3.9 HISTORIC RESOURCES

Methodology

Section 106 of the National Historic Preservation Act (NHPA) of 1966 (as amended) (54 U.S.C. 306108) and its implementing regulations (36 CFR Part 800) require federal agencies to take into account the effects of their undertakings on "historic properties", defined as buildings, structures, sites, districts and objects, generally at least 50 years of age, that are listed on or eligible for listing on the National Register of Historic Places (NRHP). The Section 106 process is undertaken by federal agencies in consultation with the State Historic Preservation Officer (SHPO), who in Virginia is the director of the Virginia Department of Historic Resources (VDHR); the Advisory Council on Historic Preservation (ACHP), as appropriate; federally-recognized Indian tribes; representatives of local government; and other parties with a demonstrated interest in an undertaking (as identified in **Appendix D**).

The technical cultural resources studies undertaken to date in support of the Section 106 process for the HRCS are identified in **Appendix G**. These studies detail the results of VDOT's efforts thus far to identify the archaeological and non-archaeological, or "architectural" resources that might be affected by HRCS Alternatives A, B, C, and D and to assess the significance of these resources against the eligibility criteria of the NRHP (36 CFR Part 60.4).

Prior to undertaking the technical studies, an Area of Potential Effects (APE) was defined for each Build Alternative. The APE is the geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, and its size and shape is influenced by the scale and nature of an undertaking. For the HRCS, 500-foot-wide Study Area Corridors associated with each Build Alternative (along with expanded areas at the locations of potential interchange improvements) were defined which, for the purposes of Section 106, constituted the APE for direct effects on historic properties. In general, in undeveloped areas or in areas where alternatives cross water, the HRCS's APE for indirect effects (e.g., visual or auditory effects on historic setting) was defined as extending 500 feet beyond each side of the 500-foot Study Area Corridor. In developed areas where the Build Alternatives would involve improvements to existing highways, the indirect effects APE extends across tax parcels directly abutting the 500-foot Study Area Corridor and across any parcels immediately adjacent to the abutting properties.

The 500-foot Study Area Corridors used in the cultural resources technical studies were recognized as so-called "worst-case scenarios" for direct impacts. As work on this SEIS proceeded, more realistic and commonly narrower LOD were delineated for each alternative based on early preliminary engineering. In some locations, early preliminary engineering resulted in a modification to the alignment of the 500-foot Study Area Corridor associated with a Build Alternative, or a LOD wider than the original Study Area Corridor. As of the publication of this Draft SEIS, the cultural resources technical studies had not been updated to address all of these changes, but VDOT will revise the technical studies accordingly, re-coordinate them with the SHPO and other consulting parties to the Section 106 process, and incorporate the findings into the Final SEIS.

3.9.1 Architectural Resources

The results of field surveys and archival research undertaken for the purposes of identifying architectural historic properties within the direct and indirect effects APEs for the four Build Alternatives are detailed in the technical report titled *Architectural Survey: Management Summary* (April 2016). These results

were coordinated with the SHPO, who concurred on April 28, 2016, that there are 20 architectural resources within the direct or indirect APEs associated with the four Build Alternatives either already listed on the NRHP or eligible for listing on the NRHP. For the purposes of applying the requirements of Section 106 of the NHPA to the HCRS, FHWA and VDOT are assuming that seven additional architectural resources within the APEs are eligible for listing on the NRHP. Documentation on one additional architectural resource within the HRCS LOD – the Former Nansemond Ordinance Depot in the City of Suffolk -- remains to be assessed against NRHP eligibility criteria and coordinated with the SHPO and other consulting parties. In VDOT's opinion it is unlikely that this resource will prove eligible for listing on the NRHP.

Table 3-51 lists the 27 architectural historic properties identified to date and notes whether they are contained within the direct or indirect effects APE or the LOD for each of the four Build Alternatives. The acreage of land within the LOD for each alternative is listed in **Table 3-52**. This acreage is based on the identified National Register boundary or National Register eligible boundary for historic properties. For historic districts, all area within the historic district boundary was included in the acreage value, regardless of whether the area was considered a contributing element of the district. Historic properties are mapped in **Figures 3-15a – 3-15f** and historic battlefields are shown on **Figure 3-16**.

Table 3-51: Resources Listed On, Eligible for, or Recommended Eligible for Listing on the NRHP

VDHR #	City	Resource	NRHP Eligibility Status	SEIS Alternative	Direct APE	Indirect APE	LOD
114-0002	Hampton	Fort Monroe	NHL 1960; NRHP-Listed 1966	A, B, & D		Yes	
114-0006	Hampton	Hampton Institute Historic District[1]	NRHP Listed 1969; NHL 1974; NHL Boundary Revised 1976	A, B, & D	Yes	Yes	Yes
114-0021	Hampton	Old Point Comfort Lighthouse	NRHP-Listed 1973	A, B, & D		Yes	
114-0041	Hampton	Fort Wool	NRHP-Listed 1969	A, B, & D		Yes	
114-0101	Hampton	Hampton Veterans Affairs Medical Center Historic District	NRHP-Eligible 1981	A, B, & D	Yes	Yes	
114-0114	Hampton	Chamberlin Hotel	NRHP-Listed 2007	A, B, & D		Yes	
114-0118	Hampton	Pasture Point Historic District	NRHP-Listed 2012	A, B, & D		Yes	
114-0148	Hampton	Hampton National Cemetery	NRHP-Listed 1996	A, B, & D		Yes	

VDHR #	City	Resource	NRHP Eligibility Status	SEIS Alternative	Direct APE	Indirect APE	LOD
114-0155	Hampton	Elmerton Cemetery	Recommended Potentially Eligible 2016	A, B, & D		Yes	
114-5002	Hampton	Phoebus–Mill Creek Terrace Neighborhood Historic District	NRHP-Listed 2006	A, B, & D	Yes	Yes	Yes
114-5471; VA008	Hampton	Battle of Hampton Roads	NRHP-Eligible 2007	A, B, C, & D	Yes	Yes	Yes
114-5600	Hampton	Hampton Coliseum	Recommended Potentially Eligible 2016	A, B, C, & D	Yes	Yes	
121-0032	Newport News	St. Vincent de Paul Catholic Church	NRHP-Listed 2005	C & D		Yes	
121-0033	Newport News	Brown Manufacturing Coca-Cola Bottling Works, Daily Press Building	Recommended Potentially Eligible 2016	C & D		Yes	
121-0157	Newport News	Peninsula Catholic High School/St. Vincent's School for Girls	Recommended Potentially Eligible 2016	C & D	Yes	Yes	
121-0299	Newport News	Noland Company Building	NRHP-Listed 2010	C & D	Yes	Yes	
122-0410	Norfolk	Norfolk Naval Base Historic District	Portions Considered NRHP-Eligible by Commander Navy Region Mid-Atlantic	A, B, C, & D	Yes	Yes	
122-0531	Norfolk	Forest Lawn Cemetery	NRHP-Eligible 2012	A, B, & D	Yes	Yes	
122-0954	Norfolk	Ocean View Elementary School	NRHP-Eligible 1998	A, B, & D		Yes	
122-5045	Norfolk	Norfolk Naval Base Golf Club Historic District	NRHP-Eligible 1997	B, C, & D	Yes	Yes	
122-5426; VA001	Norfolk	Battle of Sewell's Point	NRHP-Eligible 2007	A, B, C, & D	Yes	Yes	Yes

VDHR #	City	Resource	NRHP Eligibility Status	SEIS Alternative	Direct APE	Indirect APE	LOD
122-5434	Norfolk	Merrimack Landing Apartment Complex/ Merrimack Park Historic District	NRHP-Eligible 2012	A, B, & D		Yes	
122-5930	Norfolk	Willoughby Elementary School	Recommended Potentially Eligible 2016	A, B, & D		Yes	
124-5267	Portsmouth	Battle of Craney Island	NRHP-Eligible (ABPP 2007)	B, C, & D	Yes	Yes	Yes
131-5325	Chesapeake	Sunray Agricultural Historic District	NRHP-Listed 2007	C & D		Yes	
Not assigned	Hampton, Newport News, Norfolk, Portsmouth, Suffolk	Captain John Smith Chesapeake National Historic Trail	Assumed Eligible for the Purposes of this Study	A, B, C, & D	Yes	Yes	Yes
Not assigned	Hampton, Newport News, Norfolk, Portsmouth, Suffolk	Washington-Rochambeau Revolutionary Route National Historic Trail	Assumed Eligible for the Purposes of this Study	A, B, C, & D	Yes	Yes	Yes

[1]*Includes both the Hampton Institute Historic District and the Hampton Institute National Historic Landmark.*

Table 3-52: Acreage of Architectural Historic Properties Located within the Limits of Disturbance

Historic Property	Alt. A	Alt. B	Alt. C	Alt. D
Fort Monroe (VDHR #114-0002)	0.0	0.0	0.0	0.0
Hampton Institute Historic District (VDHR #114-0006)	1.1	1.1	0.0	1.1
Old Point Comfort Lighthouse (VDHR #114-0021)	0.0	0.0	0.0	0.0
Fort Wool (VDHR # 114-0041)	0.0	0.0	0.0	0.0
Hampton Veterans Affairs Medical Center Historic District (VDHR #114-0101)	0.0	0.0	0.0	0.0
Pasture Point Historic District (VDHR #114-0118)	0.0	0.0	0.0	0.0
Chamberlin Hotel (VDHR #114-0114)	0.0	0.0	0.0	0.0
Hampton National Cemetery (VDHR #114-0148)	0.0	0.0	0.0	0.0
Phoebus–Mill Creek Terrace Neighborhood Historic District (VDHR #114-5002)	0.7	0.7	0.0	0.7

Historic Property	Alt. A	Alt. B	Alt. C	Alt. D
Battle of Hampton Roads (VDHR #114-5471; VA008)	156.8	337.8	720.3	801.0
St. Vincent de Paul Catholic Church (VDHR #121-0032)	0.0	0.0	0.0	0.0
Noland Company Building (VDHR #121-0299)	0.0	0.0	0.0	0.0
Norfolk Naval Base Historic District (VDHR #122-0410)[1]	29.4	46.7	60.0	46.7
Forest Lawn Cemetery (VDHR # 122-0531)	0.0	0.0	0.0	0.0
Ocean View Elementary School (VDHR #122-0954)	0.0	0.0	0.0	0.0
Norfolk Naval Base Golf Club Historic District (VDHR #122-5045)	0.0	0.0	0.0	0.0
Battle of Sewell's Point (VDHR #122-5426; VA001)	130.2	136.5	6.3	136.5
Merrimack Landing Apartment Complex/Merrimack Park Historic District (VDHR #122-5434)	0.0	0.0	0.0	0.0
Sunray Agricultural Historic District (VDHR #131-5325)	0.0	0.0	0.0	0.0
Elmerton Cemetery (VDHR #114-0155)	0.0	0.0	0.0	0.0
Hampton Coliseum ((VDHR #114-5600)	0.0	0.0	0.0	0.0
Brown Manufacturing Coca-Cola Bottling Works, Daily Press Building (VDHR #121-0033)	0.0	0.0	0.0	0.0
Peninsula Catholic High School/St. Vincent's School for Girls (VDHR #121-0157)	0.0	0.0	0.0	0.0
Willoughby Elementary School (VDHR #122-5930)	0.0	0.0	0.0	0.0
Battle of Craney Island (VDHR #124-5267)	0.0	6.7	6.7	6.7
Captain John Smith Chesapeake National Historic Trail (VDHR # Not assigned)[2]	0.0	0.0	0.0	0.0
Washington-Rochambeau Revolutionary Route National Historic Trail (VDHR # Not assigned)[2]	0.0	0.0	0.0	0.0

1. The Navy does not recognize the entirety of this district as NRHP-eligible. Instead it recognizes four discontiguous smaller historic districts as NRHP-eligible, none of which is located within the HRCS LOD.
2. the NRHP boundaries of this resource have not been determined.

