(Proposed Project). Each mitigation measure is also designated as one that either helps to avoid an impact, or one that minimizes an impact.

For Climate Change mitigation, see Air Quality mitigation measures in Section 4.13. The complete list of Applicant-proposed avoidance and minimization measures is also provided in Chapter 6.

4.14.12.2 Additional Potential Mitigation Measures

No additional mitigation measures for Climate Change have been recommended 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).

4.15 HAZARDOUS, TOXIC, AND RADIOACTIVE WASTE

4.15.1 Methods and Impact Definitions

The analysis and evaluation of potential HTRW impacts has been conducted using both qualitative and quantitative methods. These methods include literature reviews, presence/absence determinations of known contaminated areas within the study area (through the preparation of Phase 1 and/or Phase 2 ESAs and similar site evaluations), GIS, and professional judgment. The analysis also evaluates and determines the potential for the generation of new HTRW impacts associated with the construction and/or operation of the Navy Base ICTF, including but not limited to the potential processing and handling of HTRW materials in cargo containers and potential use of new ASTs and/or USTs for petroleum and other substances of concern.

The impact definitions are provided in Table 4.15-1.

Table 4.15-1
Impact Definitions, Hazardous, Toxic, and Radioactive Waste

Negligible	Minor	Major
Negligible (or no) involvement with contaminated soil, contaminated groundwater, or disturbance of existing hazardous materials/wastes. No existing structures would be demolished or require major renovations, so no involvement with asbestos or metals-based paints would occur. No potential for accidental spills and/or operational activities that contain HTRW materials.	Ground disturbance in areas designated as active SWMUs/AOCs, or in LUCs that require permitting with the U.S. Navy. Surficial impact to a Superfund (NPL-listed) site Existing groundwater monitoring wells may require removal and replacement. Demolition of structures that contain asbestos or metals-based paints. Accidental spills may occur on occasion, and clean-up programs prevent creation of a new HTRW site.	Accidental spills and/or construction/operation activities that result in soil or groundwater contamination that requires designation of a new area as an HTRW site, that contaminates surface waters at a reportable level requiring cleanup, and/or that requires future monitoring activities. Construction activities involving major disturbances to a Superfund (NPL-listed) site.

4.15.2 No-Action Alternative

Under the No-Action Alternative, the Navy Base ICTF and River Center ICTF sites would be developed with land uses consistent with their zoning designations (M-1/M-2 and PDD, respectively). The No-Action Alternative considers the combined footprints of the other alternatives, and it assumes there will be development of all or most of those parcels. As a result, there would likely be impacts to each contaminated site identified for each alternative.

Significant portions of the former CNC are subject to a RCRA Hazardous Waste Permit (SC0 170 022 560), issued to the Navy by the SCDHEC. As part of any potential future development activities, there would be the potential for actions occurring within active SWMUs/AOCs and LUCs, which would be subject to the Navy's permitting process consistent with the Navy's document "Process to Conduct Construction Activities in areas under Land Use Controls at the Charleston Naval Complex, Revision 3" dated April 2007 (Process Document), as well as compliance with the existing SCDHEC VCC related to Parcels 10C, 11, 12, 13A, 13B, 14, 15, 17, 18, FLETC Area, Hospital Parcel, and the foreclosed properties addressed in the Haynsworth Tract B and C Phase I ESAs (Department of the Navy, 2007). The Process Document requires submittal and approval of a "Charleston Naval Complex LUC Area Construction Permit." The permits are intended to ensure: 1) proper protection of workers and the public, 2) reporting of discovery of any unknown contamination, 3) management of excess soil and groundwater, and 4) posting and use of on-site safety information. As part of the VCC, Palmetto Railways is required to comply with the Navy's permitting requirements for areas to be developed as part of the Proposed Project.

Special precautions are required to be used when excavating or dewatering during construction activities in areas that have LUCs and are part of the VCC. Excavation within these areas would need to be monitored, and water effluent managed as appropriate, to ensure that no new contamination may impact groundwater and/or surface waters, and to ensure that workers were properly protected from the presence of HTRW contaminants. There is the potential for both minor adverse and major adverse impacts; however, compliance with permitting requirements, and use of BMPs and spill prevention programs would minimize the potential for adverse impacts.

