterway's geometry and to maintain a reasonable margin of safety for the operation of large commercial vessels.

The NIR proposed the following navigational clearances be considered as reasonably meeting the navigational needs of the waterway for this first proposed railroad bridge site crossing the Cape Fear River:

- Horizontal Clearance: 250 feet
- Vertical Clearance: 135 feet in the open position. The bridge would rest in a partially open position that would provide for vertical clearance of 40 feet (matching the vertical clearance of the Isabel Holmes Bridge upstream in the close position) and would only close for passing train traffic. Vertical clearance in the closed position would be approximately 20 feet.

The second proposed railroad bridge site associated with the Preferred Alternative would be located west (upstream) of the fixed highway bridge carrying US 421/US 74 over the Cape Fear River above Wilmington. The NIR proposed the following navigational clearances be considered as reasonably meeting the navigational needs of the waterway for this proposed railroad bridge:

- Horizontal Clearance: 102 feet (matching the upstream CSXT Navassa Drawbridge's clearance)
- Vertical Clearance: Unlimited in the open position, 9 feet closed (matching the clearances of the CSXT Navassa Drawbridge upstream)

The Preferred Alternative would not be expected to affect the safe, efficient movement of any segment of present or prospective recreational or commercial fleet operations on the Cape Fear River, as the proposed bridges would be no more restrictive than structures over the waterway which are presently transited by these vessels. See the Navigation Impact Reports and the preliminary navigation clearance determination from USCG issued April 4, 2022 for more details (Appendix E).

3.12.4 Potential Mitigation Strategies and/or Commitments

No mitigation would be proposed since no unavoidable impacts to navigation have been identified. If there is a fill discharge in waters or wetlands, a Section 404 permit would be required. The City of Wilmington would acquire all necessary permits and continue to coordinate with the USCG and USACE as the Project progresses.

3.13 FLOODPLAINS AND FLOOD ZONES

3.13.1 Introduction and Methodology

Executive Order 11988,⁵⁹ Floodplain Management, requires Federal agencies to avoid, to the greatest extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative.

A desktop review utilizing GIS data from the Federal Emergency Management Agency (FEMA) floodplain mapping⁶⁰ was used to identify and evaluate floodplains in the Study Area. Encroachment of floodplains could cause changes to the base flood elevation (BFE), floodplain capacity, flow, or floodwater retention of a floodplain. USDOT Order 5650.2, *Floodplain Management and Protection* defines a significant encroachment as "an encroachment resulting in one or more of the following construction or flood-related impacts: (1) a considerable probability of loss of human life; (2) likely future damage associated with the encroachment that could be substantial in cost or of extent; and (3) a notable adverse impact on 'natural and beneficial floodplain values.'

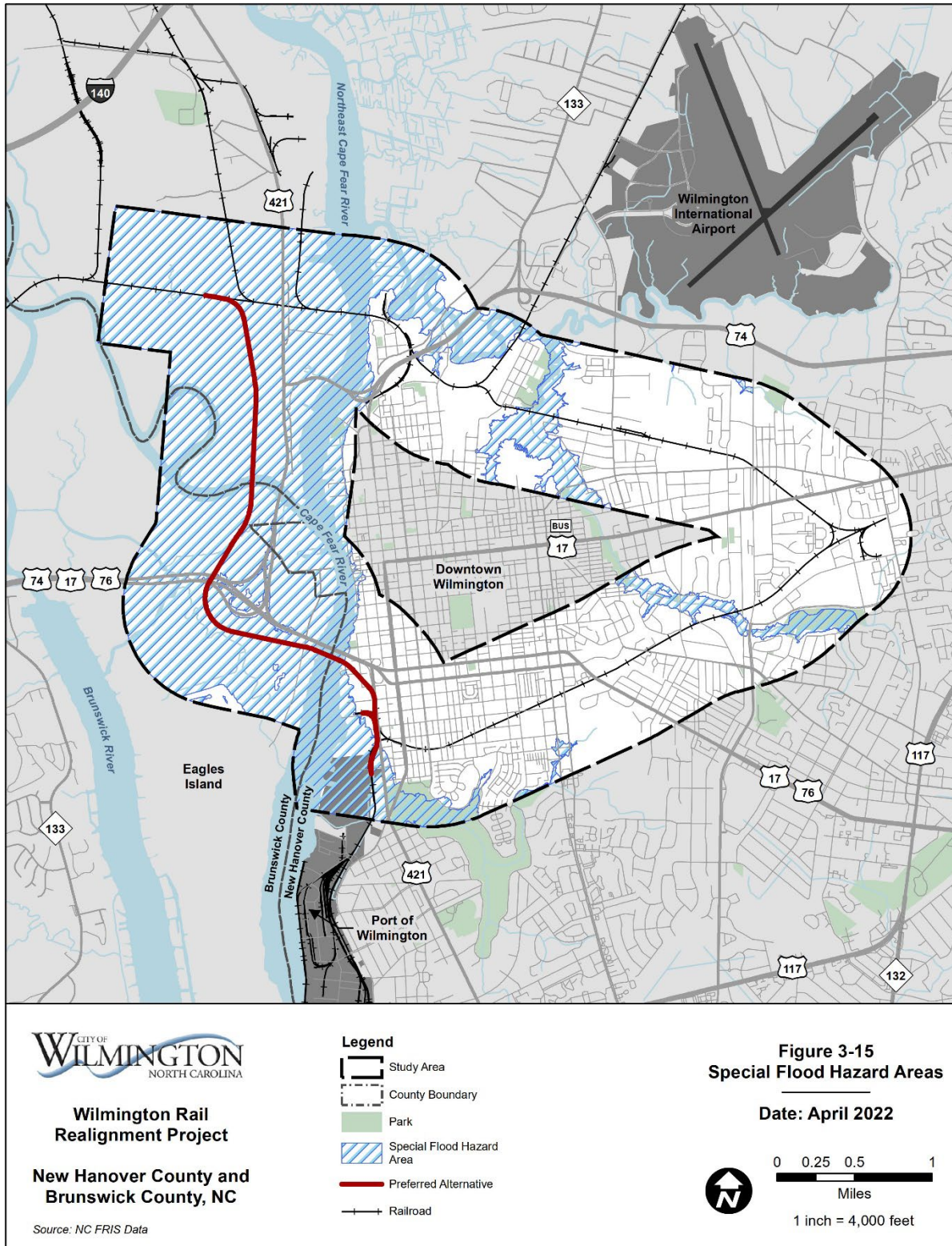
3.13.2 Affected Environment

FEMA issues Flood Insurance Rate Maps (FIRMs) as a part of the National Flood Insurance Program, which designates the Special Flood Hazard Area (SFHA) in land areas covered by the floodwaters with a one percent annual chance of flooding, also known as "100-year" flood areas. A large portion of the Study Area, primarily Eagles Island, falls within areas designated as SFHA (see Figure 3-15). The SFHA in the Study Area is associated with the Cape Fear River and several tributaries.

⁵⁹ Office of the Federal Register. May 1977. Executive Order 11988 Floodplain Management. <https://www.archives.gov/federal-register/codification/executive-order/11988.html>

⁶⁰ NCDPS, Emergency Management. 2016. North Carolina Spatial Data Download, Flood Zones Data Download, Flood Hazard Area shapefile. <https://sdd.nc.gov/DataDownload.aspx#> (Accessed April 26, 2021).

Figure 3-15: Special Flood Hazard Areas



3.13.3 Environmental Consequences

NO-BUILD ALTERNATIVE

Under the No-Build Alternative, the Project would not be built. Freight traffic would continue to use the existing Beltline; therefore, no additional development within or changes to the SFHA or BFE in the Study Area would occur as a result of the Project.

Other planned and committed projects within the Study Area may result in impacts to SFHA. However, impacts associated with those projects would be the responsibility of the implementing parties for those projects.

PREFERRED ALTERNATIVE

The Preferred Alternative would be constructed and operated largely within a 100-year floodplain. As seen in Table 3-20 below, approximately 68 acres (86 percent of the LOD) occur in SFHA, as identified on the FEMA FIRMs. Potential impacts of the Preferred Alternative to floodplains may result from filling, grading, new bridge structures, and other activities. The exact impact of this activity remains unknown at this time. As the design for the Project progresses, coordination with governing agencies would be required to ensure there would be no change to the BFE, floodplain capacity, flow, or floodwater retention of the SFHA resulting from the Project.

Table 3-20: Preferred Alternative Impacts to SFHA (Acres)

Permanent Impacts	Temporary Impacts	LOD Total Impacts
36.9	31.2	68.1

3.13.4 Potential Mitigation Strategies and/or Commitments

As planning for the Project progresses, the City will prepare a detailed SFHA evaluation. This evaluation would identify specific mitigation measures and required permits for developing the rail line within these areas. The Preferred Alternative would be designed to meet the relevant requirements of Executive Order 11988, *Floodplain Management*, and USDOT Order 5650.2, *Floodplain Management and Protection* for developing in floodplains. All conveyance structures in FEMA 100-year floodplains would be designed to obtain a no-rise certification and carry the 100-year storm event. Coordination with local units of government, the state, and FEMA will occur as the Project progresses.

3.14 COASTAL ZONES AND AREAS OF ENVIRONMENTAL CONCERN

3.14.1 Introduction and Methodology

The Coastal Zone Management Act (CZMA) of 1972 (16 U.S.C. §§ 1451 – 1464),⁶¹ administered by NOAA, established a cooperative program between the Federal government and the coastal states for the management and protection of coastal resources. Coastal states implement the CZMA through Federally approved coastal management programs. The NCDEQ DCM carries out North Carolina’s Coastal Area Management Act (CAMA)⁶² and the Federal CZMA in the state’s coastal counties and also implements the Coastal Resources Commission’s (CRC) state rules and policies. The NCDEQ DCM regulates development activities in the coastal zone through two principal mechanisms: (1) Federal consistency determinations and (2) the CAMA Major Permit Program. A Federal consistency determination involves the DCM’s review of the proposed project for conformance with the enforceable policies of the state’s certified coastal management program pursuant to 15 CFR § 930. Federal agency activities are reviewed by NCDEQ DCM under the Federal consistency provisions of the CMZA (16 U.S.C. § 1456). The term “federal agency activity” includes a range of activities performed by or on behalf of a Federal agency where coastal effects are reasonably foreseeable and does not include the issuance of a Federal license or permit or the granting of Federal assistance to an applicant agency (15 CFR § 930.31(a)). Non-Federal projects that involve work in Areas of Environmental Concern (AECs) are regulated by NCDEQ DCM through the issuance of CAMA Major Permits. AECs are designated by the Coastal Resources Commission as areas of natural importance that fall under four categories: Estuarine and Ocean System, Ocean Hazard System, Public Water Supplies, and Natural and Cultural Resource Areas. Both Brunswick County and New Hanover County are designated coastal counties and are subject to the NCDEQ’s Coastal Resources Commission rules and policies, including CZMA requirements⁶³. The Project would be subject to regulation under the CAMA Major Permit program as a non-Federal development activity involving work in AECs of the Estuarine and Ocean System, including Public Trust Waters, Estuarine Waters, Coastal Shorelines, and Coastal Wetlands.

Coastal zone resources were evaluated through desktop analyses utilizing GIS data, web-based applications, online resources, and data collected in the field. Field work was conducted between February 22 and February 26, 2021, and between March 1 and March 5, 2021. Field work activities included reviewing the CAMA AECs (coastal wetlands, coastal shorelines, estuarine waters, and public trust areas) within the LOD.

⁶¹ NOAA Office for Coastal Management. Coastal Zone Management Act of 1972. Accessed January 2022. <https://coast.noaa.gov/czm/act/>

⁶² NCDEQ. Coastal Area Management Act. Accessed January 2022. <https://deq.nc.gov/about/divisions/coastal-management/coastal-management-rules/cama>

⁶³ NCDEQ. CAMA Counties. Accessed April 2022. <https://deq.nc.gov/about/divisions/coastal-management/about-coastal-management/cama-counties>

3.14.2 Affected Environment

CAMA AECs were identified in the LOD in the form of public trust areas, estuarine waters, and coastal wetlands. CAMA AECs are coastal areas that contain natural hazards or important environmental, social, economic, or aesthetic values. The features designated as AECs, including coastal wetlands, estuarine waters and shorelines, as well as public trust areas and shorelines, are reflected in the Natural Resources Technical Report included in Appendix D and are displayed in Figure 3-16 (1-6).

3.14.3 Environmental Consequences

NO-BUILD ALTERNATIVE

Under the No-Build Alternative, the Project would not be built. Freight trains would continue to operate along the existing Beltline. Therefore, no changes to the coastal zone or AECs in the Study Area would occur.

Other planned and committed projects within the Study Area may result in impacts to coastal zones or AECs. However, impacts associated with those projects would be the responsibility of the implementing party.

PREFERRED ALTERNATIVE

As seen in Figure 3-16(1-6), there would be CAMA AECs impacted by the Preferred Alternative, including public trust areas, public trust area shorelines, estuarine waters, coastal shorelines, and coastal wetlands. On December 9, 2021, the Project Team met with the NCDEQ DCM to review potential coastal wetland locations that may be impacted by the Preferred Alternative. As of the publication of this EA, NCDEQ DCM has not made a determination of coastal wetland boundaries within the LOD but has agreed with the approximate locations depicted in Figure 3-16 (1-6) and discussed in the Natural Resources Technical Report (NRTR) (Appendix D). The normal high-water line was not delineated within the LOD. Given the size of the LOD and the number of tidal marshes in the area, NCDEQ DCM suggested a mean high-water line be used in place of a normal high-water line to determine the boundaries of the public trust areas, public trust area shorelines, and coastal shorelines AECs. Before the coastal zone consistency determination, the City would need to conduct a topographic survey and analyze with tidal datum to determine the mean high-water line. The public trust areas, public trust area shorelines, and coastal shorelines presented in this EA and in the NRTR are from GIS data created by NCDOT⁶⁴ and provide a general location of where AECs likely exist within the LOD.

⁶⁴ NCDOT. 2022. ATLAS Screening Tool.

Figure 3-16 (1): Potential Area of Environmental Concern

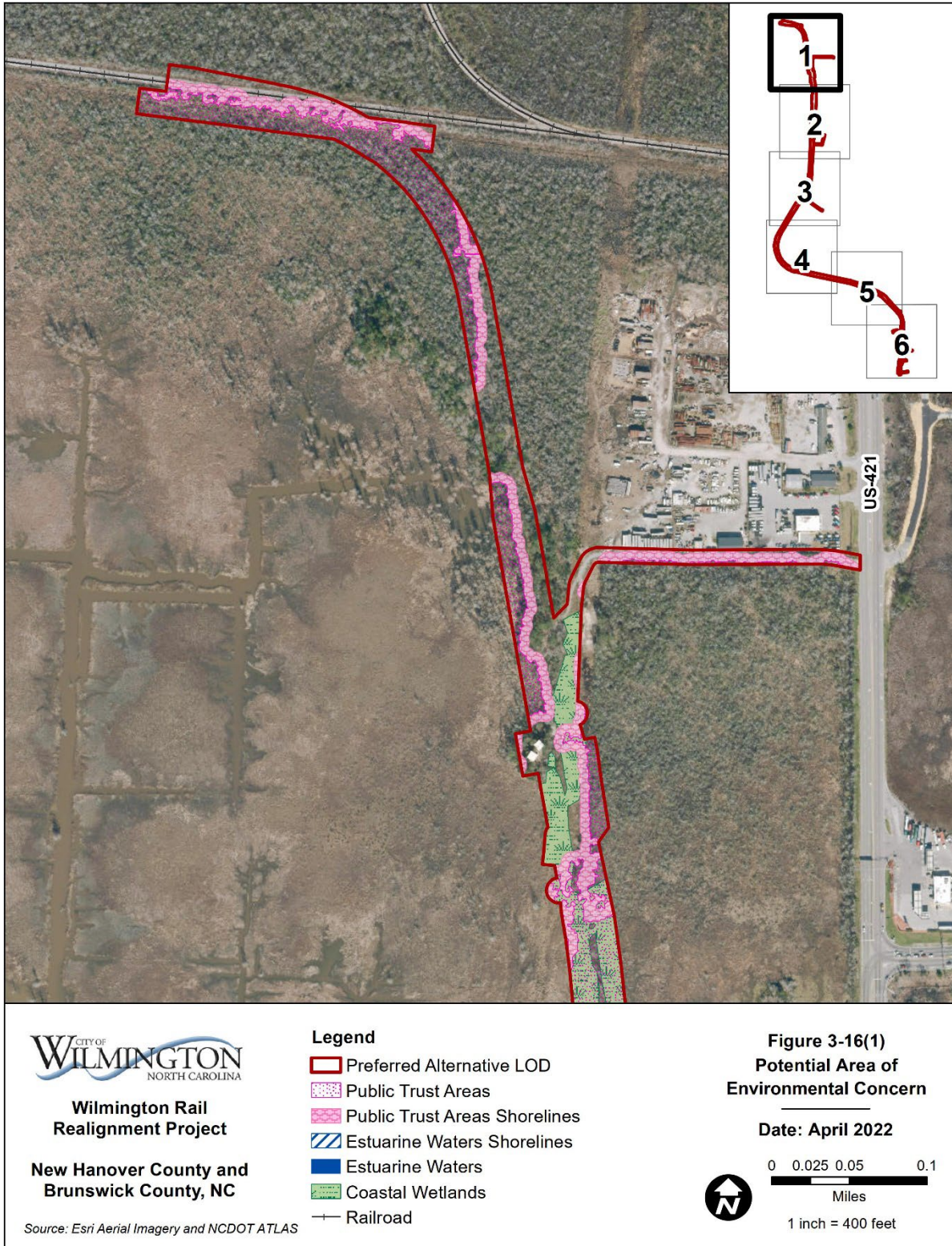
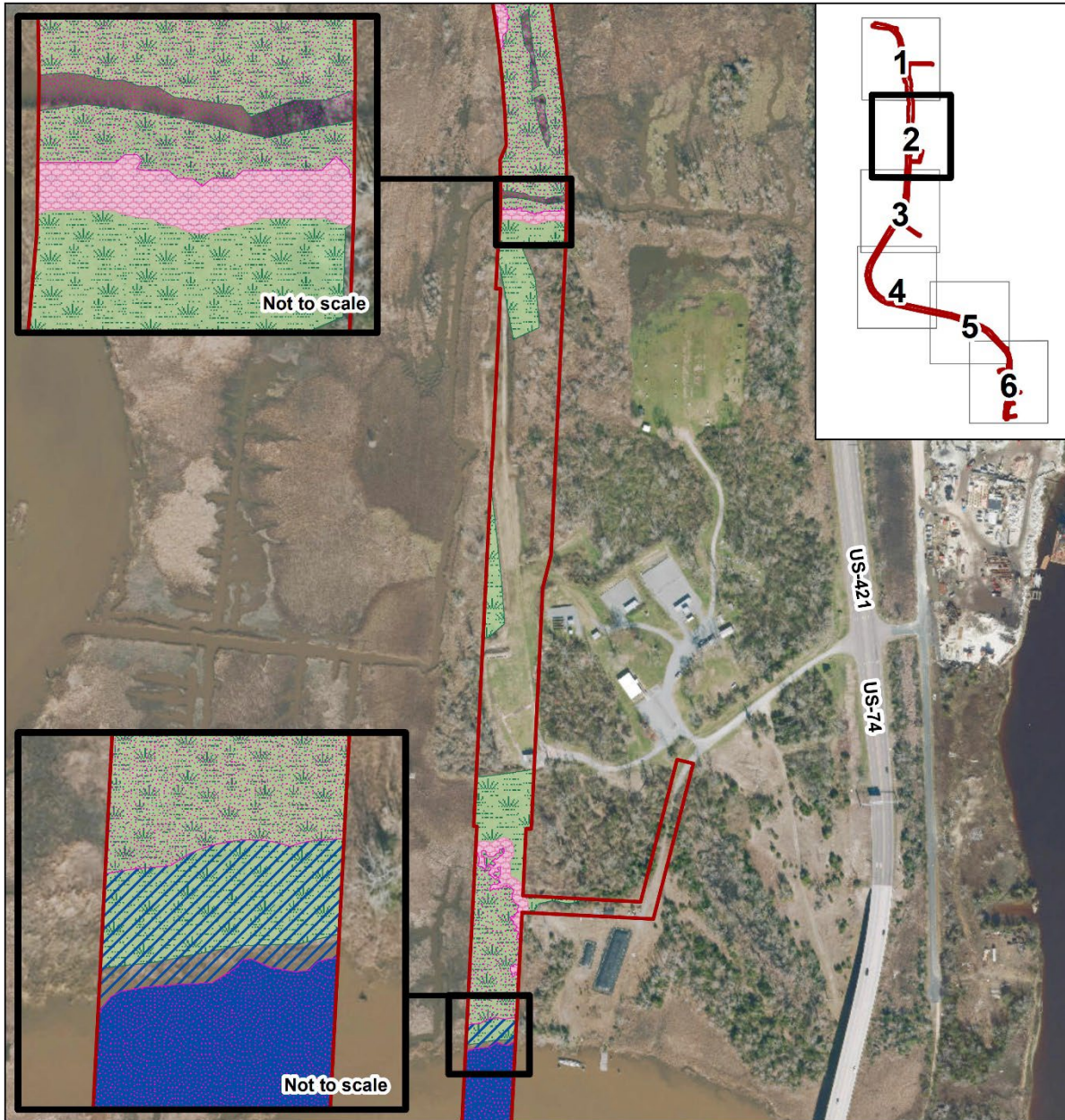


Figure 3-16 (2): Potential Area of Environmental Concern



**Wilmington Rail
Realignment Project**

**New Hanover County and
Brunswick County, NC**

Source: Esri Aerial Imagery and NCDOT ATLAS

Legend

- Preferred Alternative LOD
- Public Trust Areas
- Public Trust Areas Shorelines
- Estuarine Waters Shorelines
- Estuarine Waters
- Coastal Wetlands
- Railroad

**Figure 3-16(2)
Potential Area of
Environmental Concern**

Date: April 2022

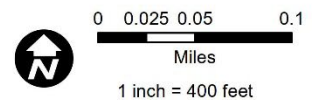


Figure 3-16 (3): Potential Area of Environmental Concern

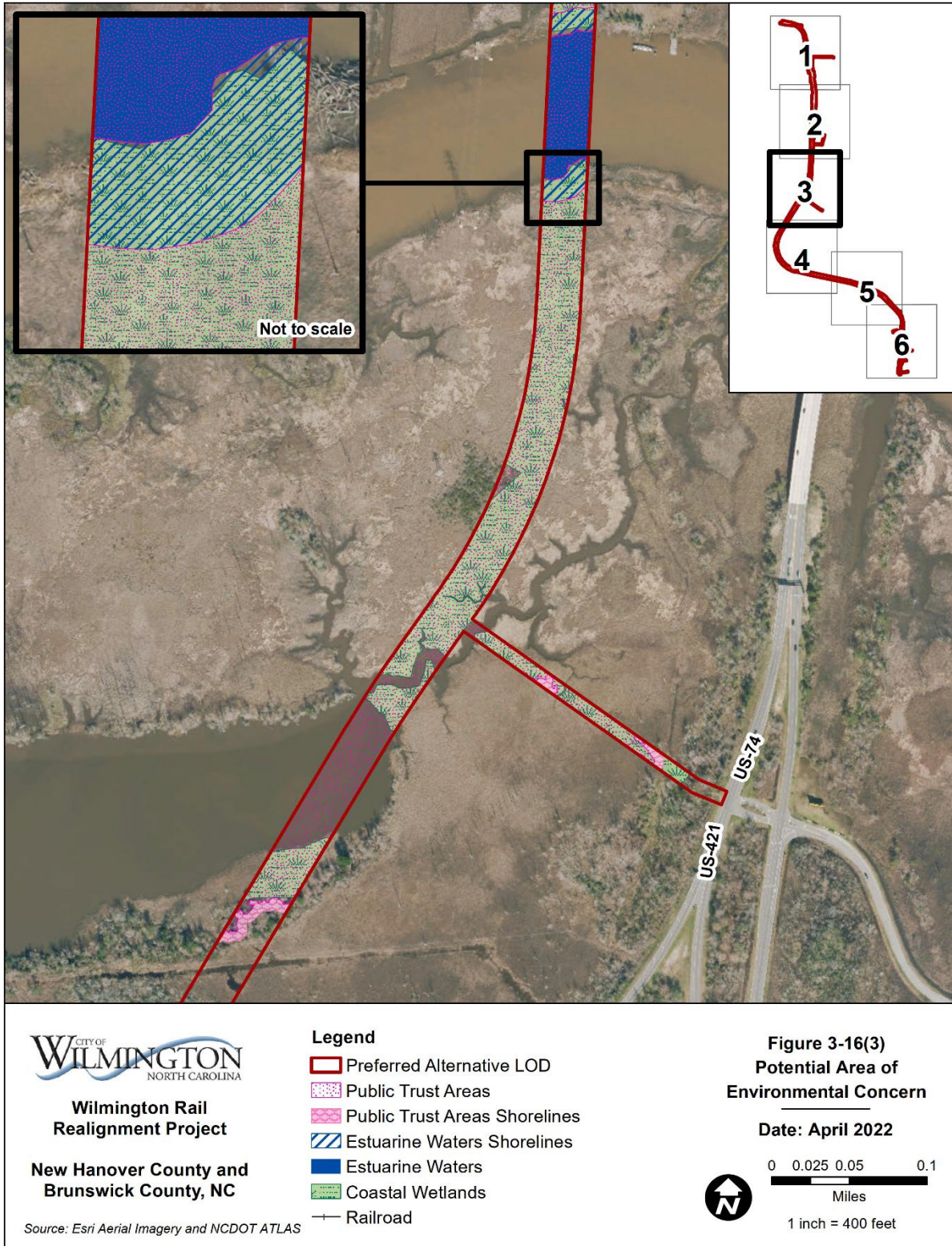


Figure 3-16 (4): Potential Area of Environmental Concern

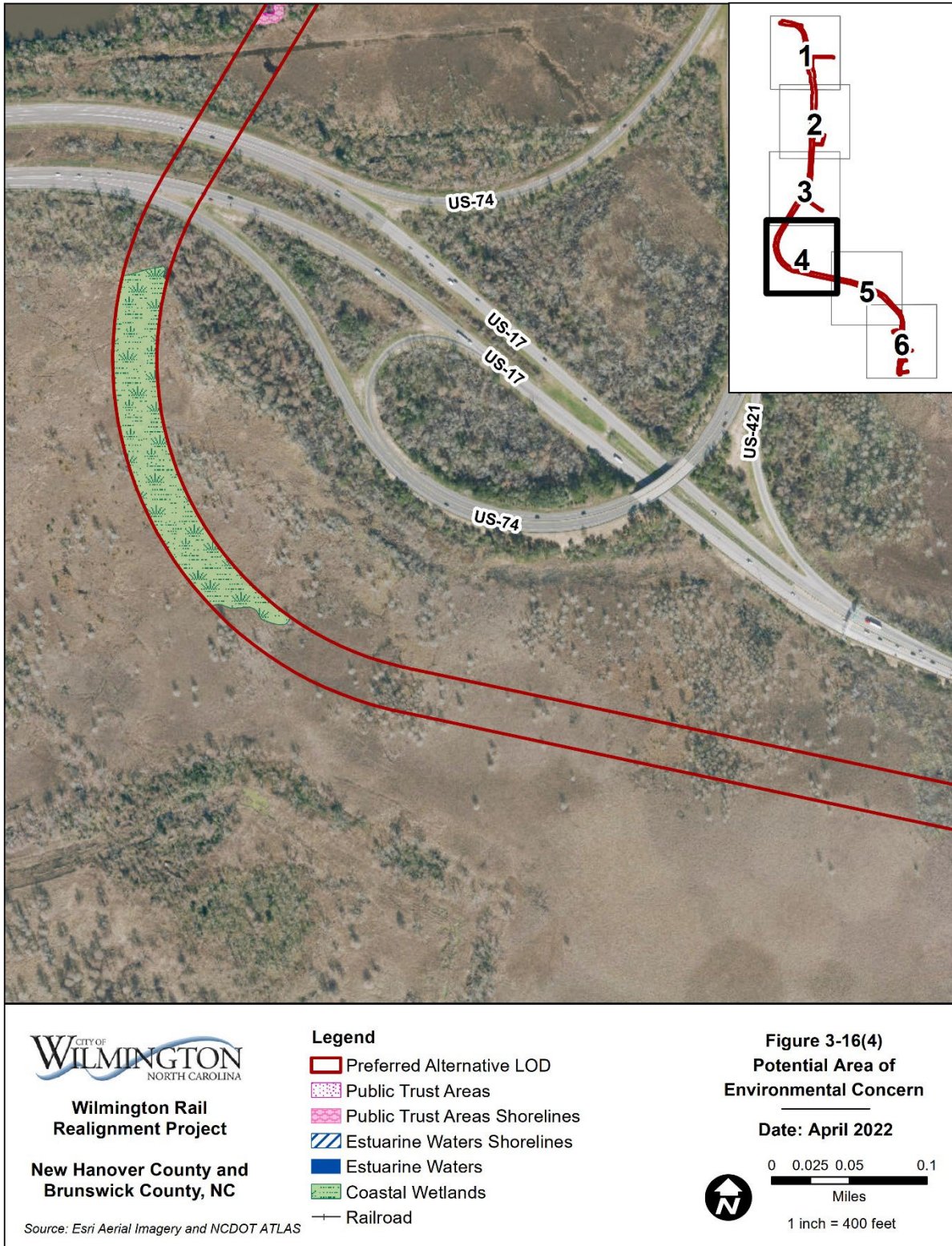


Figure 3-16 (5): Potential Area of Environmental Concern

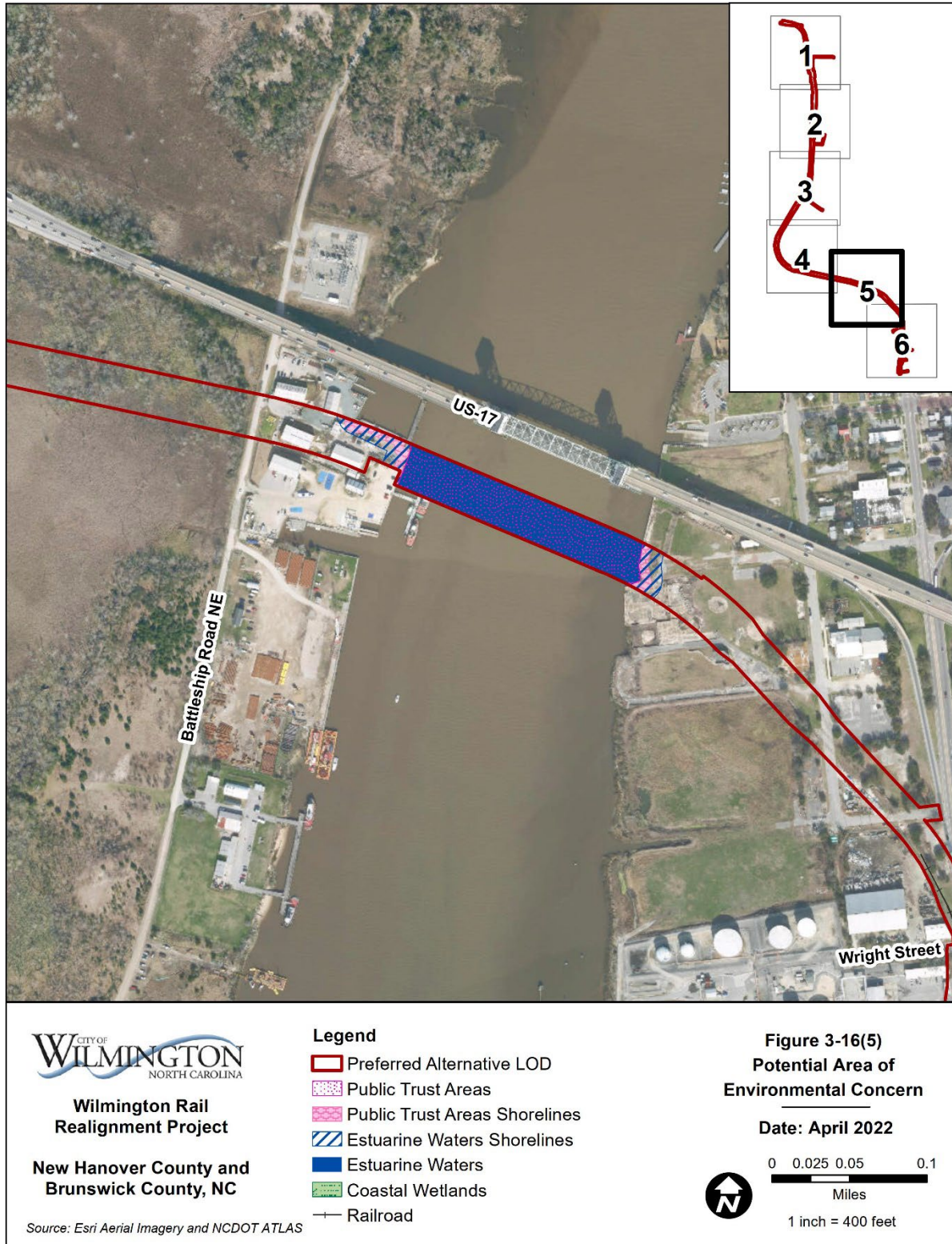
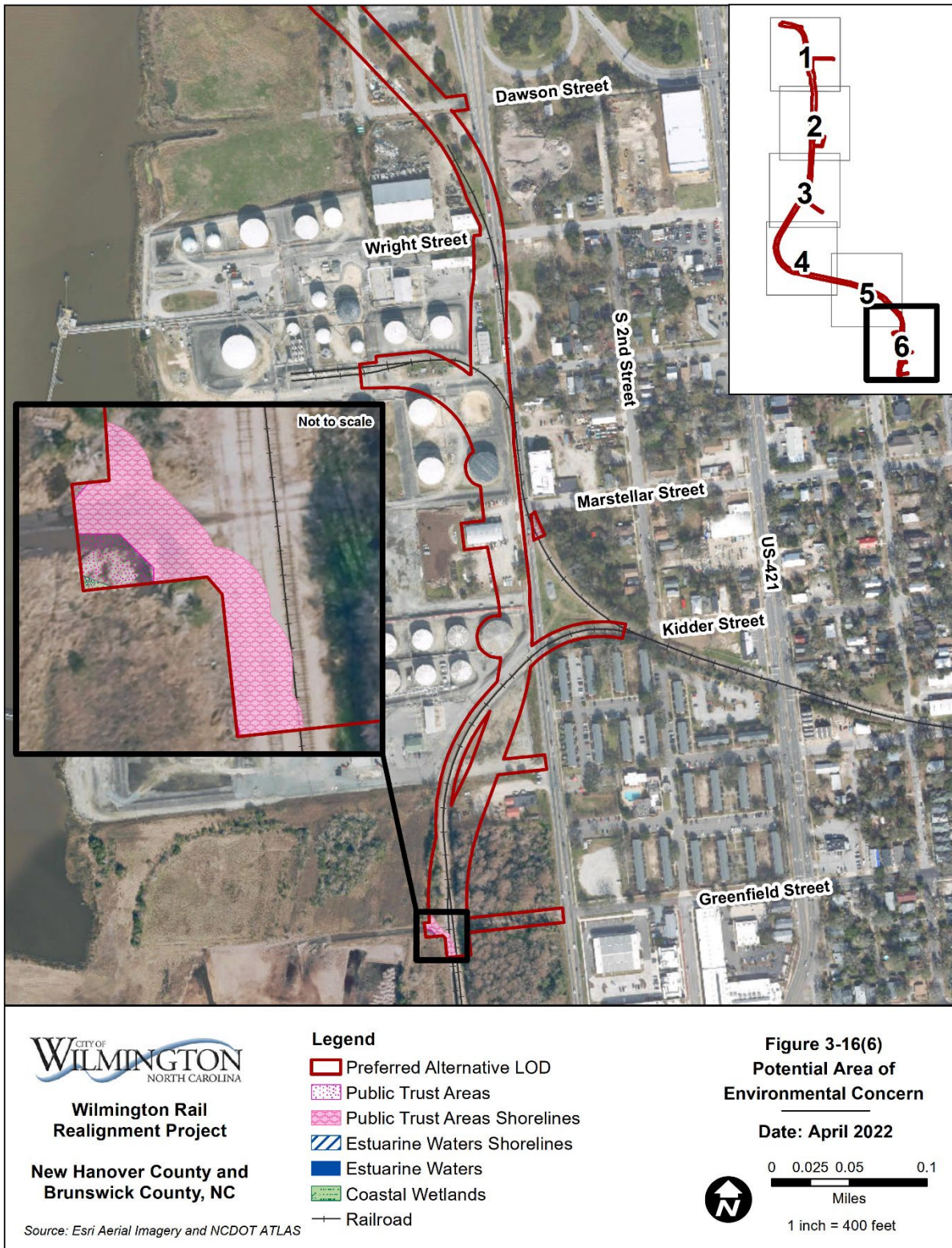


Figure 3-16 (6): Potential Area of Environmental Concern



3.14.4 Potential Mitigation Strategies and/or Commitments

The proposed action is subject to regulation under the CAMA Major Permit program as a nonfederal development activity involving work in AECs; therefore, the City would need to acquire a CAMA Major Permit from the NCDEQ DCM for all impacts to designated CAMA AECs. As the Project design progresses, the City will avoid, minimize, and mitigate impacts to AECs to the maximum extent practicable in coordination with regulatory and environmental resource agencies. During the Project's permitting process, compensatory mitigation may be required.

3.15 THREATENED AND ENDANGERED SPECIES/CRITICAL HABITATS

3.15.1 Introduction and Methodology

Regulations set forth in the Endangered Species Act of 1973 (ESA), the Bald and Golden Eagle Protection Act (BGEPA), the Migratory Bird Treaty Act (MBTA), and Essential Fish Habitat (EFH) Consultation are considered as part of this section to ensure the protection applicable to species and critical habitats.

Federally listed threatened and endangered species and their critical habitats are legally protected under the provisions of Section 7 of the ESA of 1973, as amended (16 U.S.C. § 1531).⁶⁵ Any action that is likely to adversely affect a Federally protected species would be subject to review by the USFWS and/or NOAA National Marine Fisheries Service (NMFS).

The ESA defines endangered species as any species that is in danger of extinction throughout all or a significant portion of its range. Threatened species are defined in the ESA as any species that is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range. Endangered and threatened species are protected by the take prohibitions of Section 9 under the ESA. USFWS defines candidate species as a species for which the USFWS has sufficient information on its biological status and threats to propose it as endangered or threatened under the ESA but for which development of a proposed listing regulation is precluded by other higher priority listing activities. Candidate species are not protected by the take prohibitions of Section 9 of the ESA.

The BGEPA (16 U.S.C. § 668)⁶⁶ and the MBTA (16 U.S.C. § 703)⁶⁷ are also implemented by USFWS. The MBTA prohibits the take of protected migratory bird species without prior

⁶⁵ United States Code. Title 16 § 1531 Endangered Species Act of 1973.

[https://uscode.house.gov/view.xhtml?req=\(title:16%20section:1531%20edition:prelim\)%20OR%20\(granuleid:USC-prelim-title16-section1531\)&f=treesort&num=0&edition=prelim](https://uscode.house.gov/view.xhtml?req=(title:16%20section:1531%20edition:prelim)%20OR%20(granuleid:USC-prelim-title16-section1531)&f=treesort&num=0&edition=prelim)

⁶⁶ United States Code. Title 16 § 668. Bald and golden eagles.

<https://uscode.house.gov/view.xhtml?path=/prelim@title16/chapter5A/subchapter2&edition=prelim>

⁶⁷ United States Code. Title 16 § 703. Migratory Bird Treaty. United States Code. Title 16 § 703. Migratory Bird Treaty.

<http://uscode.house.gov/view.xhtml?req=granuleid%3AUSC-prelim-title16-chapter7-subchapter2&saved=%7CKHRpdGxlOjE2IHNIY3Rpb246NzAzlGVkaXRpb246cHJlbGltKSBPUIAoZ3JhbnVsZWlKOIVTQy1wcmVsaW0tdGI0bGUxNi1zZWN0aW9uNzAzKQ%3D%3D%7CdHJIZXNvcnQ%3D%7C%7C0%7Cfalse%7Cprelim&edition=prelim>

authorization. Furthermore, the USFWS lists migratory birds as a particular concern because they are included on the USFWS's Birds of Conservation Concern (BCC) list. Bird species listed under BCC are those that are of the highest conservation priority for USFWS. Although bald eagles have been delisted under the ESA, the BGEPA prohibits the take of bald eagles unless authorized by a permit. Take includes actions that would pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb bald eagles (16 U.S.C. § 668; 50 C.F.R. § 22.3).⁶⁸ Take can also include the removal of an active or inactive bald eagle nest. Habitat for the bald eagle primarily consists of mature forests in proximity to large bodies of open water for foraging. Large dominant trees are utilized for nesting sites, typically within one mile of open water.

In accordance with the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA), as amended by the Sustainable Fisheries Act of 1996, an EFH Assessment has been prepared to address the potential effects of the Project on EFH and Federally managed fisheries. EFH is defined as "those waters and substrate necessary to fish for spawning, breeding, feeding, or growth to maturity" (16 U.S.C. § 1802, 50 C.F.R § 600.10).^{69, 70}

The USFWS Information for Planning and Consultation (IPaC) official species list was utilized along with other desktop reviews utilizing GIS data to determine the protected species and habitats known to occur in Brunswick and New Hanover counties. Available data for survey windows and habitat descriptions from the NCDOT were used.^{71 72} Habitat requirements for each species are based on the best currently available information from referenced literature, NCDOT, USFWS, and NMFS. Field work was conducted between February 22 and February 26, 2021, and between March 1 and March 5, 2021. Field work activities included habitat assessments and terrestrial protected species surveys.

3.15.2 Affected Environment

ENDANGERED SPECIES ACT PROTECTED SPECIES

The USFWS IPaC official species list was generated on October 5th, 2023 for the Preferred Alternative's LOD and included 13 Federally protected species under the ESA, one species

⁶⁸ Code of Federal Regulations. Title 50 22.3. Definitions. <https://www.ecfr.gov/on/2022-01-07/title-50/chapter-1/subchapter-B/part-22/subpart-A/section-22.3>
<https://www.ecfr.gov/on/2022-01-07/title-50/chapter-1/subchapter-B/part-22/subpart-A/section-22.3>

⁶⁹United States Code. Title 16 § 1802: Definitions
[https://uscode.house.gov/view.xhtml?req=\(title:16%20section:1802%20edition:prelim](https://uscode.house.gov/view.xhtml?req=(title:16%20section:1802%20edition:prelim)

⁷⁰ CFR. Title 50 § 600.10. Definitions.
https://www.govregs.com/regulations/title50_chapterVI_part600_subpartA_section600.10

⁷¹ NCDOT. 2021b. Protected Species Protocols – Survey Windows – Habitat Descriptions.
<https://connect.ncdot.gov/resources/Environmental/EAU/ECAP/Documents/Protected%20Species%20Protocols%20-%20Survey%20Windows%20-%20Habitat%20Descriptions.pdf> (Accessed March 29, 2021).

⁷² NCDOT. 2019. Important U.S. Fish and Wildlife (USFWS) Animal At-Risk Species (ARS) in North Carolina & Survey Windows.
https://connect.ncdot.gov/resources/Environmental/Compliance%20Guides%20and%20Procedures/Animal%20Survey%20Windows%20At%20Risk%20Species_20190813.pdf. (Accessed January 4, 2022).

proposed for listing under the ESA, and one candidate species.⁷³ In addition to the IPaC listed species, the NOAA NMFS lists ten other species protected under the ESA. These include two sturgeon species for North Carolina occurring in ocean, brackish, and fresh waters.⁷⁴ For the listed sea turtle species, USFWS has jurisdiction when they are on land and NMFS has jurisdiction when they are in the open water.

The Federally listed species protected under the ESA for the Preferred Alternative's LOD are as follows:

Endangered Species:

Plants:

- Rough-leaved loosestrife (*Lysimachia asperulaefolia*)
- Cooley's meadowrue (*Thalictrum cooleyi*)

Mammals:

- Sei Whale (*Balaenoptera borealis*)
- Blue Whale (*Balaenoptera musculus*)
- Fin Whale (*Balaenoptera physalus*)
- North Atlantic Right Whale (*Eubalaena glacialis*)
- Sperm Whale (*Physeter macrocephalus*)
- Northern long-eared bat (*Myotis septentrionalis*)
- Tricolored bat (*Perimyotis subflavus*) – Proposed

Birds:

- Red-cockaded woodpecker (*Picoides borealis*)

Reptiles:

- Leatherback sea turtle (*Dermochelys coriacea*)
- Hawksbill sea turtle (*Eretmochelys imbricate*)
- Kemp's ridley sea turtle (*Lepidochelys kempii*)

Fish:

- Shortnose sturgeon (*Acipenser brevirostrum*)
- Atlantic sturgeon (*Acipenser oxyrinchus oxyrinchus*)

⁷³ USFWS. 2022. Information for Planning and Consultation. <https://ipac.ecosphere.fws.gov/>

⁷⁴ NOAA, National Marine Fisheries Service (NMFS). 2020b. North Carolina Threatened and Endangered Species and Critical Habitats Under NOAA Fisheries Jurisdiction. <https://www.fisheries.noaa.gov/southeast/consultations/north-carolina> (Accessed February 11, 2021).

Threatened Species:

Plants:

- Seabeach amaranth (*Amaranthus pumilus*)

Mammals:

- West Indian manatee (*Trichechus manatus*)

Birds:

- Rufa red knot (*Calidris canutus rufa*)
- Piping plover (*Charadrius melodus*)

Reptiles:

- American alligator (*Alligator mississippiensis*) - Threatened due to similarity of appearance
- Loggerhead sea turtle (*Caretta caretta*)
- Green sea turtle (*Chelonia mydas*)

Fish:

- Oceanic whitetip shark (*Carcharhinus longimanus*)
- Giant manta ray (*Manta birostris*)

Snails:

- Magnificent ramshorn (*Planorbella magnifica*)

See the NRTR report in Appendix D for more detailed information on each species.

ENDANGERED SPECIES ACT CANDIDATE SPECIES

The USFWS lists the monarch butterfly (*Danaus plexippus*) as a candidate species for protection under the ESA for Brunswick and New Hanover counties. See the NRTR report in Appendix D for more detailed information on this species.

BALD AND GOLDEN EAGLE PROTECTION ACT

The data provided by the North Carolina Natural Heritage Program (NHP) indicated occurrences of bald eagle nests in and within one mile of the LOD. The bald eagle (*Haliaeetus leucocephalus*) is protected under the BGEPA and is enforced by the USFWS. See the NRTR report in Appendix D for more detailed information on this species.

MIGRATORY BIRD TREATY ACT

The USFWS lists 12 migratory birds of particular concern because they are included on the USFWS Birds of Conservation Concern (BCC) list and may occur in the LOD. Bird species listed as BCC are those that are of the highest conservation priority for USFWS. The BCC listed for the Project include the following:

- American kestrel (*Falco sparverius paulus*)
- American oystercatcher (*Haematopus palliatus*)
- Black skimmer (*Rynchops niger*)
- Brown-headed nuthatch (*Sitta pusilla*)
- Chimney swift (*Chaetura pelagica*)
- King rail (*Rallus elegans*)
- Lesser yellowlegs (*Tringa flavipes*)
- Painted bunting (*Passerina ciris*)
- Prairie warbler (*Dendroica discolor*)
- Prothonotary warbler (*Protonotaria citrea*)
- Red-headed woodpecker (*Melanerpes erythrocephalus*)
- Rusty blackbird (*Euphagus carolinus*)
- Saltmarsh sparrow (*Ammodramus caudacutus*)
- Swallow-tailed kite (*Elanoides forficatus*)

See the NRTR report in Appendix D for more detailed information on each species.