Figure 3-15a: Historic Properties

Figure 3-15b: Historic Properties

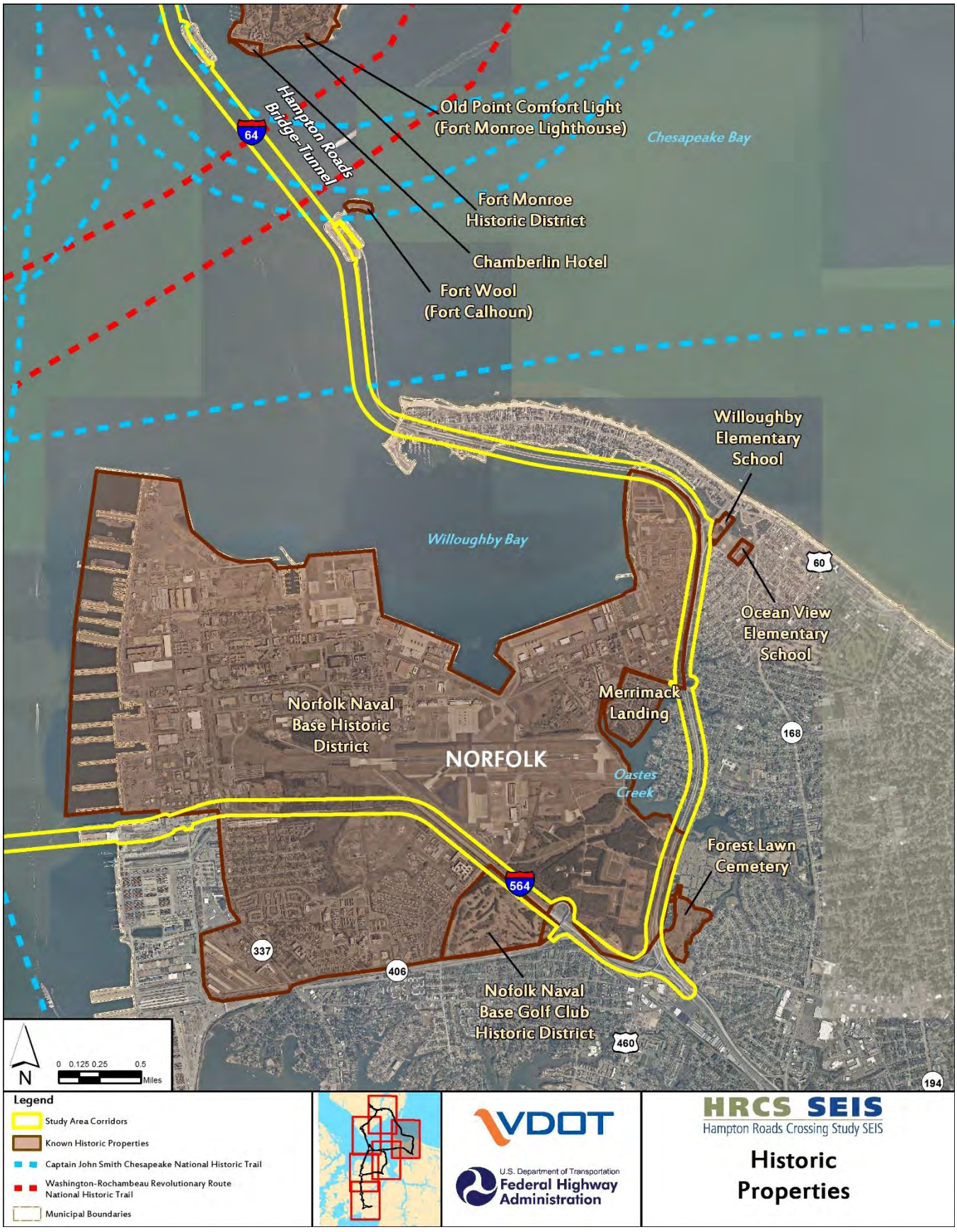

Figure 3-15c: Historic Properties

Figure 3-15d: Historic Properties

Figure 3-15e: Historic Properties

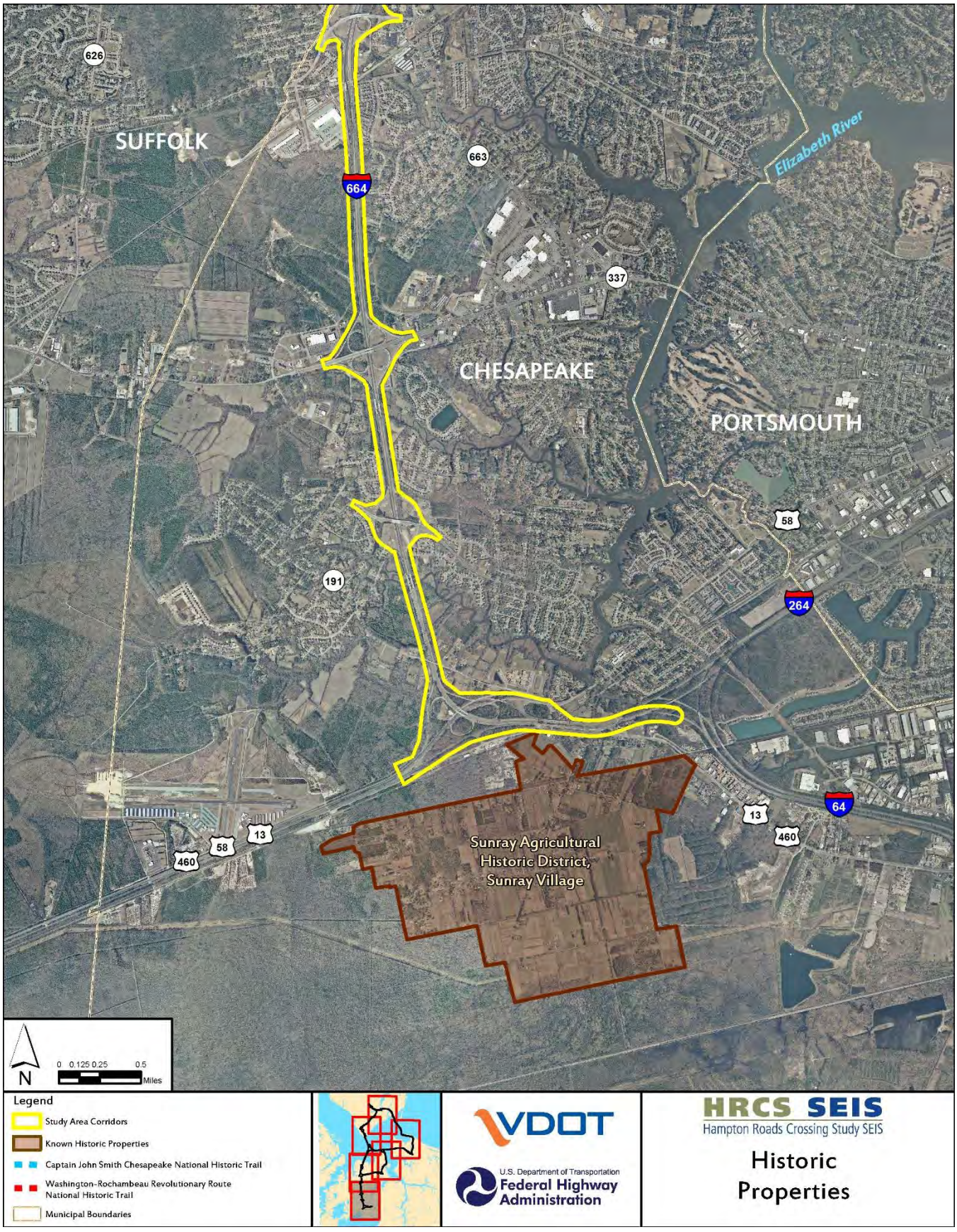

Figure 3-15f: Historic Properties

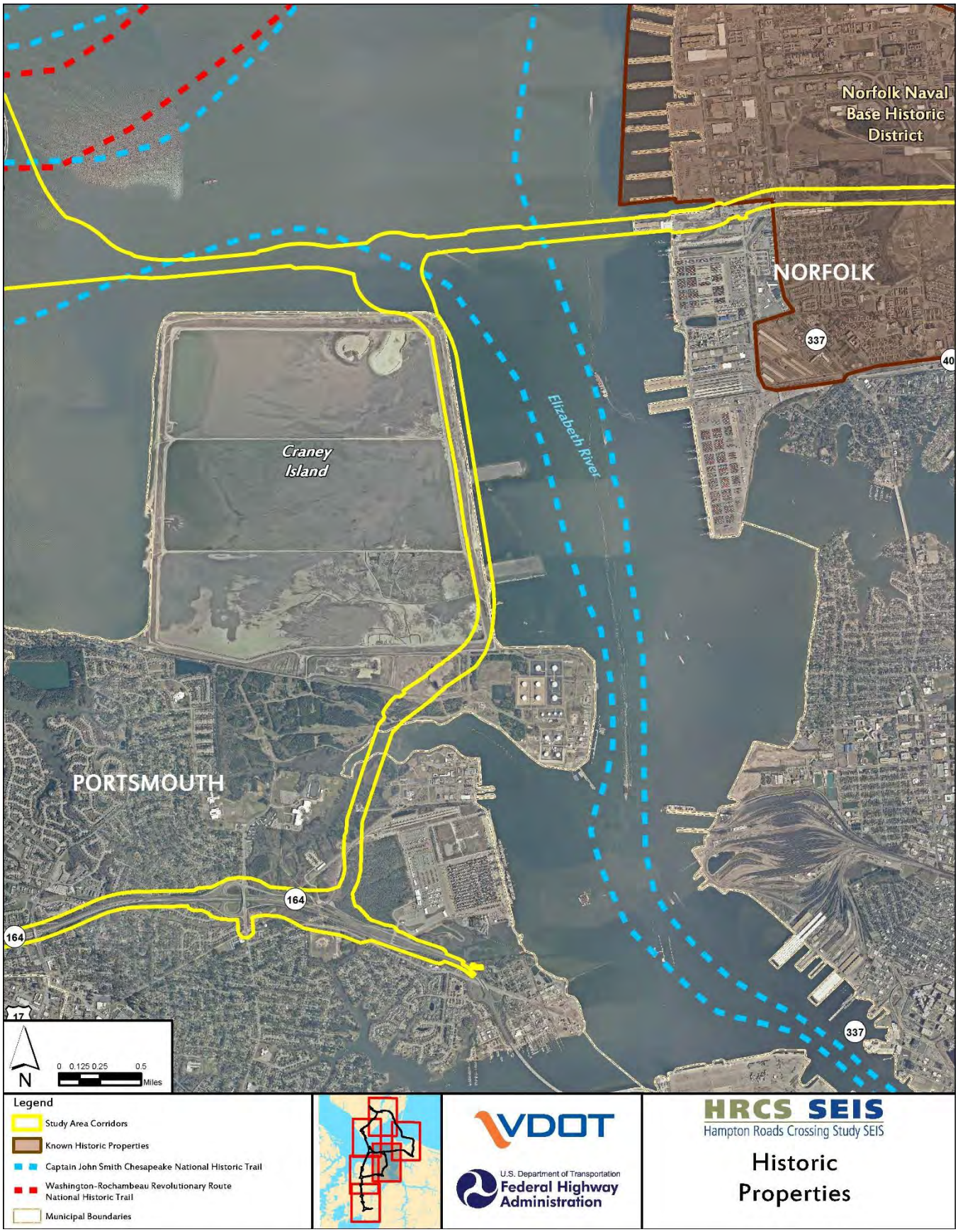

Figure 3-16: Historic Battlefields

Environmental Consequences

In accordance with the requirements of Section 106 of the NHPA, VDOT has considered how the four proposed Build Alternatives might affect the 27 architectural (above-ground) historic properties located within the direct and indirect Area of Potential Effects. Under the regulations implementing Section 106, an "effect" is an "alteration to the characteristics of a historic property qualifying it for the National Register" [36 CFR §800.16(i)]. An effect is adverse when it alters a qualifying characteristic of the property "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)]. The assessments of effect presented below are only preliminary and have not been coordinated with the SHPO and other consulting parties. As design and engineering of the Build Alternatives advances, these preliminary assessments will be taken into account and efforts will be made to avoid or minimize any adverse effects. These efforts will be undertaken in consultation with the SHPO and other consulting parties to the Section 106 process, who will also be provided the opportunity to comment on final determinations of effect.

Fort Monroe (VDHR #114-0002), located in Hampton southeast of the community of Phoebus and east of the HRBT, was conceived as an element of the Third System of coastal defenses outlined by Congress in the aftermath of the War of 1812. The facility guarded the navigational channel between Hampton Roads and Chesapeake Bay. The property, which includes a seven-sided stone fort, was designated a National Historic Landmark (NHL) in 1960 because of its historical significance and the integrity of the associated architecture. The property was listed on the NRHP in 1966. In 1973, the Secretary of the Interior expanded the boundary of the NHL district to include the entirety of Fort Monroe within the floodwall, and in 2011 President Obama designated approximately 325 acres of the property a National Monument within the National Park Service system. Fort Monroe lies outside the direct effects APEs associated with Alternative A, B, and D. The indirect APEs associated with these alternatives were specifically extended to include the historic property; however, all transportation improvements in the vicinity of Fort Monroe proposed under these alternatives will be constructed on the west side of and in close proximity to the existing HRBT infrastructure. Thus, the proposed improvements should not alter any of the characteristics that contribute to the significance of Fort Monroe, including any features of its viewshed that may still contribute to its historic setting. The *HRCS Noise Analysis Technical Report* (2016: Table 4-2, CNE AX; Figure 4-1, Sheet 9) predicts that under both the No-Build and the Build Alternatives 2040 noise levels would increase only slightly over existing levels in areas of Fort Monroe immediately east of proposed above-water improvements to the west end of the HRBT. Existing noise levels are 55-58 dBA L_{eq}. Under the No-Build, 2040 noise levels are predicted to be 56-59 dBA L_{eq}, while under Alternatives A and B and Alternative D they are predicted to be 57-59 dBA L_{eq} and 56-59 dBA L_{eq}, respectively.

Hampton Institute Historic District (VDHR #114-0006) is located near the mouth of the Hampton River immediately southwest of Interstate 64 on approximately 201 acres now associated with Hampton University. The district was listed on the NRHP in 1969 under Criteria A and C for its importance in history and its architecture. A smaller area of about 15 acres that includes only the core historic buildings associated with the Institute and the Emancipation Oak was designated a National Historic Landmark in 1974.

The roots of the first historically African-American college in the country are associated with the "Grand Contraband Camp" established to house slaves who had escaped bondage to reach Fort Monroe after Union Major General Benjamin Butler in 1861 declared that escaped slaves reaching Union lines would

be considered contrabands of war. Mary Peake, a free Negro, was enlisted to teach the refugee slaves in this community and held her first class under a Live Oak (*Quercus virginiana*). That tree still stands on the Hampton University grounds and is now known as the Emancipation Oak because it was the site of the first reading of the Emancipation Proclamation in the South in 1863. In 1868, Brigadier General Samuel Armstrong, Superintendent of the Freedmen's Bureau of the Ninth District of Virginia, using funds acquired from the American Missionary Association, established the Hampton Normal and Agricultural Institute to train Negro youth. A program of Native American education ran at the Normal School from 1878 to 1923. Following an expansion of the school's curriculum to meet college requirements, Hampton Normal and Agricultural Institute became Hampton Institute in 1930. In 1984, following continued growth and development, Hampton Institute was renamed Hampton University.

