

- Continue efforts to locate new utilities in ways to avoid/minimize impacts to significant utility facilities and minimize disruptions to service. (Avoidance and Minimization)
- Continue coordination efforts with utility providers and their design consultants to ensure capacity is available at the Project site, conflicts have been identified, and relocation plans are feasible. (Minimization)

These avoidance and minimization measures, except the items noted with an asterisk (*), have been considered in the preceding impact analysis. The complete list of Applicant-proposed avoidance and minimization measures related to land use and infrastructure is also provided in Chapter 6.

4.9.12.2 Additional Potential Mitigation Measures

No additional mitigation measures have been identified by the Corps for Land Use and Infrastructure. Additional avoidance, minimization, and mitigation may be considered by the Corps in its decision-making process. Final mitigation measures may be adopted as conditions of the DA permit and documented in the Record of Decision (ROD).

4.10 CULTURAL RESOURCES

4.10.1 Methods and Impact Definitions

Impacts to cultural resources were evaluated using literature review, GIS, best professional judgment, and proximity to construction and operation activities that could result in demolition, noise, vibration, and/or visual resource impacts. After all historic properties within the Cultural Resources study area (equivalent to the Area of Potential Effects) were identified through literature review and investigations conducted in support of this EIS, their locations were overlaid (using GIS) with the footprints of the alternatives to determine the proximity of the historic properties to the proposed facilities and the activities that would occur during their operation. For example, for impacts to historic districts, potential effects to the specific characteristics of the historic properties that create their historical significance (i.e., make them eligible for the NRHP) were reviewed to determine whether the alternatives would alter these characteristics in such a way that the NRHP eligibility of a specific historic property would be degraded or compromised. These characteristics were extracted from the information presented in the previous investigations that resulted in the determinations of eligibility from the NRHP nomination forms for the Charleston Navy Yard (CNY), Charleston Naval Hospital (CNH), and Charleston Navy Yard Officers' Quarters (CNYOQ) Historic Districts that were all prepared in 2006 (Appendix G).

The impact evaluation considers both construction and operation activities within the Cultural Resources study area. Impacts to historic properties were characterized as adverse, not adverse, or no effect as defined under Section 106 of NHPA⁷² (Table 4.10-1). In addition, an evaluation was

⁷² 36 C.F.R. 800

conducted to determine whether there were ways to avoid or minimize adverse effects. The Corps, in consultation with the South Carolina State Historic Preservation Office (SHPO), determines the nature of the effects and recommends appropriate mitigation where adverse effects cannot be avoided. Mitigative efforts generally are handled through the implementation of a Cultural Memorandum of Agreement (MOA) between the applicant, the lead federal agency, the SHPO, and any other major stakeholders, including, as appropriate, Cooperating Agencies. The Cultural Resources MOA identifies the responsibilities of each signator, the resources managed under the MOA, the procedures for developing and implementing mitigative actions (which may include specific criteria for particular actions), the procedures for resolving disputes among the signatories, and the procedures for terminating the MOA. Most MOAs are attached to the federal permits for an undertaking and may have specific timelines or milestones to ensure that managed resources are dealt with appropriately as the permitted action unfolds.

Consulting party status pursuant to Section 106 of the NHPA was requested by the Historic Charleston Foundation, the Preservation Society of Charleston, and the Naval Order of the United States in three separate letters received by the Corps during the 2015 public scoping period. The Corps granted these entities consulting party status on January 19, 2016. These consulting parties are not signatories to the Cultural Resources MOA; however, they are listed in the Cultural Resources MOA as concurring parties.

In accordance with Section 106 of the NHPA, the Corps and SCDHEC issued a joint Public Notice (PN) on October 19, 2016, officially stating that they had consulted with the SHPO, for the presence or absence of historic properties (as defined in 36 C.F.R. 800.16)(1)(1)), and determined that historic properties were present and that these historic properties may be affected by Alternative 1 (Proposed Project). The PN served to notify individuals or groups who would like to be consulting parties for the purposes of the NHPA and, to make such a request to the Corps in writing within 30 days of the PN. The PN also served as a request to the SHPO and other interested parties to provide any information they may have regarding historic properties, to ensure that other historic properties that the Corps was not aware of are not overlooked. The PN was distributed to local governments, tribes, state and federal agencies, elected officials, interest groups, general public, interested parties, and adjacent property owners by either mail or email. The PN was also posted through the project website.

The Muscogee (Creek) Nation requested additional information and requested to become a consulting party on March 1, 2017, because the Project area is located within the Muscogee (Creek) Nation's historic area of interest and is of importance to the tribe. However, according to correspondence with the Muscogee (Creek) Nation on January 20, 2017, they "agree that there is very little potential for intact archaeological deposits, and if there are any, they are likely beneath the (existing) fill" (Appendix G).

The Corps notified the Advisory Council on Historic Preservation (ACHP) on January 27, 2017, that Alternative 1 (Proposed Project) would have an adverse effect on historic properties and invited them to participate in the Section 106 Consultation. The ACHP requested to participate in the Section 106 consultation on March 7, 2017. A Section 106 consultation meeting was held on April 7, 2017, in Charleston, South Carolina. The meeting was attended by the Applicant, the Corps, project consultants, and representatives from Historic Charleston Foundation, the Preservation Society of Charleston, and the Naval Order of the United States. Additional representatives from SHPO, ACHP, The Muscogee (Creek) Nation, and the FRA called in to the meeting and participated via phone. By letter dated July 10, 2017, the FRA designated the Corps as the lead agency for the Section 106 process.

SHPO concurred with the inventory of the Project area and the findings of effects in July 2016. SHPO’s final concurrence with effects determinations is the signed MOA. The Cultural Resources MOA among the Corps, FRA, SHPO, ACHP, the Muscogee (Creek) Nation and Palmetto Railways is included in Appendix G.

Table 4.10-1
Impact Definitions, Cultural Resources

No Effect	No Adverse Effect	Adverse Effect
No resources present or impacts would be at the lowest levels of detection: barely perceptible and not measurable, and thus do not alter any defining characteristic of a historic property. (No effect under Section 106.)	A direct or indirect alteration that would only slightly affect the character-defining features of a structure, resource, building, or district listed on or eligible for listing on the NRHP but does not compromise its eligibility. (No adverse effect under Section 106.)	A direct or indirect alteration of any characteristic of a historic property that qualifies it for inclusion in the NRHP; that diminishes the integrity of its location, design, setting, materials, workmanship, feeling, or association; or that diminishes the extent to which a resource retains its historic appearance. This can include the destruction of archaeological resources, alteration of historic viewsheds, and the modification or demolition of historic buildings (Adverse Effect under Section 106.)

4.10.2 No-Action Alternative

Under the No-Action Alternative, the Project site would continue to be used for mixed-use industrial activities. Activities would likely include the demolition of existing buildings and infrastructure, the alteration of the ground surface, and the installation of new buildings and structures necessary to support the light industries and warehousing/shipping entities that may occupy the future industrial space.