ESSENTIAL FISH HABITAT

The NMFS Essential Fish Habitat Mapper identifies the Cape Fear River, Alligator Creek, and surrounding marshes as EFH and Habitat Areas of Particular Concern (HAPC) for penaeid shrimp and fish species.⁷⁵ HAPCs are a subset of EFHs that include areas that are rare, ecologically important to the species, stressed by development, or vulnerable to human disturbances. While these areas do not carry additional restrictions or protections, they may warrant more stringent conservation recommendations⁷⁶ as may be determined by NMFS. The Cape Fear River also contains NCDEQ DMF-designated Primary Nursery Areas (PNA) and anadromous fish spawning areas (AFSA).^{77, 78}

3.15.3 Environmental Consequences

NO-BUILD ALTERNATIVE

Under the No-Build Alternative, the Project would not be built. Freight traffic would continue to use the existing Beltline. Therefore, no new impacts to protected species or habitats within the Study Area would occur.

⁷⁵ NOAA, NMFS. 2021b. Essential Fish Habitat Mapper. <https://www.fisheries.noaa.gov/resource/map/essential-fish-habitat-mapper>

⁷⁶ NOAA, NMFS. 2020a. Habitat Areas of Particular Concern within Essential Fish Habitat. Southeast Advisory Council. <https://www.fisheries.noaa.gov/southeast/habitat-conservation/habitat-areas-particular-concern-within-essential-fish-habitat> (Accessed January 7, 2022).

⁷⁷ NCDEQ, DMF. 2011. Primary nursery Areas Map 27. <https://www.deq.nc.gov/water-quality/coalition-program/maps/primary-nursery-areas/fna-map-27/download> (Accessed February 11, 2021).

⁷⁸ NCDEQ, DMF. 2007. Anadromous Fish Spawning Areas: Cape Fear Area Map 7.

Other planned and committed projects within the Study Area may result in impacts to protected species and/or habitats. However, impacts resulting from those projects would be the responsibility of the implementing party.

PREFERRED ALTERNATIVE

Endangered Species Act Protected Species

After a comparison of the LOD with the resources described in Section 3.15.2, it was determined that several ESA Federally protected species have the potential to occur within the Preferred Alternative's LOD and are listed in Table 3-21. Due to the ocean habitat requirements for the whale species, oceanic whitetip shark, and giant manta ray, these species do not have the potential to occur in the LOD and are therefore not discussed further. For the other listed species shown in Table 3-21, the presence or absence of potential suitable habitat is included below, along with the effects assessment rendered based on results from the aforementioned habitat assessments and terrestrial protected species surveys in the LOD and USFWS concurrence.

Results from an NCNHP report generated on October 5, 2023, identifying known occurrences of protected species within and within one mile of the Preferred Alternative's LOD are included for each species in the Natural Resources Technical Report (Appendix D).⁷⁹

⁷⁹ NHP. 2021b. North Carolina Natural Heritage Data Explorer. <https://ncnhde.natureserve.org/>

Table 3-21: ESA Federally Protected Species Listed for the Preferred Alternative

Scientific Name	Common Name	Federal Status ¹	Suitable Habitat Present	Effects Assessment ²
Plants				
<i>Lysimachia asperulaefolia</i>	Rough-leaved loosestrife	E	No	NE
<i>Thalictrum cooleyi</i>	Cooley's meadowrue	E	No	NE
Mammals				
<i>Myotis septentrionalis</i>	Northern long-eared bat	E	Yes	MA-NLAA
<i>Perimyotis subflavus</i>	Tricolored bat	PE	Yes	Not required
<i>Trichechus manatus</i>	West Indian manatee	T	Yes	MA-NLAA
Birds				
<i>Calidris canutus rufa</i>	Rufa red knot	T	No	NE
<i>Charadrius melodus</i>	Piping plover	T	No	NE
<i>Picoides borealis</i>	Red-cockaded woodpecker	E	No	NE
Snails				
<i>Planorbella magnifica</i>	Magnificent ramshorn	E	No	NE
Reptiles				
<i>Alligator mississippiensis</i>	American alligator	T(S/A)	Yes	Not required
<i>Caretta caretta</i>	Loggerhead sea turtle	T	No	NE
<i>Chelonia mydas</i>	Green sea turtle	T	No	NE
<i>Dermochelys coriacea</i>	Leatherback sea turtle	E	No	NE
<i>Lepidochelys kempii</i>	Kemp's ridley sea turtle	E	No	NE
Fish				
<i>Acipenser brevirostrum</i>	Shortnose sturgeon ³	E	Yes	Unresolved
<i>Acipenser oxyrinchus oxyrinchus</i>	Atlantic sturgeon ³	E	Yes	Unresolved

¹T – Threatened; E – Endangered; PE – Proposed Endangered; T(S/A) — Threatened due to similarity of appearance

² NE – No Effect; MA – May Affect; MA-NLAA – May Affect – Not Likely to Adversely Affect.

³Species listed by NMFS only.

The effects determined for each species listed in Table 3-21 are based on the definitions developed by the USFWS ⁸⁰ and are as follows:

⁸⁰ USFWS 1998. Endangered Species Act Consultation Handbook. March 1998.

<https://www.fws.gov/sites/default/files/documents/endangered-species-consultation-handbook.pdf>

- "No effect" means there will be no impacts, positive or negative, to listed or proposed resources. Generally, this means no listed resources will be exposed to action and its environmental consequences. Concurrence from the USFWS is not required.
- "May affect, but not likely to adversely affect" means that all effects are beneficial, insignificant, or discountable. Beneficial effects have contemporaneous positive effects without any adverse effects to the species or habitat. Insignificant effects relate to the size of the impact and should never reach the scale where take occurs. Discountable effects are those extremely unlikely to occur. Based on best judgment, a person would not: (1) be able to meaningfully measure, detect, or evaluate insignificant effects; or (2) expect discountable effects to occur.

Suitable habitat for the northern long-eared bat, west Indian manatee, and the American alligator is present within the LOD. FRA communicated habitat requirements and the effects assessments for each species listed in Table 3-21 to the USFWS in a letter dated June 2, 2022. In a letter dated September 8, 2022 (Appendix H), the USFWS concurred that the Project is not likely to adversely affect any Federally listed endangered or threatened species [under USFWS purview] or species currently proposed for listing under the ESA and that requirements of Section 7 have been satisfied.

On September 13, 2022, the USFWS proposed to list the tricolored bat as endangered under the ESA. Suitable roosting habitat is present in the LOD in locations having live and recently dead hardwood trees, as well as in bridges. Foraging habitat is present along forest edges. A review of NHP records, dated October 25, 2023, indicates no known occurrences within 1.0 mile of the impact area.

On November 30, 2022, USFWS reclassified the northern long-eared bat as an endangered species. A review of NHP records, dated October 25, 2023, indicated no known occurrences within 1.0 mile.

Suitable habitat for the West Indian manatee is present in the Cape Fear River and streams with water depths greater than or equal to 5 feet. The review of NHP records on December 28, 2021, indicated a known occurrence within 1.0 mile of the LOD. However, a review of NHP records, dated October 25, 2023, indicated no known occurrences within 1.0 mile.

Suitable habitat is also present for the two sturgeon species; however, a preliminary effects assessment was not made. In a letter dated June 21, 2022, the NMFS agreed that because the Project's scope includes only preliminary engineering, the Section 7 consultation for these species should be deferred to the Project's final phase of engineering design.

[Endangered Species Act Candidate Species](#)

There are few areas that have the potential to support the monarch butterfly, a candidate species. Almost all open areas within the Preferred Alternative's LOD are covered in thick marsh vegetation, regularly mowed, or disturbed/developed. Few areas are likely to support wildflowers, which are a necessary food source for the monarch butterfly. There is currently no

protection for the monarch butterfly under the ESA, and the USFWS has concurred that the Project is not likely to adversely affect any candidate species.

Bald and Golden Eagle Protection Act (BGEPA)

A desktop GIS assessment of the LOD, as well as the area within a one-mile radius of the LOD, was performed on February 18, 2021, using color aerials captured in 2019. A review of NCNHP data revealed two known occurrences of bald eagles, both under the same record: one nest within the Preferred Alternative's LOD and one within a mile of the LOD.^{81, 82} Water bodies large enough or sufficiently open to be considered potential feeding sources for the Bald Eagle were identified; therefore, a survey in the LOD and the area within 660 feet of the LOD was conducted in accordance with *NCDOT Guidelines to Assess Potential Project Impacts to the Bald Eagle and Survey Protocols* based on the *National Bald Eagle Management Guidelines*⁸³ as a part of the fieldwork performed on February 18, 2021. The 660-foot buffer was suggested by USFWS to avoid incidental impacts.

On March 4, 2021, the bald eagle nest documented outside of the Preferred Alternative's LOD was observed by the Project Team with an individual bald eagle circling the nest. This nest is located within the 660-foot bald eagle survey area. A bald eagle nest survey was conducted in April 2021 by Dial Cordy and Associates Inc., which confirmed the presence of the active nest south of the existing rail line at the northern end of the LOD (see Natural Resources Technical Report in Appendix D). No other active nests were identified during the bald eagle nest survey. Due to the presence of a bald eagle nest approximately 300 feet from the Preferred Alternative, it has been determined that the Project may affect this species, and an Incidental Take permit is recommended by the USFWS prior to construction authorization for activities that result in the taking of bald eagles, as defined by the BGEPA, including disturbance of nesting bald eagles or removal of a nest. The bald eagle nesting (breeding) season in North Carolina is from December 1 through July 15.

Migratory Bird Treaty Act

The USFWS lists 12 migratory birds of particular concern, which may occur in the location of the Preferred Alternative (see Table 3-22).⁸⁴ Each of these 12 species is included on the USFWS BCC list.

⁸¹ NHP. 2021b. North Carolina Natural Heritage Data Explorer.

⁸² NC Natural Heritage Program (NHP). 2020. Element Occurrence shapefile for Brunswick and New Hanover Counties. (Received August 20, 2020).

⁸³ NCDOT. 2015. NCDOT Guidelines to Assess Potential Project Impacts to the Bald Eagle and Survey Protocols. <https://connect.ncdot.gov/resources/Environmental/Compliance%20Guides%20and%20Procedures/NCDOT%20Guidelines%20and%20Survey%20protocols%20for%20bald%20eagle%207-20-15.pdf>. (Accessed April 4, 2022).

⁸⁴ USFWS. 2022. Information for Planning and Consultation.

Table 3-22: Birds of Conservation Concern for the Preferred Alternative

Scientific Name	Common Name	Category of Concern ¹	Breeding Season
<i>Falco sparverius paulus</i>	American kestrel	BCC-BCR	April 1 – August 31
<i>Haematopus palliatus</i>	American oystercatcher	BCC Range wide	April 15 – August 31
<i>Rynchops niger</i>	Black skimmer	BCC Range wide	May 20 – September 15
<i>Sitta pusilla</i>	Brown-headed nuthatch	BCC-BCR	March 1 – July 15
<i>Chaetura pelagica</i>	Chimney swift	BCC Rangewide	March 1 – August 15
<i>Rallus elegans</i>	King rail	BCC Range wide	May 1 – September 5
<i>Tringa flavipes</i>	Lesser yellowlegs	BCC Range wide	Breeds Elsewhere
<i>Passerina ciris</i>	Painted bunting	BCC-BCR	April 25 – August 15
<i>Dendroica discolor</i>	Prairie warbler	BCC Range wide	May 1 – July 31
<i>Protonotaria citrea</i>	Prothonotary warbler	BCC Range wide	April 1 – July 31
<i>Melanerpes erythrocephalus</i>	Red-headed woodpecker	BCC Range wide	May 10 – September 10
<i>Euphagus carolinus</i>	Rusty blackbird	BCC Range wide	Breeds Elsewhere
<i>Ammodramus caudacutus</i>	Saltmarsh sparrow	BCC Rangewide	May 15 – September 5
<i>Elanoides forficatus</i>	Swallow-tailed kite	BCC Rangewide	March 10 – June 20

Notes

¹“BCC – BCR” birds are Birds of Conservation Concern (BCC that are of concern only in particular Bird Conservation Regions (BCRs) in the continental USA; “BCC Range wide” birds are BBCs of concern throughout their range anywhere within the USA (including Hawaii, the Pacific Islands, Puerto Rico, and the Virgin Islands).

Essential Fish Habitat

The NMFS has identified the Cape Fear River, Alligator Creek, and surrounding marshes as EFH and Habitat Areas of Particular Concern (HAPCs) for fish species (Figure 3-17).⁸⁵ There are HAPCs in the LOD for the snapper grouper management unit and penaeid shrimp, which are also areas designated as PNA. The NCDEQ DMF has identified the Cape Fear River in the LOD as PNA (Figure 3-18) and coastal and joint AFSA. The river has also been identified as sturgeon spawning waters and designated critical habitat for Atlantic sturgeon by the NMFS. Table 3-23 lists the fish species that may occur in the LOD that are managed by NMFS, including the life stages that are reported to occur. Due to the potential impacts to EFH that may result from the Project, an EFH Assessment was prepared to address the effects of the Project on EFH and Federally managed species and submitted to NMFS for review (see Appendix F). In a letter dated August 4, 2022, the NMFS noted the EFH Assessment adequately describes fishery habitat (estuarine emergent wetlands, unconsolidated bottom, and submerged aquatic vegetation) and HAPCs (primary nursery areas), and associated managed species. Impacts from sedimentation suspension during construction would degrade water quality but are expected to be localized.

⁸⁵ NOAA, NMFS. 2021b. Essential Fish Habitat – Data Inventory.

Figure 3-17: Essential Fish Habitat

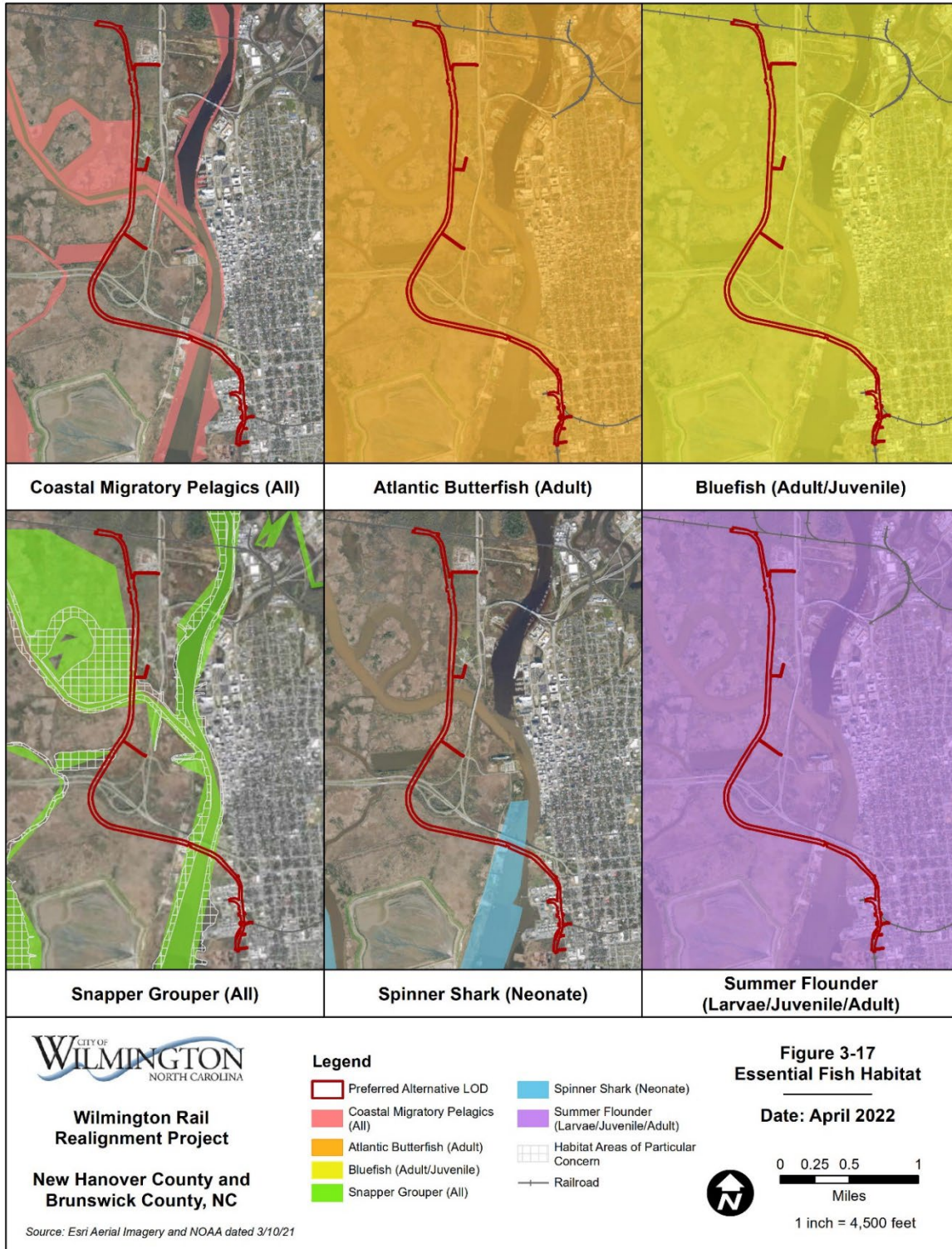
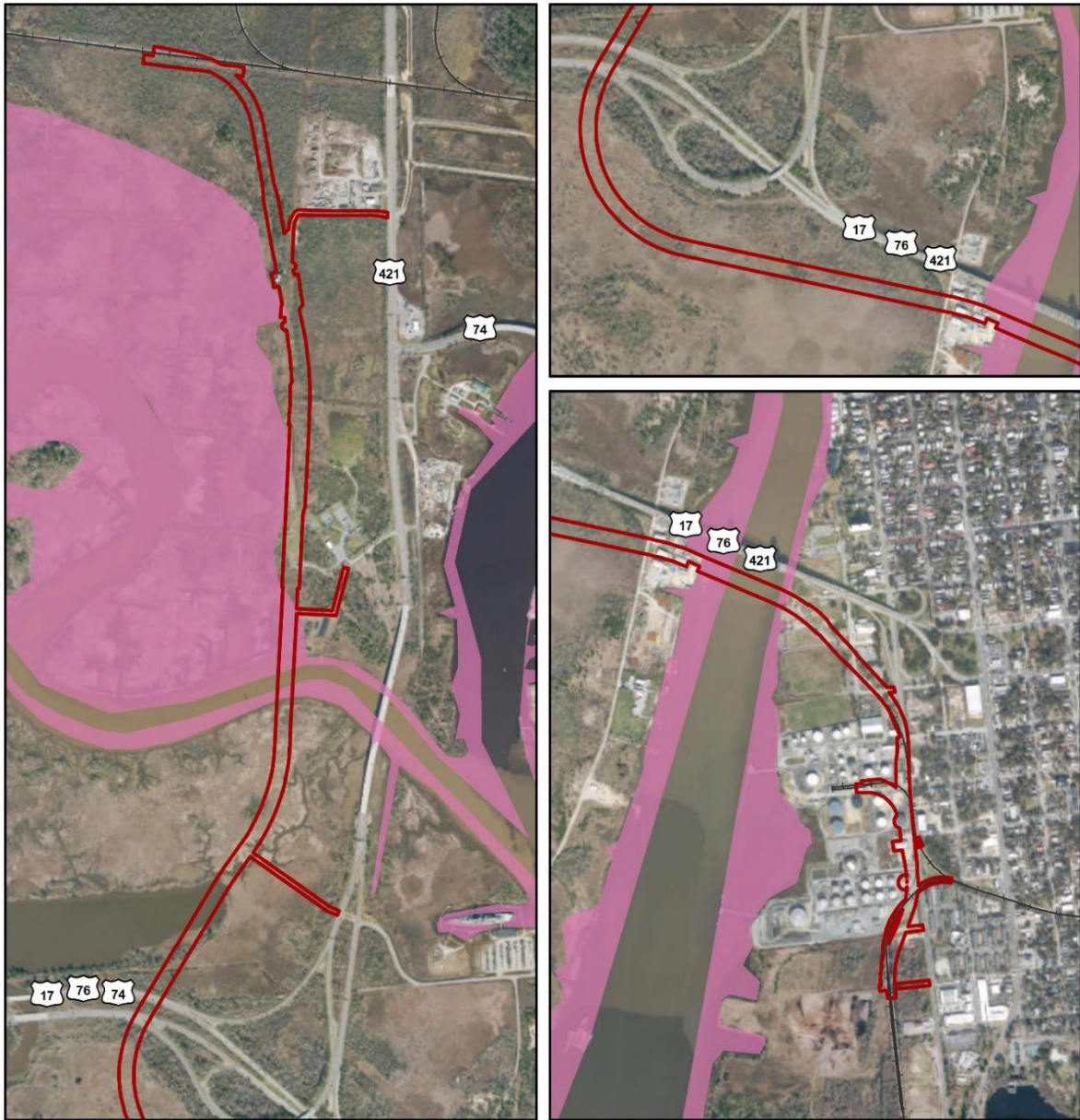


Figure 3-18: Primary Nursery Areas



Wilmington Rail Realignment Project

New Hanover County and Brunswick County, NC

Source: Esri Aerial Imagery and NC DEQ dated 2015

Legend

- Preferred Alternative LOD
- Primary Nursery Areas
- Railroad

Figure 3-18

Primary Nursery Areas

Date: April 2022

0
0.1
0.2
0.4

Miles

1 inch = 1,250 feet

Table 3-23: Managed Fish Species Reported to Occur in the LOD

Species	Life Stage	Fisheries Management Council
Coastal Migratory Pelagic	All	South Atlantic
Snapper Grouper	All	South Atlantic
Atlantic Butterfish	Adult	Mid-Atlantic
Bluefish	Adult, Juvenile	Mid-Atlantic
Summer Flounder	Larvae, Juvenile, Adult	Mid-Atlantic
Spinner Shark	Neonate	Atlantic Highly Migratory Species

3.15.4 Potential Mitigation Strategies and/or Commitments

Section 7 consultation with the USFWS is considered complete at this stage of project development; however, coordination with USFWS will be reinitiated during the Project’s final phase of engineering design due to the reclassification of the northern long-eared to endangered and the addition of the tri-color bat as a proposed endangered species. Section 7 consultation with the NMFS will also occur during the Project’s final design. During this consultation, a Biological Assessment will be required to assess impacts that may result from the Project on the shortnose sturgeon, the Atlantic sturgeon, and the Atlantic sturgeon designated critical habitat.

During Project construction, the Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters will need to be followed in locations of suitable habitat for manatees, which includes the Cape Fear River and streams with water depths greater than or equal to 5 feet.⁸⁶ The USFWS also encourages projects to follow certain conservation measures to avoid and minimize the potential mortality of northern long-eared bats during construction activities, as outlined in the Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat.⁸⁷ Conservation measures may include time restrictions for cutting trees, installation of specific lighting, and construction of bridges and other structures within the winter hibernation period (if there is documentation of bat use and/or suitable habitat present).

Due to the presence of a bald eagle nest approximately 300 feet from the Preferred Alternative, the City will obtain an Incidental Take permit as recommended by the USFWS, prior to construction authorization for activities that result in the taking of bald eagles, as defined by the BGEPA, including disturbance of nesting bald eagles or removal of a nest.

⁸⁶ USFWS. 2017. Guidelines for Avoiding Impacts to the West Indian Manatee: Precautionary Measures for Construction Activities in North Carolina Waters.

⁸⁷ USFWS 2018. Programmatic Biological Opinion for Transportation Projects in the Range of the Indiana Bat and Northern Long-Eared Bat. <https://www.fws.gov/sites/default/files/documents/programmatic-biological-opinion-for-transportation-projects-2018-02-05.pdf>

An EFH Assessment has been prepared for the NMFS to assess impacts to EFH and HAPC that may result from the Project and notes the project design incorporates several structural and routing measures to avoid and minimize impacts on EFH/HAPC habitats.

In-water work in the Cape Fear River may be subject to the standard and anadromous fish moratoria in effect from February 1 through September 30⁸⁸. These dates are approximate and dependent on site-specific environmental conditions. In response to the Start of Study Letter for the Project, the USFWS recommended no in-water work during anadromous fish spawning season from February 15 to June 30. Additional in-water work restrictions may also be applicable for this Project and will be addressed prior to permitting.

3.16 SOILS AND PRIME FARMLAND

3.16.1 Introduction and Methodology

The Farmland Protection Policy Act of 1981 (FPPA) (7 USC 4201 *et seq.*, implementing regulations at 7 CFR § 658)⁸⁹ established criteria for identifying and considering the effects of Federal programs on the conversion of farmland to nonagricultural uses. For the purposes of the FPPA, farmland is divided into three categories: prime, unique, and local or statewide importance (Public Law 97-98, Subtitle 1, Section 1540).⁹⁰

A desktop review utilizing GIS data from the United States Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS) Web Soil Survey was used to evaluate soils in the Study Area. The Preferred Alternative's LOD was used to assess potential effects on soils and farmland.

As defined by the USDA, farmland includes prime farmland, unique farmland, and land of statewide or local importance. Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is available for these uses.⁹¹ Unique farmland is land other than prime farmland that is used for the production of specific high-value food and fiber crops. Farmland that is of statewide or local importance, other than prime or unique farmland, is used for the production of food, feed, fiber, forage, or oilseed crops.⁹²

⁸⁸ NOAA, National Centers for Coastal Ocean Science, National Ocean Service. 2019. An Assessment of Fisheries Species to Inform Time-of-Year Restrictions for North Carolina and South Carolina. NOAA Technical Memorandum NOS NCCOS263 2019. <https://repository.library.noaa.gov/view/noaa/22032>. (Accessed January 4, 2022).

⁸⁹ NRCS, USDA. Farmland Protection Policy Act. Accessed January 2022.

<https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/landuse/fppa/>

⁹⁰ Public Law 97-98, Subtitle 1 Farmland Protection Policy Act, Section 1540. 1981.

<https://www.govinfo.gov/content/pkg/STATUTE-95/pdf/STATUTE-95-Pg1213.pdf>

⁹¹ NRCS, USDA. Prime Farmland.

https://efotg.sc.egov.usda.gov/references/public/LA/Prime_and_other_Important_Farmland.html

⁹² NRCS, USDA. Special Environmental Resource Concerns.

<https://efotg.sc.egov.usda.gov/references/public/va/PrimeandUniqueFarmlands.pdf>

A review of the North Carolina Department of Agriculture and Consumer Services (NCDA&CS) Voluntary Agricultural Districts (VAD) mapping was used to identify VAD in the Study Area.⁹³ According to the NCDA&CS, 90 counties in North Carolina, including Brunswick County, have county ordinances for VAD. VADs encourage the preservation and protection of farmland and working forests and allow for Enhanced Voluntary Agricultural Districts (EVAD) to protect farms from development for ten years.⁹⁴

3.16.2 Affected Environment

The Study Area is located entirely within the Atlantic Coastal Plain Physiographic Province. According to the NCDEQ's Geologic Map of North Carolina⁹⁵, the Study Area is composed of mainly sedimentary rocks, with the soils being sand, clayey sand, and clay.

According to the USDA-NRCS web soil survey, farmland soils, including Prime Farmland, Farmland of Statewide Importance, and Farmland of Unique Importance, exist within the Study Area, as seen in Figure 3-19. Although farmland soils exist within the Study Area, there are no VAD or EVAD in the Study Area, according to the NCDA&CS.

3.16.3 Environmental Consequences

NO-BUILD ALTERNATIVE

Under the No-Build Alternative, the Project would not be built. Freight traffic would continue to use the existing Beltline; therefore, no additional development or changes to soils in the Study Area would occur as a result of the Project.

Other planned and committed projects within the Study Area may result in impacts to soils. Impacts associated with those projects would be the responsibility of the implementing party.

PREFERRED ALTERNATIVE

Both the Brunswick County Soil Survey and the New Hanover County Soil Survey identified three soil unit types within each county that the Preferred Alternative alignment traverses. The soil series prevalent along the Preferred Alternative includes the Newhan and Dorovan series. Table 3-24 lists the soil series, drainage class, hydric status, and farmland status⁹⁶ of these soils. The Preferred Alternative's LOD is comprised of 71 percent hydric soils, 21 percent non-hydric soils, and 8 percent open water. Soil-type locations are shown in Figure 3-20.

⁹³ NCDA&CS. Voluntary Agricultural Districts Map. Accessed January 2022. <https://www.ncmhtd.com/adfp/vad/>

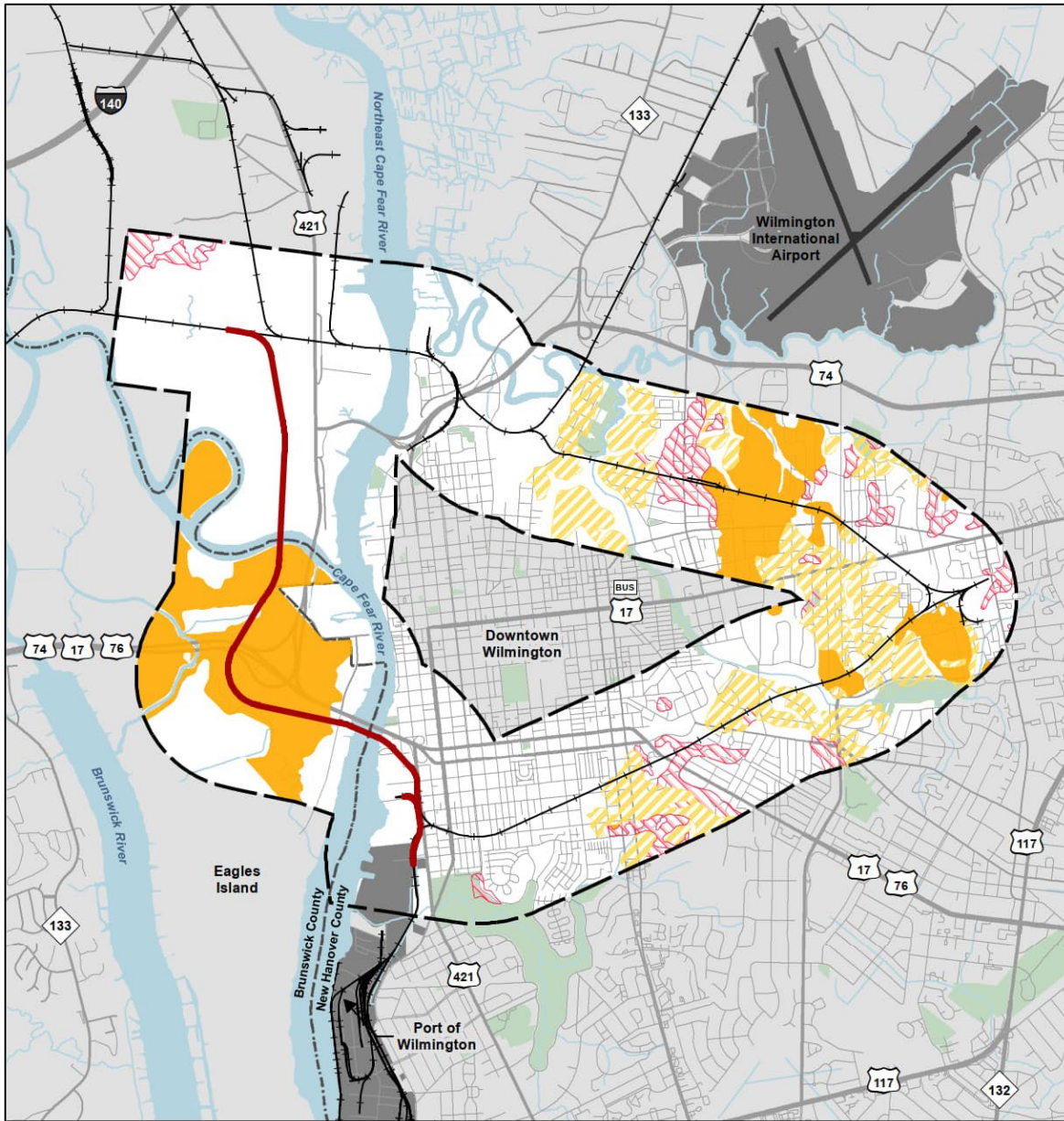
⁹⁴ NCDA&CS. Voluntary Agricultural Districts. <https://www.ncagr.gov/Farmlandpreservation/VAD/>

⁹⁵ NCDEQ. Geologic Map of North Carolina. Accessed January 2022.

<https://ncdenr.maps.arcgis.com/apps/MapSeries/index.html?appid=a8281cbd24b84239b29cd2ca798d4a10>

⁹⁶ NRCS-USDA. Web Soil Survey. 2019. <https://www.nrcs.usda.gov/resources/data-and-reports/web-soil-survey>

Figure 3-19: Farmland Soils



CITY OF WILMINGTON
NORTH CAROLINA

Wilmington Rail Realignment Project

New Hanover County and Brunswick County, NC

Source: NC OneMap Data & Google Maps

Legend

- Study
- County Boundary
- Park
- Preferred
- Railroad

Farmland Soils

- Farmland of Statewide Importance
- Farmland of Unique Importance
- Prime Farmland

Figure 3-19
Farmland Soils

Date: August 2022

0 0.25 0.5 1

Miles

1 inch = 4,000 feet

Table 3-24: Soils in the LOD

Map Unit Symbol	Map Unit Name	Drainage Class	Hydric Status	Acres in LOD ¹	Percent of LOD ¹	Farmland Soil Determination
Brunswick County						
CH	Chowan silt loam	Very Poorly Drained	Hydric	27.2	34.3%	Prime farmland (if protected from flooding or not frequently flooded during the growing season)
NhE	Newhan fine sand, dredged, 2 to 30 percent slopes	Excessively Drained	Nonhydric	2.3	2.9%	Not prime farmland
W	Water	-	-	3.6	4.6%	-
New Hanover County						
DO	Dorovan soils	Very Poorly Drained	Hydric	29.0	36.6%	Not prime farmland
Ur	Urban land	-	Nonhydric	14.3	18.1%	-
W	Water	-	-	2.8	3.5%	-
Totals				79.2	100%	

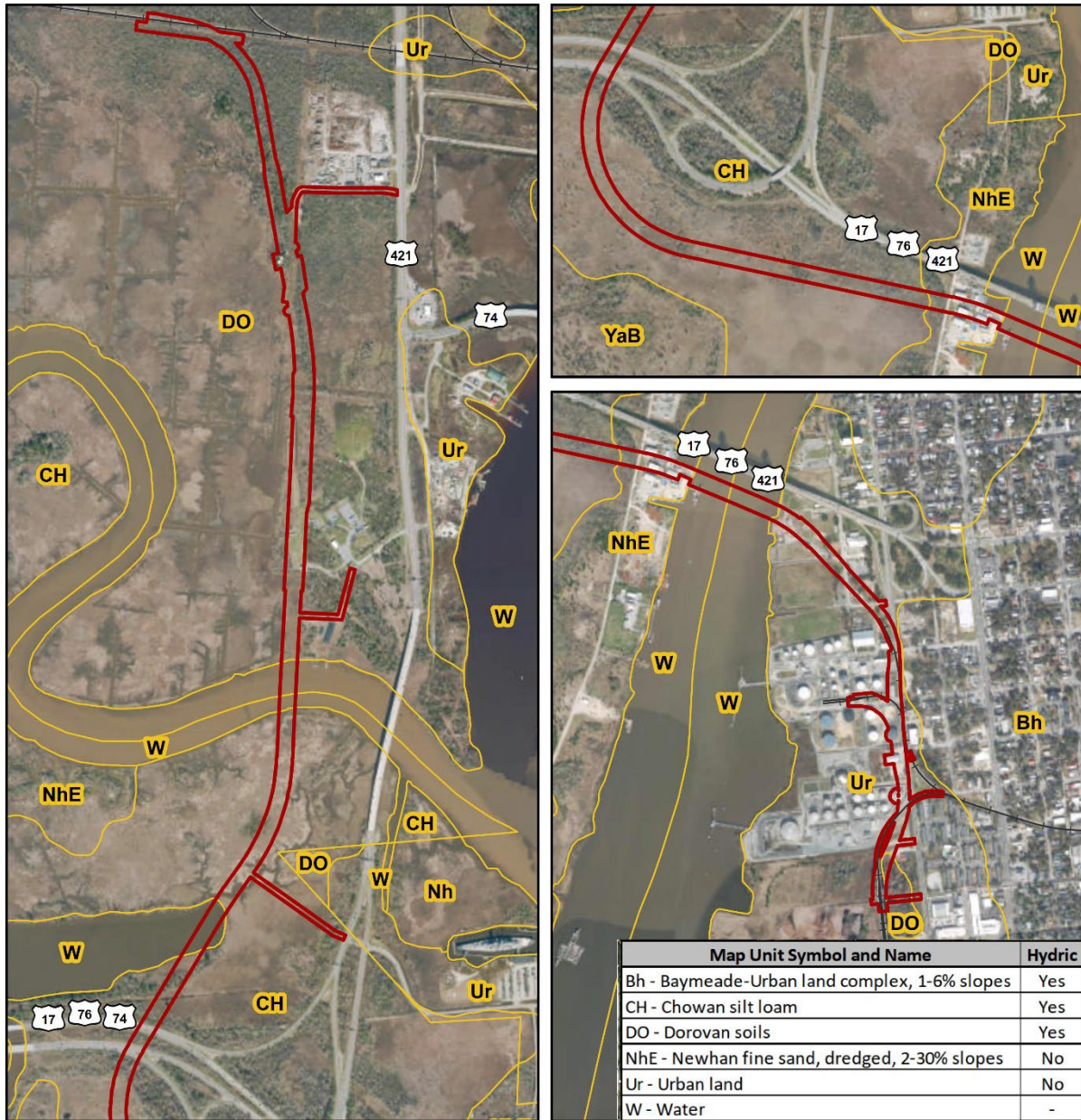
Note:

¹Areas have been rounded to the nearest tenth.

Construction of the Preferred Alternative would cause potential impacts on soils where excavation and/or fill activities occur and could include small, localized increases in erosion and sedimentation. The creation of new impervious surfaces would be limited, but where it would occur would result in an increase in stormwater runoff and a potential increase in soil erosion. Soil properties along the Preferred Alternative could affect the final engineering design of the Project. The most common soil limitations within the LOD include poor drainage, high water table, and susceptibility to flooding.

While the Preferred Alternative may impact soils designated as farmland, there are no active or planned agricultural uses that would be impacted by the Preferred Alternative. However, because farmland soils are present within the LOD, a determination by the NRCS, using the Farmland Conversion Impact Rating Form (NRCS-CPA-106) pursuant to FPPA, was requested for determining if the potential project impacts on farmland would exceed the recommended allowable level. In a letter dated March 9, 2023, consultation with the NRCS was completed, noting the areas of the Project within New Hanover County include land already in, or committed to, urban development or is not considered Prime Farmland. In accordance with 7 CFR § 658, Farmland Protection Policy Act, an AD-1006 form is not required and is exempt from the FPPA regulations. The areas of the Project within Brunswick County do include land classified as Prime Farmland, and an AD-1006 form was completed (Appendix H) noting no farmland would be converted by the Project.

Figure 3-20: Soil Survey



Wilmington Rail Realignment Project

New Hanover County and Brunswick County, NC

Source: Esri Aerial Imagery and NRCS Web Soil Survey spatial data September 2019

Legend

- Preferred Alternative LOD
- Soil Classification Boundaries
- Railroad

**Figure 3-20
Soil Survey**

Date: April 2022

0 0.1 0.2 0.4
Miles
1 inch = 1,250 feet

3.16.4 Potential Mitigation Strategies and/or Commitments

No farmland would be adversely impacted by the Project; therefore, no mitigation is required. The City of Wilmington will ensure the use of best management practices, such as soil erosion and sediment control measures, to minimize the potential for increased soil erosion. In addition, the City may need to acquire a National Pollutant Discharge Elimination System (NPDES) permit for discharges of stormwater associated with construction activities once final designs have been completed.

3.17 CONTAMINATED SITES

3.17.1 Introduction and Methodology

State and Federal databases were examined to identify sites that either are currently the subject of corrective action to address soil and/or groundwater contamination or have documented historical contamination that may still exist. Underground storage tank (UST) incidents and aboveground storage tank (AST) incidents, inactive hazardous (IH) sites, and railway corridors are all examples of sources of contamination that may be encountered during the construction of the Preferred Alternative. Additionally, a desktop review was conducted to assess current land use and associated facilities that may be the source of hazardous materials.

Sources of hazardous materials that are either documented to have been present or could currently exist were identified in the Study Area. GIS data from the NCDEQ was reviewed to locate hazardous waste sites, USTs, ASTs, dry cleaning sites, and other sites associated with hazardous materials. Available NCDEQ incident records and reports were given a cursory review to determine the status of the incident sites and the documented contamination. EPA resources were searched for sites that are subject to federal oversight through the Resource Conservation and Recovery Act or the Superfund program.^{97, 98}

Resource data was then superimposed with the Preferred Alternative's LOD mapping to determine potential impacts for hazardous materials. The area of investigation for the Preferred Alternative impacts included all lots intersected by the LOD.

The existence and location of sites revealed during this hazardous material investigation is limited to the accuracy of the databases searched at the time of this assessment and facilities observed during the desktop review. It cannot be assumed that because an incident is issued closure that soil and/or groundwater contamination does not remain at the site. It can also not be assumed that soil and/or groundwater contamination that originates beyond the area of

⁹⁷ United States Environmental Protection Agency, 2021, Search RCRA Corrective Action Sites, viewed January 2022. https://ofmpub.epa.gov/apex/cimc/f?p=CIMC:RCRA_SEARCH:::P15_REG:04#search.

⁹⁸ United States Environmental Protection Agency. 2021. Cleanups In My Community Map, viewed January 2022. https://ofmpub.epa.gov/apex/cimc/f?p=cimc:map:::71:P71_WELSEARCH:NULL|Cleanup||||false|true|false|false|false|false|sites|Y.

investigation does not extend into the boundaries of the investigation area. Additionally, this assessment does not account for contamination that may be encountered at sites where soil and/or groundwater contamination was not reported to the appropriate agencies.

3.17.2 Affected Environment

Based on a review of the NCDEQ Waste Management GIS database, over 100 potentially hazardous materials sites are located within the Project Study Area (Figure 3-21). These sites include UST, AST, pre-regulatory landfills, manufactured gas plants, dry-cleaning sites, Federal remediation branch (FRB) sites, hazardous waste (HW) sites, IH sites, and brownfield sites. A review of EPA's Cleanups In My Community Map revealed multiple Superfund Non-National Priorities List (NPL) sites and brownfield properties to be present within the Study Area. The Brownfield properties are reflected in Figure 3-21.

3.17.3 Environmental Consequences

NO-BUILD ALTERNATIVE

Existing contaminated sites along the Beltline would not be impacted by the No-Build Alternative as no work would be proposed by this Project. Other planned and committed projects within the Study Area could result in implications for contaminated sites. However, any impacts associated with other projects would be the responsibility of the parties implementing those projects.

PREFERRED ALTERNATIVE

The results of the database search for the Preferred Alternative's LOD revealed the occurrence of the following sites from which soil and groundwater contamination could originate. One FRB site, three UST incidents, nine AST incidents, two HW sites, and four IH sites (Table 3-25) are located within the LOD or on lots impacted by the Preferred Alternative. These hazardous sites are concentrated at the southern end of the Preferred Alternative within Wilmington's City limits in areas zoned for industrial use and can be seen on the Mapping Atlas (Appendix A).

The three UST incidents and two of the AST incidents (WI-88652 and WI-88126) within and/or adjacent to the LOD have been issued closure by the NCDEQ, which indicates that the impacted soil and/or groundwater have been remediated to acceptable levels. One of those three UST incidents (WI-7147) was issued closure with a Notice of Residual Petroleum (NRP) and a Land Use Restriction (LUR) on groundwater. The notice states that groundwater contamination remains at the site but is below the required concentrations, allowing for the site closure; however, the elevated concentrations required a public notice prior to the site closure. The NRP and LUR documentation specifies what activities are permissible within the LUR boundaries.

The other seven AST incidents have an open status as of January 2022. Closure dates were not reported for the FRB site, the HW sites, and the IH sites. The current status of the soil and/or groundwater contamination at these sites is not known and it is uncertain if corrective action is ongoing.

Figure 3-21: Contaminated Sites

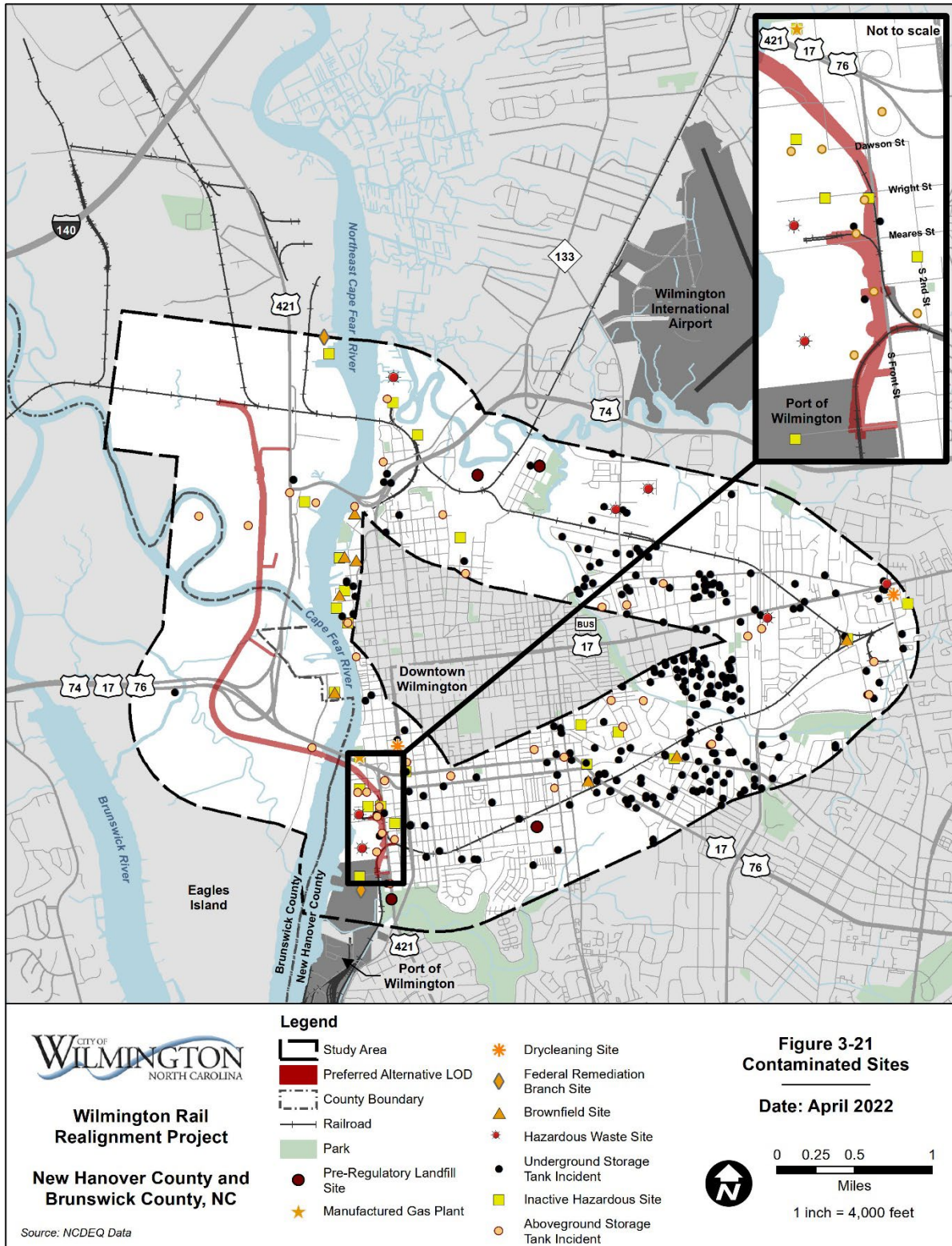


Table 3-25: Preferred Alternative Potential Contaminated Sites

Type	UST Incident/EPA Identification	Name	Address	Status
FRB	NCD058517467 ⁹⁹	Southern Wood Piedmont Co.	Greenfield Street	Unknown
HW	NCD981476708	CTI of North Carolina, Inc.	1002 South Front Street	Unknown
HW	NCD000792788	Buckeye Wilmington Terminal	1312 South Front Street	Unknown
IH	NCD986186518	Old ATC Refinery	801 Surry Street	Inactive
IH	NCN000407584 ¹⁰⁰	Southern Metals Recycling, Inc.	13 Wright Street	Inactive
IH	NCD981476708	CTI of North Carolina, Inc.	1002 South Front Street	Inactive
IH	NCD058517467f ¹⁰¹	Southern Wood Piedmont Co.	Greenfield Street	Inactive
LUST	WI-1618 ¹⁰²	Springer Eubank Bulk Plant	1015 South Front Street	Closed 8/25/2004
LUST	WI-879 ¹⁰³	JLM Terminals	1002 South Front Street	Closed 1/23/2020
LUST	WI-7147 ¹⁰⁴	Gas Center, Inc.	1202 South Front Street	Closed 6/24/2006
LAST	WI-88114 ¹⁰⁵	Industrial Fuels Terminal	1100 US 421 North	Open
LAST	WI-85428 ¹⁰⁶	Eagles Island Engineer Yard	SR 1300, West side Cape Fear River	Open

⁹⁹ EPA. Superfund Site Information: Southern Wood Piedmont Co. Accessed January 2022.