Both the direct and indirect effects APEs associated with Alternatives A, B, and D extend into the boundaries of the ca. 201-acre NRHP-eligible historic district. The Emancipation Oak lies within the direct effects APEs of these alternatives, but outside the HRCS LOD. All other portions of the historic educational institution designated as a NHL lie outside the direct and indirect effects APEs. The proposed improvements minimize encroachment on the property by the use of a retaining wall, but Alternatives A, B, and D would still involve direct impacts to 1.1 acres within the NRHP property boundaries along narrow strips of ground adjacent to I-64, primarily south of the University baseball field.

In 2012, in relation to its transportation study of the HRBT, VDOT enlisted a certified arborist and tree risk assessor to conduct a condition assessment and site survey of the Emancipation Oak for the purpose of setting construction restrictions with a minimum Tree Limit of Disturbance (Tree LOD) boundary. The arborist defined the Tree LOD along the eastern or I-64 side of the open area containing the oak as the line of an existing chain link fence that runs between a row of loblolly pines and the interstate. In the vicinity of the Emancipation Oak, the proposed HRCS LOD does not breach the Tree LOD, involves no encroachment on University property, and maintains the existing highway right-of-way line along the existing I-64 access ramp directly east of the tree. However, as recommended by the arborist in 2012, during any construction within the existing interstate right-of-way in this area, the Tree LOD and the Emancipation Oak itself should be monitored because existing trees surrounding the oak contribute to its current condition by creating a micro climate, including shading, wind protection, moisture distribution, and nutrients from fallen leaves, to which the oak has acclimated.

Proposed highway improvements associated with Alternatives A, B, and D should have no adverse effect on Hampton Institute Historic District. Because these alternatives involve proposed improvements to an existing interstate highway, with minimal encroachment on the district boundaries and no direct impacts to any structures within the district, or the Emancipation Oak, none of the alternatives would result in a diminishment of the integrity of the historic setting of the property. The results of the *HRCS Noise Analysis Technical Report* (2016: Table 4-2, CNE AQ, CNE AR; Figure 4-1, Sheet 7) also indicate no diminishment of the existing historic setting of the property due to traffic noise from Alternatives A, B, and D. Existing noise levels within two defined Common Noise Environment (CNE) areas within Hampton Institute are 61-70 and 70-74 dBA L_{eq}, respectively. Predicted 2040 levels are 62-71 and 71-75 dBA L_{eq} under the No-Build, 62-70 and 71-75 dBA L_{eq} under Alternatives A and B, and 61-70 and 71-75 dBA L_{eq} under Alternative D.

Reconsideration of this preliminary assessment of effect may be warranted once further research into the significance of a structure located just west of Interstate 64 on the south side of the upper reaches of Jones Creek has been completed. The proposed HRCS LOD would be approximately 40 feet closer to

this structure than the existing edge of pavement on Interstate 64 and would remove an existing row of trees between the structure and the interstate. Twentieth-century aerial photographs indicate that the immediate setting of this structure has been substantially changed since mid-century, but the manner in which the building contributes to the significance of the Hampton Institute Historic District needs to be better understood in order to properly assess the potential effect of the HRCS in this area of the historic property.

Old Point Comfort Lighthouse (VDHR #114-0021), located within the current bounds of Fort Monroe on Fenwick Road, was constructed at the southern edge of Old Point Comfort at the northern entrance to the Hampton Roads harbor. The lighthouse was constructed in 1802 and is the second oldest lighthouse on the Chesapeake Bay. The Old Point Comfort Lighthouse was listed on the NRHP in 1973 under Criteria A and C. The lighthouse lies roughly 3,000 feet northeast of the HRBT and is well outside the direct effects APEs associated with Alternative A, B, and D. The indirect effects APEs associated these alternatives were specifically extended to include the historic property; however, all transportation improvements proposed under these alternatives will be constructed on the west side of and in close proximity to the existing HRBT infrastructure and should not alter any of the characteristics that contribute to the significance of Old Point Comfort Lighthouse, including any features of its viewshed that may still contribute to its historic setting. As discussed elsewhere in this section in reference to Fort Monroe and Fort Wool, the lighthouse should experience little to no increase in traffic noise levels under the HCRS Build Alternatives.

Fort Wool (VDHR #114-0041) was listed on the NRHP in 1969 under Criteria A and C for its military significance and architecture. Construction of Fort Wool was initiated in 1819 as part of a coastal fortification plan and the fort played a role in the defense of Hampton Roads during the Civil War, World War I, and World War II. The fort is located on a 15-acre island constructed of granite blocks approximately one-mile south of Fort Monroe and immediately east of the eastern entrance to the west-bound HRBT tunnel. Despite its proximity to the existing HRBT, Fort Wool lies outside the direct effects APEs associated with Alternatives A, B, and D. The indirect effects APEs associated these alternatives were specifically extended to include the historic property; however, all transportation improvements proposed under these alternatives will be constructed on the west side of and in close proximity to the existing HRBT infrastructure and should not alter any of the characteristics that contribute to the significance of Fort Wool, including any features of its viewshed that may still contribute to its historic setting. The *HRCS Noise Analysis Technical Report* (2016: Table 4-2, CNE AY; Figure 4-1, Sheet 10) predicts under both the No-Build and the Build Alternatives 2040 noise levels would increase only slightly over existing levels on Fort Wool. Existing noise levels are 56-56 dBA L_{eq}. Under the No-Build Alternative and Alternatives A, B, and D they are predicted to be 57-57 dBA L_{eq}.

Hampton Veterans Affairs Medical Center Historic District (VDHR #114-0101) is located west of I-64 near Mallory Street in Hampton and comprises approximately 266 acres of land on a peninsula immediately south of Hampton University. The historic district is owned and managed by the US Department of Veterans Affairs. The hospital began operations in 1872 and is the fourth oldest military-run hospital in the country. The Hampton Veterans Affairs Medical Center Historic District is a complete medical complex with 82 resources on the campus, 34 of which contribute to the historic district. The Historic District was determined eligible for listing on the NRHP by the Keeper of the National Register in 1981 under Criteria A and C. The indirect effects APEs for Alternatives A, B, and D extend into the medical center property and in one small section each, the direct effects APEs for these alternatives just barely

overlaps the historic property boundary. The proposed HRCS LOD does not extend into the historic property boundaries. In the vicinity of the medical center the LOD is, for the most part, is contained within the footprint of existing highway infrastructure (e.g., I-64 access ramps). The *HRCS Noise Analysis Technical Report* (2016: Table 4-2, CNE AS; Figure 4-1, Sheet 7) found that the small changes to existing noise levels (60-60 dBA L_{eq}) predicted to occur within the historic property under Alternatives A, B, and D (61-61 dBA L_{eq}) are no different that the level predicted for the No-Build Alternative (61-61 dBA L_{eq}). For these reasons, Alternatives A, B, and D should have no effect on the historic property.

Chamberlin Hotel (VDHR #114-0114), constructed in 1928, is located at #2 Fenwick Road within the bounds of Fort Monroe and was listed on the NRHP in 2007 under Criterion C for its architecture. Architect Marcellus Wright's building design reflects the colonial heritage of the Peninsula as well as the influence of prominent early twentieth-century Beaux-Arts architects of the firm Warren and Wetmore. The Chamberlin served primarily as a resort hotel but also accommodated WWII officers and their families in the 1940s. The building is nine stories tall, U-shaped, and fronts on the Hampton Roads. The Chamberlain is located approximately 650 feet northeast of the island at the west entrance to the HRBT, outside the direct effects APEs associated with Alternatives A, B, and D. The indirect effects APEs associated with these alternatives were specifically extended to include the historic property; however, all transportation improvements proposed under these alternatives will be constructed on the west side of and in close proximity to existing HRBT infrastructure and should not alter any of the characteristics that contribute to the significance of Chamberlain Hotel, including any features of its viewshed that may still contribute to its historic setting. The findings of the *HRCS Noise Analysis Technical Report* (2016) discussed earlier in this section in reference to Fort Monroe indicate that only a very small increase above existing noise levels would occur under Alternatives A, B, and D, and these levels would not differ appreciably from those predicted for the No-Build Alternative.

Pasture Point Historic District (VDHR #114-0118) is a late nineteenth/early twentieth century neighborhood located north of the central business district in Hampton and listed on the NRHP in 2012 under Criterion A as an example of an early suburb driven by local transportation developments. The district is also eligible under Criterion C as a collection of significant residential architectural styles with characteristic urban design composition and grid pattern street layout. The period of significance is 1885-1938 when streetcars and trolleys dominated local transportation. While both the direct and indirect effects APEs for Alternatives A, B, and D extend into the historic district boundaries, the proposed HRCS LOD is restricted to existing I-64 right-of-way and does not encroach on the district.

Considering that all improvements proposed under these alternatives are to an existing interstate highway which, for the most part is 100 or more feet from the district, Alternatives A, B, and D should not alter or diminish any of the characteristics that contribute to the significance of the historic property, including any features of its viewshed that may still contribute to its historic setting. The *HRCS Noise Analysis Technical Report* (2016: Table 4-2, CNE AJ; Figure 4-1, Sheet 5) found that the small changes to existing noise levels (58-68 dBA L_{eq}) predicted to occur within the historic property under Alternatives A, B, and D (59-69 dBA L_{eq}) are no different that the levels predicted for the No-Build Alternative (59-69 dBA L_{eq}). The noise technical study also indicated that construction of a noise barrier along the south edge of the I-64 right-of-way in the vicinity of the Pasture Point Historic District would be feasible and reasonable, and would benefit the single family residences within the district and other receptors nearby by an average noise reduction of 8.3 decibels. The potential noise barrier would be 15 feet high for sections on structure and 20 feet high for those on the ground (for comparison, the average height of a tractor trailer

is on the order of 14 feet). The historic setting along the north side of the Pasture Point Historic District has already been greatly altered by existing I-64, and the potential addition of a noise barrier in this location should not further degrade the district's setting, provided the aesthetic features of the barrier (e.g., color) are designed to be compatible with the historic property.

Hampton National Cemetery (VDHR #114-0148) is presently comprised of two noncontiguous parcels. The older portion of the cemetery, established in 1866, is located roughly 0.25 mile west of I-64 and outside of the direct and indirect APEs for Alternatives A, B, and D. The Phoebus Section, purchased in 1891, is located on Cemetery Road at Marshall Avenue east of I-64. One corner of the Phoebus Section parcel directly abuts the I-64 highway right-of-way. Hampton National Cemetery was listed on the NRHP in 1996 under Criterion A with a period of significance of 1866 to 1940, and is included in the Multiple Property Document *Civil War Era National Cemeteries.* While the direct and indirect effects APEs for Alternatives A, B, and D extend into the Phoebus Section of the cemetery, the proposed HRCS LOD on the east side of I-64 in the vicinity of the cemetery maintains the existing interstate right-of-way line. Considering that all improvements proposed under Alternatives A, B, and D are to the existing roadway, these alternatives should have no effect on any of the characteristics that presently contribute to the historic significance of the cemetery, including any features of its viewshed that may still contribute to its historic setting. The *HRCS Noise Analysis Technical Report* (2016: Table 4-2, CNE AT; Figure 4-1, Sheet 7) supports this finding. Existing noise levels measured within the Phoebus Section are 59-75 dBA L_{eq}; predicted 2040 noise levels under the No-Build Alternative, Alternatives A and B, and Alternative D are 60-76, 60-76, and 59-76 dBA L_{eq}, respectively.

Elmerton Cemetery (VDHR #114-0155), located in Hampton along N. King Street, is recommended potentially eligible for listing on the NRHP and this study assumes it is eligible for the purposes of applying the requirements of Section 106 of the NHPA to the HRCS. The assumed historic property boundaries define a property measuring roughly 475 feet by a maximum of roughly 400 feet. The cemetery contains the grave of Mary S. Peake, the first African-American teacher of free blacks at Fort Monroe, and has been a burial ground for African-Americans since the Emancipation Proclamation. The cemetery lies just outside the direct effects APEs for Alternatives A, B, and D, but within the indirect effects APEs. The proposed HRCS LOD in this area of these alternatives is confined to the existing I-64 highway right-of-way limits. Thus, Alternatives A, B, and D should have no effect on any of the characteristics that presently contribute to the historic significance of the cemetery, including any features of its viewshed that may still contribute to its historic setting. All of Elmerton Cemetery lies outside the 66 dBA L_{eq} noise contour modeled under the *HRCS Noise Analysis Technical Report* (2016: Figure 4-1, Sheet 5) for the loudest Build Alternative in each area. Cemeteries are defined as Category C land uses under FHWA's noise abatement criteria. For Category C properties, a noise impact is assumed to occur when predicted exterior noise levels approach or exceed 67 dBA L_{eq}.

Phoebus–Mill Creek Terrace Neighborhood Historic District (VDHR #114-5002) is situated in the City of Hampton along Mill Creek. The community was formally incorporated in 1874 when it was named Chesapeake City. In 1900 the name was changed to Phoebus, in honor of Harrison Phoebus, who developed the well-known Hygeia Hotel as a resort adjacent to the town. The town is laid out in a gridiron pattern that was developed in 1874 upon incorporation. The area developed as a stopover point between Hampton and Norfolk due to its close proximity to Old Point Comfort and the ferry crossing. The historic district was listed on the NRHP in 2006 under Criteria A and C for its development as a town in Elizabeth City County (later annexed to the City of Hampton in 1952) during the fourth quarter of the nineteenth

century and for its town planning and architectural character from the period 1874 to 1957, when the HRBT opened.