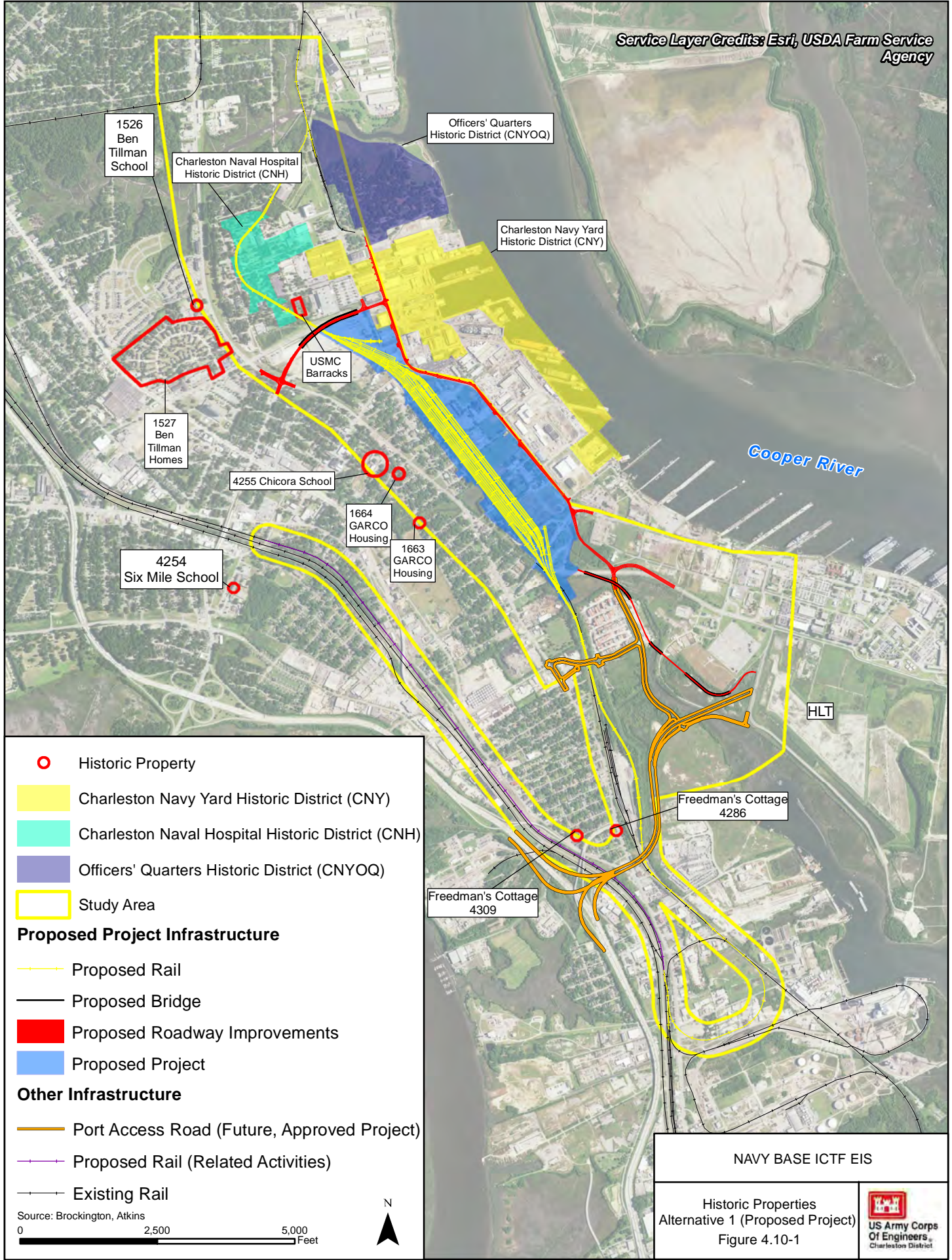
Construction activities and equipment would alter the current viewsheds and settings of historic properties near these lands and create vibrations and noise that may affect nearby historic properties. These alterations would be temporary, localized impacts, and would have no effect on cultural resources within the Cultural Resources study area. Noise and vibration impacts would also be temporary and localized, and would have no effect on historic properties within the Cultural Resources study area.

Impacts associated with the operation of a future industrial use within the Project site would likely involve an increase in road and rail traffic as compared to the existing condition, but significantly less than that predicted for the Navy Base ICTF. Increased traffic would create noise and vibrations that might affect nearby historic properties, and could result in the construction of roadway and rail improvements that could affect the current viewsheds of historic properties (primarily in the River Center project site). Impacts would be local and long term. The intensity of traffic, and its proximity to historic properties, is unknown; however, Palmetto Railways would be required to consult with the SHPO to ensure that any activities (and resulting alterations and noise and vibration impacts), would be mitigated in accordance with the contractual obligations and covenants from the PA. As a result, there would likely be no adverse effects to cultural resources from operations at the Project site.

4.10.3 Alternative 1: Applicant's Proposed Project (South via Milford / North via Hospital District)

Two historic properties, the CNH Historic District and USMC Barracks (CNC Building M-17), lie within the Project site. Ten additional historic properties lie near Alternative 1 (Proposed Project), including the CNY Historic District, the CNYOQ Historic District, the Chicora Elementary School, the Six Mile Elementary School, the Ben Tillman Graded School, Ben Tillman Homes, two Charleston freedman's cottages (Resources 4306 and 4309), and GARCO Employee Housing residences (Resources 1663 [which includes two buildings] and 1664). Figure 4.10-1 displays the location of the historic properties within and near Alternative 1 (Proposed Project).

The Northern Rail Connection passes through the southwest corner of the parade ground of the USMC Barracks and then passes through or very close to several buildings in the CNH Historic District (CNC Buildings M-5, M-6/M-7, M-8/M-9, AA/LL, BB/CC, DD/EE, FF/GG, HH/II, JJ/KK, 762, and 763). The rail link will separate CNC Buildings M-6/M-7, M-8/M-9, FF/GG, HH/II, JJ/KK, and 758-763 from the remaining elements of the CNH. All of these buildings are contributing elements of the CNH Historic District, and originally served as residences for hospital staff.



1526 Ben Tillman School

Charleston Naval Hospital Historic District (CNH)

Officers' Quarters Historic District (CNYOQ)

Charleston Navy Yard Historic District (CNY)

USMC Barracks

1527 Ben Tillman Homes

4255 Chicora School

1664 GARCO Housing

1663 GARCO Housing

4254 Six Mile School

Cooper River

HLT

Freedman's Cottage 4286

Freedman's Cottage 4309

- Historic Property
- Charleston Navy Yard Historic District (CNY)
- Charleston Naval Hospital Historic District (CNH)
- Officers' Quarters Historic District (CNYOQ)
- Study Area
- Proposed Project Infrastructure**
- Proposed Rail
- Proposed Bridge
- Proposed Roadway Improvements
- Proposed Project
- Other Infrastructure**
- Port Access Road (Future, Approved Project)
- Proposed Rail (Related Activities)
- Existing Rail

Source: Brockington, Atkins
 0 2,500 5,000 Feet



The CNY Historic District lies to the east of North Hobson Avenue, to the east of Alternative 1 (Proposed Project) and partially within the eastern portion of the Cultural Resources study area. CNC Building 32- Central Power Plant, a contributing element of the district, lies adjacent to the northeast corner of Alternative 1 (Proposed Project); a number of large industrial buildings not included in the district stand between most of Alternative 1 (Proposed Project) and the remainder of this historic property. The Northern Rail Connection parallels the northwest corner of the CNYOQ Historic District with contributing elements of the district standing 800+ feet to the east, with vegetated areas and existing rail lines between these buildings and the rail link. The Chicora Elementary School stands approximately 1,200 feet west of Alternative 1 (Proposed Project). Numerous residences and commercial buildings and Spruill Avenue stand between Alternative 1 (Proposed Project) and this historic property. The Six Mile Elementary School stands 500 feet west of the northern end of the CSX rail lines that will be upgraded as a related activity with other existing rail lines and vegetated areas in between. The Ben Tillman Graded School and Ben Tillman Homes stand on the west side of Spruill Avenue, approximately 1,000 feet west of the Northern Rail Connection; Spruill Avenue, existing rail lines, and residential buildings stand between these historic properties and the Northern Rail Connection. One of the freedman's cottages (Resource 4306) stands 500 feet west of the Southern Rail Connection, with existing rail lines and vegetated areas between the house and the rail line. The other freedman's cottage (Resource 3409) stands 150 feet east of the CSX rail lines to be upgraded as a related activity; Meeting Street and ramps for I-26 stand between this building and the rail line. The surviving GARCO housing residences stand approximately 1,100-1,400 feet west of Alternative 1 (Proposed Project). Numerous residential and commercial buildings stand between Alternative 1 (Proposed Project) and these historic properties.

4.10.3.1 Construction

Construction of Alternative 1 (Proposed Project) would result in the demolition of existing buildings, structures, and infrastructure (such as rail lines, roadways, power lines, sewer lines, etc.); the alteration of the ground surface; and the installation of new buildings and structures necessary to support the intermodal transfer of marine shipping containers between rail and road vehicles. The potential for archaeological sites to exist within the Project site is minimal (cf. Daugherty 2011; Shmookler 1995), and thus, ground disturbing activities are not likely to damage or destroy archaeological sites.