Development activities may require the removal of existing groundwater monitoring wells, and any affected wells would need to be relocated in order for the Navy to continue its monitoring program and reporting obligations. Future development activities may also require the demolition of structures that have been identified to contain, or would need to be tested for, asbestos and metals-based paints. Prior to demolition activities, projects would need to comply with all asbestos and metals-based paint testing, abatement, and worker protection standards such as the EPA's Asbestos National Emissions Standards for Hazardous Air Pollutants (NESHAP).

Lastly, businesses may store fuel on-site and store/use minor quantities of hazardous materials, such as lead batteries and cleaning solvents, and as a result, there is the potential for accidental spills of hazardous materials under the No-Action Alternative. Any potential ASTs and USTs would be provided with secondary containment in compliance with SCHDEC regulations, and the hazardous materials would be stored properly in compliance with RCRA, to minimize the potential for minor and/or major adverse impacts. Increased vehicular and rail traffic would likely contribute PAHs (e.g., grease from train and truck wheel bearings) and metals (e.g., from wearing of brake pads) to the nearby soil, and ultimately to the groundwater.

4.15.3 Alternative 1: Proposed Project (South via Milford / North via Hospital District)

The Project site contains large areas that are subject to LUCs and the VCC entered into between Palmetto Railways and SCDHEC. Construction of Alternative 1 (Proposed Project) must comply with the LUCs and with the VCC. The parcels of land making up the Project site, along with the adjacent parcels needed for railroad/road improvements (not including the Southern Alternatives area), include approximately eight contaminated sites that are undergoing active monitoring by the Navy. One site was also identified with contamination concerns that warranted further investigations. In addition, the proposed development of rail infrastructure for the southern rail connection (e.g., the Southern Alternatives Area) may impact an additional 14 sites that have a high risk of contamination involvement. Due to the proposed railway construction in the Hospital District, there would be an impact to the active groundwater monitoring site near Noisette Creek (AOC 721), which may include wells that would need to be relocated. Accordingly, there would be a concern about properly monitoring and addressing contaminated soil and dewatering effluent disposal.

The number of buildings with the potential to contain asbestos or metals-based paints within the ICTF site is approximately 88. In addition to the site itself, approximately 23 structures may need to be removed to accommodate the railway improvements for the northern and southern connection. This analysis assumes all buildings within the ICTF site and outside of the ICTF site have the potential to contain asbestos and/or metals-based paints.

The Corps anticipates that relatively low number of containers coming into the Navy Base ICTF would contain hazardous materials. As discussed in the FEIS for the Proposed Marine Container Terminal at the CNC (Corps 2006), and as documented by the South Carolina Ports Authority, the number of containers with hazardous materials coming into the Port terminals typically did not exceed 5 percent. Accordingly, it is estimated that approximately 5 percent of containers handled by the Navy Base ICTF would contain hazardous materials. The types of hazardous materials that could transit through the ICTF would be required to comply with all applicable regulations governing the identification, handling, and transport of hazardous materials.

4.15.3.1 Construction

Alternative 1 (Proposed Project) would require soil excavation to construct or rebuild roadways and railways and to construct facilities (such as buildings, work yards, and railyards, etc.) within the Project site. These excavation activities may involve contaminated soils. The study areas have been subject to numerous and extensive environmental studies and assessments; thus, the potential for the Project to encounter large quantities of previously-unknown buried or stored hazardous materials or hazardous wastes is considered unlikely. The Navy permitting process requires stoppage of work if discovery of unknown contamination occurs. As with other construction projects involving contaminated soils, the soils impacted by Alternative 1 (Proposed Project) would require testing and proper disposal at an approved facility if they exceed given regulatory thresholds.

For areas of deeper excavations, such as installation of stormwater infrastructure (the 4 dry detention ponds), foundation footers, roadway and rail pilings, and other deeper excavations, contaminated groundwater may be encountered, which would require proper disposal of the dewatering effluent. Provisions for addressing groundwater use restrictions and proper disposal of dewatering effluent are included in the "Charleston Naval Complex LUC Area Construction Permit" process described under the No-Action Alternative. The potential for Alternative 1 (Proposed Project) to have involvement with contaminated groundwater is probable; however, avoidance and minimization measures (such as avoiding excavation activities in known active sites and adherence to the Navy permitting process) would help to keep potential impacts to a minimum adverse impact. The Navy is currently conducting periodic groundwater monitoring at AOCs 569, 570, 578, 607, 728, and SWMUs 9 and 196, which would be impacted by the railroad infrastructure planned immediately northwest and south of the Project site. Thus, affected groundwater monitoring wells may need to be relocated.