The southwest border of the district boundary extends in places to the eastern side of I-64 right-of-way and the direct and indirect effects APEs associated with Alternatives A, B, and D extend into the district. The HRCS LOD extends a maximum of approximately 50 feet into the district at Mallory Street, at the west end of South Hope Street, west of the 100 block of Segar Street, and along a portion of National Avenue; however, the LOD does not extend into any of the tax parcels associated with buildings considered contributing elements of the historic district. It appears that the structure (VDHR # 114-5002-0241) at 121 National Avenue would need to be demolished to construct Alternatives A, B, and D, but this ca. 1960 VDOT administration building is not considered a contributing element of the historic district. A noise barrier presently runs between the shoulder of the I-64 travel lanes and the southwest border of the district boundary; the barrier is expected to remain under the Build Alternatives. The *HRCS Noise Analysis Technical Report* (2016: Table 4-2, CNE AW; Figure 4-1, Sheet 8) found that the small changes to existing noise levels (52-67 dBA L_{eq}) predicted to occur within the historic district under Alternatives A, B, and D (53-68 dBA L_{eq}) are no different than the changes predicted under the No-Build Alternative (53-68 dBA L_{eq}). In light of these considerations, and the fact that Alternatives A, B, and D only involve changes to an existing interstate highway, it is believed the alternatives would alter but not result in a diminishment of the integrity of any of the characteristics that presently contribute to the significance of the Phoebus–Mill Creek Terrace Neighborhood Historic District, including any features of its viewshed that may still contribute to its historic setting.

The Battle of Hampton Roads (VDHR #114-5471; ABPP #VA008) was a Civil War naval engagement in which the Confederacy attempted to break the Union blockade of Hampton Roads. The battle, which took place over two days, March 8-9, 1862, is also known as the *Battle of the Ironclads* and is significant in the development of navies as it was the first meeting in combat of ironclad warships. After destroying two conventional Union ships, one of which was the USS Cumberland, on the first day of the battle, the ironclad CSS Virginia faced the ironclad USS Monitor on the second day. The ensuing three-hour battle ended inconclusively with neither ship sustaining significant damage.

The National Park Service's American Battlefield Protection Program (ABPP) has defined a Study Area of approximately 46,000 acres associated with the engagement within which they have identified an area covering approximately 35,000 acres as Potentially Eligible for the National Register (PotNR). For the purposes of this study, the ABPP's PotNR is assumed NRHP-eligible. Portions of both the direct and indirect effects APEs of all four HRCS Build Alternatives are located within the ABPP's PotNR boundary, but it is not believed that the alternatives will diminish the integrity of any non-archaeological components of the battlefield that contribute to its significance, including any features that may still contribute to its historic setting. The battlefield is located within what is now a highly industrialized and developed area in which few remnants of the historic landscape survive. Additionally, much of the construction associated with the four HRCS Build Alternatives involve improvements of or improvements immediately adjacent to existing transportation infrastructure, such as the MMMBT and the HRBT. The underwater archaeological remains of the USS Cumberland (44NN0073) have been identified and are located roughly one mile northwest of the centerline of the proposed improvements (Alternatives C and D) to the west side of the existing MMMBT, where it leaves Newport News. The underwater archaeological survey conducted to date for the HRCS has identified no significant archaeological resources, but these studies are still incomplete in the underwater sections of Alternatives A, B, and D in

the vicinity of the HRBT. If any significant underwater resources associated with the Battle of Hampton Roads are eventually identified within the HRCS LOD, they are likely to meet the regulatory exception to the requirements of Section 4(f) approval: i.e., the sites likely would be important chiefly for the information they contain, which can be retrieved through data recovery, and would have minimal value for preservation in place [23 CFR §774.13(b)(1)].

Hampton Coliseum (VHDR #114-5600) was constructed in 1970, after initial construction of I-64 in this area of Hampton Roads, and was the first large-scale arena of its type built as a multi-purpose building in Hampton Roads as well as in the state. The building features 96 triangular-shaped concrete wall panels on the exterior to create a unique design. This study assumes that Hampton Coliseum is eligible for listing on the NRHP under Criterion C for its architectural design as it embodies distinctive characteristics of a type and method of construction as well as possesses high artistic value. The assumed historic property boundary coincides with the tax parcel boundary and the property is partially located within both the direct and indirect effects APEs for Alternatives A, B, C, and D. The proposed HRCS LOD in this area of Alternatives A, B, C, and D is confined within the present right-of-way limits associated with I-64. The *HRCS Noise Analysis Technical Report* (2016: Table 4-2, CNE AC; Table 4-6, CNE AC; Figure 4-1, Sheet 1) showed 2040 predicted noise levels under Alternatives A and B (45-72 dBA L_{eq}) and Alternatives C and D (45-71 dBA L_{eq}) only slightly above existing (44-70 dBA L_{eq}) and predicted No-Build Alternative (45-71 dBA L_{eq}) levels. Therefore, these alternatives should not affect any of the characteristics of the property that contribute to its historic significance, including any features of its viewshed that may still contribute to its historic setting.

St. Vincent de Paul Catholic Church **(VDHR #121-0032),** located at 230 33rd Street in Newport News, roughly 0.25 mile southwest of I-664, is a temple-form brick structure which features a monumental pedimented front portico supported by Composite columns, a heavy denticulated entablature, tall arched stained glass windows, and pilasters along the side elevations. The church was listed on the NRHP in 2005 under Criteria A and C, Criterion Consideration A (Religious Property), for its role as the first Catholic Church in Newport News; its association with Thomas Fortune Ryan and his wife, Ida Mary Berry Ryan, substantial benefactors in donating the funds for the convent and girls school; and its architectural merit as an excellent example of an early twentieth-century Classical Revival, architect-designed church which has remained architecturally intact. The church lies just outside of the direct effects APEs for Alternatives C and D, but within the indirect effects APEs for those alternatives. Because of the distance (approximately 0.25 miles) between the church and existing I-664 mainline and the fact that the proposed HRCS LOD for Alternatives C and D is contained within the existing highway right-of-way associated with the I-664 mainline, Alternatives C and D are not expected to have an effect on the historic property. St. Vincent de Paul Catholic Church also lies outside the 66 dBA L_{eq} noise contour modeled under the *HRCS Noise Analysis Technical Study* (2016: Figure 4-1, Sheet 55) for the loudest Build Alternative in each area. Places of worship are defined as Category C land uses under FHWA's noise abatement criteria. For Category C properties, a noise impact is assumed to occur when predicted exterior noise levels approach or exceed 67 dBA L_{eq}.

Brown Manufacturing, Coca-Cola Bottling Works, Daily Press Building (VDHR #121-0033), located at 3200 Huntington Avenue in Newport News, is a c. 1940s Art Deco-style and buff-colored brick structure. The facade features cast stone "Drink Coca-Cola in Bottles" rectangular panels between the first and second floor fenestration in each bay and stone pilasters topped with Coca-Cola Contour bottle relief sculptures at the facade corners and flanking the central bay. Although the original c. 1898 section of the

complex (Daily Press Building) has been demolished, the c. 1940 Coca Cola plant (currently housing Brown Manufacturing), previously surveyed as a secondary resource, is a cohesive and architecturally intact resource on its own merit and is assumed for the purposes of this study to be eligible for listing on the NRHP under Criterion A for its association with the mid-twentieth-century commercial/ manufacturing development of Newport News and Criterion C for its architecture. The assumed historic properties boundaries measure roughly 120 feet square and include only the current tax parcel containing the bottling works building. The historic property lies outside the direct effects APEs for Alternatives C and D. Although the building lies within the indirect effects APEs, Alternatives C and D should not affect any of the characteristics that contribute to the significance of the historic property, including any features of its viewshed that may still contribute to its historic setting. The proposed interchange improvements modify the access between I-664 and Jefferson Avenue. The mainline of I-664 lies approximately 0.22 miles northeast of the Coca-Cola Bottling Works, and several buildings and a railroad corridor lie between the interstate and the historic property. Additionally, the historic property lies outside the 66 dBA L_{eq} noise contour modeled under the *HRCS Noise Analysis Technical Report* (2016: Figure 4-1, Sheet 585) for the loudest Build Alternative in each area.

Peninsula Catholic High School/St. Vincent's School for Girls (VDHR #121-0157), located at 332 34th Street in Newport News, was originally constructed in 1903 as a parochial girl's school operated by the Sisters of the Charity of Nazareth. The school is a two-story, seven-bay brick structure laid in four course American bond with a hipped roof and features centrally-located two-leaf wood paneled doors with six-light windows with an arched fanlight above. For the purposes of this study the school is assumed eligible for listing on the NRHP under Criterion A for its association with the early twentieth century educational history of Newport News and under Criterion C for its architecture. The assumed historic property boundary encloses the buildings and yard on the current tax parcel but excludes the parking lot. Although the building lies within both the direct and indirect effects APEs for Alternatives C and D, these alternatives should not affect any of the characteristics that contribute to the significance of the historic property, including any features of its viewshed that may still contribute to its historic setting. The proposed interchange improvements modify the access between I-664 and Jefferson Avenue. The mainline of I-664 lies approximately 0.2-miles northeast of the Peninsula Catholic High School/St. Vincent's School for Girls, and several buildings and a railroad corridor lie between the interstate and the historic property. The historic property lies outside the 66 dBA L_{eq} noise contour modeled under the *HRCS Noise Analysis Technical Report* (2016: Figure 4-1, Sheet 55) for the loudest Build Alternative in each area.

The Noland Company Building **(VDHR #121-0299)**, located at 2600 Warwick Boulevard in Newport News, was purchased in 1920 by Lloyd U. Noland Sr., who utilized the building as a plumbing supply warehouse. The building was renovated in 1938 as a result of continued growth of the business, which expanded into the international market and sold a variety of construction materials. The Noland Company Building was listed on the NRHP in 2010, under Criteria A and B for its importance in broad patterns of history as the headquarters of the Noland Company and for its association with Lloyd U, Noland Sr., a civic leader and prominent self-made entrepreneur. The property is located west of I-664 within the direct and indirect effects APEs for Alternatives C and D, but these alternatives should not have an effect on the characteristics of the property that contribute to its significance, including any features of its viewshed that may still contribute to its historic setting. The Noland Company Building is presently positioned between elevated roadways that carry 26th and 28th Streets over I-664. Under the HRCS, there are no planned improvements to these elevated roadways beyond their current right-of-way limits. A railroad corridor lies between the historic property and the existing interstate, and the proposed HRCS LOD along

I-664 does not extend west of the railroad corridor. The historic property is crossed by the 66 dBA L_{eq} noise contour modeled under the *HRCS Noise Analysis Technical Report* (2016: Figure 4-1, Sheet 55) for the loudest Build Alternative in each area.

Norfolk Naval Base Historic District (VDHR #122-0410), as currently mapped in the VDHR's Virginia Cultural Resource Information System (V-CRIS) is bounded by Hampton Roads to the west, Willoughby Bay to the north, and the Elizabeth River to the southwest. The mapped boundaries associated with the Norfolk Naval Base Historic District include two distinct installations – Naval Station Norfolk and Naval Support Activity Hampton Roads -- comprising nearly 5,000 acres and the largest Naval installation in the world. The installation was originally commissioned in 1917. Recent communications with cultural resources personnel for the Commander Navy Region Mid-Atlantic (CNRMA) documented that the V-CRIS boundaries associated with the Norfolk Naval Base Historic District are currently in revision and the Navy does not recognize the totality of Naval Station Norfolk and NSA Hampton Roads to be a single historic district eligible for listing on the NRHP. Rather, the Navy recognizes four smaller discontiguous NRHP-eligible historic districts within the bounds of Naval Station Norfolk. Only one of these, the Norfolk Naval Base Golf Club Historic District (VDHR #122-5045), is located within the direct or indirect APEs for Alternatives B, C, and D. (Potential effects on the golf course historic district are discussed below.) This definition of historic properties within Naval Station Norfolk is consistent with the Department of the Navy's Section 106 coordination with the SHPO in 2012 for the transfer of interests in real property of the United States to the Commonwealth of Virginia for construction of the I-564 Intermodal Connector, a project that will construct a new four-lane divided, east-west interstate extension from the existing I-564 to the Norfolk International Terminal.

Forest Lawn Cemetery (VDHR #122-0531) is located in the City of Norfolk west of Granby Street at the I-64/I-564 interchange. The initial, early twentieth century (1906 - c. 1935) portion of Forest Lawn Cemetery, including the associated mausoleum and gatehouse, was determined by the VDHR in 2012 to be eligible for listing on the NRHP under Criterion A, Criteria Consideration D, for its significant association with broad patterns in history. The property reflects the "rural" cemetery movement and embodies the principals of early twentieth-century cemetery planning and design, and professional management and caretaking, while including a diverse but sectioned interment population. The cemetery is also eligible under Criterion C for its architectural merit and integrity of design. The indirect effects APEs for Alternatives A, B, and D extend into the cemetery and the direct effects APEs abut the southwest historic property boundaries. However, Granby Street runs between the cemetery and I-64. The proposed HRCS LOD does not extend east of Granby Street and partially preserves a line of trees running between the two roadways. The *HRCS Noise Analysis Technical Report* (2016: Table 4-2, CNE BW; Figure 4-1, Sheets 17 and 18) predicts little change from existing noise levels (61-69 dBA L_{eq}) under Alternatives A, B, and D (62-69 dBA L_{eq}) and the No-Build (62-69 dBA L_{eq}). Thus, Alternatives A, B, and D should have no effect on any of the characteristics that presently contribute to the significance of the cemetery, including any features of its viewshed that may still contribute to its historic setting.