<https://cumulis.epa.gov/supercpad/cursites/csitinfo.cfm?id=0402821>

¹⁰⁰ NCDEQ. Records Management: NCD981476708. Accessed January 2022.

[https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={WWM};\[Program ID\]=%22*NCD981476708*%22](https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={WWM};[Program ID]=%22*NCD981476708*%22)

¹⁰¹ NCDEQ. Records Management: NCD986186518. Accessed January 2022.

[https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={WWM};\[Program ID\]=%22*NCD986186518*%22](https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={WWM};[Program ID]=%22*NCD986186518*%22)

¹⁰² NCDEQ. Records Management: NCN000407584. Accessed January 2022.

[https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={WWM};\[Program ID\]=*NCN000407584*}&cr=1](https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={WWM};[Program ID]=*NCN000407584*}&cr=1)

¹⁰³ NCDEQ. Records Management: NCD058517467f. Accessed January 2022.

[https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={WWM};\[Program ID\]=%22*NCD058517467*%22](https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={WWM};[Program ID]=%22*NCD058517467*%22)

¹⁰⁴ NCDEQ. Records Management: WI-1618. Accessed January 2022.

[https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={WWM};\[Program ID\]=*WI-1618*}&cr=1](https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={WWM};[Program ID]=*WI-1618*}&cr=1)

¹⁰⁵ NCDEQ. Records Management: WI-879. Accessed January 2022.

[https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={WWM};\[Program ID\]=*WI-879*](https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={WWM};[Program ID]=*WI-879*)

¹⁰⁶ NCDEQ. Records Management: WI-7147. Accessed January 2022.

[https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={WWM};\[Program ID\]=*WI-7147*](https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={WWM};[Program ID]=*WI-7147*)

Type	UST Incident/EPA Identification	Name	Address	Status
LAST	WI-88652 ¹⁰⁷	Colonial Terminal - Castor Oil Release	1002 South Front Street	Closed 2/14/2020
LAST	WI-8250 ¹⁰⁸	UNOCAL Chemicals-Carolina Terminal	1 Wooster Street	Open
LAST	WI-6107 ¹⁰⁹	CTI-Former UNOCAL- Cape Fear Terminal	1002 South Front Street	Open
LAST	WI-88320 ¹¹⁰	ATC Petroleum	1002 South Front Street	Open
LAST	WI-88126 ¹¹¹	Hess Corporation	1312 South Front Street	Closed 7/2/2008
LAST	WI-5613 ¹¹²	Amerada Hess Corp.	1312 South Front Street	Open
LAST	WI-85409 ¹¹³	Amerada Hess Fuel Release	1312 South Front Street	Open

In addition to the results of the database searches, a desktop review of the LOD revealed other potential sources of hazardous materials in this area. Review of EPA’s Cleanups In My Community Map revealed a Superfund Non-NPL site to be present within the LOD at 1200 South Front Street. Additionally, the current land use in the Wilmington portion of the LOD is zoned for industrial use, and the petroleum/chemical product transload industry has a significant presence. There is an inherent risk of a hazardous material incident associated with this industry. Active or inactive railway corridors are also located in the LOD. Active rail corridors include the areas in which the Project ties into the existing rail line at each end of the Preferred Alternative’s alignment, while inactive railway corridors include the area of the out-of-service railbed on Eagles Island towards the northern end of the Project. Although no railway

¹⁰⁷ NCDEQ. Records Management: WI-88114. Accessed January 2022.
[https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={\[WM\]:\[Program ID\]="*WI-88114*"}&cr=1](https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={[WM]:[Program ID]=)

¹⁰⁸ NCDEQ. Records Management: WI-85428. Accessed January 2022.
[https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={\[WM\]:\[Program ID\]="*WI-85428*"}&cr=1](https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={[WM]:[Program ID]=)

¹⁰⁹ NCDEQ. Records Management: WI-88652. Accessed January 2022.
[https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={\[WM\]:\[Program ID\]="*WI-88652*"}&cr=1](https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={[WM]:[Program ID]=)

¹¹⁰ NCDEQ. Records Management: WI-8250. Accessed January 2022.
[https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={\[WM\]:\[Program ID\]="*WI-8250*"}&cr=1](https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={[WM]:[Program ID]=)

¹¹¹ NCDEQ. Records Management: WI-6107. Accessed January 2022.
[https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={\[WM\]:\[Program ID\]="*WI-6107*"}&cr=1](https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={[WM]:[Program ID]=)

¹¹² NCDEQ. Records Management: WI-5613. Accessed January 2022.
[https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={\[WM\]:\[Program ID\]="*WI-5613*"}&cr=1](https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={[WM]:[Program ID]=)

¹¹³ NCDEQ. Records Management: WI-88126. Accessed January 2022.
[https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={\[WM\]:\[Program ID\]="*WI-88126*"}&cr=1](https://edocs.deq.nc.gov/WasteManagement/Search.aspx?dbid=0&searchcommand={[WM]:[Program ID]=)

incidents were discovered during database searches, the use of petroleum products, cleaning solvents, and herbicides are known to occur along railway corridors, which could be a source of soil and/or groundwater contamination.

A desktop review of the portion of the Project on Eagles Island revealed limited commercial land use; however, there are current repair facilities along the LOD. An automotive rental site and a marine mechanic business site are located at the northern end of the Project off US 421. and USACE has an engineer repair yard on the western bank of the Cape Fear River within the LOD. Both automotive and marine repair facilities adjacent to the LOD could be sources of hazardous materials, but the practices at these facilities are not known.

3.17.4 Potential Mitigation Strategies and/or Commitments

Prior to any earthmoving activities, more detailed investigations would need to be completed by the City closer to construction.

The City will conduct a thorough review of reports and other documentation to ascertain the status of soil and/or groundwater contamination at these sites and whether corrective action was ongoing at sites without a reported closure date and whether or not subsurface investigations would be needed prior to construction. This knowledge would be critical to understanding the potential for exposure to contamination in the LOD and to assess the removal and proper disposal or treatment of excavated soil and groundwater extracted during any necessary dewatering activities. Upon review of the available reports or documentation associated with these sites, it could be necessary to collect soil and/or groundwater samples prior to subsurface activities to properly assess the disposal and/or treatment of soil and groundwater.

The City will implement the following strategies :

- Update information during subsequent phases of project design to account for newly added sites or changed status of known sites.
- Conduct a Phase 2 environmental site assessment for all properties along the Preferred Alternative alignment, including construction staging and laydown areas.
- Review EPA online EJSCREEN database to consider hazardous waste and demographic data to consider potential human health risk factors.
- Consult with regulatory agencies on sites where regulatory status is uncertain or where more information would be needed.

3.18 AIR QUALITY

3.18.1 Introduction and Methodology

The concentration of various pollutants in the atmosphere defines the air quality in a region or at a specific location. Most air pollutants originate from human-made sources, including mobile sources (e.g., cars, trucks, locomotives) and stationary sources (e.g., factories, refineries, power plants), as well as indoor sources (e.g., some building materials and cleaning solvents).

High concentrations of air pollutant emissions could cause concerns for the health and welfare of the general public. The Proposed Action would involve a change in mobile source emissions within the affected study area. This section provides an evaluation of potential mobile source impacts on ambient air quality.

CRITERIA POLLUTANTS

Pursuant to the Clean Air Act (CAA) (42 U.S.C. 7401 *et seq.*), the EPA established National Ambient Air Quality Standards (NAAQS) for six contaminants (see 40 CFR § 50), commonly referred to as criteria pollutants. The six criteria pollutants are carbon monoxide (CO); ozone (O₃); nitrogen dioxides (NO₂); particle matter (PM) (including PM_{2.5} and PM₁₀) whose particulate size is less than or equal to 10 and 2.5 micrometers, respectively; lead (Pb); and sulfur dioxide (SO₂).

The NAAQS set forth primary and secondary standards for criteria pollutants. The primary standards were established to protect human public health. Typical sensitive land uses and associated sensitive receptors protected by the primary standards include publicly accessible areas, such as residences, hospitals, libraries, churches, parks, playgrounds, and schools. The secondary standards were established to protect the environment, including plants and animals, from adverse effects associated with pollutants in the ambient air. When measured concentrations of the criteria pollutants exceed the NAAQS, an area could be designated as a nonattainment area or a maintenance area (formerly nonattainment) for a respective criteria pollutant.

Pursuant to Section 176(c) of the Clean Air Act, the EPA published final rules on general conformity applicable to a Federal action in a nonattainment or maintenance area. See 40 CFR § 51, Subpart W and 40 CFR § 93, Subpart B. The rules specify *de minimis* emission levels by pollutant to determine conformity requirements for Federal action. If estimated annual emissions are below the respective *de minimis* threshold, potential air quality impacts are deemed to be less than significant, and a formal General Conformity Rule determination would not be required.

GREENHOUSE GASES (GHG)

GHG emissions trap heat in the atmosphere, which resulted in a trend of increasing global temperatures over the past century. Under Section 202(a) of the Clean Air Act (CAA), the EPA has recognized potential risks to public health or welfare and signed endangerment findings regarding GHG emissions. These findings reveal that the current and projected emissions of six key, well-mixed GHG pollutants in the atmosphere threaten the public health and welfare of current and future generations. The six key GHG pollutants include carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF₆). The dominant GHG emitted by manmade sources is CO₂, mostly from fossil fuel combustion.

The CEQ provides guidance on how GHG emissions and climate change impacts should be analyzed under NEPA. Pursuant to Executive Order (EO) 13390 signed on January 20, 2021, the

CEQ rescinded its 2019 *Draft NEPA Guidance on Consideration of Greenhouse Gas Emissions* and is reviewing, for revision and update, the 2016 *Final Guidance for Federal Departments and Agencies on Consideration of GHG Gas Emissions and the Effects of Climate Change in NEPA Reviews*. The CEQ issued an interim guidance effective on January 9, 2023¹¹⁴ to assist Federal agencies in analyzing greenhouse gas (GHG) and climate change effects of their proposed actions under NEPA. As such, this EA considers the potential effects of the proposed action on climate change by assessing the likely change in GHG emissions.

METHODOLOGY

Effects on air quality can be assessed based on estimated long-term emissions associated with the proposed action alternatives. Since New Hanover County, Brunswick County, and the City of Wilmington (where the project is located) are in attainment for all criteria pollutants and have no designated maintenance areas, the general conformity rule does not apply. In the general conformity rule applicable to nonattainment areas, USEPA uses the "major stationary source" definition under the New Source Review program (100 tons per year or more of any air pollutant subject to regulations under the CAA) as the *de minimis* levels to separate presumably exempt actions from those requiring a positive conformity determination. Although this rule is not applicable to the Project, for purposes of this EA to determine potential emissions significance, the 100 tons per year annual *de minimis* threshold adopted in the general conformity rule was considered as an indicator to trigger further evaluation of potential air quality impacts. This threshold provides an indication or a warning that the proposed action is approaching the level with potentially significant impacts on air quality.

3.18.2 Affected Environment

In addition to the current attainment designation for the counties where the proposed Project is located, current air quality conditions near the Project Study Area are also illustrated based on recent ambient air monitoring data collected around the City of Wilmington and the Wake County station that is closest to the Project area with available monitoring results for certain pollutants. As discussed previously, New Hanover County and the City of Wilmington are an attainment area for all criteria pollutants. As shown in Table 3-26, this attainment determination is consistent with the measured ambient concentrations during the three most recent years as they show no exceedances of the NAAQS for any of the criteria pollutants.

3.18.3 Environmental Consequences

NO-BUILD ALTERNATIVE

Under the No-Build Alternative, the Project would not be built, and therefore, no impacts related to the Project would occur. However, freight operations would be expected to increase for the future planning horizon (2040) from the existing average of approximately two train movements per day up to an average of approximately six train movements per day. Given that there are 32

¹¹⁴ CEQ National Environmental Policy Act Guidance on Consideration of Greenhouse Gas Emissions and Climate Change. <https://www.regulations.gov/docket/CEQ-2022-0005>

at-grade crossings (30 public and 2 private crossings) along the existing route, increasing freight rail activity along the Beltline through the residential neighborhoods would likely result in additional delays to vehicular traffic, which may affect air quality. As shown in Table 3-27, the expected increases in freight rail activity would result in adverse air quality effects given the greater locomotive engine running time along the existing Beltline. Ongoing emission control programs (such as improving locomotive engine combustion efficiency, vehicle inspection, maintenance programs, etc.) implemented by the state or Federal government are likely to offset some of these increases in emissions under the No-Build Alternative.

Table 3-26: Representative Monitored Ambient Air Quality Data

Pollutant	Averaging Period	Location ¹	2019	2020	2021	NAAQS	Unit
CO	8-Hour	Wake	1.3	1.2	1.3	9	ppm
	1-Hour	Wake	1.9	1.4	1.5	35	ppm
NO ₂	Annual	Wake	34	30	36	53	ppb
	1-Hour	Wake	5	4	6	100	ppb
O ₃	8-Hour	New Hanover	0.059	0.054	0.062	0.070	ppm
SO ₂	1-Hour	Wake	3.3	5.7	2.8	75	ppb
PM ₁₀	24-Hour	New Hanover	30 ²	24	41	150	µg/m ³
PM _{2.5}	Annual	New Hanover	3.8	3.7	7.6	12	µg/m ³
	24-Hour	New Hanover	14	22.7	26.5	35	µg/m ³

Source: <https://www.epa.gov/outdoor-air-quality-data>

¹ The data were collected at monitoring Site 37-183-0014 in Wake County (3801 Spring Forest Road) and Site 37-129-0002 in New Hanover County (6028 Holly Shelter Rd, Castle Hayne).

² The PM₁₀ value measured in 2019 is reported from Site 37-051-0009 at 4533 Raeford Road, Fayetteville, NC.

Table 3-27: Existing and Future Freight Rail Operations

Condition	Track Distance (mi)	Operations per day	Train Speed (mph)	No. Locomotives	No. Railcars	# railcar-miles/day
Existing	8.14	2	10	2	100	1,628
Preferred Alternative, Scenario 1	4.05	4	25	2	150	2,430
Preferred Alternative, Scenario 2	4.05	6	25	2	100	2,430

PREFERRED ALTERNATIVE

Under the Preferred Alternative, the locomotive running time (shown in Table 3-27) and the associated emissions (including GHG) are anticipated to decrease substantially compared to the Existing Condition and decrease even more compared to the No-Build Alternative. Since the Preferred Alternative redirects all existing and future-anticipated freight traffic traveling

between Davis Yard and the Port away from the City and the Beltline, with limited traffic that could remain on the Beltline from local shippers, the Preferred Alternative would greatly reduce the potential number of at-grade crossing conflicts between vehicles and freight, thereby reducing locomotive running time and the associated emissions (including GHG) as well as cars idling at the 32 at-grade crossings (30 public and 2 private crossings) along the current Beltline route. Therefore, the Preferred Alternative would result in beneficial air quality impacts within the Study Area. The reduction of GHG emissions would also have a positive effect on climate change.

Under the Preferred Alternative, potential air quality impacts during construction would be temporary and could include the following impacts:

- Localized increases in emissions from construction equipment, particularly diesel-powered equipment. Increased concentrations could occur in the areas of work activities, access points, and haul routes.
- Increases in motor vehicle emissions associated with potential disruption of traffic operations during construction. Effects could occur if temporary lane closures and detours cause congestion and travel delays.
- Localized dust and airborne particulate matter are generated by temporarily exposed soils, earth-moving activities, and equipment operating in unpaved areas. Effects could occur in the area of work activities and access points.

In contrast to operational activities, construction activities are relatively short-term conditions with the potential to produce temporary air quality effects. However, the impacts of construction vehicle and equipment emissions from large-scale construction activities occurring for more than five years per 40 CFR § 93.123(c)(5)) at a specific local site could cause adverse air quality effects that may need to be quantitatively addressed.

Since the construction activities at a specific local site are not expected to last more than two years, construction activities are considered temporary and would not result in significant air quality impacts, with no further analysis warranted.

3.18.4 Potential Mitigation Strategies and/or Commitments

Best management practices will be implemented by the City to control dust and vehicle emissions during Project construction. The City will include these measures and practices in the Project construction plan. Air quality control measures (such as wetting unpaved surfaces and limiting equipment idle time while on site) are typically utilized to minimize temporary impacts during construction.

3.19 NOISE AND VIBRATION

3.19.1 Introduction and Methodology

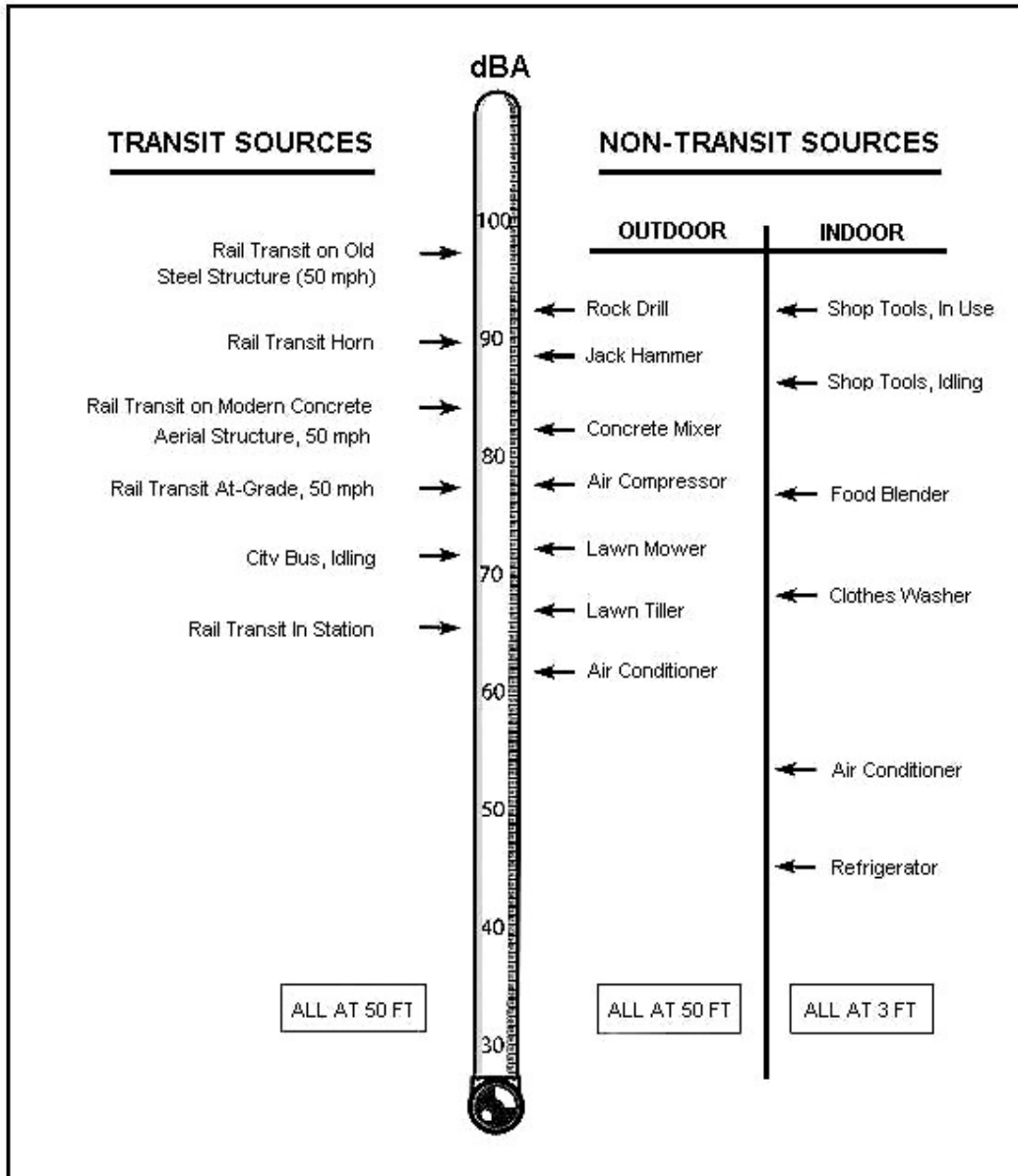
Noise and vibration analysis was conducted for the preferred alternative. CSX local trains on the Beltline remains the same in all scenarios with no change to route or frequency of operations; therefore, that traffic was not measured for change.

Noise is "unwanted sound," and by this definition, the perception of noise is subjective. Several factors affect the actual level and quality of sound (or noise) as perceived by the human ear and can generally be described in terms of loudness, pitch (or frequency), and time variation. The loudness, or magnitude, of noise determines its intensity and is measured in decibels (dB) that can range from below 40 dB (the rustling of leaves) to over 100 dB (a rock concert). Pitch describes the character and frequency content of noise, such as the very low-pitched "rumbling" noise of stereo subwoofers or the very high-pitched noise of a piercing whistle. Finally, the time variation of noise sources can be characterized as continuous, such as with a building ventilation fan; intermittent, such as for trains passing by; or impulsive, such as pile-driving activities during construction.

Various sound qualities are used to quantify noise from freight rail sources, including a sound's loudness, duration, and tonal character. For example, the A-weighted decibel (dBA) is commonly used to describe the overall noise level because it more closely matches the human ear's response to audible frequencies. Typical A-weighted sound levels from transit and other common sources are shown in Figure 3-22.

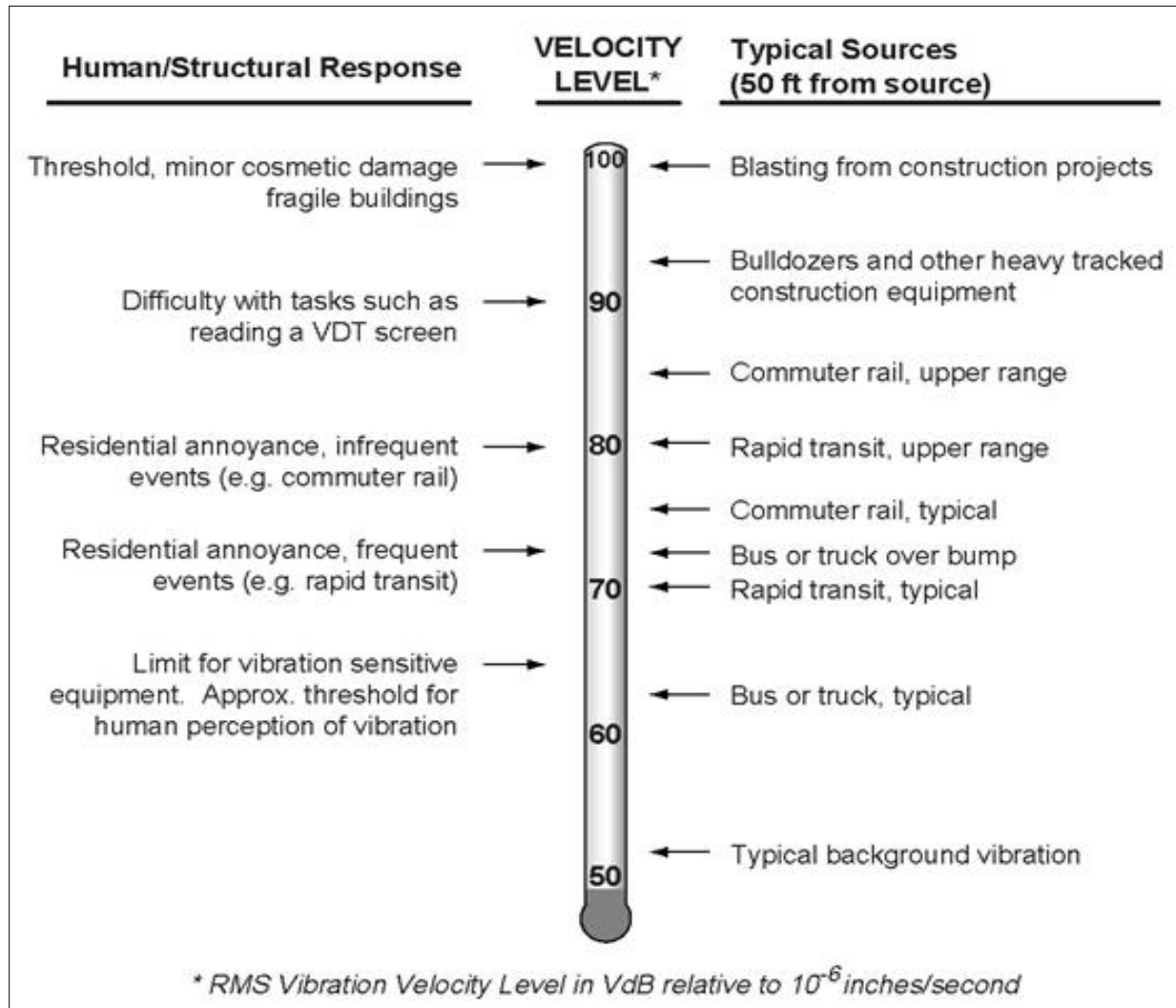
Because the A-weighted decibel scale is logarithmic, a 10 dBA increase in a noise level is generally perceived as a doubling of loudness, while a 3 dBA increase in a noise level is just barely perceptible to the human ear. The A-weighted noise descriptor used to determine impacts from freight rail-related sources at residences is the 24-hour day-night noise level (or L_{dn}), which includes a 10-decibel penalty for all nighttime activity between 10:00 p.m. and 7:00 a.m. Ground-borne vibration associated with vehicle movements is usually the result of uneven interactions between wheels and road or rail surfaces. Examples of such interactions (and subsequent vibrations) include train wheels over a jointed rail, an untrue rail car wheel with "flats," and a motor vehicle wheel hitting a pothole, a manhole cover, or any other uneven surface. Typical ground-borne vibration levels from transit and other common sources are summarized in Figure 3-23.

Figure 3-22: Typical A-Weighted Noise Levels



Source: *Transit Noise and Vibration Impact Assessment*. FTA, Washington, DC. September 2018.

Figure 3-23: Typical Ground-borne Vibration Levels



Source: *Transit Noise and Vibration Impact Assessment*. FTA, Washington, DC. September 2018.

For example, typical ground-borne vibration levels at a receptor 50 feet from different transportation sources traveling at 50 miles per hour range from 61 VdB for trucks and buses to 73 VdB for LRT vehicles to 85 VdB for diesel locomotives. Similarly, a typical background vibration velocity level in residential areas is usually 50 VdB or lower, well below the threshold of perception for humans, which is around 65 VdB¹¹⁵. The typical background levels refer to ambient ground vibrations not related to any specific transportation source (e.g., naturally occurring ground vibration). This background vibration level is assumed to be fairly constant from site to site, except in the vicinity of active fault lines.

¹¹⁵ Federal Transit Administration. 2006. *Transit Noise and Vibration Impact Assessment*. https://www.transit.dot.gov/sites/fta.dot.gov/files/docs/FTA_Noise_and_Vibration_Manual.pdf

Unlike noise, which travels in air, train vibration typically travels along the surface of the ground. Depending on the geological properties of the surrounding terrain and the type of building structure exposed to train vibration, vibration propagation can be more or less efficient. Buildings with a solid foundation set in bedrock are “coupled” more efficiently to the surrounding ground and experience relatively higher vibration levels than buildings located in sandier soil. Heavier buildings (such as masonry structures) are less susceptible to vibration than wood-frame buildings because they absorb more vibration energy.

Vibration induced by passing vehicles can generally be discussed in terms of displacement, velocity, or acceleration. However, human responses and responses by monitoring instruments and other objects are most accurately described with velocity. Therefore, the vibration velocity level is used to assess vibration impacts from freight rail projects.

To describe the human response to vibration, the average vibration amplitude (called the root mean square, or RMS amplitude) is used to assess impacts. The RMS velocity level is expressed in inches per second, or VdB. All VdB vibration levels are referenced to 1 micro-inch per second (ips). Similar to noise decibels, vibration decibels are dimensionless because they are referenced to (i.e., divided by) a standard level (such as 1×10^{-6} ips in the U.S.). This convention allows compression of the scale over which vibration occurs, such as 40-100 VdB rather than 0.0001 ips to 0.1 ips.

Although NEPA forms the general legal framework for the consideration of environmental impacts, the potential noise and vibration impacts from the Project were evaluated in accordance with the Federal Transit Administration’s (FTA) *Transit Noise and Vibration Impact Assessment* guidelines.¹¹⁶ Although the lead Federal agency for the Project is the Federal Railroad Administration (FRA), the FTA Manual is used for projects with conventional train speeds below 90 miles per hour (mph). FRA’s *High-Speed Ground Transportation Noise and Vibration Impact Assessment* manual is used for high-speed ground transportation projects with train speeds of 90-250 mph.¹¹⁷

3.19.2 Noise Criteria

FTA’s guidance manual presents the basic concepts, methods, and procedures for evaluating the extent and severity of noise impacts from freight rail projects. Noise impacts are assessed based on land use categories and sensitivity to noise from freight rail sources under the FTA guidelines. The FTA land use categories and required noise metrics are described in Table 3-28. A description of each land use category is provided, including typical sensitive receptors.

¹¹⁶ Federal Transit Administration, "Transit Noise and Vibration Impact Assessment Manual", FTA Report No. 0123, September 2018.

¹¹⁷ Federal Railroad Administration, *High-Speed Ground Transportation Noise and Vibration Impact Assessment*, DOT/FRA/ORD-12/15, Washington, DC, September 2012.

Table 3-28: FTA Land Use Categories and Noise Metrics

Land Use Category	Noise Metric	Description
1	$L_{eq}(h)$	Tracts of land set aside for serenity and quiet, such as outdoor amphitheaters, concert pavilions and historic landmarks.
2	L_{dn}	Buildings used for sleeping such as residences, hospitals, hotels and other areas where nighttime sensitivity to noise is of utmost importance.
3	$L_{eq}(h)$	Institutional land uses with primarily daytime and evening uses including schools, libraries, churches, museums, cemeteries, historic sites and parks, and certain recreational facilities used for study or meditation.

Notes:

L_{dn} describes a receiver's cumulative noise exposure from all events over a full 24 hours, with events between 10:00 p.m. and 7:00 a.m. increased by 10 decibels to account for greater nighttime sensitivity to noise. For other noise-sensitive land uses, such as schools and libraries (FTA Land Use Category 3) and outdoor amphitheaters (FTA Land Use Category 1), the average hourly equivalent noise level (or $L_{eq}(h)$) is used to represent the peak operating period.

Source: *Transit Noise and Vibration Impact Assessment*. FTA, Washington, DC. September 2018.

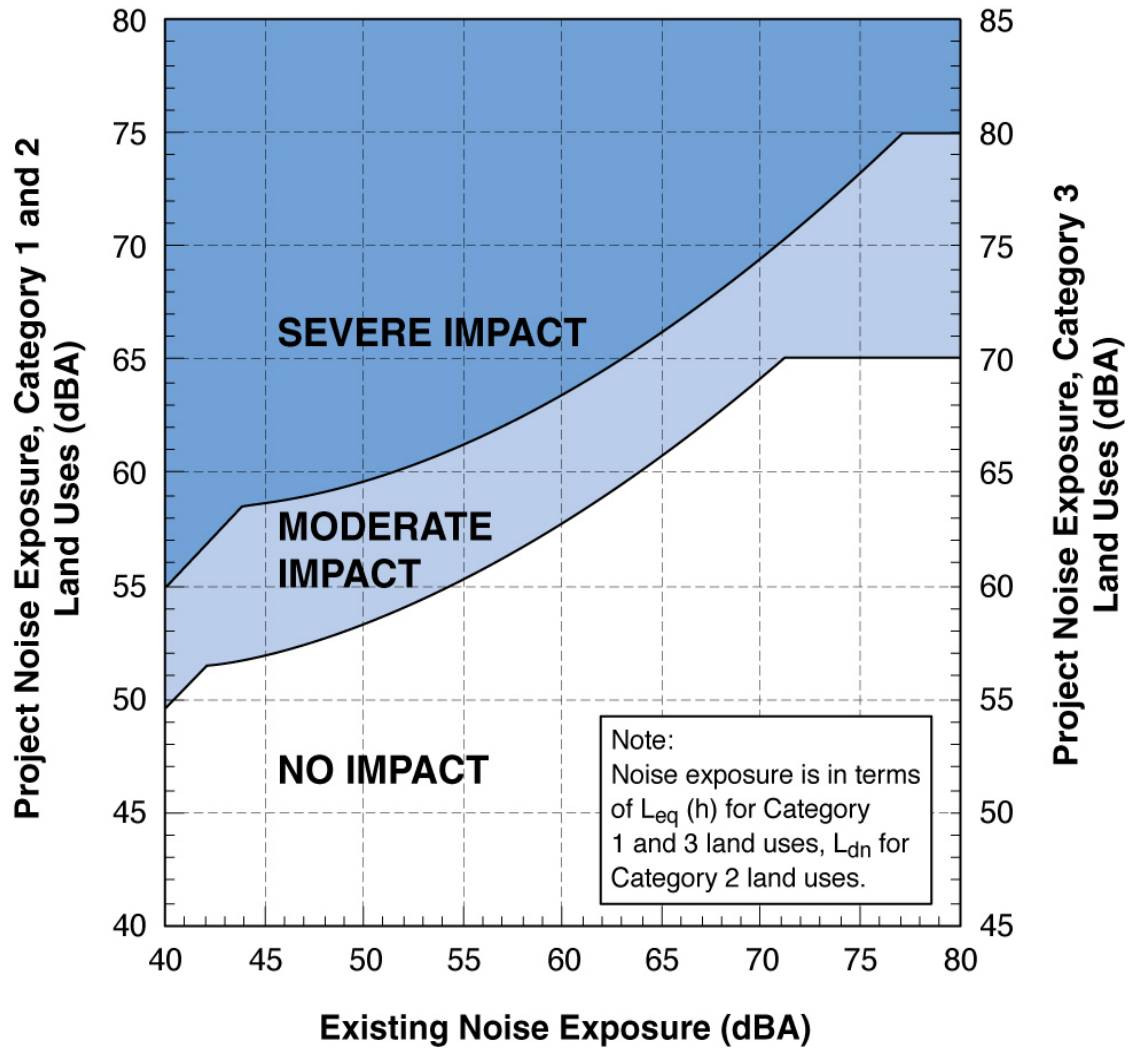
As shown in Figure 3-24, the FTA noise impact criteria are defined by two curves (*moderate* and *severe* impact) that allow increasing Project noise levels as existing noise increases up to a point, beyond which impact is determined based on Project noise alone.

The *moderate* impact threshold defines areas where the change in noise is noticeable but may not be sufficient to cause a strong, adverse community reaction. The *severe* impact threshold defines the noise limits above which a substantial percentage of the population would be highly annoyed by new noise. The level of impact at any specific site can be determined by comparing the predicted future Project noise level to the existing noise level at the site.

VIBRATION CRITERIA

The FTA vibration criteria for evaluating ground-borne vibration impacts from train passbys at nearby sensitive receptors are shown in Table 3-29. Noise and vibration-sensitive receptors include those locations that could be adversely affected by rail operations. These vibration criteria are related to ground-borne vibration levels that are expected to result in human annoyance and are based on RMS velocity levels expressed in VdB referenced to 1 micro inch per second. FTA's experience with community response to ground-borne vibration indicates that when there are only a few train events per day, higher vibration levels are necessary to evoke the same community response that would be expected from more frequent events.

Figure 3-24: FTA Project Noise Impact Criteria



Source: FTA, Washington, DC. September 2018.

Table 3-29: Ground-Borne Vibration Impact Criteria for Annoyance during Operations and Construction

Receptor Land Use		Vibration Levels (VdB)		
Category	Description	Frequent Events	Occasional Events	Infrequent Events
1	Buildings where low vibration is essential for interior operations	65	65	65
2	Residences and buildings where people normally sleep	72	75	80
3	Daytime institutional and office use	75	78	83
Specific Buildings	TV/Recording Studios/Concert Halls	65	65	65
	Auditoriums	72	80	80
	Theaters	72	80	80

Source: *Transit Noise and Vibration Impact Assessment*. FTA. Washington, DC. September 2018.

This experience is taken into account in the FTA criteria by distinguishing between projects with *frequent*, *occasional*, or *infrequent* events. The *frequent* events category is defined as more than 70 events per day, the *occasional* events category is defined as between 30 and 70 events per day, and the *infrequent* events category is defined as less than 30 events per day. To be conservative, the FTA *frequent* criteria were used to assess ground-borne vibration impacts in the Project Study Area.

The vibration criteria levels shown in Table 3-29 are defined in terms of human annoyance for different land use categories such as high sensitivity (Category 1), residential (Category 2), and institutional (Category 3). In general, the vibration threshold of human perceptibility is approximately 65 VdB.

Baseline noise levels were estimated using the FTA noise exposure estimates for distance to rail corridors as well as existing warning horn noise exposure. The potential for noise and vibration impacts by the Project was evaluated using FTA’s guidelines to reflect the type of input data available. As shown in Table 3-30, freight operations were evaluated for two future Preferred Alternatives (Scenarios 1 and 2) to reflect different freight rail operating conditions. Scenario 1 reflects a 10,000’ freight train with four trips per day, while Scenario 2 reflects a 6,000-foot freight train with six trips per day.

This information was used to calculate total daily noise exposure over a 24-hour period at the closest residences that represent other nearby residences in the neighborhood. Noise levels were adjusted to reflect each receptor’s distance, rail vehicle speeds, rail gaps at switches, and ground attenuation.

Additionally, although there is only one grade crossing proposed along the Project alignment, this crossing would be private, so crossing bells may not be required. However, the onboard locomotive warning horns would be sounded within 0.25-mile in accordance with FRA requirement for public crossings.

Ground-borne vibration levels were predicted using the FTA's ground-surface vibration curves for heavy locomotives, which represent a conservative or worst-case evaluation of the potential for impacts compared to the much lighter railcars.

Ground-borne noise is rarely a concern for above-grade or elevated rail systems because airborne noise typically dominates. Therefore, ground-borne noise (low-frequency rumble indoors) was not evaluated since no impacts are expected.

Table 3-30: Freight Train Operations for the WRR Preferred Alternative

Source Description	Existing Condition	Preferred Alternative ¹	
		Scenario 1	Scenario 2
Train Length (ft)	6,000	10,000	6,000
# locomotives	2	2	2
# railcars	100	150	100
Speed (mph)	10	25	25
Operations			
Daytime (7am-10pm)	--	3	5
Nighttime (10pm-7am)	2	1	1
Track Distance (mi)	8.14	4.05	4.05
railcar-miles per day	1,628	2,430	2,430

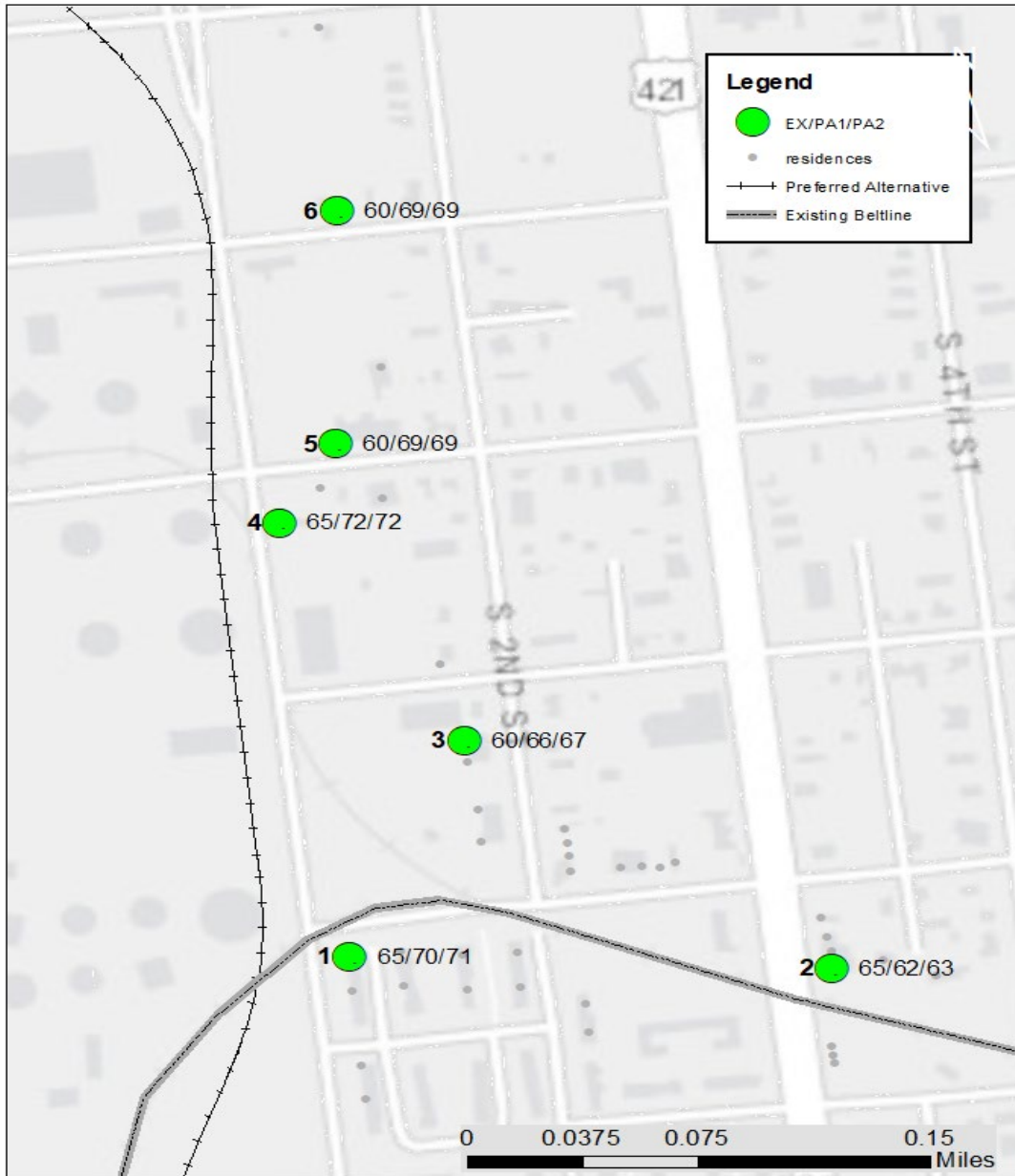
Source: WRR Operations Analysis NCSPA Edits 11_24_21 - Draft Final.docx, November 2021.

¹ Railcar volume converted to train length using 2021 Port Strategic Plan and other assumptions as outlined in Chapter 2.

INVENTORY OF RECEPTORS

The FTA screening procedures were utilized to broadly select receptor sites within the Project Study Area with the potential for noise and vibration impacts. Based on the number of existing trains in the region and the introduction of a new rail corridor, a screening distance of 200 feet was used to select noise-sensitive receptors along the proposed rail corridor. Using graphical information system (GIS) software, aerial maps, and parcel data provided by New Hanover County, six residential clusters were identified for the technical analysis (as shown in Figure 3-25). Figure 3-25 shows noise levels at each receptor, with "EX" demonstrating the Existing Condition, "PA1" demonstrating the Preferred Alternative Scenario 1, and "PA2" demonstrating the Preferred Alternative Scenario 2. These six sites are representative of 76 dwelling units or individual residences. Expanded details are included in Appendix G.

Figure 3-25: Noise at Selected Receptors



Residences and other noise-sensitive receptors along the current Beltline corridor would be expected to experience a significant reduction in noise under the future Preferred Alternative. Under the Preferred Alternative, all CSXT freight trains traveling between Davis Yard and the Port would use the proposed bypass located farther away from dense residential communities. With the expected reduction of rail activity, future noise in the residential communities along the Beltline would predominantly be characterized by local street traffic rather than freight rail operations. Therefore, no adverse noise or vibration impacts from the Preferred Alternative are expected at receptors along the Beltline corridor and in fact, the receptors along the Beltline corridor would experience a positive impact of reduced noise. Accordingly, the focus of the impact assessment is residences along South Front Street adjacent to the new proposed rail corridor.

Other land-uses along the proposed Project area include commercial and industrial facilities (e.g., petroleum storage and distribution), undeveloped lands, and wildlife refuge areas as part of the Eagle Island environmental sanctuary. However, the FTA guidance does not consider commercial and industrial land-uses sensitive to rail noise. Additionally, the FTA guidance also does not address noise and vibration effects on wildlife and domestic animals. Although the FRA High-Speed manual provides a limited approach to addressing potential impacts on wildlife, these effects are related to the shock effects of high-speed trains rather than conventional trains with much lower speeds. Therefore, there is no approved FTA or FRA methodology or guidelines for reliably assessing noise and vibration impacts on animals and wildlife.

3.19.3 Affected Environment

Residences within approximately 120 feet of the existing Beltline rail corridor have an estimated baseline noise level of 65 dBA due to the nighttime freight activity. Residences beyond 120 feet from the existing rail corridor have an estimated baseline noise level of 60 dBA due to the greater distance from the existing rail corridor and the acoustical shielding effects provided by intervening structures. There are no non-residential noise-sensitive receptors located along the Preferred Alternative (e.g., schools, churches, or libraries).

Similarly, existing vibration is estimated to range from less than 50 VdB or lower away from major roadways to 76 VdB at residences immediately adjacent to the existing Beltline rail corridor. Existing noise along the Beltline Corridor is currently dominated by train warning horn use, particularly during the nighttime period. For example, 1,776 residences are currently exposed to 65 dBA L_{dn} along the Beltline Corridor due to nighttime warning horns. The background vibration velocity level of 50 VdB is well below the threshold of perception for humans of around 65 VdB.

3.19.4 Environmental Consequences

NO-BUILD ALTERNATIVE

Future noise levels under the No-Build Alternative are expected to increase by as much as threefold due to the commensurate increase in rail operations which forecasts an increase

from the current two train movements per day to potentially six train movements per day in the future. Due to the increase in train operations, receptor noise levels along the Beltline due to rail activity would reasonably be expected to increase as well, particularly with the required sounding of train warning horns along most of the Beltline.

The speed of future trains is expected to increase in speed from 10 up to 25 mph, resulting in a slight decrease of up to 1-2 dBA at receptors along the Beltline. As a result, future noise effects due to train warning horns along the Beltline would also decrease by 15 to 22 percent under the No-Build Alternative due to the change in operations and speed. For example, noise exposure of 65 dBA L_{dn} or above along the Beltline due to train warning horns would decrease from 1,499 residences under the Existing Condition to 1,168 and 1,277 sites under No-Build Alternative future operating Scenarios 1 and 2, respectively.

Future vibration levels under the No-Build Alternative are expected to increase compared to the current existing conditions due to the change in speed from 10 up to 25 mph and the proposed threefold increase in freight rail operations. As a result, future receptor vibration levels under the No-Build Alternative along the Beltline would increase by up to 8 VdB.

PREFERRED ALTERNATIVE

Noise

Under the Preferred Alternative, almost all freight rail traffic would utilize the newly created bypass and avoid the Beltline; therefore, freight operations between Davis Yard and the Port would be farther away from the dense residential communities along the Beltline through the City.