Under Alternative 1 (Proposed Project), the CNH Historic District and the USMC Barracks would be affected. The northern rail connection would extend through the CNH Historic District and through the southwest corner of the parade ground of the USMC Barracks, resulting in an adverse effect on these historic properties. The construction of the northern rail connection would require the demolition and removal of multiple buildings associated with the CNH Historic District, creating long-term, adverse impacts to this district. Elements of the CNH would be removed, destroying the associations that exist between the various elements. The rail line would also separate the remaining

buildings, further degrading the associations and spatial relationships of these remaining elements. The designed landscape of the CNH would be substantially altered by the installation of a rail line through the district. The Northern Rail Connection would also pass through the southwest corner of the USMC Barracks' parade ground, altering the setting of this building and reducing the open lawn that served as a parade ground when the building housed the USMC detachments assigned to Navy Base Charleston.

Construction activities and equipment also would alter the current viewsheds and settings of historic properties near Alternative 1 (Proposed Project); however, the alterations of the settings and viewshed by construction activities and equipment to the CNY and CNYOQ Historic Districts would be temporary, and would have no effect on the districts.

Vibrations related to construction activities under the Alternative 1 (Proposed Project) would be temporary and similar to those that occurred during the operation of Navy Base Charleston or industrial activities that occur today within the CNC. As a result, construction-related vibration would have no effect on historic properties.

4.10.3.2 Operation

Under Alternative 1 (Proposed Project), the Navy Base ICTF would operate within new buildings/structures and transportation corridors; however, these new buildings/structures and infrastructure are industrial in nature and would not alter the character of the nearby historic properties within the CNC (the CNY and CNYOQ). The former Navy Base Charleston was an industrial facility that built and maintained ships. The historic properties within the CNC were the location of these industrial activities or supported the operation of the base and its assigned personnel. The Project's industrial activities support commercial maritime traffic rather than the military maritime traffic of the former navy base. The adaptive reuse of the CNC since the closure of Navy Base Charleston in 1996 has altered the character of the CNC from military to commercial over the last 20 years. Thus, changes in character of the historic properties within the CNC related to Alternative 1 (Proposed Project) would have no effect.

Under Alternative 1 (Proposed Project), operation of the Navy Base ICTF would also result in higher volumes of rail and road traffic on dedicated rail lines and thoroughfares, increasing noise and vibration. Navy Base Charleston was an industrial facility and generated a great deal of noise and vibration during its operation as a military installation throughout the twentieth century. The noises associated with the operation of the ICTF would create local, long-term, increased noise levels, but would not alter the industrial character and associations of the historic properties within the CNC. Similarly, historic properties in the nearby residential neighborhoods outside the CNC were built in support of the former Navy Base Charleston and witnessed the noises associated with the operation of the military facility. Since the closure of Navy Base Charleston in 1996, these noises have been reduced, but the CNC still contains industrial facilities similar to those that operated at the navy base.

Thus, increased noise levels related to the operation of the Navy Base ICTF would result in long-term, increased noise levels, but would not alter the character and associations of the nearby historic properties outside the CNC. As a result, noise impacts would have no effect on historic properties within and outside the CNC.

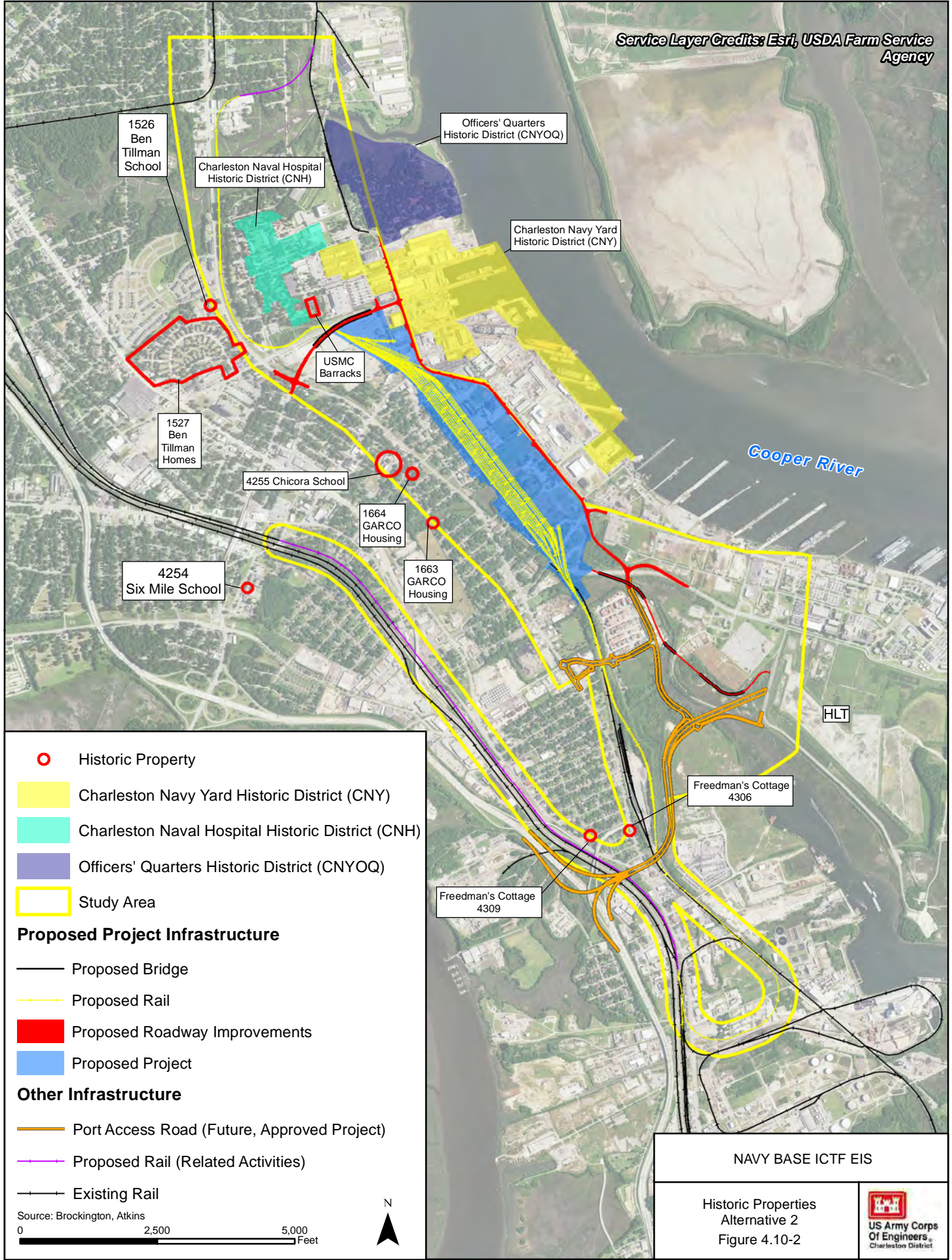
Under Alternative 1 (Proposed Project), vibrations related to the increased volume of rail traffic and operations within the proposed intermodal container facility could affect nearby properties within the CNC; however, the analysis discussed in Section 4.13 (Noise and Vibration) found that the ground-borne vibration generated by train activities would produce a negligible impact to the vibration-sensitive receptors along the railroad segments in the Cultural Resources study area in comparison with the No-Action Alternative. Rail vibration effects would be unlikely for the 76 receptors analyzed; therefore, vibration impacts would have no effect on historic properties within and outside the CNC. Periodic inspection and monitoring of masonry components of elements of the nearby CNY, CNH, and CNYOQ Historic Districts could identify whether these elements suffer adverse effects related to long-term exposure to increased vibrations resulting from the operation of the Navy Base ICTF.

4.10.4 Alternative 2: Proposed Project Site (South via Milford / North via S-Line)

The same historic properties noted for Alternative 1 (Proposed Project) also are present near the footprint of Alternative 2; however, the configuration of the northern rail connection is different in Alternate 2. It will loop 200-300 feet to the south and to the west of the CNH Historic District and USMC Barracks and parade ground in order to avoid direct impacts to these historic properties. The northern rail connection will be farther from the CNYOQ Historic District, approximately 1,000 feet west of the district boundary and 1,800–2,000 feet from any CNYOQ contributing elements. The Ben Tillman Graded School and Bill Tillman Homes historic properties lie closer to the rail link (600-800 feet west) but Spruill Avenue, existing rail lines, and narrow vegetated areas are present between these properties and the proposed rail line. Figure 4.10-2 displays the location of the historic properties within and near Alternative 2.

4.10.4.1 Construction

Construction of Alternative 2 would avoid direct impacts to historic properties. The CNH Historic District would not suffer the loss of contributing elements since the construction of the northern rail connection would be located west of the district. Thus, most of the effects (visual intrusions, noise, and vibration) related to construction within Alternative 2 are temporary and would have no effect on any historic properties. Again, the potential for archaeological sites to exist within Alternative 2 is minimal (cf. Daugherty 2011, Shmookler 1995).