Ocean View Elementary School (VDHR #122-0954), located at 9501 Mason Creek Road in Norfolk, is a 1939 Art Deco style building constructed in two parts and features a long, rectangular main school building and a perpendicular auditorium wing. The school was determined eligible for listing on the NRHP by VDHR in 1998 at a local level of significance under Criteria A for its role in education and under Criterion C for its architectural merit. The historic property boundaries include an area approximately 420 feet by 700 feet containing the main academic building on the educational complex. The historic

property lies outside the direct effects APEs for Alternatives A, B, and D but within the indirect effects APEs. The proposed HRCS LOD will extend eastward from an existing exit ramp off of I-64 roughly 30 feet beyond an existing highway sound barrier, but the barrier will remain and a residential development lies between the NRHP-eligible boundary of the school property and the interstate. The historic property will lie approximately 750 feet from the footprint of the proposed improvements to the existing interstate. The *HRCS Noise Analysis Technical Report* (2016: Table 4-2, CNE BM; Figure 4-1, Sheet 14) predicts little change at the school's baseball field from existing noise levels (53-59 dBA L_{eq}) under Alternatives A and B (55-60 dBA L_{eq}) and D (54-60 dBA L_{eq}) and the No-Build (54-60 dBA L_{eq}). In sum, Alternatives A, B, and D should have no effect on the characteristics that contribute to the significance of Ocean View Elementary School, including any features of its viewshed that may still contribute to its historic setting.

Norfolk Naval Base Golf Club Historic District (VDHR #122-5045), located on Terminal Boulevard along the southern boundary of Naval Station Norfolk, was determined eligible for listing on the NRHP by VDHR in 1997 at the state and local level under Criterion C as a resource representative of the work of a master. The golf course was first established as part of the Norfolk Yacht and Country Club in 1924 and was purchased by the Navy in 1942. The golf course and associated club house was designed by Donald Ross, a noted golf course designer during the 1920s. Both the direct and indirect APEs for Alternatives B, C, and D encroach upon the Norfolk Naval Base Golf Club Historic District; however, the proposed HRCS LOD does not. Existing I-564 runs along the northeast side of the golf course and all improvements to I-564 proposed under the HRCS in this area will be confined to existing highway right-of-way and not extend into the historic property boundary. Plans exist to build a noise barrier, 12-16 feet high, along the south side of existing I-564 at the golf course under the I-564 Intermodal Connector Project. The *HRCS Noise Analysis Technical Report* (2016: Table 4-3, CNE CA; Figure 4-1, Sheets 20-22), which assumes this barrier will largely remain in place, predicts that the 66 dBA L_{eq} noise contour will run just outside this barrier, along the northeast border of the golf course. Golf courses are defined as Category C land uses under FHWA's noise abatement criteria. For Category C properties, a noise impact is assumed to occur when predicted exterior noise levels approach or exceed 67 dBA L_{eq}. In sum, HRCS Alternatives B, C, and D will not alter any of the characteristics that currently contribute to the significance of the Norfolk Naval Base Golf Club Historic District, including any features of its viewshed that may still contribute to its historic setting.

The Battle of Sewell's Point (VDHR #122-5426; ABPP #VA001) was among the first naval battles between Union and Confederate forces during the Civil War, taking place May 18, 19, and 21, 1861. The battle was inconclusive but involved exchanges of cannon fire between the USS Monticello, supported by the USS Thomas Freeborn, and Confederate batteries on Sewell's Point. The ABPP has defined a Study Area of 11,500 acres for the battle, 10,000 acres of which the ABPP has identified as Potentially Eligible for the National Register (PotNR). For the purposes of this study, the ABPP's PotNR is assumed NRHP-eligible. Portions of both the direct and indirect effects APEs of Alternatives A, B, and C in the vicinity of the HRBT are located within the ABPP's PotNR boundary, but it is not believed that the alternatives will diminish the integrity of any non-archaeological components of the battlefield that contribute to its significance, including its historic setting. The battlefield is located within what is now a highly industrialized and developed area in which few remnants of the historic landscape survive. Additionally, construction associated with Alternatives A, B, and D within the PotNR boundary involves improvements to the existing transportation infrastructure of the HRBT. Underwater archaeological investigations in the portions of the LOD adjacent to the HRBT and associated with Alternatives A, B, and D are still incomplete; however, if any significant underwater resources associated with the Battle of Sewell's Point

are eventually identified within the HRCS LOD, they are likely to meet the regulatory exception to the requirements of Section 4(f) approval: the sites likely would be important chiefly for the information they contain, which can be retrieved through data recovery, and would have minimal value for preservation in place [23 CFR §774.13(b)(1)].

Merrimack Landing Apartment Complex/Merrimack Park Historic District (VDHR #122-5434) is the first planned, government funded, low-cost defense housing project in the City of Norfolk specifically designed and built to provide military housing during WWII for Naval personnel stationed at Naval Station Norfolk (NSN). The complex retains its curvilinear street pattern, green spaces, and building stock, with no modern in-fill present. Merrimack Park Historic District was determined eligible by the VDHR in 2012 for listing on the NRHP under Criterion A for broad patterns in history as a purpose-built affordable military housing project sponsored in part by the Federal government during WWII and the first such community built in the City of Norfolk to serve the military personnel at the NSN. The historic district is also eligible under Criterion C for community planning and development as well as landscape architecture. The property is located within the indirect effects APEs for Alternatives A, B, and D; the direct effects APEs overlap the historic property boundaries just slightly in the northeast corner of the development where there is open space lacking any structures. In this area of the property, the proposed HRCS LOD will extend approximately 60 feet east of the existing edge of pavement on I-64 and will be located a minimum of approximately 170 feet east of the boundary of the historic district. All improvements associated with Alternatives A, B, and D in this area are to an existing roadway, and there is a buffer of trees within the historic district that lines Mason Creek and presently obscures the view of the interstate from the neighborhood. The *HRCS Noise Analysis Technical Report* (2016: Table 4-2, CNE BP; Figure 4-1, Sheet 16) indicates all residences within the historic district lie outside the predicted 66 dBA L_{eq} noise contour, and noise levels under Alternatives A and B (52-64 dBA L_{eq}) and D (51-63 dBA L_{eq}) are predicted to rise only slightly over existing levels (50-63 dBA Leq), comparable to the increase under the No-Build Alternative (51-64 dBA L_{eq}). The *HRCS Noise Analysis Technical Report* shows a potential noise barrier (BQ) along the eastbound I-64 on-ramp at Bellinger Boulevard; but, in light of its cost, this barrier would benefit too few receptors in the neighborhood on the opposite side of Mason Creek from the district to be considered reasonable. In sum, Alternatives A, B, and D should have no effect to any of the characteristics contributing to the significance of the Merrimack Landing Apartment Complex/Merrimack Park Historic District, including any features of its viewshed that may still contribute to its historic setting.

Willoughby Elementary School (VDHR #122-5930), located at 9500 4th View Street in Norfolk, is a one-story, L-shaped brick building constructed in the International style and retaining a high degree of architectural integrity. Opened in 1967 by the City of Norfolk, the Willoughby Elementary School was one of at least two schools built in rapid succession in response to explosive growth in Norfolk's post-WWII population of school-age children. The building's form embodies the latest in educational theory and practice for its day, with a one-size-fits-all approach to the accommodation of learning. For the purposes of this study, the property is assumed eligible for listing on the NRHP under Criteria A and C for its historical associations and architecture. The historic property boundaries are assumed to comprise three tax parcels together measuring a total of roughly 1,000 feet by a maximum of roughly 425 feet. The property lies outside the direct effects APEs for Alternatives A, B, and D but within the indirect effects APEs. Alternatives A, B, and D should not affect any of the characteristics of the property that contribute to its significance, including any features of its viewshed which may still contribute to its historical setting. The property is located east of I-64 and is separated from the interstate mainline by an exit ramp leading

to 4th View Street from the interstate. Under Alternatives A, B, and D any improvements to this exit ramp will be confined to its existing footprint. Along the mainline, the proposed HRCS LOD on the east side of the interstate does not extend beyond the existing edge of pavement. The *HRCS Noise Analysis Technical Report* (2016: Table 4-2: CNE BL; Figure 4-1, Sheet 14) also indicates that the vast majority of the historic property lies outside the 66 dBA L_{eq} noise contour. Under Alternatives A, B, and D (38-38 dBA L_{eq}) noise levels are predicted to rise only slightly over existing levels (36-36 dBA L_{eq}).

The Battle of Craney Island (124-5267), has been identified by the National Park Service's ABPP as one of 78 battlefields associated with events that had a demonstrable influence on the course, conduct, and results of the War of 1812. The battle took place on June 22, 1813, when American forces successfully repelled British forces who, as part of their larger plan to attack Norfolk and the Gosport Shipyard in Portsmouth, targeted American fortifications that had been constructed on Craney Island at the mouth of Elizabeth River. The ABPP has defined a boundary for the portion of the battlefield it believes is potentially eligible for listing on the NRHP (PotNR boundary) which includes Craney Island and the narrow neck of land fronting on Hampton Roads at the mouth of Craney Island Creek, as these two features existed in the early 19th century. The PotNR is approximately 90 acres. Portions of the PotNR boundary are within the direct and indirect effects APEs for Alternatives B, C, and D; however, none of the original landmass that comprised Craney Island is within the direct effects APEs and the indirect effects APEs overlap only the far western tip of the original island. While this study assumes that the ABPP's PotNR boundary for the Battle of Craney Island is eligible for listing on the NRHP, the battlefield is located within the bounds of the present day US Navy Fuel Depot. The historic footprint of the 19th-century island has been encompassed by man-made fill and retains little integrity, and the larger setting of the battle is characterized today as a highly developed and industrialized landscape. For these reasons, Alternatives B, C, and D should have no effect on any of the non-archaeological characteristics of the battlefield that contribute to its significance, including its historic setting. If any significant archaeological resources associated with the battle are eventually identified within the HRCS LOD, they are likely to meet the regulatory exception to the requirements of Section 4(f) approval: the sites likely would be important chiefly for the information they contain, which can be retrieved through data recovery, and would have minimal value for preservation in place [23 CFR §774.13(b)(1)]. The *HRCS Noise Analysis Technical Report* (2016: Figure 4-1, Sheets 34 and 35) predicts noise levels greater than or equal to 66 dBA L_{eq} to extend a maximum of approximately 200 feet out from the centerline of the Alternatives B, C, and D where these alternatives cross the historic property boundaries of the Battle of Craney Island.

Sunray Agricultural Historic District (VDHR #131-5325) is located at the southern terminus of Alternatives C and D south of South Military Highway where it runs south of the I-664/I-264 interchange in Bowers Hill. Sunray was a planned agricultural community, developed by Polish immigrants in the early twentieth century, and was listed on the NRHP in 2007 under Criteria A and C for its association with agriculture, community planning and development, its designed landscape, and ethnic heritage from the period 1908-1956. The direct effects APEs for Alternatives C and D abut one corner of the northern boundary of the 1,264-acre historic district, and the indirect effects APE extends further into the historic property boundary in this area. However, the proposed HRCS LOD for Alternatives C and D does not extend as far south of existing I-664 as South Military Highway. All but a very small portion of the large historic district is located outside of the 66 dBA L_{eq} contour predicted in the *HRCS Noise Analysis Technical Report*. Alternatives C and D should not affect any of the existing characteristics of the historic district that contribute to its significance, including any features of its viewshed which may still contribute to its historic setting.

The Captain John Smith Chesapeake National Historic Trail (CAJO) (Cities of Hampton, Newport News, Norfolk, Portsmouth, and Suffolk) is the first water trail designated under the National Trails System Act [16 U.S.C. 1244(a)]. The trail route extends throughout the Chesapeake Bay and its purpose, as defined by the National Park Service in a draft interpretive plan prepared in 2006, is "to commemorate the exploratory voyages of Captain Smith on the Chesapeake Bay and its tributaries in 1607-1609; to share knowledge about the American Indian societies and cultures of the seventeenth century; and to interpret the natural history of the Bay (both historic and contemporary)." For the purposes of this study, the portion of the CAJO within the vicinity of the four HRCS Build Alternatives is assumed eligible for the NRHP. Although sections of all four Build Alternatives cross one or more water pathways taken by Smith on his voyages, none of the alternatives is expected to diminish any non-archaeological components of the CAJO that may contribute to its significance, including its historic setting. The CAJO is located within what is now a highly industrialized and developed area in which few remnants of the historic landscape survive. Additionally, much of the construction associated with the four HRCS Build Alternatives involves improvements of or improvements immediately adjacent to existing transportation infrastructure, such as the MMMBT and the HRBT. Archaeological survey of the LOD associated with the four HRCS Build Alternatives is incomplete, but if any significant archaeological sites associated with the CAJO are eventually identified within the HRCS LOD, they are likely to meet the regulatory exception to the requirements of Section 4(f) approval: the sites likely would be important chiefly for the information they contain, which can be retrieved through data recovery, and would have minimal value for preservation in place [23 CFR §774.13(b)(1)].