Except for the occasional freight service to local commercial customers which were not included in the noise analysis, future noise due to train warning horns along the Beltline would decrease by 97 percent under the Preferred Alternative due to the rerouting of the majority of freight operations to the new bypass alignment. For example, the number of residences with a predicted noise exposure of 65 dBA L_{dn} or above along the Beltline due to train warning horns would decrease from 1,499 sites under the Existing Condition to 52 and 61 sites under Preferred Alternative Scenarios 1 and 2, respectively. The number of receptors under the Preferred Alternative reflects 40 new receptors adjacent to the new bypass alignment that are not currently affected by train warning horns. The reductions in rail noise would also apply to non-residential receptors such as the Forest Hills Global Elementary School along Colonial Drive and the Ebenezer Missionary Baptist Church at North 30th Street.

Future noise under the Preferred Alternative in residential communities along the Beltline would predominantly be characterized by local street traffic rather than freight rail operations. Therefore, no new noise or vibration impacts from the Preferred Alternative would be created at receptors along the Beltline. However, noise would increase slightly at residences along the new bypass along the Cape Fear River and South Front Street. As shown in Table 3-31, for example, typical noise levels along the Beltline (represented by Site 2) would decrease by up to 15-16 dBA due to the elimination of regular daily freight rail traffic, including the sounding of

train warning horns at the 32 grade crossings (30 public and 2 private crossings). However, noise levels along South Front Street near the proposed bypass (represented by Site 3) would increase by 3-4 dBA due to new freight traffic there. Noise levels at receptors near the wye (represented by Site 1) would decrease 10 dBA due to the elimination of train warning horns along the Beltline.

Table 3-31: Project Noise Levels at Representative Receptors

Address	FTA	Existing	Preferred Alternative		FTA Criteria	
	Cat. ¹	Condition (dBA)	Scenario 1 (dBA)	Scenario 2 (dBA)	Moderate (dBA)	Severe (dBA)
101 Laughing Oak Ln	2	73	63	63	65	71
1221 9 th Street	2	73	57	57	65	71
105 Meares St	2	64	67	68	60	66

Note ¹. The FTA Category 2 represents residential land-uses.

Source: AECOM, May 2023.

Finally, there would be no noise and vibration impact along other portions of the new bypass route in Brunswick County because there are no existing residences or community facilities (FTA land-use Category 3) along that portion of the Study Area.

As shown in Table 3-31, maximum operational noise levels at residences along the new bypass under the Preferred Alternative would be lower than the current noise along the Beltline due to the limited use of train warning horns at grade crossings. These are the maximum Project operational noise levels that would occur in the Study Area. As a result, operational noise impacts (defined as future Project noise levels that are equal to or greater than the FTA criteria) are predicted at all first- and second-row residences. For all 2,024 receptors, severe noise impacts are predicted for 40 residences under the Preferred Alternative Scenario 1 (10,000-foot trains), while moderate noise impacts are predicted at an additional 27 residences. Similarly, severe noise impacts are predicted for 41 residences under Preferred Alternative Scenario 2 (6,000-foot trains), while moderate noise impacts are predicted for an additional 27 residences. These noise impacts are due completely to the sounding of the train warning horn within 20 seconds of the public grade crossings at Wright and Dawson Streets. A complete listing of properties with noise impacts is provided in Table 3-32.

Table 3-32: Inventory of Residences where Noise Impacts are Predicted under the Preferred Alternative

Receptor		Land Use	Existing Condition	Preferred Alternative		Impact Criteria	Impact	
ID	Address			Scen 1	Scen 2		Scen 1	Scen 2
3	105 Meares St	RES	64	67	68	60 / 66	SEV	SEV
4	1105 Front St	RES	65	69	69	61 / 66	SEV¹	SEV¹
16	210 Marstellar St	RES	67	63	63	62 / 68	MOD	MOD
18	113 Wright St	RES	63	68	68	59 / 65	SEV	SEV
19	117 Meares St	RES	64	65	66	60 / 66	MOD	SEV
20	115 Wright St	RES	63	67	68	59 / 65	SEV	SEV
25	110 Dawson St	RES	62	67	68	59 / 64	SEV	SEV
26	3 Queen St	RES	60	64	64	58 / 63	SEV	SEV
32	110 Meares St	RES	65	66	67	61 / 66	SEV	SEV
34	1017 2 nd St	RES	64	64	65	60 / 65	MOD	MOD
35	1013 2 nd St	RES	63	65	65	60 / 65	MOD	MOD
36	926 2nd St	RES	63	66	67	59 / 65	SEV	SEV
87	111 Meares St	RES	64	67	67	60 / 66	SEV	SEV
95	922 2nd St	RES	62	66	67	59 / 65	SEV	SEV
96	106 Meares St	RES	65	67	68	61 / 66	SEV	SEV
97	118 Meares St	RES	65	65	66	61 / 66	MOD	MOD
98	1014 2nd St	RES	63	66	66	60 / 65	SEV	SEV
99	1016 2nd St	RES	64	66	66	60 / 65	SEV	SEV
105	104 Marstellar St	RES	68	66	66	63 / 68	MOD	MOD
106	108 Marstellar St	RES	68	65	66	63 / 68	MOD	MOD
122	202 Wright St	RES	63	65	66	59 / 65	SEV	SEV
123	114 Meares St	RES	65	66	66	61 / 66	SEV	SEV
225	114 Marstellar St	RES	68	64	65	63 / 68	MOD	MOD
226	112 Marstellar St	RES	68	65	65	63 / 68	MOD	MOD
254	115 Marstellar St	RES	67	65	65	62 / 68	MOD	MOD
262	120 Meares St	RES	65	65	66	61 / 66	MOD	MOD
263	1112 2 nd St	RES	66	65	66	62 / 67	MOD	MOD
274	1104 2 nd St	RES	65	65	65	61 / 66	MOD	MOD
401	1109 2 nd St	RES	65	64	65	61 / 66	MOD	MOD
402	1111 2 nd St	RES	66	64	64	61 / 67	MOD	MOD
403	1105 2 nd St	RES	65	64	65	61 / 66	MOD	MOD
404	1107 2 nd St	RES	65	64	65	61 / 66	MOD	MOD
405	1103 2 nd St	RES	65	64	65	61 / 66	MOD	MOD
449	202 Meares St	RES	65	64	65	61 / 66	MOD	MOD
450	201 Meares St	RES	64	64	65	60 / 66	MOD	MOD
604	113 Meares St	RES	64	66	67	60 / 66	SEV	SEV
605	208 Marstellar St	RES	68	63	64	63 / 68	MOD	MOD
626	1209 2 nd St	RES	69	63	64	64 / 69	NO	MOD
627	1207 2 nd St	RES	69	63	64	63 / 69	MOD	MOD
628	1208 2 nd St	RES	69	64	64	64 / 69	MOD	MOD
629	1206 2 nd St	RES	69	64	64	63 / 69	MOD	MOD

Receptor		Land Use	Existing Condition	Preferred Alternative		Impact Criteria	Impact	
ID	Address			Scen 1	Scen 2		Scen 1	Scen 2
634	116 Marstellar St	RES	68	64	65	63 / 68	MOD	MOD
1540	1104 2 nd St	RES	65	65	65	61 / 66	MOD	MOD
1611	113 Meares St	RES	64	66	67	60 / 66	SEV	SEV
1759	1002 2nd St	RES	63	66	67	59 / 65	SEV	SEV
1763	201 Wright St	RES	63	65	66	59 / 65	SEV	SEV
1766	910 2nd St	RES	62	66	67	59 / 64	SEV	SEV
1974	113 Meares St	RES	64	66	67	60 / 66	SEV	SEV
1980	203 Wright St	RES	62	65	66	59 / 65	SEV	SEV
1983	203 Wright St	RES	62	65	66	59 / 65	SEV	SEV
1984	203 Wright St	RES	62	65	66	59 / 65	SEV	SEV
1985	203 Wright St	RES	62	65	66	59 / 65	SEV	SEV
1986	203 Wright St	RES	62	65	66	59 / 65	SEV	SEV
1987	203 Wright St	RES	62	65	66	59 / 65	SEV	SEV
1988	203 Wright St	RES	63	65	66	59 / 65	SEV	SEV
1989	203 Wright St	RES	62	65	66	59 / 65	SEV	SEV
1990	203 Wright St	RES	62	65	66	59 / 65	SEV	SEV
1991	203 Wright St	RES	62	65	66	59 / 65	SEV	SEV
1992	203 Wright St	RES	62	65	66	59 / 65	SEV	SEV
1993	203 Wright St	RES	62	65	66	59 / 65	SEV	SEV
1994	203 Wright St	RES	62	65	66	59 / 65	SEV	SEV
1995	203 Wright St	RES	62	65	66	59 / 65	SEV	SEV
1996	203 Wright St	RES	62	65	66	59 / 65	SEV	SEV
1997	203 Wright St	RES	62	65	66	59 / 65	SEV	SEV
1998	203 Wright St	RES	62	65	66	59 / 64	SEV	SEV
2012	1002 2 nd St	RES	63	66	67	59 / 65	SEV	SEV
2015	115 Meares St	RES	64	66	66	60 / 66	SEV	SEV
2016	1015 2 nd St	RES	64	65	65	60 / 65	MOD	MOD

Note: The Preferred Alternative includes two operating conditions, Scenario 1 ('Scen 1') and Scenario 2 ("Scen 2").

1. For nighttime construction, Project noise levels are predicted to exceed the FTA 'nighttime' criteria at a residence at 1105 Front Street.

2. Highlighted rows indicate contributing resources to the Wilmington Historic District.

Source: AECOM, May 2023.

Vibration

Operational vibration levels under the Preferred Alternative are predicted to range from 40 VdB at Site 2 (a residence at 1221 9th Street) along the Beltline to 68 VdB at Site 1 (a residence at 105 Laughing Oaks Lane) near the wye to 69 VdB at Site 3 (a residence at 105 Meares Street) along the bypass alignment. To minimize potential impacts from gaps in the switch mechanism, track turnout switches are proposed over 200 feet away from residences. None of the future operational vibration levels from the proposed freight rail operations are predicted to exceed the FTA *infrequent* impact criterion of 80 VdB at residential receptors. The lack of operational vibration impacts is due to the routing of the proposed track alignment west of South Front Street away from residences, combined with the slow travel speeds. Additionally, track

switches (which typically contribute to elevated vibration levels due to the gap in the rail) are proposed away from residences to further minimize the potential for adverse impacts. Therefore, operational vibration levels along the Project rail corridor would be well below the FTA impact criteria.

As shown in Table 3-33, operational vibration levels at the selected residences under the Preferred Alternative would be like noise currently along the Beltline. None of the future operational vibration levels from the proposed locomotive operations (with maximum predicted levels up to 75 VdB) are predicted to exceed the FTA infrequent impact criteria of 80 VdB at residential receptors. Similarly, none of the future operational vibration levels from the proposed railcar operations (with maximum predicted levels up to 64 VdB) are predicted to exceed the FTA frequent impact criteria of 72 VdB at residential receptors. Overall, there will be no new vibration impacts to any property east of Front Street under the Preferred Alternative. The lack of operational vibration impacts is due to the routing of the track to the bypass alignment to the west of South Front Street, away from residences, combined with the slow travel speeds. Therefore, operational vibration levels along the Project rail corridor would be well below the FTA impact criteria. Additionally, track switches (which typically contribute to elevated vibration levels due to the gap in the rail) are proposed away from residences to further minimize the potential for adverse impacts.

Table 3-33: Predicted Future Vibration Levels under the Preferred Alternative

Address	FTA Category	Existing Distance (ft)	Build Distance (ft)	Existing (VdB)	Build (VdB)	FTA Criteria (VdB)
105 Laughing Oak Ln	2	138	254	66	68	80
1221 9 th Street	2	141	3,400	66	40	80
105 Meares Street	2	959	230	45	69	80

Notes: Cat. = category; and RES = residence
 Source: AECOM, May 2023

3.19.5 Potential Mitigation Strategies and/or Commitments

Because FTA severe noise impacts are predicted due to train warning horns at the at-grade crossings at Wright and Dawson Streets during future Project operations, noise mitigation measures are identified for consideration. The following noise control measures are recommended for further consideration during final design to determine feasibility and reasonableness. Since the noise impacts are due to the train warning horns, noise walls or barriers are not recommended because they would not be effective against train warning horns. With mitigation that would eliminate the train warning horns at the Wright and Dawson Street crossings, no severe or moderate noise impacts listed in Table 3-30 or elsewhere in the Study Area are predicted for the Project.

- Street Closures – Dawson Street
 - Close Dawson Street to public traffic or installation of permanent gates for controlled access only. With the planned closure of the connecting roadway at Surrey Street, Dawson Street would become a dead-end roadway with limited access needed only for a private property owner or emergency services.
 - The closure of this crossing to public traffic with controlled access only would eliminate the need for train warning horns at this grade crossing; however, train warning horns would still be required at the adjacent Wright Street crossing, which would be mitigated separately, as described below.
- Street Reassignments – Wright Street
 - Convert the western end of Wright Street from a public roadway into a private driveway. This conversion would eliminate the train warning horn requirement from 49 CFR § 222.
 - Reassignment of Wright Street from public access to private access would potentially require approvals from the Wilmington City Council and Planning Boards and agreement with the private property owners accessed by this roadway.

The effectiveness and efficacy of these control measures will be investigated in more detail during the future final design phase of the Project when details of the bypass alignment and other engineering considerations are better defined. Additionally, since no Project operational vibration impacts are predicted, no control measures are required for vibration.

3.20 UTILITIES

3.20.1 Introduction and Methodology

Several underground and overhead utilities were identified within the Project's proposed right-of-way using aerial imagery, field observations, county GIS data, and direct coordination with utility companies. Utilities identified within the Study Area include overhead transmission and distribution lines owned by Duke Energy, aboveground water lines and underground water and sewer lines owned by Cape Fear Public Utility Authority, an underground abandoned natural gas line, and cell towers owned by Optima Towers IV. Impacts on utilities were determined based on whether the Project directly intersects with the utility. The City will confirm the exact utility locations and continue coordination with the owners of these utilities through the final design of the Project.

3.20.2 Affected Environment

Overhead power utilities within the Study Area are comprised of Duke Energy transmission and distribution lines. Distribution lines provide power to individual customers, and transmission lines move power from the source to smaller substations to serve distribution lines. Distribution lines are prevalent on the east side of Cape Fear River along Front Street. To the west of Cape Fear River, distribution lines provide services to smaller businesses and buildings along

Battleship Road and US 421. A transmission substation is located north of the Cape Fear Memorial Bridge. Transmission lines and towers are located within the Study Area on the west side of Cape Fear River.

Dual aboveground waterlines travel parallel to the existing rail line servicing Davis Yard in Navassa as well as other areas in Pender County and transition underground just before crossing Cape Fear River. Records dated from 1935 indicate one of the pipes is a 24-inch cast iron water line owned by the Cape Fear Public Utility Authority. It is assumed the other pipe is the same size and material, constructed after 1935, and owned by the Cape Fear Public Utility Authority. The pipes are still active.

Underground water and sewer utilities are serviced by the Cape Fear Public Utility Authority and provide sewer and water to the businesses and residences within the Study Area.

A known and abandoned natural gas line (approximately 4 inches) is located below Surry Street, approximately 5 to 6 feet deep. Piedmont Natural Gas has coordinated with the City regarding the replacement of this gas line.

A recently constructed (2021) cell tower is located in the southwest quadrant of the intersection of Dawson and South Front Streets. The tower is owned by Optima Towers IV and can support up to four customers. As of February 2022, Verizon Wireless is the only customer being served by the tower.

Stormwater drainage facilities are located throughout the existing roadway network within the Study Area.

3.20.3 Environmental Consequences

NO-BUILD ALTERNATIVE

Utilities along the existing Beltline would not be permanently or temporarily impacted by the No-Build Alternative as the Project would not be built. However, existing utilities could be impacted by other planned and committed projects within the Study Area. Any impacts associated with other projects would be the responsibility of the parties implementing those projects.

PREFERRED ALTERNATIVE

Construction of the Preferred Alternative requires some adjustment, relocation, or modification of existing public utilities.

The Preferred Alternative would likely conflict with electrical distribution lines, requiring these lines to be either buried or raised. The Preferred Alternative crosses the Duke Energy transmission lines (Sutton Plant – Delco 115kV South Line) in three locations, which would likely require that these lines be raised. The Project Team would continue coordination with Duke Energy regarding impacts to distribution and transmission lines.

The Preferred Alternative would likely conflict with the dual above-ground waterlines that parallel the exiting rail line approximately 60 feet to the south. As the Project begins to tie into the existing rail line at this location, the lines would need to be buried. The City would conduct additional coordination with the Cape Fear Public Utility Authority as final designs are developed to determine mitigation for waterlines.

Piedmont Natural Gas has contacted the City of Wilmington regarding the replacement of the abandoned underground gas line to ensure the Project would not interfere with proposed plans for returning service. The Project is proposed on structure at Surry Street; therefore, the sufficient cover would be achieved, and impacts to the existing or future replacement of the gas line are not anticipated. Replacement of the gas line is not a part of this Project.

The Project is expected to require the removal or relocation of the Optima Towers IV cell tower located in the southwest quadrant of the intersection of Dawson and South Front Streets. Removal of the cell tower may require coordination with the Federal Communications Commission (FCC).

Stormwater drainage facilities along the Preferred Alternative corridor may be impacted and will be determined as railway and hydraulic designs progress. All modifications, relocations, or adjustments remain subject to coordination with affected utilities. Coordination with Cape Fear Public Utility Authority and the City will occur prior to commencing any construction operations.

3.20.4 Potential Mitigation Strategies and/or Commitments

For unavoidable utility conflicts, the City will coordinate with utility owners and operators to identify appropriate mitigation measures such as relocating, raising, lowering, burying, and protecting utility lines and services. Specific strategies for potential mitigation include:

- Continue coordination with Duke Energy to meet clearance requirements and maintain access for the overhead transmission that would be crossed by the Preferred Alternative.
- Continue work with local utilities to minimize service disruptions during peak service hours.
- Coordinate with Optima Towers IV and the City of Wilmington and discuss relocation.

3.21 ENERGY RESOURCES

3.21.1 Introduction and Methodology

This section discusses the potential effects of the Preferred Alternative on energy resources, specifically fuel consumption for both trains and vehicles. In support of the CRISI application, the City prepared a BCA¹¹⁸, to demonstrate the potential economic benefits of a project to relocate freight trains traveling between Davis Yard and the Port. The BCA estimated the

¹¹⁸ AECOM. 2018. Benefit Cost Analysis Memorandum for the Wilmington Rail Realignment Project. September 2018. <https://www.wilmingtonnc.gov/home/showpublisheddocument/11204/63715292171650000>

benefits of relocating up to 10 daily freight trains operating between Davis Yard and the Port. The 10 daily freight trains represented a projection of future train growth through 2050, which is beyond the 2040 Future Scenario 1 (4 daily trains) and Scenario 2 (6 daily trains) presented in this EA. The benefits were estimated over a 30-year period, beginning when construction ends and concluding after 30 full years of operations. The construction period was assumed to be from 2025 through 2027, with operations assumed to begin on the new rail line in early 2028 and forecasted to continue through 2050. The analysis used annual freight locomotive hours saved and emission rates in grams per brake horsepower to quantify emissions reductions.

3.21.2 Affected Environment

The existing route for the Beltline runs east from Davis Yard in Navassa in Brunswick County and forms a "V" through the City from the Hilton Bridge on the Northeast Cape Fear River north of downtown Wilmington to Kerr Avenue (SR 1175) to the east, and back west to the Port of Wilmington. The total length of track through the City is approximately 8 miles, with 30 public and two private at-grade rail crossings and five grade-separated crossings. Track speed is ten mph over the Beltline, as determined by CSXT operating rules. Contributing factors that determine track speed include the presence of movable bridges, track curvatures, proximity to yard limits, track signalization, and other general track operation and safety considerations. Given the shape of the Beltline and the number of at-grade crossings throughout the City, track speeds are relatively low. Slower speeds, coupled with the numerous at-grade crossings, frequently cause traffic delays, which contributes to increased energy consumption through the burning of fuel while idling.

3.21.3 Environmental Consequences

NO-BUILD ALTERNATIVE

Under the No-Build Alternative, freight traffic traveling between Davis Yard and the Port would continue to use the Beltline through the City. Such freight train operations are expected to increase over time, which would result in more frequent or longer trains running the length of the Beltline and would also result in worsened traffic conditions at the 32 existing at-grade crossings (30 public and 2 private crossings) with higher vehicle delays and fuel consumption. Under the No-Build Alternative, the Beltline would remain in its current location, and minimal improvements to energy consumption would occur as a result of planned improvements as a part of STIP Project number P-5740.

PREFERRED ALTERNATIVE

The Preferred Alternative shortens the route between Davis Yard and the Port by approximately four miles for freight operations. It also substantially reduces freight traffic at all at-grade crossings on the Beltline, except for the location of a new crossing at Dawson Street. The energy analysis is based on the forecasted benefits to relocate 10 freight daily freight trains operating between Davis Yard and the Port and did not consider the continued operation of local train traffic serving existing customers on the Beltline. Due to the increasing traffic growth in the downtown area and the length and frequency of trains blocking at-grade

crossings, the *Benefit Cost Analysis Memorandum*¹¹⁸ estimated that there would be positive travel time savings and reduced highway emissions due to the reduction of delay at the at-grade crossings. Additionally, highway emissions benefits associated with the elimination of highway queuing at the at-grade crossings from 10 through-freight trains were calculated in the BCA to be \$1.7 million, discounted at 7 percent.¹¹⁹ These improvements under the Preferred Alternative would result in fuel savings from reduced mileage and idling. The BCA also calculated the Project would result in a net emissions savings of \$18.9 million when discounted by seven percent from the reduced train trip time.

While increased operations would result in greater energy consumption, the reduction in miles traveled and delays at grade crossings along the Beltline would likely provide an overall net benefit to freight rail energy consumption within the Study Area.

3.21.4 Potential Mitigation Strategies and/or Commitments

As the Preferred Alternative significantly lessens many of the effects on energy resources, no specific mitigation would be proposed.

3.22 RESILIENCY

3.22.1 Introduction and Methodology

Infrastructure can be vulnerable to sea level rise and riverine flooding associated with severe storm events, such as Hurricane Florence in 2018, which inundated parts of Wilmington and Brunswick County. Considering this, it would be important to identify vulnerabilities and how infrastructure can be designed to be more resilient to withstand these events.

Executive Order 14008¹²⁰ establishes climate considerations as an essential element of United States foreign policy and national security. This Executive Order established the Coastal Resilience Interagency Working Group, co-led by the CEQ and NOAA, which aims to increase the resilience of the nation's coast and coastal communities to the impacts of climate change. NCDOT developed the NCDOT Resilience Strategy Report¹²¹ outlining initiatives and future short-, medium-, and long-term steps to advance and deepen agency-wide resiliency practice and capability. The NCDOT Resilience Strategy Report responds to North Carolina Executive

¹¹⁹ Projects expected to use federal funding are required to use a 7 percent discount rate, in accordance with the USDOT 2018 Benefit-Cost Analysis Guidance for Discretionary Grant Programs.

¹²⁰ Executive Order 14008. Tackling the Climate Crisis at Home and Abroad. January 27, 2021. <https://www.whitehouse.gov/briefing-room/presidential-actions/2021/01/27/executive-order-on-tackling-the-climate-crisis-at-home-and-abroad/>

¹²¹ NCDOT Resilience Strategy Report. March 2021. <https://www.deq.nc.gov/environmental-assistance-and-customer-service/climate-change/resilience-plan/agency-reports/department-transportation-2021-resilient-strategy-report/download?attachment>

Order 80 at Section 9¹²² and the 2020 NC Climate Risk Assessment and Resilience Plan,¹²³ which calls for an annual report on community progress toward resilience goals and objectives.

This evaluation considers the vulnerability of the existing and proposed infrastructure of the Preferred Alternative to future storms and flooding.

The analysis considered NOAA's Sea Level Rise viewer¹²⁴ to assess sea level rise and potential coastal flooding in the Study Area and relative depths of future conditions. The viewer is limited to visualization of coastal flooding or sea level rise to 10 feet above average high tides (MHHW). An evaluation of the resiliency of the project was performed for both the Preferred Alternative and the No-Build Alternative for the years 2040 (the future planning year), 2050, and 2100 using the NOAA Sea Level Rise Viewer's projected sea level rise inundation elevations. The "High" sea level rise scenario projection by NOAA for Wilmington, North Carolina in 2040, 2050, and 2100 was used as a worst-case inundation scenario by which elevation of rail facilities and structures should be designed to remain resilient against sea level rise in 2100. Worst-case scenario predictions of sea level rise in 2040, 2050, and 2100 are, respectively, 3.29 feet, 3.81 feet, and 8.9 feet above Mean Sea Level (MSL). Calculations were performed by adding the difference between Mean Higher High Water (MHHW) and MSL (MSL is 2.24 ft below Mean Higher High Water, to the inundation elevations provided by the NOAA viewer that are based on MHHW.

The estimated elevations for the top-of-rail for the preliminary design were considered in assessing the Preferred Alternatives' resiliency to future inundation.

3.22.2 Affected Environment

Wilmington is characterized by low-lying marsh areas associated with the numerous waterways surrounding the area, including the Cape Fear River and its tributaries. The Cape Fear is a primary feature in the Study Area, and there are several highway and railroad bridges that cross the river. Some of these crossings are moveable span bridges to allow for ship traffic to pass. Wilmington is also within North Carolina's coastal zone. As such, severe weather events can result in inundation and flooding of existing transportation infrastructure and facilities in these areas. The existing freight rail line through the City is at-grade and is affected during flooding events where it passes through low-lying areas. In particular, the area around the Port where

¹²² State of North Carolina. Executive Order No. 80. October 29, 2018.

<https://governor.nc.gov/documents/executive-order-no-80-north-carolinas-commitment-address-climate-change-and-transition>

¹²³ North Carolina Climate Risk Assessment and Resilience Plan. June 2020. <https://www.deq.nc.gov/energy-climate/climate-change/nc-climate-change-interagency-council/climate-change-clean-energy-plans-and-progress/nc-climate-risk-assessment-and-resilience-plan#:~:text=This%20plan%20is%20a%20framework,socio%2Deconomic%20disparities%2C%20and%20competing>

¹²⁴ NOAA Office for Coastal Management – Sea Level Rise Viewer. <https://coast.noaa.gov/digitalcoast/tools/slr.html> Accessed January 2022.

the rail line heads north to connect to the Beltline and the area north of I-74/US 17/US 76 on the west bank of the Cape Fear River are areas susceptible to inundation (2020). Figure 3-26 shows the areas susceptible to inundation for 2020.

3.22.3 Environmental Consequences

NO-BUILD ALTERNATIVE

Under the No-Build Alternative, no changes to the existing Beltline would occur. The risks of inundation and flooding of the freight rail infrastructure would be expected to continue and likely worsen, given expected increases in the frequency and severity of storm events. Figure 3-27 shows the increase in susceptible areas based on NOAA calculations. This would result in decreasing reliability and resiliency of the sole route to the Port of Wilmington.

PREFERRED ALTERNATIVE

The Preferred Alternative crosses an area highly susceptible to inundation for the future year 2040. Figure 3-28 shows the areas of the Preferred Alternative most susceptible to future inundation as predicted by the NOAA viewer and the estimated top of rail elevations of the preliminary design. Based on data collected from NOAA, it would be estimated that portions of elevated structure need to exceed 5.29 feet for 2040, 5.81 feet for 2050, and 10.9 feet for 2100 to be above NOAA projected inundation levels. These elevations reflect the projected MHHW level with an additional two feet to be above projected inundation levels. As can be seen, the majority of the Preferred Alternative would exceed the elevations described except for the northern and southern limits where it ties into the existing rail. The lowest elevation for the estimated top-of-rail for the Preferred Alternative would be estimated at three feet at the southern terminus, and the highest estimated top-of-rail would be approximately 41 feet in the middle of the corridor where it approaches and crosses I-74/U 17/US 76.

The Preferred Alternative redirects all existing and future-anticipated freight traffic traveling between Davis Yard and the Port away from the City and the Beltline, with limited traffic remaining on the Beltline from local shippers. The Preferred Alternative and its associated structures included in the Project designed with an elevation of two feet above the projected MHHW level in 2100 (10.9 feet) should minimize the risk of sea level rise-induced inundation and promote resiliency for approximately the next 100 years.

3.22.4 Potential Mitigation Strategies and/or Commitments

The City will ensure the sections of the rail line at grade are designed to resist flood potential by incorporating resilient design measures such as direct fixation track that would be more resistant to saltwater incursion than ballasted track and concrete for the liner and bench walls that would withstand salt water. Resilient adaptation measures would help to mitigate future needs for additional maintenance on the rail line.

Figure 3-26: 2020 Inundation (Existing Condition)



Figure 3-27: Future 2040 No Build Condition



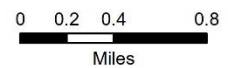
**Wilmington Rail
Realignment Project**
New Hanover County and
Brunswick County, NC

Legend

- Railroad
- No-Build Corridor
- Projected Inundation (1ft above MHHW)
- County Boundary
- Park
- Maintained Navigation Channel

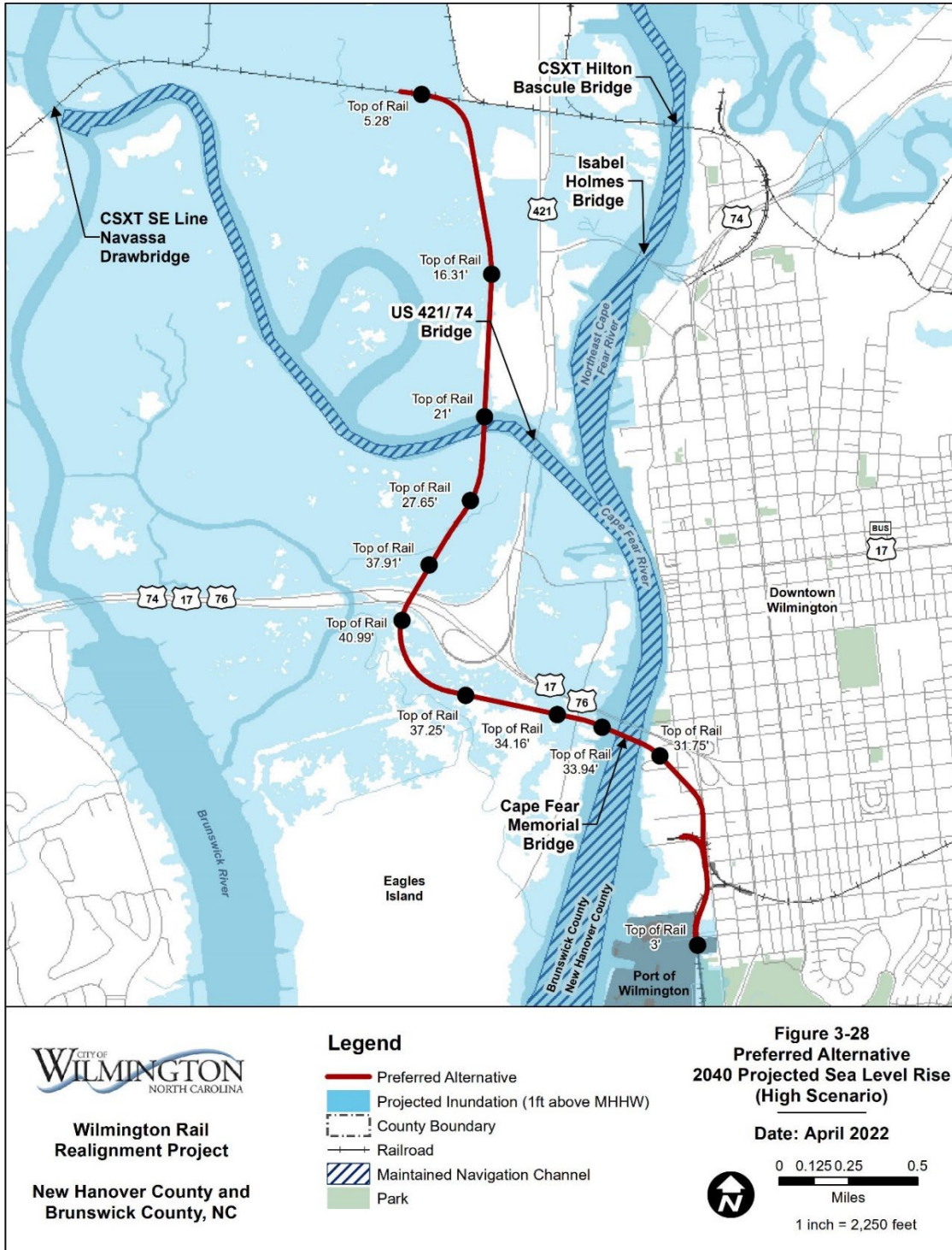
Figure 3-27
Future No-Build Alternative
2040 Projected Sea Level Rise
(High Scenario)

Date: April 2022



1 inch = 3,333 feet

Figure 3-28: Future 2040 Preferred Alternative Condition



3.23 CONSTRUCTION IMPACTS

Construction activities associated with the installation of the Preferred Alternative are expected to create environmental impacts. These would generally be temporary or short-term. All construction activities would be consistent with applicable Federal, state, and local laws governing safety, health, sanitation, erosion control, and site security. Staging of materials required for the Project would occur in secure locations. Construction methods, staging improvements, and BMP would help to control, minimize, or mitigate impacts. As the Project Sponsor, the City would be responsible for the mitigation discussed in this section.

3.23.1 Traffic

Maintenance of traffic plans would be prepared as part of final design plans prior to construction activities to maintain local and through traffic along S Front Street and associated perpendicular side streets, Battleship Road, and US 17 Business/US 74/US 76. These plans will identify specific impacts, temporary road closures, and the detours required during construction of the Project. Opportunities to schedule construction during non-peak periods to minimize delays for traffic during peak commute periods will be evaluated. Maintenance of traffic plans would include measures such as temporary road or lane closures, detours, and phasing/staging of construction where necessary to minimize potential short-term access inconveniences. Information on the local schedule of improvements would be shared with local officials and media outlets to allow public notification of pending closures or detours prior to installation.

Coordination with the USCG, USACE, USFWS, and local officials would establish guides for methods and timing of in-water construction activities for bridge construction. In-water construction activities would be planned to maintain vessel navigation of the Cape Fear River.

3.23.2 Noise and Vibration

FTA's *Transit Noise and Vibration Impact Assessment Manual* (Manual)¹²⁵ was used to assess the temporary impacts that could occur during construction, as described in the *Wilmington Rail Realignment Noise and Vibration Technical Memorandum* (Appendix G).

Noise and vibration generated by the process of construction of the Project are expected to occur. To maintain a balance between constructing the Project and quality of life for nearby communities, the City and its contractors would follow Federal, state, and local regulations and guidelines and implement construction techniques and control measures to eliminate or minimize construction noise and vibration impacts. Examples of construction mitigation measures include but are not limited to installing acoustical curtains or other temporary noise shields to perimeter fencing to act as a temporary noise barrier, substituting impact devices

¹²⁵ Federal Transit Administration, *Transit Noise and Vibration Impact Assessment Manual*, FTA Report No. 0123, Washington, DC, September 2018.

(such as pile drivers) with less vibratory equipment, or utilizing regional roadways rather than local streets for excavation of spoils and new deliveries.

Assessments for construction noise and vibration are preliminary and will be revised based on final designs of the Project and known construction equipment that would be used. The loudest noise levels would be due to the potential use of an impact pile driving being used during guideway construction. Overall, the Project construction activities would not be predicted to exceed the FTA's "daytime" noise impact criteria at any receptors. For nighttime construction, Project noise levels would be predicted to exceed the FTA's "nighttime" criteria at one residence. The highest vibration levels would be due to the potential use of an impact pile driver less than 100 feet from receptors. Overall, construction vibration levels would not be predicted to exceed the Project damage criteria anywhere. FTA's Manual, Section 7.2, addresses project damage criteria, including the basic concepts, methods, criteria, and procedures for evaluating the extent and severity of temporary construction vibration impacts from transit projects. Construction vibration levels would be predicted to exceed the FTA annoyance criterion at approximately 18 residences. The FTA Manual defines the annoyance criterion as the noise limits above which a substantial percentage of the population would be highly annoyed by new noise and vibration.

During final design, the Project would reassess the potential for temporary noise and vibration impacts during construction and identify measures to minimize construction impacts as warranted. The Project would include these measures in construction plans and implement commitments.

3.23.3 Air Quality

Potential air quality impacts from the construction of the Preferred Alternative are evaluated in the *Wilmington Rail Realignment Air Quality and Greenhouse Gas Technical Memorandum*. Construction impacts would be temporary and could include the following:

- Localized increases in emissions from construction equipment, particularly diesel-powered equipment. Increased concentrations could occur in the areas of work activities, access points, and haul routes.
- Increases in motor vehicle emissions associated with potential disruption of traffic operations during construction. Effects could occur if temporary lane closures and detours cause congestion and travel delays.
- Localized dust and airborne particulate matter are generated by temporarily exposed soils, earth-moving activities, and equipment operating in unpaved areas. Effects could occur in the area of work activities and access points.

Best management practices will be implemented by the City to control dust and vehicle emissions during Project construction. The City will include these measures and practices in the Project construction plan. Air quality control measures (such as wetting unpaved surfaces and limiting equipment idle time while on site) are typically utilized to minimize temporary impacts during construction.

3.23.4 Water Quality

Construction impacts on water quality would be temporary and would be minimized by using BMPs consistent with state and local standards. Water quality degradation as a result of stormwater runoff would be expected to be minimal since stormwater management rules are strict, and mitigation for this type of impact would be provided. Erosion and sedimentation during Project construction would be controlled through the specification, installation, and maintenance of stringent erosion and sedimentation control methods. In accordance with the North Carolina Sedimentation Pollution Control Act (15A NCAC 4B.001-.0027), an erosion and sedimentation control plan would be prepared for the Preferred Alternative during the final design phase of the Project. The plan would follow guidelines established in the NCDEQ publication *Erosion and Sediment Control Planning and Design Manual*.¹²⁶ Impacts resulting from erosion and sedimentation would be kept to a minimum by employing BMPs such as revegetating or covering disturbed areas and using berms, dikes, silt barriers, and catch basins.

3.23.5 Utility Service

Construction of the Project would require some adjustment, relocation, or modification to existing utilities, which could result in temporary disruption to services provided by existing utilities. Any disruption to utility services during construction would be minimized by close coordination with utility providers and property owners in affected areas and phased adjustments to utilities.

3.23.6 Borrow Pits and Spoil Sites

Construction of the Project may require excavation of unsuitable material and placement of embankments. Specific locations of borrow and disposal sites would be determined during the final design phase of the Project.

Only approved borrow materials would be utilized during construction. Borrow activities providing fill for the development of the proposed rail embankment would only occur as allowed under permit in conformance with Federal, state, or local regulations. Evaluation of sites for borrow activities would incorporate input from Federal and state agencies as necessary. Early coordination and consultation would allow for evaluation of potential borrow sites to determine if they would be satisfactory to use. Borrow material from sources in any area under the jurisdiction of USACE and the placement of waste materials in wetlands or streams would not be allowed unless the City has obtained a permit for those activities from the appropriate regulatory agency. Prior to the removal of any material, the contractor would be required to provide certification from the NCHPO that the removal of the borrow material would have no effect on any property eligible for or listed on the NRHP.

¹²⁶ NCDEQ. 2013. Erosion and Sediment Control Planning and Design Manual. <https://deg.nc.gov/about/divisions/energy-mineral-and-land-resources/erosion-and-sediment-control/erosion-and-sediment-control-planning-and-design-manual>

3.24 INDIRECT AND CUMULATIVE IMPACTS

3.24.1 Introduction and Methodology

The CEQ regulations implementing the procedural provisions of NEPA (40 CFR § 1500 *et seq.*) require FRA and other Federal agencies to address and consider the potential for indirect and cumulative impacts on a project's surrounding environment. The previous sections in this chapter discuss potential direct impacts on the human and natural environment as a result of the Project, while this section addresses the potential for indirect and cumulative effects that could occur later in time and within a larger geographic region.

Indirect effects are those that are "caused by an action and are later in time or farther removed in distance but are still reasonably foreseeable" (40 CFR § 1508.8). Indirect effects may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population or density, or growth rate, and related effects on air and water and other natural systems, including ecosystems. The analysis of indirect effects focuses on the construction and operational effects of the Project, building upon the direct effect analyses discussed in this chapter. For any potential indirect effects, the analysis used the same methodologies as for the analysis of direct effects, although the study areas and timeframes may be larger or longer, respectively.

3.24.2 Indirect Impacts

The No Build Alternative would not result in any indirect effects because the Project would not be built and, therefore, no impacts related to the construction or operation of the Project would occur. Construction of the Project would result in beneficial indirect effects on the economy during the construction period related to construction labor, the production of necessary services and materials, and construction workers patronizing local businesses. An additional benefit to the area's economy is associated with the value of residential properties adjacent to the Beltline. These property values could increase in value as noise and safety concerns are reduced. In addition, because the Project allows for freight trains traveling between Davis Yard and the Port to save time by going around Wilmington, there may be additional efficiencies gained at the Port, such as supporting quicker truck turnaround times and general surface transportation consistency.

3.24.3 Cumulative Impacts

Cumulative impacts result from the incremental consequences of an action "when added to other past and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR § 1508.7). The effects of an action may be minor when evaluated in an individual context, but these effects can add to other disturbances and collectively may lead to a measurable environmental change. By evaluating the impacts of the proposed action with the effects of other actions, the relative contribution of the proposed action to a projected cumulative impact can be estimated. The analysis of cumulative effects considered the Project's operational and construction period effects in conjunction with other local and regional projects.

Several roadway and intersection improvement projects along Shipyard Boulevard, the primary access to the Port, as well as roadway widenings and intersection improvements on truck routes to the Port are included in local plans such as the *2020-2029 STIP*,² the *North Carolina Comprehensive State Rail Plan*,¹⁶ and the *Cape Fear Moving Forward 2045 Metropolitan Transportation Plan*.⁴ Other projects in local and regional plans, such as the Wilmington Beltline Improvements in the *2020-2029 STIP* (STIP P-5740), are targeted at reducing/maintaining the rate of mean travel time for people and freight, reducing vehicle miles traveled (VMT), maximizing throughput for each lane, reducing peak hour delay, and addressing future growth in employment, population, and freight/industry. In addition, several fiscally constrained projects are included in the region, as noted in Section 2.2.1. Elements of the rail improvement projects listed in Table 3-34 would result in a cumulative transportation benefit. If implemented, the Project would improve system resiliency and connectivity.

Past projects that may contribute to the cumulative benefits of the Project and planned projects in the vicinity include the Queen City Express, which was launched in July 2017 with daily intermodal service between the Port of Wilmington and Charlotte, North Carolina. This service was constructed as a collaboration between NCSPA and CSXT, which operates the rail line.

Based on the analysis presented in the EA, the following resource areas were identified as being affected:

- Transportation
- Land Use
- Public Health and Safety
- Waters of the U.S.
- Coastal Areas
- Air Quality
- Noise

The envisioned eventual removal of all freight from downtown would allow the existing rail line to be used for transit if desired in the future as a separate project. The transit benefits estimated for the Project assume operations of a streetcar (or similar) system. According to a benefit-cost study prepared for the Project¹²⁷, the addition of a transit line through Wilmington would present the benefits of a modal shift by removing the number of cars from the local roads in favor of the transit line. This would result in further emissions reductions, would alleviate congestion, improve quality of life and public health, and would increase property values that are located within proximity to transit stations.

¹²⁷ City of Wilmington 2018. Benefit Cost Analysis Memorandum. September 2018.
<https://www.wilmingtonnc.gov/home/showpublisheddocument/11204/637152921716500000>

Table 3-34: Planned and Reasonably Foreseeable Rail Projects in Vicinity

Project	Description
Wilmington Beltline Improvements (STIP P-5740)	Improvements to the CSXT SE Line, or the "Beltline," include curve realignments, tie and rail rehabilitation, and upgrades to switch operations, as well as improvements to existing at-grade crossings (signal upgrades, surface improvements, and selected closures). (Limits: CSXT Davis Yard in Navassa to S 2nd Street in Wilmington—approximately 13 miles)
North Gate Separation FR-18 Description	Realign track and install a new bridge. (Limits: Port of Wilmington North Gate to CSXT Davis Yard in Navassa)
Front Street RR Crossings (Meares)	Bring crossing up to modern safety standards. (Limits: Meares Street access to Front Street)
Front Street RR Crossings (Marstellar)	Bring crossing up to modern safety standards. (Limits: Marstellar Street access to Front Street)
Front Street RR Crossings (Kidder)	Bring crossing up to modern safety standards. (Limits: Hess Terminal Road, across from Kidder Road)
Davis Yard At-grade Crossing (Cedar Hill Road Safety Improvement)	Bring rail crossing at Cedar Hill Road (just north of Quality Drive) up to modern safety standards.
US421 Railroad Crossing	Install railroad gates to improve safety. (Limits: Fleming Street to Sutton Steam Plant Road)
Extension to Pender Commerce Park	New track on new location. (Limits: Invista to Pender Commerce Park)
Redesign Railroad Interchange near Northwest District Park (CSXT/US Army)	Realign track/direct turn. (Limits: Old Fayetteville Road to Lanvale Road NE)
Freight Rail Connection - Castle Hayne to Wallace*	Restoration of rail service from Castle Hayne to Wallace. The rail corridor is owned and preserved by NCDOT but not currently in service.

* Although not fiscally constrained, the project is considered a priority project for the WMPO and regionally significant, therefore reasonably foreseeable for the purposes of a cumulative impact analysis.

A discussion of the potential cumulative impacts for each of those listed resource areas is included in the following subsections. The Project is not anticipated to result in adverse cumulative impacts in combination with other planned projects in the vicinity. The potential to contribute cumulatively to the effects on these resources is described below.

TRANSPORTATION

As discussed in Section 3.1 Transportation, the Project would improve mobility and safety by eliminating conflicts between freight traffic traveling between Davis Yard and the Port at the 32 at-grade crossings (30 public and 2 private crossings). In addition, the Project would result in operational efficiencies for freight traffic between Davis Yard and the Port by reducing the distance traveled in half. Combined with other ongoing and planned projects to address mobility and safety within the area would result in a cumulative benefit to the local and regional transportation network.

Land USE AND ZONING

The Project impacts residential, industrial, commercial, mixed-use, and conservation lands within the Study Area. The LOD includes 18.44 acres of areas used for conservation, including the Eagles Island Natural Area Dedicated Nature Preserve and the North Carolina Coastal Land Trust Easement. However, the Preferred Alternative would be designed to be elevated on structure as it passes through much of the conservation areas, which minimizes the direct impacts on those lands. The Project would not contribute significantly to the cumulative loss of conservation lands.

As noted in Section 3.2.3, the Project would be consistent with the vision outlined in the Create Wilmington Comprehensive Plan and anticipated to improve the quality of life for various neighborhoods in the Project vicinity when combined with other ongoing and planned projects to reduce at-grade crossings, such as the Wilmington Beltline Improvements (STIP P-5740). Benefits would include enhancing community connectivity, reducing noise levels around the existing track, enhancing visual quality, and improving safety. The Project would also result in beneficial air quality impacts within the Study Area.

PUBLIC HEALTH AND SAFETY

By eliminating the conflicts between freight trains traveling between Davis Yard and the Port at the at-grade crossings, communities become safer by minimizing the risks associated with collisions, the transport of potentially hazardous materials through the City, improved response times for EMS, and a reduction in idling vehicles. As a result, the Project supports a cumulative benefit to public health and safety in combination with other projects, such as the Wilmington Beltline Improvements (STIP P-5740).

WATERS OF THE UNITED STATES (WOTUS)

The Project results in impacts to streams, surface waters (ditches), and wetlands. There are several other planned and committed projects within the Study Area that may result in impacts to WOTUS. The Project would contribute cumulatively to the loss of WOTUS. However, with

permitting and mitigation combined with other restoration projects in the same watershed, it is unlikely that the Project will result in significant adverse cumulative effects.