1526 Ben Tillman School

Charleston Naval Hospital Historic District (CNH)

Officers' Quarters Historic District (CNYOQ)

Charleston Navy Yard Historic District (CNY)

USMC Barracks

1527 Ben Tillman Homes

4255 Chicora School

1664 GARCO Housing

4254 Six Mile School

1663 GARCO Housing

Cooper River

HLT

Freedman's Cottage 4306

Freedman's Cottage 4309

- Historic Property
 - Charleston Navy Yard Historic District (CNY)
 - Charleston Naval Hospital Historic District (CNH)
 - Officers' Quarters Historic District (CNYOQ)
 - Study Area
- Proposed Project Infrastructure**
- Proposed Bridge
 - Proposed Rail
 - Proposed Roadway Improvements
 - Proposed Project
- Other Infrastructure**
- Port Access Road (Future, Approved Project)
 - Proposed Rail (Related Activities)
 - Existing Rail

Source: Brockington, Atkins
 0 2,500 5,000 Feet



NAVY BASE ICTF EIS	
Historic Properties Alternative 2 Figure 4.10-2	<p>US Army Corps Of Engineers Charleston District</p>

4.10.4.2 Operation

Operation of Alternative 2 would not disrupt historic properties. Similar to Alternative 1 (Proposed Project), vibration impacts would have no effect on historic properties within and outside the CNC.

4.10.5 Alternative 3: Proposed Project Site (South via Kingsworth / North via Hospital District)

The same historic properties noted for Alternative 1 (Proposed Project) also are present near the footprint of Alternative 3. The relationships of all of the historic properties are the same as well, with the exception of one of the Charleston freedman's cottages near the southern rail connection. Resource 4306 stands 300 feet west and north of the proposed loop of the southern rail connection near Kingsworth Avenue, closer than for Alternative 1 (Proposed Project). Thus, the route of the northern rail connection would pass through the CNH Historic District and across the southwest corner of the parade ground of the USMC Barracks. Figure 4.10-3 displays the location of the historic properties within and near Alternative 3.

4.10.5.1 Construction

Construction of the Navy Base ICTF within Alternative 3 would result in the same adverse effects to the CNH Historic District and the USMC Barracks noted for Alternative 1 (Proposed Project). The potential effects related to visual intrusions, noise, and vibration associated with the construction of the Navy Base ICTF within Alternative 3 are temporary and would have no effect on any historic properties. Again, the potential for archaeological sites to exist within Alternative 3 is minimal (cf. Daugherty 2011, Shmookler 1995).

4.10.5.2 Operation

Operation of the Navy Base ICTF within Alternative 3 would also result in the same potential effects as noted for Alternative 1 (Proposed Project), and include the disruption of the CNH Historic District and the USMC Barracks. Similar to Alternative 1 (Proposed Project), vibration impacts would have no effect on historic properties within and outside the CNC.

Service Layer Credits: Esri, USDA Farm Service Agency



- Historic Property
 - Charleston Navy Yard Historic District (CNY)
 - Charleston Naval Hospital Historic District (CNH)
 - Officers' Quarters Historic District (CNYOQ)
 - Study Area
- Proposed Project Infrastructure**
- Proposed Rail
 - Proposed Bridge
 - Proposed Roadway Improvements
 - Proposed Project
- Other Infrastructure**
- Port Access Road (Future, Approved Project)
 - Proposed Rail (Related Activities)
 - Existing Rail

Source: Brockington, Atkins

0 2,500 5,000 Feet

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NAVY BASE ICTF EIS	
Historic Properties Alternative 3 Figure 4.10-3	<p style="font-size: 8px; margin: 0;">US Army Corps Of Engineers Charleston District</p>

4.10.6 Alternative 4: Proposed Project Site (South via Milford)

The same historic properties noted for Alternative 1 (Proposed Project) also are present near the footprint of Alternative 4. The relationships of all of the historic properties are the same as well, although all rail access would be through the southern rail connection. The route for the northern tail track would pass through the CNH Historic District and across the southwest corner of the parade ground of the USMC Barracks. Figure 4.10-4 displays the location of the historic properties within and near Alternative 4.

4.10.6.1 Construction

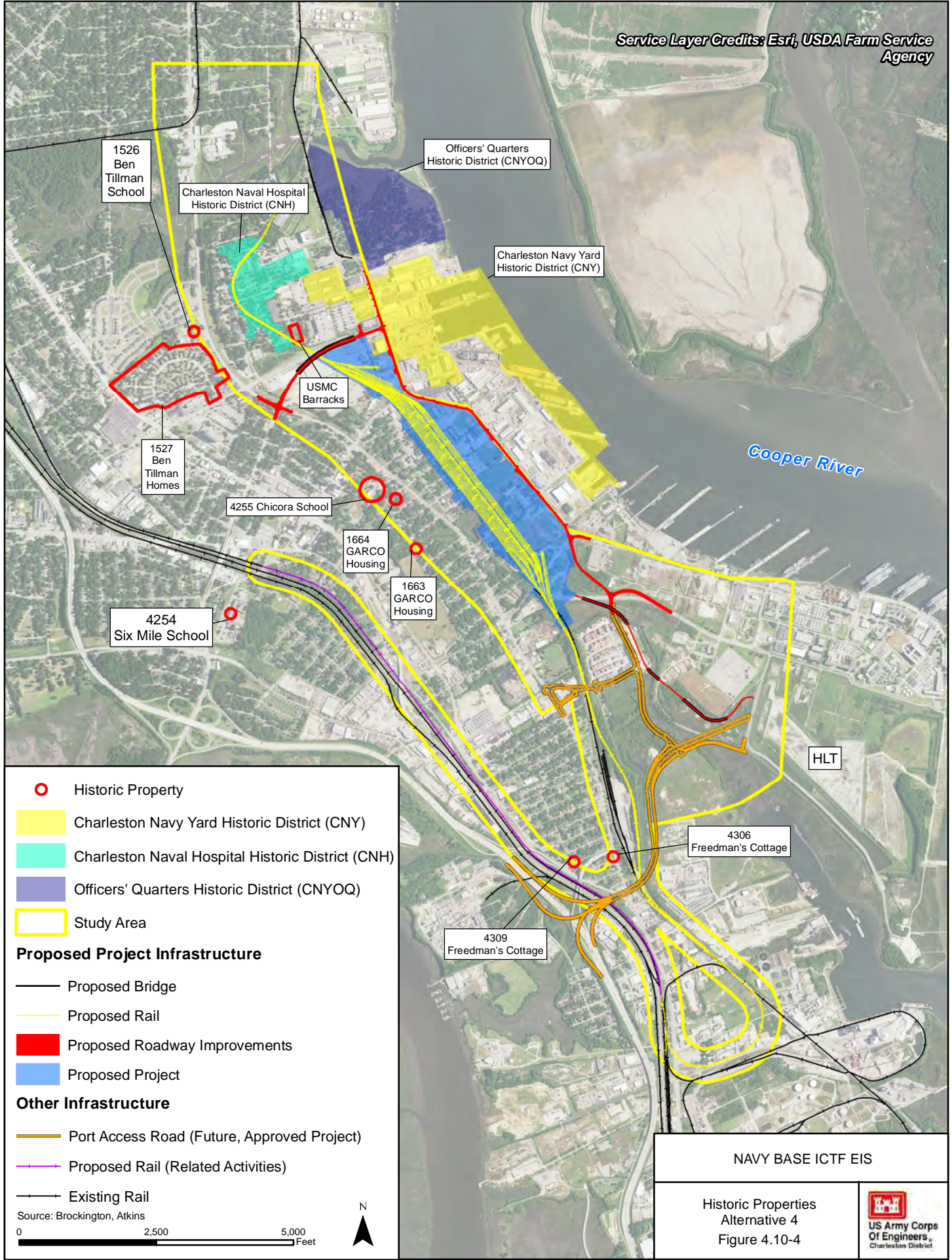
Construction of the Navy Base ICTF within Alternative 4 would result in the same adverse effects to the CNH Historic District and the USMC Barracks noted for Alternative 1 (Proposed Project). The potential effects related to visual intrusions, noise, and vibration associated with the construction of the Navy Base ICTF within Alternative 4 are temporary and would have no effect on any historic properties. Again, the potential for archaeological sites to exist within Alternative 4 is minimal (cf. Daugherty 2011, Shmookler 1995).