The Washington-Rochambeau Revolutionary Route National Historic Trail (W-RNHT) (Cities of Hampton, Newport News, Norfolk, Portsmouth, and Suffolk) was designated a National Historic Trail under the National Trails System Act [16 U.S.C. 1244(a)] in March 2009. The W-RNHT comprises over 680 miles of land and water trails in Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, and Washington, D.C. The trail segments follow the routes taken by General Washington and General Rochambeau to and from the Siege of Yorktown during the Revolutionary War. The purpose of the W-RNHT, as defined by the National Park Service in a draft strategic plan prepared in 2010, is to "identify, preserve, interpret, and celebrate the American and French Alliance in the War for Independence." For the purposes of this study, the portion of the W-RNHT within the vicinity of the four HRCS Build Alternatives is assumed eligible for the NRHP. Although sections of all four Build Alternatives cross the water routes taken by American and French forces, none of the alternatives is expected to diminish any non-archaeological components of the W-RNHT that may contribute to its significance, including its historic setting. The W-RNHT is located within what is now a highly industrialized and developed area in which few remnants of the historic landscape survive. Additionally, much of the construction associated with the four HRCS Build Alternatives involves improvements of or improvements immediately adjacent to existing transportation infrastructure, such as the MMMBT and the HRBT. Archaeological survey of the LOD associated with the four HRCS Build Alternatives is incomplete, but if any significant archaeological sites associated with the W-RNHT are eventually identified within the HRCS LOD, they are likely to meet the regulatory exception to the requirements of Section 4(f) approval: the sites likely would be important chiefly for the information they contain, which can be retrieved through data recovery, and would have minimal value for preservation in place [23 CFR §774.13(b)(1)].

3.9.2 Archaeological Resources

Methodology

The direct effects APE for the HRCS has been the subject of several previous terrestrial and underwater archaeological technical studies conducted by VDOT to support the 2001 HRCS Final Environmental Impact Statement and 2011 HRCS Re-evaluation and the 2012 Draft Environmental Impact Statement prepared for the HRBT Study. For the purpose of determining where additional archaeological survey still needs to be conducted in order to ensure that all archaeological sites eligible for listing on the NRHP and potentially affected by the HRCS are taken into account, VDOT prepared the technical report, *HRCS Archaeological Assessment* (April 2016). This report reviews the geographic coverage and findings of previous archaeological survey undertaken by VDOT and others in relation to the present HRCS direct effects APE and describes present land use conditions in order to assess the land's potential to contain intact archaeological remains. Section 5 of the assessment report identifies several areas of the direct effects APE where additional archaeological survey is still warranted. The SHPO concurred with these findings on April 28, 2016.

Affected Environment

To date, 50 previously recorded archaeological sites have been documented within the Direct Effects APE. Forty-one of the sites (including 44NR0015, an underwater site of a possible submarine) have not been formally evaluated against NRHP eligibility criteria, five have been determined not eligible for the NRHP, three have been determined potentially eligible for the NRHP, and one has been listed on the NRHP. **Table 3-53** summarizes the previously identified archaeological resources that have been listed on or determined potentially eligible for listing on the NRHP.

Table 3-53: Previously Identified Archaeological Resources Listed On or Potentially Eligible for Listing on the NRHP

VDHR #	Resource	NRHP Eligibility Status	Alternative
44CS0042	Camp, Temporary	VDHR: Potentially Eligible 2003	C & D
44HT0009 (44HT0089)	Native American Village; Roseland Manor	VDHR: Potentially Eligible 2012	A, B, & D
44HT0090	Dwelling	VDHR: Potentially Eligible 2012	A, B, & D
44SK0194	Knotts Creek	NRHP Listed 2008	C & D

Environmental Consequences

As allowed under the Section 106 regulations [36 CFR Part 800.4(b)(2)] when alternatives under consideration consist of corridors of large land areas, VDOT has chosen to defer completion of the additional survey and evaluation efforts needed to ensure identification of all archaeological sites eligible for the NRHP that might be affected by the HRCS until after the selection of a Preferred Alternative. From the information contained in the report, *HRCS Archaeological Assessment (April 2016)*, that describes the archaeological sites presently known to be located within the HRCS direct effects APE and assesses the potential of the APE to contain additional sites, VDOT has concluded that, in relation to their historical significance, any archaeological historic properties that might be affected by the HRCS would meet the regulatory exception to the requirements of Section 4(f) approval: the sites likely would be important

chiefly for the information they contain, which can be retrieved through data recovery, and would have minimal value for preservation in place [23 CFR §774.13(b)(1)]. The SHPO concurred with this finding on April 28, 2016.

3.9.3 Completion of the Section 106 Process

Once a Preferred Alternative has been selected and preliminary engineering has been further refined, VDOT and FHWA will reassess the effects of the project on architectural historic properties and coordinate the findings with the SHPO and other consulting parties before release of a Final SEIS. Should any of the architectural historic properties be adversely affected, FHWA and VDOT will consult with the SHPO and other parties to the Section 106 process to determine appropriate measures that would avoid, minimize, or mitigate the adverse effects. These measures would constitute commitments that would be incorporated as stipulations in a legally binding agreement document executed by the FHWA, the SHPO, the ACHP, VDOT, and other parties as appropriate to conclude the Section 106 process. Presently, VDOT and FHWA anticipate that the agreement document would take the form of a Programmatic Agreement that would also stipulate the process VDOT would follow to complete efforts to identify archaeological historic properties potentially affected by the selected alternative, assess the undertaking's effect on those sites, and identify measures that would resolve any adverse effects by avoiding, minimizing, or mitigating for them.

3.10 HAZARDOUS MATERIALS

Methodology

For the purposes of this hazardous materials analysis the Study Area Corridors were used to define the boundary within which hazardous materials were investigated. A search for potential recognized environmental conditions (RECs) was performed using a database search prepared by Environmental Data Resources, Inc. (EDR). Due to the dense concentration of industrial sites within the Study Area Corridors, a search distance of ¼-mile was set as the boundary for investigation. Field verification of database-identified RECs was performed by conducting a windshield survey of sites within the Study Area Corridors. A windshield survey was performed along public roadways to verify sites identified by the EDR search. Sites that were identified with "Open" Pollution Complaint cases were verified to determine current site conditions, potential corrective action efforts or site remediation. Sites with secured access were not included in the field verification.

Affected Environment

The EDR report identified 399 single sites or clusters of multiple sites of environmental concern or regulation within a ¼-mile search area of the Study Area Corridors (due to the density of the area, EDR often grouped nearby sites into clusters, issuing one EDR ID number to multiple addresses).

No visual evidence of ongoing corrective action, remediation or addition RECs were observed with any of the sites during the field verification.

Environmental Consequences

The **No-Build Alternative** would not result in any project-related construction and would therefore not directly impact any hazardous materials.

There are 179 identified sites within ¼-mile of **Alternative A**, 306 identified sites within ¼-mile of **Alternative B**, 511 identified sites within ¼-mile of **Alternative C**, and 739 identified sites within ¼-mile of **Alternative D**. **Table 3-54** summarizes the results of the searched regulatory databases within ¼-mile search radius by alternative.

Table 3-54: Identified Sites by Alternative

Database Type	Alternative A	Alternative B	Alternative C	Alternative D	Total
LUST/ LTANKS	53	73	100	159	**159**
RGA LUST	-	5	4	7	**7**
SPILLS	4	19	28	39	**39**
ERNS	-	3	8	8	**8**
VCP	5	5	2	6	**6**
BROWNFIELDS	6	6	5	11	**11**
NPL	-	1	2	2	**2**
UST	45	70	102	159	**159**
AST	5	8	15	22	**22**
RCRA	19	30	85	105	**105**
HMIRS	-	1	1	2	**2**
INST CONTOLS	2	3	3	4	**4**
ENG CONTROLS	1	3	2	4	**4**
FINDS	13	22	65	82	**82**
AIRS	4	6	13	19	**19**
TIER 2	3	5	4	8	**8**
HIST AUTO STATION	7	14	25	37	**37**
DRY CLEANER	2	5	5	9	**9**
HIST DRY CLEANERS	1	2	3	5	**5**
ICIS	1	2	5	6	**6**
TRIS	-	1	3	3	**3**
VA ENF	-	2	3	3	**3**
VA SWF/LF	-	2	3	3	**3**
NPDES	1	3	3	6	**6**
MANIFEST	5	8	8	14	**14**
CERCLIS	2	4	5	7	**7**
CEDS	-	-	3	3	**3**
CORRACTS	-	1	1	1	**1**

Database Type	Alternative A	Alternative B	Alternative C	Alternative D	Total
EDR MGP	-	-	1	1	**1**
ROD	-	1	1	1	**1**
FUDS	-	-	1	1	**1**
PADS	-	1	1	1	**1**
RGA LF	-	-	1	1	**1**
Total	**179**	**306**	**511**	**739**	**739**

Based on the EDR Database information, 15 "Open" Pollution Complaint (PC) cases are associated with nine sites within the ¼-mile search area. Seven of the 15 "Open" cases located within the Study Area Corridors are associated with one site, the Craney Island Fuel Depot in Portsmouth.

In total, four "Open" sites are located within ¼ mile of the **Alternative A** Study Area Corridor, five sites are located within ¼ mile of the **Alternative B** Study Area Corridor, six sites are located within ¼ mile of the **Alternative C** Study Area Corridor, and nine sites are located within ¼ mile of the **Alternative D** Study Area Corridor. Sites with "Open" cases are currently undergoing corrective action, remediation and/or monitoring due to documented petroleum releases or spills. Additionally, four Brownfields and one NPL site were also identified within the Study Area Corridors. All sites that were publically accessible with "Open" Pollution Complaint case statuses were visited during the Field Verification. No obvious corrective action, site remediation or additional RECs were observed during the field verification.

Mitigation

Prior to acquisition of right-of-way and construction, thorough site investigations would be conducted to determine whether any of the sites are actually contaminated, and, if so, the nature and extent of that contamination would be assessed. Sites that are identified to include potential contamination should be assessed on a site-by-site basis to determine applicable measures prior to design, acquisition and/or construction. Sites should be characterized by conducting thorough site investigations (i.e. Phase I Environmental Site Assessments (ESAs) and, if necessary, Phase II ESAs) to determine the presence of and/or the extent of contamination. Undocumented hazardous materials that are encountered during construction efforts shall be managed, handled and disposed of in accordance with federal, state and local regulations.

3.11 VISUAL RESOURCES

Visual resources are those physical features that comprise the visual landscape, including land, water, vegetation, and man-made elements. These elements are the stimuli upon which a person's visual experience is based. Notable visual and aesthetic resources within the Study Area Corridors include historic structures, parks, and undeveloped open space/natural areas.

Methodology

Site visits, reviews of local planning documents, and reviews of satellite imagery and Geographic Information Systems (GIS) data were conducted to identify the potential effects of the proposed Build

Alternatives on the surrounding viewshed. Both static (such as what neighbors of the road see) and dynamic viewsheds (what travelers on the road see) have been considered in determining the Area of Visual Effect (AVE) of the proposed alternatives. Because the Study Area Corridors are within developed urban and suburban areas, the AVE for this visual and aesthetic resource assessment is primarily limited to adjacent land uses (**Figure 3-17**). Within the open areas of bridge approaches, the AVE was determined to extend one mile from a proposed alignment to incorporate land uses across water features. The AVE for alternatives that propose new water crossings incorporates Hampton Roads Harbor between the HRBT and the MMMBT. It also extends one mile from the HRBT toward the Chesapeake Bay and from the MMMBT up the James River to the west.

The visual impact of the alternatives is determined by assessing the change in visual resources due to the alternatives and predicting viewer response to that change. The magnitude of impacts to the visual resources within the AVE from specific vantage points is described as minor, moderate or major. Minor impacts would be those which are not detectable, slightly detectable, or localized within a relatively small area. Moderate impacts would be those that are readily apparent but do not contribute to a change in the character of the landscape. Major impacts would be substantial, highly noticeable, and/or result in changing the character of the landscape.

Affected Environment

The AVE encompasses a mix of residential, industrial, institutional, commercial, government/military, and open space land and water uses. The AVE varies greatly, from limited suburban-type views with the interstate visible to large expansive water views of the Chesapeake Bay, Hampton Roads Harbor, and the James River from the HRBT and MMMBT bridges and the shorelines of these waterbodies. Generally, topography in the region is fairly flat with landward viewsheds limited by vegetation or structures. Sound walls limit the AVE from the interstate in many areas along the Study Area Corridors. Several visually sensitive resources such as historic properties are located within the AVE. Visual impacts to historic properties are assessed under Section 106 of the National Historic Preservation Act reported in the *HRCS Cultural Resources Management Report*.

Environmental Consequences

The **No-Build Alternative** could diminish the existing visual character in the AVE. Since this alternative does not address congestion issues at any of the Study Area Corridors, congestion would continue to deteriorate and result in an increase in views of traffic by motorists and nearby residences and businesses in all landscape units. The exception would be where the I-664 Connector, I-564 Connector, and VA 164 Connector are proposed, as no roadways currently exist in those areas. A summary of the visual results for each **Build Alternatives** is provided in **Table 3-55.**

Alternative A includes portions of Landscape Units I, II, and III along I-64. Visual impacts for all viewer sensitivity groups throughout this alternative are minor to moderate. None of the viewer sensitivity types would experience major visual impacts. Moderate visual impacts would occur for two viewer sensitivity types (community residents and regular motorists/students/park and recreational visitors). Minor impacts would occur for all viewer sensitivity types.

Figure 3-17: Area of Visual Effect

Minor impacts would be those which are not detectable, slightly detectable, or localized within a relatively small area. Moderate impacts would be those that are readily apparent but do not contribute to a change in the character of the landscape. Widened roadways, increased amounts of pavement, and new bridge-tunnel structures adjacent to the existing HRBT are the most pronounced effects to the visual character throughout this alternative. However, views outside of the roadway corridor and to the periphery would not be effected.