For those buildings and other structures that would require demolition or significant renovations, NESHAP requires that asbestos and lead paint surveys be conducted. Any structures confirmed to contain asbestos and/or lead-based paint would need to be addressed according to the NESHAP prior to their renovation/demolition. Palmetto Railways may minimize the number of structures to be demolished in its design of the Navy Base ICTF; however, the aerial extent of the facility and the number of structures that would require demolition would not eliminate the need for demolition, nor avoid the potential interaction with structures that could contain asbestos and/or metals-based paints. As a result, impacts can be minimized, but some impacts are unavoidable. Demolition of structures and remediation activities would be considered a minor short-term adverse impact.

Similar to the No-Action Alternative, there is the potential for accidental spills during construction activities; however, use of BMPs and Spill Prevention Programs can minimize the adverse impact from these occurrences. The Applicant has committed to implement a Solid and Hazardous Waste Management Plan, SPCC plan, and comply with Resource Conservation and Recovery Act (RCRA) and SCDHEC requirements for storage and handling of hazardous and toxic wastes as a mitigation measure.

The Project site should have minimal involvement with the Macalloy Corporation Superfund Site. Other infrastructure, such as the future, approved Port Access Road, is planned for the Macalloy Corporation Superfund Site, but that work is not considered part of the Proposed Project.

4.15.3.2 Operation

Under Alternative 1 (Proposed Project), there would be limited potential for operational activities that could impact HTRW above and beyond those discussed under construction activities. The Corps assumes that Palmetto Railways may use ASTs to store diesel fuel for the yard trucks, and as a result, there is the potential for localized, minor spills of petroleum; however, implementation of a spill prevention program and placement of appropriate clean-up materials nearby would minimize any adverse spill. Increased vehicular and rail traffic would likely contribute PAHs (e.g., grease from train and truck wheel bearings) and metals (e.g., from wearing of brake pads) to the nearby soil, and ultimately to the groundwater. The levels of contaminants would be expected to be greater than those resulting from operations under the No-Action Alternative.

The presence of containers with hazardous materials may also result in accidental spills from handling or derailment; thus, the potential exists for minor and major (depending on spill location) adverse impacts from such an occurrence. To ensure the safest handling of hazardous materials there are mandated requirements for rail, roadway, and intermodal facilities. The transportation of hazardous materials is regulated by the U.S. Department of Transportation (USDOT), the U.S. Department of Homeland Security, the U.S. Transportation Security Administration, and the Federal

Railroad Administration (FRA), among others[87]. Railroads must register with the USDOT as a transporter of hazardous materials and follow the Hazardous Materials Transportation and Security Reauthorization Act of 2005[88], the federal law governing hazardous material shipments. All hazardous materials shipments must be loaded and described in compliance with the Association of American Railroads' (AAR) Intermodal Loading Guide[89], AAR's Instructions for Handling Hazardous Materials[90], and the USDOT Hazardous Materials Regulations (49 C.F.R. §§ 100–185). Class I railroads have adopted special operating practices for hazardous materials transport that often exceed regulatory requirements to help ensure these materials are shipped safely and securely. Hazardous materials containers will be handled according to industry standard. Use of BMPs, implementation of a Spill Prevention Program, involvement of emergency response (Hazmat) personnel, and compliance with all federal, state, and local spill control and response regulations in such circumstances will help mitigate the adverse impact. The Applicant has committed to implement a Solid and Hazardous Waste Management Plan, Spill Prevention, Controls, and Countermeasures (SPCC) Plan, and comply with Resource Conservation and Recovery Act (RCRA) and SCDHEC requirements for storage and handling of hazardous and toxic wastes as a mitigation measure (see Chapter 6, Mitigation). In addition, the Clean Water Act (33 U.S.C. § 1251 et seq.) and the Comprehensive Environmental Response, Compensation, and Liability Act (P.L. 96-510; 42 U.S.C. 9601 et seq.) require the notification and remediation for oil and hazardous material spills. These regulations require that all oil/hazardous material spills that produce a sheen on a body of water, is a threat to navigable waterways, or violate applicable water quality standards must be reported to the state and federal authorities (South Carolina Office of Environmental Quality Control and the National Response Center). Spills greater than 25 gallons on land must also be reported and remediated (EPA 2017).