4.10.6.2 Operation

Operation of the Navy Base ICTF within Alternative 4 also would result in the same potential effects as noted for Alternative 1 (Proposed Project), and include the disruption of the CNH Historic District and the USMC Barracks. Like Alternative 1 (Proposed Project), vibration impacts would have no effect on historic properties within and outside the CNC.

4.10.7 Alternative 5: River Center Project Site (South via Milford / North via Hospital District)

Three historic properties (two historic districts and one individual building) lie within the footprint of Alternative 5, including the CNY Historic District, the CNH Historic District, and the USMC Barracks. Eight additional historic properties (one historic district, one planned community of houses and apartments, and seven individual building [one historic property contains two buildings]) lie near



- Historic Property
 - Charleston Navy Yard Historic District (CNY)
 - Charleston Naval Hospital Historic District (CNH)
 - Officers' Quarters Historic District (CNYOQ)
 - Study Area
- Proposed Project Infrastructure**
- Proposed Bridge
 - Proposed Rail
 - Proposed Roadway Improvements
 - Proposed Project
- Other Infrastructure**
- Port Access Road (Future, Approved Project)
 - Proposed Rail (Related Activities)
 - Existing Rail

Source: Brockington, Atkins
 0 2,500 5,000 Feet



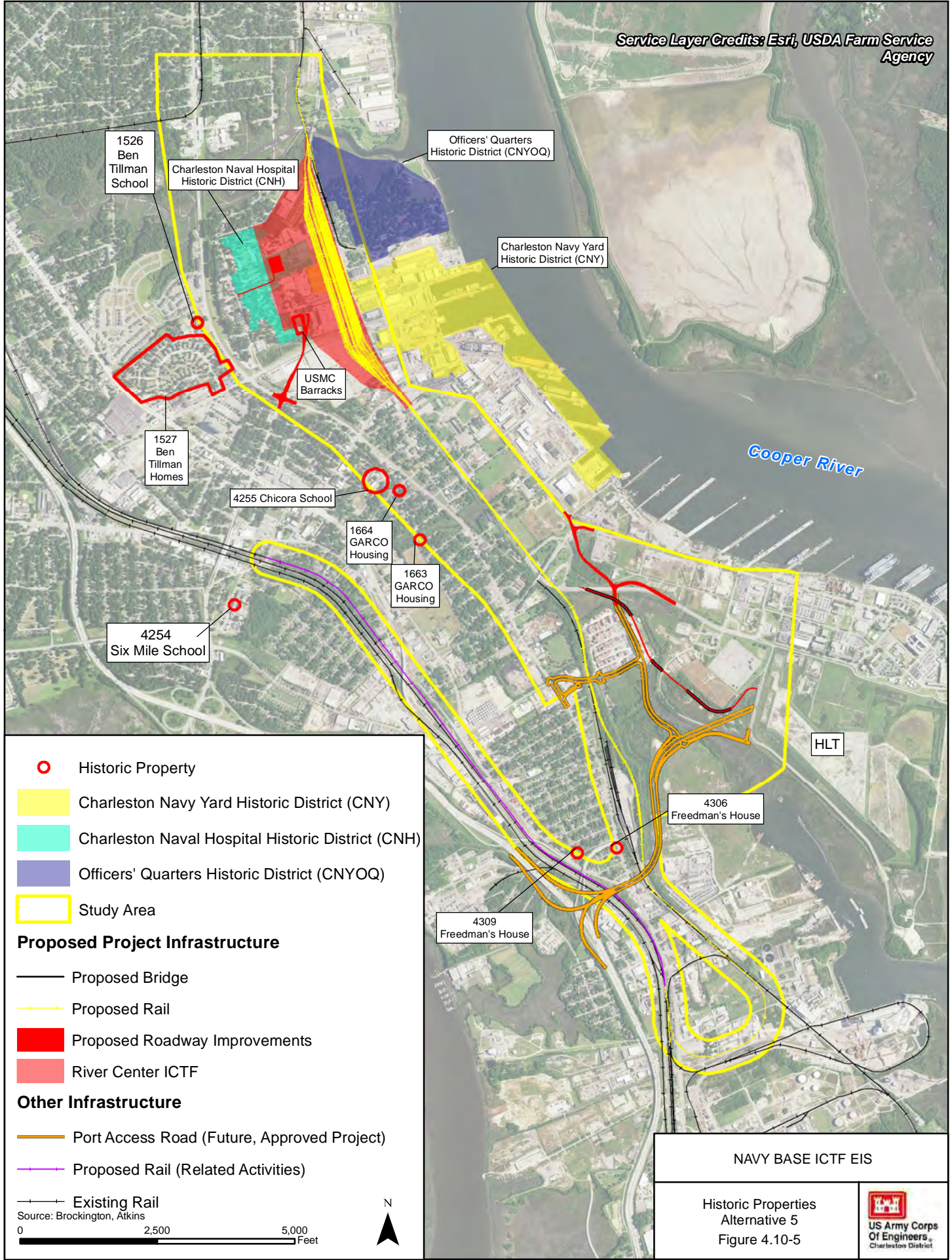
Alternative 5, including the CNYOQ Historic District, the Ben Tillman Homes, the Ben Tillman Graded School, the Chicora Elementary School, the Six Mile Elementary School, GARCO employee housing (Resources 1663 [which includes two buildings] and 1664), and two Charleston freedman's cottages (Resources 4306 and 4309). Figure 4.10-5 displays the location of the historic properties within and near Alternative 5.

Four elements of the CNY Historic District lie within Alternative 5. These elements are CNC Buildings 64, NSC 66, NSC 67 (all three are storehouses that contribute to the NRHP eligibility of the district), and CNC Building 1655 (a modern storage building that does not contribute to the district). The majority of the historic resources for this district lie to the east of Alternative 5 and outside of the Cultural Resources study area. Fourteen elements of the CNH Historic District lie completely within Alternative 5. These elements include CNC Buildings M-3A, M6/M7, NH-45, NH-46, NH-47, NH-49, NH-51, NH-53, NH-55, NH-61, NH-68, and 758 (treatment facilities, storehouses, residences, and a garage that contribute to the NRHP eligibility of the district); CNC Building NH-62 (a storehouse) does not contribute. The buildings and facilities of the CNH were originally separated from the naval industrial activities by a reasonable space, although storage buildings soon filled this space and began to encroach on the edge of the hospital campus. The CNYOQ Historic District lies to the northeast of Alternative 5 — outside but adjacent. As originally constructed, the elements of the CNYOQ stood as far removed from the naval industrial activities as possible, given the configuration of Navy Base Charleston. As the base expanded, some industrial facilities began to encroach on the edge of this residential neighborhood. Industrial buildings, some associated with the CNY Historic District, stand between Alternative 5 and this historic property.

The Ben Tillman Graded School and the Ben Tillman Homes stand on the west side of Spruill Avenue and the Cultural Resources study area, approximately 700 feet and 800 feet west of Alternative 5, respectively. Private residences, Spruill Avenue, and rail lines lie between Alternative 5 and these historic properties. Chicora Elementary School and the GARCO employee houses (Resources 1663 and 1663) stand 1,100-1,400 feet west of the southern rail connection of Alternative 5. The Six Mile Elementary School stands 500 feet west of the northern end of the CSX rail lines that will be upgraded as a related activity with existing rail lines and vegetated areas in between. One of the freedman's cottages (Resource 4306) stands 500 feet west of the southern rail connection, with existing rail lines and vegetated areas between the house and the rail link. The other freedman's cottage (Resource 4309) stands 150 east of the CSX rail lines to be upgraded as a related activity; Meeting Street and ramps for I-26 stand between this building and the rail line.