Table 3-55: Summary of Visual Impacts

Alternatives	Viewer Sensitivity Type	Visual Impacts (# of locations)		
		Major	Moderate	Minor
A	High	0	1	3
	Moderate	0	1	3
	Low	0	0	4
B	High	0	1	5
	Moderate	0	1	5
	Low	0	0	6
C	High	0	2	1
	Moderate	0	1	3
	Low	0	0	4
D	High	0	2	3
	Moderate	0	1	4
	Low	0	0	5

Alternative B includes portions of Landscape Units I, II, III, and IV. Visual impacts for all viewer sensitivity types throughout this alternative are minor to moderate. None of the viewer sensitivity types would experience major visual impacts. Moderate visual impacts would occur for two viewer sensitivity types (community residents and regular motorists/students/park and recreational visitors). Minor impacts would occur for all viewer sensitivity types.

Widened roadways, increased amounts of pavement with potential loss of vegetated areas, new bridge-tunnel structures, and new roadway corridors are the most pronounced effects to the visual character throughout this alternative. Minor impacts would be those which are not detectable, slightly detectable, or localized within a relatively small area. Moderate impacts would be those that are readily apparent but do not contribute to a change in the character of the landscape. Community residents and regular motorists would be most susceptible to changes in the visual character under Alternative B.

Alternative C includes portions of Landscape Units I, II, IV, and V. Visual impacts for all viewer sensitivity groups throughout this alternative are minor to moderate. None of the viewer sensitivity types would experience major visual impacts. Moderate visual impacts would occur for two viewer sensitivity types (community residents and regular motorists/park and recreational visitors). Minor impacts would occur for all viewer sensitivity types.

Widened roadways, increased amounts of pavement with potential loss of vegetated areas, new bridge-tunnel structures, and new roadway corridors would be the most pronounced effects to the visual character under this alternative.

Alternative D includes portions of all five Landscape Units. The visual impacts under Alternative D would include all of the effects previously mentioned for Alternatives A, B, and C.

Mitigation

Several measures could be undertaken to minimize the potential effects of the Build Alternatives to visual quality. Specific measures would be identified and implemented once the selected alternative or OIS is advanced for design and construction. These measures could be implemented where potential construction impacts of alternatives to visual quality would be the same within and among the five landscape units analyzed.

Measures to minimize or mitigate visual quality effects often include landscaping and modifications to enhance the aesthetics of topography, structure, and lighting design. VDOT would coordinate with affected communities to identify specific approaches that would best address concerns of highly sensitive viewers such as residential communities. Visual quality impacts to moderately sensitive viewer types including parks and historic sites could also be similarly treated. Restoration of wetlands, streams, and tidal shorelines, if required, would address diminished visual quality from construction impacts to these resources.

3.12 SECTION 4(F) AND SECTION 6(F) PROPERTIES

3.12.1 Section 4(f)

Section 4(f) of the US Department of Transportation Act of 1966 (49 USC 303(c)) is a federal law that protects publicly-owned parks, recreation areas, wildlife and/or waterfowl refuges, or any significant historic sites, whether privately- or publicly-owned. Section 4(f) requirements apply to all transportation projects that require funding or other approvals by the USDOT. As a USDOT agency, FHWA must comply with Section 4(f), which includes describing Section 4(f) lands identified within the HRCS Study Area Corridors and potential use of the lands. If a Section 4(f) use is determined necessary, avoidance alternatives to use of the lands, preliminary identification of the alternative with the least overall harm, and a discussion of all possible planning to minimize harm must be conducted. The Section 4(f) Evaluation in this document (**Appendix E**) follows established USDOT regulations and references 23 CFR Part 774 and the 2012 Section 4(f) Policy Paper prepared by the FHWA as guidance.

Section 4(f) of the US Department of Transportation Act of 1966 as amended (49 USC Section 303) stipulates that the US Department of Transportation (USDOT), including the FHWA, cannot approve the use of land from a publicly owned park, recreation area, wildlife or waterfowl refuge, or public or private historic site unless the following conditions apply:

- The FHWA determines that there is no feasible and prudent avoidance alternative to the use of land from the property, and the action includes all possible planning to minimize harm to the property resulting from such use (23 CFR §774.3(a)); or
- The FHWA determines that the use of the Section 4(f) properties, including any measures to minimize harm committed to by the applicant, will have a *de minimis* impact on the property (23 CFR §774.3(b)).

Temporary use of the established Section 4(f) properties has been assessed in the overall determination of use for each property. Temporary occupancy of Section 4(f) lands will be determined during later stages of design and would not be considered a use if all of the following conditions exist:

- The land use is of short duration (defined as less than the time needed for the construction of the project).
- There is no change in ownership of the land.

- The scope of the work must be minor.
- There are no temporary or permanent adverse changes to the activities, features, or attributes of the property.
- The land must be fully restored to a condition at least as good as prior to the project.
- There must be documented agreement from the official(s) with jurisdiction over the property with the above conditions.

Appendix E also provides notification that FHWA will consider a Section 4(f) *de minimis* impact finding for some park and historic properties provided the *de minimis* requirements are satisfied. For historic sites, a *de minimis* impact means that the project will have no adverse effect on the historic property. For parks, recreation areas, and wildlife and waterfowl refuges, a *de minimis* impact is one that will not adversely affect the features, attributes, or activities qualifying the property for protection under Section 4(f). Consideration of each *de minimis* determination will be based upon the anticipated level of impact from the proposed action alternatives, and is pending coordination with relevant officials with jurisdiction that is concomitant with distribution of this Draft SEIS. Any final *de minimis* determination would be based on impacts associated with the Preferred Alternative, which has not yet been identified. Pursuant to 23 CFR §774.5(b)(2), all potential Section 4(f) *de minimis* impacts finding on parks and recreation areas will be presented for public review and comments with this Draft SEIS, in compliance with the requirements of NEPA.

Nine historic properties and public parks eligible for Section 4(f) protection would be potentially impacted by one or more of the HRCS Build Alternatives. The properties are summarized in **Table 3-56**. A complete review of all Section 4(f) properties is provided in **Appendix E**. Additional information on historic properties is located in Section 3.9 of this Draft SEIS and in the *HRCS Architectural Survey: Management Summary*.

Table 3-56: Section 4(f) Use

Section 4(f) Property	Acreage of Use from Alternative				Intent to Pursue *de minimis* (all Alternatives)
	A	B	C	D	
Hampton Institute Historic District	1.1	1.1	0	1.1	Yes
Phoebus-Mill Creek Terrace Neighborhood Historic District (no contributing elements)	0.4	0.4	0	0.4	No; No Section 4(f) Use
Battle of Hampton Roads[1]	144.9	201.8	541.9	625.6	Yes
Battle of Sewell's Point[1]	130.2	130.2	0	130.2	Yes
Battle of Craney Island[1]	0	6.7	6.7	6.7	Yes
Willoughby Boat Ramp	0.1	0.1	0	0.1	Yes
Hampton High School	0	0	0.7	0.7	Yes
Park Place Park	0	0	0.2	0.1	Yes
Norfolk Naval Base Historic District[2]	29.4	46.7	60.0	46.7	No; No Section 4(f) use

Note: The historic district boundary of the Norfolk Naval Base overlaps with portions of existing right-of-way for I-564 and I-64 and right-of-way for the I-564 IC, under construction, which accounts for the acreage noted in the table.

1. Acreage within historic district; impact to contributing properties cannot be determined.

2. The Navy does not recognize the entirety of this district as NRHP-eligible. Instead it recognizes four discontiguous smaller historic districts as NRHP-eligible, none of which is located within the HRCS LOD.

Based on the Section 4(f) review, all impacts to Section 4(f) properties are anticipated to either not be considered a Section 4(f) use, or would likely be considered a de minimis use, per 23 CFR 774 and the Section 4(f) Policy Paper. More information on Section 4(f) Properties, including maps of impacted parks and historic properties, is provided in **Appendix E**.

3.12.2 Section 6(f)

Section 6(f) of the Land and Water Conservation Fund (LWCF) Act protects recreation lands created which were developed using LWCF grant funding. Pursuant to 36 CFR Part 59, no property acquired or developed with LWCF assistance shall, without the approval of the Department of Interior, be converted to uses other than public outdoor recreation. Conversion can be approved only if it is in accordance with an existing comprehensive outdoor recreation plan and only upon such conditions deemed necessary to assure substitution of other recreation properties of at least equal fair market value and of reasonably equivalent usefulness and location. The requirement applies to all parks and other sites that have been the subject of LWCF grants of any type. One property within the Study Area Corridors, the Willoughby Boat Ramp (formerly the Norfolk Boat Ramp), was established using a grant from the LWCF and thus qualifies for protection under Section 6(f).

The No-Build Alternative and Alternative C would have no impact on Section 6(f) properties. Alternatives A, B, and D would each have 0.1 acres of impact on the Willoughby Boat Ramp, and would displace a communications tower and ancillary building located on the property. Should acquisition of land or impacts to facilities of the Willoughby Boat Ramp be required as part of the Preferred Alternative, VDOT will coordinate with DCR and NPS to determine appropriate replacement mitigation of equal value per the requirements of Section 6(f).

3.13 CHILDREN'S HEALTH AND SAFETY

Assessment of children's health has been performed in accordance with Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, which directs federal agencies to identify and assess environmental health and safety risks that may disproportionately affect children. The most likely locations of potential effects on children (other than at residences abutting right-of-way) would be at schools where there are outdoor activity areas for children. There are eight schools and universities within the Study Area Corridors, five of which are elementary, middle, or high schools:

- Hampton High School
- Willoughby Elementary
- Jolliff Middle School
- Believer's Day School
- Booker T. Washington Middle School

The most likely health and safety risks would be associated with the study's air quality and noise impacts, as discussed above. Comprehensive analyses of air quality and noise impacts have been conducted for the project (**Sections 3.6** and **3.7**). The air quality analysis provided in **Section 3.6**, as well as the *HRCS Air Quality Technical Report*, showed that the project would not cause any violations of national ambient air quality standards established by USEPA to protect human health and welfare, including children.

As described in **Section 3.7**, measured noise levels showed that traffic was the dominant source of noise at most locations within the Study Area. Sound level increases from Existing Conditions to the 2040 build conditions are similar to those for the No-Build Alternative, except in places where there are proposed improvements that would bring roadways closer to noise receptors. There are no projected future interior noise impacts at any of the schools with the Study Area Corridors. Two schools, Hampton High School and Booker T. Washington Middle School would experience benefit from reasonable and feasible barriers. More detail is provided in the *HRCS Noise Analysis Technical Report*.

Another potential concern may be traffic safety as it relates to pedestrian and bicycle travel by children. Each of the corridors in the study are limited-access highways that prohibit pedestrians and bicycle travel. All pedestrian and bicycle crossings are at grade-separated interchanges. Furthermore, fencing and noise barriers along the highways provide a physical barrier to pedestrian and bicycle entry onto the highway.

Based on the above discussion, none of the Build Alternatives would pose health or safety risks that would disproportionately affect children.

3.14 SHORT-TERM CONSTRUCTION IMPACTS

This section provides a general overview of temporary short-term impacts that could occur during construction of the Build Alternatives. The LOD that has been developed for the study to define the potential area of impact take into account potential construction limits. Specific construction staging and access locations have not been determined at this time. Development of the Limits of Construction (LOC) for the Preferred Alternative, identification of potential staging areas, and more specific impacts and mitigation will be provided for the Preferred Alternative in the Final SEIS.

Short-term impacts would primarily consist of changes to traffic patterns, physical modifications to land use from earth moving, increases in turbidity resulting from dredging activities and other underwater activities, and vegetation removal for the development of construction staging areas and equipment storage. Project construction activities could include:

- Excavation and fill activities related to road widening/construction;
- Drilling shafts and driving piles for bridge piers and other structures;
- Underwater construction activities; and
- Delivery and storage of equipment and materials.

Throughout construction, impacts would be controlled by the commitments made in this SEIS, standard construction practices (upheld by the project contractor), as well as the Joint Permit Application and Erosion and Sediment Control plan which will be developed for the Preferred Alternative.

The assessment of temporary construction impacts is preliminary and based on the current conceptual level of design developed at this phase of the project. The types and levels of potential impacts from construction are subject to revision through the design and development review processes, with a goal to further avoid or minimize impacts to the maximum extent practicable. Mitigation will be considered for any adverse impact that cannot be avoided, including temporary impacts during construction.

3.14.1 Traffic

Construction activities would result in temporary interruptions to vehicular traffic patterns, including the potential temporary closure of roads. During various stages of construction, additional traffic would be generated by hauling of construction debris, excavation and building materials. Specific trucking routes, frequency of trips, or waste disposal destinations will be identified as part of the construction documents for the Preferred Alternative and after issuance of the Record of Decision (ROD).

3.14.2 Air Quality

Temporary air quality impacts from construction would consist primarily of emissions produced during the construction of this project by heavy equipment and vehicle travel to and from the construction areas. Earthmoving and ground-disturbing operations would also generate airborne dust. Construction emissions would be temporary in nature.

In order to mitigate these emissions, construction activities will be performed in accordance with the *VDOT Road and Bridge Specifications*. The project lies in an area designated by VDEQ as an emissions control area for volatile organic compounds and nitrogen oxides (9 VAC 5-20-206), and as such, all reasonable precautions will be taken to limit the emissions of these pollutants. In addition, for work in this area, the following VDEQ air pollution regulations must be adhered to during the construction of this project:

- 9 VAC 5-45-760, Cutback Asphalt restrictions;
- 9 VAC 5-130, Open Burning restrictions; and
- 9 VAC 5-40-90, Fugitive Dust precautions.