4.15.4 Alternative 2: Proposed Project Site (South via Milford / North via S-line)

The footprint of the areas impacted by Alternative 2 is comparable to the footprint of those areas for Alternative 1 (Proposed Project), with the significant exception that the northern rail connection would connect to an existing railroad corridor along Spruill Avenue to the west of the Hospital District. Impacts to the Hospital District, as they relate to HTRW, would essentially be avoided, as discussed below.

[87] https://www.csx.com/index.cfm/about-us/safety/hazardous-materials1/

[88] 49 U.S. Code Chapter 51. https://www.csx.com/index.cfm/library/files/customers/safety-and-security/hazardous-materials/the-hazardousmaterials- transportation-and-security-reauthorization-act-of-2005/

[89] Intermodal Loading Guide for Products in Closed Trailers and Containers. Issued 07/01/2011. http://www.nsdirect.com/sites/default/files/kcfinder/files/AAR-intermodal-PDF.pdf

[90] Instructions for Handling Hazardous Materials – Intermodal Gate Operations. November 20, 2011

4.15.4.1 Construction

The environmental consequences of construction of the Navy Base ICTF under Alternative 2 would be similar to Alternative 1 (Proposed Project) with the following exceptions due to the alternative location of the northern rail connection:

- Involvement with the groundwater monitoring site located near Noisette Creek (AOC 721) would be avoided.
- The removal of approximately 26 structures to accommodate the northern rail connection, resulting in slightly more potential need for testing and/or abatement of asbestos and metals-based paints associated with these structures than Alternative 1 (Proposed Project).

4.15.4.2 Operation

The environmental consequences of operation of the Navy Base ICTF under Alternative 2 would be similar to those discussed under Alternative 1 (Proposed Project).

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

The footprint of the areas impacted by Alternative 3 is comparable to the footprint of those areas for Alternative 1 (Proposed Project), with the significant exception that the southern rail connection would connect with an existing railroad corridor in the area along Spruill Avenue, but north of Kingsworth Avenue. Impacts to the commercial and industrial areas south of Kingsworth Avenue, to as far south as Milford Street (i.e., the bulk of the Southern Alternatives Area), would essentially be avoided, as discussed below.

4.15.5.1 Construction

The environmental consequences of construction of the Navy Base ICTF under Alternative 3 would be similar to Alternative 1 (Proposed Project), with the following exceptions due to the alternative location for the southern rail connection:

- This alternative would affect only two of the 14 sites in the Southern Alternatives Area that pose a high risk of contamination involvement.
- Removal of approximately 25 structures to accommodate the northern and southern rail connection, resulting in slightly more potential need for testing and/or abatement of asbestos and metals-based paints associated with these structures than Alternative 1 (Proposed Project).

4.15.5.2 Operation

The environmental consequences of operation of the Navy Base ICTF under Alternative 3 would be similar to those discussed under Alternative 1 (Proposed Project).

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

From the perspective of involvement with contaminated or potentially contaminated properties, the footprint of the areas impacted by Alternative 4 is essentially the same as the footprint of those areas for Alternative 1 (Proposed Project). Therefore, the differences between Alternative 4 and Alternative 1 (Proposed Project) are negligible with respect to HTRW resources.

4.15.6.1 Construction

The environmental consequences of construction of the Navy Base ICTF under Alternative 4 would be similar to Alternative 1 (Proposed Project).

4.15.6.2 Operation

The environmental consequences of operation of the Navy Base ICTF under Alternative 4 would be similar to those discussed under Alternative 1 (Proposed Project).