4.10.7.1 Construction

Construction of the River Center ICTF under Alternative 5 would result in the demolition of existing buildings, structures, and infrastructure, the alteration of the ground surface, and the installation of new buildings and structures necessary to support the intermodal transfer of marine shipping



- Historic Property
- Charleston Navy Yard Historic District (CNY)
- Charleston Naval Hospital Historic District (CNH)
- Officers' Quarters Historic District (CNYOQ)
- Study Area

Proposed Project Infrastructure

- Proposed Bridge
- Proposed Rail
- Proposed Roadway Improvements
- River Center ICTF


Other Infrastructure

- Port Access Road (Future, Approved Project)
- Proposed Rail (Related Activities)

Existing Rail
 Source: Brockington, Atkins
 0 2,500 5,000 Feet

NAVY BASE ICTF EIS

Historic Properties
Alternative 5
Figure 4.10-5



US Army Corps
Of Engineers
Charleston District

containers between rail and road vehicles. The potential for archaeological sites to exist within the Alternative 5 footprint is minimal (cf. Daugherty 2011, Shmookler 1995), and thus, ground disturbing activities are not likely to damage or destroy archaeological sites.

The demolition and removal of multiple buildings associated with the CNH and CNY Historic Districts would result in long-term, adverse effects. The NRHP-eligible USMC Barracks also stands within Alternative 5, and its demolition would result in an adverse effect to this historic building.

Construction activities and equipment would alter the current viewsheds and settings of four historic properties (the CNY, the CNYOQ, and the CNH Historic Districts, and the USMC Barracks) within or adjacent to Alternative 5 (see Figure 4.10-5). The alterations of settings and viewsheds of the CNYOQ Historic District by construction activities and equipment would be temporary, resulting in local, short-term impacts, and thus no effect.

Noise and vibration impacts related to construction activities under Alternative 5 would be similar to those discussed under Alternative 1 (Proposed Project). These impacts would be temporary and should not exceed those that occurred during the operation of Navy Base Charleston or industrial activities that occur today within the CNC. There would be no effect on historic properties from noise and vibration during construction activities.

4.10.7.2 Operation

The operation of the ICTF under Alternative 5 would have similar noise and vibration impacts to historic properties as described for the Navy Base ICTF under Alternative 1 (Proposed Project). The River Center ICTF would operate within new buildings/structures and transportation corridors that alter the setting of the CNC; however, the new buildings/structures and infrastructure are industrial in nature and would not alter the character of the CNC.

The CNH would have major changes to elements of the district, altering the setting of the district as a whole. Fourteen of the buildings associated with the district would be demolished. The associations of the remaining buildings would be severely compromised. The CNH was not an industrial facility but supported the industrial facility and the crews of the U.S. Navy ships that were stationed at Navy Base Charleston during its operation. While industrial facilities lie immediately adjacent to the district (on the opposite sides of roadways for the most part), the earliest buildings of the district were built within a designed layout. The loss of buildings and structures within this layout may severely degrade its cohesion and compromise its eligibility for the NRHP. This would create a long-term, adverse effect to the district.

The CNY would also be subjected to the loss of four former warehouses, which would create a long-term adverse effect.

The CNYOQ Historic District would experience a local, long-term visual impact to its setting. Similar to the CNH, the buildings and infrastructure within the CNYOQ were not industrial in nature, but supported the operation of the former Navy Base Charleston. Again, all of the industrial activities associated with the operation of Navy Base Charleston were separated from this district. Under Alternative 5, the River Center ICTF would be immediately adjacent to the CNYOQ. The industrial facilities associated with the River Center ICTF would be visible from portions of the CNYOQ, despite the presence of a noise abatement wall and other measures proposed by Palmetto Railways to minimize the visual impact of the facility. This alteration of setting would be an adverse effect. The closer proximity of industrial activities to the district also could result in higher noise and vibration levels than occurred during the military operation of Navy Base Charleston; however, vibration impacts would have no effect on historic properties within and outside the CNC.

4.10.8 Alternative 6: River Center Project Site (South via Kingsworth / North via Hospital District)

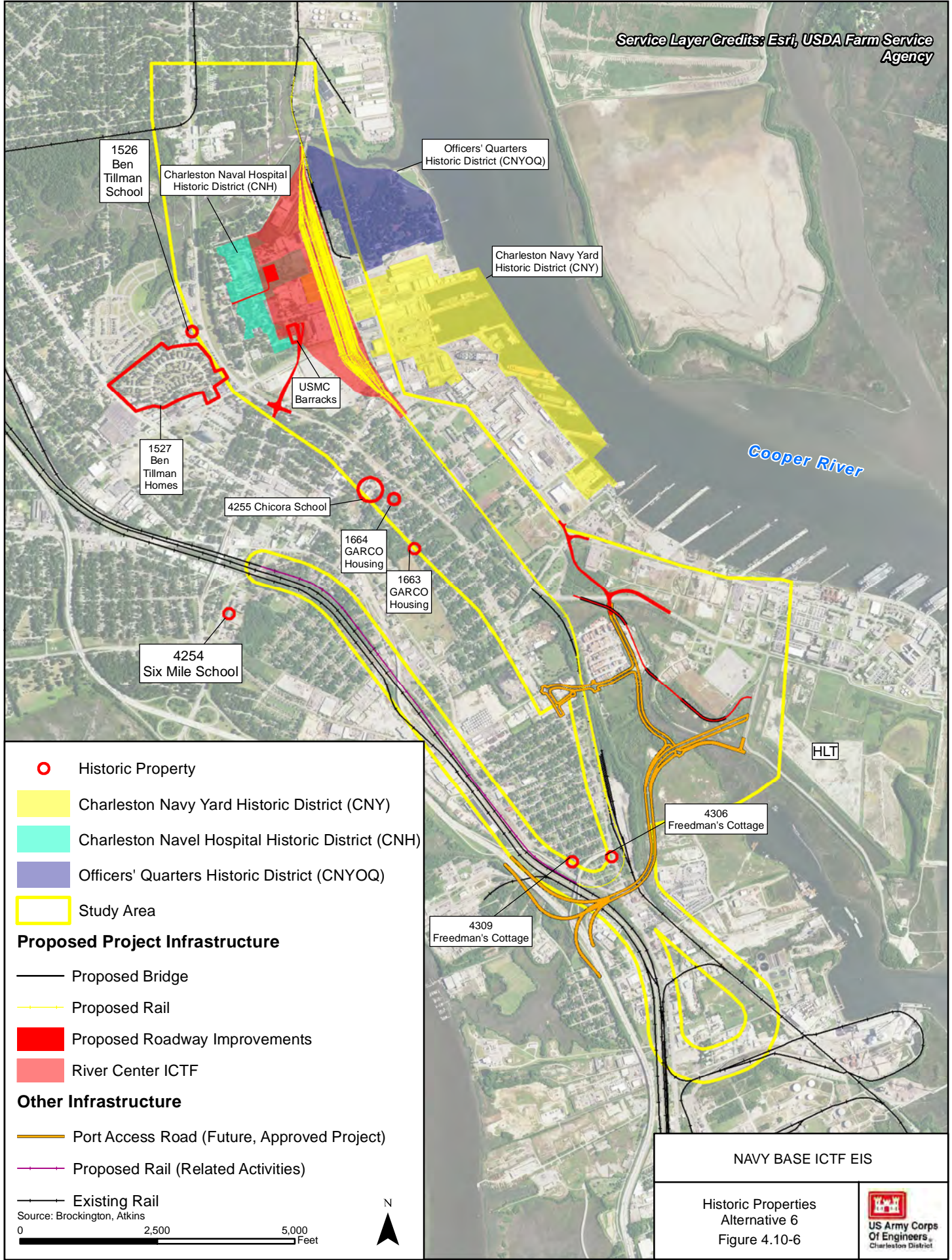
The same historic properties noted for Alternative 5 are also present in and near the footprint of Alternative 6. The relationships of all the historic properties are the same as well, with the exception of one of the Charleston freedman's cottages near the southern rail connection. Resource 4306 stands 300 feet west and north of the proposed loop of the southern rail connection near Kingsworth Avenue, closer than the rail under Alternative 5. Figure 4.10-6 displays the location of the historic properties within and near Alternative 6.

4.10.8.1 Construction

Construction of the River Center ICTF within Alternative 6 would result in the same adverse effects to the CNH, CNY, and CNYOQ Historic Districts and the USMC Barracks noted for Alternative 5. The potential effects related to visual intrusions, noise, and vibration associated with the construction of the River Center ICTF within Alternative 6 are temporary and would have no effect on any historic properties. Again, the potential for archaeological sites to exist within Alternative 6 is minimal (cf. Daugherty 2011, Shmookler 1995).