FLOODPLAINS AND FLOOD ZONES

The Project is proposed largely within areas designated as 100-year floodplains. Where practicable, the preliminary design incorporates elevated structure to minimize impacts to SFHA. The Project would not be expected to raise the base flood elevation based on the level of preliminary design prepared. All conveyance structures in SFHA areas would be defined to obtain a no-rise certification. It is not expected that the Project, combined with other restoration projects in the same watershed, would contribute significantly to adverse cumulative effects on floodplains.

COASTAL ZONES

The Project is in North Carolina's designated coastal zone and is within AECs. AECs are state-designated areas of natural importance that fall under four categories: Estuarine and Ocean System, Ocean Hazard System, Public Water Supplies, and Natural and Cultural Resource Areas. Both Brunswick County and New Hanover County are designated coastal counties and are subject to CZMA requirements. The Project will require a CAMA Major Permit. In order to obtain the permit, the Project must demonstrate that it would be consistent with the enforceable policies established by North Carolina. As such, it is not expected that the Project would contribute to adverse cumulative effects on the designated coastal zone in combination with other planned projects within North Carolina's designated coastal zone.

AIR QUALITY

The Project is not expected to result in new pollutant emissions in the Study Area when factoring in reduced freight train travel times, more efficient train operations, and reduced vehicle idling at grade crossings. Instead, the Project reduces the length of track by approximately 60 percent and significantly reduces the number of sensitive receptor locations exposed to current freight rail operations. It is also anticipated the increase in freight rail operations expected in the future would be more than offset by the reduction in distance traveled from current conditions. Therefore, the improvements proposed by the Project, in conjunction with the various additional rail operations/safety improvements in the area, are not anticipated to cause cumulative air quality degradation.

NOISE

Severe and moderate noise impacts were identified for the Project within residential areas along South Front Street due to the sounding of warning horns. However, it is expected that noise control measures would be considered during subsequent design to potentially limit noise exposure to sensitive receptors. The Project, in combination with other planned projects such as the Wilmington Beltline Improvements, reduces the number of at-grade crossings; therefore, the number of areas exposed to warning horns is reduced. Generally, the Project would provide a cumulative benefit and significantly reduce the number of sensitive receptor locations exposed to current freight rail operations.

4 PUBLIC INVOLVEMENT AND AGENCY COORDINATION

This chapter outlines the public involvement activities related to the Project that have been implemented to date. Coordination and consultation with agencies, stakeholder groups, and the public were initiated early in the Project development process. Early collaboration allowed for comments and concerns received to be considered during the development of the Project's Purpose and Need, alternatives, and identification of potential impacts. The City developed a Public Involvement Plan (PIP)¹ for conducting and documenting agency coordination as well as public outreach efforts in support of the Project.

4.1 PUBLIC INVOLVEMENT

4.1.1 Public Outreach Methods

PROJECT WEBSITE

The City of Wilmington maintains a project website – www.wilmingtonnc.gov/rail – that is used to provide:

- information about the Project;
- a place for the public to access various project maps, reports, and other documents; and
- a way for members of the public to submit comments and questions to the Project team using an online submittal form.

The FRA also maintains a Project website, which includes a general overview of the Project including FRA contact information.²

PROJECT MAILING LIST

A mailing list was compiled for the Project and consists of elected officials, civic and business groups, local governmental agencies, property owners within the Study Area, and other interested persons. The list has been, and will continue to be, updated throughout Project development. The mailing list is updated and maintained by the City of Wilmington.

NEIGHBORHOOD OUTREACH MEETINGS/SMALL GROUP MEETINGS

Throughout the study, the City of Wilmington has met with interested organizations, civic groups, and other interested parties for both formal presentations and informal question-and-answer sessions.

¹ AECOM. 2021c. Wilmington Rail Realignment Draft Public Involvement Plan. January 2021.

<https://www.wilmingtonnc.gov/home/showpublisheddocument/12376/637459793346970000>

² [Wilmington, NC, Rail Realignment Project | FRA \(dot.gov\)](http://Wilmington, NC, Rail Realignment Project | FRA (dot.gov))

The following groups have been identified as groups within the Study Area that may have a stake and/or interest in the Project and have been included in targeted outreach during the public participation phases.

- Brunswick Forest
- Cape Fear ARCH
- Cape Fear Collective
- Cape Fear Realtors Association
- Cape Fear River Pilots Association
- Intracoastal Realty
- Cape Fear River Watch
- Coldwell Banker Seacoast Advantage
- Community Ambassadors
- Duke Energy
- Eagles Island Coalition
- Genesis Block
- Genesee & Wyoming, Inc. (Wilmington Terminal Railway)
- Gullah Geechee Cultural Heritage Corridor Commission
- Historic Wilmington Foundation
- Historic Resource Property Owners
- Industrial Hardware and Marine
- Keller-Williams Real Estate
- Moran Towing
- NC Coastal Federation
- NC Coastal Land Trust (NCCLT)
- NC Railroad Company
- Off the Hook Yachts
- Port City Marina
- Railroads for National Defense Program
- Renaissance Wilmington Foundation
- Rotary Club (various)
- Sawmill Point Marina
- Sierra Club
- Smith Creek Boatyard
- South Front Apartments
- Southern Environmental Law Center
- Trask Land Company
- UNC-Wilmington Center for Marine Science
- Unique Places to Save
- USS North Carolina Battleship Commission
- Wilmington Business Development
- Wilmington Chamber of Commerce

- Wilmington Downtown, Inc.
- Wilmington International Airport
- Wilmington Ladies Tea Walk
- Wilmington Railroad Museum
- Various commercial industries

PUBLIC MEETINGS

Two open houses have been held to give members of the public the opportunity to review information and materials regarding the Project. Due to the COVID-19 pandemic, both open houses were held using an interactive, virtual platform. Each open house session was conducted over a 30-day period. The public was given multiple opportunities for live question-and-answer sessions with the Project team as well.

The open houses were advertised by several media outlets, including local news channels and newspapers. A variety of advertisement methods and outreach were implemented including:

- Public outreach work session
- Wilmington City Council meeting
- City of Wilmington's social media plan
- Postcard mailings
- Project website updates
- Quarterly project updates
- Direct communication with stakeholders
- Local media advertisements
- Email notifications
- Flyer distributions
- Hard copy meeting materials

The first open house was held from November 16, 2020 to December 15, 2020 and provided the public an opportunity to review the *Wilmington Rail Realignment Corridor Screening Report*³ and the *Wilmington Rail Realignment draft Purpose and Need Statement*.⁴ Fifty-six public comments were received from local residents and business owners during the public comment period. Comments received were a mix of support and opposition to corridors presented and included safety concerns; traffic concerns; physical, human, cultural, and natural resource impacts; bicycle and pedestrian accommodations; and Environmental Justice considerations. Comments were also received requesting that a crossing further south be considered. As previously discussed in Chapter 2, this southern crossing was developed at a

³ AECOM, 2021, Wilmington Rail Realignment Corridor Screening Report. January 2021.
<https://www.wilmingtonnc.gov/home/showpublisheddocument/12840/637491697093000000>

⁴ AECOM, 2021, Wilmington Rail Realignment Draft Purpose and Need Report. January 2021.
<https://www.wilmingtonnc.gov/home/showpublisheddocument/12838/637491697074270000>

conceptual engineering level and eliminated from further study due to numerous sub-optimal environmental, engineering, and navigational constraints.

The second open house was held from June 28, 2021 to July 26, 2021 and provided the public an opportunity to review the *Wilmington Rail Realignment Alternatives Analysis Report*.⁵ Two separate anonymous public comments were received during the comment period. One comment made a recommendation to consider relocating the Port of Wilmington near Southport, stated concern over dredging and flooding in the City, and stated that there was no need to spend money on the Cape Fear Crossing toll bridge. The other comment shared support for the rerouting of the freight trains. The individual suggested turning the existing train corridor into public transit or a greenway for recreation and consideration of affordable housing along transit routes should the existing rail line be used for transit. The individual also expressed concern for potential effects on the environment and mentioned the desire to keep the bridge over the river public and not to privatize with tolls.

Supporting documentation for the virtual open houses, including distribution materials and information boards shown at the meetings, are provided in Appendix H1.

4.1.2 Environmental Justice Populations

Targeted minority and/or low-income community outreach has occurred throughout the Project's development and to date has included specialized public outreach sessions and targeted meeting material distribution. Special populations identified in the Study Area (see Section 3.4.2) include low-income and minority population groups that have been traditionally underserved in public engagement efforts. These groups account for a high percentage of the population within the Study Area, which heightens the importance of ensuring these populations are engaged and consulted in the Project's development. To address the unique needs of these populations, a work session (Community Ambassador Discussion) was held with community leaders on October 6, 2020, to get direction from community leaders on:

- Appropriate Project messaging to reach the community;
- Community engagement materials/techniques; and
- Opportunities to deliver on-site presentations/offer on-site presentations to key groups.

Feedback from this special population work session included:

- An emphasis on the importance of conducting a variety of outreach communication techniques to reach the community.
- An emphasis on the importance of augmenting planned outreach with low-tech, personal communication.

⁵ AECOM, 2021, Wilmington Rail Realignment Alternatives Analysis Report. November 2021.
<https://www.wilmingtonnc.gov/home/showpublisheddocument/13660/637720626365230000>

- An emphasis on the importance of collaboration with the public and community groups throughout the Project's development.

This feedback was immediately incorporated into the Project's outreach initiatives and is reflected in the following techniques deployed to ensure that public outreach was reaching identified special populations, including:

- Supplementing the press release for mainstream media with paid advertising in the *Wilmington Journal*. The *Wilmington Journal* is a local publication geared towards the African-American perspective with deep roots in the Study Area communities.
- Supplementing the virtual meeting room with printed meeting room materials in local community centers, libraries, and City offices.
- Mailing postcards advertising the public input opportunities to residences in proximity to the existing rail corridor.
- Committing to hosting similar Community Ambassador Discussions in advance of each public meeting for assistance/feedback on planned outreach techniques.

RISE TOGETHER INITIATIVE

As part of the City's Rise Together Initiative,⁶ the City of Wilmington, in cooperation with various community leaders, Genesis Block, and Cape Fear Collective, developed a program to fund targeted outreach to Environmental Justice populations and discuss how local organizations can better inform future conversations on equity and impacts to special populations in the area. The initiative's mission is "to ensure that Wilmington is a community where every citizen is valued and shares in the same opportunities for prosperity and quality of life regardless of color, class, or creed."

The City of Wilmington budgeted a supplemental \$10,000 program for FY22 as part of the Rise Together Initiative to fund supplemental, specialized outreach events. The City of Wilmington solicited proposals via a formal advertised Request for Proposals (RFP) process requesting submissions from citizens on ideas for public outreach events to do the following:

- Educate the public on the Rail Realignment Project.
- Focus engagement efforts toward traditionally underserved areas of the community.
- Make it easier for everyone and anyone to be a part of public project conversations.
- Incentivize and empower members of the community to participate in public processes.
- Test new ideas on how to reach and hear from new audiences.

Eight submissions to the RFP were received, each with details on how outreach to Environmental Justice populations would be achieved. A selection committee comprised of a diverse cross-section of City of Wilmington employees chose six proposals to fund. More

⁶Rise Together Initiative website: <https://www.wilmingtonnc.gov/departments/general/rise-together#:~:text=City%20Council%20unanimously%20voted%20Tuesday,color%2C%20class%2C%20or%20creed>.

information about the program, RFP, and individual events can be found in the Public Involvement Plan.

4.2 AGENCY PARTICIPATION

The FRA is the lead Federal agency for the Project. The lead agency is responsible for ensuring compliance with NEPA.

The following local, state, and federal agencies have been identified as agencies within the Study Area that may have a stake and/or interest in the Project and have been included in targeted outreach during the agency participation phases.

4.2.1 Local, State, and Federal Agencies

LOCAL GOVERNMENTS

- Brunswick County
- Cape Fear Council of Governments
- Cape Fear Rural Planning Organization
- Columbus County
- New Hanover County Sheriff's Department
- New Hanover Soil and Water Conservation District
- NCDEQ- DWR
- NCDOT Division 3
- NCDOT Rail Division
- NC State Clearinghouse
- NCSPA
- NC WRC
- Pender County
- Town of Belville
- Town of Burgaw
- Town of Lake Waccamaw
- Town of Leland
- Town of Navassa
- WMPO

FEDERAL AGENCIES

- FEMA
- FHWA
- FTA
- NMFS
- STB
- USACE
- USCG
- USEPA

- USFWS
- US Marine Corps - Military Ocean Terminal Sunny Point

TRIBAL GOVERNMENTS

- Catawba Indian Nation
- Lumbee Tribe of North Carolina
- Tuscarora Nation
- Waccamaw-Siouan Indian Tribe

STATE AGENCIES

- NCDEQ-DCM
- NCDEQ-DMF
- NCDOT
- NC Department of Commerce
- NC Commission of Indian Affairs
- NCHPO

4.2.2 Cooperating Agencies

In accordance with the CEQ's implementing regulations for NEPA, a cooperating agency is "any Federal agency (and a State, Tribal, or local agency with agreement of the lead agency) that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative)." 40 CFR 1508.1(e). In general, cooperating agencies are responsible for identifying, as early as practicable, any issues of concern regarding the Project's potential environmental or socioeconomic impacts that could substantially delay or prevent an agency from granting a permit or other approval that is needed for the Project.

As noted in Section 1.2.5, cooperating agencies for the Project include:

- USACE
- USCG
- USEPA
- NMFS
- STB

Regular communication with cooperating agencies has occurred throughout Project development. Meetings were held with the cooperating agencies on September 21, 2021, and May 16, 2022, to present Project information and receive feedback regarding the next steps of the Project. Meeting summaries are included in Appendix H.

4.2.3 Participating Agencies

Participating agencies can include any Federal, state, regional, local, or tribal government unit with an interest in the Project. In general, participating agencies are committing to participate throughout the environmental review process by providing input on methodologies, analysis,

findings, and mitigation. As noted in Section 1.2.5, participating agencies for the Project include:

- NCDEQ-DCM
- NCDEQ-DMF
- NCDOT
- NCHPO
- USFWS

4.2.4 Start of Study

A Start of Study letter was sent to cooperating and participating agencies in August 2020 to gather their input to inform the study process, evaluation, and outcomes. Information requested included feedback regarding alternative development, resources of concern, potential impacts, and potential permitting approvals. In addition to the cooperating and participating agencies, the Start of Study letter was sent to the following agencies that were identified as having an interest or property/resource in the Study Area:

- Brunswick County
- CRC
- FEMA
- FHWA
- FTA
- New Hanover County
- New Hanover County Soil & Water Conservation District (NHSWCD)
- NCDEQ- DWR
- NCDOT Division 3
- NCDOT Rail Division
- NC State Clearinghouse
- NCSPA
- NCWRC
- Town of Leland
- Town of Navassa
- WMPO

A copy of the Start of Study letter is included in Appendix H2.

4.2.5 Agency Coordination Meetings

Several meetings have been held with local, state, and Federal regulatory and resource agencies to provide a status on the Project and address specific milestones and topics related to the agency members' expertise (Table 4-1). The first meeting was held with agency representatives on November 12, 2020, to introduce the Project, identify the preliminary Purpose and Need, discuss the corridor screening process, and receive feedback on the Project. The second meeting was held on June 23, 2021. During that meeting, the Project team

provided an overview of the findings of the Draft Alternatives Analysis Report, including identification of the Preferred Alternative. The NCHPO, NHSWCD, and the NCCLT all commented with concerns about the Project's effect on their respective properties and/or protected resources under their jurisdiction. Summaries of these meetings and responses to agency comments are included in Appendix H2.

4.2.6 Agency Correspondence

Specific outreach with local, state, and Federal agencies to date is included in Appendix H2, including copies of correspondence and meeting summaries as available.

Table 4-1: Agency Meetings to Date

Date	Agency	General Subject
8/1/2019	USACE	Jurisdiction over construction/fill of wetlands
8/12/2019	New Hanover County	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
8/16/2019	NCDOT & WMPO	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
8/28/2019	STB	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
8/29/2019	USACE	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
9/1/2019	STB	Jurisdiction over construction, purchasing, and disposition of rail assets.
9/6/2019	Pender County & Brunswick County	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
9/10/2019	NCSPA	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
9/16/2019	USACE	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
9/24/2019	NCRR	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
9/25/2019	STB	Coordination.
9/26/2019	Office of Senator Richard Burr	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
9/26/2019	Governor's Office	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
9/26/2019	Office of Congressman David Rouzer	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
9/27/2019	Office of Congressman David Price	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.

Date	Agency	General Subject
9/27/2019	Office of Senator Tillis	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
10/1/2019	USCG	Jurisdiction over navigational waterways.
10/9/2019	USCG	Introductions and informational.
10/10/2019	NCDOT & WMPO	Coordination meeting to discuss general Project status.
10/14/2019	NCDOT	Coordination meeting to discuss general Project status.
10/23/2019	CSX & NCDOT	Coordination meeting to discuss general Project status.
10/25/2019	NCSPA	Coordination meeting to discuss general Project status.
11/14/2019	WMPO	Coordination meeting to discuss general Project status.
11/20/2019	USACE	Coordination meeting to discuss general Project status.
11/21/2019	NCDOT & WMPO	Coordination meeting to discuss general Project status.
11/25/2019	NCDOT	Coordination meeting to discuss general Project status.
12/3/2019	NCDOT & WMPO	Coordination meeting to discuss general Project status.
12/10/2019	NCSPA	Coordination meeting to discuss general Project status.
12/16/2019	NCDOT	Coordination meeting to discuss general Project status.
1/3/2020	NCSPA	Coordination meeting to discuss general Project status.
1/13/2020	NCDOT	Coordination meeting to discuss general Project status.
1/21/2020	Brunswick County	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
1/29/2020	New Hanover County Soil & Water	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
2/4/2020	Offices of Senator Harper Peterson	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
2/7/2020	NCRR	Coordination meeting to discuss general Project status.
2/17/2020	NCDOT	Coordination meeting to discuss general Project status.
2/19/2020	New Hanover County Soil & Water	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
2/20/2020	NCRR	Coordination meeting to discuss general Project status.

Date	Agency	General Subject
2/21/2020	NCDOT	Coordination meeting to discuss general Project status.
3/11/2020	WMPO	Coordination meeting to discuss general Project status.
3/16/2020	WMPO	Coordination meeting to discuss general Project status.
4/15/2020	New Hanover County Soil & Water	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
5/1/2020	NCDOT	Coordination meeting to discuss general Project status.
5/14/2020	Federal - FRA	FRA Grant Award Kick-Off meeting.
6/2/2020	NCRR	Coordination meeting to discuss general Project status.
6/2/2020	NCDOT & WMPO	Coordination meeting to discuss general Project status.
6/4/2020	WMPO	Coordination meeting to discuss general Project status.
6/29/2020	NCDOT	Coordination meeting to discuss general Project status.
6/30/2020	NCDOT & WMPO	Coordination meeting to discuss general Project status.
7/1/2020	CSX	Coordination meeting to discuss general Project status.
7/20/2020	Department of Commerce	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
8/10/2020	NCDOT	Coordination meeting to discuss general Project status.
8/19/2020	NCSPA	Coordination meeting to discuss general Project status.
8/19/2020	New Hanover County Soil & Water	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
8/24/2020	NCSPA	Coordination meeting to discuss general Project status.
8/27/2020	STB	Coordination meeting to discuss general Project status.
8/28/2020	NCDOT & NCSPA	Coordination meeting to discuss general Project status.
9/1/2020	STB	Coordination meeting to discuss general Project status.
9/8/2020	NCRR	Presentation from the City of Wilmington to update stakeholders on current status of Project and next steps.
9/10/2020	USACE	Coordination meeting to discuss general Project status.

Date	Agency	General Subject
11/12/2020	ALL	WRR Agency Coordination Meeting. Discussed draft Purpose and Need Statement, Project Study Area, preliminary Screening Report findings, and other Project information.
11/18/2020	NC Ports Authority	WRR & U-5734 design compatibility discussion.
11/18/2020	NCDOT Division 3	WRR & U-5734 design compatibility discussion.
12/8/2020	NCDOT Division 3	WRR Agency Coordination Meeting.
2/4/2021	USACE	Purpose and Need Statement/Corridor Screening Report Discussion.
3/5/2021	NCDOT Division 3	WRR & U-5734 design compatibility discussion.
3/11/2021	NCDOT Division 3	WRR & U-5734 design compatibility discussion.
3/17/2021	NC Ports Authority	WRR & U-5734 design compatibility discussion.
4/23/2021	NC Historic Preservation Office	Rail Operations.
4/30/2021	NCDOT Division 3	S Front Street Discussion and Updates.
5/21/2021	USCG	Coordination Meeting. Discussed the Navigational Impact Report.
6/18/2021	NCDOT Rail Division	Coordination meeting to discuss general Project status.
6/18/2021	NC Ports Authority	Coordination meeting to discuss general Project status.
6/23/2021	All	WRR Agency Coordination Meeting. Discussed draft Alternatives Analysis Report.
7/14/2021	NC Ports Authority	Coordination meeting to discuss general Project status.
7/14/2021	WMPO	Coordination meeting to discuss general Project status.
7/28/2021	WMPO	Coordination meeting to discuss general Project status.
8/6/2021	USCG	Project Update & NIR Discussion.
8/23/2021	USACE	Alternatives Analysis - Preferred Alignment.
9/21/2021	All Cooperating Agencies	Cooperating Agency Meeting. Discussed Project status and next steps moving into the NEPA phase.
9/22/2021	USACE	Section 408 Civil Works Property Impact discussion.

Date	Agency	General Subject
11/17/2021	Section 106 Consulting Parties	Consulting Party Coordination Meeting #1 <ul style="list-style-type: none"> • Shared Project updates and requested feedback on historic property identification. • Reviewed Section 106 process and next steps regarding cultural resources within the Project Study Area.
11/30/2021	NCDOT Division 3	Discuss location of WRR alignment adjacent to CFM feasibility alignment.
12/9/2021	NCDCM	Coastal Wetlands Evaluations Site Visit. <ul style="list-style-type: none"> • Verification of coastal wetlands in Study Area.
1/18/2022	NOAA-NMFS	EFH/Section 7 Coordination Meeting. Discussed Project status and next steps regarding essential fish habitat (EFH) documentation and for Section 7 consultation.
1/26/2022	USFWS	Coordination Meeting <ul style="list-style-type: none"> • Discussed the next steps of the Project in relation to Section 7 Coordination. Agency shared findings from species surveys.
2/17/2022	Unique Places to Save, NOAA-NMFS	Alligator Creek Restoration Project Coordination Meeting <ul style="list-style-type: none"> • Discussed each Project to gain a better understanding of Project elements, scopes, and schedules.
2/23/2022	Section 106 Consulting Parties	Consulting Party Coordination Meeting #2 <ul style="list-style-type: none"> • Reviewed the Architectural Intensive-level Survey, the Phase I Archaeology Survey, and the Underwater Archaeology Survey. • Discussed the assessment methodology to determine potential effects to historic properties within the Area of Potential Effects (APE).
5/16/2022	All Cooperating Agencies	WRR Agency Coordination Meeting <ul style="list-style-type: none"> • Reviewed preliminary findings in the Draft Environmental Assessment (EA) and discussed methodologies and findings for resources.
6/10/2022	OSA	Informational and Coordination Meeting <ul style="list-style-type: none"> • Discussed Project background, scope, current status, and information requested by OSA. • Reviewed sites for diver investigations when needed.
6/10/2022	OSA	Discussion of Intensive-Level Historic Architectural Survey.

Date	Agency	General Subject
7/20/2022	OSA	Discussion of Intensive-Level Historic Architectural Survey and recommended sites for diving survey.
4/20/2023	Section 106 Consulting Parties	Consulting Party Coordination Meeting #3 <ul style="list-style-type: none"> • Reviewed the Assessment of Effects for architectural historic properties and results of archaeological underwater survey.
7/25/2023	Section 106 Consulting Parties	Consulting Party Coordination Meeting #4 <ul style="list-style-type: none"> • Reviewed results of Revised Assessment of Effects for architectural historic properties.

4.3 USACE PUBLIC INTEREST REVIEW

The Project was reviewed by the USACE in accordance with 33 CFR 320-332, the Regulatory Programs of USACE, based upon an evaluation of the probable impacts, including cumulative impacts, or the proposed action on the public interest. This review process is designed to protect and preserve the nation's water resources and ecosystems by assessing the potential impacts of proposed projects on factors such as water quality, aquatic habitats, and public safety, and the USACE uses this review to make an informed decision when evaluating permit applications under all authorities administered by the Corps. A list of public interest factors considered in this EA is included in Table 4-2, along with the location in the document where these factors are discussed in more detail.

Table 4-2: Public Interest Review

Public Interest Factor	Summary of Impact (Location of Discussion in EA)
Conservation	<p>The Project would result in impacts to special land uses including conservation and mitigation areas that would include the Eagles Island Natural Area Dedicated Nature Preserve and the North Carolina Coastal Land Trust Easement. However, a majority of the Project would be built on structure as well as utilizing former railroad rights-of-way, which reduced impacts to these areas (Section 3.2 – Land Use, Zoning, and Property).</p> <p>The Project would not contribute significantly to the cumulative loss of conservation lands (Section 3.24 – Indirect and Cumulative Impacts).</p>
Economics	<p>Based on a benefit-cost analysis for the Project, it is anticipated it would result in a net economic benefit (Section 1.4 – Project History).</p> <p>Construction of the Project would result in beneficial indirect effects on the economy during the construction period. It would also allow for the removal of freight from the downtown area and the use of the existing rail line for transit. (Section 3.23.2 – Indirect Impacts)</p>
Aesthetics	<p>Section 3.8 – Visual Resources includes a discussion on the visual impact of the Project.</p>
General Environmental Concerns	<p>Section 3.4 – Demographics and Environmental Justice discusses the location of and impact to communities that include populations meeting the threshold for Environmental Justice.</p> <p>Remaining environmental concerns are addressed in the remaining factors.</p>
Wetlands	<p>The Project is estimated to impact approximately 37 acres of high-quality wetlands (Section 3.10 – Water Bodies and Waterways).</p>

Public Interest Factor	Summary of Impact (Location of Discussion in EA)
Historic and Cultural Resources	<p>The proposed Project will have No Adverse Effect on architecture/history historic properties. No historic properties will be destroyed, moved, neglected, repaired, or rehabilitated, or have a change of use.</p> <p>There are no archaeological historic properties in the APE; therefore, no effects to archaeological resources are anticipated as a result of this Project. (Section 3.7 – Cultural Resources).</p>
Fish and Wildlife Values	<p>FRA has coordinated with both the U.S. Fish and Wildlife Service (USFWS) and the National Atmospheric and Oceanic Administration’s (NOAA) Marine Fisheries Division (NMFS) regarding fish and wildlife resources (Section 3.15 – Threatened and Endangered Species/Critical Habitat).</p>
Flood Hazards	<p>The Preferred Alternative crosses an area highly susceptible to inundation for the future year 2040. The majority of the Project design would be elevated to avoid areas most susceptible to future inundation (Section 3.22 – Resiliency).</p>
Floodplain Values	<p>The Preferred Alternative would be constructed and operated largely within a 100-year floodplain and the Project would be designed to obtain a no-rise certification and carry the 100-year storm event (Section 3.13 – Floodplains and Flood Zones).</p> <p>There would be CAMA AECs impacted by the Preferred Alternative, including public trust areas, public trust area shorelines, estuarine waters, coastal shorelines, and coastal wetlands (Section 3.14 – Coastal Zones and Areas of Environmental Concern).</p>
Land Use	<p>The Preferred Alternative would be compatible with existing land uses and no long-term adverse impacts to land use or zoning would be expected. The Preferred Alternative would impact 18.44 acres of areas used for conservation, including the Eagles Island Natural Area Dedicated Nature Preserve and the North Carolina Coastal Land Trust Easement. (Section 3.2 – Land Use, Zoning, and Property).</p>
Navigation	<p>The Preferred Alternative proposes two new moveable span, single-track bridges crossing the Cape Fear River in two separate locations. Several commercial waterway users are located downstream of the proposed bridge locations, the largest of which is the North Carolina State Ports Authority’s (NCSPA) Port of Wilmington. The U.S. Coast Guard (USCG) issued a preliminary navigation clearance determination on April 4, 2022 (Section 3.12 – Navigation).</p>
Shore Erosion and Accretion	<p>The proposed Project would have no effect on shore erosion or accretion, as it pertains to 33 CFR 320.4(g)(2) and is not discussed in this document.</p>

Public Interest Factor	Summary of Impact (Location of Discussion in EA)
Recreation	No parks or recreational facilities would be permanently impacted by the Project, including those associated with recreational use of the Cape Fear River (Section 3.6 – Parks and Recreational Facilities).
Water Quality	The Preferred Alternative would result in impacts to high and medium quality wetlands and streams (Section 3.9 – Water Quality; Section 3.10 – Water Bodies and Waterways).
Energy Needs	While increased operations would result in greater energy consumption, the reduction in miles traveled and delays at grade crossings would likely provide an overall net benefit to freight rail energy consumption within the Study Area. (Section 3.21 Energy Resources).
Safety	The Project would result in a cumulative benefit to public health and safety by reducing conflicts at the at-grade crossings and the risks associated with collisions; the transport of potentially hazardous materials through the City via the freight rail line; improved response times for EMS; and a reduction in idling vehicles (Section 1.6.2 – Need for Proposed Action; Section 3.24 – Indirect and Cumulative Impacts).
Food and Fiber Production	No farmland would be adversely impacted by the Project (Section 3.16 – Soils and Prime Farmland).
Mineral Needs	Mineral resources and/or mining activities are not discussed in this EA.
Considerations of Property Ownership	Any unavoidable impacts, including to riparian rights, on individual property owners will be handled during the right-of-way acquisition phase of the Project (Section 3.2 – Land Use, Zoning, and Property; Section 3.20 – Utilities).

4.4 EA AVAILABILITY

This EA is currently available for public comment for 30 days via the link below (hard copies available upon request). Public notice of the EA’s availability was published in the StarNews with email notification to local, state, and Federal agencies, and other stakeholders. The agencies and stakeholders receiving notification include those identified in Section 4.2.

Comments will be accepted via the following:

- Online at <https://www.regulations.gov/docket/FRA-2023-0088>
- Mail to:
 Kristen Zschomler
 Federal Railroad Administration
 1200 New Jersey Avenue Southeast
 Washington, DC 20590

If it is determined that there will be no significant impacts, a Finding of No Significant Impact (FONSI) will be prepared to conclude the process and document the decision. A FONSI is issued when environmental analysis and interagency review during the EA process find a project to have no significant impacts on the quality of the environment. The FONSI document is the EA modified to reflect all applicable comments and responses. The public will be notified when the FONSI is published.

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APPENDIX A: MAPPING ATLAS

Wilmington Rail Realignment

**New Hanover and
Brunswick Counties, NC**

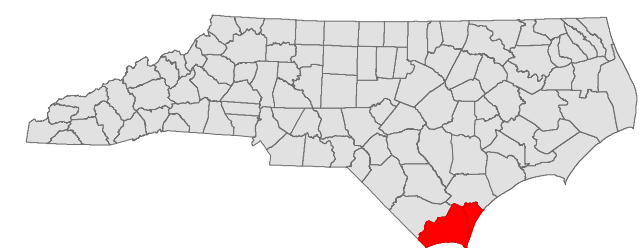
**Proposed Impacts
Map Atlas
Overview**

Date: April 2022

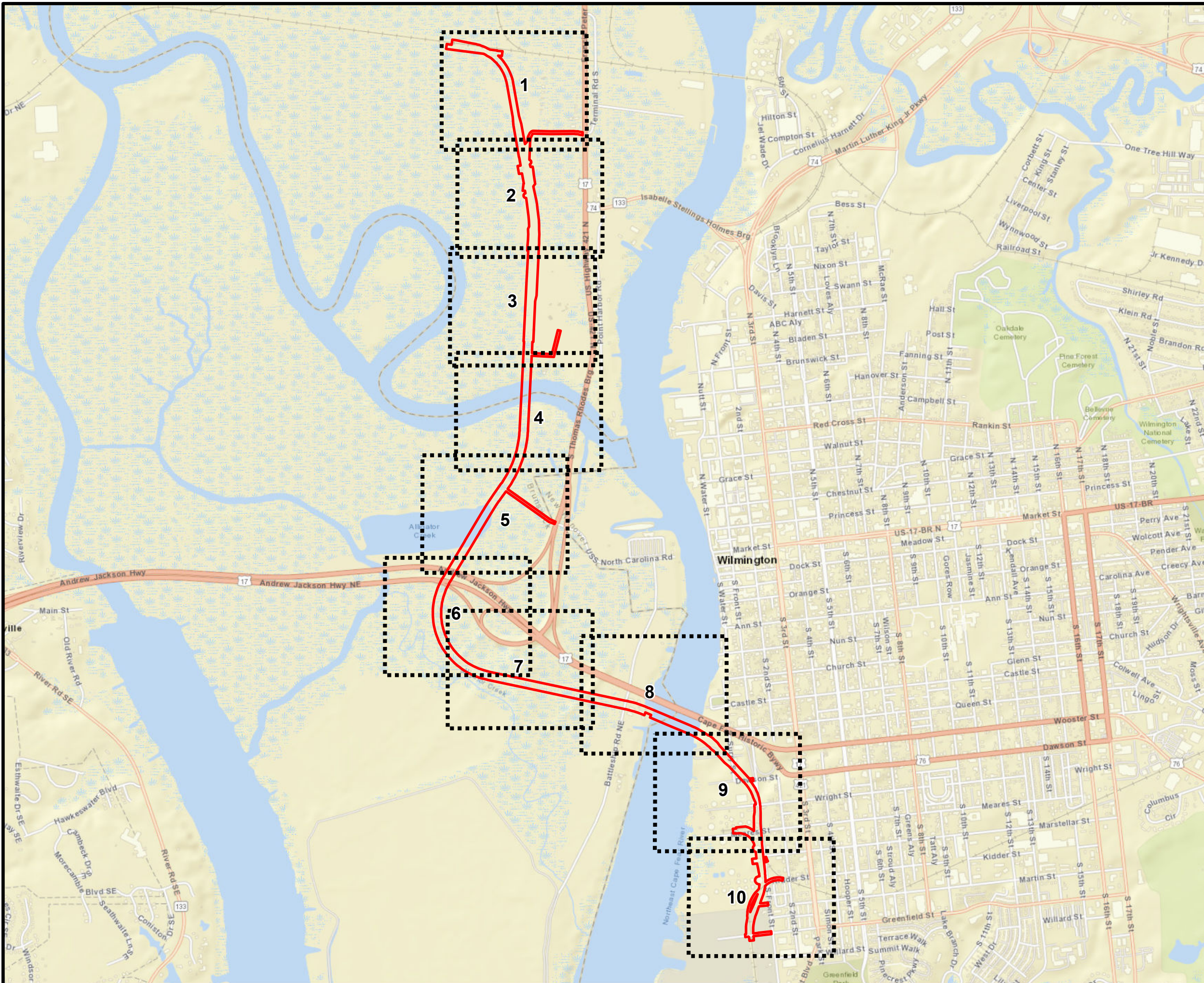
Legend

 Map Sheets

 Preferred Alternative Impact Area



0 0.125 0.25 0.5
Miles



Wilmington Rail Realignment

**New Hanover and
Brunswick Counties, NC**

**Proposed Impacts
Map Atlas
Sheet 1**

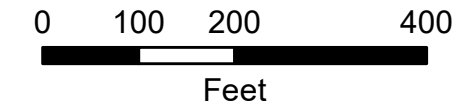
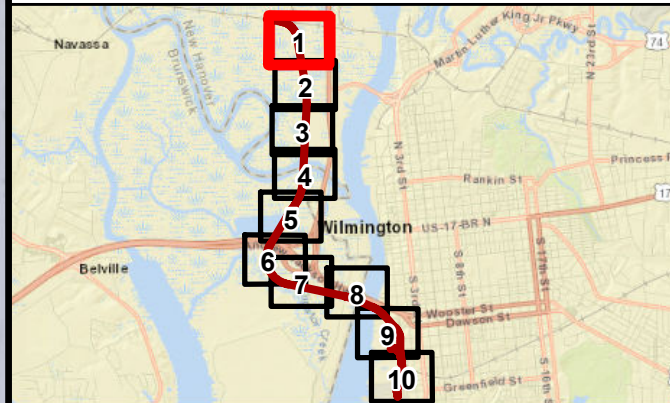
Date: April 2022

Legend

- Preferred Alternative Permanent Impact
- Preferred Alternative Temporary Impact
- Wetlands - Permanent Impacts
- Wetlands - Temporary Impacts
- Seaboard Air Line Railway/Atlantic Coast Railroad District (DOE)
- Conservation
- Special Flood Hazard Area
- Impacted Parcels



N 421













Wilmington Rail Realignment

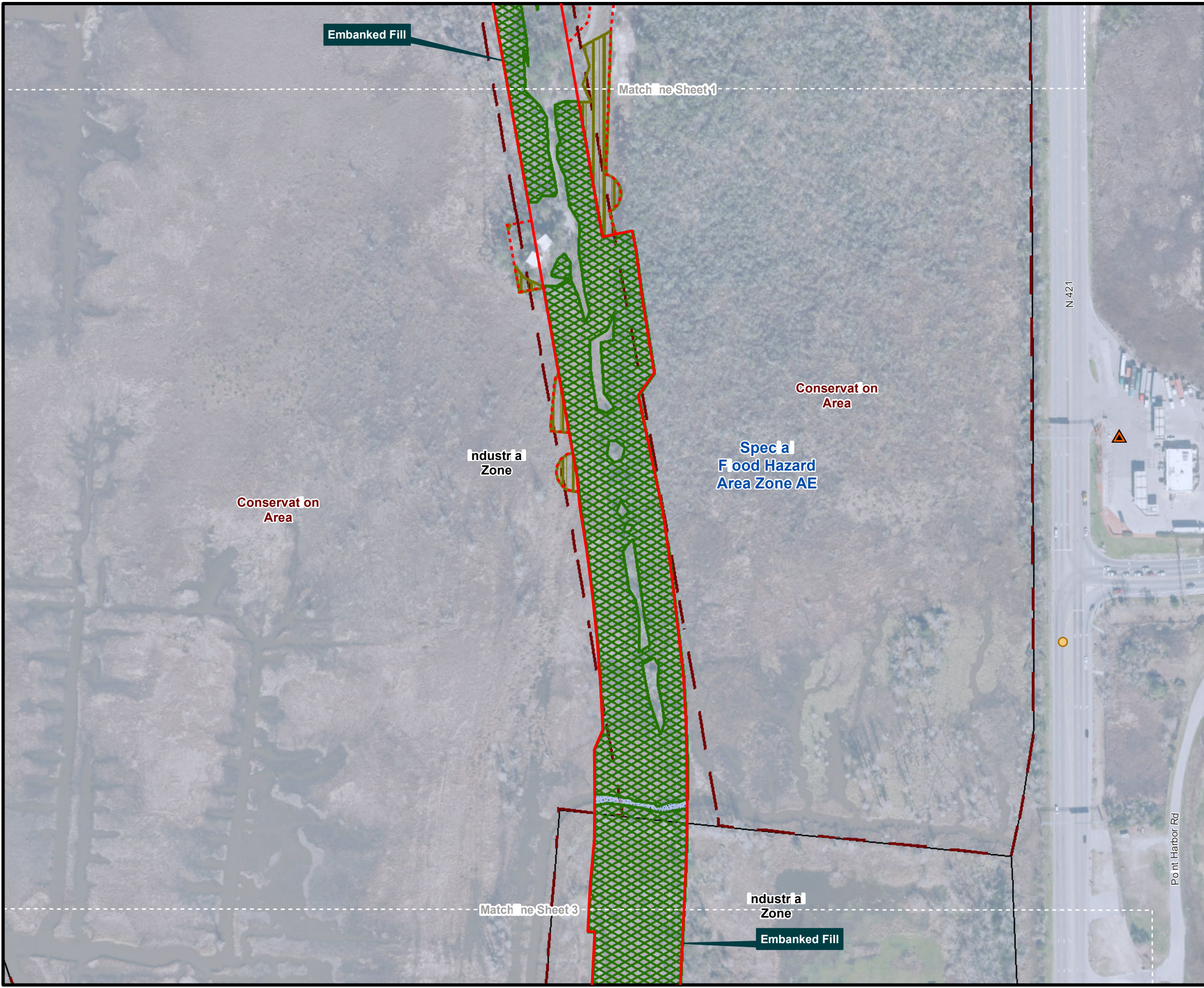
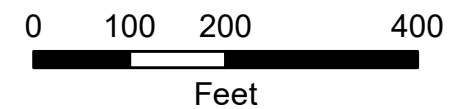
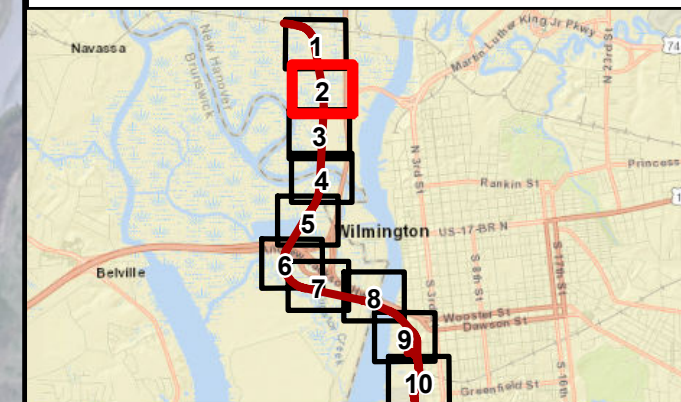
New Hanover and Brunswick Counties, NC

**Proposed Impacts
Map Atlas
Sheet 2**

Date: April 2022

Legend

-  Underground Storage Tank Incident
-  Above-ground Storage Tank Incident
-  Preferred Alternative Permanent Impact
-  Preferred Alternative Temporary Impact
-  Wetlands - Permanent Impacts
-  Wetlands - Temporary Impacts
-  Conservation Area
-  Special Flood Hazard Area
-  Stream/Surface Water - Permanent Impacts
-  Impacted Parcels



Wilmington Rail Realignment

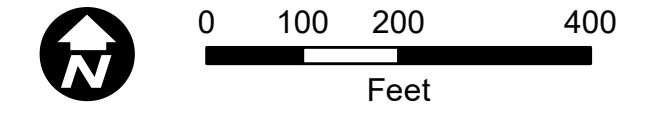
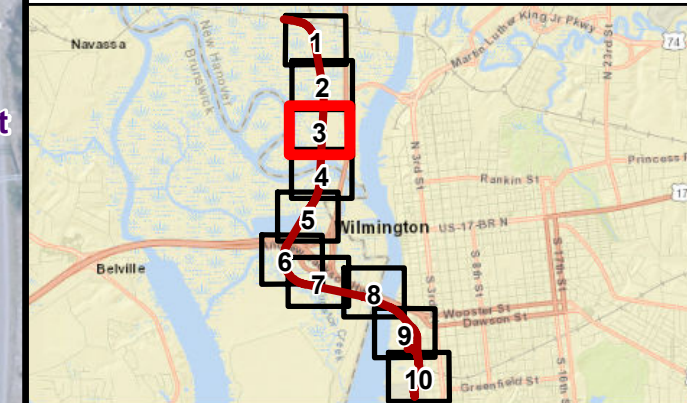
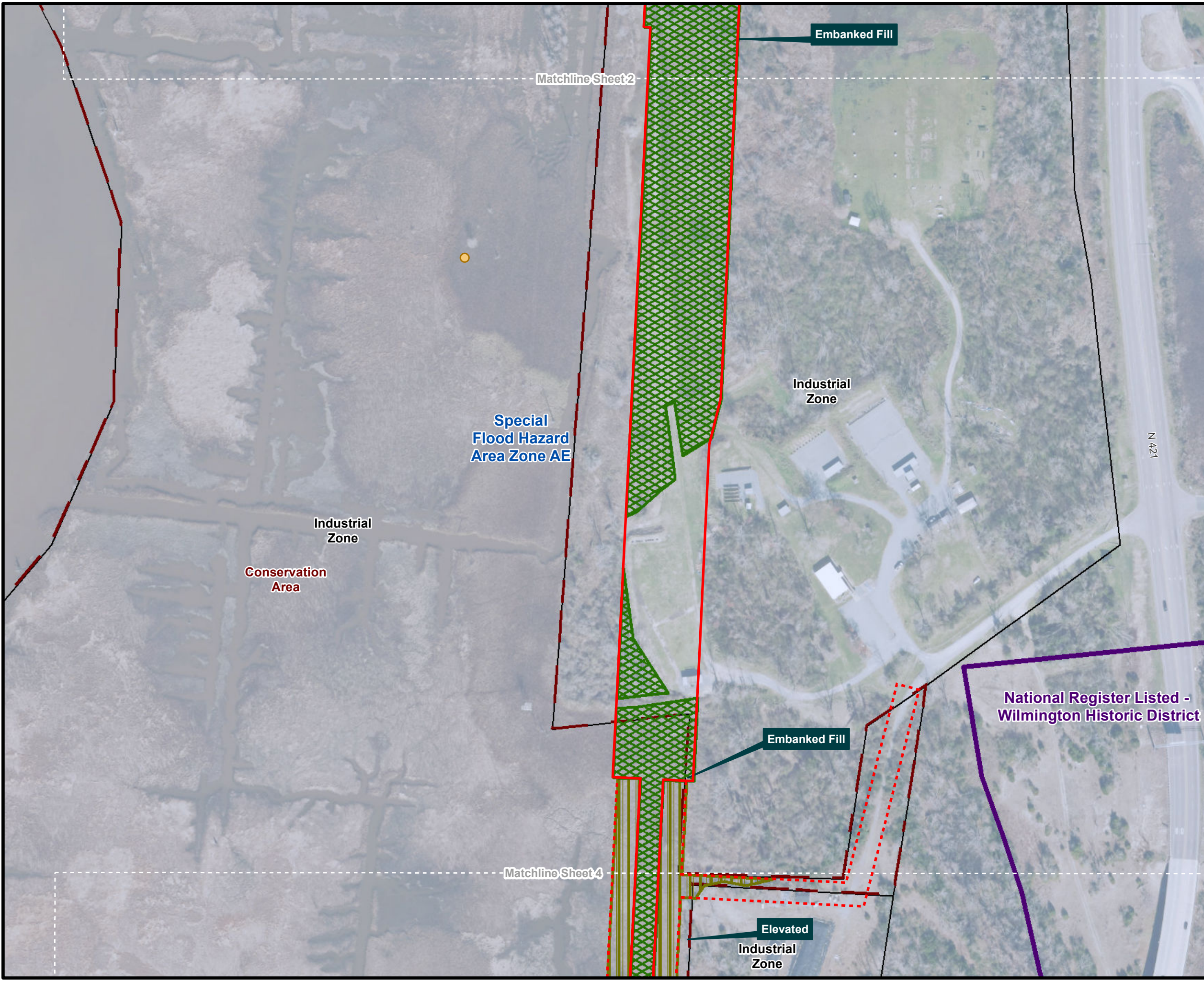
New Hanover and Brunswick Counties, NC

**Proposed Impacts
Map Atlas
Sheet 3**

Date: April 2022

Legend

-  Above-ground Storage Tank Incident
-  Preferred Alternative Permanent Impact
-  Preferred Alternative Temporary Impact
-  Wetlands - Permanent Impacts
-  Wetlands - Temporary Impacts
-  National Register Listed - Wilmington Historic District
-  Conservation Area
-  Special Flood Hazard Area
-  Impacted Parcels