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

The parcels of land making up the River Center project site and its associated infrastructure include approximately eight contaminated sites that are undergoing active monitoring. Two sites were also identified with contamination concerns that warranted further investigations. Review of the Phase I ESA for the 90.211-acre parcel identified only one REC within that tract (an indoor shooting range) and three nearby off-site RECs that are being assessed by the Navy. One of the three RECs would not be impacted by the River Center ICTF. The Phase I ESAs for the CMCI property and the Former Naval Hospital Property identified one on-site former underground tank facility with ongoing monitoring. Multiple SWMUs, AOCs, and fuel storage tank issues were present on the River Center project site, but all had received letters from SCDHEC of No Further Action. The rail lines south of the River Center project site and the proposed drayage road pass through or are in the nearby vicinity of AOCs 578, 607, 637, 654, 706, 728, 744, 747, and 753 and SWMUs 8, 9, 20, 24, 121, and 196. Of these, AOC 607 and SWMUs 9 and 196 are undergoing active groundwater monitoring. As with Alternative 1 (Proposed Project), Alternative 5 includes proposed development of railroad infrastructure in the southern area along Spruill Avenue, at Meeting Street Road, and as far south as Milford Street (the Southern Alternatives Area). Improvements to this southern area may be impacted by an additional 14 sites that have a high risk of contamination involvement.

The number of buildings with the potential to contain asbestos or metals-based paints within the River Center project site is approximately 33. Portions of the River Center project site are also subject to the LUCs, AULs, and Navy permitting process described above for the Project site. An additional approximately 14 buildings may need to be removed to accommodate the railway improvements to the south of the main site. The interaction with the Macalloy Superfund site under Alternative 5 would be limited in a similar fashion to Alternative 1 (Proposed Project), as only surface roads are planned in that area.

4.15.7.1 Construction

The potential for the River Center project site to have involvement with contaminated soils or contaminated groundwater is probable and similar to the Alternative 1 (Proposed Project) site. The potential for Alternative 5 to have involvement with asbestos and metals-based paints is less involved than Alternative 1 (Proposed Project) due to the River Center project site having fewer buildings with the potential of containing asbestos or metals-based paints.

The environmental consequences of construction of Alternative 5 would be similar to those discussed in Alternative 1 (Proposed Project), except that approximately 47 buildings would require demolition, with the associated concerns about asbestos and metals-based paints in the buildings.

4.15.7.2 Operation

The environmental consequences of operation of the Navy Base ICTF at the River Center project site would be similar to those discussed under Alternative 1 (Proposed Project).

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

The footprint of the areas impacted by Alternative 6 is comparable to the footprint of those areas for Alternative 5, with the exception that the southern rail connection would connect with an existing railroad corridor in the area along Spruill Avenue, but north of Kingsworth Avenue. Impacts to the commercial and industrial areas south of Kingsworth Avenue, to as far south as Milford Street (i.e., the bulk of the Southern Alternatives Area), would essentially be avoided, as discussed below.

4.15.8.1 Construction

The environmental consequences of construction of the Navy Base ICTF under Alternative 6 would be similar to those associated with Alternative 5, with the following exceptions due to the alternative location for the southern rail connection:

- This alternative would affect only two of the 14 sites in the Southern Alternatives Area that pose a high risk of contamination involvement.

- The need to remove approximately 16 structures to accommodate the southern rail connection, resulting in more potential need for testing and/or abatement of asbestos and metals-based paints associated with these structures than would be required with Alternative 5.

4.15.8.2 Operation

The environmental consequences of operation of the Navy Base ICTF under Alternative 6 would be similar to those discussed under Alternative 5 (and essentially the same as Alternative 1 [Proposed Project]).

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

From the perspective of involvement with contaminated or potentially contaminated properties, the footprint of the areas impacted by Alternative 7 is essentially the same as the footprint of those areas for Alternative 5. Therefore, the differences between Alternative 7 and Alternative 5 are negligible regarding HTRW resources.

4.15.9.1 Construction

The environmental consequences of construction of the Navy Base ICTF under Alternative 7 would be similar to Alternative 5.

4.15.9.2 Operation

The environmental consequences of operation of the Navy Base ICTF under Alternative 7 would be similar to those discussed for Alternative 5 and essentially the same as Alternative 1 (Proposed Project).

4.15.10 Related Activities

Related Activities with the potential to affect HTRW resources include the re-use and rebuilding of railroad infrastructure within existing CSX railroad ROWs, such as along Meeting Street Road, to the south and southeast of the main Project construction areas for all of the alternatives. The primary contamination impacts associated with the proposed re-use of railroad lines in the Related Activity areas of the Project would be the potential for involvement with soils having arsenic and BEQs contamination.