4.10.8.2 Operation

Operation of the River Center ICTF within Alternative 6 also would result in the same potential effects as noted for Alternative 5, to include the disruption of the CNH and CNY Historic Districts and the USMC Barracks. Similar to Alternative 5, vibration impacts would have no effect on historic properties within and outside the CNC.



1526 Ben Tillman School

Charleston Naval Hospital Historic District (CNH)

Officers' Quarters Historic District (CNYOQ)

Charleston Navy Yard Historic District (CNY)

USMC Barracks

1527 Ben Tillman Homes

4255 Chicora School

1664 GARCO Housing

1663 GARCO Housing

4254 Six Mile School

HLT

4306 Freedman's Cottage

4309 Freedman's Cottage

- Historic Property
- Charleston Navy Yard Historic District (CNY)
- Charleston Navel Hospital Historic District (CNH)
- Officers' Quarters Historic District (CNYOQ)
- Study Area

Proposed Project Infrastructure

- Proposed Bridge
- Proposed Rail
- Proposed Roadway Improvements
- River Center ICTF

Other Infrastructure

- Port Access Road (Future, Approved Project)
- Proposed Rail (Related Activities)
- Existing Rail

Source: Brockington, Atkins

0 2,500 5,000 Feet

N
▲

4.10.9 Alternative 7: River Center Project Site (South via Milford)

The same historic properties noted for Alternative 5 are also present near the footprint of Alternative 7. The relationships of all of the historic properties are the same as well. Figure 4.10-7 displays the location of the historic properties within and near Alternative 7.

4.10.9.1 Construction

Construction of the River Center ICTF within Alternative 7 would result in the same adverse effects to the CNH, CNY, and CNYOQ Historic Districts and the USMC Barracks noted for Alternative 5. The potential effects related to visual intrusions, noise, and vibration associated with the construction of the River Center ICTF within Alternative 7 are temporary and would have no effect on any historic properties. Again, the potential for archaeological sites to exist within Alternate 7 is minimal (cf. Daugherty 2011, Shmookler 1995).

4.10.9.2 Operation

Operation of the River Center ICTF within Alternative 7 also would result in the same potential effects as noted for Alternative 5, to include the disruption of the CNH and CNY Historic Districts and the USMC Barracks. Similar to Alternative 5, vibration impacts would have no effect on historic properties within and outside the CNC.

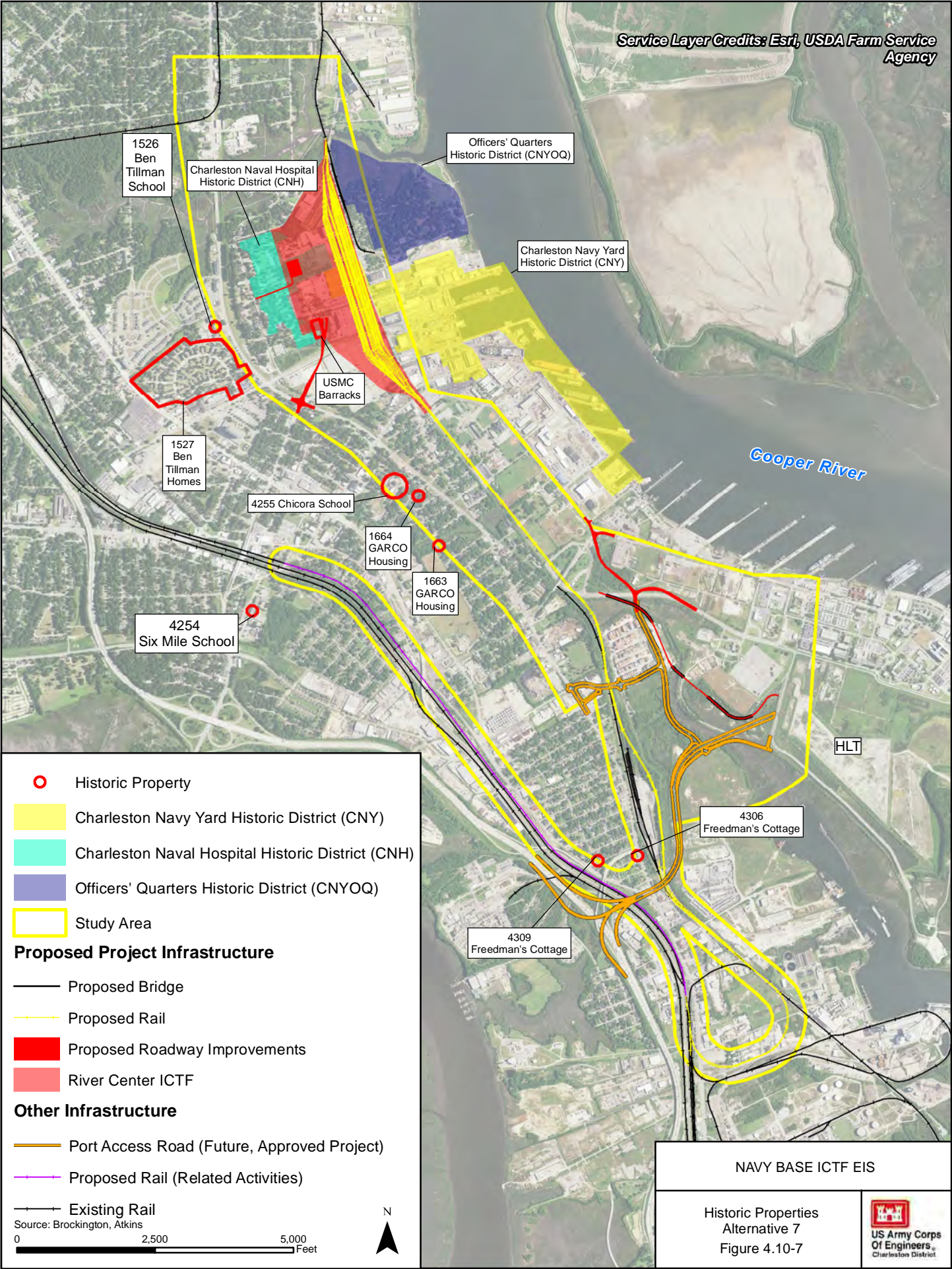
4.10.10 Related Activities

Upgrading and reopening existing rail lines for the Class I rail carriers would occur in association with Alternatives 1-7. For Alternatives 1, 4, 5, and 7, this upgrading and reopening would occur from roughly Herbert Street north to Misroon Street to provide rail connection to the south. For Alternative 2, this upgrading and reopening would occur from roughly Herbert Street north to Misroon Street to provide rail connection to the south and from roughly Oakwood Avenue to Buist Avenue to provide rail connection to the north. For Alternatives 3 and 6, this upgrading and reopening would occur from the I-26 Spruill Avenue ramps north to Misroon Street to provide rail connection in the south. Historic properties near the Related Activities include the two Charleston freedman's cottages (Resources 4306 and 4309) in the south and the CNYOQ Historic District.

4.10.10.1 Construction

Construction associated with the Related Activities would create potential effects related to visual intrusions, noise, and vibration associated with the construction of the Navy Base ICTF. Like those

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- Historic Property
- Charleston Navy Yard Historic District (CNY)
- Charleston Naval Hospital Historic District (CNH)
- Officers' Quarters Historic District (CNYOQ)
- Study Area

Proposed Project Infrastructure

- Proposed Bridge
- Proposed Rail
- Proposed Roadway Improvements
- River Center ICTF

Other Infrastructure

- Port Access Road (Future, Approved Project)
- Proposed Rail (Related Activities)
- Existing Rail


Source: Brockington, Atkins

0 2,500 5,000 Feet

N
▲

NAVY BASE ICTF EIS

Historic Properties
Alternative 7
Figure 4.10-7



identified for construction activities within Alternatives 1-7, these effects are temporary and would have no effect on any historic properties. Again, the potential for archaeological sites to exist within the footprint of the Related Activities is minimal, since these areas are existing or former rail lines.

4.10.10.2 Operation

Operation of the Navy Base ICTF would increase the number of trains traveling over the rail lines of the Related Activities, creating the same potential effects for nearby resources noted for Alternatives 1-7, namely noise and vibration. The distance between the northern Related Activity and the CNYOQ Historic District limits the impact of these potential effects to this historic property. The Charleston freedman’s cottages (Resources 4306 and 4309) were originally built near active rail lines. Operation of the Navy Base ICTF would not affect any historic properties due to the distances between the improved rail lines and the CNYOQ Historic District and the original associations of Resources 4306 and 4309.