Wilmington Rail Realignment

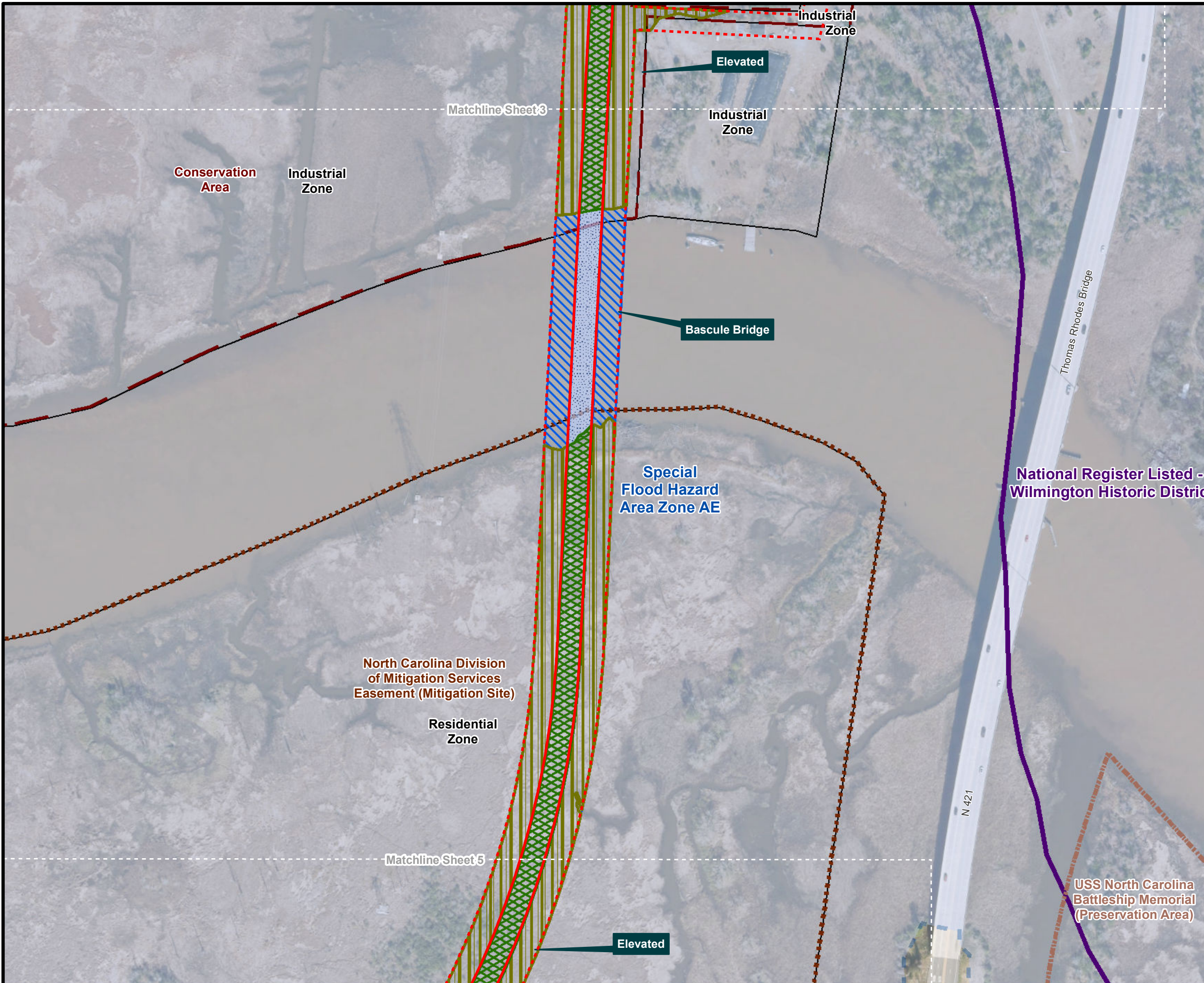
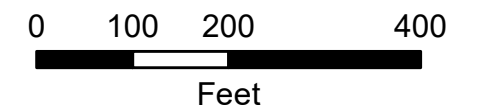
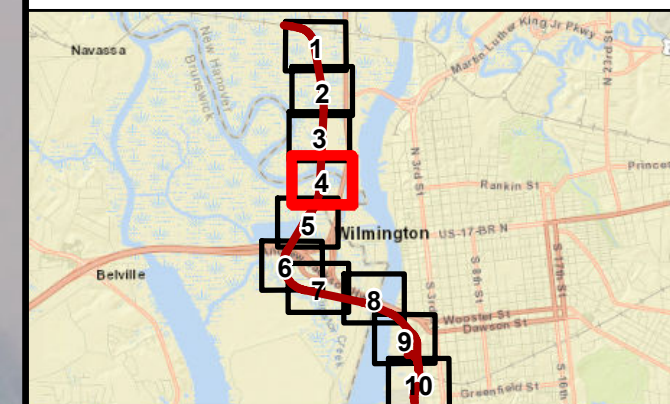
New Hanover and Brunswick Counties, NC

**Proposed Impacts
Map Atlas
Sheet 4**

Date: April 2022

Legend

-  Preferred Alternative Permanent Impact
-  Preferred Alternative Temporary Impact
-  Wetlands - Permanent Impacts
-  Wetlands - Temporary Impacts
-  National Register Listed - Wilmington Historic District
-  Conservation
-  Mitigation Site
-  Preservation
-  Special Flood Hazard Area
-  Stream/Surface Water - Permanent Impacts
-  Surface Waters - Temporary Impacts
-  Impacted Parcels














Wilmington Rail Realignment

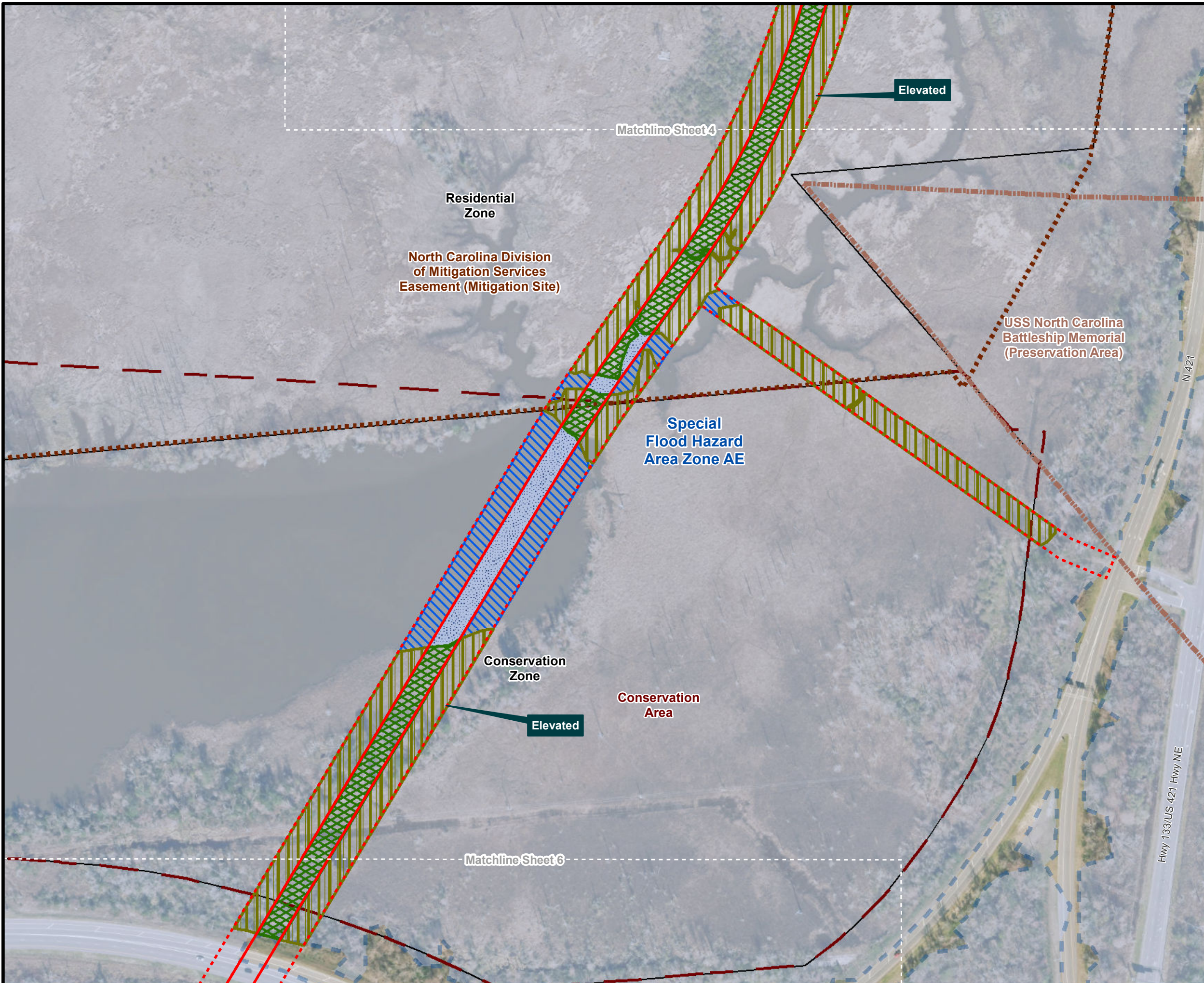
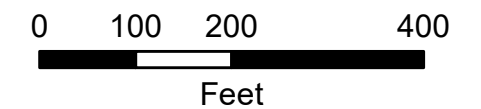
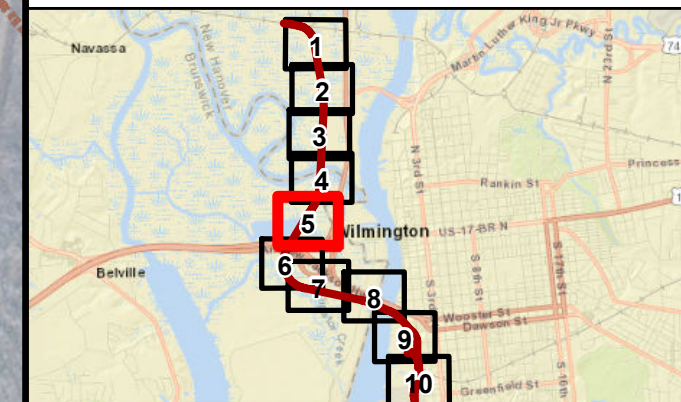
New Hanover and Brunswick Counties, NC

**Proposed Impacts
Map Atlas
Sheet 5**

Date: April 2022

Legend

-  Preferred Alternative Permanent Impact
-  Preferred Alternative Temporary Impact
-  Wetlands - Permanent Impacts
-  Wetlands - Temporary Impacts
-  Conservation
-  Mitigation Site
-  Preservation
-  Special Flood Hazard Area
-  Stream/Surface Water - Permanent Impacts
-  Surface Waters - Temporary Impacts
-  Impacted Parcels



Wilmington Rail Realignment

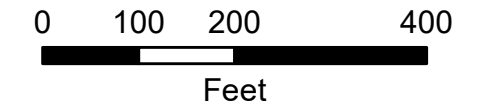
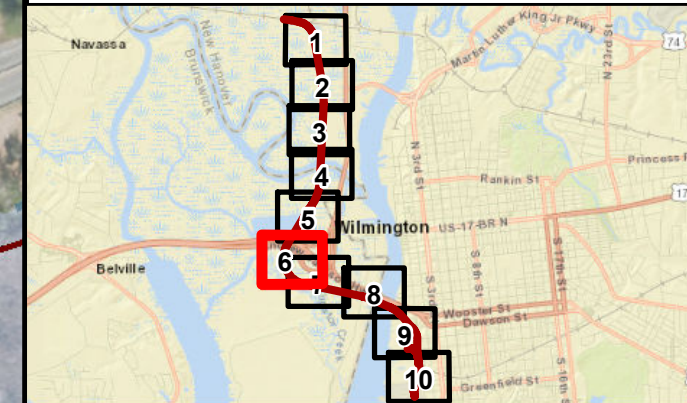
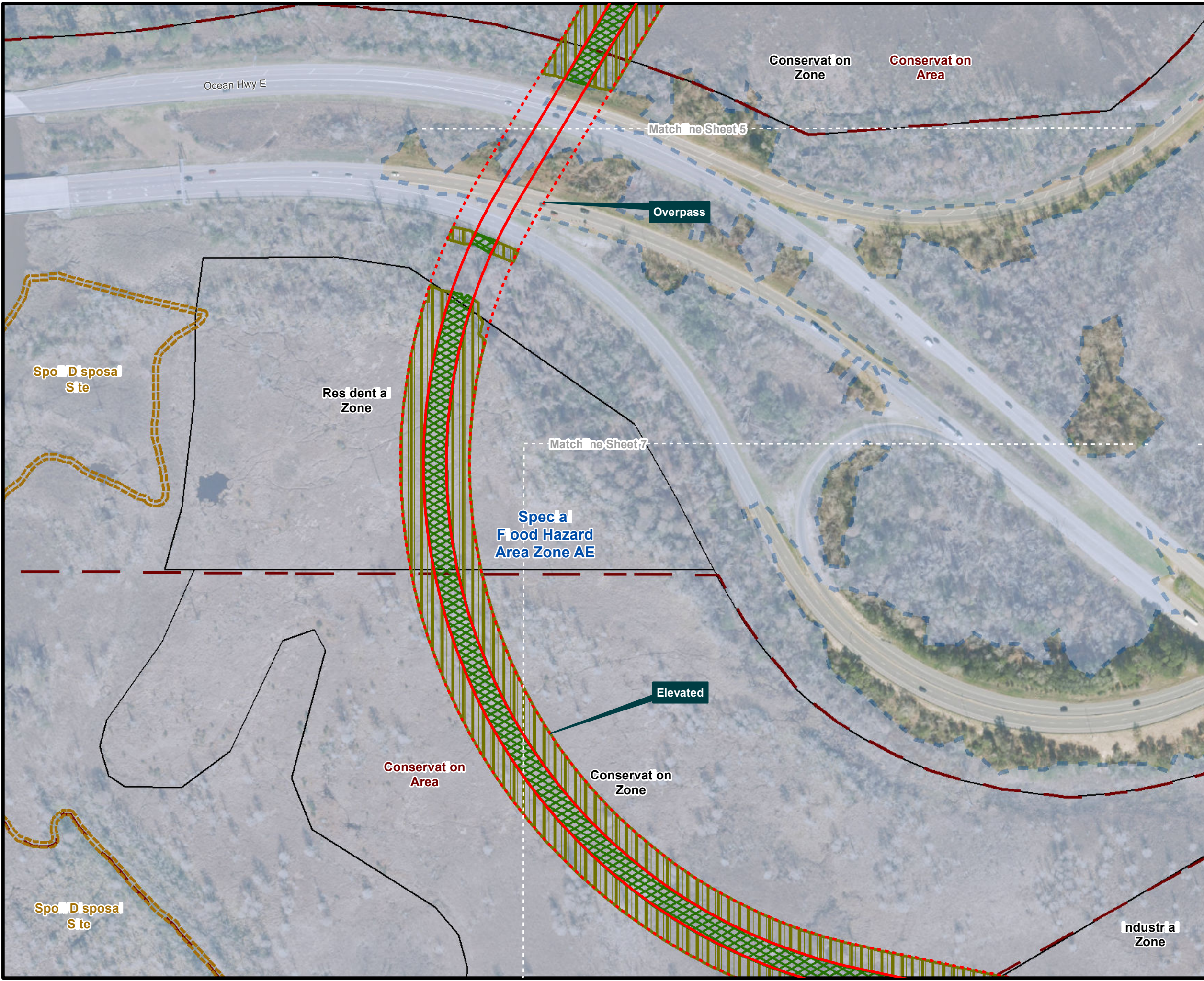
New Hanover and Brunswick Counties, NC

**Proposed Impacts
Map Atlas
Sheet 6**

Date: April 2022

Legend

-  Preferred Alternative Permanent Impact
-  Preferred Alternative Temporary Impact
-  Wetlands - Permanent Impacts
-  Wetlands - Temporary Impacts
-  Conservation Area
-  Spoil/Disposal Site
-  Special Flood Hazard Area
-  Impacted Parcels



Wilmington Rail Realignment

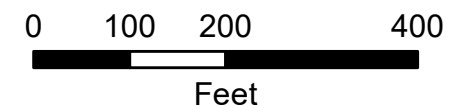
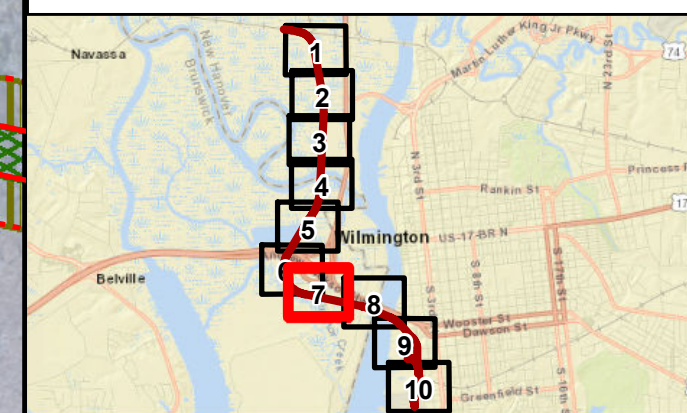
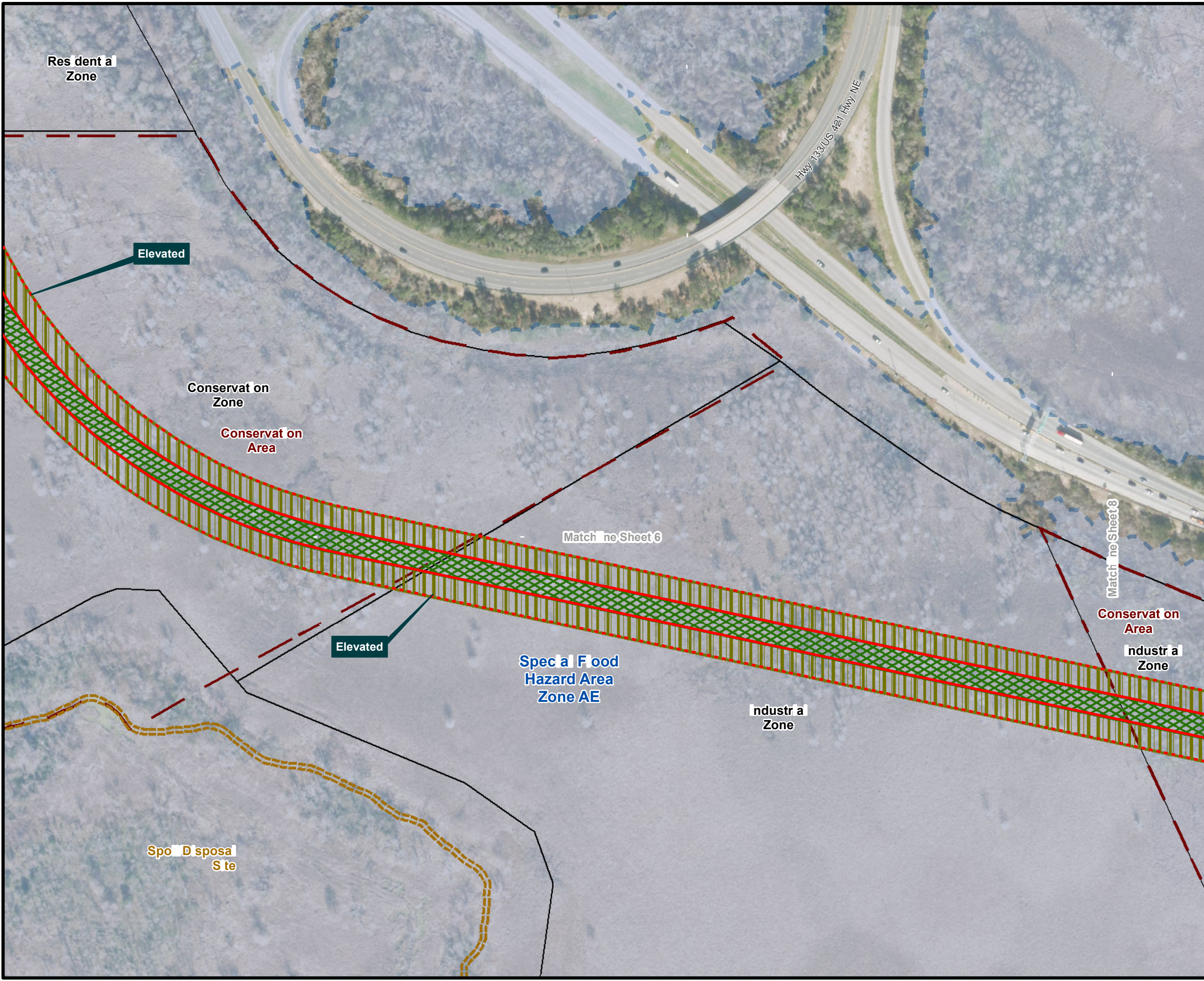
**New Hanover and
Brunswick Counties, NC**

**Proposed Impacts
Map Atlas
Sheet 7**

Date: April 2022

Legend

-  Preferred Alternative Permanent Impact
-  Preferred Alternative Temporary Impact
-  Wetlands - Permanent Impacts
-  Wetlands - Temporary Impacts
-  Conservation Area
-  Spoil/Disposal Site
-  Special Flood Hazard Area
-  Impacted Parcels



Wilmington Rail Realignment

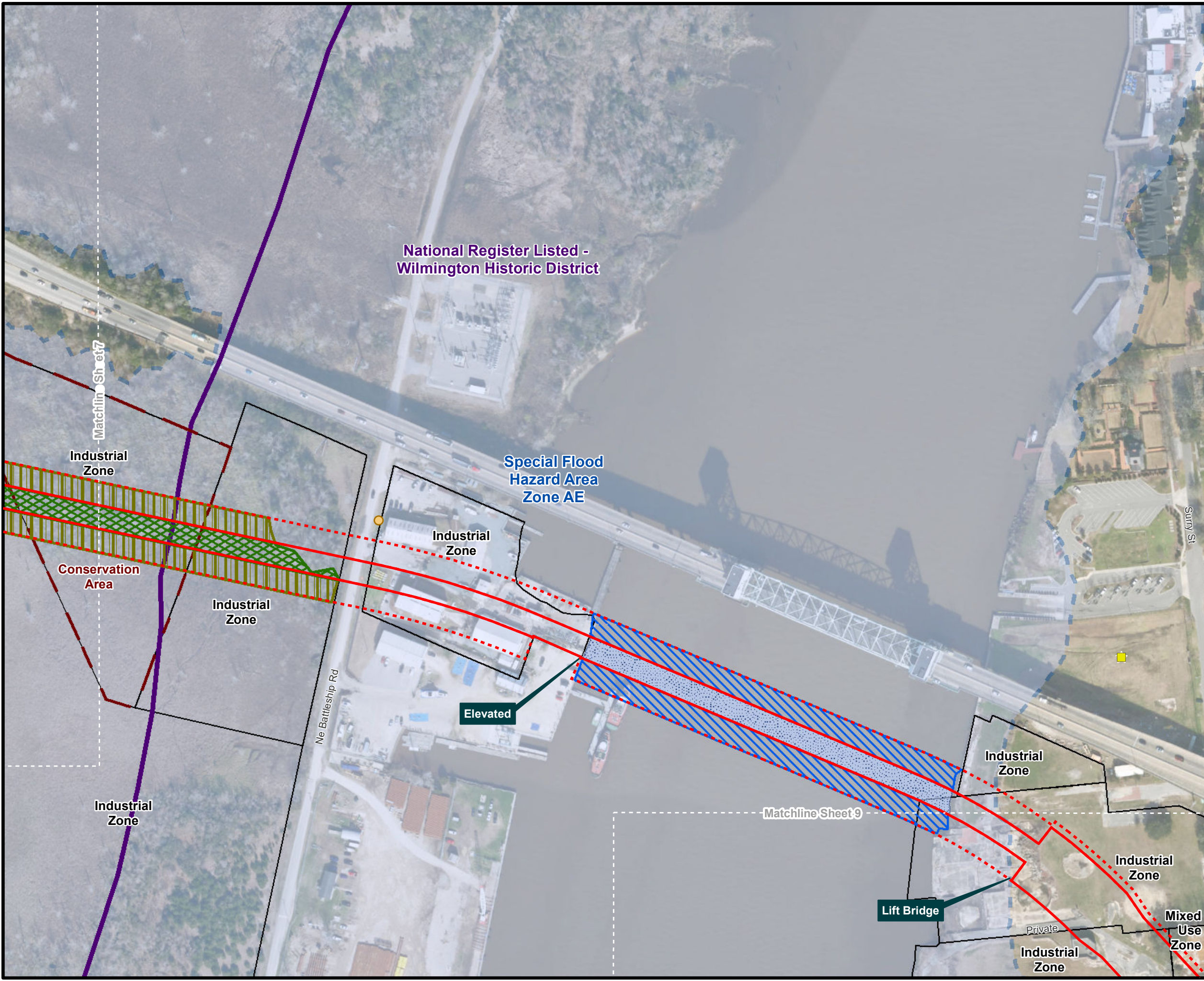
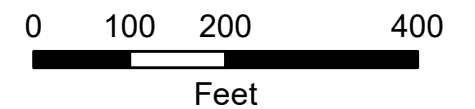
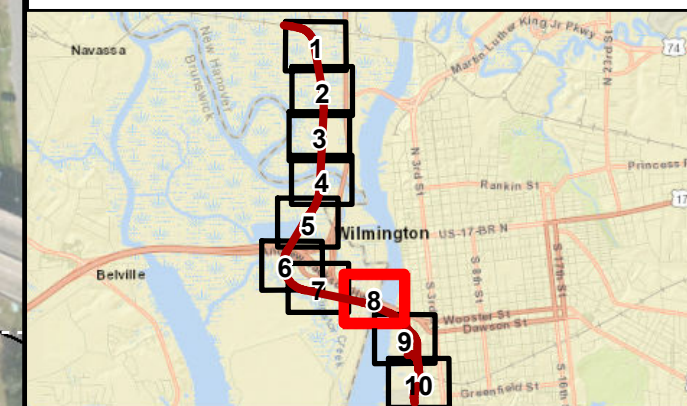
**New Hanover and
Brunswick Counties, NC**

**Proposed Impacts
Map Atlas
Sheet 8**

Date: April 2022

Legend

- Inactive Hazardous Site
- Above-ground Storage Tank Incident
- Preferred Alternative Permanent Impact
- Preferred Alternative Temporary Impact
- Wetlands - Permanent Impacts
- Wetlands - Temporary Impacts
- National Register Listed - Wilmington Historic District
- Conservation Area
- Special Flood Hazard Area
- Stream/Surface Water - Permanent Impacts
- Surface Waters - Temporary Impacts
- Impacted Parcels













Wilmington Rail Realignment

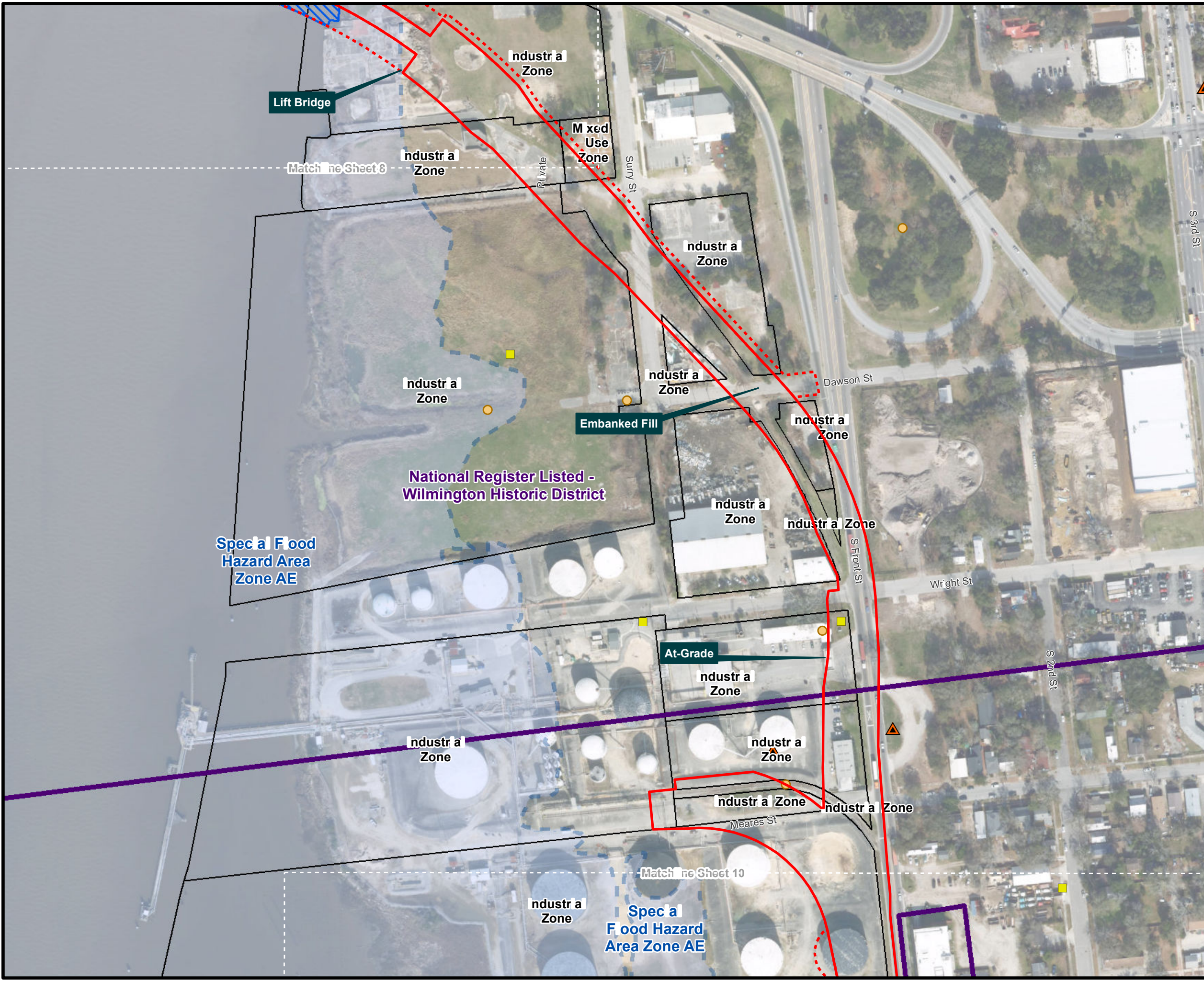
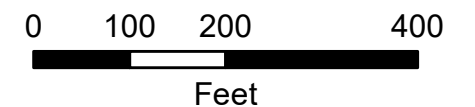
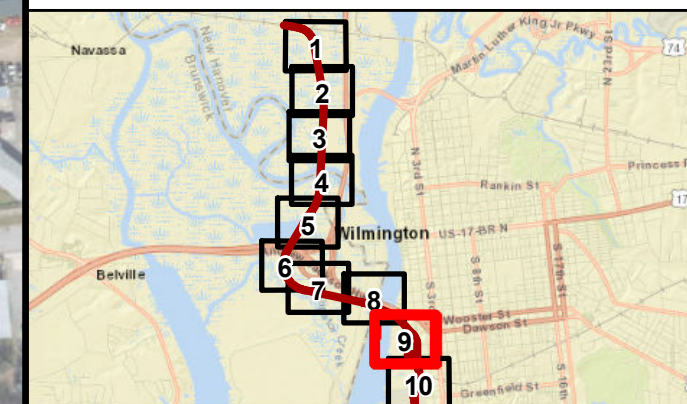
**New Hanover and
Brunswick Counties, NC**

**Proposed Impacts
Map Atlas
Sheet 9**

Date: April 2022

Legend

-  Underground Storage Tank Incident
-  Inactive Hazardous Site
-  Above-ground Storage Tank Incident
-  Preferred Alternative Permanent Impact
-  Preferred Alternative Temporary Impact
-  National Register Listed - Wilmington Historic District
-  Special Flood Hazard Area
-  Stream/Surface Water - Permanent Impacts
-  Surface Waters - Temporary Impacts
-  Impacted Parcels
















Wilmington Rail Realignment

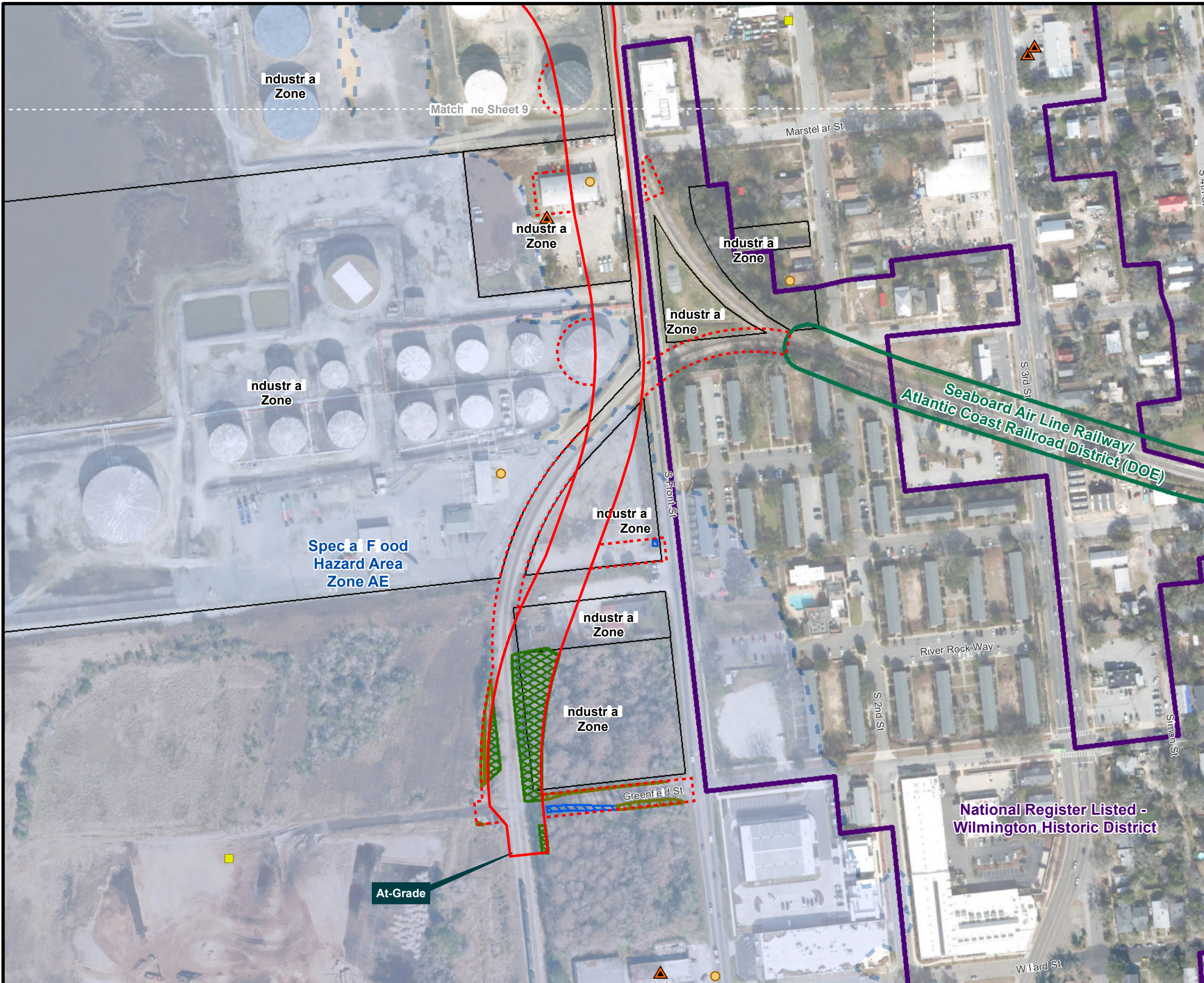
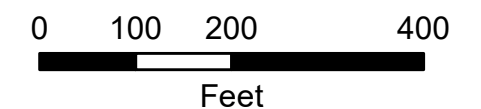
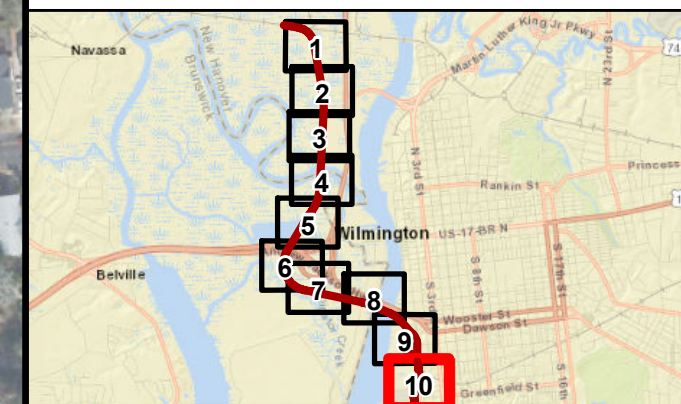
New Hanover and Brunswick Counties, NC

**Proposed Impacts
Map Atlas
Sheet 10**

Date: April 2022

Legend

-  Underground Storage Tank Incident
-  Inactive Hazardous Site
-  Above-ground Storage Tank Incident
-  Preferred Alternative Permanent Impact
-  Preferred Alternative Temporary Impact
-  Stream/Surface Water - Permanent Impacts
-  Stream/Surface Water - Temporary Impacts
-  Wetlands - Permanent Impacts
-  Wetlands - Temporary Impacts
-  Seaboard Air Line Railway/Atlantic Coast Railroad District (DOE)
-  National Register Listed - Wilmington Historic District
-  Special Flood Hazard Area
-  Impacted Parcels



APPENDIX B: CULTURAL RESOURCES

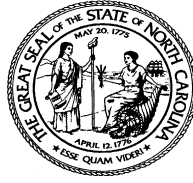
APPENDIX B1: SECTION 106 CORRESPONDENCE

Section 106 Correspondence to Date

Date	Agency/Group	Correspondence Type	General Subject
9/30/2019	NCHPO	Letter	Concerns related to cultural resources in study area
10/9/2019	NCHPO	Letter	Response to SHPO letter
3/3/2021	OSA	Letter	Participating Agency acceptance letter
7/16/2021	Eagles Island Task Force	Email	Section 106 Consulting Party invitation
7/19/2021	Eagles Island Task Force	Email	Section 106 Consulting Party acceptance
7/27/2021	Catawba Indian Nation	Email	Section 106 Consulting Party invitation
7/27/2021	NCHPO	Letter	Submittal of Archaeological Resources Technical Study and Reconnaissance-Level Historic Architectural Study; Consulting Party outreach notification
7/27/2021	North Carolina Commission of Indian Affairs	Email	Section 106 Consulting Party invitation (copied as part of NCHPO letter)
7/27/2021	Historic Wilmington Foundation	Email	Section 106 Consulting Party invitation (copied as part of NCHPO letter)
7/27/2021	US Coast Guard	Email	Section 106 Consulting Party invitation (copied as part of NCHPO letter)
7/27/2021	USACE	Email	Section 106 Consulting Party invitation (copied as part of NCHPO letter)
7/27/2021	Gullah Geechee Cultural Heritage Corridor Commission	Email	Section 106 Consulting Party invitation (copied as part of NCHPO letter)
7/28/2021	NCHPO	Letter	Alternatives Analysis comments
7/28/2021	North Carolina Commission of Indian Affairs	Letter	Notification of State Recognized tribes for Consulting Party invitation
7/29/2021	Lumbee Tribe of North Carolina	Email	Section 106 Consulting Party invitation
7/29/2021	Waccamaw-Siouan Indian Tribe	Email	Section 106 Consulting Party invitation
7/29/2021	Tuscarora Nation	Email	Section 106 Consulting Party invitation
8/23/2021	NC Historic Preservation Office	Letter	Section 106 coordination
8/27/2021	USS North Carolina Commission	Email	Section 106 Consulting Party invitation
8/27/2021	USS North Carolina Commission	Email	Section 106 Consulting Party acceptance
8/27/2021	Catawba Indian Nation	Email	Response to Section 106 Consulting Party invitation
9/24/2021	STB	Email	Request to be Section 106 consulting party

Date	Agency/Group	Correspondence Type	General Subject
11/17/2021	Section 106 Consulting Parties	Meeting	Project update and request feedback on historic property identification
2/23/2022	Section 106 Consulting Parties	Meeting	Project update and request feedback on historic property identification
3/4/2022	NCHPO	Letter	Response to Consulting Party meeting
3/30/2022	NCHPO	Letter	Submittal of report seeking concurrence of identification of historic properties
5/5/2022	NCHPO	Letter	Response from NCHPO on architectural history report
5/5/2022	NCHPO	Letter	Response from NCHPO on archaeology report
6/10/2022	OSA	Meeting	Discussion of comments received on archaeology report and request of additional surveys by diver on specific targets
7/12/2022	NCHPO	Letter	Submittal in response to 5/5/22 letter on initial submission of historic architecture report
7/20/2022	OSA	Meeting	Discussion of sites to dive for further investigation in archaeology report
8/4/2022	NCHPO	Letter	Response on Architectural Intensive-Level Report and concurrence on resources to assess for effects
8/10/2022	NCHPO	Letter	Submittal of Archaeological Survey Report
9/14/2022	NCHPO	Letter	Response from NCHPO on Archaeological Survey Report
2/8/2023	NCHPO	Letter	Submittal of archaeological dive work plan
3/16/2023	NCHPO	Letter	Approval from NCHPO on archaeological dive work plan
3/21/2023	NCHPO	Letter	Submittal of Assessment of Effects (Historic Architecture) Report
4/20/2023	Section 106 Consulting Parties	Meeting	Project update and review of recommendations of Assessment of Effects (Historic Architecture) and results of underwater archaeological survey
5/15/2023	NCHPO	Letter	Submittal of updated Archaeological Survey Report
6/30/2023	NCHPO	Letter	Response from NCHPO with concurrence on results of Archaeological Survey Report
7/3/2023	NCHPO	Letter	Submittal of revised Assessment of Effects (Historic Architecture) Report to NCHPO

Date	Agency/Group	Correspondence Type	General Subject
7/14/2023	STB	Letter	Designation of FRA as lead agency in Section 106 review
7/25/2023	Section 106 Consulting Parties	Meeting	Project update and review of updated recommendations of Assessment of Effects (Historic Architecture) and results of underwater archaeological survey
8/9/2023	NCHPO	Letter	Response from NCHPO with concurrence on effects assessment of historic architecture properties
8/10/2023	NCHPO	Email	Email to NCHPO notifying intent to classify Section 4(f) effects on historic properties as <i>de minimis</i> impacts



North Carolina Department of Natural and Cultural Resources
State Historic Preservation Office

Ramona M. Bartos, Administrator

Governor Roy Cooper
Secretary Susi H. Hamilton

Office of Archives and History
Deputy Secretary Kevin Cherry

September 30, 2019

Aubrey Parsley, Director
Rail Realignment
PO Box 1810
Wilmington, NC 28402

Aubrey.Parsley@wilmingtonnc.gov

Re: Wilmington Rail Realignment and Right-of-Way Use, Wilmington, New Hanover County, ER 19-2629

Dear Mr. Parsley:

Thank you for your August 21, 2019, letter providing a copy of the feasibility study for the above-referenced undertaking. We have reviewed the study and offer the following comments.

The feasibility study provides a wealth of information on the proposed undertaking, its goals, setting, and the myriad factors that go into planning such an ambitious and complex project. The City is to be commended for its research and early planning.

However, the study's treatment of historic and cultural resources is not as in-depth as it could have been and presents a less than comprehensive explanation of the environmental review process for a project that will have such far-reaching and long-term impacts on an area rightfully known for its history and historic resources. Further, while the study provides information about the battlefield USS North Carolina, several underwater archaeological resources, and the Wilmington National Register Historic District, it failed to include many other historic resources within the undertaking's Area of Potential Effects. At your request, we can provide more information and detailed mapping for these, including data from HPOWEB, our GIS mapping program, for all surveyed, above-ground resources. We can also provide more information and mapping for submerged and archaeological resources on a restricted-use basis.

Of particular concern is the characterization of the regulatory environment as it relates to historic/cultural resources. The references to the applicability of Section 106 of the National Historic Preservation Act to the undertaking and the outright omission of any reference to Section 4(f) of the Department of Transportation Act could lead one to believe that affecting a historic property is of minor import – that compliance requires only a review by the State Historic Preservation Officer (SHPO) and then negotiating some form of mitigation, when an adverse effect on a historic property cannot be avoided. While briefly mentioned in Technical Report J on pages 3 and 4, there is no further discussion of the possible need for additional architectural and archaeological surveys to identify additional historic resources, to the leadership role of the responsible federal agency, or to the broader consultation process required under Section 106 when an adverse effect is determined.

A discussion of Section 4(f) of the Department of Transportation Act of 1966 and its applicability to the undertaking is fundamentally essential, because most of the potential funding sources listed in the feasibility study, including the CRISI grant used for its preparation, are from agencies within the US Department of Transportation (USDOT), likely triggering this section of the law. Section 4(f), unlike Section 106, is a substantive law stipulating that USDOT agencies *cannot* approve the use of land from publicly owned parks, recreational areas, wildlife and waterfowl refuges, or public and private historical sites unless there is no feasible and prudent avoidance alternative to the use; and the action includes all possible planning to minimize harm to the property resulting from such use, or there is a determination by the USDOT agency that the use of the property will have a *de minimis* impact. In summary, while the study suggests that the later phase transit project will be within the existing rights-of-way, we believe the potential of an adverse effect and the likely application of Section 4(f) *strongly* warrants additional consideration of these issues for all planning efforts.

We look forward to further discussions and communications with the City and others involved with the undertaking and stand ready to provide as much information as we have available on the known historic resources in the project area. As recommended by you, we are copying Randall Brown, Project Manager, and Michael Johnsen, Supervisory Environmental Protection Specialist, with the Federal Railroad Administration, to help ensure thorough communications for the undertaking. Should you have any questions concerning this matter or wish to set up a meeting or conference call as follow up, please contact me at renee.gledhill-earley@ncdcr.gov or 919-814-6579. Thank you.

Sincerely,



Renee Gledhill-Earley
Environmental Review Coordinator

cc: Kevin Cherry, PhD, SHPO
Ramona Bartos, DSHPO
Terry Bragg, USS North Carolina
Randall Brown, FRA
Michael Johnsen, FRA
Dawn Snotherly, Wilmington HPC



City Manager's Office
305 Chestnut 4th Floor
PO Box 1810
Wilmington, NC 28402-1810
910-341-0188 office
www.wilmingtonnc.gov/rail

October 9th, 2019

Renee Gledhill-Earley
State Historic Preservation Office
Division of Historical Resources
Office of Archives and History
North Carolina Department of Natural and Cultural Resources
MSC 4617, Raleigh, NC 27699

Dear Ms. Gledhill-Earley,

I have received your letter dated September 30th, 2019 regarding the Rail Realignment Project (RRP) in Wilmington, NC. Thank you for your thorough response.

As I mentioned on our phone conversation on August 21st, the City of Wilmington is in the process of initiating environmental and historic reviews pursuant to the National Environmental Policy Act (NEPA). The Feasibility Study, which was conducted to provide a cursory review of impacts, was submitted to the State Historic Preservation Office (SHPO) in the spirit of early collaboration. The City's hope is to foster frequent and open communication on the aspects of the project which fall within SHPO's purview.

From the RRP's inception, the City of Wilmington - most notably former Councilwoman Laura Padgett - has endeavored to receive input from as many environmental and historic organizations as possible. Discussions with Captain Terry Bragg of the Battleship NC, the New Hanover Soil and Water Commission, the Coastal Land Trust, the Coastal Federation, Historic Wilmington Foundation, and the Secretary of Natural and Cultural Resources, Ms. Hamilton, among many others, have already taken place.

Rest assured, the City of Wilmington will continue to solicit feedback from historic stakeholders in the community, and will adhere to the NEPA process as is required for the furtherance of the RRP.

Thank you again for your initial feedback and please know that we welcome the opportunity to meet in person to discuss the project.

Respectfully Submitted,

A handwritten signature in blue ink, appearing to read "Aubrey Parsley".

Aubrey Parsley, P.E.
Director of Rail Realignment
City of Wilmington

cc: Laura Padgett
Kevin Cherry, PhD, SHPO
Ramona Bartos, Deputy SHPO
Susi Hamilton, Secretary Department of Cultural Resources Historic Preservation Office
Terry Bragg, USS North Carolina
Michael Johnsen, Federal Railroad Administration
Dawn Snotherly, Wilmington HPC

Rocco, Joanna

From: Evan Folds <evansoilwater@gmail.com>
Sent: Monday, July 19, 2021 12:49 PM
To: Anderson, Susan
Cc: Aubrey Parsley; Rocco, Joanna
Subject: [EXTERNAL] Re: Consulting Party/Wilmington Rail Realignment

Ok, sign me up. Thank you for the opportunity.