4.15.11 Summary of Impacts Table

Table 4.15-2 summarizes HTRW-related environmental consequences from Alternative 1 (Proposed Project) and all the alternatives, including the No-Action Alternative.

Table 4.15-2
Summary of Impacts, Hazardous, Toxic, and Radioactive Waste

Alternative	Number of contaminated sites	Number of buildings requiring demolition/ renovation	Contaminated Soil Impacts	Contaminated Groundwater Impacts	Superfund Sites Impacts	Asbestos-Containing Materials and Metals-Based Paints Impacts	Accidental Spills
No-Action	Eight active monitoring, two requiring investigation for a total of 10.	Unknown	Potential minor adverse impacts to soil (contami-nation) from excavation activities (after compliance with the Navy's permitting process, RCRA Permit #SC0 170 022 560 and all applicable laws for testing and disposal of contaminated soils). Ten known, active contamination sites have been identified in the areas associated with the No Action Alternative.	Potential minor adverse impacts to groundwater (contamination) from dewatering in excavation areas after compliance with the Navy's permitting process, RCRA Permit SC0 170 022 560, and all applicable laws for treatment and disposal of dewatering effluent.	Unknown	Potential minor adverse impact from demolition of structures with asbestos and/or metals-based paints (after survey and applicable abatement measures).	Potential for minor and/or major adverse impacts from accidental spills.

Alternative	Number of contaminated sites	Number of buildings requiring demolition/ renovation	Contaminated Soil Impacts	Contaminated Groundwater Impacts	Superfund Sites Impacts	Asbestos-Containing Materials and Metals-Based Paints Impacts	Accidental Spills
1: Proposed Project: South via Milford/ North via Hospital District	Eight active monitoring, 15 requiring investigation for a total of 23.	Approximately 107	Similar to the No-Action Alternative, but 14 more potentially contaminated sites would be impacted for a total of 24.	Similar to the No-Action Alternative; multiple areas with groundwater monitoring that would be impacted, and more potentially contaminated sites would be impacted than the No-Action Alternative	No anticipated involvement with the Macalloy Superfund Site	Similar to the No-Action Alternative; approximately 107 buildings affected	Potential for minor and/or major adverse impacts from accidental spills resulting from use of above-ground storage tanks (ASTs) (diesel fuel), storage of other minor amounts of solvents on the premises, and from containers containing hazardous materials.
2: South via Milford/ North via S-line	Eight active monitoring, 14 requiring investigation for a total of 22.	Approximately 114	Similar to Alternative 1 (Proposed Project)	Similar to Alternative 1 (Proposed Project)	Similar to Alternative 1 (Proposed Project)	Similar to Alternative 1 (Proposed Project) but with approximately 114 buildings to be impacted	Similar to Alternative 1 (Proposed Project)

Alternative	Number of contaminated sites	Number of buildings requiring demolition/ renovation	Contaminated Soil Impacts	Contaminated Groundwater Impacts	Superfund Sites Impacts	Asbestos-Containing Materials and Metals-Based Paints Impacts	Accidental Spills
3: South via Kingsworth/ North via Hospital District	Eight active monitoring, three requiring investigation for a total of 11.	Approximately 113	Similar to Alternative 1 (Proposed Project) but 13 fewer potentially contaminated sites would be impacted	Similar to the No-Action Alternative	Similar to Alternative 1 (Proposed Project)	Similar to Alternative 1 (Proposed Project) but with approximately 113 buildings to be impacted	Similar to Alternative 1 (Proposed Project)
4: South via Milford	Similar to Alternative 1 (Proposed Project)	Same as Alternative 1 (Proposed Project)	Similar to Alternative 1 (Proposed Project)	Similar to Alternative 1 (Proposed Project)	Similar to Alternative 1 (Proposed Project)	Same as Alternative 1 (Proposed Project)	Similar to Alternative 1 (Proposed Project)
5: River Center Project Site: South via Milford/ North via Hospital District	Eight active monitoring, 16 requiring investigation for a total of 24.	Approximately 47	Similar to Alternative 1 (Proposed Project) but fewer areas with existing groundwater contamination and monitoring wells	Similar to Alternative 1 (Proposed Project)	Similar to Alternative 1 (Proposed Project)	Similar to Alternative 1 (Proposed Project) with approximately 47 buildings to be impacted	Similar to Alternative 1 (Proposed Project)
6: River Center Project Site: South via Kingsworth/ North via Hospital District	Eight active monitoring, four requiring investigation for a total of 12.	Approximately 49	Similar to Alternative 5, but with 12 fewer potentially contaminated sites impacted	Similar to Alternative 5, but with 12 fewer potentially contaminated sites impacted	Similar to Alternative 5	Similar to Alternative 5, but with approximately 49 buildings to be impacted	Similar to Alternative 5