3.14.3 Noise

Construction activities would cause intermittent fluctuations in noise levels throughout the construction area. The degree of noise impact would vary, as it is directly related to the types of equipment used and the proximity to the noise-sensitive land uses within the project area. Based on a review of the project area, no considerable, long-term construction-related noise impacts are anticipated. Any noise impacts that do occur as a result of roadway construction measures are anticipated to be temporary in nature and would cease upon completion of the project construction phase.

The following would be utilized to help minimize potential construction-related noise impacts. A detailed discussion of VDOT's construction noise policy can be viewed in Section 107.16(b) 3 Noise of *VDOT's Road and Bridge Specifications.*

- The Contractor's operations shall be performed so that exterior noise levels measured during a noise-sensitive activity shall not exceed 80 decibels. Such noise level measurements shall be taken at a point on the perimeter of the construction limit that is closest to the adjoining property on which a noise-sensitive activity is occurring. A noise-sensitive activity is any activity for which lowered noise levels are essential if the activity is to serve its intended purpose and not present an unreasonable public nuisance. Such activities include, but are not limited to, those associated with residences, hospitals, nursing homes, churches, schools, libraries, parks, and recreational areas.

- VDOT may monitor construction-related noise. If construction noise levels exceed 80 decibels during noise sensitive activities, the Contractor shall take corrective action before proceeding with operations. The Contractor shall be responsible for costs associated with the abatement of construction noise and the delay of operations attributable to noncompliance with these requirements.
- VDOT may prohibit or restrict certain work activities that produce objectionable noise so that they would not occur between 10 PM and 6 AM. If other hours are established by local ordinance, the local ordinance shall govern.
- Equipment shall in no way be altered so as to result in noise levels that are greater than those produced by the original equipment.
- When feasible, the Contractor shall establish haul routes that direct his vehicles away from developed areas and ensure that noise from hauling operations is kept to a minimum.
- These requirements shall not be applicable if the noise produced by sources other than the Contractor's operation at the point of reception is greater than the noise from the Contractor's operation at the same point.

3.14.4 Soils and Erosion

Construction of any of the Build Alternatives would result in soil disturbance, soil exposure and compaction that could cause potential adverse effects on shallow soil permeability, and soil erosion caused by water and wind.

An Erosion and Sediment (E&S) Plan will be developed as part of the construction documents for the Preferred Alternative and after issuance of the ROD. The plan will identify measures to minimize impact to the construction sites and surrounding water bodies as a result of construction-related soil erosion. Access driveways will be needed during construction. Once graded and established, access driveways are typically covered with stone or rock used to disperse stormwater sheet flows and minimize soil erosion from wind. Other erosion control measures include engineering controls such as drainage culverts and filter fabric to protect the integrity of the temporary access driveways and minimize impacts to the existing site drainage patterns and water quality. Silt fence would also be required as part of the E&S Plan to prevent stormwater runoff.

The soil erosion and control measures would be inspected periodically and replenished as necessary throughout construction. After construction is complete, all temporary impact areas, including access driveways, will be restored to their previous use. The restoration will include removal of fill to prior grade, amelioration of soil compaction, and revegetation to ensure soils are restored. With the development and implementation of the E&S Plan, short-term impacts on soils from excavation and fill activities are expected be minor.

3.14.5 Water Quality

Construction of any of the Build Alternatives would potentially result in short-term impacts to water quality such as increased sedimentation, increased turbidity from in-stream work, and possible spills or non-point source pollutants entering groundwater or surface water from stormwater runoff. Dredging for bridge and tunnel construction would result in generation of suspended solids and a release of nutrients and potential contaminants within overlying waters.

To minimize these impacts, appropriate erosion and sediment control practices would be implemented in accordance with the Virginia Erosion and Sediment Control Regulations, the Virginia Stormwater Management Law and regulations, and VDOT's Road and Bridge Specifications. Implementation of BMPs such as filtration of discharge water from barges/scows, eliminating overflow from barges during dredging or transport, reducing the speed of loaded buckets or cutterheads, will minimize increases in turbidity of waters downstream of dredging activities. Preconstruction sediment quality assessments and water quality monitoring during construction may be required to address potential re-suspension of contaminants and nutrients into overlying water.

During construction, contractors will be prohibited from discharging any contaminant that may impact water quality. In the event of accidental spills, the contractor is required to immediately notify all appropriate local, state, and federal agencies and to take immediate action to contain and remove the contaminant. Additionally, the requirements and special conditions of any required permits for work in and around surface waters would be incorporated into construction contract documents, so that the contractor would be required to comply with such conditions.

The project must be consistent with Virginia's CZMP concerning impacts to coastal resources. Such actions require a consistency determination that receives concurrence from the VDEQ. The project must comply with the enforceable regulatory programs administered by the network of state agencies and local governments. These programs pertain to fisheries, subaqueous lands, wetlands, dunes, non-point source pollution, point source pollution, shoreline sanitation, air pollution, and coastal lands management.

3.14.6 Waters of the US and Wetlands

All of the Build Alternatives would require construction within the James River, Hampton Roads, or Elizabeth River. Under Alternatives A, B, and D, construction would require expansion of the existing islands to accommodate the new bridge-tunnel structures. Alternatives C and D would require a new island to be constructed at the mouth of the James River to accommodate the new bridge-tunnel structure. Channel conditions within the James River would be maintained in accordance with Virginia Port Authority requirements, including a 55-foot depth at mean low water (MLW) with a width of 1,000 feet (top of tunnel would be 60 to 65 feet MLW), and the preservation of existing deep water anchorages.

A more detailed assessment of stream and wetland impacts and avoidance and minimization efforts would be performed following a formal jurisdictional delineation and further design.

3.14.7 Wildlife and Habitat

Water Bird Nesting

Construction of new bridge-tunnels under all Build Alternatives and proposed expansion of the tunnel portal islands would require direct disturbance of beaches used as nesting areas by water birds. While placing fill material on the existing beaches may make these areas temporarily unsuitable for nesting water birds, the total beach area would be increased with expansion of the island providing an opportunity to increase the amount of suitable nesting habitat on the islands. However, displacement of nesting waterbirds by disturbances to sites used prior to construction may not be a short-term impact.

Close coordination with the VDCR, VDGIF, and USACE will be required to minimize impacts to waterbird colonies to the maximum extent practicable, as well as the strict adherence to time-of-year restrictions and erosion and sediment control measures. Surveys to locate existing waterbird colonies would be required, in addition to evaluations to shift alignments away from the resource to reduce the distance of the construction to the colony. Construction of new beach areas would include materials (e.g., sand and stones), which provide suitable conditions for water bird nesting habitat. Specific time restrictions and the appropriate materials for beach construction would be developed in coordination with the VDGIF.

Benthic Communities

Dredging for tunnel installations, bridge construction access, and within potential aquatic borrow sites would temporarily result in the disruption of benthic communities and generation of suspended solids and release of nutrients and potential contaminants within overlying waters. The disruption of benthic communities for construction of the Build Alternatives is not expected to impact the sustainability of commercially important species including oysters, blue crabs, or clams within Hampton Roads. The Study Area Corridors are almost entirely within a Condemnation Zone for shellfishing, are unsuitable for shellfish aquaculture, and no longer support commercial harvest of oysters or clams.

The potential temporary impact to benthic communities would be a result of the loss of SAV which would be replaced. Hardshell clam would be the most vulnerable of the three known area benthic species to dredging impacts; however, clams would be expected to re-establish following construction due to the extensive presence of benthic habitat within the study area. Clam habitat is widespread in the area since all the substrate in Hampton Roads is suitable clam habitat. The greatest clam densities occur within the Newport News Channel and along the shoreline corresponding to the Hampton Flats Hard Clam Harvest Area public clamming grounds along the Hampton shoreline. Benthic infauna would begin to recolonize the disturbed substrate in a matter of days or weeks with higher trophic level species expected to reestablish within months to a year and a half or more (Rhoads and Germano, 1982 and Nichols et al., 1990).

Suspended solids may be deposited within benthic communities downstream of dredging activities. The aerial extent of suspended solids is expected to be limited due to the coarse sandy texture of sediments within Hampton Roads. Implementation of dredging BMPs, including filtration of discharge water from barges/scows, eliminating overflow from barges during dredging or transport, reducing the speed of loaded buckets or cutterheads, and sheet-pile enclosures, would minimize increases in turbidity of waters downstream of dredging activities. Pre-construction sediment quality assessments and water quality monitoring during construction may be required to address potential re-suspension of contaminants and nutrients into overlying water.

Essential Fish Habitat, Habitat Areas of Particular Concern, and Anadromous Fish Use Areas

The Build Alternatives would potentially impact EFH, Habitat Areas of Particular Concern (HAPC), and Anadromous Fish Use Areas. However, much of the impact would be temporary given the limited footprint of the bridge piers and because the tunnels would be submerged.

Dredging required for construction of any of the Build Alternatives within potential aquatic borrow sites would temporarily result in the disruption of benthic communities that provide food sources for fish. The temporary loss of benthic communities would have minimal impacts on prey availability given the limited

area of disturbance and widespread availability of benthic habitat within the Study Area Corridors and foraging habitat throughout Hampton Roads and the southern Chesapeake Bay.

Temporary increases in turbidity and releases of nutrients and potential contaminants from dredging activities are not expected to substantially impact juvenile or adult fish because of their mobility and because construction would be spread out over time and would occur within discrete areas. Spawning, eggs and larvae, however, would be more vulnerable to these impacts.

Time-of-year restrictions would be implemented to avoid or minimize impacts on fish during early life stages. VDGIF typically recommends restrictions on all in-stream work within Anadromous Fish Use Areas and their tributaries between February 15 and June 30, though no time-of-year restrictions are recommended on the James River and its tributaries below the Route 17 Bridge or on the Elizabeth River unless the project spans the width of the River to an extent that it significantly impedes fish passage. Exact restrictions may vary depending on the species, type of work, and location. In addition, erosion and sediment control measures would minimize potential impacts to water quality during construction. Specific measures for avoidance, minimization, and mitigation of impacts to aquatic wildlife would be developed in consultation with VDGIF and NMFS.

Submerged Aquatic Vegetation

Construction of Alternatives A, B, and D would temporarily disturb SAV. Removal of SAV from State bottom would require prior approval by VMRC. Areas of temporary disturbance to SAV would be replanted. A request to remove SAV from or plant SAV upon State bottom would be submitted with a Joint Permit Application to the VMRC. The application will include specific information that is critical to properly evaluate the probabilities of transplantation success, with minimization of impacts to established donor bed populations. Construction within or adjacent to SAV areas would avoid the growing season for representative plant species to the extent practicable. Further efforts to avoid and/or minimize disturbance and removal of SAV would be made during final design and could include replanting temporarily disturbed SAV beds, as well as subsequent monitoring to ensure success. Mitigation for SAV loss would be developed in coordination with VMRC and may include enhancement or restoration of existing or historic SAV beds.

Invasive Species

All of the Build Alternatives could increase the spread of invasive species. Construction equipment used in the study area could carry seeds or propagative plant parts from other construction projects or infested areas. Removal of sediment and soil to offsite locations could spread invasive species and placement of fill from borrow sites could introduce invasive species to the study area. Exposed soil also allows invasive species to spread, which could contribute to encroachment of invasive species on vegetation communities.

The potential for the establishment of invasive animal or plant species during construction would be minimized by following provisions in VDOT's Road and Bridge Specifications. These provisions require prompt seeding of disturbed areas with seeds that are tested in accordance with the Virginia Seed Law and VDOT's standards and specifications. Specific seed mixes that are free of noxious or invasive species may be required for environmentally sensitive areas and would be determined during the design and permitting process. In addition, in order to prevent the introduction of or spreading of invasive species,

BMPs would be followed, including washing machinery before it enters the area, minimizing ground disturbance, and reseeding of disturbed areas. While the right-of-way is vulnerable to colonization by invasive plant species from adjacent properties, implementation of the stated provisions would reduce the potential for the establishment and proliferation of invasive species within highway right-of-way.

Threatened and Endangered Species

Information collected from the USFWS, NMFS and VDGIF indicate that the habitat for up to 16 species listed by Virginia or the Federal government as threatened or endangered. Coordination with the USFWS and NMFS is ongoing pursuant to Section 7 of the Endangered Species Act of 1973, as amended, to address potential impact and identify appropriate mitigation measures. Mitigation during construction could include measures such as time of year restrictions, specified by the regulatory agencies, which limit construction activities. Threatened and endangered species within the study corridors are further described in **Section 3.8.3**.

3.14.8 Hazardous Materials

Sites containing hazardous or contaminated materials may exist within the Study Area Corridors of the Build Alternatives. These include sites regulated by the Resource Conservation and Recovery Act (RCRA), petroleum release sites and facilities registered with the VDEQ, and sites that participate in the Virginia Voluntary Remediation Program. Prior to the acquisition of right-of-way and construction, a Phase I Environmental Site Assessment (ESA) as well as Phase II ESA (as needed) will be conducted for the Preferred Alternative to determine whether any of the sites are actually contaminated, and, if so, the nature and extent of that contamination. Any additional hazardous material sites discovered during construction of a Build Alternative or demolition of existing structures will be removed and disposed of in compliance with all applicable federal, state, and local regulations. All necessary remediation would be conducted in compliance with applicable federal, state, and local environmental laws and would be coordinated with the EPA, VDEQ, and other federal or state agencies as necessary.

3.14.9 Visual

Temporary changes to the visual quality throughout the Study Area Corridors would occur during construction. These changes would primarily occur in the form of large construction equipment such as cranes and barges, as well as and materials, storage and yarding areas, construction fences/barriers, traffic control devices, and changes to the landscape associated with land clearing and earth moving operations. These visual changes from construction equipment would occur only during the construction period and would be removed at the completion of construction.