In Gratitude,

Evan Folds - Supervisor
New Hanover Soil & Water Conservation District
910-232-3598



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On Mon, Jul 19, 2021 at 10:46 AM Anderson, Susan <Susan.Anderson@aecom.com> wrote:

Good morning!

By being a Consulting Party to the process, you are afforded an opportunity to comment on our findings, process, etc. It is an opportunity for you to represent your organizations' interest in the review of cultural resources as part of the Project.

Hope this helps!

Susan

Susan Anderson, AICP

Vice President

Environmental Manager

Susan.Anderson@aecom.com

Office: 804-515-8559

Mobile: 571-269-7637

From: Aubrey Parsley <Aubrey.Parsley@wilmingtonnc.gov>
Sent: Monday, July 19, 2021 9:51 AM
To: Evan Folds <evansoilwater@gmail.com>; Anderson, Susan <Susan.Anderson@aecom.com>
Cc: Rocco, Joanna <joanna.rocco@aecom.com>
Subject: [EXTERNAL] RE: Consulting Party/Wilmington Rail Realignment

Evan - Good question that hopefully Susan can shed some light on.

Susan – Are there formalized commitments for meetings and such or is it more of a general line of communication between the Task Force and an agency?

Thanks,

Aubrey Parsley, PE

Director of Rail Realignment

305 Chestnut Street

Post Office Box 1810

Wilmington, NC 28402

(o) 910-341-0188 (c) 910-200-8382



www.wilmingtonnc.gov/rail

From: Evan Folds [<mailto:evansoilwater@gmail.com>]
Sent: Saturday, July 17, 2021 7:19 AM
To: Anderson, Susan <Susan.Anderson@aecom.com>

Cc: Rocco, Joanna <joanna.rocco@aecom.com>; Aubrey Parsley <Aubrey.Parsley@wilmingtonnc.gov>

Subject: Re: Consulting Party/Wilmington Rail Realignment

Thanks, Aubrey. Hi, Susan. I am the Co-Chair of the Eagles Island Central Park Task Force, so I am a good point of contact. What sort of commitment does involvement entail?

My mailing address is:

Evan Folds

4934 Pine St

Wilmington, NC 28403

In Gratitude,

Evan Folds - Supervisor

New Hanover Soil & Water

910-232-3598

On Jul 16, 2021, at 4:03 PM, Anderson, Susan <Susan.Anderson@aecom.com> wrote:

Good afternoon Evan,

As Aubrey mentioned, I am working with the City of Wilmington on the Wilmington Rail Realignment project. As part of this process, we are reaching out to parties that may be interested in participating in the Section 106 of the National Historic Preservation Act as Consulting Party. A Consulting Party participates in the process by reviewing documents and providing input and is included in cultural resource specific coordination. And Aubrey is right, it provides a "seat at the table" for discussing potential historic resources/context associated with Eagle Island and the rest of the project study area.

Due to your organization's interest in Eagle Island and the potential for cultural resources, we thought a representative of your group may like to participate. Could you please provide a physical mailing

address? Also, if you are not the point of contact to coordinate with, could you please let us know who is?

We would like to send a letter to you inviting you to officially be a Consulting Party. When you receive it, kindly respond with your interest to participate or not. These letters have not been sent out yet. We are collecting information to prepare to start this coordination effort.

Kind Regards,

Susan

Susan Anderson, AICP

Vice President

Environmental Manager

Susan.Anderson@aecom.com

Office: 804-515-8559

Mobile: 571-269-7637

From: Aubrey Parsley <Aubrey.Parsley@wilmingtonnc.gov>

Sent: Friday, July 16, 2021 3:52 PM

To: Evan Folds <evansoilwater@gmail.com>

Cc: Rocco, Joanna <joanna.rocco@aecom.com>; Anderson, Susan <Susan.Anderson@aecom.com>

Subject: [EXTERNAL] Consulting Party

Evan,

Great seeing you earlier this week. Wanted to give you a heads up that Susan Anderson (our NEPA lead) is going to be writing you to see if you wanted to be a consulting party for what's known as the Section 106 review (which gets its name from the section in the historic preservation act).

Susan will correct me if I misrepresent this, but becoming a consulting party will basically give you a “seat at the table” to inform the State Historic Preservation Office about Eagles Island. In a sense, you’d be acting as local guide by sharing the knowledge you all have collected about the area over the years. You had mentioned Historic Wilmington Foundation at our lunch, they’ll be a consulting party and are familiar with the process.

Happy to provide additional info and context as needed. Reach out any time.

Have a great weekend,

Aubrey Parsley, PE

Director of Rail Realignment

305 Chestnut Street

Post Office Box 1810

Wilmington, NC 28402

(o) 910-341-0188 (c) 910-200-8382

<image001.jpg>

www.wilmingtonnc.gov/rail

E-mail correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

E-mail correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.



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Rocco, Joanna

From: Rocco, Joanna
Sent: Thursday, July 29, 2021 3:20 PM
To: siouan@aol.com
Cc: Wright, Kevin (FRA); Murphy, Amanda (FRA); Aubrey Parsley; Mann, Jeff; Motsinger, Suraiya (Suraiya.Motsinger@aecom.com); Anderson, Susan; Miars, Celia; Renee Gledhill-Earley ; greg.richardson@doa.nc.gov
Subject: Wilmington Rail Realignment Project, Section 106 Consultation: Identification of Known and Potential Historic Properties
Attachments: WRR_Cultural Resources_SHPO CP letter 07272021_all.pdf

Good afternoon Rev. Jacobs,

On behalf of the Federal Railroad Administration, please see the attached letter regarding the Wilmington Rail Realignment Project (Project). The NC Commission on Indian Affairs informed us on 7/28/21 that you may have interest in the area. The Project site is located within the City of Wilmington as well as unincorporated areas of Brunswick and New Hanover counties. The Project is an undertaking pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations (36 CFR Part 800) (Section 106).

Please let us know if you have any questions or require additional information.

Thank you,
Joanna

Joanna H. Rocco, AICP
AECOM
Senior Environmental Planner/Project Manager
Transportation
Office: 919-239-7179
Mobile: 919-607-7975



U.S. Department
of Transportation

1200 New Jersey Avenue, SE
Washington, DC 20590

**Federal Railroad
Administration**

July 27, 2021

Renee Gledhill-Earley
North Carolina State Historic Preservation Office
4617 Mail Service Center
Raleigh, NC 27699-4617

**RE: ER 19-2629: City of Wilmington, Wilmington Rail Realignment Project, Section 106
Consultation: Identification of Known and Potential Historic Properties**

Dear Ms. Gledhill-Earley:

Thank you for your March 3, 2021 response to our initiation of the Section 106 process for the proposed Wilmington Rail Realignment Project (Project). In continuation of the Section 106 consultation process, we are submitting two reports for your review and comment, the *Archaeological Resources Technical Study* and *Reconnaissance-Level Historic Architectural Survey*. These reports identify known historic properties near the project, and identify potential historic properties for further evaluation.

Six build alternatives are currently under consideration. A draft Alternatives Analysis (AA) was provided to the public and resource agencies, including your office, for review and comment on June 23rd. Comments received on the AA will be considered in identifying the Preferred Alternative that will be carried forward into the Environmental Assessment (EA) for further evaluation.

Archaeological Resources

FRA has not yet identified an Area of Potential Effect (APE) for archaeological resources. The archaeological APE will be established once a Preferred Alternative is identified at the conclusion of the AA process described above.

The six Build Alternatives currently under consideration intersect with two previously recorded archaeological sites (31NH597 and 31NH686). Site 31NH686 was previously determined not eligible for the National Register of Historic Places (NRHP). Two additional archaeological sites previously recorded as point features (31NH593 and 31NH595) are in close proximity to the archaeological study corridor for the alternatives. However, the extent of these resources is unknown and therefore could potentially intersect with the archaeological study corridors of the alternatives. Sites 31NH597, 31NH593, and 31NH595 have not been assessed for NRHP eligibility.

A terrestrial archaeological predictive model generated for the Project evaluated the six Build

Alternatives for areas with high probability for archaeological resources. In general, all six Build Alternatives exhibited between 0.95 and 1.41 acres of high probability, which equated to between 0.93 and 1.42 percent of the overall area of each Build Alternative.

Historic Architectural Resources

The APE for architectural resources extends approximately ¼ of a mile around the proposed corridors under consideration.

Two previously identified resources located within the Project's historic architecture APE are listed in the NRHP: the Wilmington Historic District (NH2548) and the *USS North Carolina* (NH0004). The Wilmington Historic District encompasses approximately 170 acres and contains approximately 2,785 resources. The *USS North Carolina*, located on the west bank of the Cape Fear River, is a National Historic Landmark and contributing resource within the Wilmington Historic District.

As discussed in the attached report, it is recommended that two newly identified historic resources be further assessed at the intensive level to determine whether they are eligible for NRHP listing:

- The former Holy Church of Jesus Christ (NH2591) at 216 Marsteller Street should be assessed for individual eligibility to the NRHP;
- The resources within the APE, currently outside of the Wilmington Historic District (NH0093 and NH2548), that are located to the south of Wright Street, east of South Front Street, west of Burnett Boulevard/South 3rd Street, north of Greenfield Street, and west of South 4th Street, should be assessed for NRHP eligibility as part of a potential expansion of the historic district.

Consulting Party Outreach

In accordance with 36 CFR Part 800.2(c), FRA identified parties that may be interested in the proposed Project and FRA's determination of effects. The following organizations/agencies are copied on this letter to serve as their invitation to participate as Section 106 consulting parties:

1. North Carolina Commission of Indian Affairs
2. Historic Wilmington Foundation
3. U.S. Coast Guard, Fifth Coast Guard District
4. U.S. Army Corps of Engineers, Wilmington District
5. City of Wilmington
6. Eagles Island Coalition
7. Gullah Geechee Cultural Heritage Corridor Commission

Tribal Contacts (*will be invited to participate in Section 106 consultation in a separate letter*)

1. Catawba Indian Nation

To understand the role of a consulting party in the Section 106 process, these parties should review *Protecting Historic Properties: A Citizen's Guide to Section 106 Review* (<https://www.achp.gov/sites/default/files/documents/2017-01/CitizenGuide.pdf>) for more

information. FRA requests response to this consulting party invitation within 30 days from the date on this letter, so that consulting parties can help inform the identification of historic properties. Attached is correspondence FRA sent to SHPO to initiate the Section 106 process for the Project in February 2021.

Requested Response

FRA requests comment on the need for intensive level study to determine NRHP eligibility for the two newly identified historic architectural resources, and the three previously recorded archaeological sites, described above and in the attached reports. We welcome your input and comments within 30 days from the date on this letter. Once all historic properties are identified, an effects assessment will be prepared for your review. All responses can be sent to: Kevin Wright, Environmental Protection Specialist at kevin.wright@dot.gov.

Sincerely,



Amanda Murphy, MAHP
Environmental Protection Specialist
Office of Infrastructure Investment
Federal Railroad Administration

CC: Kevin Wright, FRA
Aubrey Parsley, Director of Rail Realignment, City of Wilmington, NC

Gregor Richardson, ED, North Carolina Commission of Indian Affairs
Travis Gilbert, Historic Wilmington Foundation
Crystal Tucker, U.S. Coast Guard, Fifth Coast Guard District
Mickey Sugg, U.S. Army Corps of Engineers, Wilmington District
Evan Folds, Eagles Island Coalition
Dr. Dionne Hoskins-Brown, Gullah Geechee Cultural Heritage Corridor Commission

Attachments: Archaeological Resources Technical Study
Reconnaissance-Level Historic Architectural Survey
Section 106 Initiation Letter, February 19, 2021



U.S. Department
of Transportation

1200 New Jersey Avenue, SE
Washington, DC 20590

**Federal Railroad
Administration**

02/19/2021

Ramona Bartos
Administrator and Deputy State Historic Preservation Officer
North Carolina Department of Natural and Cultural Resources
State Historic Preservation Office
109 East Jones Street, Raleigh, NC 27601

RE: Wilmington Rail Realignment
Brunswick and New Hanover Counties, North Carolina
Initiation of Section 106 Consultation

Dear Ms. Bartos:

By way of this letter, the U.S. Department of Transportation's (DOT) Federal Railroad Administration (FRA) is initiating consultation under Section 106 of the National Historic Preservation Act (NHPA) (36 CFR § 800.3). The Project, referred to as the Wilmington Rail Realignment, involves realigning an existing CSX Transportation (CSXT) freight rail line that traverses through City limits as well as unincorporated areas of Brunswick and New Hanover counties (Enclosure 1).

The FRA (Lead Federal Agency), in coordination with the City of Wilmington ("City"), is initiating an Environmental Assessment (EA) for a proposed new route¹ to bypass the existing freight rail route between Navassa (Davis Yard) and the Port of Wilmington. Currently, there is no construction funding for the Project; however, FRA is initiating Section 106 consultation because the agency may provide such funding in the future. Should the Project receive future federal funding for construction, the intent is that FRA or any other lead federal agency could rely on the environmental analysis and Section 106 consultation that has been conducted at this preliminary engineering stage.

Project Background

The purpose of the Project is to improve safety, regional transportation mobility, and freight rail operations, while also improving the resiliency, reliability, and operational fluidity of the sole freight rail route connecting southeastern North Carolina with the Port of Wilmington.

As shown in the enclosure, the proposed corridors under consideration would begin north of the Port of Wilmington on existing track, then follow along the west side of Front Street until Wright Street, traveling on new location across the Cape Fear River south of the Cape Fear Memorial Bridge, along Eagles Island. The proposed corridors then turn north to cross US 17/74/421 to the west of the interchange and continue to travel north parallel of US 421 before tying back into the existing CSXT SE Line west of US 17.

The suggested Area of Potential Effect (APE) extends approximately ¼ of a mile around the proposed corridors under consideration.

Section 106 Consultation

1- Note that this project is different than the Wilmington Beltline Upgrade project for which FRA recently engaged in consultation with your office.

As defined in 36 CFR § 800.16(f), Section 106 consultation "means the process of seeking, discussing, and considering the views of other participants, and where feasible, seeking agreement." FRA will manage the consultation process to ensure the meaningful involvement of all consulting parties while working to seek agreement, where feasible, among all the parties about: why properties are historically significant, and to whom; what historic properties may be affected should the Project advance to construction; and how any adverse effects to historic properties might be avoided, minimized, or mitigated.

FRA looks forward to consulting with you on this project. We welcome your input and comments within 30 days from the date on this letter. All responses can be sent to: Kevin Wright, Environmental Protection Specialist at kevin.wright@dot.gov.

Sincerely,

MICHAEL M JOHNSEN Digitally signed by MICHAEL M
JOHNSEN
Date: 2021.02.19 11:29:39 -05'00'

Michael Johnsen
Supervisory Environmental Protection Specialist

Enclosures: Study Area Map

cc: Renee Gledhill-Earley, Environmental Review Coordinator
Kevin Wright, Environmental Protection Specialist, FRA
Aubrey Parsley, Director of Rail Realignment, City of Wilmington, NC



U.S. Department
of Transportation

1200 New Jersey Avenue, SE
Washington, DC 20590

**Federal Railroad
Administration**

February 22, 2021

Ramona Bartos
NC State Historic Preservation Office
109 E Jones St. MSC 4617
Raleigh, NC 27699

RE: Invitation to Become a Participating Agency
Wilmington Rail Realignment
Brunswick and New Hanover Counties

Dear Ramona Bartos,

The Federal Railroad Administration as the lead Federal Agency, in coordination with the City of Wilmington (City), is initiating an Environmental Assessment (EA) for a proposed new freight rail route to bypass the existing route between Navassa (Davis Yard) and the Port of Wilmington. The Project, referred to as the Wilmington Rail Realignment, involves realigning an existing CSX Transportation (CSXT) freight rail line that traverses through City limits as well as unincorporated areas of Brunswick and New Hanover counties. The primary purpose of the project is to improve safety, regional transportation mobility, and freight rail operations, while also improving the resiliency, reliability, and operational fluidity of the sole freight rail route connecting southeastern North Carolina with the Port of Wilmington.

NC State Historic Preservation Office was identified as an agency that may have a particular interest in the project or eventual permitting authority. With this letter, we are extending to your agency an invitation to be a Participating Agency with the FRA in the development of an EA for the subject project, in accordance with Section 139 of the Fixing America's Surface Transportation Act of 2015 (23 U.S.C. 139). As planning for the project progresses, the FRA will work with Agencies to develop communication protocols, schedule, and process as part of the agency coordination plan.

A Participating Agency is any Federal or non-Federal agency, or Native American Tribe, that may have an interest in the project. Participating Agencies are responsible for identifying, as early as practicable, any issues of concern regarding the project's potential environmental or socioeconomic impacts that could substantially delay or prevent an agency from granting a permit or other approval that is needed for the project. We suggest that your agency's role in the development of the above project include the following as they relate to your area of expertise:

- Provide meaningful and early input on defining the purpose and need, determining the range of alternatives to be considered, and the methodologies and level of detail required in the alternatives analysis.

- Participate in coordination meetings and joint field reviews as appropriate.
- Timely review and comment on documents provided for your agency's input during the environmental review process.

If you have any questions or would like to discuss in more detail the project or our agencies' respective roles and responsibilities during preparation of the EA, please contact Kevin Wright at 202-493-0845 or kevin.wright@dot.gov.

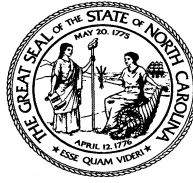
Thank you for your cooperation and interest in this project.

Sincerely,

A handwritten signature in black ink, appearing to read "Michael Johnsen", followed by a long horizontal line extending to the right.

Michael Johnsen
Supervisory Environmental Protection Specialist

cc: Renee Gledhill-Earley, Environmental Review Coordinator
Kevin Wright, Environmental Protection Specialist, FRA
Aubrey Parsley, Director of Rail Realignment, City of Wilmington, NC



**North Carolina Department of Natural and Cultural Resources
State Historic Preservation Office**

Ramona M. Bartos, Administrator

Governor Roy Cooper

Secretary D. Reid Wilson

March 3, 2021

Michael Johnsen
Attn: Kevin Wright
Federal Railroad Administration
1200 New Jersey Avenue SE
Washington, DC 20590

kevin.wright@dot.gov

RE: Invitation to Become a Participating Agency, Wilmington Rail Realignment, P-5740,
Brunswick and New Hanover Counties, ER 19-2629

Dear Mr. Johnsen:

Thank you for your February 22, 2021, letters inviting us and the Office of State Archaeology (OSA) to be participating parties in the project planning and review process for the above-referenced undertaking. We should be treated as a single agency – as the State Historic Preservation Office that includes OSA. We accept your invitation and are prepared to carry out the roles/responsibilities outlined in your letters.

We would note that the Historic Wilmington Foundation has already expressed a desire to be a consulting party to the Section 106 consultation process. We endorse their request and hope that the Federal Railroad Administration will do the same.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-814-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,

A handwritten signature in blue ink that reads "Renee Gledhill-Earley".

for Ramona Bartos, Deputy
State Historic Preservation Officer

cc: Travis Gilbert, HWF
Susan Anderson, AECOM

gilbert@historiewilmington.org
Susan.Anderson@aecom.com



To protect and preserve the irreplaceable historic resources
of Wilmington and the Lower Cape Fear Region

March 24, 2021

Mr. Aubrey Parsley
Director of Rail Realignment
305 Chestnut Street
Wilmington, NC 28402

Dear Mr. Parsley,

Thank you for providing the Historic Wilmington Foundation (HWF) a copy of the Wilmington Rail Realignment Corridor Screening Report. We appreciate your attention to HWF's comments, concerns and requests regarding the Screening Report. The purpose of this correspondence is to enter HWF's Screening Report feedback into the public record. We ask that this correspondence please be provided to the Lead Federal Agency. First, however, I emphasize that HWF fully supports the city's rail realignment project so long as it is accomplished without undue adverse effects on historic resources. We believe a corridor can be chosen that avoids such damage and wish to work with the city as a consulting party to achieve this goal. HWF's preliminary concerns are as follows:

1. Corridor C and New Hybrid Corridor D.

The 2017 Feasibility Study identified three feasible corridors: A, B, and C. Corridor C crosses the Cape Fear River furthest from, and is potentially least damaging to, Wilmington's National Register Historic District. However, the Screening Report concludes that Corridor C should be dropped from further consideration because it passes too close to the USS North Carolina Battleship and causes adverse auditory and visual effects on that National Historic Landmark. The report recommends that Corridors A and B move forward in the pre-NEPA process because they are further west of the Battleship. Yet, Corridors A and B appear to pass closer to the Wilmington National Register Historic District than Corridor C does to the Battleship. Corridors A and B will cause adverse visual, auditory and other effects to the Wilmington National Register Historic District and local Historic District-Residential, which have a dense concentration of historic, mostly residential, properties. HWF is concerned about all the historic resources in the Area of Potential Effects, including the Battleship and Historic District properties.

It is premature to drop Corridor C from consideration. Corridor C is feasible and meets the purpose and need of the project. HWF asks that it be included in the Alternative Analysis and NEPA Study phases. HWF also asks that a hybrid Corridor D, which would pass furthest from both the Battleship and the Historic District, be included in the Alternative Analysis and NEPA Study phases. Corridor D would follow the paths of Corridors A and/or B on the Brunswick County side of the River and would cross the river along Corridor C. Such a corridor is feasible and meets the purpose and needs of the project while affecting fewer historic resources.

2. Southern River Crossing Further from the Historic District.

The Screening Report states that the City considered “conceptually” a Cape Fear River crossing 3,500 feet south of the Cape Fear Memorial Bridge, closer to the Port turning basin. The Report acknowledges that such a crossing would reduce potential impacts on the National Register Historic District. However, it rejects this crossing and does not include it for future analysis and study because of cost considerations. Again, it is premature to drop an otherwise feasible corridor. It is our understanding that cost considerations should not limit the scope of analysis and study at this stage. We ask that a corridor that crosses south of the Cape Fear Memorial Bridge, closer to the port turning basin, also be included in Alternative Analysis and NEPA Study phases.

3. Identification of Historic Resources within the Area of Potential Effects (APE).

HWF expects that historic resources within the Area of Potential Effects (APE) be listed individually during the Alternatives Analysis and NEPA Study phases, rather than listed collectively as a single historic resource under the National Register Historic District designation. For instance, Table 6 lists only twelve historic resources, which include five National Register historic districts and seven individual properties. Table 13, which compares various metrics taken into consideration in the Secondary Screening, indicates there are 0 to 4 “historic properties” and 0 to 1 “archeological resources” effected by the various options (no build, upgrade, and 3 corridors). Again, it appears Table 13 counts an entire historic district as a single historic resource.

HWF does not wish to imply that the authors of the report intentionally downplayed the number of historic resources within the APE. We understand that the Screening Report relied upon readably available GIS web services. However, the numbers as presented might mislead, and HWF expects that the Alternatives Analysis and NEPA Study phases list historic resources individually, including, but not limited to, contributing structures within National Register Historic Districts, properties listed on the National Register of Historic Places, eligible properties for the National Register of Historic Places, Local Landmarks, and National Historic Landmarks.

In addition, the National Historic Preservation Act requires that Wilmington and the Lead Federal Agency make a good faith effort to identify the historic resources within the APE. This includes properties listed on the National Register and eligible for listing. HWF asks that the APE please be surveyed to ensure that all such resources are identified.

4. Public Participation.

HWF appreciates the Public Input Plan prepared by AECOM. HWF understands that pandemic-related restrictions on mass gatherings make it difficult for the City of Wilmington to gather public input on the Rail Realignment project. We appreciated the Virtual Public Meeting platform used during the Project Initiation, Development of Purpose, and Need Statement milestone in late 2020. However, a virtual platform does not adequately replace the value of citizens hearing each other’s concerns in a public forum. Going forward, HWF respectfully asks that an in-person option for public input occur during the Identification of Alternative’s and Screening Criteria milestone, tentatively scheduled for June 2021.

Respectfully,



Travis John Gilbert, Executive Director

Cc: State Historic Preservation Office
HWF Board of Trustees



U.S. Department
of Transportation

1200 New Jersey Avenue, SE
Washington, DC 20590

**Federal Railroad
Administration**

July 27, 2021

Wenonah G. Haire, DMD
c/o Caitlin Rogers
Tribal Historic Preservation Officer
Catawba Indian Nation
1536 Tom Steven Road
Rock Hill, SC 29730

Dear Dr. Haire:

The Federal Railroad Administration (FRA) is providing funding to the City of Wilmington, North Carolina for the Wilmington Rail Realignment Project (Project). The Project site is located within the City of Wilmington as well as unincorporated areas of Brunswick and New Hanover counties (Enclosure 1). The Project is an undertaking pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations (36 CFR Part 800) (Section 106). The purpose of this letter is to 1) invite your Tribe to participate in consultation pursuant to Section 106; 2) request that you share information you may have regarding the presence of historic properties of religious or cultural significance to your Tribe that may be affected by the Project; and 3) offer you the opportunity for Government-to-Government consultation.

Project Background

The purpose of the Project is to improve safety, regional transportation mobility, and freight rail operations, while also improving the resiliency, reliability, and operation fluidity of the sole freight rail route connecting southeastern North Carolina with the Port of Wilmington.

Six build alternatives are currently under consideration. A draft Alternatives Analysis (AA) was provided to the public and resource agencies for review and comment on June 23rd. FRA will consider public and agency input in identifying the Preferred Alternative at the conclusion of the AA process that will be carried forward into the Environmental Assessment (EA) for further evaluation. For your convenience, a copy of the AA report is attached to this letter. The AA report is also available online at the following link: www.wilmingtonnc.gov/rail.

As shown in the enclosure, the proposed corridors under consideration would begin north of the Port of Wilmington on existing track, then follow along the west side of Front Street until Wright Street traveling on new location across the Cape Fear River south of the Cape Fear Memorial Bridge, along Eagles Island. The proposed corridors then turn north to cross US 17/74/421 to the west of the interchange and continue to travel north parallel of US 421 before tying back into the existing CSXT SE Line west of US 17.

FRA has not yet identified an Area of Potential Effect (APE) for archaeological resources. The archaeological APE will be established once a Preferred Alternative is identified at the conclusion of the AA process described above.

Request for Participation and Comments

FRA respectfully requests that 1) you review the enclosed materials and provide any comments or information you may have regarding historic properties of religious or cultural significance to your Tribe that may be present in the APE, and 2) that you notify FRA within 30 days from the date on this letter whether you accept or decline this invitation to be a consulting party. FRA offers Government-to-Government consultation on this Project, if that is your Tribe's preference. Please send your response to Mr. Kevin Wright at kevin.wright@dot.gov. If you have questions or wish to discuss this Project, Mr. Wright can be reached at (202) 493-0845. Thank you for your cooperation on this project.

Sincerely,

A handwritten signature in black ink, appearing to read 'A. Murphy', written over a vertical line.

Amanda Murphy, MAHP
Environmental Protection Specialist
Office of Infrastructure Investment

Enclosure 1: Study Area Map

Enclosure 2: Identification of Known and Potential Historic Properties (SHPO package dated July 27, 2021)

Enclosure 3: Wilmington Rail Realignment Draft Alternatives Analysis Report

cc: *Kevin Wright, FRA*

Aubrey Parsley, City of Wilmington



**NC Commission of
Indian Affairs**

Pamela B. Cashwell
Secretary

Gregory A. Richardson
Executive Director

July 28, 2021

Mrs. Joanna H. Rocco, AICP
Senior Environmental Planner/Project Manager
Transportation
AECOM
5438 Wade Park Boulevard, Suite 200
Raleigh, NC 27607

**RE: ER 19-2629: City of Wilmington, Wilmington Rail Realignment Project, Section 106 Consultation:
Identification of Known and Potential Historic Properties**

Dear Mrs. Dear Joanna Rocco:

The purpose of this correspondence to thank you for consulting with the NC Commission of Indian Affairs, regarding the above project. The consultation process is very important in relation to the identification and protection of know, unknown historical American Indian sites and potential historic properties.

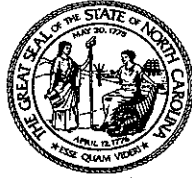
We see that your project consultation process includes the Catawba Nation of South Carolina, located 223 miles west of Wilmington, which is required under the above referenced federal 106 Consultation Process, however, we note that there is no mention of consultation with two state recognized tribal governments, located in Southeastern North Carolina and near the City of Wilmington, North Carolina. Therefore, I recommend that notification be forwarded to the following State Recognized tribe, so that they will be afforded an opportunity to comment on this project.

- Lumbee Tribe of North Carolina
6984 NC Hwy 711 West
Pembroke, North Carolina 28372
(910) 522-2221
Email: hgodwin@lumbeetribe.com
Attn: Mr. Harvey Godwin, Chairman
Tammy Maynor, Tribal Administrator
(Located 89 miles west of Wilmington)
- Waccamaw-Siouan Indian Tribe
7239 Old Lake Road
Bolton, North Carolina 28423
(910) 655-8778
Email: siouan@aol.com
Attn: Rev. Michael Jacobs, Chief
(Located 29.1 miles west of Wilmington)

Please let us know if we can assist you further.

Sincerely,

Gregory A. Richardson
Executive Director
NC Commission of Indian Affairs



North Carolina Department of Natural and Cultural Resources
State Historic Preservation Office

Ramona M. Bartos, Administrator

Governor Roy Cooper

Secretary D. Reid Wilson

July 28, 2021

Aubrey Parsley, PE
Director of Rail Realignment
City of Wilmington

aubrey.parsley@wilmingtonnc.gov

RE: Wilmington Rail Realignment and Right of Way Use, P-5740, Analysis of six build alternatives for connecting rail at the Wilmington State Ports to the existing CSX Railway over Eagles Island, New Hanover County, ER 19-2629

Dear Mr. Parsley:

Thank you for your transmittal of the AECOM draft analysis of route alternatives being considered for this stage of the Wilmington Rail Realignment project. As stated, the purpose of this phase is to identify the optimal corridor for the proposed Wilmington Rail route across Eagles Island and possible new crossings of the Cape Fear River.

During the earlier review it was determined that the "Upgrade Existing Corridor" option was unlikely to affect significant archaeological resources due to the disturbance that has resulted from years of infrastructure installment and maintenance. To iterate, no archaeological resource survey was recommended for this option.

The current corridor options under consideration in Sections II and III, to the extent that they involve new railroad beds and bridges, should be considered unassessed for the presence of archaeological resources eligible for listing on the National Register of Historic Places (NRHP).

As noted, the Point Peter site, 31NH597, encompasses a relatively large area that was used extensively from the colonial period until the late 20th century for various manufacturing and transportation enterprises. Likewise, the north side of Eagles Island should be considered a high probability area for the occurrence of archaeological sites due to its proximity to the deep river channel and the former Wilmington to Manchester railway passing through. Because all build alternatives will affect these areas, we recommend that particular attention be placed on identifying any archaeological data that may still be present and destroyed by the railway development.

In preparation for the two railroad bridge crossings, the Cape Fear River bottom within the Area of Potential Effects should be surveyed by a professional nautical archaeologist to determine if NRHP eligible submerged resources are present that may be damaged or destroyed by the bridge construction.

In terms of the built environment and above-ground structures, we concur with the alternative analysis that all the alignments will affect the USS North Carolina, a National Historic Landmark and World War II Memorial, as well as the Wilmington National Register Historic District. The analysis, however, fails to address the

potential effects upon the Seaboard Air Line Railway/Atlantic Coast Railroad District (NH3674), which was determined eligible for listing in the National Register in 2020 and will be affected by the undertaking.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comments, please contact Renee Gledhill-Earley, environmental review coordinator, at 919-814-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above-referenced tracking number.

Sincerely,



Ramona M. Bartos
Deputy State Historic Preservation Officer

cc: Ivy Freitag, Wilmington HPC
Travis Gilbert, HWF

Ivy.Freitag@wilmingtonnc.gov
gilbert@historicwilmington.org

Rocco, Joanna

From: Rocco, Joanna
Sent: Thursday, July 29, 2021 3:17 PM
To: hgodwin@lumbeetribes.com
Cc: Wright, Kevin (FRA); Murphy, Amanda (FRA); Aubrey Parsley; Mann, Jeff; Motsinger, Suraiya; Anderson, Susan; Miars, Celia; Renee Gledhill-Earley ; greg.richardson@doa.nc.gov
Subject: Wilmington Rail Realignment Project, Section 106 Consultation: Identification of Known and Potential Historic Properties
Attachments: WRR_Cultural Resources_SHPO CP letter 07272021_all.pdf

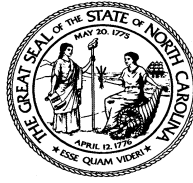
Good afternoon Mr. Godwin,

On behalf of the Federal Railroad Administration, please see the attached letter regarding the Wilmington Rail Realignment Project (Project). The NC Commission on Indian Affairs informed us on 7/28/21 that you may have interest in the area. The Project site is located within the City of Wilmington as well as unincorporated areas of Brunswick and New Hanover counties. The Project is an undertaking pursuant to Section 106 of the National Historic Preservation Act of 1966, as amended, and its implementing regulations (36 CFR Part 800) (Section 106).

Please let us know if you have any questions or require additional information.

Thank you,
Joanna

Joanna H. Rocco, AICP
AECOM
Senior Environmental Planner/Project Manager
Transportation
Office: 919-239-7179
Mobile: 919-607-7975



**North Carolina Department of Natural and Cultural Resources
State Historic Preservation Office**

Ramona M. Bartos, Administrator

Governor Roy Cooper

Secretary D. Reid Wilson

August 23, 2021

Kevin Wright
Federal Railroad Administration
1200 New Jersey Ave,
Washington, DC 20590

kevin.wright@dot.gov

RE: Wilmington Rail Realignment, Wilmington, New Hanover/Brunswick County, ER 19-2629

Dear Mr. Wright:

We are in receipt of Amanda Murphey's letter of July 27, 2021, concerning additional planning by the Federal Railroad Administration for the above-referenced undertaking. Having reviewed her letter, we provide our comments to you as requested.

Archaeological Resources:

Please see our letter of July 28, 2021, to Aubrey Parsley as it addresses these resources and contains our recommendation regarding them.

Historic Architectural Resources:

We note the inclusion of the USS North Carolina and the Wilmington Historic District as National Register-listed properties within the Area of Potential Effects (APE) and agree with the recommend for further assessment at an intensive level of the Former Holy Church of Jesus Christ (NH2591) and a potential expansion of the Wilmington NRHD as shown. We would also note that the National Register-eligible Seaboard Air Line Railway/Atlantic Coast Railroad District (NH3674) also falls within the APE and may well be affected by the proposed undertaking both directly and indirectly.

Consulting Party Outreach:

We believe that the FRA has made a commendable effort to include interested parties in the Section 106 consultation, including the NC Commission on Indian Affairs, and wonder if contact has been made with the Lumbee Tribe to discern its interest in the undertaking. We would further recommend consideration of the USS North Carolina Commission c/o Captain Terry Bragg, given the Commission's responsibility for the care and preservation of the ship as a World War II Memorial.

Alternatives Analysis:

While not requested in Ms. Murphy's letter, we would like to comment on the Alternatives Analysis prepared by the City of Wilmington. Based on the information provided to date, all the alternatives, other than the "No Build," appear to adversely affect the USS North Carolina, the Wilmington NRHD, and quite possibly the Railroad Historic District.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-814-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,



for Ramona Bartos, Deputy
State Historic Preservation Officer

Encl: July 28, 2021 letter

cc: Amanda Murphey, FRA
Aubrey Parsley, Wilmington
Ivy Freitage, Wilmington HPC
Capt. Terry Bragg, USS North Carolina
Travis Gilbert, HWF
Greg Richardson, NC Indian Affairs

amanda.murphy2@dot.gov
Aubrey.Parsley@wilmingtonnc.gov
ivy.freitag@wilmingtonnc.gov
terry.bragg@ncdcr.gov
gilbert@historicwilmington.org
greg.richardson@doa.nc.gov

Rocco, Joanna

From: Bragg, Terry <terry.bragg@ncdcr.gov>
Sent: Friday, August 27, 2021 9:11 AM
To: Anderson, Susan
Cc: Wright, Kevin (FRA); Murphy, Amanda (FRA); Aubrey Parsley; Rocco, Joanna; Gledhill-earley, Renee; donbritt@brittlawfirm.com; Vargo, Christopher; DCR - Battleship - exdir; DeMeo, Terry A
Subject: [EXTERNAL] RE: Wilmington Rail Realignment - Invitation to be a Consulting Party

Susan, I will represent the USS North Carolina Battleship Commission as the "Consulting Party." Terry Bragg

From: Anderson, Susan <Susan.Anderson@aecom.com>
Sent: Friday, August 27, 2021 8:29 AM
To: Bragg, Terry <terry.bragg@ncdcr.gov>
Cc: Wright, Kevin (FRA) <kevin.wright@dot.gov>; Murphy, Amanda (FRA) <amanda.murphy2@dot.gov>; Aubrey Parsley <Aubrey.Parsley@wilmingtonnc.gov>; Joanna.rocco@aecom.com
Subject: [External] Wilmington Rail Realignment - Invitation to be a Consulting Party

CAUTION: External email. Do not click links or open attachments unless you verify. Send all suspicious email as an attachment to [Report Spam](#).

Captain Bragg,

The Wilmington Rail Realignment Project, led by the City of Wilmington and the Federal Railroad Administration (FRA) as the lead federal agency, is currently undergoing an alternatives analysis to identify a Preferred Alternative. Section 106 of the National Historic Preservation Act has been initiated for the Project. In their letter dated August 23, 2021, on which you were copied, the NC Department of Natural and Cultural Resources, State Historic Preservation Office, recommended that the USS North Carolina Commission be invited to be a Consulting Party to the Section 106 Process.

Attached is FRA's coordination letter to the SHPO for the identification of known cultural resources within the Project's Area of Potential Effect (APE). This letter also served as an invitation to be a Consulting Party for other interested parties previously identified. In addition, we are attaching the Draft Alternatives Analysis Report that has been circulated to the public. Public meetings were held June 28th-July 28th via virtual platform. The Project Team is in the process of considering comments received on the Draft Alternatives Analysis Report and preparing a final report which will make a recommendation for a Preferred Alternative that will then be carried forward for analysis in an Environmental Assessment (EA) under NEPA. Should you have any comments on the report or any questions that we can answer at this time, please contact Mr. Aubrey Parsley, Director of Rail Realignment, City of Wilmington, copied on this email or at 910-200-8382.

Please reply to this email to confirm your participation as a Consulting Party to the Section 106 process.

Kind Regards,
Susan

Susan Anderson, AICP
Vice President
Environmental Manager

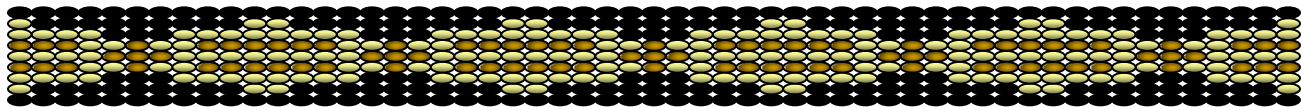
Susan.Anderson@aecom.com

Office: 804-515-8559

Mobile: 571-269-7637

Catawba Indian Nation
Tribal Historic Preservation Office
1536 Tom Steven Road
Rock Hill, South Carolina 29730

Office 803-328-2427
Fax 803-328-5791



August 27, 2021

Attention: Kevin Wright
Federal Railroad Administration
1200 New Jersey Avenue, SE
Washington, DC 20590

Re. THPO #	TCNS #	Project Description
2021-864-7		Wilmington Rail Realignment Project

Dear Mr. Wright,

The Catawba have no immediate concerns with regard to traditional cultural properties, sacred sites or Native American archaeological sites within the boundaries of the proposed project areas. **However, the Catawba are to be notified if Native American artifacts and / or human remains are located during the ground disturbance phase of this project.**

If you have questions please contact Caitlin Rogers at 803-328-2427 ext. 226, or e-mail Caitlin.Rogers@catawba.com.

Sincerely,

Wenonah G. Haire
Tribal Historic Preservation Officer

Rocco, Joanna

From: Aubrey Parsley <Aubrey.Parsley@wilmingtonnc.gov>
Sent: Friday, September 24, 2021 3:09 PM
To: Diana.Wood@stb.gov
Cc: Mann, Jeff; Anderson, Susan; Rocco, Joanna; Wright, Kevin (FRA)
Subject: [EXTERNAL] FW: Wilmington Realignment Cooperating Party EA Wish List

Diana,

Thank you very much for the detailed notes and for the STB's continued collaboration. We will address each of these items as we develop the EA and will keep you apprised with updates. I'll be in touch.

Have a great weekend,

Aubrey Parsley, PE

Director of Rail Realignment
305 Chestnut Street
Post Office Box 1810
Wilmington, NC 28402
(o) 910-341-0188 (c) 910-200-8382



www.wilmingtonnc.gov/rail

From: Wood, Diana [mailto:Diana.Wood@stb.gov]
Sent: Friday, September 24, 2021 1:53 PM
To: Aubrey Parsley <Aubrey.Parsley@wilmingtonnc.gov>
Cc: Wright, Kevin (FRA) <kevin.wright@dot.gov>; Gosselin, Danielle <Danielle.Gosselin@stb.gov>
Subject: Wilmington Realignment Cooperating Party EA Wish List

Good Afternoon,

As a follow-up from our cooperating agency meeting this past Tuesday (9/21), and as promised, I'm submitting a few questions/clarifications that will be helpful for the STB/OEA EA review.

Also, as requested, please include STB/OEA as a consulting party in the Section 106 review. And finally, to answer Aubrey's question on whether STB would require an additional comment period or a hearing following the issuance of the ROD, the answer is "no" because we are a cooperating agency and are involved in this review process, which includes responding to any STB-related comments made during the comment period.

Please include the following in the Environmental Assessment:

Please provide the NAAQS attainment status for criteria pollutants. If the area is in attainment, then the STB/Board's threshold for environmental review is eight (8) or more trains per day (including RT). In nonattainment areas, the threshold decreases to three (3) or more trains per day.

For the analysis of noise, the EA should be consistent with the Board's noise regulations at 49 C.F.R. § 1105.7 e (6), which require that noise increases of 3 dBAs or greater be identified (even if below 65 dBAs) AND that noise levels equal

to or in excess of 65 dBA day-night average be identified for wayside and locomotive warning horn noise for both construction and operation of the line.

Please provide the total number of train trips per day including any round trips and any anticipated increases in traffic in the near-term of project completion, say within the first five years (if known).

Please clarify whether rail traffic would be a combination of overhead traffic and local traffic, or one of the two. If it's through traffic, then would this include port to yard/yard to port trips and beyond? For local travel, would it entail just port to yard/yard to port trips or is other local travel expected to occur beyond these two points?

Identify current and anticipated common carriers on the line.

Specify whether the proposed realignment would result in any new rail traffic or open up new markets and/or territory.

Clarify if the out-of-service railbed is abandoned ROW. Or, if part of the interstate rail network, will it remain that way, become private track, or be abandoned and salvaged?

Thanks much,

Diana Wood

Diana F. Wood
Office of Environmental Analysis
Surface Transportation Board
395 E Street SW
Washington DC 20423
202-245-0302
Diana.Wood@stb.gov

E-mail correspondence to and from this address is subject to the North Carolina Public Records Law and may be disclosed to third parties.

MEETING NAME

Wilmington Rail Realignment Project Section 106 Consulting Party Coordination Meeting

MEETING DATE

11/17/21

LOCATION

City of Wilmington office/Microsoft Teams

ATTENDEES

Kevin Wright – FRA*

Amanda Murphy – FRA*

Aubrey Parsley – City of Wilmington

Travis Gilbert – Historic Wilmington Foundation

Sylvia Kochler – Historic Wilmington Foundation

Renee Gledhill-Earley - NC Department of Cultural Resources*

Nathan Henry – NC Department of Cultural Resources*

Terry Bragg – USS North Carolina Commission*

Susan Anderson – AECOM

Marvin Brown – AECOM*

Matt Jorgenson - AECOM

Jeff Mann – AECOM

Celia Miars – AECOM

Rachel Nangle – AECOM*

Joanna Rocco – AECOM

Tom Harris – WSP*

**Participated via Microsoft Teams*

The Wilmington Rail Realignment Project team held a meeting with the National Historic Preservation Act Section 106 Consulting Parties on November 17, 2021 at the City of Wilmington office. A virtual option via Microsoft Teams was also used for those participating remotely. All representatives that accepted the invitation to be a consulting party for the project were in attendance except for the Eagles Island Coalition. The purpose of this meeting was to discuss the status of the project, review the Section 106 process, and anticipated next steps for the project regarding impacts to cultural resources within the project study area.

Aubrey Parsley began the meeting and discussed the current project status. Susan Anderson initiated introductions of those in attendance and reviewed the attached presentation. The major points from the presentation are as follows:

- The lead federal agency is the Federal Railroad Administration (FRA) and project sponsor is the City of Wilmington. The consultant AECOM is leading the environmental planning and project management tasks for the project and the consultant WSP is leading the preliminary engineering tasks.
- Consulting Parties for the project include the following:
 - Historic Wilmington Foundation
 - City of Wilmington
 - Eagles Island Coalition
 - USS North Carolina Commission

It was noted the invitees included the following tribes: Catawba Indian Nation, Tuscarora Nation, Lumbee Tribe of North Carolina, and Waccamaw-Siouan Indian Tribe.

- FRA anticipates an Environmental Assessment (EA) will be prepared pursuant to the National Environmental Policy Act (NEPA) for the proposed project.

- Alternative 2 has been identified as the Preferred Alternative for the project.
- The EA will focus on the Preferred Alternative and any refinements to the alignment or design and its associated impacts.
- The primary purpose of the Wilmington Rail Realignment Project is to improve safety and regional transportation mobility, while also improving the resiliency, reliability, and operational fluidity of the sole freight rail route connecting southeastern North Carolina with the Port of Wilmington.
- The project is still in the "Identify" phase of the Section 106 process, and resources identified will be included in the EA and any adverse effects will be documented.
- A reconnaissance-level architectural history survey has been performed, which recommended the Wilmington Historic District (potential expansion) and the Former Holy Church of Jesus Christ (now Spirit of Truth Ministries) be studied further to determine whether it should be recommended for inclusion in the National Register of Historic Places (NRHP). An intensive-level survey of these two resources was just performed and a report is being produced for FRA's review.
- A GIS-based archaeological predictive model was used to assess archaeological probability of each alternative studied. A Phase I terrestrial and underwater archaeology study is currently being performed. A report will be prepared for FRA's review that details findings and any recommendations for inclusion in the NRHP.
- Once historic properties are identified, the potential effects from the Preferred Alternative will be assessed. Development of visualizations will be used to support the effects assessment. If adverse effects are identified, the project team will work with the State Historic Preservation Officer (SHPO) and the consulting parties to resolve, and develop avoidance/minimization measures, if applicable.

Discussion points from the meeting are below:

- Renee Gledhill-Earley expressed concern that Section 4(f) was not being considered. It was noted Section 4(f) was discussed in the previous environmental documents for the project including the Corridor Screening Report and Alternatives Analysis and will continue to be considered when determining project impacts throughout project development.
- Capt. Terry Bragg noted all options were land-based and that he sent information regarding a water-based alternative using barges to minimize impacts to the USS North Carolina.
- The US Coast Guard must approve proposed navigational clearances for the project. The team has proposed a vertical lift span bridge will need to reach 135 feet, with a resting height of 45 feet of vertical clearance and lowered to 25 feet when trains need to cross. A Navigational Impact Report (NIR) has been submitted to USCG per their requirements, detailing this proposal.
- A discussion was held regarding the Area of Potential Effects (APE) used for the identification of cultural resources. The project team noted 0.25-mile area buffered from the centerline of the build alternatives was used to identify resources, as noted in the Corridor Screening Report and Alternatives Analysis. Ms. Gledhill-Earley noted the APE should be expanded around the towers for the lift span for the main Cape Fear river crossing due to the proposed height of the rail crossing. FRA and NCDRCR agreed this should include 0.5 mile around the crossing buffered from the two towers of the rail bridge crossing. See attached for the proposed expanded APE.