Alternative	Number of contaminated sites	Number of buildings requiring demolition/ renovation	Contaminated Soil Impacts	Contaminated Groundwater Impacts	Superfund Sites Impacts	Asbestos-Containing Materials and Metals-Based Paints Impacts	Accidental Spills
7: River Center Project Site: South via Milford	Similar to Alternative 5	Same as Alternative 5	Similar to Alternative 5	Similar to Alternative 5	Similar to Alternative 5	Same as Alternative 5	Similar to Alternative 5

4.15.12 Mitigation

4.15.12.1 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). These measures are taken from Palmetto Railways Mitigation Plan 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). Each mitigation measure is also designated as one that either helps to avoid an impact or one that minimizes an impact.

- Implement a Solid and Hazardous Waste Management Plan, SPCC plan and comply with RCRA and SCDHEC requirements for storage and handling of hazardous and toxic wastes. (Minimization)
- The Applicant is working with the U.S. Navy for long-term monitoring and removal of hazardous wastes. The following hazardous materials have already been removed from the intermodal site: 10,860 linear feet of fuel lines, 2,110 linear feet of natural gas lines, 4,570 linear feet of underground asbestos lines, 530 linear feet of asbestos stream lines, 980 square feet of transite panel, 96,150 gallons of product, and 206 cubic yards of asbestos containing materials. * (Minimization)
- Employ the use of oil-water separator at the locomotive shop and proper spill protection (e.g., spill kit, collector pans) for light duty repairs in the vicinity of the "repair in place" tracks to ensure treatment of any oily waste from on-terminal equipment maintenance activities. (Minimization)
- Inclusion of forebays in stormwater management system to provide pretreatment of stormwater runoff before it discharges to Pond A. (Minimization)
- Installation of additional water monitoring wells, in cooperation with SCDHEC and the Navy, will support ongoing reclamation of the site from U.S. Navy Operations. (Minimization)
- Perform all land and groundwater disturbance activities in compliance with the U.S. Navy Construction Process Document (Navy "Dig" Permit), included as part of its SCDHEC RCRA Hazardous Waste Permit, which identifies the permit process and requirements for conducting construction or other land disturbing activities in Land Use Control (LUC) areas at the former Navy Base (CNC. (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 HTRW is also provided in Chapter 6.

4.15.12.2 Additional Potential Mitigation Measures

No additional mitigation measures for Hazardous, Toxic, and Radioactive Waste are proposed 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).

4.16 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

4.16.1 Methods and Impact Definitions

Socioeconomic and Environmental Justice impacts were evaluated based on a comparison of existing community conditions in the study area to projected conditions during and after construction of Alternative 1 (Proposed Project) and the alternatives. Sources of information reviewed for this analysis include U.S. Census data, regional socioeconomic projections, and data from local mapping, plans, policies, and regulations. The analysis also considers observations from field visits as well as information received from scoping, interviews with local planners, community leaders, and citizens in an effort to document community resources along with community vision, values, and goals.

Adverse impacts to the community may occur if they disrupt community cohesion or stability, have detrimental effects on the economy of the area, result in a loss of community facilities, reduce mobility, increase emergency response times, or cause recurring impacts to neighborhoods impacted by previous projects. Impacts to Environmental Justice populations are considered significant if they are disproportionately high and adverse compared to the adverse effect that would be suffered by the non-minority and/or non-low-income population. A disproportionately high and adverse effect on minority and low-income populations means an adverse effect that:

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

A project may also have beneficial impacts to socioeconomic resources by providing employment opportunities for the local community and the region.