4.10.11 Summary of Impacts Table

Table 4.10-2 summarizes the environmental consequences to historic properties from Alternative 1 (Proposed Project) and all the alternatives.

Table 4.10-2
Summary of Impacts, Cultural Resources

Alternative	Historic Properties				
	<i>Charleston Naval Hospital (CNH) Historic District</i>	<i>Charleston Navy Yard (CNY) Historic District</i>	<i>Charleston Navy Yard Officer’s Quarters (CNYOQ) Historic District</i>	<i>U.S. Marine Corps (USMC) Barracks</i>	<i>Other historic properties outside the Charleston Naval Complex (CNC)</i>
No-Action	No effect	No effect	No effect	No effect	No effect
1: Proposed Project: South via Milford / North via Hospital District	Adverse effect from demolition of contributing elements of the Historic District, and altered setting of the District	No effect	No effect	Adverse effect from altered setting	No effect
2: South via Milford / North via S-line	No effect	No effect	No effect	No effect	No effect

Alternative	Historic Properties				
	<i>Charleston Naval Hospital (CNH) Historic District</i>	<i>Charleston Navy Yard (CNY) Historic District</i>	<i>Charleston Navy Yard Officer's Quarters (CNYOQ) Historic District</i>	<i>U.S. Marine Corps (USMC) Barracks</i>	<i>Other historic properties outside the Charleston Naval Complex (CNC)</i>
3: South via Kingsworth / North via Hospital	Same as Alternative 1 (Proposed Project)	Same as Alternative 1 (Proposed Project)	Same as Alternative 1 (Proposed Project)	Same as Alternative 1 (Proposed Project)	Same as Alternative 1 (Proposed Project)
4: South via Milford	Same as Alternative 1 (Proposed Project)	Same as Alternative 1 (Proposed Project)	Same as Alternative 1 (Proposed Project)	Same as Alternative 1 (Proposed Project)	Same as Alternative 1 (Proposed Project)
5: River Center Project Site: South via Milford / North via North via Hospital District	Adverse effect from demolition of contributing elements of the Historic District, and altered settings of the District	Adverse effect from demolition of contributing elements of the Historic District, and altered settings of the District	Adverse effect from altered settings of the District	Adverse effect from demolition of NRHP-listed building and altered settings of the District	No effect
6: River Center Project Site: South via Kingsworth / North via Hospital	Same as Alternative 5	Same as Alternative 5	Same as Alternative 5	Same as Alternative 5	Same as Alternative 5
7: River Center Project Site: South via Milford	Same as Alternative 5	Same as Alternative 5	Same as Alternative 5	Same as Alternative 5	Same as Alternative 5

Cultural Resource Impact Definitions

No Effect = No resources present or impacts would be at the lowest levels of detection: barely perceptible and not measurable, and thus do not alter any defining characteristic of a historic property. (No effect under Section 106.)

No Adverse Effect = A direct or indirect alteration that would only slightly affect the character-defining features of a structure, resource, building, or district listed on or eligible for listing on the NRHP but does not compromise its eligibility. (No adverse effect under Section 106.)

Adverse Effect = A direct or indirect alteration of any characteristic of a historic property that qualifies it for inclusion in the NRHP; that diminishes the integrity of its location, design, setting, materials, workmanship, feeling, or association; or that diminishes the extent to which a resource retains its historic appearance. This can include the destruction of archaeological resources, alteration of historic viewsheds, and the modification or demolition of historic buildings (Adverse Effect under Section 106.)

4.10.12 Mitigation

4.10.12.1 Applicant's Proposed Avoidance and Minimization Measures

The Applicant has committed to several measures that avoid and/or minimize potential impacts of Alternative 1 (Proposed Project), which are provided in Appendix N. Some of these measures are required under federal, state, and local permits; others are measures that Palmetto Railways has incorporated into the design and operations of Alternative 1 (Proposed Project) and are included in the Cultural Resources MOA. Each mitigation measure is also designated as one that either helps to avoid an impact or one that minimizes an impact.

- Minimize and avoid impacts to buildings and structures on the CNC. (Avoidance and Minimization)
- Minimize and avoid direct interaction with historic buildings and structures. (Avoidance and Minimization)
- Consulted with multiple agencies (state and federal) and historic organizations regarding potential impacts and mitigation for cultural resources. (Minimization)
- Execute a Cultural Memorandum of Agreement (MOA) regarding effects of the Project on historic properties between the Corps, the Federal Railroad Administration (FRA), Palmetto Railways, the Advisory Council on Historic Preservation (ACHP), the Muscogee (Creek) Nation, and the State Historic Preservation Office (SHPO). The Cultural Resources MOA commits the Applicant to the following requirements:
 - The Applicant shall monitor adversely affected historic properties for vibration damage during construction and for a period of 2 years during operation of the facility. If damage does occur during construction, the Applicant or its contractors shall be responsible for repairs of vibration damage to historic properties, in coordination with the Corps and SHPO and in accordance with the Secretary of the Interior Standards. (Minimization)
 - Construction activities shall occur in accordance with local noise regulations, policies, and guidance to minimize adverse noise effects. (Minimization)
 - The Applicant will develop and erect three state historical markers regarding the history of the USMC Barracks, CNH, and CNYOQ within 2 years of the execution of the Cultural Resources MOA and in coordination with SHPO. (Minimization)
 - The Applicant shall prepare a nomination of the USMC Barracks to the National Register of Historic Places (if deemed appropriate by SHPO) within 1 year of the execution of the Cultural Resources MOA. (Minimization)
 - The Applicant shall establish the Charleston Naval Base Historical Trust (CNB Historical Trust). The CNB Historical Trust governing board shall consist of at least one representative from the City of North Charleston, each concurring party, the Redevelopment Authority, Palmetto Railways, and SHPO. (Minimization)

- The Applicant shall provide funding in the amount of \$2 million for the CNB Historical Trust for use in preserving and rehabilitating the Charleston Naval Hospital and USMC Barracks. (Minimization)
- The Applicant shall fund an additional historic resource survey of the study area under the oversight of SHPO, which is intended to update and catalogue changes to the properties listed in the Programmatic Agreement for use by the signatories on a going forward basis. (Minimization)
- The Applicant shall lease the CNH and/or USMC Barracks to the CNB Historical Trust for a nominal fee as long as they are actively implementing rehabilitation and preservation efforts. A transfer of title shall be provided upon satisfaction of certain conditions. (Minimization)
- The Applicant shall work with the CNB Historical Trust to place appropriate restrictive covenants on the CNH and/or USMC Barracks to reasonably protect the historic and cultural value of such structures for any rehabilitation or use to be held by the CNB Historical Trust if such properties are transferred or leased to any third party (or held by an appropriate third party), if title is retained by the CNB Historical Trust. Rehabilitation and reuse may include use for residential, commercial, office, mixed-use, and retail space and which may include an exhibit of historic or cultural interest. (Minimization).
- The Applicant will cause rehabilitation and reuse of the Power House (CNC Building 32 – Central Power Plant), which may include use for commercial, office, and retail space which may include an exhibit or other recognition of CNC objects of historical, scientific, artistic, or cultural interest, including but not limited to the transfer of title to any appropriate entity to accomplish these tasks upon reasonable request, subject to SHPO’s prior consent approval. The Applicant has sold the Powerhouse to a private ownership entity with the stipulation that it be redeveloped within 4 years of purchase or returned to Palmetto Railways. (Minimization)
- The Applicant shall follow post-review discovery requirements and suspend construction operations if cultural resources are found and notify relevant parties for consultation including the Corps, SHPO, Muscogee (Creek) Nation, Catawba Indian Nation, and the FRA. (Minimization).
- The Applicant shall prepare an Annual Report documenting actions carried out in the MOA and distribute to the signatories and concurring parties. (Minimization)

These avoidance and minimization measures, except the items noted with an asterisk (*), have been considered in the preceding impact analysis. The complete list of Applicant-proposed avoidance and minimization measures related to land use and infrastructure is also provided in Chapter 6.

4.10.12.2 Additional Potential Mitigation Measures

No additional mitigation measures for Cultural Resources have been identified by the Corps. Additional avoidance, minimization, and mitigation may be considered by the Corps in its decision-making process. Final mitigation measures may be adopted as conditions of the DA permit and documented in the Record of Decision (ROD).