- The project team continues to look for opportunities to work with NCDOT regarding the Cape Fear Memorial Bridge Replacement project; however, the project is not in NCDOT's State Transportation Improvement Program (STIP), and only a feasibility study has been prepared. The project has not gone through environmental review pursuant to NEPA.
- It was noted that the Wilmington Rail Realignment project does not propose any work within the limits of the Port of Wilmington. The proposed action (new bypass route) ends with the connection into the Port's trackage. As proposed, the APE in this area does not extend into the Port. It is not expected that the APE in this area will change. Any future track capacity enhancements made by the Port to support their operations would be pursued and regulated under separate actions carried out by the NC Ports Authority.
- Travis Gilbert noted concern for any resource potential within the canals within the vicinity of the northern portion of the study area. It was noted these areas were not investigated as they are outside of the APE.
- Amanda Murphy noted that FRA, as lead federal agency, makes recommendations to SHPO regarding historic properties identified in the APE and consulting parties will be included on that submittal.
- Ms. Gledhill-Earley noted it will be important to determine any additional impacts resulting from the project such as detours, flooding issues, and impacts to access to and from the USS North Carolina.

Attachments:

- Meeting Presentation
- Revised APE figure

**Wilmington Rail Realignment
City of Wilmington
New Hanover and Brunswick County**

Consulting Party Meeting

November 17, 2021

AGENDA

- INTRODUCTIONS
- PURPOSE OF THE MEETING
- PROJECT OVERVIEW
 - Proposed Action
 - Purpose and Need
 - Project Status
 - Alternatives Analysis
- SECTION 106 PROCESS
 - Section 106 Process Overview
 - Consultation to Date
 - APE and Historic Resources
 - Archaeological Potential
- NEXT STEPS

PROJECT TEAM

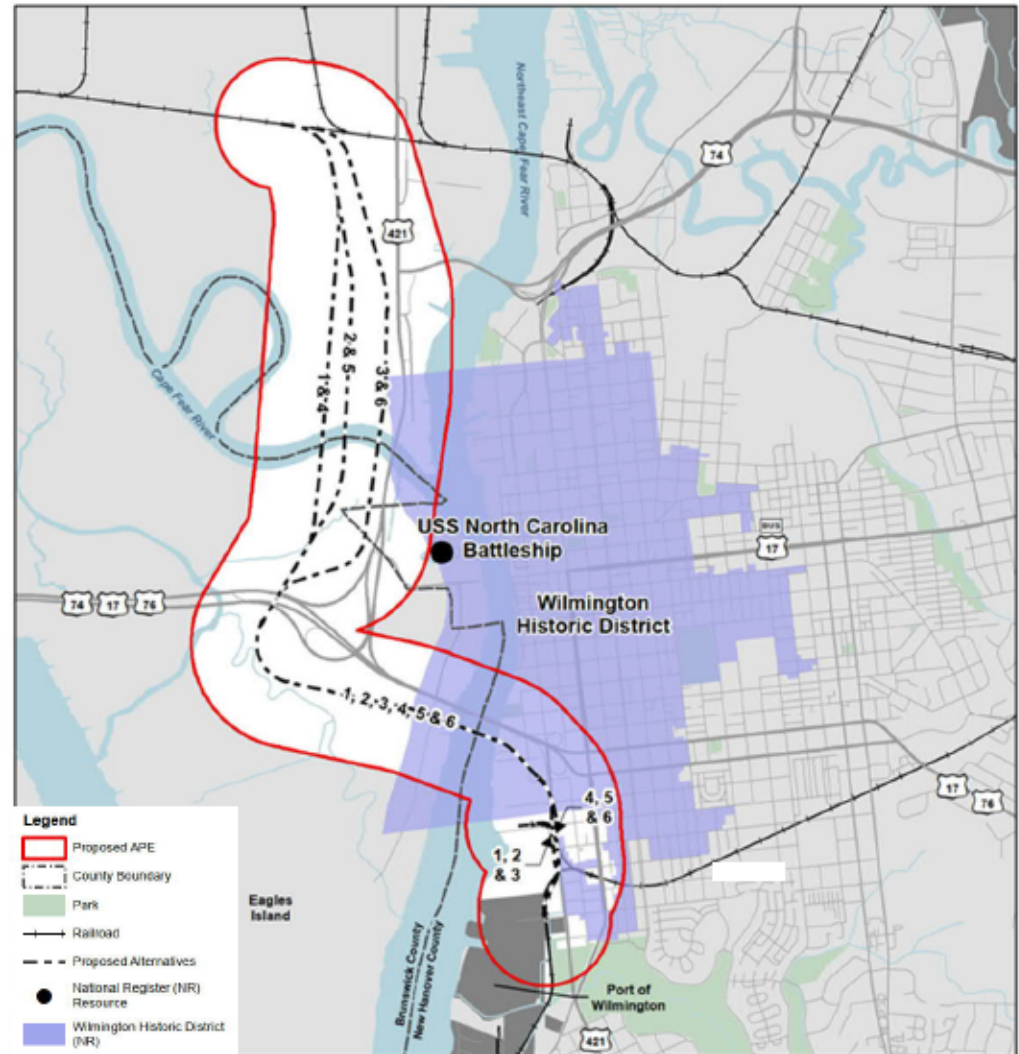
- **PROJECT SPONSOR – CITY OF WILMINGTON**
 - Aubrey Parsley, PE
- **LEAD FEDERAL AGENCY – FEDERAL RAILROAD ADMINISTRATION (FRA)**
 - Kevin Wright, Environmental Protection Specialist
 - Amanda Murphy, Section 106 Lead
- **CONSULTANT TEAM – AECOM/WSP**
 - Jeff Mann, PM
 - Joanna Rocco, DPM
 - Susan Anderson, Technical Lead/NEPA
 - Tom Harris, Technical Lead/Engineering
 - Matt Jorgeson, Archaeologist
 - Marvin Brown, Architectural Historian

CONSULTING PARTIES

- Historic Wilmington Foundation
- City of Wilmington
- Eagles Island Coalition
- USS North Carolina Commission

PURPOSE OF THE MEETING

- Provide a project overview and status of the Wilmington Rail Realignment Project
- Discuss 106 process
- Receive input from Consulting Parties



PROJECT OVERVIEW & STATUS

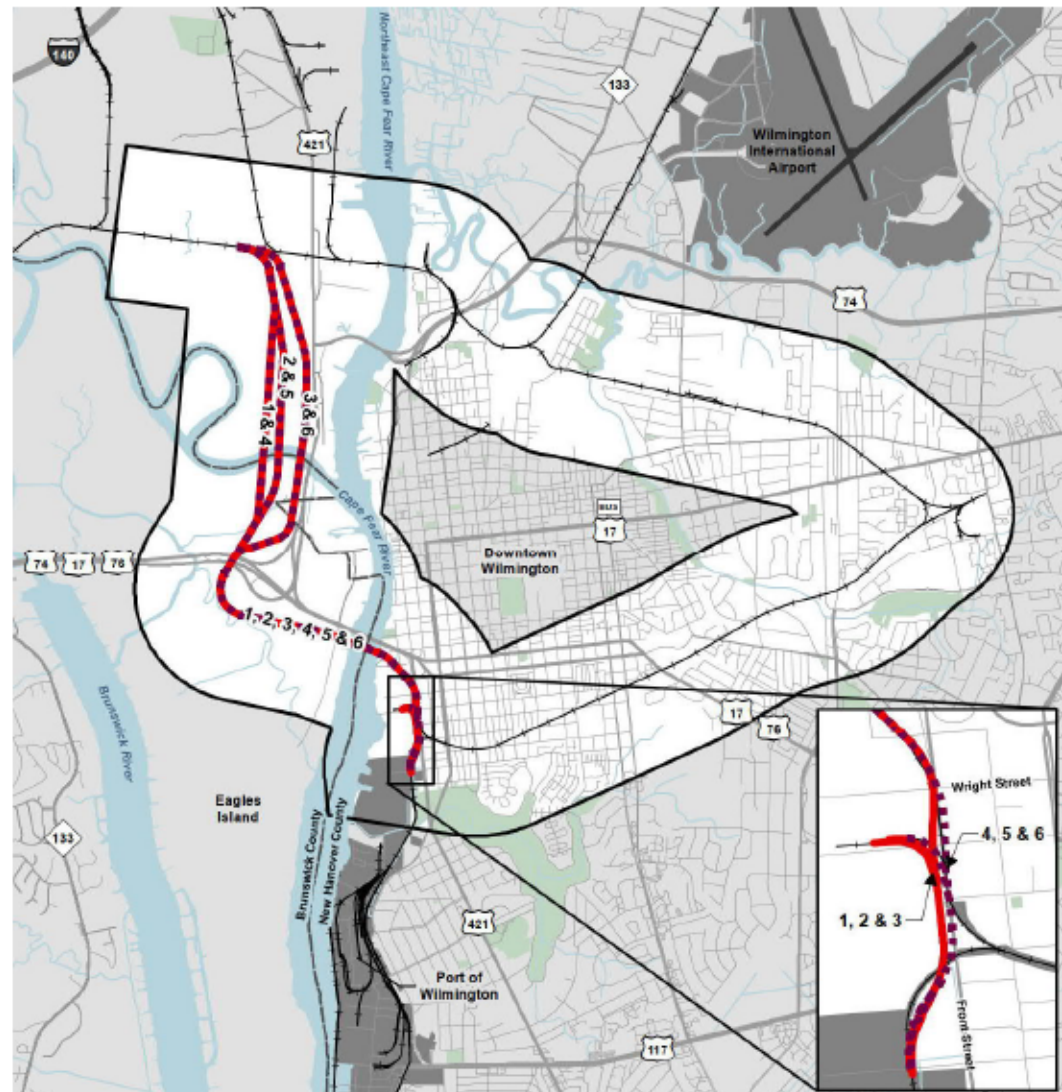
PROPOSED ACTION

- New route to bypass existing freight route between Navassa (Davis Yard) and the Port of Wilmington

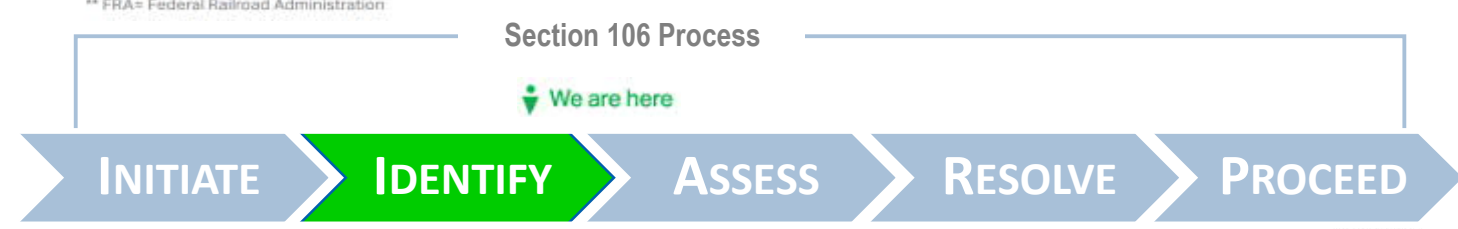
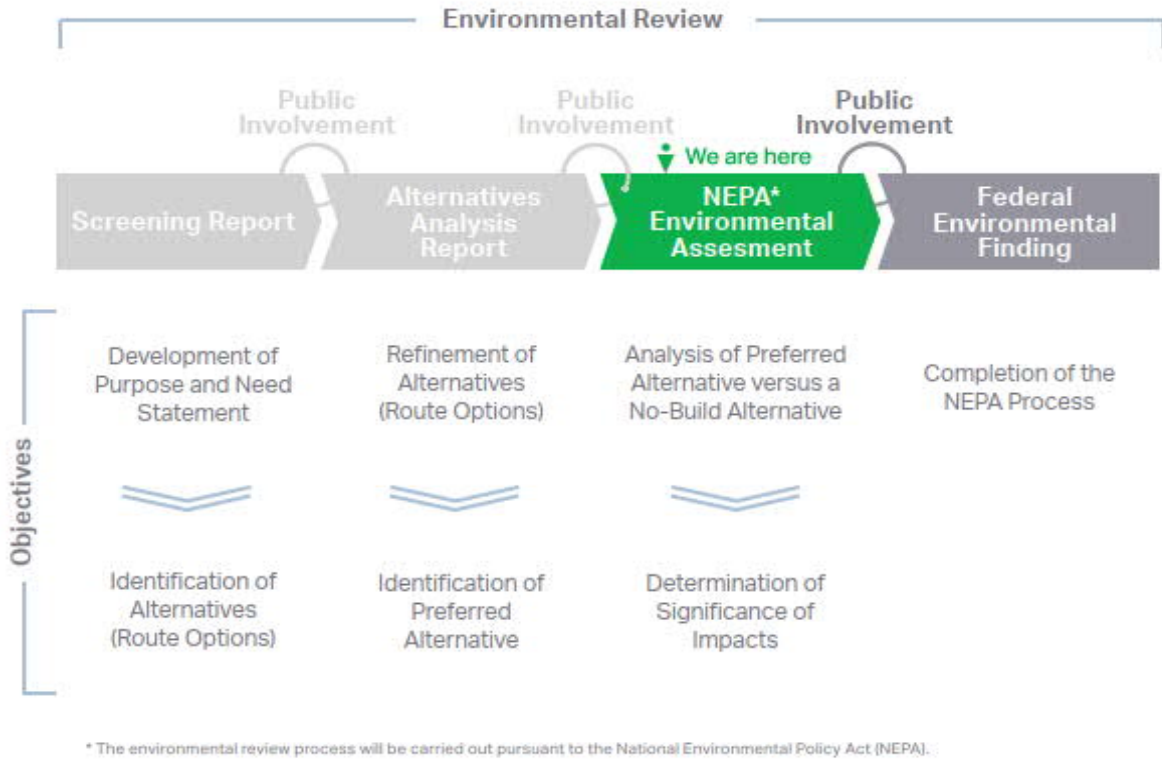
Note:

Project Study Area encompasses larger area to consider a range of alternatives.

Area of Potential Effect (APE) includes area (1/4-mile buffer) to identify architectural and archaeological resources.



CONCURRENT NEPA/SECTION 106 PROCESS



PROJECT STATUS

- Draft Alternatives Analysis (AA) submitted to agencies and public for review from June 28th through July 26, 2021
- Virtual Public Meeting: Virtual Room open to public to review materials and comment from June 28th through July 26, 2021
- FRA approval of AA October 2021
- Advancing to the Environmental Assessment (EA) Phase
 - Focus on Preferred Alternative
 - Refinements to alignment/design
 - Update analysis
 - Additional field work
 - Cultural Resources
 - Natural Resources

ALTERNATIVES ANALYSIS

Getting to the Preferred Alternative

PURPOSE AND NEED

PURPOSE:

The primary purpose of the Wilmington Rail Realignment Project is to improve safety and regional transportation mobility, while also improving the resiliency, reliability, and operational fluidity of the sole freight rail route connecting southeastern North Carolina with the Port of Wilmington.

NEEDS:



Enhanced Efficiency of Freight Movement



Improved Safety



Improved Regional Mobility and Reliability

ADDITIONAL BENEFITS:



Improved Resiliency



Improved Operational Fluidity

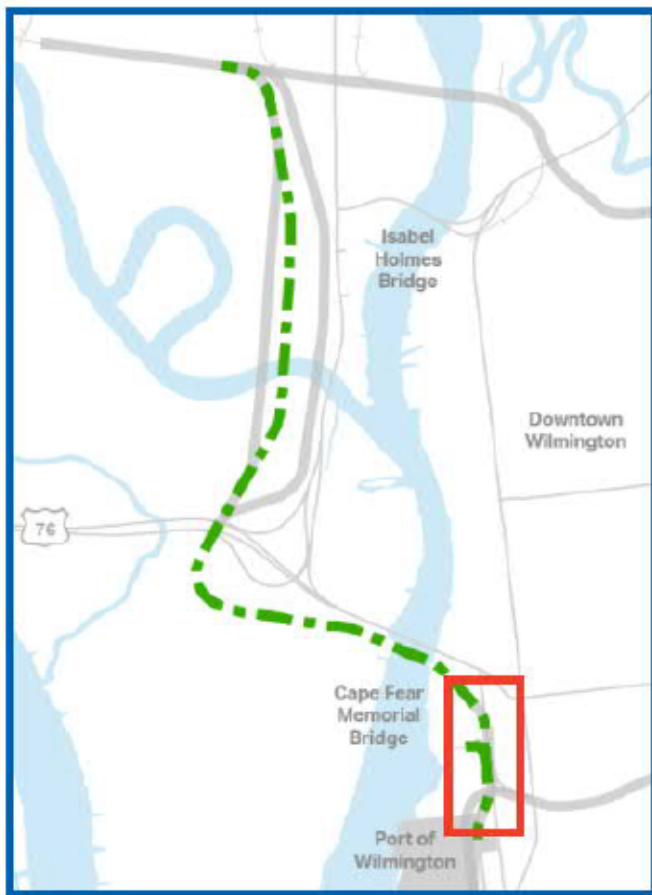
METHODOLOGY

- Identified a set of evaluation criteria
 - Engineering Considerations
 - Environmental Factors
- Impact Calculations
 - GIS overlays
 - Predictive models
 - Field surveys
 - Affected Environment – varies by resource
 - Considers a maximum footprint for impact
 - **Does not differentiate between at-grade or elevated structures at this time (will be considered during development of the Preferred Alternative)**

	Improves operational efficiency	Minimizes public at-grade crossings	Consistency with planned Isabel Holmes Bridge Flyovers Project	Minimize crossings of major utility lines	Minimize impacts to water resources	Minimizes impacts to natural resources	Minimizes impacts to human env.
No Build	X	No change	✓	No Change	No Change	No Change	X
	✓	✓	✓	✓	X	X	✓
	✓	✓	✓	X	✓	✓	✓
	✓	✓	X	X	✓	✓	✓
	✓	✓	✓	✓	X	X	✓
	✓	✓	✓	X	✓	✓	✓
	✓	✓	X	X	✓	✓	✓

✓ = Meets the criterion equally; ✓ = Performs better in criterion; X = Does not meet criterion or performs worse

PREFERRED ALTERNATIVE:

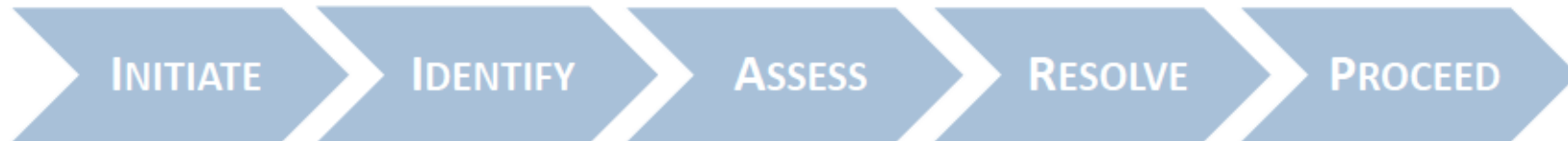


ALTERNATIVE 2

- Supports the Purpose and Need to reduce at-grade crossings
- Minimizes impacts to water/natural resources (*maximizes use of the out-service-railbed*)
- Minimizes the use of conservation lands held by the North Carolina Coastal Land Trust
- Results in less impact to coastal and high-quality wetlands

SECTION 106 PROCESS





1. **INITIATE** the 106 Process
 - Define project
 - Identify consulting parties
 - Plan for public involvement
2. **IDENTIFY** Historic Resources **(WE ARE HERE)**
 - Define Area of Potential Effects (APE) and scope of work
 - Identify resources and National Register of Historic Places status/eligibility
 - Consult with parties and public
3. **ASSESS** Adverse Effects
 - Apply adverse effects criteria
 - Consult with parties and public
4. **RESOLVE** Adverse Effects
 - Consider modifications/new alternatives to avoid, minimize or mitigate effects
 - Consult with parties and public
 - Develop Memorandum of Agreement (MOA)/Programmatic Agreement (PA), if necessary
5. **PROCEED** with Project
 - Complete Mitigation, if necessary

SECTION 106 CONSULTATION To DATE





- **AGENCY COORDINATION MEETINGS:**

- **Meeting 1:** (11/12/2020)

- Discussed project history, FRA Process, agency/public involvement, Purpose & Need, study corridors, Screening Report, Alternatives Analysis (AA) approach

- **Meeting 2:** (6/23/2021 & 6/25/2021 - SHPO)

- Provided project status/overview, process overview, discussed Draft AA and findings overview

- **SHPO:**

- Consulting Party (Section 106) and Participating Agency (NEPA)
- Consulted/provided feedback on the following Documents:
 - Feasibility Study
 - Purpose and Need
 - Alternatives Analysis
 - Archaeological Resources Technical Report
 - Reconnaissance-Level Historic Architecture Survey



- **HISTORIC WILMINGTON FOUNDATION:**

- Desire to be consulting party
- Consulted/provided feedback on Screening Report
- Presentation of projects progress on 6/1/2021

- **TRIBES:**

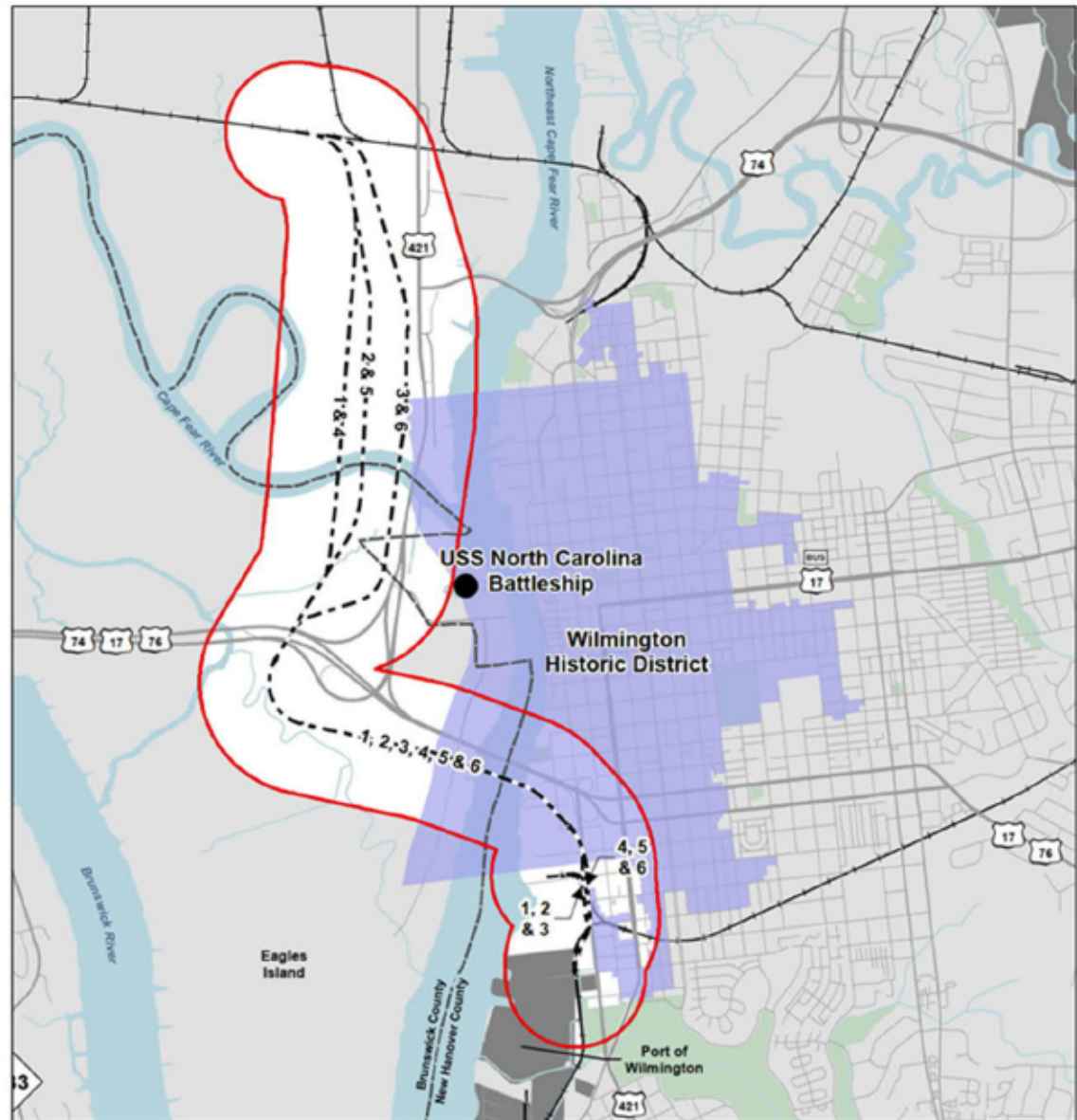
- Invited to be Consulting Parties
- Request letters for Participation and Comments were sent to the following:
 - Catawba Indian Nation
 - Tuscarora Nation
 - Lumbee Tribe of North Carolina
 - Waccamaw-Siouan Indian Tribe

DEFINE APE AND IDENTIFY RESOURCES



AREA OF POTENTIAL EFFECTS

- Architectural
 - ¼ Mile for architectural resources
- Archaeological
 - Refined to potential area of disturbance





- **WILMINGTON HISTORIC DISTRICT**

- Preferred Alternative includes portions of the historic district
- USS North Carolina Battleship – outside of APE

- **ARCHAEOLOGICAL POTENTIAL**

- Preferred Alternative falls within an area with higher probability to encounter archaeological resources
 - Due to small undisturbed area associated with Point Peter
 - Predictive model used to assess archaeological probability for each build alternative



- **ARCHITECTURAL SURVEY**

- Reviewing additional resources in the vicinity of South 3rd Street and Martin Street and South Front Street
- Former Holy Church of Jesus Christ (now Spirit of Truth Ministries)





- **TERRESTRIAL ARCHAEOLOGY**

- Phase I Survey
 - Background research/mobilization
 - Field studies (shovel test pits within APE)

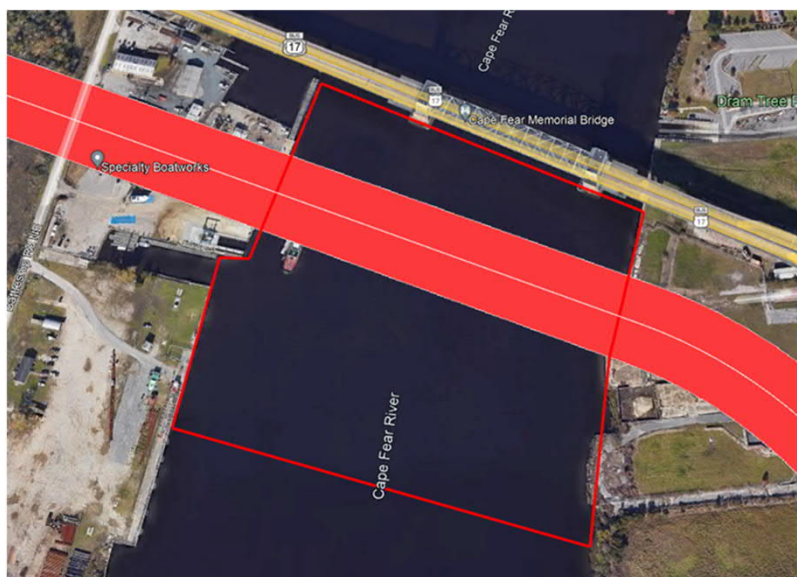
- **UNDERWATER ARCHAEOLOGY**

- 2 Cape Fear River crossings
- Marine geophysical survey
- Various sensor equipment
 - Side-scan sonar
 - Magnetometer





MARINE ARCHAEOLOGICAL APE

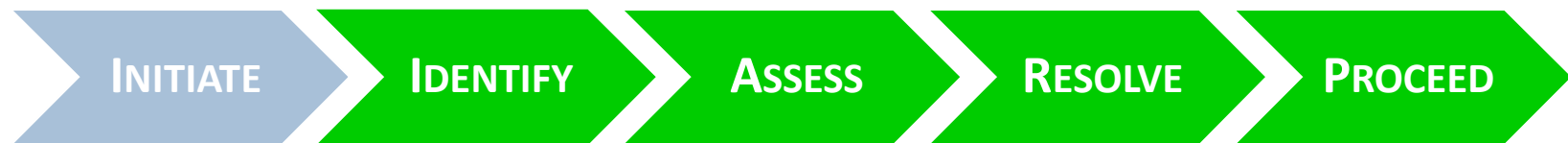


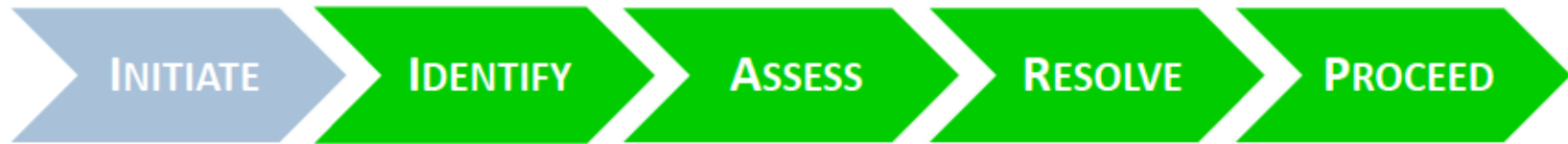
Southern Survey
Area



Northern Survey
Area

NEXT STEPS



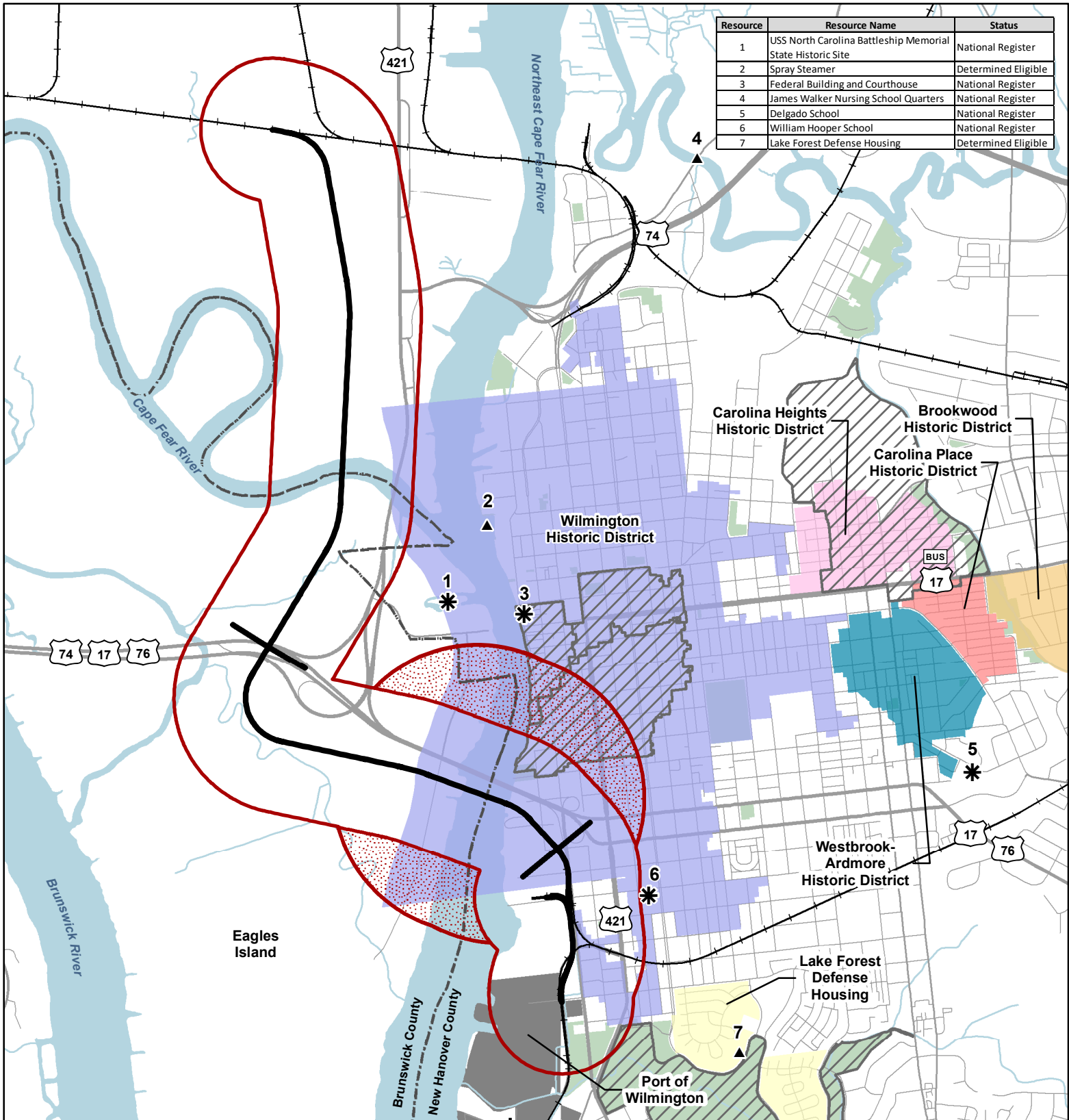


- **IDENTIFY**
 - Complete identification of resources
 - Prepare Phase I reports
 - Determine if Phase II investigations are needed
- **ASSESS EFFECTS**
 - Evaluate potential effects from Preferred Alternative
 - Development of visualizations to support effects assessment
- **RESOLVE**
 - If adverse effects are identified, work with Consulting Parties and SHPO to resolve
 - Develop avoidance/minimization measures, if applicable
- **CONSULTING PARTY COORDINATION POINTS**
 - Review of Phase I findings
 - Determine Project Effects
 - Mitigation (if applicable)

NEPA Next Steps

- **BEGIN NEPA PHASE**
 - Advance Preferred Alternative design
 - Preparation of an Environmental Assessment (EA)
 - Assess effects of Preferred Alternative in comparison to the No Build Alternative for all resources considered
- **CONTINUE AGENCY COORDINATION**
 - Federal & State regulatory agencies
- **REGULATORY CONSULTATION (IN ADDITION TO SECTION 106)**
 - USFWS/NMFS
 - Section 7 Consultation for protected species/habitats
 - Essential Fish Habitat, Primary Nursery Areas
 - USACE
 - Section 404
 - High quality wetlands, coastal wetlands
 - US Coast Guard
 - Navigation/bridge crossings

Resource	Resource Name	Status
1	USS North Carolina Battleship Memorial State Historic Site	National Register
2	Spray Steamer	Determined Eligible
3	Federal Building and Courthouse	National Register
4	James Walker Nursing School Quarters	National Register
5	Delgado School	National Register
6	William Hooper School	National Register
7	Lake Forest Defense Housing	Determined Eligible



Eagles Island



Wilmington Rail Realignment Project

New Hanover County and Brunswick County, NC

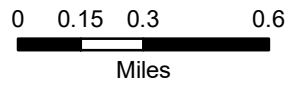
Source: NCHPO Data
 Note: Proposed APE limits based on Conceptual Engineering and may be refined during Preliminary Engineering

Legend

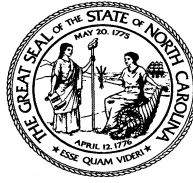
- Proposed Revised APE for Preferred Alternative
- APE Extension
- County Boundary
- Park
- Railroad
- Preferred Alternative
- National Register (NR) Resource
- NR-Determined Eligible (DOE) Resource
- Local District
- Lake Forest Defense Housing (DOE)
- Brookwood Historic District (NR)
- Carolina Heights Historic District (NR)
- Carolina Place Historic District (NR)
- Westbrook- Ardmore Historic District (NR)
- Wilmington Historic District (NR)

Proposed APE and Known Historic Resources

Date: November 2021



1 inch = 2,426 feet



**North Carolina Department of Natural and Cultural Resources
State Historic Preservation Office**

Ramona M. Bartos, Administrator

Governor Roy Cooper
Secretary D. Reid Wilson

Office of Archives and History
Deputy Secretary, Darin J. Waters, Ph.D.

November 22, 2021

Kevin Wright
Federal Railroad Administration
1200 New Jersey Ave,
Washington, DC 20590

kevin.wright@dot.gov

RE: Wilmington Rail Realignment, Wilmington, New Hanover/Brunswick County, ER 19-2629

Dear Mr. Wright:

We are in receipt of the City of Wilmington's Alternatives Analysis for the above-referenced undertaking. Having previously reviewed and commented on the analysis, we attach our letter of August 23, 2021, and reiterate that all the alternatives, except the No-Build, will adversely affect historic architectural properties, and very likely archaeological sites. We are particularly concerned about the project's effect upon the USS North Carolina, a National Historic Landmark and WWII Memorial.

Having participated in a meeting with the consulting parties on November 17, 2021, we would note that the Area of Potential Effects will need to be adjusted regarding the height of the proposed crossing structure south of the Cape Fear Memorial Bridge. We would also suggest that, while the Memorial Bridge is within the Wilmington National Register Historic District, we believe its being more than fifty years old and the only bridge of its kind in the state, it is individually eligible for listing in the National Register. This means that the Memorial Bridge should be given greater consideration as part of the project planning

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-814-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

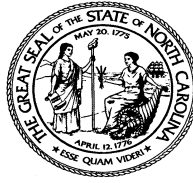
Sincerely,



for Ramona Bartos, Deputy
State Historic Preservation Officer

Attachment: SHPO letter of August 23, 2021

cc:	Amanda Murphey, FRA	amanda.murphy2@dot.gov
	Aubrey Parsley, Wilmington	Aubrey.Parsley@wilmingtonnc.gov
	Ivy Freitag, Wilmington HPC	ivy.freitag@wilmingtonnc.gov
	Capt. Terry Bragg, USS North Carolina	terry.bragg@ncdcr.gov
	Travis Gilbert, HWF	gilbert@historicwilmington.org
	Greg Richardson, NC Indian Affairs	greg.richardson@doa.nc.gov



**North Carolina Department of Natural and Cultural Resources
State Historic Preservation Office**

Ramona M. Bartos, Administrator

Governor Roy Cooper

Secretary D. Reid Wilson

August 23, 2021

Kevin Wright
Federal Railroad Administration
1200 New Jersey Ave,
Washington, DC 20590

kevin.wright@dot.gov

RE: Wilmington Rail Realignment, Wilmington, New Hanover/Brunswick County, ER 19-2629

Dear Mr. Wright:

We are in receipt of Amanda Murphey's letter of July 27, 2021, concerning additional planning by the Federal Railroad Administration for the above-referenced undertaking. Having reviewed her letter, we provide our comments to you as requested.

Archaeological Resources:

Please see our letter of July 28, 2021, to Aubrey Parsley as it addresses these resources and contains our recommendation regarding them.

Historic Architectural Resources:

We note the inclusion of the USS North Carolina and the Wilmington Historic District as National Register-listed properties within the Area of Potential Effects (APE) and agree with the recommend for further assessment at an intensive level of the Former Holy Church of Jesus Christ (NH2591) and a potential expansion of the Wilmington NRHD as shown. We would also note that the National Register-eligible Seaboard Air Line Railway/Atlantic Coast Railroad District (NH3674) also falls within the APE and may well be affected by the proposed undertaking both directly and indirectly.

Consulting Party Outreach:

We believe that the FRA has made a commendable effort to include interested parties in the Section 106 consultation, including the NC Commission on Indian Affairs, and wonder if contact has been made with the Lumbee Tribe to discern its interest in the undertaking. We would further recommend consideration of the USS North Carolina Commission c/o Captain Terry Bragg, given the Commission's responsibility for the care and preservation of the ship as a World War II Memorial.

Alternatives Analysis:

While not requested in Ms. Murphy's letter, we would like to comment on the Alternatives Analysis prepared by the City of Wilmington. Based on the information provided to date, all the alternatives, other than the "No Build," appear to adversely affect the USS North Carolina, the Wilmington NRHD, and quite possibly the Railroad Historic District.

The above comments are made pursuant to Section 106 of the National Historic Preservation Act and the Advisory Council on Historic Preservation's Regulations for Compliance with Section 106 codified at 36 CFR Part 800.

Thank you for your cooperation and consideration. If you have questions concerning the above comment, contact Renee Gledhill-Earley, environmental review coordinator, at 919-814-6579 or environmental.review@ncdcr.gov. In all future communication concerning this project, please cite the above referenced tracking number.

Sincerely,



for Ramona Bartos, Deputy
State Historic Preservation Officer

Encl: July 28, 2021 letter

cc: Amanda Murphey, FRA
Aubrey Parsley, Wilmington
Ivy Freitage, Wilmington HPC
Capt. Terry Bragg, USS North Carolina
Travis Gilbert, HWF
Greg Richardson, NC Indian Affairs

amanda.murphy2@dot.gov
Aubrey.Parsley@wilmingtonnc.gov
ivy.freitag@wilmingtonnc.gov
terry.bragg@ncdcr.gov
gilbert@historicwilmington.org
greg.richardson@doa.nc.gov

MEETING NAME

Wilmington Rail Realignment Project Section 106 Consulting Party Meeting #2

MEETING DATE

02/23/22

LOCATION

Microsoft Teams

ATTENDEES

Kevin Wright – FRA

Amanda Murphy – FRA

Aubrey Parsley – City of Wilmington

Travis Gilbert – Historic Wilmington Foundation

Renee Gledhill-Earley - NC Department of Cultural Resources, HPO

Nathan Henry – NC Department of Cultural Resources, OSA

Terry Bragg – USS North Carolina Commission

Evan Folds – Soil and Water Conservation District

Chris Southerly – DWR

Alan Tabachnick – STB

Diana Wood - STB

Susan Anderson – AECOM

Marvin Brown – AECOM

Matt Jorgenson - AECOM

Jeff Mann – AECOM

Celia Miars – AECOM

Joanna Rocco – AECOM

Scott Seibel – AECOM

Peter Sittig - AECOM

The Wilmington Rail Realignment Project team held a meeting with the National Historic Preservation Act Section 106 Consulting Parties on February 23, 2022 virtually via Microsoft Teams. The purpose of this meeting was to provide a detailed review of the Architectural Intensive-level Survey, the Phase I Archaeology Survey, and the Underwater Archaeology Survey, and discuss the assessment methodology in determining potential effects to historic properties within the Area of Potential Effects (APE).

The meeting began with a discussion of the current project status and a review of the attached presentation. The major points from the presentation and discussion points from the meeting are below:

- The lead federal agency is the Federal Railroad Administration (FRA) and project sponsor is the City of Wilmington.
- The Alternatives Analysis Process was completed in October 2021 and identified a preferred alternative to be evaluated in the Environmental Assessment.
- The Architectural Intensive-Level Survey assessed the NRHP-eligibility of two resources, an area near the southern portion of the Wilmington Historic District and the Former Holy Church of Jesus Christ.
- Based on the recommendations in the draft Architectural Intensive-Level Survey, the resources within the potential expansion area of the Wilmington Historic District do not retain sufficient overall integrity to support significance and do not merit NRHP listing.
- Based on recommendations in the draft Architectural Intensive-Level Survey, the the former Holy Church of Jesus Christ would be eligible under NRHP Criteria C and A.
- The Architectural Intensive-Level Survey Report will be shared with the NCHPO and Consulting Parties.
- Travis Gilbert noted concerns about the cumulative effects the project and other projects could have on the proposed expansion of the Wilmington Historic District and the current historic

district. Ms. Gledhill-Earley clarified the purpose of the Intensive-Level Survey was to identify properties outside of the current historic district that are historically significant and may be affected. The overall effects of the Project on the historic district will be assessed during the Section 106 Assessment process.

- The Phase I Archaeology Survey revisited one previously recorded archaeological site (31NH686) and identified one new archaeological site (31NH895). The previously recorded site was recommended not eligible for NRHP listing in 1992 and current results recommended the site as not eligible for NRHP still. The newly identified site does not exhibit the potential to provide significant data and was therefore recommended as not eligible for NRHP.
- Ms. Gledhill-Earley noted there could be historic landscape significance at site 31NH686 due to the presence of the 1950s USACE dike and wondered if there is the possibility that this landscape feature represents activities in the area, similar to how Civil War era earthworks represent specific activities. Nathan Henry noted he was unaware of reports of Civil War activities in this vicinity. Ms. Gledhill-Earley emphasized the construction of the dike could have historical landscape significance related to dredging activities common at the time and suggested that be considered. Mr. Jorgenson commented that he did not think the dike would meet criteria for significance but did agree that he and the FRA would discuss it further to evaluate the possibility.
- Underwater archaeology surveys were conducted in the vicinity of both proposed river crossings using remote sensing. The survey identified 24 magnetic anomalies; however, none were determined to represent shipwrecks or historic marine remains.
- The Section 106 Assessment Process will determine potential effects from the Preferred Alternative on historic properties (those that are listed or determined eligible for listing in the NRHP).
- Visual simulations will be used to support the effects assessment. Noise and lighting will also be evaluated as a part of the effect's assessment.
- If adverse effects are identified, the project team will work with the NCHPO and the consulting parties to resolve, and develop avoidance/minimization measures, if applicable.
- Ms. Gledhill-Earley noted the NCHPO now considers the Cape Fear Memorial Bridge to be individually eligible for the NRHP. Ms. Gledhill-Earley will provide the project team with documentation noting this.
- Ms. Gledhill-Earley noted the Project is subject to Section 4(f) of the U.S. Department of Transportation Act. Amanda Murphy confirmed this is accurate; however, FRA has not determined if there is a 4(f) use of historic properties because we are not yet at the point in the Section 106 process that FRA has determined if there adverse effects to historic properties. It was discussed the effects on Section 4(f) historic resources will be determined through the Section 106 Assessment process.
- The project team will provide the presentation, Architectural Intensive-Level Survey, and the Archaeological Survey to the NCHPO for 30-day review, following 15-day consulting party review.

Attachments:

- Meeting Presentation

Wilmington Rail Realignment City of Wilmington New Hanover and Brunswick County

Consulting Party Meeting #2
February 23, 2022



U.S. Department of Transportation
Federal Railroad Administration



AGENDA

- INTRODUCTIONS
- RECAP OF CONSULTING PARTY MEETING #1
- AREA OF POTENTIAL EFFECTS (APE)
- IDENTIFICATION OF HISTORIC PROPERTIES
 - ARCHITECTURAL
 - ARCHAEOLOGICAL
- EFFECTS ASSESSMENT METHODS
- NEXT STEPS



RECAP OF CP#1



CP #1 SUMMARY

- ALTERNATIVES ANALYSIS PROCESS
- PREFERRED ALTERNATIVE
- SECTION 106 PROCESS
- APE
- PREVIOUSLY IDENTIFIED HISTORIC PROPERTIES
 - Wilmington Historic District (WHD) – listed in National Register of Historic Places (NRHP) in 1974, expanded in 2003
 - Seaboard Air Line Railway/Atlantic Coast Railroad District – determined eligible for NHRP listing in 2020
 - USS North Carolina – included with WHD; designated a National Historic Landmark in 1981
- ADDITIONAL HISTORIC RESOURCES FOR INTENSIVE LEVEL SURVEY
 - Architectural – area near southern portion of WHD and Former Holy Church of Jesus Christ
 - Archaeological – predictive model



PREFERRED ALTERNATIVE:





1. INITIATE the 106 Process

- Define project
- Identify consulting parties
- Plan for public involvement

2. IDENTIFY Historic Resources and Define Area of Potential Effects (APE)

- Identify resources within APE and NRHP status/eligibility
- Involve consulting parties **(WE ARE HERE)**
- Seek SHPO concurrence

3. ASSESS Adverse Effects

- Apply adverse effects criteria
- Involve consulting parties
- Seek SHPO concurrence

4. RESOLVE Adverse Effects (if any)

- Consider ways to avoid, minimize or mitigate effects
- Involve consulting parties
- Develop Memorandum of Agreement (MOA)/Programmatic Agreement (PA), if necessary

5. PROCEED with Project

- Complete mitigation, if necessary



DEFINE APE AND IDENTIFY RESOURCES



APE AND PREVIOUSLY IDENTIFIED HISTORIC PROPERTIES

- Architectural
 - ¼ mile for architectural resources
- Archaeological
 - Refined to potential area of disturbance
- 0.5-mile buffer from proposed tower locations

